Allston Square Development, Allston

Submitted Pursuant to Article 80B of the Boston Zoning Code

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1.0 PROJECT SUMMARY / OVERVIEW

1.1 Introduction

This package is being submitted on behalf of City Realty (the "Proponent") for a new six-building, mixed-use development that is approximately 361,800 gross square feet in size. **For the Overall Project Site Plan please see Appendix A.** The Proposed Project will include three hundred and thirty-four residential units, two hundred and thirty-seven associated parking spaces, and approximately 22,145 square feet of retail space. **Please see Figure 1.1. <u>Project Locus Map</u> and Figure 1.2. <u>Master Plan.</u>**

The proposed development is situated around the prominent intersection of Cambridge Street and Harvard Avenue, historically known as Allston Square, within the Allston neighborhood of the City of Boston. This intersection acts as the gateway to the Allston-Brighton neighborhood from the City of Cambridge to the West and is also situated along the Massachusetts Turnpike where the sites are highly visible from vehicular traffic entering and leaving the City of Boston. The Proposed Project will redefine an abandoned industrial corridor and transform the neighborhood by creating new housing stock which will bring residents to the area and will increase daily activity by providing a new, invigorating commercial environment. The Proposed Project will allow for residents to live, shop and dine all within Allston Square.

The Proposed Project includes a revitalization of the Project Site by replacing the existing auto shops, commercial uses and mixed-use buildings with five new buildings and the restoration of the existing Allston Hall building. The Project also includes vehicular and pedestrian access measures and improvements. The current estimated cost of this Project, based upon the most recent plans, is approximately $127,000,000.

City Realty's goal when conceptualizing this Project was to revitalize the neighborhood by replacing the existing outdated commercial uses and mixed-use buildings with new buildings that will add new housing units to the increasingly popular Allston community. As part of the community benefits related to the Proposed Project, the existing and unsightly commercial buildings will be demolished, and will be replaced with new aesthetically- pleasing, energy-efficient, residential buildings.

The Proposed Project will exceed the 50,000-square foot total build-out requirement for a project in a Boston neighborhood, and therefore required the preparation of filing(s) under the Large Project Review regulations, pursuant to Article 80 of the Boston Zoning Code. The Proponent will also seek zoning dimensional relief from the Code from the Boston Zoning Board of Appeal related to the size and change of use for the Proposed Project.

A Letter of Intent (LOI) to file a Project Notification Form was filed with the Boston Planning & Development Agency for the Proposed Project on February 6, 2018, in accordance with Article 80B of the Boston Zoning Code.

Figure 1.1
Project Locus Map

Figure 1.2
Master Plan

1.2 Detailed Project Description

The Allston Square Development Team proposes a new six-building, mixed-use development which will include three hundred and thirty-four residential units, two hundred and thirty-seven associated parking spaces, and approximately 22,145 square feet of retail space in the Allston neighborhood of the City of Boston.

Due to the neighborhood's past as a hub for auto-related businesses, the immediate area still largely comprised of auto-related businesses along Cambridge Street and other light industrial uses and parking facilities along Braintree and Wilton Streets. One-story retail buildings line Harvard Avenue to its intersection with Cambridge Street and three-to-four story residential buildings sit along Highgate and Linden Streets. Along with the existing urban fabric, numerous new developments in the area are either completed, under construction, or in the final stages of planning, making the remaining underdeveloped parcels even more important to the future of the neighborhood.

The six separate sites are located and will be identified in subsequent sections as follows: 334 Cambridge Street, 2-8 Harvard Ave, 16 Highgate Street, Franklin-Braintree Building, Allston Hall and 415 Cambridge Street. The existing buildings primarily consist of warehouse spaces with a small number of residential units while open air parking facilities make up the remainder of the site areas. The lone exception is the site located at 16 Highgate Street, which houses a two-family dwelling and contains the only green space on the existing sites. Below are the descriptions of each of the proposed buildings:

- **334 Cambridge Street:** This building will replace the existing Jack Young Building with a mixed-use building including sixty-five condominium units and thirty-five parking spaces, with 4,160 square feet of ground floor retail space.
- **16 Highgate Street:** This lot is currently occupied by a mid-size duplex home. The building will be replaced with a multifamily residential building including twenty residential units and six parking spaces.
- **2-8 Harvard Avenue:** This building will replace the existing one-story commercial building and will include seventy-seven residential units, with forty-eight parking spaces. The building will include ground level retail in two spaces totaling approximately 9,945 square feet.
- **Allston Hall:** The existing building will be preserved and will be renovated to include nine residential units, with ground level retail of 2,300 square feet.
- **415 Cambridge Street:** This lot is currently occupied by a commercial automotive use and associated surface parking lots. The current use will be replaced with a mixed-use building featuring one hundred and one condominium units, one hundred and two parking spaces, and approximately 2,500 square feet of ground level retail space.
- **Franklin-Braintree Building:** This lot is currently occupied by mixed commercial and automotive uses and associated surface parking. The existing uses will be replaced with a mixed-use building featuring sixty-two condominium units, forty-six parking spaces, and 1,210 square feet of ground level retail space.

The proposed development consists of 92,945 square feet of total lot area with five mixed-use buildings and one residential building. Five of the proposed buildings will be new construction and one of the proposed buildings will be the rehabilitation of the historic Allston Hall building. The proposed development will create 256,425 square feet of new residential space and a total of three hundred and thirty-four new housing units. Of these units, two hundred and twenty-eight will be homeownership condominiums and one hundred and six will be rental units. Additionally, the proposal will include 22,145 square feet of new retail space on the ground floor located on prominent thoroughfares throughout the six parcels. To accommodate new residents and businesses, the development will also provide two hundred and thirty-seven new parking spaces. In addition, the Developer is proposing numerous community benefits including: three hundred new bike parking spots, forty-six new street trees, 10,113 square feet of additional open space at the ground level, 5,800 square feet of new sidewalk space, and 9,100 square feet of new artwork.

The objective of the overall site plan is to create both a physical and visual connect between all sites, creating a clear urban promenade while also fitting within the existing urban fabric. This is achieved by creating a series of open spaces between all sites and incorporating artwork in both mural and sculptural forms, evoking a feeling of constant exploration and discovery of new, unexpected spaces. Being mindful of the vibrant artist community and history of the Allston neighborhood, the project team has engaged local artists to create both interior and exterior exhibition spaces that allows the public to be part of the overall narrative of the development.

The Proposed Project will completely revitalize this section of Cambridge Street and will bring necessary residential housing to an underutilized industrial corridor. The site is attractive due to its access to MBTA stations and the location's close proximity to a variety of shops and restaurants.

Table 1-1. Approximate Project Dimensions of the Allston Square Development

Lot Area:	92,945
Gross Building Square Feet:	361,800
FAR:	3.75
Floors:	Varies: 4-6 Stories
Height:	Varies: 49'-69'6"

Historical Background

Development along Harvard Avenue and Cambridge Street began in the early part of the nineteenth century as improved access to Brighton invited more traffic to flow through this portion of the neighborhood. However, the area really boomed after the establishment of the Boston & Worcester Railroad through Allston to North Brighton's stockyards and commercial nurseries. Early residential development in Brighton, and what later would become Allston, was comprised of large estates and farms. In the latter part of the nineteenth century, land values throughout Brighton rose as the filling of Boston's Back Bay, a long-term project that began in 1837, moved westward. It was more profitable to subdivide the early estates and farms into building lots than to continue farming. In 1858, a horse-car route from Boston to Cambridge opened along Cambridge Street to ease transportation to the city, but there was no train station in the area until 1867 when a small wood-frame depot was built at the corner of Cambridge Street and Harvard Avenue, called Cambridge Crossing, which was subsequently renamed

Allston the following year. Soon after, the entire eastern end of Brighton was referred to as "Allston."

Heirs of the former estate owners continued to subdivide the large estates to the south of Allston Square for residential construction and the area around the intersection of Harvard Avenue and Cambridge Street developed into a small commercial support center for the residential neighborhood to the south. A new railroad depot was constructed in 1887 at the north end of the intersection and most of the extant buildings in the immediate vicinity date to the same period or early twentieth century. The area immediately surrounding the station transitioned from the small commercial center in the nineteenth century to a densely developed commercial and apartment district. In the 1880s and 1890s, larger mixed-use, multi-story masonry blocks were constructed along Cambridge Street between older wood-frame tenements. Throughout the remainder of the nineteenth century, most of the wood-frame buildings were replaced with masonry, mixed-use buildings. The streets to the north between Cambridge Street and the railroad were primarily developed by local book manufacturer Samuel Hano, who constructed workers' housing, railroad maintenance buildings, and mixed-use buildings like the Allston Hall Block, 10-14 Franklin/4 Braintree Street (1889-1890). Hano's properties were acquired by Charles S. Dennison, President and Treasurer of the Dennison Manufacturing Company, which once stood on the site of 26 Franklin Street. In the early twentieth century, prior to the outbreak of World War I, Harvard Avenue experienced a commercial boom. Numerous one-story, multi-store masonry buildings, like the former post office block at 4-8 Harvard Avenue/374-380 Cambridge Street (ca. 1908), were constructed.

Many of the extant buildings in Allston Square are well-preserved examples of late nineteenth and early twentieth century architectural styles, including Second Empire, Queen Anne, Colonial, Tudor, Renaissance, and Spanish Revival in both the commercial and multi-family residential buildings in the neighborhood.

334 Cambridge Street

The Allen Building at 334 Cambridge Street, locally referred to as the "Jack Young" building is a four-story, yellow brick masonry building constructed in 1895 in the Georgian Revival-style with commercial storefronts on the first floor and apartments on the upper floors. The first-story storefronts have been altered, but still retain their cast iron surrounds. The upper stories feature two-story, cast-iron bay windows, brick and terra cotta bands, and a copper cornice. The Allen Building contributes to the Harvard Avenue National Register Historic District (listed 3/24/2000).

358-362 Cambridge Street

The two-story, masonry commercial building at the corner of Cambridge and Highgate streets was constructed in the mid-twentieth century and is attached to 334 Cambridge Street to the northeast. The building is unadorned with a red brick northwest (façade) elevation and concrete block secondary elevations. A corrugated shed roof covers loading bays on the rear elevation. This building is located within the boundaries of the Harvard Avenue National Register Historic District but is a non-contributing resource.

372 Cambridge Street

The one-story, L-shaped, former gas station at 372 Cambridge Street was built in 1935. It has replacement corrugated metal siding and a cross gable roof clad in metal tiles that resemble Mission-style terra cotta tiles with finials. The building retains a garage bay with a rolling overhead door at its northwest (façade) elevation; the gas pumps have been removed. The gas station contributes to the Harvard Avenue National Register Historic District (listed 3/24/2000).

4-8 Franklin Street

The Shepard/Longfellow Building at 4-8 Franklin Street is a three-story, red brick masonry building with Queen Anne detailing, constructed ca. 1880. The first story and all but four of the original twelve windows on the upper story on the east (façade) elevation have been infilled with concrete or paneling. The corbelled cornice along the parapet is the only architectural feature that remains. The Shephard/Longfellow Building contributes to the Harvard Avenue National Register Historic District.

10-14 Franklin Street/4 Braintree Street

The Allston Hall Block at 10-14 Franklin Street/4 Braintree Street is a four-story, masonry building constructed 1889-1890 in a combination of the Second Empire and Queen Anne styles, that featured retail space on the first floor, residential apartments on the second, and a meeting hall on the top floors. The walls are a combination of polychromatic brick with terra cotta and brownstone trim and the Mansard roof is partially clad in red slate punctuated by two large, gable dormers on the east elevation. The ground floor storefronts and third and fourth floor windows are infill with brick and wood panels, but many architectural details are intact including fluted pilasters and brownstone and terra cotta trim, finials, and signage. The Allston Hall Block contributes to the Harvard Avenue National Register Historic District.

A large, one-to-two-story, irregularly shaped, late twentieth-century addition is attached to the west (rear) elevations of 4-8 and 10-14 Franklin Streets on the lot at 20 Braintree Street. It has combination concrete block and corrugated metal walls and loading bays on the west elevations. This addition is not included in the boundaries of the Harvard Avenue National Register Historic District.

4-8 Harvard Avenue/374-380 Cambridge Street

The former U.S. Post Office and commercial block at 4-8 Harvard Avenue is a highly altered, one-story, masonry building, constructed ca. 1908 at the corner of Harvard Avenue and Cambridge Street. It was originally constructed in the Classical Revival-style, but the storefronts have been infilled with concrete, stucco, and wood panels. The building does retain its general form that conforms to the rounded corner of the intersection, and features molded pilaster capitals, cornice, frieze, and brick parapet. The building contributes to the Harvard Avenue National Register Historic District.

16 Highgate Street

The two-and-one-half-story, wood-frame multi-family building at 16 Highgate Street was constructed ca. 1840 in the Greek Revival style; however, the only Greek Revival-style characteristics that remain are the symmetrical plan and the enclosed pediments on each gable end. All materials appear to be replacements, including vinyl siding and vertical vinyl panels. The building is not included in the boundaries of the Harvard Avenue National Register Historic District nor is it included in the Inventory of Historic and Archaeological Assets of the Commonwealth. (Inventory).

8 Wilton Street

The one-story, concrete block building at 8 Wilton Street was originally constructed for offices and electrical storage in 1954 and converted for use as an auto service garage and sales in

1989. It is a utilitarian building with painted concrete block walls with no adornment. There are numerous garage bays with overhead rolling doors in the center of the southeast elevation. The building is not included in the boundaries of the Harvard Avenue National Register Historic District nor is it included in the Inventory.

2.0 General Information

2.1 Project Schedule

Project Schedule: Allston Square Development	
Construction Commencement:	Spring 2019
Status of Project Design:	Schematic

2.2 Project Proponent

City Realty., founded in 2004, has grown to become a leading full-service real estate firm dedicated to buying, selling, renting, developing and managing property in the Boston area. Since its conception, CRM and its managing partners have overseen over $500 million in real estate transactions. CRM's current portfolio consists of over 600 stabilized units as well as over 50 properties currently in various stages of development.

City Realty is run by Managing Partners Fred Starikov and Steve Whalen. Fred Starikov has more than eighteen years of experience in real estate and has overseen $500 million in real estate transactions. Mr. Starikov has a proven ability to quickly analyze market data and execute plans precisely in order to achieve optimal returns.

Stephen Whalen has over twenty-two years of experience in real estate with broad expertise in commercial and residential property acquisition, disposition, and leasing. Mr. Whalen excels in relationship management and conflict resolution and honed his command of real estate practices while employed with Equis Corp. and NAI Hunneman Commercial.

City Realty has extensive experience in managing and developing real estate and in managing businesses, which will guide this Proposed Project to completion.

2.3 Public Benefits

The Proposed Project will provide substantial benefits to the City of Boston and the Allston-Brighton community. The Proposed Project will generate both direct and indirect economic and social benefits to the Allston-Brighton neighborhood. The Proposed Project provides for:

- Creating much needed market rate residential housing in the Allston-Brighton Neighborhood.
- Meeting the BPDA's inclusionary zoning regulations by creating on-site affordable residential units, which will meet the Boston Planning & Development Agency's affordable housing standards.
- Revitalizing a number of underutilized parcels and replacing the current parking facilities, commercial uses and industrial uses with modern and energy efficient housing and retail space.

- Creating commercial retail space along the Cambridge Street corridor to accommodate Allston-Brighton's growing population of residents, which will allow residents to not only live, but also shop and have access to amenities in the neighborhood.

- Meeting LEED Standard by constructing buildings that will incorporate open space in the form of decking and terraces, and energy-efficient appliances, which will result in a high LEED standard for the Project.

- Integrating parking facilities that will accommodate parking spaces for the unit residents.

- Reducing vehicular traffic by creating dedicated car sharing parking spaces to accommodate the residents of the building, and members of the surrounding community.

- Encouraging alternative modes of transportation through the use of bicycling and walking, due to the close proximity of the bus lines and the Boston Landing MBTA Station.

- Supporting alternative modes of transportation by creating three hundred new bike parking spots, in the form of bike racks and dedicated bike rooms for storage of bikes within the buildings to encourage bicycling as a mode of transportation, allowing for reduced vehicular traffic.

- Adding revenue in the form of property taxes to the City of Boston.

- Creating full-time jobs (commercial retail).

- Creating employment opportunities with temporary construction and labor jobs.

- Proposing forty-six new street trees.

- Creating 10,113 square feet of additional open space at the ground levels of the development buildings.

- Creating 5,800 square feet of new sidewalk space.

- Creating 9,100 square feet of new artwork and dedicated art spaces to pay homage to the rich artist heritage of Allston Square.

2.4 Compliance with Boston Zoning Code – Use and Dimensional Requirements

The Site is located within three separate City of Boston Zoning Subdistricts in the Allston-Brighton Neighborhood District, Article 51 of the Boston Zoning Code (the "Code"). The Subdistricts are as follows: Three-Family Residential (3F-4,000), Community Commercial (CC-1) and a Braintree Street Local Industrial (Braintree Street LI-1). **See Tables 2.1, 2.2, and 2.3**.

Some of the proposed uses in this development are allowed uses under the Zoning Code. However, other uses are conditional or forbidden. Therefore, a use variance would need to be obtained from the City of Boston Zoning Board of Appeal (the "Board"). Additionally, any dimensional regulations that are not adhered to within the project will require variances from the Board.

For a project that is subject to Article 80 Large Project Review, required off-street parking spaces and off-street loading facilities will be determined as a part of the Large Project Review process in accordance with the provisions of Article 80 of the Boston Zoning Code. Design elements of the project will also be reviewed, in accordance with the Article 80 Review process.

The Site is located in an area that contains both residential and commercial uses. The design team believes that given the location of the proposed development and the structures influencing the design, as well as comparable developments in the neighborhood, the proposed building heights, massing and scale are appropriate for this location and conducive to the Allston-Brighton neighborhood.

Table 2.1. Allston Square Zoning Subdistrict 1

Categories	**3F-4,000 Subdistrict**
Minimum Lot Area (Square Feet)	4,000
Additional Lot Required Per Additional Dwelling Unit (Square Feet)	2,000
Floor Area Ratio	.80
Minimum Lot Width	45
Minimum Lot Frontage	45
Minimum Front Yard	20 Feet
Minimum Side Yard	5 Feet From Side Lot Line 10 Feet From Existing Structure Aggregate Must Not Be Less Than 15 Feet
Minimum Rear Yard	30 Feet
Maximum Building Height	35 Feet 3 Stories
Minimum Useable Open Space Per Dwelling Unit (Square Feet)	650 S.F. Per Unit
Maximum Rear Occupancy By An Accessory Building	25 Percent
Off-Street Parking Spaces	2.0 Spaces Per Unit

Table 2.2. Allston Square Zoning Subdistrict 2

Categories	Community Commercial Subdistrict (CC-1)
Minimum Lot Area (Square Feet)	None
Floor Area Ratio	1.0
Minimum Lot Width	None
Minimum Lot Frontage	None
Minimum Front Yard	None
Minimum Side Yard	None
Minimum Rear Yard	20 Feet
Maximum Building Height	35 Feet
Minimum Useable Open Space Per Dwelling Unit (Square Feet)	50 S.F. Per Unit
Off-Street Parking Spaces	2.0 Spaces Per Unit

Table 2.3. Allston Square Zoning Subdistrict 3

Categories	**Braintree Street Local Industrial-1 Subdistrict**
Minimum Lot Area (Square Feet)	None
Floor Area Ratio	1.0
Minimum Lot Width	None
Minimum Lot Frontage	None
Minimum Front Yard	None
Minimum Side Yard	None
Minimum Rear Yard	20 Feet
Maximum Building Height	35 Feet
Minimum Useable Open Space Per Dwelling Unit (Square Feet)	50 S.F. Per Unit
Off-Street Parking Spaces	2.0 Spaces Per Unit

2.5 Public Review Process and Agency Coordination

The Allston Square development team has provided extensive community outreach efforts for the Proposed Project, including community meetings in the Allston-Brighton neighborhood and presentations before the elected officials. As part of the process, the development team has held a community open house meeting to explain the Project to surrounding neighbors who will be directly impacted during and after construction, to set a timeline for the permitting of the project and a detailed construction plan. The development team also appeared numerous times before the Brighton Allston Improvement Association (BAIA) and the Allston Civic Association (ACA) and have made project modifications based on feedback from the two groups. The Proponent received positive feedback from both the neighbors and group members and made several design changes based upon their feedback.

The development team has met individually with Allston-Brighton's elected officials and their staff members including State Representatives Michael Moran and Kevin Honan, City Councilor Mark Ciommo and Mayor's Office of Neighborhood Services Liaison for Allston-Brighton, Warren O'Reilly. Allston-Brighton's elected officials have had input during the community outreach process and have had staff presence at all community meetings.

The Proponent has also discussed the Proposed Project with representatives of the Boston Planning & Development Agency ("BPDA") prior to filing this Briefing Package in order to identify issues/concerns as well as design requirements related to the Proposed Project. Meetings have been held with the BPDA's planners and urban design staff, and the Project design has changed based upon the feedback received.

The Proponent will continue to meet with public agencies, neighborhood representatives, local business organizations, abutting property owners, and other interested parties, and will follow the requirements of Article 80 pertaining to the public review process.

3.0 URBAN DESIGN AND SUSTAINABILITY

3.1 Site and Surroundings

The proposed development is situated around the prominent intersection of Cambridge Street and Harvard Avenue, historically known as Allston Square. This intersection serves as the gateway to the Allston-Brighton neighborhood from the City of Cambridge to the West. The development also borders the Massachusetts Turnpike, making the sites visible to vehicular traffic entering and leaving the City of Boston. Due to the neighborhood's past as a hub for auto-related businesses, the immediate area still largely consists of auto-related businesses located along Cambridge Street with other light industrial uses and parking facilities along Braintree and Wilton Streets. One-story retail buildings line Harvard Avenue to its intersection with Cambridge Street and three-to-four story residential buildings sit along Highgate and Linden Streets. Along with the existing urban fabric, numerous new developments in the area are either completed, under construction or in the final stages of planning, making the remaining underdeveloped parcels even more important to the future of the neighborhood**. For existing site pictures see Appendix B.**

3.2 Shadow Study

As typically required by the BPDA, a shadow impact analysis was conducted to investigate shadow impacts from each proposed building during three time periods (9:00 a.m., 12:00 noon, and 3:00 p.m.) during the Vernal Equinox (March 21), Summer Solstice (June 21), Fall Equinox (September 21), and Winter Solstice (December 21).

The shadow analysis presents the existing shadows and new shadows that would be created by the proposed project, illustrating the incremental impact of the project. The analysis focuses on nearby open spaces, sidewalks & streets, and buildings that are in the vicinity of the project site. Shadows have been determined using the applicable Altitude and Azimuth data for Boston. Further results of the Shadow Studies are located within each applicable subsection of this Project Notification Form.

3.3 Urban Design Concept

The objective of the overall site plan is to create both a physical and visual connect between all sites, creating a clear urban promenade while also fitting within the existing urban fabric. This is achieved by creating a series of open spaces between all sites and incorporating artwork in both mural and sculptural forms, evoking a feeling of constant exploration and discovery of new, unexpected spaces. Being mindful of the vibrant artist community and history of the Allston neighborhood, the project team has engaged local artists to create both interior and exterior exhibition spaces that allows the public to be part of the overall narrative of the development.

Approaching from the east along the bridge on Cambridge Street, a clear architectural gesture in the form of an inflection on the façade of 2-8 Harvard Ave bows in to create a landscaped plaza fronting a large, transparent retail space that will activate the street. Generous sidewalks combined with amply spread street trees following standards set forth by the Boston Complete Streets Guidelines further enhance the ground level experience. Proceeding towards the plaza, a glance down Highgate Street reveals a more secluded, sliced-out entry court for 334 Cambridge Street and 16 Highgate Street. Directly adjacent to the entry court is a small new public park to provide much needed green space to the area. A strategic reveal in the urban fabric just north of Cambridge Street on Franklin Street draws the pedestrian across the street, where the Franklin-Braintree building steps back to create a new hardscape plaza fronting a new retail space perfect for a cafe. A slightly angled storefront wall draws the pedestrian past the bustling cafe and residential lobby of the Franklin-Braintree building into an interactive alley designed as an open-air gallery for rotating exhibitions and public functions. On the opposite end, the alley opens out onto another public park made up of a combination of hardscape and greenscape, which makes it well-suited for a variety of public uses. Just across Wilton Street, a large entry court for 415 Cambridge Street functions as another public park designed around a sculptural seating element. From here, one has the choice to proceed back towards Cambridge Street, soon encountering the prow of the 415 Cambridge above a plaza and retail space, or to proceed north to Braintree Street, where a small hardscape park serves as the gateway to further exploration into Allston's side streets. All along the promenade are dedicated spaces for various forms of urban artwork by local artists, further defining a unique sense of place for each of the new public spaces.

While each of the buildings is designed to respond to its respective context, all fit into the larger narrative of an urban promenade in which one moves through the development and constantly discovers new, unique spaces. The new buildings capture Allston Square's gritty, industrial past while providing sleek, refreshing designs that will propel Allston into the future as one of the top neighborhoods of the Boston area. Façade textures include historic materials such as brick and concrete masonry units while incorporating newer, more innovative materials such as zinc panels, high-density fiber cement panels, and vibrant colors that relate to the young, diverse, and artistic crowd that Allston is known for.

3.4 Materials and Finishes

Owing to the diversity of materials and finishes used across the six project sites, each individual subsection to this PNF for each building will include a description of the materials and finishes specific to each respective building within the Building Design Review sections.

3.5 Sustainable Design/Green Building

Introduction

This chapter provides preliminary information regarding the Project's sustainability/ green building and climate change preparedness and resiliency strategies, as applicable. It identifies the proposed U.S. Green Building Council's (USGBC) Leadership in Energy and Environmental Design (LEED™) version 4 (v4) rating system level based on early design. This chapter also discusses the approach to preparing for predicted climate change, in accordance with the BPDA Climate Change Resiliency and Preparedness Policy (Resiliency Policy). The required Climate Change Resiliency and Preparedness Checklist (Resiliency Checklist) has been completed. **Please see Appendix C.**

Summary of Key Findings and Benefits
The key findings and benefits related to sustainability/green building design and climate change preparedness include the following Project attributes:

Reuses an existing previously developed Project Site in an urban setting as opposed to an undeveloped open space.

Complies with Article 37, Green Buildings of the Code by demonstrating compliance with the LEEDv4 program at the "Certifiable" level, as demonstrated by the draft LEEDv4 scorecards.

Utilizes sustainable design strategies and exceeds the minimum building energy code requirements, thereby maximizing the conservation of energy and water and minimizing impacts to regional infrastructure and water resources.

Meets the Massachusetts Stretch Energy Code requirement to be a minimum of 10 percent better than ASHRAE 90.1-2013.

The Project intends to participate in local utility incentive programs to evaluate the cost benefit of various energy conservation measures and maximize building energy performance.

Regulatory Context

The following section provides an overview of the state and local regulatory context related to energy efficiency and greenhouse gas (GHG) emissions.

Article 37 Green Buildings

Any project that is subject to Article 80, Large Project Review, is also subject to the requirements of Article 37. Through Article 37 – Green Buildings, the City of Boston encourages major building projects to be "planned, designed, constructed, and managed to minimize adverse environmental impacts; to conserve natural resources; to promote sustainable development; and to enhance the quality of life in Boston."

Article 37 requires all projects over 50,000 gross square feet to meet LEED certification standards by either certifying the Project or demonstrating that the Project would meet the minimum requirements to achieve a LEED Certified level without registering the Project with the USGBC (LEED Certifiable). With the LEEDv4 rating system effective as of October 31, 2016, the BPDA requires initial Article 80 Large Project Review submissions to demonstrate that they will be LEED certifiable using LEEDv4.

Located with the Article 37 materials are "Boston Green Building Credits," which are credits that may be included in the calculation toward achieving a LEEDv4 certifiable project. These credits, along with prerequisites, were developed by the City and are intended to address local issues unique to development within Boston. The credits include the following categories: Modern Grid; Historic Preservation; Groundwater Recharge; and Modern Mobility.

Stretch Energy Code

As part of the Green Communities Act of 2008, Massachusetts developed an optional building code, known as the "Stretch Energy Code," that gives cities and towns the ability to choose stronger energy performance in buildings than otherwise required under the state building code. Codified by the Board of Building Regulations and Standards as 780 CMR Appendix 115.AA of the 8th edition Massachusetts Building Code, the Stretch Energy Code is an appendix to the Massachusetts building code, based on further amendments to the International Energy Conservation Code (IECC).

The Stretch Energy Code increases the energy efficiency code requirements for new construction and major residential renovations or additions in municipalities that adopt it. The Stretch Energy Code applies to both residential and commercial buildings and, specifically, to new commercial buildings over 5,000 square feet in size, including multi-family residential buildings over three stories. The City of Boston adopted the Stretch Energy Code, which became mandatory on July 1, 2011.

Effective January 1, 2017, the Stretch Energy Code now requires 10 percent greater energy efficiency compared to the state's energy code (Base Code). This ENF/PNF assesses the energy performance of the Project using the Stretch Energy Code requirements in effect as of January 1, 2017 in order to demonstrate the Project can meet such requirements.

In conformance with the Mayor's 2011 Climate Action Leadership Committee's recommendations, the BPDA requires projects subject to Boston Zoning Article 80 Large Project Review to complete a Resiliency Checklist to assess potential adverse impacts that might arise under future climate conditions, and any project resiliency, preparedness, and/or mitigation measures identified early in the design stage. The Resiliency Checklist is reviewed by the Interagency Green Building Committee.

Sustainability/Green Building Design Approach

To meet the requirements of Article 37, the following section describes how the Project complies with the LEED Building Design & Construction v4 criteria.

The Project will demonstrate compliance with the LEED Certifiably Requirements. Further study over the coming weeks and months will determine and confirm final credit achievement.

The following outlines the current point achievement for each building.

415 Cambridge Street*- 55 points, 20 Maybe*

Allston Hall*- 55 points, 20 Maybe*

334 Cambridge Street*- 55 points, 20 Maybe*

Franklin/ Braintree*- 55 points, 20 Maybe*

2-8 Harvard Avenue*- 55 points, 20 Maybe*

16 Highgate Street*- 55 points, 20 Maybe*

Overview

Sustainability informs every design decision. Enduring and efficient buildings conserve embodied energy and preserve natural resources. The Project embraces the opportunity to positively influence the urban environment. Its urban location takes advantage of existing infrastructure and some access to public transit will reduce dependence on single-occupancy vehicle trips and minimize transportation impacts.

The LEED v4 for Building Design and Construction (BD&C) rating system tracks the sustainable features of a Project by achieving points in following categories: Location & Transportation; Sustainable Sites; Water Efficiency; Energy and Atmosphere; Materials and Resources; Indoor Environmental Quality; and Innovation and Design Process. The Proponent and Project Team are committed to an integrated design approach using the LEED BD&C v4 rating system as a guide and intend to meet certifiability requirements as stated above. This rating will meet or exceed Boston's Green Building standard.

3.5.1 Location and Linkages

The Location and Transportation credit category encourages development on previously developed land, minimizing a building's impact on ecosystems and waterways, regionally appropriate landscaping, and smart transportation choice.

The Site has been previously developed earning sensitive land protection. The Site is also located on a brownfield where soil or groundwater contamination has been identified, and where the local, state, or national authority (whichever has jurisdiction) requires its remediation. We will perform remediation to the satisfaction of that authority.

Allston Square is in a dense neighborhood with several amenities within 0.5 miles of the Project Site. The Project is providing bicycle facilities and showers for the occupants of the building along with charging stations and low emitting dedicated parking spaces, which will be reduced from the LEED baseline.

The Site's location supports significant access to public transit. The following busses are within .2 miles of the project 51, 57, 57A, 64, 66, 501, 503. There is also Boston Landing Commuter Rail and the Green Line Harvard stop. The project is pursuing Exemplary Performance for Access to Quality Transit.

3.5.2 Sustainable Sites

The development of sustainable sites is at the core of sustainable design. Sustainable Site design provides quality open space with active landscape elements that can both mitigate stormwater and provide shade and thermal comfort for the building occupants.

Allston Square will evaluate Low Impact Development (LID) Strategies to promote infiltration for quality stormwater management. Additionally, the project is evaluating the Open Space credit for each parcel.

As required by LEED, the Project will create and implement an erosion and sedimentation control plan for all construction activities associated with the Project. The plan will conform to the erosion and sedimentation requirements of the 2012 U.S. Environmental Protection Agency (EPA) Construction General Permit (CGP) or local equivalent, whichever is more stringent.

The Project will evaluate compliance with light pollution reduction from the buildings and the site lighting.

3.5.3 Water Efficiency

Buildings are major users of our potable water supply and conservation of water preserves a natural resource while reducing the amount of energy and chemicals used for sewage treatment. The goal of the Water Efficiency credit category is to encourage smarter use of water, inside and out.

Water reduction is typically achieved through more efficient appliances, fixtures and fittings inside and water-wise landscaping outside. To satisfy the requirements of the Indoor Water Use Reduction

Prerequisite and credit, the Project will incorporate water conservation strategies that include low-flow plumbing fixtures for water closets and faucets. To satisfy the requirements of the Outdoor Water Use Reduction Prerequisite and credit, the landscape will be designed to minimize irrigation along with careful selection of plant material that is native and adaptive.

Allston Square is targeting significant indoor water use reduction from the baseline for each building. All newly installed toilets, urinals, private lavatory faucets, kitchen sinks and showerheads that are eligible for labeling will be low-flow and have the Water Sense label.

The current snapshot of Water Use Reduction for each building is as follows;

415 Cambridge Street- 45%

Allston Hall- 45%

334 Cambridge Street-45%

Franklin- Braintree- 45%

2-8 Harvard Avenue- 45%

16 Highgate Street- 45%

The Project will also install permanent water meters that measure the total potable water use for the building and associated grounds in addition to water meters for two or more of the following water sub-systems, as applicable to the project:

- Irrigation;
- Indoor plumbing fixtures and fittings;
- Domestic hot water; and
- Boiler.

Metering data will be compiled into monthly and annual summaries, and the resulting whole-project water usage data will be shared with USGBC.

3.5.4 Energy and Atmosphere

According to the U.S. Department of Energy, buildings use 39 percent of the energy and 74 percent of the electricity produced each year in the United States. The Energy and Atmosphere credit category encourages a wide variety of energy strategies: commissioning; energy use monitoring; efficient design and construction; efficient appliances, systems, and lighting; the use of renewable and clean sources of energy, generated on-site or off-site; and other innovative practices.

Fundamental Commissioning and Enhanced Commissioning will be pursued for the project. Envelope Commissioning will also be evaluated as an alternative.

A whole-building energy simulation will be performed for the projects in the coming months.

The Project Team will continue to analyze efficiency measures during the design process and account for the results in design decision making. The team will use energy simulation of efficiency opportunities and past energy simulation analyses for similar buildings. The Project will also prove compliance with the Stretch Code which requires a minimum of 10 percent improvement over ASHRAE Standard 90.1–2013.

The Project will evaluate installing new building-level energy meters, or submeters that can be aggregated to provide building-level data representing total building energy consumption (electricity, natural gas, chilled water, steam, fuel oil, propane, biomass, etc.).

Allston Square will also evaluate incorporating on-site clean/renewable energy production. At minimum, the building will be constructed to allow for a future rooftop solar installation, or "solar ready."

As required by LEED, the Project will not use chlorofluorocarbon (CFC)-based refrigerants in new heating, ventilating, air-conditioning, and refrigeration (HVAC&R) systems. The Project will target the use of refrigerants used in heating, ventilating, air-conditioning, and refrigeration (HVAC&R) equipment that minimize or eliminate the emission of compounds that contribute to ozone depletion and climate change.

The Proponent will engage in a contract for 50 percent and perhaps 100 percent of the Project's energy from green power, carbon offsets, or renewable energy certificates (RECs).

3.5.5 Materials and Resources

During both construction and operations, buildings generate tremendous waste and use many materials and resources. The Materials & Resources credit category encourages the selection of sustainable materials, including those that are harvested and manufactured locally, contain high-recycled content, and are rapidly renewable. It also promotes the reduction of waste through building and material reuse, construction waste management, and ongoing recycling programs.

As required by LEED, the Project will provide dedicated areas accessible to waste haulers and building occupants for the collection and storage of recyclable materials for the entire building. Collection and storage areas may be separate locations. Recyclable materials will include mixed paper, corrugated cardboard, glass, plastics, and metals. The Project will also take appropriate measures for the safe collection, storage, and disposal of two of the following: batteries, mercury-containing lamps, and electronic waste.

To comply with both the prerequisite and credit requirements related to construction waste management, the Project will develop and implement a construction and demolition waste management plan that will identify at least five materials (both structural and nonstructural) targeted for diversion and approximate a percentage of the overall Project waste that these materials represent. The Project will divert at least 75 percent of the total construction and demolition material; diverted materials must include at least four material streams. The Project will also consider completing a life-cycle assessment.

Careful material selection will be performed for the Project. Where possible the Project hopes to integrate products that have Environmental Product Declarations (EPD), sourcing of raw materials, corporate sustainability reporting, and Material Ingredients disclosures.

3.5.6 Indoor Environmental Quality

The U.S. Environmental Protection Agency estimates that Americans spend about 90 percent of their day in-doors, where the air quality can be significantly worse than outside. The Indoor Environmental Quality credit category promotes strategies that can improve indoor air through low emitting materials selection and increased ventilation. It also promotes access to natural daylight and views.

As required by LEED, the Project will meet the minimum requirements of ASHRAE Standard 62.1–2010, Sections 4–7, Ventilation for Acceptable Indoor Air Quality (with errata), or a local equivalent, whichever is more stringent. Also, during building operations the Proponent will institute a No Smoking Policy to prohibit the use of all tobacco products inside the building and within 25 feet of the building entrance, air intakes, and operable windows.

The Project will provide enhanced indoor air quality strategies. The Project will provide entryway systems, interior cross-contamination prevention, and filtration. The Project will target low emitting materials for all materials within the building interior (defined as everything within the waterproofing membrane). This includes requirements for product manufacturing volatile organic compound (VOC), emissions in the indoor air, and the VOC content of materials.

The Project will develop and implement an indoor air quality (IAQ) management plan for the construction and preoccupancy phases of the building, meeting or exceeding all applicable recommended control measures of the Sheet Metal and Air Conditioning National Contractors Association (SMACNA) IAQ Guidelines for Occupied Buildings under Construction, 2nd edition, 2007, ANSI/SMACNA 008–2008, Chapter 3. The Project will follow strict IAQ guidelines and protect absorptive materials stored on-site from moisture damage. The Project also will pursue either a building flush out or air quality testing.

The Project will meet the criteria for the thermal comfort criteria both for controllability and the ASHRAE 55 standards.

Daylight will be evaluated for energy efficiency opportunities and benefits for the occupants. The Project will achieve a direct line of sight to the outdoors for at least 75 percent of all regularly occupied floor area. View glazing in the contributing area will provide a clear image of the exterior, not obstructed by frits, fibers, patterned glazing, or added tints that distort color balance.

The Project will be evaluated for compliance with acoustical performance.

3.5.7 Innovation and Design Process and Regional Priority

The Innovation in Design and Innovation in Operations credit categories provide additional points for projects that use new and innovative technologies, achieve performance well beyond what is required by LEED credits, or utilize green building strategies that are not specifically addressed elsewhere in LEED. This credit category also rewards projects for including a LEED Accredited Professional on the team to ensure a holistic, integrated approach to design, construction, operations and maintenance. The following five credits are being pursued and/or evaluated for the project:

- Innovation in Design: Education & Outreach
- Innovation in Design: Green Housekeeping
- Innovation in Design: Integrated Pest Management

- Innovation in Design: Walkable Sites
- Innovation in Design: Quality Transit

Regional Priority

Up to 4 points are available to projects based on location.

- Regional Priority: Indoor Water Use Reduction (yes)
- Regional Priority: High Priority Site (yes)
- Regional Priority: Optimize Energy (yes)
- Regional Priority: Renewable Energy (maybe)

3.6 Urban Design Drawings

The Proposed Project's urban design drawings and perspectives are contained within each subsection of this booklet correlating with each of the six buildings. The drawings will include, existing and proposed plot plans, proposed floor plans, elevations, building matrix, building rendering, concept diagram and landscape plan.

4.0 TRANSPORTATION ANALYSIS

Stantec has conducted an evaluation of the transportation impacts for the proposed Allston Square mixed-use development. This transportation study evaluates the transportation impacts of the proposed projects comprising the Allston Square developments in accordance with the requirements of the Boston Planning & Development Agency (BPDA) Article 80 process and follows a transportation scope and process coordinated with the Boston Transportation Department.

Allston has long been a residential area, with vibrant neighborhood centers and small, mixed industrial uses. The Cambridge Street corridor has traditionally been commercial with many automotive uses, but an integral part of Allston. Though some buildings have been repurposed through the years, recent developments have sped up change throughout Allston, and as it has grown in jobs, activity and access, more residential development has sprung up to support it. New developments and buildings have taken the place of the empty lots or outdated structures and continue to breathe new life into this growing neighborhood.

With Allston's convenient access to downtown, the MBTA Green Line, the new Allston Landing Commuter Rail Station, and local bus routes, this area continues to be attractive for new investments, especially as a place to live. A growing suite of pedestrian and bicycle facilities is further supporting what was always an active walking and bicycling community. The proposed Allston Square developments aim to continue this evolution, adding vibrancy to Cambridge Street and serving to improve connectivity and the multimodal nature of the area.

Project Description

The Project consists of five buildings with primarily residential units as well as some associated retail space. The buildings can be described as follows:

- **334 Cambridge Street:** This building will replace the existing Jack Young Building with a multifamily residential development including 65 residential units and 35 parking spaces, with ground floor retail. The building will preserve elements of the existing façade to support Allston's historic neighborhood character.
- **16 Highgate Street:** This lot is currently occupied by a mid-size duplex home with an associated yard and driveway. The building will be replaced with a multifamily residential development including 20 residential units and 6 parking spaces.
- **2-8 Harvard Street:** This building will include 77 residential units, with 48 parking spaces. The building will include ground level retail in two spaces totaling approximately 9,945 square feet.
- **Allston Hall:** This will include 9 residential units, with ground level retail of 2,300 square feet.
- **415 Cambridge Street:** This lot is currently occupied by a commercial automotive use and associated surface parking lots. The current use will be replaced with a mixed-use residential and retail development featuring 101 residential units, 102 parking spaces, and approximately 2,500 square feet of ground level retail space.
- **Franklin-Braintree:** This lot is currently occupied by mixed commercial and automotive uses and associated surface parking. The existing uses will be replaced with a mixed-use residential and retail development featuring 62 residential units, 46 parking spaces, and some ground level retail space.

The Project will also introduce overall site integration of the uses, open space and landscaping, common vehicular access, and pedestrian and bicycle improvements. **For full results of the Traffic Impact and Access Study, please see Appendix D.**

5.0 GEOTECHNICAL INFORMATION

A Geotechnical study was conducted by KMM Geotechnical Consultants, LLC for the proposed development. Full reports were produced for five of the six buildings. A report was not generated for Allston Hall, as the existing building takes up the entire footprint of the lot, and the building will remain. The full reports are contained within each subsection of this booklet correlating with each of the five other buildings. The full results of each Geotechnical Study are located within the applicable site subsections of this booklet.

6.0 ADDITIONAL PROJECT INFORMATION

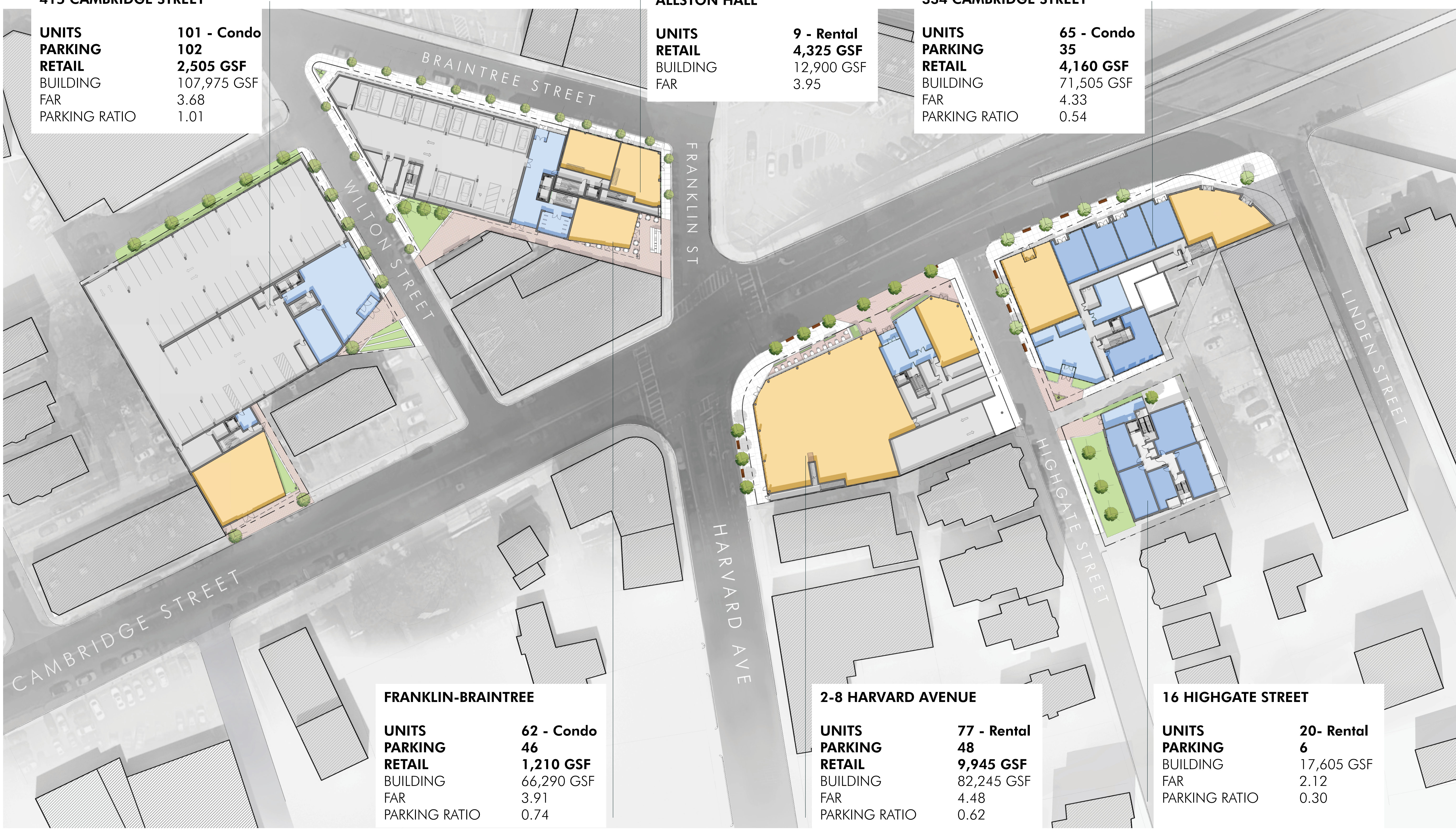
6.1 Preliminary List of Permits or Other Approvals Which May Be Sought

Agency Name	Permit or Action*
Local Agencies	
Boston Planning & Development Agency	Article 80 Review and Execution of Related Agreements; Section 80B-6 Certificate of Compliance; Affordable Housing Agreement; Boston Resident Construction Employment Plan
Boston Transportation Department	Transportation Access Plan Agreement; Construction Management Plan
Boston Department of Public Works, Public Improvement Commission	Possible Sidewalk Repair Plan; Curb-Cut Permit; Street/Sidewalk Occupancy Permit; Other
Boston Zoning Board of Appeals	Possible Variances and Dimensional Relief from Existing Zoning Code Requirements
Boston Fire Department	Approval of Fire Safety Equipment
Boston Water and Sewer Commission	Approval for Sewer and Water Connections; Construction Site Dewatering; and Storm Drainage
Boston Parks Department	Approval for Site Location in Relation to Nearby Parks
Boston Department of Inspectional Services	Building Permits; Certificates of Occupancy; Other Construction-Related Permits

* This is a preliminary list based on project information currently available. It is possible that not all of these permits or actions will be required, or that additional permits may be needed.

6.2 Project Team

Project Name: Allston Square Development	Project Team Information
Property Owner / Developer	CRM Property Management Corp. 320 Washington Street Brookline, MA 02445 Fred Starikov, Fred.Starikov@cityrealtyboston.com Steve Whalen, Steve.Whalen@cityrealtyboston.com
Article 80 Permitting Consultant / Legal Counsel / Outreach	Drago & Toscano, LLP 15 Broad Street, Suite 610 Boston, MA 02109 Jeffrey Drago, Esq., jdrago@dtlawllp.com Matthew Eckel, Esq., matt@dtlawllp.com
Architect	Embarc Studio 60 K Street, 3rd Floor Boston, MA 02127 Dartagnan Brown, dbrown@embarcstudio.com Dan Artiges, dartiges@embarcstudio.com
Civil Engineer/Surveyor	RJ O'Connell & Associates, INC 80 Montvale Ave., Suite 201 Stoneham, MA 02180 Brian W. Timm, PE brian.timm@rjoconnell.com Kevin J. Kiernan, PLS kevin.kiernan@rjoconnell.com
Transportation	Stantec 226 Causeway Street, 6th Floor Boston, MA 02114 Ralph DeNisco, Ralph.DeNisco@stantec.com
Geotechnical Engineer	KMM Geotechnical Consultants, INC. 7 Marshall Road Hampstead, NH 03841 Kevin Martin, kevinmartinpe@aol.com
Landscape	Verdant Landscape Architecture 318 Harvard Street, Suite 25 Brookline, MA 02446 Blair Hines, bh@verdantla.com
Historic Consultant	Vanasse Hangen Brustlin, Inc. 101 Walnut Street Watertown, MA 02472 Maureen Cavanaugh, MCavanaugh@VHB.com
Environmental / LEED Consultant	Soden Sustainability Consulting 19 Richardson Street Winchester, MA 01890 Colleen Ryan Soden, colleen@sodensustainability.com



415 CAMBRIDGE STREET

UNITS	**101 - Condo**
PARKING	**102**
RETAIL	**2,505 GSF**
BUILDING	107,975 GSF
FAR	3.68
PARKING RATIO	1.01

ALLSTON HALL

UNITS	**9 - Rental**
RETAIL	**4,325 GSF**
BUILDING	12,900 GSF
FAR	3.95

334 CAMBRIDGE STREET

UNITS	**65 - Condo**
PARKING	**35**
RETAIL	**4,160 GSF**
BUILDING	71,505 GSF
FAR	4.33
PARKING RATIO	0.54

FRANKLIN-BRAINTREE

UNITS	**62 - Condo**
PARKING	**46**
RETAIL	**1,210 GSF**
BUILDING	66,290 GSF
FAR	3.91
PARKING RATIO	0.74

2-8 HARVARD AVENUE

UNITS	**77 - Rental**
PARKING	**48**
RETAIL	**9,945 GSF**
BUILDING	82,245 GSF
FAR	4.48
PARKING RATIO	0.62

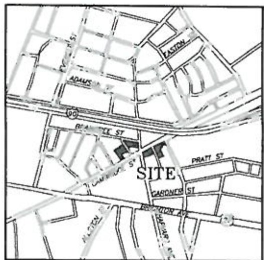
16 HIGHGATE STREET

UNITS	**20- Rental**
PARKING	**6**
BUILDING	17,605 GSF
FAR	2.12
PARKING RATIO	0.30

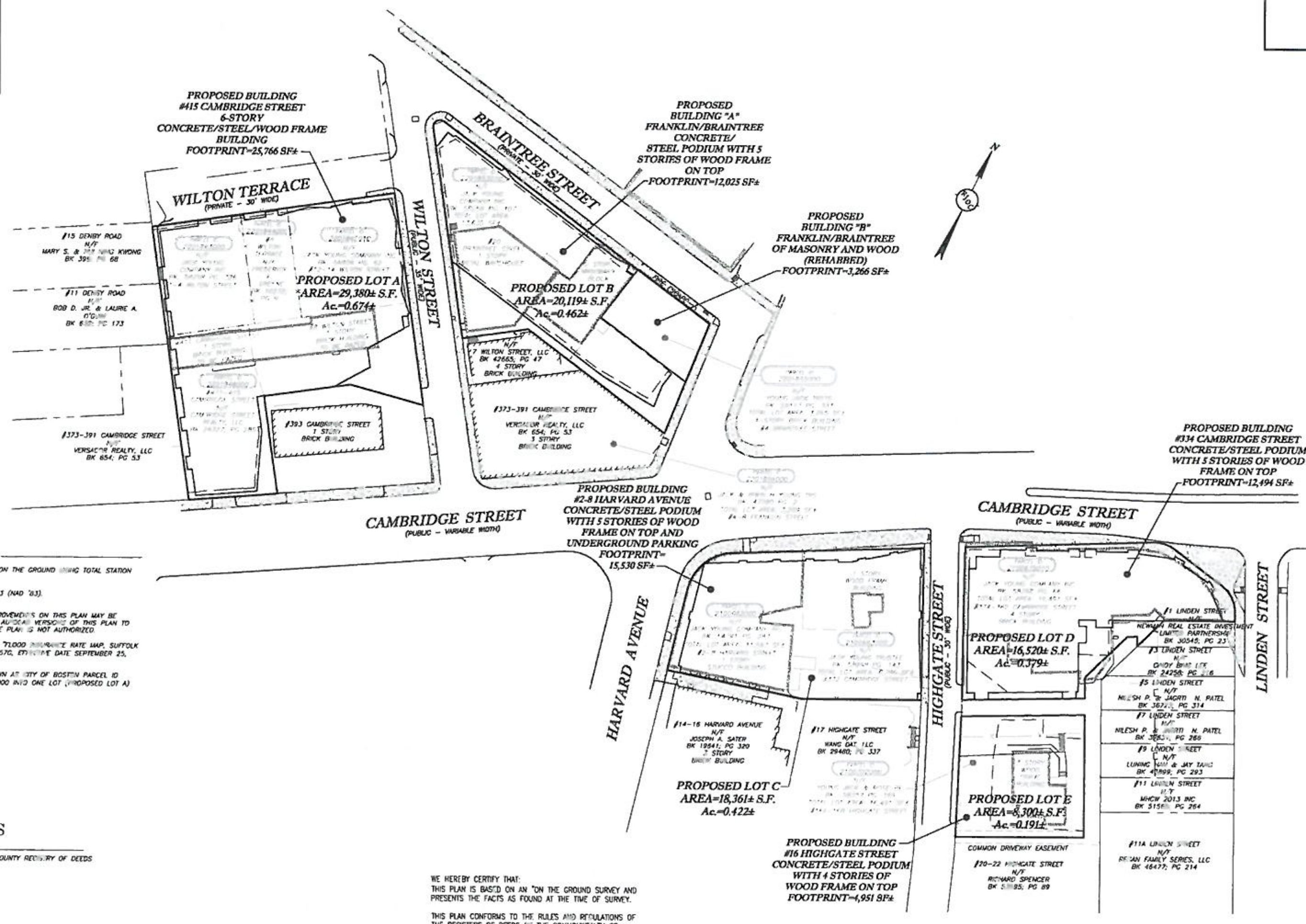
ALLSTON SQUARE - MASTER PLAN

EMBARC

ALLSTON SQUARE



VICINITY SKETCH
SCALE: NTS



FOR REGISTRY USE ONLY

NOTES

1. THIS PLAN WAS PREPARED FROM [illegible] ACTUAL [illegible]URVEY MA[illegible] ON THE GROUND [illegible]NG TOTAL STATION METHODS BETWEEN 02/2[illegible]2018 A[illegible] 0[illegible]/28/[illegible].
2. THE HORIZONTAL DATUM [illegible] NORTH AMERICAN DA[illegible] OF 1983 (NAD '83). DATUM WAS ESTABLISHED [illegible]NG RTK GPS METH[illegible]
3. THE P[illegible]ONAL ACC[illegible] OF THE DATA AND PHYSICAL IMPROVEME[illegible]S ON THIS PLAN MAY BE A[illegible]OXIMATE. ANY USE OF ELECTRONIC DATA CON[illegible]ED IN AU[illegible] VERSIO[illegible] OF THIS PLAN TO [illegible]RATE COORDINATES OR DIME[illegible]ONS NOT SHOWN ON THE PLA[illegible] IS NOT AUTHORIZED.
4. THE PARCEL SHOWN IS [illegible]CATED IN ZONE X, AS SHOWN ON "FLOOD [illegible] RATE MAP, SUFFOLK [illegible]UNTY, BOSTON MA[illegible]USETTS," MAP NUMBER 25025C0057G, EF[illegible]E DATE SEPTEMBER 25, [illegible]
5. THE PURPO[illegible] OF THIS PLAN IS TO CONSOLIDATE LO[illegible] KNOWN AS [illegible]ITY OF BOSTON PARCEL ID NUMBER 2201843[illegible], 2[illegible]1845[illegible], 2201844[illegible], [illegible]1848000 INTO ONE LOT (PROPOSED LOT A) AS SHOWN HEREON.

REFERENCES

PLAN BOOK AND PAGES REFERENCE THE [illegible] COUNTY REGISTRY OF DEEDS

24[illegible]/285
[illegible]/326
[illegible]12/[illegible]
56926/62

WE HEREBY CERTIFY THAT:
THIS PLAN IS BASED ON AN "ON THE GROUND SURVEY AND PRESENTS THE FACTS AS FOUND AT THE TIME OF SURVEY.

THIS PLAN CONFORMS TO THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS OF THE COMMONWEALTH OF MASSACHUSETTS.

DRAFT

PROFESSIONAL LAND SURVEYOR FOR R.J. O'CONNELL & ASSOCIATES, INC. DATE

DIG SAFE
BEFORE YOU DIG
CALL 811

No.	Revision	Date

Record Owner: SEE PLAN

Location:

Drawn by:	MSM
Checked by:	KJK
Scale:	
Date:	04/23/2018
Field Crew:	TDB/RJK
Field Book:	BK. XX PG. X

Prepared for:
CITY REAL ESTATE DEVELOPMENT CORP.
320 WASHINGTON ST
SUITE 3FF
BROOKLINE, MA 02445

Prepared by:
RJO'CONNELL & ASSOCIATES, INC.
CIVIL ENGINEERS, SURVEYORS & LAND PLANNERS
80 MONTVALE AVE
STONEHAM, MA 02180
781-279-0180
www.rjoconnell.com

Project Name:
ALLSTON SQUARE
BOSTON (ALLSTON) MA
Drawing Name:

Drawing No.:
CPP-1
Project No.: 18018

Drawing name: [illegible] Real Estate Development Corp\Projects\Allston\Allston Square\Work\18018_Cert_Plot_Plan_Overall.dwg
Apr 25, 2018 – 12:15pm

334 Cambridge Street

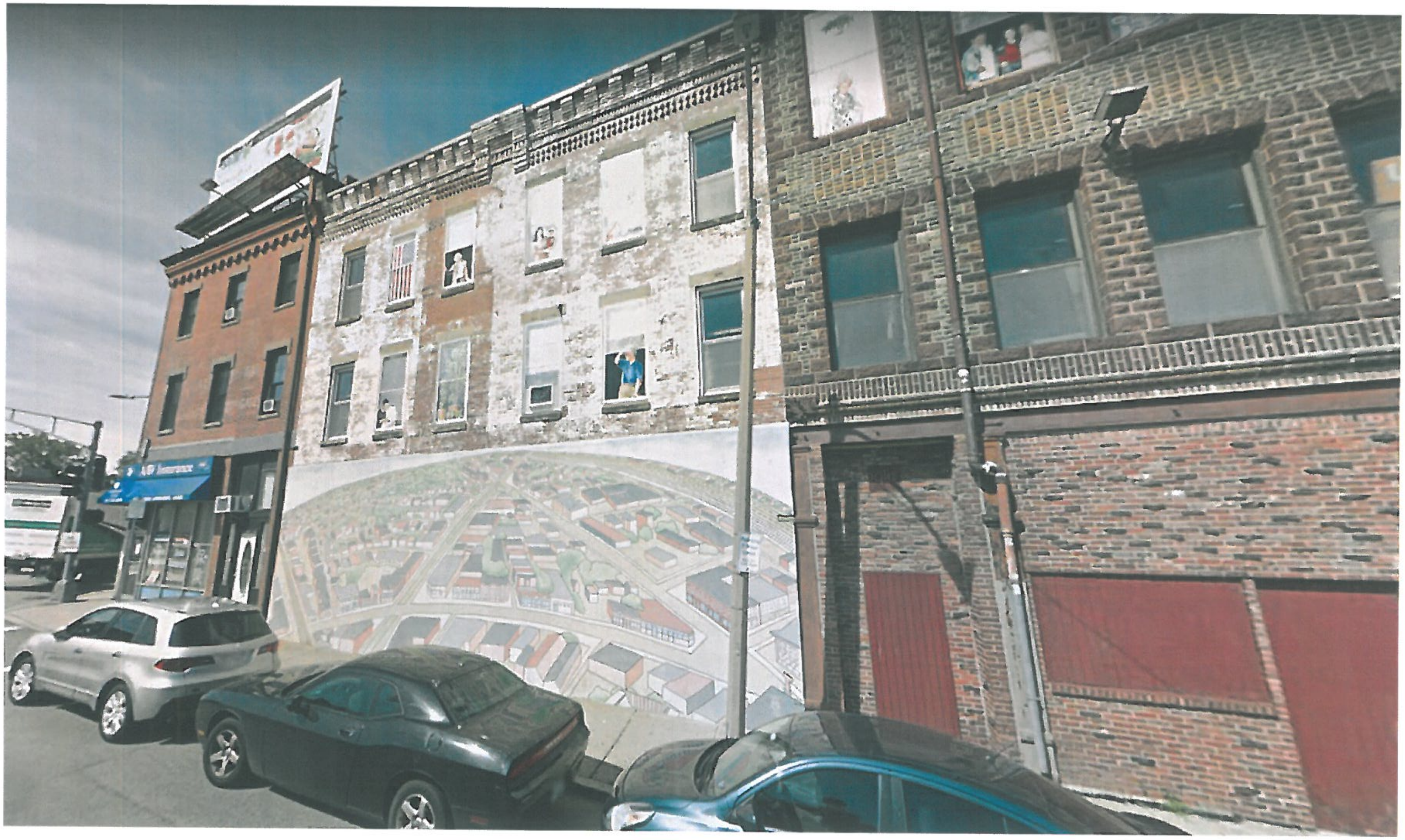
415 Cambridge Street

415 Cambridge Street (View from Wilton Street)

2-8 Harvard Avenue

Allston Hall

Franklin Braintree



16 Highgate Street

Climate Resiliency Checklist

NOTE: Project filings should be prepared and submitted using the online Climate Resiliency Checklist.

A.1 - Project Information

Project Name:	Allston Square
Project Address:	415 Cambridge Street Allston Hall 334 Cambridge Street Franklin- Braintree 2-8 Harvard Avenue 16 Highgate Street
Project Address Additional:	
Filing Type (*select*)	*Initial (**PNF**, EPNF, NPC or other substantial filing)* *Design / Building Permit (prior to final design approval), or* *Construction / Certificate of Occupancy (post construction completion)*

Filing Contact	Matthew J. Eckel	Drago & Toscano, LLP	*Matt@dtlawllp.com*	*(617) 391-9445*
Is MEPA approval required	*Yes/**no***		*Date*	

A.3 - Project Team

Owner / Developer:	CRM Property Corp
Architect:	EMBARC Studio
Engineer:	
Sustainability / LEED:	Soden Sustainability Consulting
Permitting:	Matthew J. Eckel, Esq. Drago & Toscano, LLP
Construction Management:	

A.3 - Project Description and Design Conditions

List the principal Building Uses:	Residential
List the First Floor Uses:	Commercial, Parking
List any Critical Site Infrastructure and or Building Uses:	n/a

2-8 Harvard Avenue

Site Area:	*18,360 +/- SF*	Building Area:	*15,530 +/- SF (footprint)*
Building Height:	*69' 9 ¼"Ft*	Building Height:	*7 Stories (including basement)*

Existing Site Elevation – Low:	*36 +/- Ft BCB*	Existing Site Elevation – High:	*44 +/- Ft BCB*
Proposed Site Elevation – Low:	*36 +/- Ft BCB*	Proposed Site Elevation – High:	*44 +/- Ft BCB*
Proposed First Floor Elevation:	*36 Ft BCB*	Below grade levels:	*1 Story*

Allston Hall

Site Area:	*3,270 +/- SF*	Building Area:	*3,270 +/- SF (footprint)*
Building Height:	*61'- 0"Ft*	Building Height:	*5 Stories (including basement)*
Existing Site Elevation – Low:	*32 +/- Ft BCB*	Existing Site Elevation – High:	*34 +/- Ft BCB*
Proposed Site Elevation – Low:	*32 +/- Ft BCB*	Proposed Site Elevation – High:	*34 +/- Ft BCB*
Proposed First Floor Elevation:	*32 Ft BCB*	Below grade levels:	*1 Story*

16 Highgate Street

Site Area:	*8,300 +/- SF*	Building Area:	*4,950 +/- SF (footprint)*
Building Height:	*50'-8 ½"Ft*	Building Height:	*5 Stories*
Existing Site Elevation – Low:	*36 +/- Ft BCB*	Existing Site Elevation – High:	*51 +/- Ft BCB*
Proposed Site Elevation – Low:	*36 +/- Ft BCB*	Proposed Site Elevation – High:	*51+/- Ft BCB*
Proposed First Floor Elevation:	*36 Ft BCB*	Below grade levels:	*0 Story*

334 Cambridge Street

Site Area:	*16,520 +/- SF*	Building Area:	*12,500 +/- SF (footprint)*
Building Height:	*69' 11" Ft*	Building Height:	*7 Stories (including basement)*
Existing Site Elevation – Low:	*37 +/- Ft BCB*	Existing Site Elevation – High:	*49 +/- Ft BCB*
Proposed Site Elevation – Low:	*37 +/- Ft BCB*	Proposed Site Elevation – High:	*49 +/- Ft BCB*
Proposed First Floor Elevation:	*45 Ft BCB*	Below grade levels:	*1 Story*

415 Cambridge Street

Site Area:	*29,380 +/- SF*	Building Area:	*25,770 +/- SF (footprint)*
Building Height:	*69' 11" Ft*	Building Height:	*6 Stories)*
Existing Site Elevation – Low:	*34 +/- Ft BCB*	Existing Site Elevation – High:	*45 +/- Ft BCB*
Proposed Site Elevation – Low:	*34 +/- Ft BCB*	Proposed Site Elevation – High:	*45 +/- Ft BCB*

Proposed First Floor Elevation:	*45 Ft BCB*	Below grade levels:	*0 Story*

Franklin Braintree

Site Area:	*16,850 +/- SF*	Building Area:	*12,025 +/- SF (footprint)*
Building Height:	*67' 3"Ft*	Building Height:	*6 Stories*
Existing Site Elevation – Low:	*31 +/- Ft BCB*	Existing Site Elevation – High:	*36 +/- Ft BCB*
Proposed Site Elevation – Low:	*31 +/- Ft BCB*	Proposed Site Elevation – High:	*36 +/- Ft BCB*
Proposed First Floor Elevation:	*32 Ft BCB*	Below grade levels:	*0 Story*

Article 37 Green Building:
415 Cambridge Street
Allston Hall
334 Cambridge Street
Franklin- Braintree
2-8 Harvard Avenue
16 Highgate Street

LEED Version - Rating System :	LEED v4 BD&C	LEED Certification:	*Yes / **No***
Proposed LEED rating:	*Certified/**Silver**/ Gold/Platinum*	Proposed LEED point score:	*55 Pts.*

Building Envelope -
415 Cambridge Street

When reporting R values, differentiate between R discontinuous and R continuous. For example, use "R13" to show R13 discontinuous and use R10c.i. to show R10 continuous. When reporting U value, report total assembly U value including supports and structural elements.

Roof:	*R-30 c.i.*	Exposed Floor:	*See Slab Edge*
Foundation Wall:	*R-10 c.i.*	Slab Edge (at or below grade):	*R-15 for 24 in*

Vertical Above-grade Assemblies (%'s are of total vertical area and together should total 100%):

Area of Opaque Curtain Wall & Spandrel Assembly:	*1%*	Wall & Spandrel Assembly Value:	*U-0.051*
Area of Framed & Insulated / Standard Wall:	*73%*	Wall Value	*R-19 + R-5 c.i.*
Area of Vision Window:	*22%*	Window Glazing Assembly Value:	*U-0.30*
		Window Glazing SHGC:	*SHGC-0.40*
Area of Doors:	*4%*	Door Assembly Value:	*U-0.50*

Building Envelope-
334 Cambridge Street

When reporting R values, differentiate between R discontinuous and R continuous. For example, use “R13” to show R13 discontinuous and use R10c.i. to show R10 continuous. When reporting U value, report total assembly U value including supports and structural elements.

Roof:	*R-30 c.i.*	Exposed Floor:	*See Slab Edge*
Foundation Wall:	*R-10 c.i.*	Slab Edge (at or below grade):	*R-15 for 24 in*

Vertical Above-grade Assemblies (%’s are of total vertical area and together should total 100%):

Area of Opaque Curtain Wall & Spandrel Assembly:	*2%*	Wall & Spandrel Assembly Value:	*U-0.051*
Area of Framed & Insulated / Standard Wall:	*58%*	Wall Value	*R-19 + R-5 c.i.*
Area of Vision Window:	*31%*	Window Glazing Assembly Value:	*U-0.30*
		Window Glazing SHGC:	*SHGC-0.40*
Area of Doors:	*9%*	Door Assembly Value:	*U-0.50*

Building Envelope-
16 Highgate Street

When reporting R values, differentiate between R discontinuous and R continuous. For example, use “R13” to show R13 discontinuous and use R10c.i. to show R10 continuous. When reporting U value, report total assembly U value including supports and structural elements.

Roof:	*R-30 c.i.*	Exposed Floor:	*See Slab Edge*
Foundation Wall:	*R-10 c.i.*	Slab Edge (at or below grade):	*R-15 for 24 in*

Vertical Above-grade Assemblies (%’s are of total vertical area and together should total 100%):

Area of Opaque Curtain Wall & Spandrel Assembly:	*N/A*	Wall & Spandrel Assembly Value:	*U-0.051*
Area of Framed & Insulated / Standard Wall:	*72%*	Wall Value	*R-19 + R-5 c.i.*
Area of Vision Window:	*20%*	Window Glazing Assembly Value:	*U-0.30*
		Window Glazing SHGC:	*SHGC-0.40*
Area of Doors:	*8%*	Door Assembly Value:	*U-0.50*

Building Envelope-
2-8 Harvard Avenue

When reporting R values, differentiate between R discontinuous and R continuous. For example, use “R13” to show R13 discontinuous and use R10c.i. to show R10 continuous. When reporting U value, report total assembly U value including supports and structural elements.

Roof:	*R-30 c.i.*	Exposed Floor:	*See Slab Edge*
Foundation Wall:	*R-10 c.i.*	Slab Edge (at or below grade):	*R-15 for 24 in*

Vertical Above-grade Assemblies (%’s are of total vertical area and together should total 100%):

Area of Opaque Curtain Wall & Spandrel Assembly:	*N/A*	Wall & Spandrel Assembly Value:	*U-0.051*
Area of Framed & Insulated / Standard Wall:	*71%*	Wall Value	*R-19 + R-5 c.i.*
Area of Vision Window:	*20%*	Window Glazing Assembly Value:	*U-0.30*
		Window Glazing SHGC:	*SHGC-0.40*
Area of Doors:	*9%*	Door Assembly Value:	*U-0.50*

Building Envelope-
Franklin- Braintree

When reporting R values, differentiate between R discontinuous and R continuous. For example, use “R13” to show R13 discontinuous and use R10c.i. to show R10 continuous. When reporting U value, report total assembly U value including supports and structural elements.

Roof:	*R-30 c.i.*	Exposed Floor:	*See Slab Edge*
Foundation Wall:	*R-10 c.i.*	Slab Edge (at or below grade):	*R-15 for 24 in*

Vertical Above-grade Assemblies (%’s are of total vertical area and together should total 100%):

Area of Opaque Curtain Wall & Spandrel Assembly:	*N/A*	Wall & Spandrel Assembly Value:	*U-0.051*
Area of Framed & Insulated / Standard Wall:	*82%*	Wall Value	*R-19 + R-5 c.i.*
Area of Vision Window:	*13%*	Window Glazing Assembly Value:	*U-0.30*
		Window Glazing SHGC:	*SHGC-0.40*
Area of Doors:	*5%*	Door Assembly Value:	*U-0.50*

Building Envelope-
Allston Hall

When reporting R values, differentiate between R discontinuous and R continuous. For example, use “R13” to show R13 discontinuous and use R10c.i. to show R10 continuous. When reporting U value, report total assembly U value including supports and structural elements.

Roof:	*R-49*	Exposed Floor:	*Existing*
Foundation Wall:	*Existing*	Slab Edge (at or below grade):	*Existing*

Vertical Above-grade Assemblies (%’s are of total vertical area and together should total 100%):

Area of Opaque Curtain Wall & Spandrel Assembly:	*N/A*	Wall & Spandrel Assembly Value:	*U-0.051*
Area of Framed & Insulated / Standard Wall:	*81%*	Wall Value	*R-19 + R-5 c.i.*
Area of Vision Window:	*18%*	Window Glazing Assembly Value:	*U-0.30*
		Window Glazing SHGC:	*SHGC-0.40*
Area of Doors:	*1%*	Door Assembly Value:	*U-0.50*

Energy Loads and Performance

For this filing – describe how energy loads & performance were determined			
Annual Electric:	*(kWh)*	Peak Electric:	*(kW)*
Annual Heating:	*(MMbtu/hr)*	Peak Heating:	*(MMbtu)*
Annual Cooling:	*(Tons/hr)*	Peak Cooling:	*(Tons)*
Energy Use - Below ASHRAE 90.1 - 2013:	*%*	Have the local utilities reviewed the building energy performance?:	*Yes / no*
Energy Use - Below Mass. Code:	*%*	Energy Use Intensity:	*(kBtu/SF)*

Back-up / Emergency Power System

Electrical Generation Output:	*(kW)*	Number of Power Units:	
System Type:	*(kW)*	Fuel Source:	

Emergency and Critical System Loads (in the event of a service interruption)

Electric:	*(kW)*	Heating:	*(MMbtu/hr)*
		Cooling:	*(Tons/hr)*

B – Greenhouse Gas Reduction and Net Zero / Net Positive Carbon Building Performance

Reducing GHG emissions is critical to avoiding more extreme climate change conditions. To achieve the City’s goal of carbon neutrality by 2050 new buildings performance will need to progressively improve to net carbon zero and positive.

B.1 – GHG Emissions - Design Conditions

For this Filing - Annual Building GHG Emissions: | *(Tons)*

For this filing - describe how building energy performance has been integrated into project planning, design, and engineering and any supporting analysis or modeling:

All buildings have been designed to meet or exceed ASHRAE 90.1 standards. Each building will have a high performing building envelope utilizing intelligent lighting and control systems for both common spaces and individual units. Additionally, on a site scale the project has been designed to reduce the heat island effect of the existing sites by replacing hardscaped surfaces with landscaped areas and highly reflective roof materials. All landscape will be designed with hearty, native plant species to eliminate the need for irrigation.

Describe building specific passive energy efficiency measures including orientation, massing, envelope, and systems:

All buildings have been designed with operable windows for optimal natural ventilation and with building specific exterior shading devices to maximize solar shading in the summer and solar gain in the winter. The majority of residential units will have private decks for individual access to natural light and air. Building massing and window orientations and sizing have been done with sustainable daylighting techniques in mind.

Describe building specific active energy efficiency measures including equipment, controls, fixtures, and systems:

All buildings have been designed with high performing building envelopes, highly reflective roof materials and areas of vegetative green roofs. Energy demand of Common Areas is to be supplemented by on-site Solar PV. Common areas will also have active shading, power and occupancy dimming. Within residential units, systems are designed with High Performance HVAC equipment, Energy Star Appliances, and smart thermostats. All units will have tank-less on-demand water heaters and durable, low maintenance, water conserving plumbing fixtures.

Describe building specific load reduction strategies including on-site renewable, clean, and energy storage systems:

On site Solar PV will be used to reduce the energy load of Common Areas. All parking areas will provide dedicated electric car charging stations for hybrid and electric vehicles.

Describe any area or district scale emission reduction strategies including renewable energy, central energy plants, distributed energy systems, and smart grid infrastructure:

Nothing planned at this time.

Describe any energy efficiency assistance or support provided or to be provided to the project:

We will be pursuing utility incentives for these projects.

B.2 - GHG Reduction - Adaptation Strategies

Describe how the building and its systems will evolve to further reduce GHG emissions and achieve annual carbon net zero and net positive performance (e.g. added efficiency measures, renewable energy, energy storage, etc.) and the timeline for meeting that goal (by 2050):

C - Extreme Heat Events

Annual average temperature in Boston increased by about 2˚F in the past hundred years and will continue to rise due to climate change. By the end of the century, the average annual temperature could be 56° (compared to 46° now) and the number of days above 90° (currently about 10 a year) could rise to 90.

C.1 – Extreme Heat - Design Conditions

Temperature Range - Low:	*Deg.*	Temperature Range - High:	*Deg.*
Annual Heating Degree Days:		Annual Cooling Degree Days	

What Extreme Heat Event characteristics will be / have been used for project planning

Days - Above 90°:	#	Days – Above 100°:	#
Number of Heatwaves / Year:	#	Average Duration of Heatwave (Days):	#

Describe all building and site measures to reduce heat-island effect at the site and in the surrounding area:

C.2 - Extreme Heat – Adaptation Strategies

Describe how the building and its systems will be adapted to efficiently manage future higher average temperatures, higher extreme temperatures, additional annual heatwaves, and longer heatwaves:

Describe all mechanical and non-mechanical strategies that will support building functionality and use during extended interruptions of utility services and infrastructure including proposed and future adaptations:

D - Extreme Precipitation Events

From 1958 to 2010, there was a 70 percent increase in the amount of precipitation that fell on the days with the heaviest precipitation. Currently, the 10-Year, 24-Hour Design Storm precipitation level is 5.25”. There is a significant probability that this will increase to at least 6” by the end of the century. Additionally, fewer, larger storms are likely to be accompanied by more frequent droughts.

D.1 – Extreme Precipitation - Design Conditions

10 Year, 24 Hour Design Storm:	*5.16 In.*

Describe all building and site measures for reducing storm water run-off:

In accordance with the Boston Water and Sewer Commission’s (BWSC’s) requirements, proposed drywells will be designed to infiltrate the first inch of stormwater runoff. Increased landscaped areas will lead to a reduction of storm water runoff.

D.2 - Extreme Precipitation - Adaptation Strategies

Describe how site and building systems will be adapted to efficiently accommodate future more significant rain events (e.g. rainwater harvesting, on-site storm water retention, bio swales, green roofs):

On-site stormwater collection, retention, and infiltration systems.

E – Sea Level Rise and Storms

Under any plausible greenhouse gas emissions scenario, sea levels in Boston will continue to rise throughout the century. This will increase the number of buildings in Boston susceptible to coastal flooding and the likely frequency of flooding for those already in the floodplain.

Is any portion of the site in a FEMA SFHA?	*Yes / **No***	What Zone:	N/A
		Current FEMA SFHA Zone Base Flood Elevation:	*N/A*

Is any portion of the site in a BPDA Sea Level Rise - Flood Hazard Area? Use the online [BPDA SLR-FHA Mapping Tool] to assess the susceptibility of the project site.	*Yes / **No***

If you answered YES to either of the above questions, please complete the following questions.
Otherwise you have completed the questionnaire; thank you!

E.1 – Sea Level Rise and Storms – Design Conditions

Proposed projects should identify immediate and future adaptation strategies for managing the flooding scenario represented on the BPDA Sea Level Rise - Flood Hazard Area (SLR-FHA) map, which depicts a modeled 1% annual chance coastal flood event with 40 inches of sea level rise (SLR). Use the online BPDA SLR-FHA Mapping Tool to identify the highest Sea Level Rise - Base Flood Elevation for the site. The Sea Level Rise - Design Flood Elevation is determined by adding either 24" of freeboard for critical facilities and infrastructure and any ground floor residential units OR 12" of freeboard for other buildings and uses.

Sea Level Rise - Base Flood Elevation:	*Ft BCB*		
Sea Level Rise - Design Flood Elevation:	*Ft BCB*	First Floor Elevation:	*Ft BCB*
Site Elevations at Building:	*Ft BCB*	Accessible Route Elevation:	*Ft BCB*

Describe site design strategies for adapting to sea level rise including building access during flood events, elevated site areas, hard and soft barriers, wave / velocity breaks, storm water systems, utility services, etc.:

Describe how the proposed Building Design Flood Elevation will be achieved including dry / wet flood proofing, critical systems protection, utility service protection, temporary flood barriers, waste and drain water back flow prevention, etc.:

Describe how occupants might shelter in place during a flooding event including any emergency power, water, and waste water provisions and the expected availability of any such measures:

Describe any strategies that would support rapid recovery after a weather event:

E.2 – Sea Level Rise and Storms – Adaptation Strategies

Describe future site design and or infrastructure adaptation strategies for responding to sea level rise including future elevating of site areas and access routes, barriers, wave / velocity breaks, storm water systems, utility services, etc.:

Describe future building adaptation strategies for raising the Sea Level Rise Design Flood Elevation and further protecting critical systems, including permanent and temporary measures:

A pdf and word version of the Climate Resiliency Checklist is provided for informational use and off-line preparation of a project submission. NOTE: Project filings should be prepared and submitted using the online Climate Resiliency Checklist.

For questions or comments about this checklist or Climate Change best practices, please contact: John.Dalzell@boston.gov

1 INTRODUCTION

This Chapter evaluates the transportation impacts of the proposed projects comprising the Allston Square developments in accordance with the requirements of the Boston Planning & Development Agency (BPDA) Article 80 process., and follows a transportation scope and process coordinated with the Boston Transportation Department

Allston has long been a residential area, with vibrant neighborhood centers and small, mixed industrial uses. The Cambridge Street corridor has traditionally been commercial with many automotive uses, but an integral part of Allston. Though some buildings have been repurposed through the years, recent developments have sped up change throughout Allston, and is it has grown in jobs, activity and access, more residential development has sprung up to support it. New developments and buildings have taken the place of the empty lots or outdated structures and continue to breathe new life into this growing neighborhood.

With Allston's convenient access to downtown, the MBTA Green Line, the new Allston Landing Commuter Rail Station, and local bus routes, this area continues to be attractive for new investments, especially as a place to live. A growing suite of pedestrian and bicycle facilities is further supporting what was always an active walking and bicycling community. The proposed Allston Square developments aim to continue this evolution, adding vibrancy to Cambridge Street, and serving to improve connectivity and the multimodal nature of the area.

1.1 Project Description

The Project consists of five buildings with primarily residential units as well as some associated retail space. The buildings can be described as follows:

- **334 Cambridge Street:** This building will replace the existing Jack Young Building with a multifamily residential development including 65 residential units and 35 parking spaces, with ground floor retail. The building will preserve elements of the existing façade to support Allston's historic neighborhood character.
- **16 Highgate Street:** This lot is currently occupied by a mid-size duplex home with an associated yard and driveway. The building will be replaced with a multifamily residential development including 20 residential units and 6 parking spaces.
- **2-8 Harvard Street:** This building will include 77 residential units, with 48 parking spaces. The building will include ground level retail in two spaces totaling approximately 9,945 square feet.
- **Allston Hall:** This will include 9 residential units, with ground level retail of 2,300 square feet.

- **415 Cambridge Street:** This lot is currently occupied by a commercial automotive use and associated surface parking lots. The current use will be replaced with a mixed-use residential and retail development featuring 101 residential units, 102 parking spaces, and approximately 2,500 square feet of ground level retail space.
- **Franklin-Braintree:** This lot is currently occupied by mixed commercial and automotive uses and associated surface parking. The existing uses will be replaced with a mixed-use residential and retail development featuring 62 residential units, 46 parking spaces, and some ground level retail space.

The Project will also introduce overall site integration of the uses, open space and landscaping, common vehicular access, and pedestrian and bicycle improvements.

The project program is summarized below in **Table 1.**

Table 1 Project Program

Building	Units	Parking	Retail
334 Cambridge Street	65	35	4,160
16 Highgate Street	20	6	N/A
2-8 Harvard Street	77	48	9,945
Allston Hall	9	0	2,300
415 Cambridge Street	101	102	2,500
Franklin/Braintree	62	46	1,210
Total	**334**	**237**	**20,115**

1.2 Study Area and Methodology

Study Area

The project site includes multiple buildings located primarily along Cambridge Street near the intersection with Harvard Avenue in Allston. Three of the five proposed buildings front Cambridge Street, while the fourth sits south of Cambridge Street along Highgate Street and the fifth occupies the block between Braintree, Franklin, and Wilton Streets (see Figure 1). The area surrounding the building sites is a vibrant mixture of commercial, industrial, and residential uses. The study area is a dense, walkable, and transit-accessible area with a variety of on-street activity throughout the day. Cambridge Street serves as an important artery for both local and through traffic. The area is well served by Commuter Rail, MBTA bus and Green Line service that connect the neighborhood to downtown Boston and other regional destinations. The multimodal, mixed use nature will reduce the vehicular traffic impacts from the Project.

Methodology

The scope of the analysis completed herein was developed in coordination with the Boston Transportation Department (BTD) and follows the guidelines for the completion of a Transportation Access Plan under the Article 80 review process. This report presents an overview and evaluation of the transportation issues and analysis related to the Project within the context of the surrounding neighborhood, other recently permitted developments, and ongoing improvements planned by BTD and others. This analysis looks primarily at adjacent intersections and streets, but also includes a broader evaluation o2q2f the transportation network surrounding the Project Site. In coordination with BTD, the following intersections were included for transportation analysis:

1. Braintree Street at Rugg Road
2. Cambridge Street at Denby Road
3. Cambridge Street at Wilton Street
4. Cambridge Street at Harvard Avenue / Franklin Street
5. Cambridge Street at Highgate Street
6. Linden Street at Farrington Avenue
7. Linden Street at Gardner Street

1.3 Transportation Analysis Summary

The Project will enhance the site, Cambridge Street, and the local neighborhood. The proposed site design is both consistent with current trends in the neighborhood, and in context with the existing area. Moreover, the Project will preserve the historic elements of existing building facades to maintain Allston's historic character.

The Project also supports ongoing initiatives to enhance multi-modal access and choice throughout the City's neighborhoods. The project will enhance adjacent sidewalks and create a more pleasant walking environment with pedestrian-friendly frontage. The Project will also provide secure and covered on-site bike parking for future residents of the building, as well as public bicycle racks.

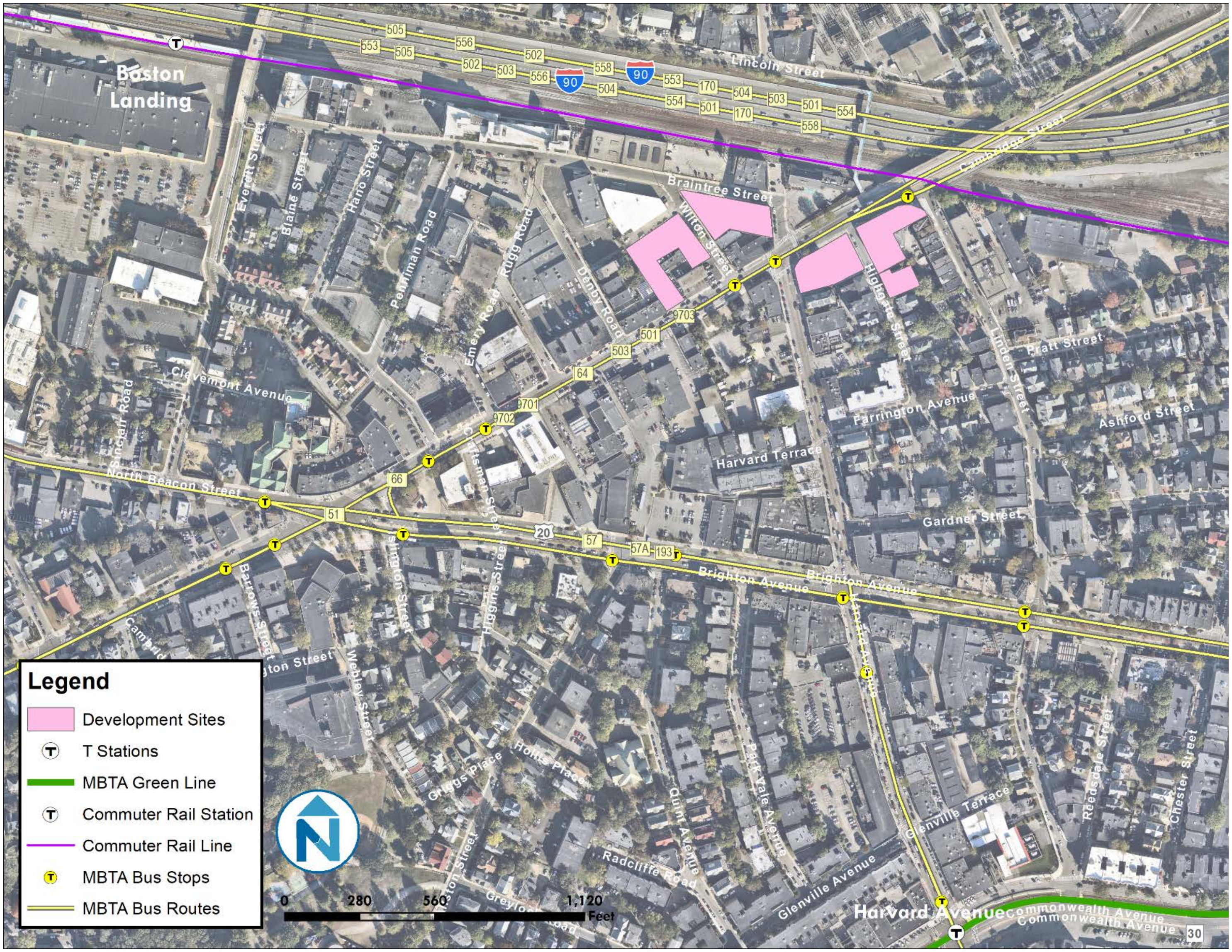
Currently, all but one intersection approach operate at Level of Service (LOS) D or better, which is within typical urban operations and BTD standards. The LOS for almost all intersections in the build scenario is unaffected as compared to the No Build scenario, with minimal, negligible increases in delay shown at one intersection. The No Build scenario incorporates proposed intersection and circulation changes indicated in the 75 Braintree Street study. These are described in more detail in the No Build scenario section of this document.

The Project will provide numerous enhancements including a new and more inviting street presence with landscaping, sidewalk upgrades, and fewer curb cuts and driveways that currently serve the existing businesses. with its higher density, walking and biking amenities, and proposed transportation demand management (TDM) measures, the Project supports the growth of Allston as a transit-rich, walkable, bikeable neighborhood. The Project will add multimodal supportive infrastructure and encourage new residents to use active modes of transportation and public transit. Specific transportation enhancements include the following:

- Improved sidewalks adjacent to all sites, consistent with BTD plans for Cambridge Street
- Closure of curb cuts, enhancing pedestrian environment
- Creation of active street frontages along vibrant Allston Village Streets
- Project designed to work with area improvements and roadway circulation changes planned by others
- 237 new off-street parking spaces
- 300 new bicycle parking spaces
- Unbundling parking for project residents
- Allowing neighborhood residents to lease excess parking spaces

- Implementing on street, publicly accessible bicycle parking spaces
- Working with BTD and other area developments on supporting and assisting in the determination and accommodation of additional Hubway stations as determined.
- Committed, ongoing support for BTD plans for ongoing neighborhood circulation improvements on Cambridge Street and beyond
- Robust transportation demand management plan

Figure 1: Map of Site and Surrounding Area



2 EXISTING CONDITIONS

2.1 Project Sites

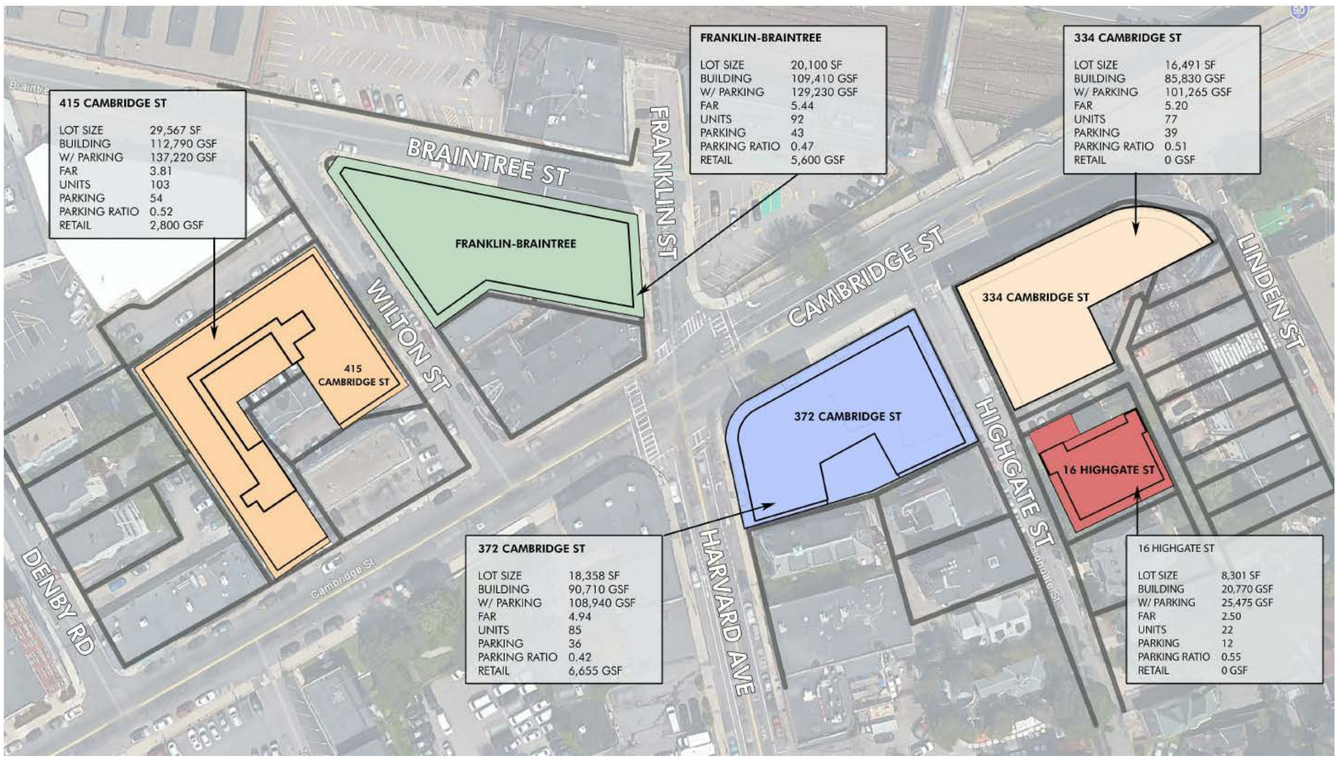


Figure 2: Project Sites with Proposed Development

The site is within walking distance of public transportation, restaurants, retail, and residential areas. The Green Line's Harvard Avenue Station is a nine-minute walk to the south offering service to downtown Boston., while the Boston Landing Commuter Rail Station is a nine-minute walk to the west offering inbound service to downtown Boston and outbound service to Worcester. The Brighton Avenue, Harvard Avenue, and Cambridge Street corridors provide vibrant, mixed use, commercial corridors with amenities for residents and employees.

415 Cambridge Street

The existing lot at 415 Cambridge Street is comprised of multiple parcels that include an existing 1,500 square foot commercial building fronted by a surface parking lot along Cambridge Street and a surface parking lot behind the building abutting Wilton Terrace. Along Cambridge Street is one driveway that allows access to the frontal parking lot. Along Wilson Street is one driveway that allows access to the rear parking lot. Wilson Terrace functions as an extended driveway that allows access to the western portion of the rear parking lot.

Franklin-Braintree

The Franklin-Braintree lot is comprised of three existing parcels. The largest parcel, abutting Wilton Street and Braintree Street, includes a 3,500 square foot commercial auto service property and a surface parking lot for related vehicles. The other parcels include a 12,000 square foot commercial wholesale use and an 8,000 square foot commercial wholesale use, both of which front Franklin Street. Driveway access to the surface parking lot is available from two driveways along Braintree Street.

372 Cambridge Street

The 372 Cambridge Street lot is comprised of two existing parcels. The western parcel includes a 13,500 square foot commercial wholesale use, while the eastern parcel includes a 6,000 square foot surface parking lot for commercial use. Driveway access to the surface parking is available from one driveway along Cambridge Street and one driveway along Highgate Street.

334 Cambridge Street

334 Cambridge Street is comprised of one existing 16,500 square foot parcel. This parcel includes a 40,000 square foot mixed use residential and commercial building. The building includes three stories of residential units, with ground floor commercial uses. A surface parking lot behind the building is accessible from a driveway along Highgate Street.

16 Highgate Street

16 Highgate street is comprised of one 8,000 square foot parcel with a 4,000 square foot multi-family home. The south side of the home abuts a driveway, accessible from Highgate Street, which allows vehicle access to a small parking area in the rear of the building. The remainder of the parcel is undeveloped yard.

2.2 Study Area Roadways

The following provides a description of area roadways included in the study area, as agreed with the Boston Transportation Department.

Cambridge Street

Cambridge Street is a two- to four-lane arterial roadway under BTD jurisdiction that passes through the center of the study area, abutting three of the five developments sites. Cambridge Street enters the study area from the northwest after passing over the Massachusetts Turnpike. Cambridge Street includes four lanes of traffic along the Massachusetts Turnpike Bridge, but narrows at the intersection with Harvard Avenue. From Harvard Avenue, Cambridge Street includes two sides of street parking, dedicated bicycle lanes, and striped bus stops beginning at the Harvard Avenue intersection when travelling southwest. The roadway expands to four lanes of traffic briefly at the intersection with Brighton Avenue, before returning to a two-lane configuration after crossing the intersection.

The curb-to-curb distance across Cambridge Street measures approximately 48 feet between Wilton Street and Denby Road. Sidewalks are provided on both sides of the street, with illumination by way of lampposts. Land uses along Cambridge Street are largely commercial. The corridor serves all transportation modes and is a vibrant, active commercial corridor.

Harvard Avenue

Harvard Avenue is a two lane, urban minor arterial under BTD jurisdiction within the study area that runs south from Cambridge Street through the area to the intersection with Brighton Avenue, where it continues to Brookline. Harvard Avenue abuts two of the five project sites. Harvard Avenue provides two marked travel lanes for the length of the roadway, with parking on both sides and a bicycle lane on the southbound side. Parking is unmetered and not striped horizontally, but is time regulated.

The curb-to-curb distance across Harvard Avenue between Cambridge Street and Farrington Avenue is approximately 44 feet. Sidewalks are provided along both sides of the street, with illumination by way of streetlights.

Brighton Avenue / US 20

Brighton Avenue is a major urban arterial street, which is also Massachusetts Route 20. Brighton Avenue enters the study area from Linden Street in the east and exits the study area at Cambridge Street in the west. Brighton Avenue operates as a four lane major arterial within the study area, but narrows to two lanes after exiting the study area at Cambridge Street. It includes two sides of time regulated public parking, shared bicycle lanes in the right lane of each direction, and a median with turning lanes. The corridor includes a large number of restaurants, retail, and other commercial uses, and is served by high frequency buses. It is a multimodal, commercial corridor with dense uses and significant traffic across all modes. It does not directly about any of the project sites.

Between Harvard Avenue and Park Vale Avenue, Brighton Avenue has a curb-to-curb distance of approximately 80 feet. Sidewalks exist on both sides of Harvard Avenue for the duration of the street, with shared bicycle facilities installed along it. Lamps mounted on concrete poles provide illumination.

Braintree Street

Braintree Street Runs from Franklin Street /Harvard Avenue in the east to Penniman Road in the west, where it exits the study area and continues. It is a two way, unstriped local street. Parking is allowed on both sides of the street and is unregulated. One of the project sites abuts Braintree Street.

Braintree Street has a curb-to-curb distance of 26 feet. Sidewalks exist on both sides of the street for the duration of the street. Land uses along the corridor are primarily commercial wholesale and automotive, with significant off-street parking facilities. Illumination is provided by street lamps.

Wilton Street

Wilton Street is a one-way, northbound, unstriped local street that runs north from Cambridge Street towards Braintree Street where it terminates. Parking is allowed on the right side of the street. Two of the project sites abut Wilton Street. The roadway is approximately 23 feet wide from curb-to-curb. There are sidewalks on both side of the street, and no bicycle facilities. Land uses along this street are commercial, with ample off-street parking facilities.

Linden Street

Linden Street is a two-way, unstriped neighborhood public street that runs between Cambridge Street and Brighton Avenue, where it exits the study area continuing south. One side of resident permit only parallel parking exists on the northbound side of the street. The curb-to-curb distance of the street near Cambridge Street is 24 feet. Sidewalks exist along both sides of the street for the duration. There are no bicycle facilities. There are predominantly commercial uses along Linden Street near Cambridge Street, and residential uses further south along the corridor. One of the project sites abuts Linden Street.

Highgate Street

Highgate Street is a one-way, unstriped neighborhood street that begins at Cambridge Street and runs southbound to Farrington Avenue. One side of unregulated parallel parking exists on the right side of the street. Highgate Street is approximately 22 feet wide curb-to-curb. There is a sidewalk along both sides of the street. Binford Street has a mix of commercial and residential uses along the roadway. Streetlamps provide illumination. Three of the project sites abut Highgate Street.

Farrington Avenue

Farrington Avenue is a one-way, unstriped neighborhood public street that runs Harvard Avenue eastbound to Linden Street. Both sides of the street allow resident permit parking. The curb-to-curb distance of the street is approximately 26 feet. Sidewalks exist along the entirety of both sides of the street. There are predominantly residential uses along Farrington Avenue. Illumination is provided by street lamps.

Denby Road

Denby Road is an unstriped, two-way neighborhood public street that runs Cambridge Street and Rugg Road. One side of unregulated parallel parking exists on the northbound side. The curb-to-curb distance of the street near Cambridge Street is approximately 26 feet. Sidewalks exist along the entirety of both sides of the street. There is a mix of commercial wholesale and residential uses along Denby Road. Illumination is provided by street lamps.

2.3 Study Area Intersections

Below is a description of the area intersections included in this analysis. These intersections have been selected in coordination with BTD. Per the request of BTD, existing intersection configurations were modified for the future no-build and future build scenarios according to the recommendations outlined in the 75 Braintree Street study. These modifications are:

- Conversion of Franklin Street from a two-way to a one-way northbound roadway between Cambridge Street and Braintree Street, turning the Cambridge Street and Harvard Avenue intersection into a three-approach intersection.
- Conversion of Denby Road from a two-way to a one-way southbound roadway between Rugg Road and Cambridge Street. Denby Road is already signalized in the existing condition.
- Signal timing optimizations to the intersections of Cambridge Street and Harvard Avenue / Franklin Street and Cambridge Street and Denby Road. Both of these intersections are signalized in the existing condition, but will require updated timings to operate efficiently in the future scenarios.

Figure 3: Study Area Intersections

Cambridge Street and Linden Street

The intersection of Cambridge Street and Linden Street is a three-way stop controlled intersection allowing free-flowing traffic on Cambridge Street. Vehicles enter the intersection from three approaches: Cambridge Street westbound, Cambridge Street eastbound, and Linden Street northbound. The northbound approach allows only right turns, as does the eastbound approach. The westbound approach does not allow access to Linden Street due to the center median on Cambridge Street. Sidewalks exist along all approaches to the intersection. There is a ladder style crosswalk across the Linden Street approach to the intersection, with non-ADA compliant ramps. There is no parking allowed along Cambridge Street at this intersection, and one side of parking allowed along Linden Street.

Cambridge Street and Highgate Street

The intersection of Cambridge Street and Highgate Street is a three-way uncontrolled intersection. Vehicles can arrive at the intersection from three approaches: Cambridge Street westbound, Cambridge Street eastbound, and Highgate Street northbound. The eastbound and westbound approaches on Cambridge Street both have two lanes of traffic, with no turning lanes and free flowing traffic. The northbound approach is uncontrolled but functions as a yield, with both left and right turns allowed. There is a ladder crosswalk across the northbound approach from Highgate Street with ADA compliant ramps.

Cambridge Street and Harvard Avenue / Franklin Street

The intersection of Cambridge Street and Harvard Avenue is a four-way signal controlled intersection of two bi-directional streets, with Harvard Avenue having two lanes and Cambridge Street having four. Vehicles can arrive at the intersection from four approaches: Franklin Street southbound, Harvard Avenue northbound, Cambridge Street eastbound, and Cambridge Street westbound. The westbound approach on Cambridge Street includes a left turn lane, a right turn lane, and a center through lane. The eastbound approach includes one through-right lane and one through-left lane. Sidewalks exist along all approaches to the intersection. The northbound approach includes a through-right lane and a left turn lane. The southbound approach is a single all-purpose lane. There are ladder crosswalks across all four intersection approaches. Each intersection corner shares a pedestrian ramp for each intersecting crosswalk, with all ramps up to ADA standards, with concurrent pedestrian signals available for each crosswalk. There is parking along the southbound approach to the intersection.

Cambridge Street and Wilton Street

Cambridge Street and Wilton Street is an uncontrolled T intersection with Wilton Street operating as a one-lane one-way carrying traffic northbound away from the intersection. Cambridge Street has two traffic lanes, with bi-directional traffic. There are two approaches to the intersection: Cambridge Street eastbound and Cambridge Street westbound. Sidewalks exist along all sides of both A Street and West First Street. There are no crosswalks at the intersection and no ramps.

Cambridge Street and Denby Road

Cambridge Street and Denby Road is a signalized T intersection with traffic entering from three approaches: Cambridge Street eastbound, Cambridge Street westbound, and Denby Road southbound. The Cambridge Street approaches are bi-directional, with one lane in each direction and all movements are allowed. Sidewalks exist along all sides of the intersection, with crosswalks across the westbound approach and the southbound approach. ADA accessible ramps are available at both of these crosswalks. Parking is allowed along Cambridge Street at the westbound approach.

Braintree Street and Wilton Street

Braintree Street and Wilton Street is a stop-controlled three-way intersection with traffic entering from three approaches: Braintree Street eastbound, Braintree Street westbound, and Wilton Street northbound. Braintree Street is a two-way street, while Wilton Street is one-way. The intersection approaches along Braintree Street are uncontrolled and free-flowing, while the approach along Wilton Street is stop controlled. There are no turn movement restrictions on the northbound approach, and no turns are allowed on the Braintree Street approaches. Sidewalks are present along all sides of the intersection. No crosswalks are present.

Harvard Avenue and Farrington Avenue

Harvard Avenue and Farrington Avenue is an uncontrolled T intersection. Approaches to the intersection are from Harvard Avenue northbound and Harvard Avenue southbound. Farrington Avenue is one-way away from the intersection, eastbound. Sidewalks exist along all sides of the intersection. There is a crosswalk across Harvard Avenue without ADA accessible pedestrian ramps on either side of the ladder style crosswalk. Traffic along Harvard Avenue is free-flowing. Parking is allowed on both side of both approaches to the intersection on Harvard Avenue.

Farrington Avenue and Highgate Street

Farrington Avenue and Highgate Street is an stop-controlled T intersection with traffic entering from two directions: Highgate Street southbound and Farrington Avenue eastbound. Both streets are one-way, one lane streets. The southbound approach is stop-controlled, while traffic on Farrington Avenue is free-flowing. Sidewalks are present at all sides of the intersection, and no crosswalks are present. ADA accessible ramps are present across the southbound approach.

Farrington Avenue and Linden Street

Farrington Avenue and Linden Street is a stop-controlled T intersection with traffic entering from three directions: Linden Street southbound, Linden Street northbound, and Farrington Avenue eastbound. Linden Street is bidirectional with one lane in each direction, and Farrington Avenue is one-way with one lane. Traffic is free-flowing along Linden Street, and stop-controlled at the Farrington Avenue approach. There are no turning movement restrictions within the intersection. Sidewalks are present at all sides of the intersection, with no crosswalks. ADA accessible ramps are available across the eastbound approach to the intersection. Parking is allowed along the eastbound and northbound approaches.

2.4 Parking

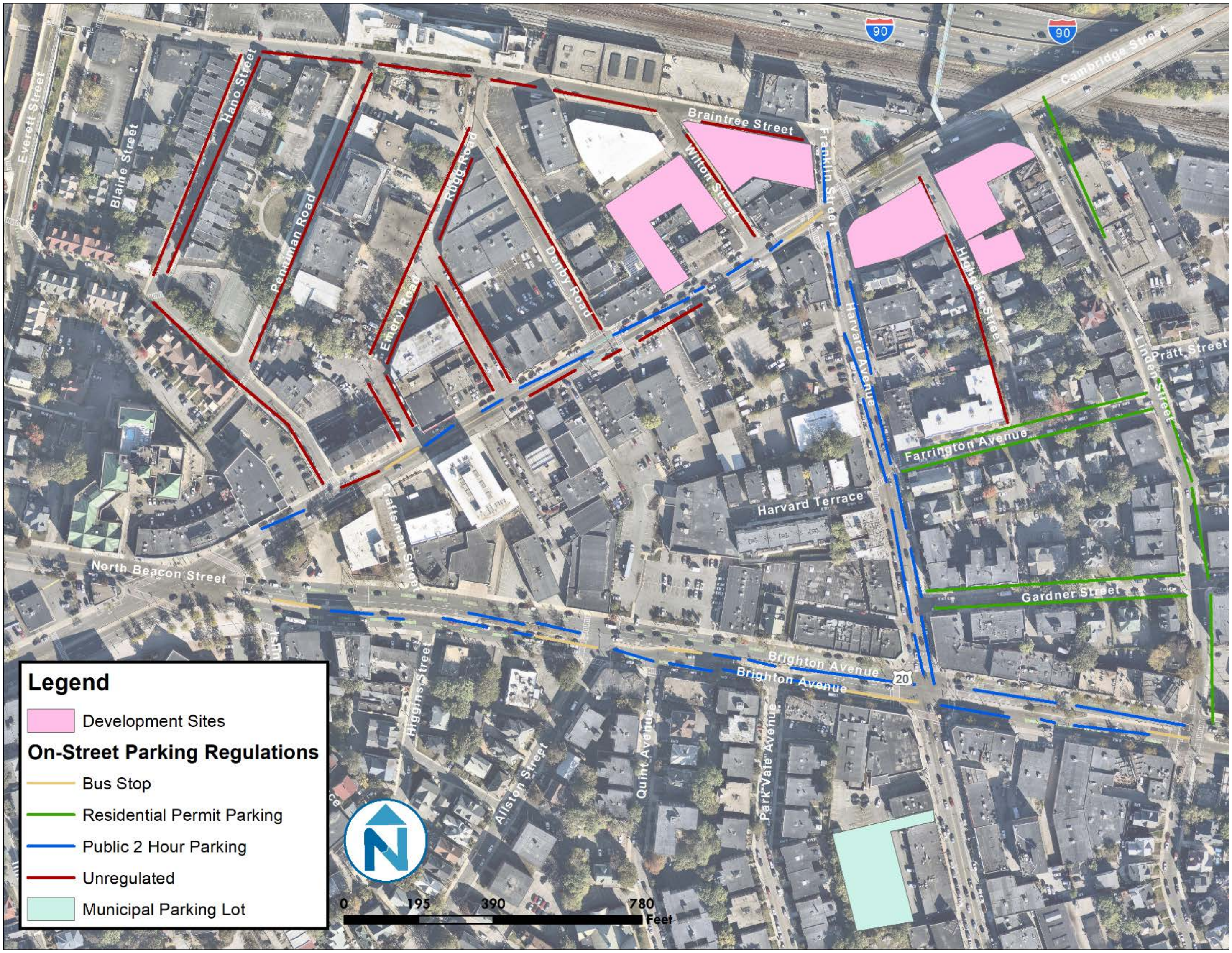
Consistent with BTD guidelines, parking was identified within a quarter-mile radius, or an approximately five-minute walk from the Project Sites. There is significant on-street parking in the surrounding area, with most operating as either two-hour parking or resident permit parking. Regulations by street are shown on the following map.

The majority of the on-street parking in the study area is regulated as some variation between two-hour and Resident Permit parking. The local streets northwest of Cambridge Street within the study area are largely unregulated and do not require parking permits or limit parking to two hours. The major thoroughfares of Cambridge Street, Harvard Avenue, and Brighton Avenue include public two hour unmetered parking, with bus stops and loading zones interspersed on Brighton Avenue and Cambridge Street. East of Harvard Avenue, local streets require resident parking permits, except for Highgate Street, which is unregulated. A detailed map of on-street parking regulations is displayed in **Figure 4**.

There are an estimated 16 unregulated spaces on Wilton Street adjacent to the Franklin-Braintree and 415 Cambridge Street sites. There are an estimated 11 unregulated spaces on Braintree Street adjacent to the Franklin-Braintree site. There are four public two hour parking spaces on Franklin Street adjacent to the Franklin-Braintree site. On Highgate Street, which abuts the three remaining development sites, there are an estimated 28 unregulated spaces.

One municipal parking lot exists within a quarter mile of the project site. Boston's Lot 3 is accessible from Harvard Avenue south of Brighton Avenue and offers 60 public parking spaces.

Figure 4 Parking Regulations - Adjacent Blocks



2.5 Public Transportation

The Allston Developments are adjacent to or within easy walking distance of robust transportation options. This access was evaluated for the area within both a quarter-mile and a half-mile radius of the Project Site. The Project Site is located within a half-mile of the MBTA Green Line's Harvard Avenue and Packards Corner Stations, which offer service from Allston to the east to downtown Boston and Cambridge. The Green Line also offers service west to Brighton and Boston College. There are several MBTA bus routes with nearby service including: Route 66 with service to Harvard Station and Dudley, Route 64 with service to Cambridge's Central Square and Oak Square in Brighton, and Route 57 with service to Kenmore Square and Watertown Yard. Within a half-mile (10 minute walk) of the project site is the recently opened Boston Landing station, which is served by the MBTA's Framingham/Worcester Commuter Rail Line. This line offers service east to downtown Boston via South Station, and west to Framingham and Worcester.

This combination of rail and bus service allows all major activity centers in the immediate urban area to be reached by transit, making the project site a premium transit location.

MBTA Green Line – B Branch

Within a half-mile (10 minute walk) of the project site are Harvard Avenue and Packard's Corner Stations, which are served by the MBTA's Green Line – B Branch. The B Branch of the Green Line offers service east to downtown Boston via Park Street station, and west to Brighton and Boston College.

Table 2 MBTA Green B Line Service Details

Subway Route	Origin-Destination	Weekday First Trip / Last Trip	Weekday Peak/ Off Peak	Saturday First Trip / Last Trip	Saturday Peak/ Off Peak	Sunday First Trip / Last Trip	Sunday Peak/ Off Peak
Green Line B (Westbound)	Park Street – Boston College	5:01 AM / 12:30 AM	4-7 Minutes / 5-10 Minutes	5:01AM / 12:30 AM	5-7 Minutes / 7-11 Minutes	6:33 AM / 1:14 AM	5-9 Minutes / 7-10 Minutes
Green Line B (Eastbound)	Boston College – Park Street	5:38 AM / 12:47 AM	4-7 Minutes / 5-9 Minutes	5:39 AM / 12:37 AM	6-7 Minutes / 7-10 Minutes	5:29 AM / 12:24 AM	5-8 Minutes / 7-10 Minutes

MBTA Commuter Rail – Framingham / Worcester Line

Within a half-mile (10 minute walk) of the project site is the recently opened Boston Landing station, which is served by the MBTA's Framingham/Worcester Commuter Rail Line. This line offers service east to downtown Boston via South Station, and west to Framingham and Worcester.

Table 3 Commuter Rail Service Details

Commuter Rail Line	Origin-Destination	Weekday First Trip / Last Trip	Weekday Peak/ Off Peak	Saturday First Trip / Last Trip	Saturday Peak/ Off Peak	Sunday First Trip / Last Trip	Sunday Peak/ Off Peak
Framingham / Worcester	South Station - Worcester	4:50 AM / 11:30 PM	10-30 Minutes / 90 Minutes	6:40 AM / 10:40 PM	120 Minutes / 120 Minutes	6:40 AM / 10:40 PM	120 Minutes / 120 Minutes

Framingham / Worcester	Worcester – South Station	4:45 AM / 12:20 AM	10-30 Minutes / 90 Minutes	7:00 AM / 11:00 PM	120 Minutes / 120 Minutes	7:00 AM / 11:00 PM	120 Minutes / 120 Minutes

MBTA Buses

Within a half-mile of the development sites, there are several MBTA bus routes providing direct connections to Harvard, downtown Boston, the Longwood Medical Area, and Cambridge/MIT. Route 57 to downtown Boston is accessible on Brighton Ave near the project sites, while Routes 64 and 66 are accessible on Cambridge Street directly adjacent to the project sites. Service typically runs every 10-20 minutes during weekday peak hours. Further detail on nearby bus service is provided below, in **Table 4 and presented in Figure 5**.

Table 4 Proximate MBTA Bus Routes

Bus Route	Origin- Destination	Weekday Peak/ Off Peak	Saturday	Sunday
57	Watertown Yard - Downtown	10 -11 Minutes / 10 - 12 Minutes	10 Minutes	15 Minutes
64	Oak Square – Kendall Square	13-20 Minutes / 35 Minutes	60 Minutes	70 Minutes
66	Harvard Square – Dudley Square	9 Minutes / 15-18 Minutes	13- 16 Minutes	20 Minutes

Route 57

The study area is served by the MBTA's Route 57 bus, which operates between Watertown Yard to the west and downtown Boston to the east. Stops for this route are within a short walk of the project sites on Brighton Avenue. Route 57 provides high frequency service direct to downtown Boston from the project sites, and provides a critical downtown transit connection that is nearer to the project sites than the Green Line, which also serves downtown.

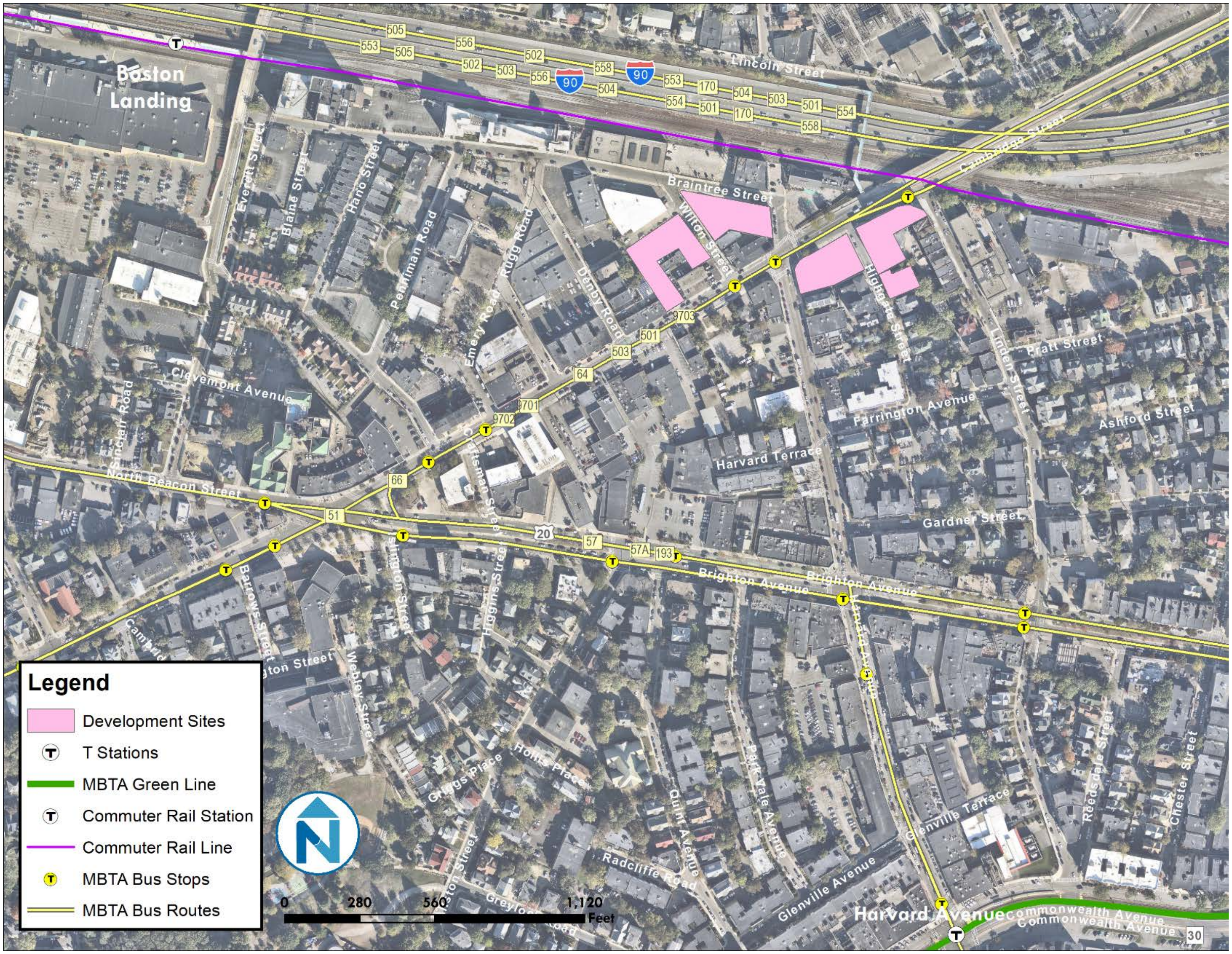
Route 64

The study area and the Project Site are served by the MBTA's Route 64 bus, which offers service from Oak Square in Brighton to Kendall Square in Cambridge. The closest inbound stop to Kendall from the Project Site is found at Cambridge Street and Harvard Avenue. The nearest outbound stop to Oak Square from the Project Site is found in the same location. Route 64 provides direct access to Kendall Square and central Cambridge, both of which are regional employment centers.

Route 66

The study area is served by the MBTA's Route 66 bus. Route 66 operates between Harvard Square in Cambridge and Dudley Square while providing service to the Longwood Medical Area. The closest stop to the Project Site is at Cambridge Street and Harvard Avenue. Route 66 provides high frequency direct service to Harvard Square and Longwood, both of which are major regional employment centers.

Figure 5 Project Area Public Transportation



2.6 Pedestrian Connections

The project area and Allston in general are highly accessible by foot, with sidewalks present on nearly all roadways. The Commercial areas and mixed-use streets in and around the Project Site serve a large number of pedestrians that frequent the stores, shops and services in Allston Village and especially on Cambridge Street, Harvard Avenue, and Brighton Avenue. Cambridge Street north of the Massachusetts Turnpike becomes much wider, with less activity, but still maintains pedestrian connectivity.

Within the study area, sidewalks are provided on both sides of all surrounding streets, with marked crosswalks across most streets at most intersections. Pedestrian conditions vary among the area intersections. A pedestrian bridge exists over the Massachusetts Turnpike connecting Cambridge Street in the south to Lincoln Street in the north.

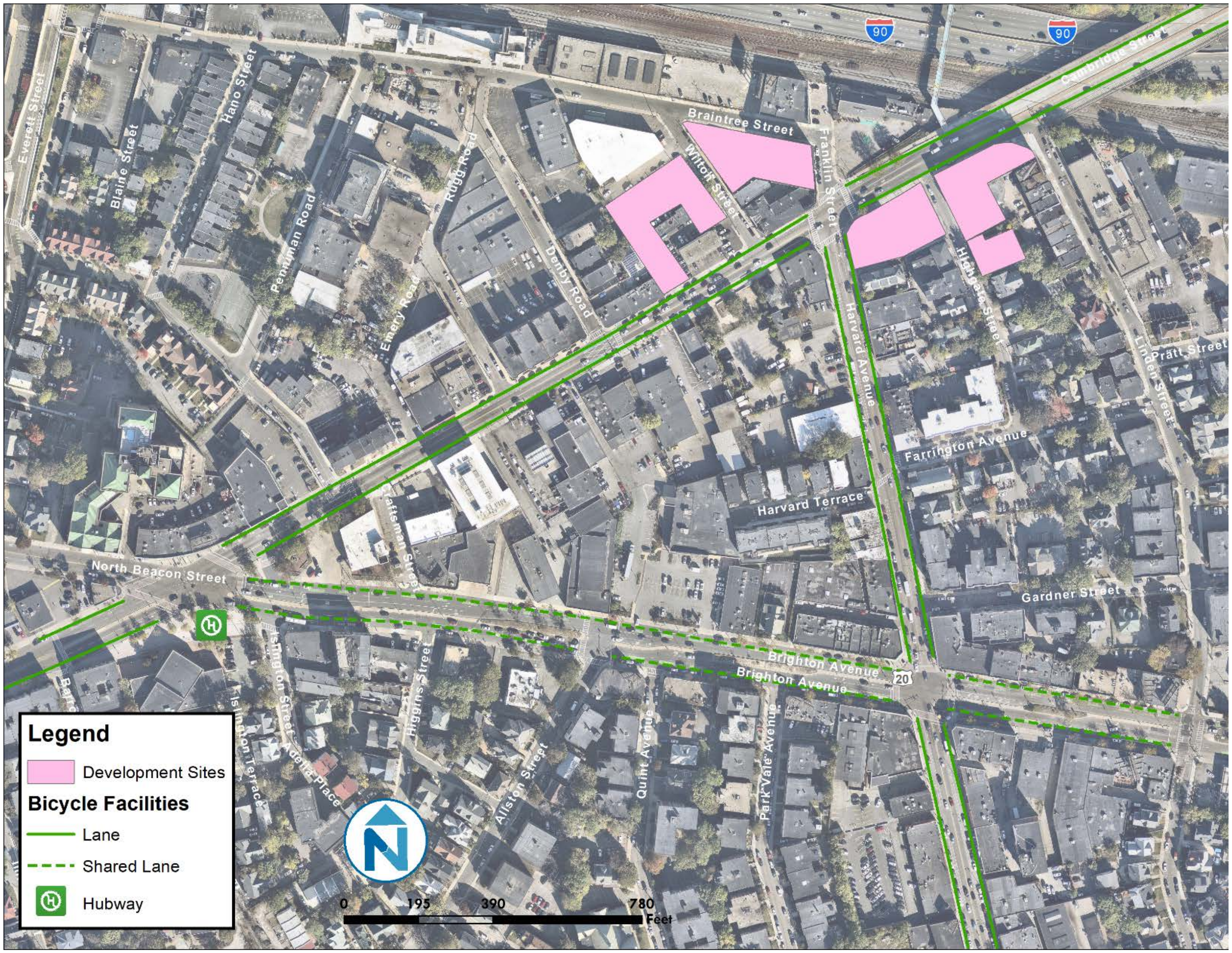
In particular, the traffic signals at Cambridge Street / Harvard Avenue, Cambridge Street / Brighton Avenue, and Harvard Avenue / Brighton Avenue provide protected movements for pedestrians to cross intersections. At other unsignalized intersections, crosswalks are not always provided.

2.7 Bicycle Connections

Within the study area, formal bicycle accommodations are provided along Cambridge Street, Harvard Avenue, and Brighton Avenue. Cambridge Street and Harvard Avenue offer dedicated bicycle lanes in both directions, while Brighton Avenue provides well marked shared lanes for cyclists which develop into dedicated bicycle lanes east of the study area. Brighton Avenue provides a critical bicycle connection to Boston University, Back Bay, and downtown Boston. Cambridge Street offers connectivity to the north to Harvard University.

Due to the large number of automobiles present on the major thoroughfares within the study area, bicycling on these corridors can be uncomfortable for new riders. The expansion of dedicated bicycle lanes throughout the study area may alleviate this in the future. Bicycle facilities are shown in **Figure 6**.

Figure 6 Project Area Bicycle Facilities



3 CAPACITY ANALYSIS

The following traffic capacity analysis was conducted to create a detailed baseline understanding of the existing transportation conditions in the study area. The scope of the analysis including the integration and time periods evaluated and counts taken were confirmed with BTD.

3.1 Existing Conditions Analysis

In order to document existing traffic patterns and levels, vehicle, pedestrian, and bicycle turning movement counts (TMCs) were conducted or compiled from previous studies at seven study intersections proximate to the proposed Allston Developments:

1. Braintree Street at Rugg Road (TMCs collected 2013)
2. Cambridge Street at Denby Road (TMCs collected 2017)
3. Cambridge Street at Wilton Street (TMCs collected 2017)
4. Cambridge Street at Harvard Avenue / Franklin Street (TMCs collected 2017)
5. Cambridge Street at Highgate Street (TMCs collected 2017)
6. Linden Street at Farrington Avenue (TMCs collected 2017)
7. Linden Street at Gardner Street (TMCs collected 2015)

The Project Team worked with the Boston Transportation Department on a count program that would both be consistent with the analysis provided by other area planning efforts and provide updated or new counts as needed. Counts were recorded from 7:00 AM to 9:00 AM and 4:00 PM to 6:00 PM, and included heavy vehicles and cars, and pedestrians and bicyclists. The morning and evening peak hour of traffic varied by intersection. Therefore, a conservative peak hour of traffic was selected based on the highest amount of traffic in the transportation network for each intersection.

The lane configuration and traffic control devices are depicted in **Figure 7**. The vehicular, pedestrian, and bicycle volumes are depicted in **Figure 8, Figure 9** and **Figure 10.** Full, complete traffic count data are provided in the Appendix C. The analysis herein documents patterns in volumes and turning movement counts on study area intersections. The existing conditions network was then used as baseline to create the 2024 No-Build scenario and Build scenarios.

3.2 Existing Volumes

Vehicles

Vehicle volumes within the study area are moderate, with some approaches carrying up to 1000 peak hour vehicles. As shown in **Figure 8**, Cambridge Street carries the most vehicles in the study area. In the AM peak hour, Cambridge Street carries approximately 1000 vehicles in the westbound and eastbound directions at the most heavily traffic segment. The PM peak hour carries a similar number. The intersections studied in the vicinity of the Project Site that do not involve Cambridge Street are generally not part of a connected street network and therefore carry less traffic as compared with intersections on Cambridge Street.

The intersection of Cambridge Street and Harvard Avenue / Franklin Street carries the greatest total traffic volumes, with turning movements observed moving from Cambridge Street southbound on Harvard Avenue. Left and right turns at other observed intersections on Cambridge Street are less substantial.

Bicycles

Peak hour bicycle volumes were also observed and recorded at the locations described above. The counts showed relatively low bicycle activity within the study area. The highest bicycle volumes are concentrated along Cambridge Street. Bicycle volumes primarily travel in the eastbound direction during the AM peak hour, and in the westbound direction during the PM peak hour. The highest AM and PM peak hour bicycle volumes in both directions range from approximately 15-30 bicyclists. **Figure 9** shows existing bicycle volumes by intersection for the morning and evening peak hours.

Pedestrians

Peak hour pedestrian volumes were recorded as part of the transportation counts at area intersections. As shown in **Figure 10**, pedestrian volumes in the study area make up a significant amount of traffic, particularly at the intersection of Cambridge Street and Harvard Avenue which has a dedicated pedestrian phase.

3.3 Existing Traffic Capacity

To assess the traffic operations at study area intersections, turning movement counts and volumes were compiled. Field observations then were used to calibrate the traffic analysis so that existing results reported were more closely aligned with observed intersection operations.

After these calibrations were made, the traffic operations of the study intersections were evaluated utilizing the procedures outlined by the 2000 Highway Capacity Manual (HCM), and reported in accordance with BTD's standards for transportation impact analysis. Each intersection within the study area was analyzed with summary results for Level of Service (LOS), reporting the summary vehicular delay with a letter grade A to F. In addition, reported in this section is volume to capacity ratio (V/C), the stop time delay in seconds and 95th percentile queue lengths in feet. A summary chart of the results of this analysis is shown in **Table 5** below.

As shown in **Table 5**, every approach at the unsignalized intersections operates at LOS B or better, with minimal delay and queue lengths. In both the AM and PM peak periods, all approaches operate at LOS E or better, with most operating at LOS D or better, which is typical in an urban environment. The longest anticipated traffic queue is 250 feet, and the greatest expected delay is 65 seconds.

Figure 7 Site Vicinity Traffic Control Devices and Lane Configuration

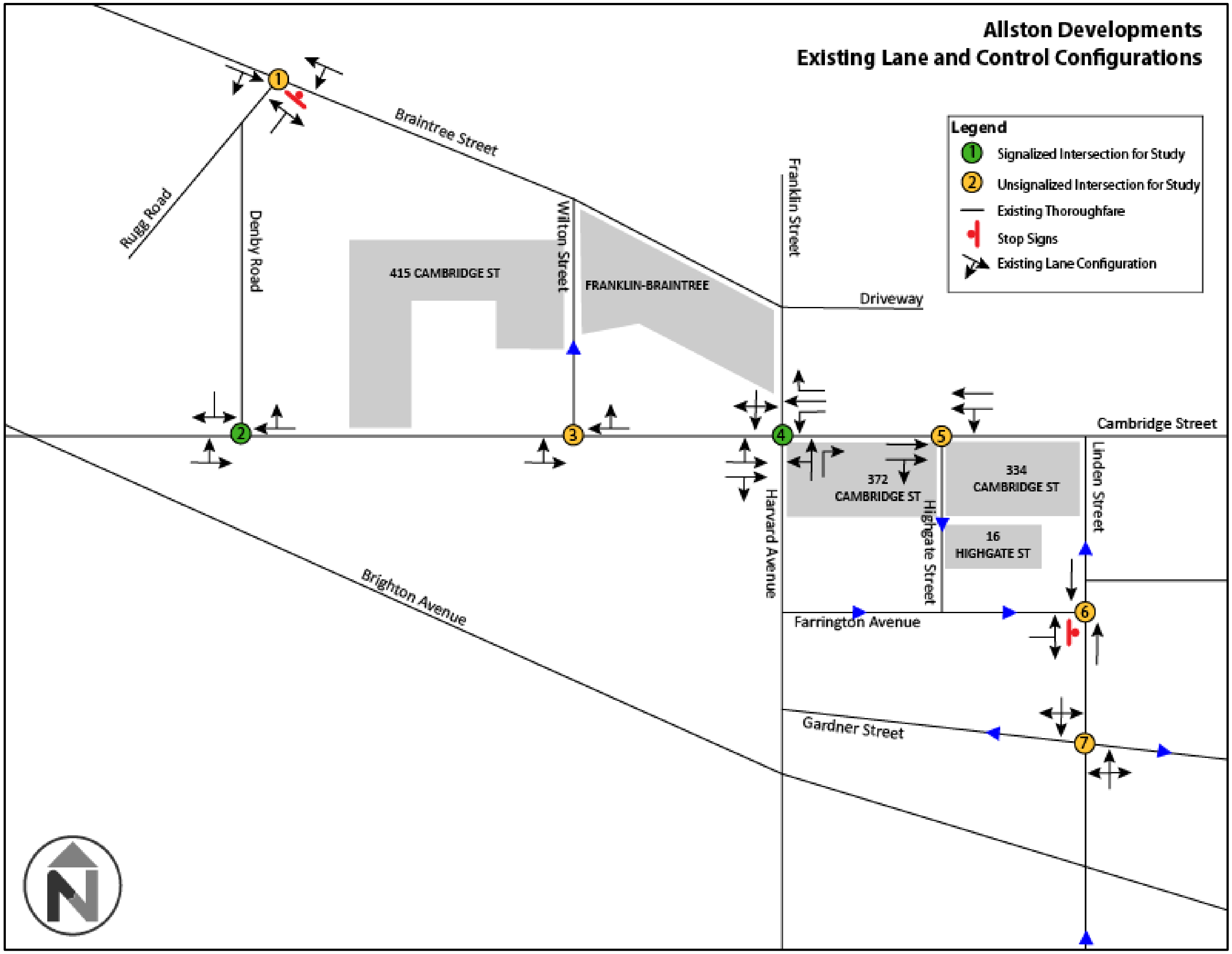


Figure 8 Existing Peak Hour Vehicle Volumes

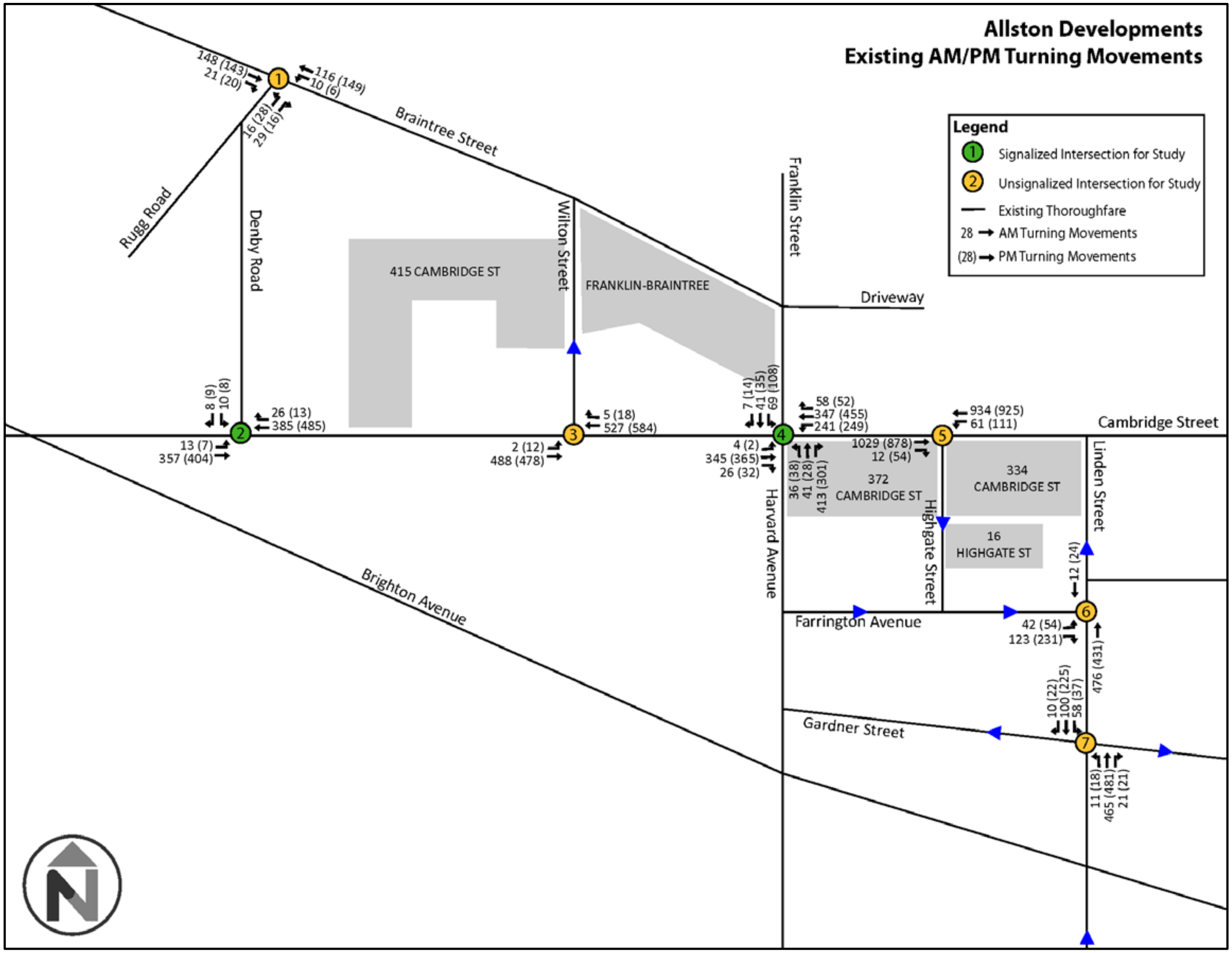


Figure 9 Existing Peak Hour Bicycle Volumes

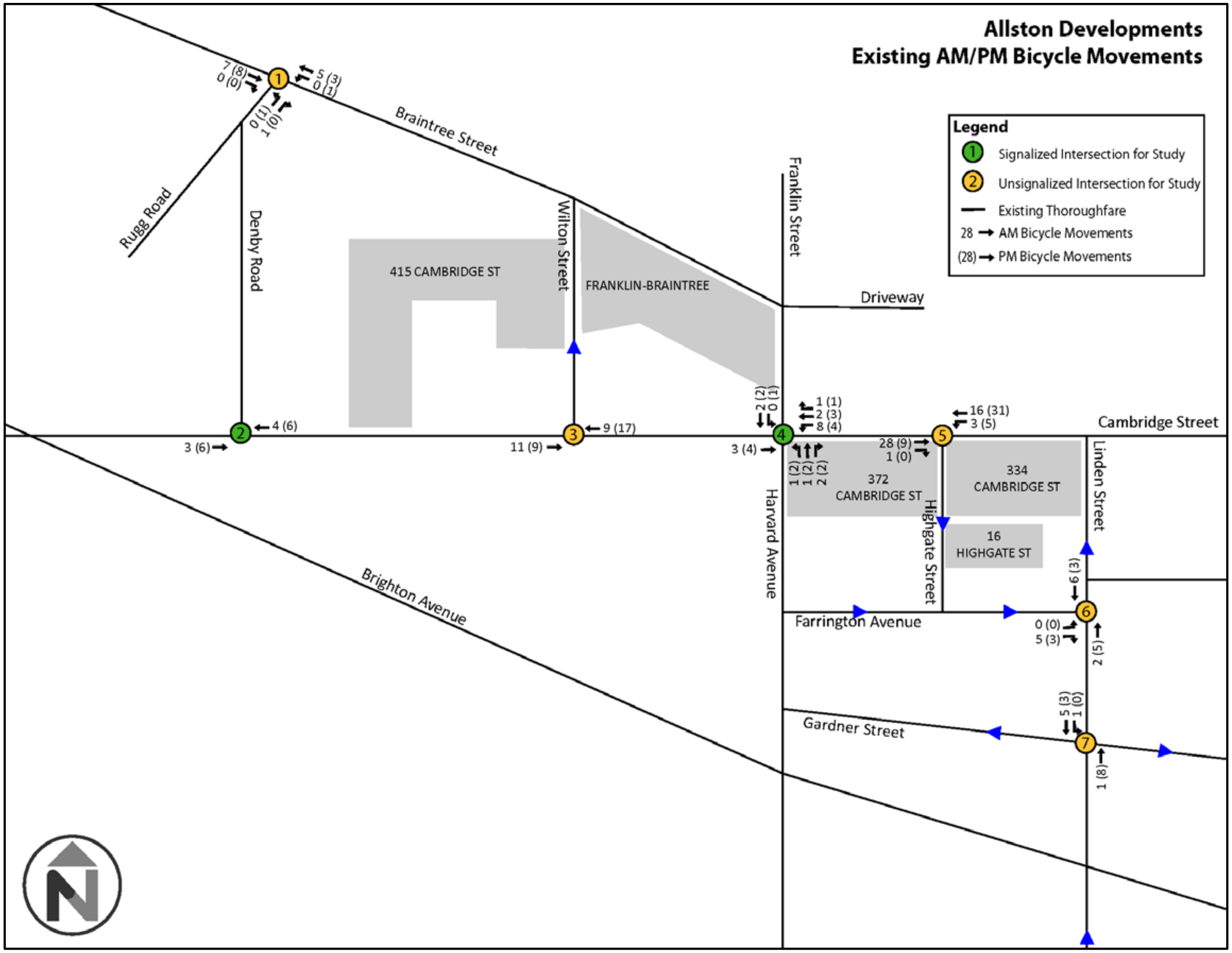


Figure 10 Existing Peak Hour Pedestrian Volumes

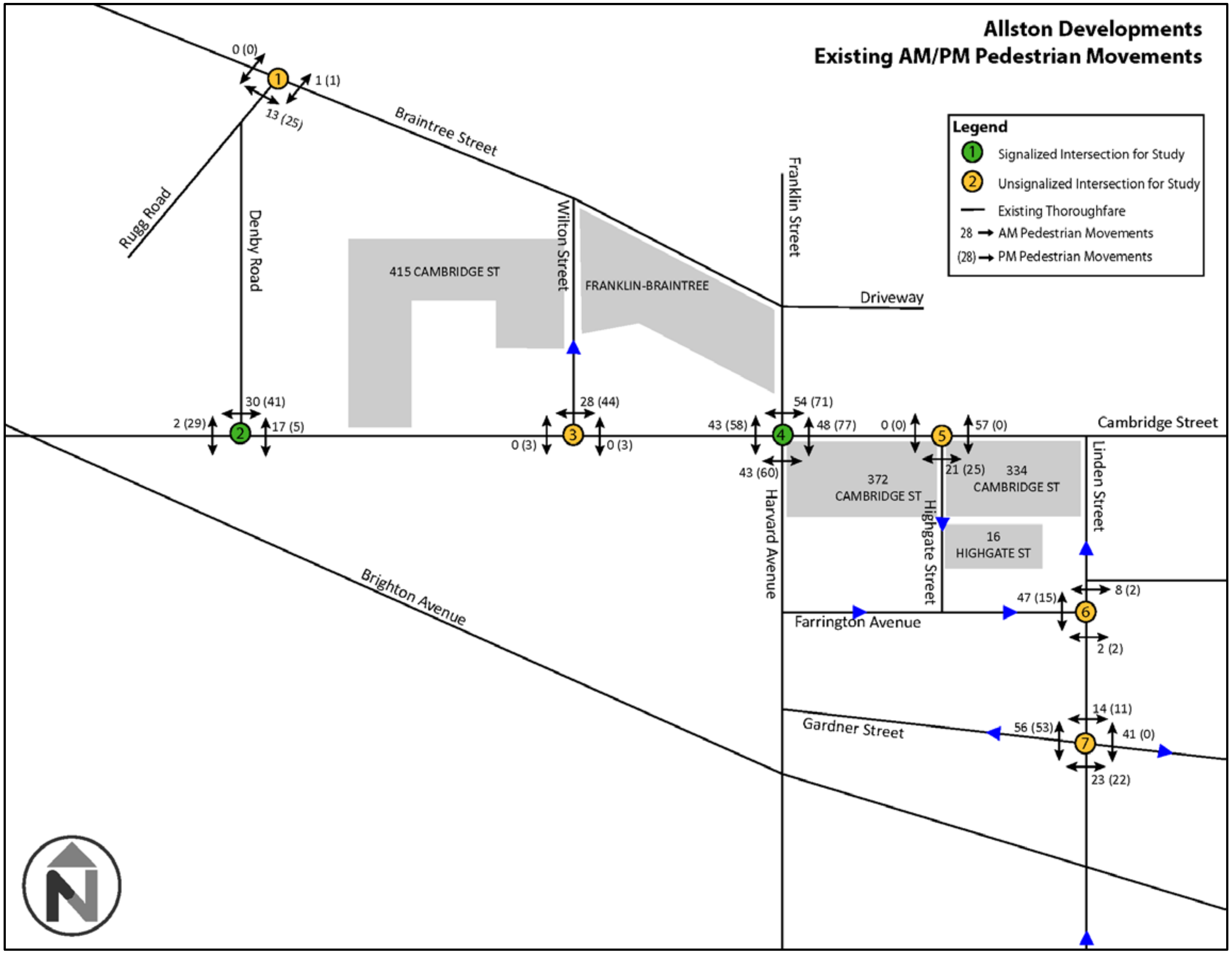


Table 5 Existing Level of Service Summary

	Approach	AM Peak Hour				PM Peak Hour			
		LOS	Delay	V/C	Queue 95th	LOS	Delay	V/C	Queue 95th
Unsignalized	**Rugg Road and Braintree Street**								
	Rugg Road NB	B	10.1	0.06	5	B	10.7	0.07	6
	Braintree Street EB	A	0	0.11	0	A	0	0.1	0
	Braintree Street WB	A	0.6	0.01	1	A	0.3	0.01	0
Signalized	**Cambridge Street and Denby Road**								
	Denby Road SB	D	42	0.09	27	D	45.2	0.09	23
	Cambridge Street EB	A	2.4	0.29	110	A	2.7	0.3	114
	Cambridge Street WB	A	2.5	0.3	114	A	1.3	0.37	31
Unsignalized	**Cambridge Street and Wilton Street**								
	Cambridge Street EB	A	2.3	-	78	A	4.9	-	86
	Cambridge Street WB	A	1.3	-	0	A	1.6	-	0
Signalized	**Cambridge Street and Harvard Avenue / Franklin Street**								
	Harvard Avenue NB	D	38.3	0.73	340	C	34.7	0.57	257
	Franklin Street SB	E	57.2	0.71	136	E	64.9	0.81	179
	Cambridge Street EB	D	35.1	0.45	181	C	30.8	0.42	174
	Cambridge Street WB	C	20.5	0.43	240	C	24	0.59	358
Unsignalized	**Cambridge Street and Highgate Street**								
	Cambridge Street EB	A	1.8	-	75	A	1.4	-	19
	Cambridge Street WB	B	12.3	-	226	A	7.9	-	147
Unsignalized	**Linden Street and Farrington Avenue**								
	Linden Street NB	A	0	-	0	A	0	-	0
	Linden Street SB	A	0	-	0	A	0	-	0
	Farrington Avenue EB	B	10.8	0.24	27	B	11.8	0.4	52
Unsignalized	**Linden Street and Gardner Street**								
	Linden Street NB	A	2.3	-	52	A	2.8	-	47
	Linden Street SB	A	4.7	-	67	A	4.3	-	62

4 EVALUATION OF LONG-TERM IMPACTS

4.1 Future No Build Conditions (2024)

To provide a baseline comparison for the impacts of the Project, a future "no-build" analysis was conducted in accordance with BTD requirements. This process entailed creating a forecast network for the year 2024 that builds upon the existing traffic conditions as outlined previously. Following BTD's guidelines for the development of a No Build scenario, this analysis takes into account other permitted area developments, planned infrastructure changes, and a background growth rate. Projects included in the analysis below were used for the development of the No Build scenario and were selected in consultation with BTD.

Nearby Developments

The Allston neighborhood has seen the completion and proposal of several new developments in the area near Cambridge Street, in the vicinity of the Project Site. Below are short descriptions of recently completed or approved projects near the Allston Developments. Future traffic volumes projected by the developments below were added to the traffic network analysis for the No Build condition.

- **75 Braintree Street, Allston, MA:** An 80-unit residential building with 67 parking spaces, and associated retail space. This project is under construction.
- **Boston Landing, Brighton, MA:** Boston Landing is a 1.43 million square foot development that includes 250,000 square feet for the New Balance headquarters, as well as a sports complex, hotel, retail and restaurant uses, and office space. This project is under construction
- **Harvard University Science and Engineering Complex, Allston, MA:** This development consists of a new research and classroom building located in Allston and associated with Harvard University. The building is currently under construction.

Infrastructure Projects

Roadway circulation changes outlined in the 75 Braintree Street development study, assumed to be in place by the No Build year, were requested for inclusion in this analysis by BTD. These were were applied to the No Build scenario network as follows:

- Conversion of Franklin Street north of Cambridge Street to a one-way northbound roadway. Signal timing at the Cambridge Street and Harvard Avenue / Franklin Street intersection is adjusted accordingly.

- Denby Road north of Cambridge Street would be converted to a one-way southbound roadway (towards Cambridge Street). Signal timing at the Cambridge Street and Denby Road intersection was adjusted accordingly.

Analysis

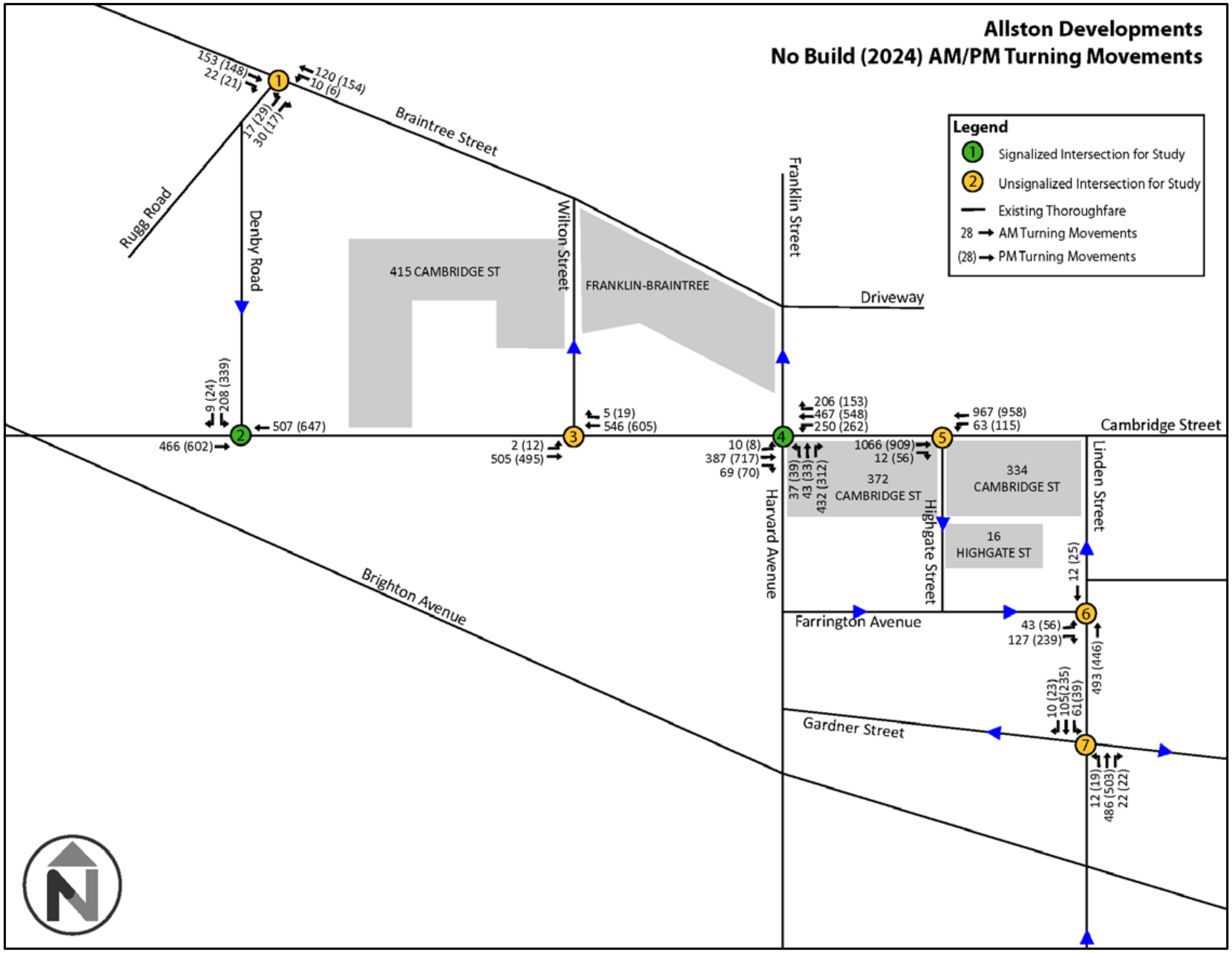
In addition to the developments and changes described above, the No Build Analysis (2024) includes a 0.5% annual growth rate. For the No Build (2024) condition, traffic impacts were evaluated at the following intersections:

1. Braintree Street at Rugg Road
2. Cambridge Street at Denby Road
3. Cambridge Street at Wilton Street
4. Cambridge Street at Harvard Avenue / Franklin Street
5. Cambridge Street at Highgate Street
6. Linden Street at Farrington Avenue
7. Linden Street at Gardner Street

4.1.1 Future No Build (2024) Volumes

Expected project generated trips from the developments described above were added to the Existing Conditions to create the Future N0-Build volumes. **Figure 11** displays peak hour vehicle traffic volumes for the forecasted 2021 No-Build scenario. In consultation with BTD, an assumed annual background growth rate of 0.5% was included in addition to the specific projects described above which had volumes shown for intersections within the study area. Build volumes from the 75 Braintree Street study were used as the basis for the no build volumes in this scenario where possible, while intersections not included in that study were volume-adjusted as necessary to complete the scenario.

Figure 11 No-Build Peak Hour Vehicle Volumes (2024)



4.1.2 Future No-Build (2024) Traffic Capacity

The future No-Build vehicle volumes were assessed within the expected transportation system for the No-Build scenario. Each identified intersection was analyzed for LOS with grades on the quality of traffic from A to F, as well as the volume to capacity ratio, the average delay in seconds, and 95th percentile queue lengths in feet. The intersection capacity analysis worksheets are provided in Appendix C. A summary chart of the results of this analysis is presented in **Table 6**.

Among all the intersections, traffic operations for the Future No-Build scenario are largely unchanged compared to existing conditions. The exception to this is the intersection of Cambridge Street and Denby Road, which experiences much greater traffic volumes in the no build scenario in comparison with the existing scenario due to the 75 Braintree Development. Adjustments to circulation and signal timing account for this growth, but the southbound approach still experiences LOS F during the PM peak. Traffic on Cambridge Street, which is given priority due to its arterial nature, is not significantly impacted and operates at LOS B during all periods at this intersection. Traffic operations at Cambridge Street and Harvard Avenue also change due to the conversion of Franklin Street to a northbound one-way. However, all approaches at this intersection continue to operate at LOS D or better.

Table 6 Future No Build (2024) Traffic Operations Summary

	Approach	AM Peak Hour				PM Peak Hour			
		LOS	Delay	V/C	Queue 95th	LOS	Delay	V/C	Queue 95th
Unsignalized	**Rugg Road and Braintree Street**								
	Rugg Road NB	B	10.2	0.07	5	B	10.8	0.07	6
	Braintree Street EB	A	0	0.11	0	A	0	0.11	0
	Braintree Street WB	A	7.7	0.01	1	A	7.7	0.01	0
Signalized	**Cambridge Street and Denby Road**								
	Denby Road SB	D	51.5	0.8	220	F	84.6	1.02	389
	Cambridge Street EB	A	6.1	0.41	192	B	15	0.59	347
	Cambridge Street WB	A	6.2	0.42	199	B	11.3	0.64	156
Unsignalized	**Cambridge Street and Wilton Street**								
	Cambridge Street EB	A	3.5	-	210	B	16	-	233
	Cambridge Street WB	A	1.2	-	36	A	1.8	-	8
Signalized	**Cambridge Street and Harvard Avenue / Franklin Street**								
	Harvard Avenue NB	D	40.9	0.75	370	D	41.1	0.67	264
	Cambridge Street EB	D	38.4	0.58	223	C	29.2	0.59	323
	Cambridge Street WB	C	22.5	0.57	299	B	13.3	0.5	288
Unsignalized	**Cambridge Street and Highgate Street**								
	Cambridge Street EB	A	2.6	-	133	A	1.7	-	21
	Cambridge Street WB	A	9.9	-	216	A	8.7	-	147
Unsignalized	**Linden Street and Farrington Avenue**								
	Linden Street NB	A	0	-	0	A	0	-	0
	Linden Street SB	A	0	-	0	A	0	-	0
	Farrington Avenue EB	B	10.9	0.25	70	B	12.1	0.42	56
Unsignalized	**Linden Street and Gardner Street**								
	Linden Street NB	A	2.9	-	32	A	3.4	-	44
	Linden Street SB	A	5.1	-	68	A	3.6	-	35

4.2 Build Conditions

4.2.1 Site Access, Circulation, Pedestrian Walkway

The proposed site access, circulation, and pedestrian walkway will be beneficial to the Project, surrounding neighborhood and future occupants. Improved sidewalks will be planned for the street frontages along Cambridge Street and Highgate Street, consistent with BTD plans for the area. Improvements will also include the elimination of curb cuts and the addition of ground level retail to formerly blank spaces, greatly enlivening these important frontages in Allston Village, and creating a more inviting pedestrian environment. 237 new off-street vehicle parking spaces will also be created as part of the Project.

4.2.2 Trip Generation

To estimate the number of vehicle, transit, walk, and bicycle trips associated with the Project, trip generation analysis and estimates were developed based on the most recent data presented in the ITE Trip Generation Manual, 10th Edition. The Project consists of two new land use components, and so trip estimates were based on the ITE trip rates for Land Use 220 (Multi-Family Residential Unit), and the ITE trip rates for Land Use 820 (Shopping Center). The ITE land use category and the corresponding trip rates used for analysis are shown in **Table 7** below:

Table 7 ITE Trip Generation Rates

ITE Class	Multi-Family Residential Unit (220)	Shopping Center (820)
	Trips per Unit	Trips per 1,000 SF
Weekday	6.65	42.7
AM Peak Hour*	0.51	0.96
PM Peak Hour*	0.62	3.71

*Peak hour of adjacent street traffic

As stated previously, the Project will primarily consist of residential units, but there are some retail uses and parking. The daily unadjusted trips generated by the site are provided in **Table 8**.

Table 8 Unadjusted Daily Person Trip Generation of the Site - Initial

Units	Retail	Daily trips-Units	Daily trips-Retail	Total	Entering	Exiting
379	15,055	2,520	647	3,168	1,584	1,584

Note that through the course of Project Development, the program has changed slightly, with a reduction in residential units, and a small addition to the retail space. **Table 8** shows the original program used to complete the transportation analysis. In this section, an analysis of the trip generation for the program proposed in this filing was also completed and is shown in **Table 9**. As shown the overall person trip generation is lower (by 100 daily person trips) under the proposed program, and thus the more conservative (higher) trip generation from the Initial Program was used to complete the Build Transportation Analysis.

Table 9 Unadjusted Daily Person Trip Generation of the Site - Proposed

Units	Retail	Daily trips-Units	Daily trips-Retail	Total	Entering	Exiting
334	20,115	2,221	865	3,086	1,543	1,543

As compared to the standard development used in ITE analyses, the study area has a low driving rate. Allston, and especially the area on the Cambridge Street corridor, is changing rapidly. In accordance with recent analysis, the Project team closely coordinated with BTD on appropriate analytical methods to accurately project expected activity at this site. The applied mode split to this Project by time of day and use type is presented in **Table 10**.

Table 10 Mode Split by Time of Day and Use Type

Trip Type	Residential Use	Retail Use
Daily Avg. Mode Share		
Vehicle Trips	47%	52%
Transit Trips	22%	8%
Walk Trips	31%	40%
AM Peak Mode Share		
Vehicle Trips	37% Entering / 43% Exiting	59% Entering / 43% Exiting
Transit Trips	30% Entering / 21% Exiting	18% Entering / 11% Exiting
Walk Trips	33% Entering / 36% Exiting	23% Entering / 46% Exiting
PM Peak Mode Share		
Vehicle Trips	43% Entering / 37% Exiting	47% Entering / 43% Exiting
Transit Trips	21% Entering / 30% Exiting	7% Entering / 11% Exiting
Walk Trips	36% Entering / 33% Exiting	46% Entering / 46% Exiting

The site generated person and vehicle trips calculated with these mode splits are shown in **Table 11.**

Table 11 Site Generated Person and Vehicle Trips – Initial

	Entering			Exiting			Total		
Period	Auto	Transit	Walk	Auto	Transit	Walk	Auto	Transit	Walk
Daily	761	303	520	760	303	520	1,521	606	1,040
AM Peak	20	13	15	69	33	60	89	46	75
PM Peak	79	34	68	43	28	40	121	62	108

As described above, through the course of Project Development, the program has changed slightly, with a reduction in residential units, and a small addition to the retail space. **Table 11** shows the Daily, AM and PM peak trip generation by mode for the original program used to complete the transportation analysis. **Table 12** shows the same breakdown for the program as proposed, which shows slightly more conservative (lower) trips by all modes during all periods, and thus the more conservative (higher) trip generation from the Initial Program was used to complete the Build Transportation Analysis.

As included in the analysis, using the more conservative initial numbers, the Project evaluated a total of 1,521 weekday daily auto trips based on the total residential and retail uses. During a typical weekday, an estimated total of 89 and 121 AM and PM peak hour auto trips were evaluated to be generated from the site, respectively.

With the Project's close proximity to transit and high-quality pedestrian amenities, approximately 606 and 1,040 daily transit and walk trips were shown. For transit, approximately 46 and 62 AM and PM peak hour trips are included, respectively. For walk trips, approximately 75 and 108 AM and PM peak hour trips are shown.

Table 12 Site Generated Person and Vehicle Trips – Proposed

	Entering			Exiting			Total		
Period	Auto	Transit	Walk	Auto	Transit	Walk	Auto	Transit	Walk
Daily	747	278	518	747	278	517	1,494	558	1,035
AM Peak	20	13	15	69	33	60	82	42	69
PM Peak	79	34	68	43	28	40	118	57	107

4.3 Trip Distribution and Assignment

A trip distribution was developed characterizing the overall split of person trips by mode and then assigning the vehicle trips to the network. As shown in **Table 11** approximately half of generated trips for all uses and time periods are person trips by automobile. Transit trips and walking trips are based on the assumption that transit riders typically travel to the nearest bus stop or train station on foot.

Auto trips were then assigned to the network using a directional distribution prepared using BTD's mode share guidelines.

For vehicle trips associated with the site, the majority enter and exit from the east, moving westbound along Cambridge Street to access the various building sites. A smaller number of trips approach from and exit to the west along Cambridge Street. A few trips also enter and exit from the south, using Harvard Avenue. A summary of expected vehicle movements can be viewed in **Figure 12** and **Figure 13**.

4.3.1 Future Build Volumes

Using the 2024 No Build as a basis, the 2024 Build network incorporates the proposed site plan and resulting Project generated traffic volumes into a new network for the AM and PM peak hours. **Figure 14** highlights the resulting traffic volumes on the network for the 2024 build year.

4.3.2 Future Build Capacity Analysis

The 2024 Future Build network was completed by adding the site generated vehicle trips to the 2024 No Build network described above. Each intersection within the study area was again analyzed for Level of Service , reporting the quality of traffic with a letter grade A to F, volume to capacity ratio (V/C), the stop time delay in seconds and the 95th percentile queue lengths. The intersection capacity analysis worksheets are provided in Appendix C. A summary chart of the results of this analysis is shown in **Table 13** below. Nearly all approaches operate at LOS D or better, with little change from the No Build scenario. The southbound approach to the intersection of Cambridge Street and Denby Road does change to LOS E from LOS D. However, this change only represents a difference of 3 seconds of delay versus no build conditions, moving from 52 seconds of delay to 55 seconds on that approach.

Figure 12 AM Site Generated Trips

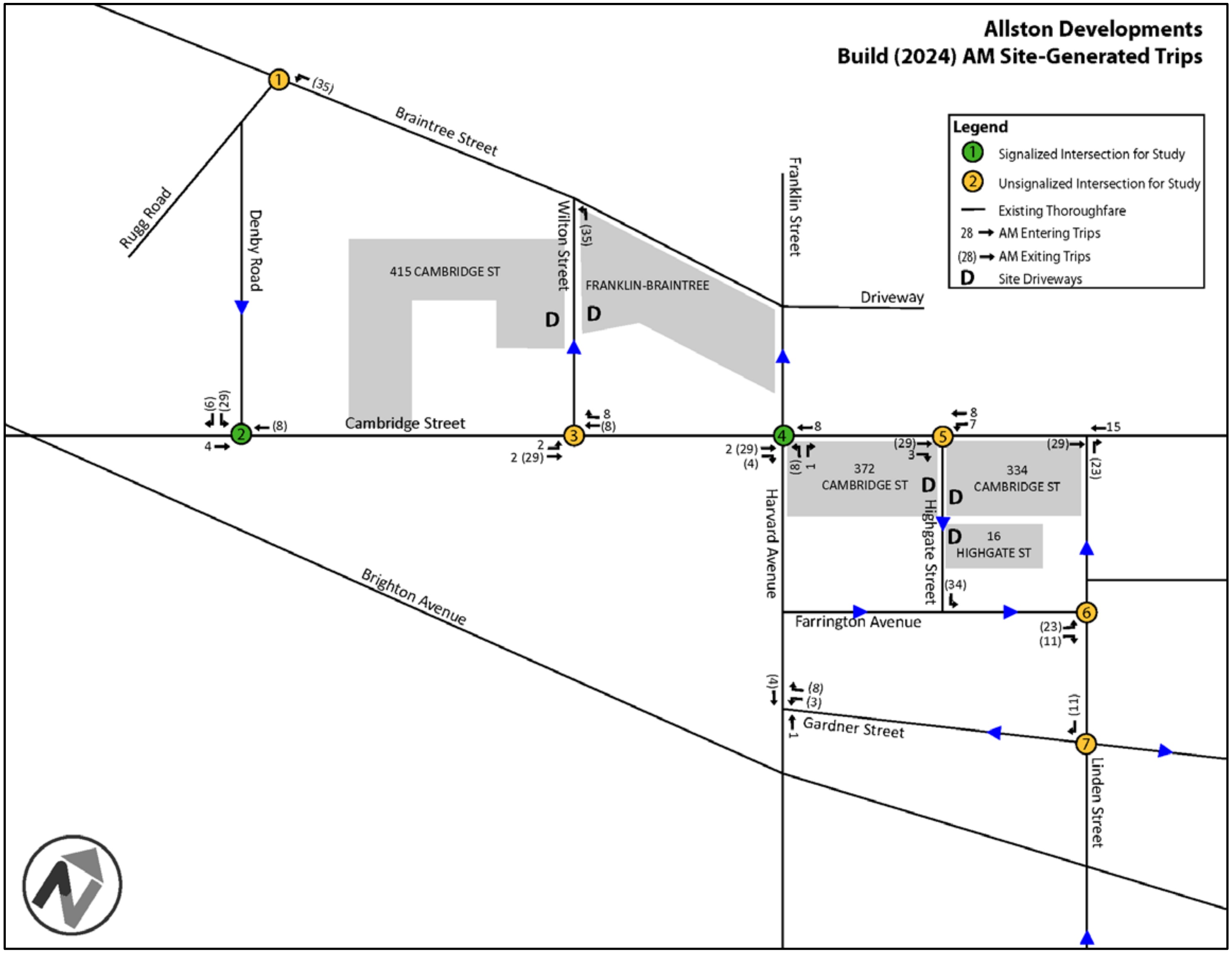


Figure 13 PM Site Generated Trips

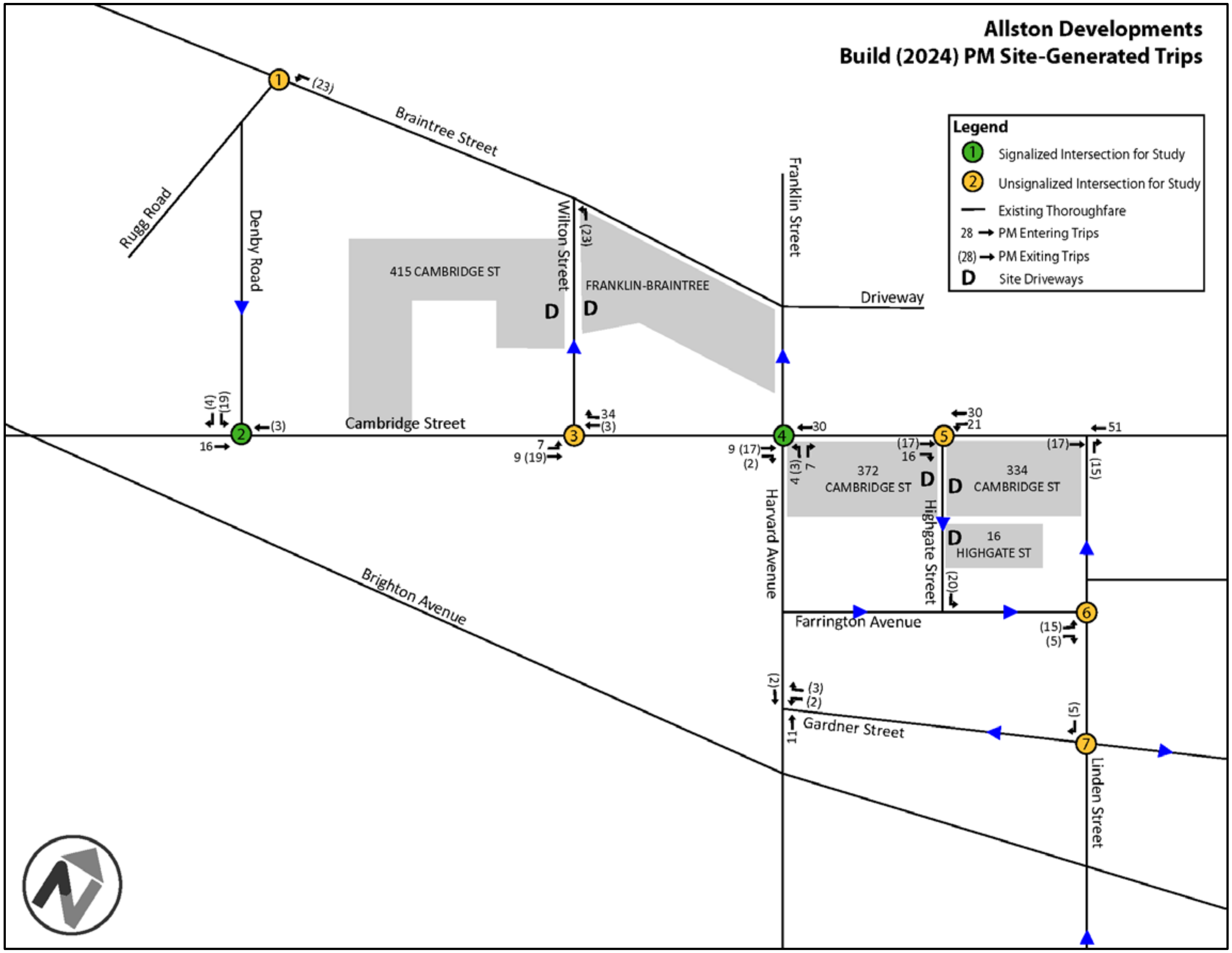


Figure 14 Future Build Vehicle Volumes

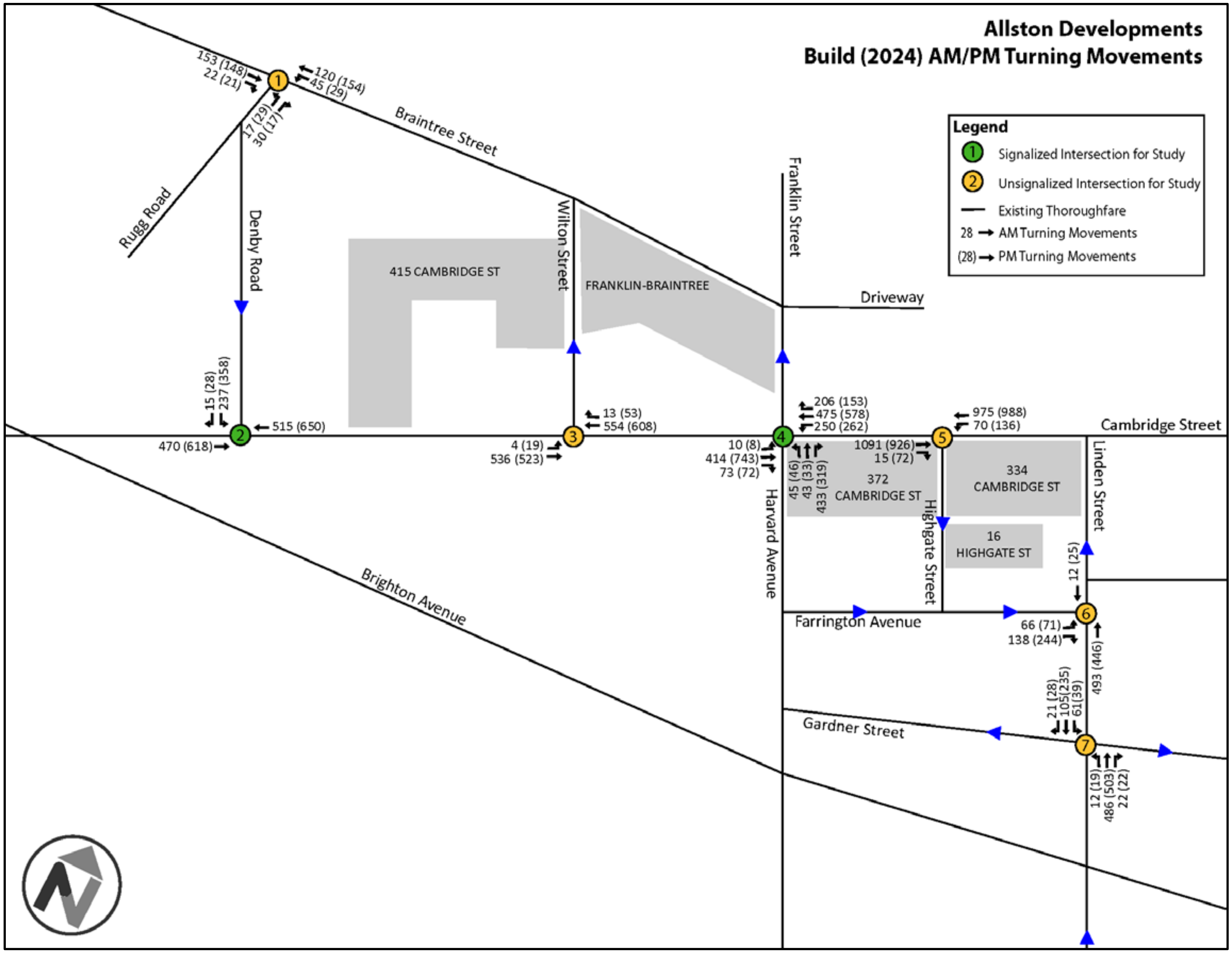


Table 13 Future Build (2024) Intersection Capacity Analysis

	Approach	AM Peak Hour				PM Peak Hour			
		LOS	Delay	V/C	Queue 95th	LOS	Delay	V/C	Queue 95th
Unsignalized	**Rugg Road and Braintree Street**								
	Rugg Road NB	B	10.5	0.07	6	B	11.2	0.08	6
	Braintree Street EB	A	0	0.11	0	A	0	0.11	0
	Braintree Street WB	A	2.4	0.04	3	A	1.4	0.02	2
Signalized	**Cambridge Street and Denby Road**								
	Denby Road SB	E	55.2	0.84	273	F	104.8	1.09	428
	Cambridge Street EB	A	6.9	0.42	194	B	15.4	0.60	362
	Cambridge Street WB	A	7	0.44	204	B	11.0	0.64	155
Unsignalized	**Cambridge Street and Wilton Street**								
	Cambridge Street EB	A	2.2	-	111	A	4.1	-	264
	Cambridge Street WB	A	1.3	-	0	A	1.7	-	0
Signalized	**Cambridge Street and Harvard Avenue / Franklin Street**								
	Harvard Avenue NB	D	41.9	0.75	389	D	41.9	0.72	271
	Cambridge Street EB	D	39	0.62	237	C	30.3	0.62	329
	Cambridge Street WB	C	22.7	0.57	310	B	13.8	0.52	316
Unsignalized	**Cambridge Street and Highgate Street**								
	Cambridge Street EB	A	2.1	-	92	A	1.6	-	7
	Cambridge Street WB	A	5.7	-	242	A	3.4	-	132
Unsignalized	**Linden Street and Farrington Avenue**								
	Linden Street NB	A	0	0.33	0	A	0	-	0
	Linden Street SB	A	0	0.01	0	A	0	-	0
	Farrington Avenue EB	B	13.2	0.36	40	B	13.4	0.48	66
Unsignalized	**Linden Street and Gardner Street**								
	Linden Street NB	A	0.6	-	33	A	1.2	-	85
	Linden Street SB	A	2.5	-	61	A	1.6	-	51

4.3.3 Parking Provision

The Project includes parking facilities providing 237 total spaces across the building sites. The proposed parking supply maximizes available space for parking while avoiding over-supply, contributing to a mixed-use, dense, walkable neighborhood. BTD's off-street parking guidelines recommend a maximum parking ratio between 0.75 and 1.25 spaces per unit of residential development. The Project is proposing a transportation demand management (TDM) program for the buildings, which also includes offering spaces at a premium to lower the Project's demand for parking. The Project provides approximately 0.71 spaces per unit. These ratios for the development are shown in **Table 11** below.

Table 14 Parking Ratio

Building	Parking	Units	Parking Ratio
334 Cambridge Street	35	65	0.54
16 Highgate Street	6	20	0.30
2-8 Harvard Street	48	77	0.62
Allston Hall	0	9	N/A
415 Cambridge Street	102	101	1.01
Franklin/Braintree	46	62	0.74
Total	**237**	**334**	**0.71**

Adjacent to the site, a variety of on-street parking spaces exist that can supplement demand from the limited retail component of the Project. The majority of these are currently unregulated, while some are metered public parking or reserved for residents.

It is anticipated that residents moving to the Allston Square Development will be drawn to the vibrant neighborhood, robust public transportation, easy walks to the shops, services and amenities of Allston Village, and short bicycle rides to many job and cultural centers. As with many recent urban infill developments, auto ownership is diminishing along with the desire or need to own a vehicle.

The Allston Square Development is providing a market appropriate level of parking for the area, and is further committed to minimizing overall parking demand and vehicular travel through the program, design and operation of the overall Project. Parking spaces will be “unbundled” from residential units. Residents will have to lease parking spaces separately from their housing cost, both adding to the cost of owning a vehicle, and lowering the potential cost of housing. Residents will be able to lease parking spaces in other Allston Square Developments as appropriate and available. Furthermore, the Development will consider leasing any unused spaces (spaces not leased by residents) to Allston/Brighton residents at market rates, potentially absorbing some area parking demand.

4.3.5 Bicycle Accommodations

The Project is dedicated to supporting multimodal alternatives. With the site’s close proximity to regional job centers (Kendall, LMA, Downtown) as well as neighborhood based retail and services, bicycling has the potential to serve future residents and visitors.

The Proponent is also committed to meeting the city of Boston’s Bicycle Parking Requirements, shown in **Table 15**, which are intended to encourage bicycling, promote physical exercise, and reduce energy use and emissions in keeping with overall City bicycling goals. The Project is near, about one-tenth of a mile at the shortest point to an existing Hubway bicycle sharing station in the southeast quadrant of the Cambridge Street/Brighton Avenue intersection. The Proponent will work with BTD and other area developments on supporting and assisting in the determination and accommodation of additional Hubway stations as determined.

All individual residential units will have the ability to store bicycles in unit, with hooks made available to residents at no charge as requested. All elevators will have the ability to accommodate bicycles to ease in-unit storage. In addition, the Project is committed to locating protected bicycle storage for up to 300 additional bicycles within the parking and storage spaces being designed into each building. These spaces will be accessible from the street, and will be further defined as the individual Site Plans are refined.

Table 15 City of Boston Bicycle Parking Requirements

Use	BTD Requirement	Bicycle Parking Required
Multi-Unit Residential	1 secure/covered space per residential unit	300 secure/covered bicycle parking spaces
	1 outdoor/covered or outdoor/open space per 5 units	76 outdoor parking spaces to be determined in conjunction with BTD
	Shower and changing facilities (included in each unit)	Provided in each unit
	Provide one bike share station. Bike station requirement may be waived if another station is within 200 yards of the development.	The Cambridge Street/Brighton Ave hubway is approximately one-tenth of a mile from the nearest development building.
	TOTAL	376 Bike Parking Spaces

5 TRANSPORTATION MITIGATION MEASURES

The Allston Square Project will enhance the Project Site, Cambridge Street, and the local neighborhood. It will create an inviting pedestrian environment, in most cases replacing blank walls or vacant lots with vibrant, active street frontage and neighborhood serving retail. The Project is designed to attract residents seeking the vibrant neighborhood, robust public transportation, easy walks to the shops, services and amenities of Allston Village, and short bicycle rides to many job and cultural centers.

Vehicle capacity analysis shows a negligible change in delay at all Project area intersections, with almost no change in Level of Service at any approach between the No Build and Build scenarios. With its higher density, walking and biking amenities and proposed TDM measures (see following section), the Project supports the growth of Allston as a transit-rich, walkable, bikeable neighborhood. The Project will add multimodal supportive infrastructure and help to encourage building tenants towards active modes of transportation including using and riding transit. Specific transportation enhancements include the following:

- Improved sidewalks adjacent to all sites, consistent with BTD plans for Cambridge Street

- Closure of curb cuts, enhancing pedestrian environment
- Creation of active street frontages along vibrant Allston Village Streets
- Project designed to work with area improvements and roadway circulation changes planned by others
- 237 new off-street parking spaces
- 300 new bicycle parking spaces
- Unbundling parking for project residents
- Allowing neighborhood residents to lease excess parking spaces
- Implementing on street, publicly accessible bicycle parking spaces
- Working with BTD and other area developments on supporting and assisting in the determination and accommodation of additional Hubway stations as determined.
- Committed, ongoing support for BTD plans for ongoing neighborhood circulation improvements on Cambridge Street and beyond
- Robust transportation demand management plan

5.1 Transportation Demand Management

Transportation demand management (TDM) comprises a variety of strategies designed to reduce single-occupancy vehicle (SOV) travel and encourage public transit, walking, bicycling and other more space efficient and less costly modes. As seen in other recent area projects, most new residents choosing to move to Allston do so for the ability to get around without a car. The Project is being built to accommodate that lifestyle, integrating into the neighborhood with many shops, services and access to transit all steps away. Likewise, retail components will complement other area retail and draw largely from local clientele. Nevertheless, the implementation of TDM programs is critical to helping ensure that residents, employees and visitors can meet their mobility needs using the variety of transportation options available in the surrounding neighborhood. The Project intends to adopt the following measures and programs to benefit the future office employees and the surrounding neighborhood, while reducing vehicular traffic and potential environmental impacts.

Programmatic

- Provide information on travel alternatives on-site and with lease/sale information;
- Encourage the use of non-auto modes for residents, employees and visitors;
- Post signs and enforce idling laws at the site's street frontage; and
- Work cooperatively with other area organizations including Allston Village Main Streets, and any Transportation Management Association (TMA) serving the area.

Parking

- Providing market appropriate parking for the Site
- Allowing parking leases across buildings for Project residents as needed
- Unbundling parking, so that residents will lease parking spaces separately from their housing cost, both adding to the cost of owning a vehicle, and lowering the potential cost of housing.

- Consideration of leasing any unused spaces (spaces not leased by residents) to Allston/Brighton residents at market rates, potentially absorbing some area parking demand.

Public Transportation

- Provide information of travel alternatives on-site in a visible and easily accessible location within the building's common areas;
- Including public transportation information and directions in lease agreements with project residents

Pedestrian/Bicycle

- Provide free, secure, weather protected, on-site bicycle parking for residents and visitors;
- Provide an attractive sidewalk along all site frontages to improve and enhance the area's walkability;
- Promote Hubway, the City of Boston's bicycle sharing program
- Provide publicly available bicycle spaces in the area surrounding the site.

Infrastructure – Project Overview

1.0 Introduction

As mentioned previously in this Project Notification Form (PNF), the Project is comprised of several new buildings and one renovated building that will be constructed on several existing parcels of land. This section of the PNF focuses on the utility infrastructure requirements of each of the new buildings. Due to the expansive nature of the overall project, the availability of existing utility infrastructure as well as the utility requirements for each of the new buildings will be described separately in this Section of the PNF.

The "sub-developments" that comprise the overall Project will be referred hereon as follows:

- 334 Cambridge Street
- 16 Highgate Street
- 2 - 8 Harvard Avenue
- Allston Hall
- Franklin-Braintree, and
- 415 Cambridge Street

All of the proposed buildings will be serviced by the existing water, sewer, electrical and gas systems found in the network of public streets within the vicinity of the Project. The design of all proposed utility services will be coordinated with and approved by the Boston Water and Sewer Commission (BWSC) and/or the owners of the respective utility provider.

The information and statements provided hereon are based upon the interpretation of available plans of record in addition to limited site inspections. If further investigations find differences of existing site conditions, this portion of the report can be modified accordingly at the request of the Applicant and/or applicable regulatory agent. Similarly, proposed design features referenced in this section of the report are the best assumptions at this stage of the proposed project. Design statements are subject to modifications that will likely arise during the design and permitting stage of this project.

1.1 Regulatory Framework

This section discusses the anticipated regulatory oversight associated with the proposed utility improvements. Utilities will be designed and constructed in accordance with all applicable local, state, and federal requirements. The following is an over view of the anticipated regulatory overview:

- Approval from the Boston Water and Sewer Commission (BWSC) will be required for water, sewer, and stormwater systems.
- A NPDES General Permit for Construction will need to be filed with the Federal Environmental Protection Agency (EPA) and DEP as the combined area of all the sub-developments will disturb more than one (1) acre.
- The Boston Public Works Department will approve new utility connections via the street opening / curb cut permit process.

1.2 Summary of Key Findings

- All of the sites that comprise the Project are serviced by the BWSC for domestic and fire protection water.
- All of the sites that comprise the Project are currently serviced by the BWSC for sanitary sewage and drainage conveyance.
- The Project will incorporate on-site stormwater management and treatment systems that are expected to improve water quality while maintaining and/or reducing runoff volumes peak rates of runoff in comparison to existing conditions.
- The proposed stormwater management systems are expected to comply with the DEP Stormwater Management Policy and Standards.

334 Cambridge Street

2.0 Introduction

This site is a 0.38 ± acre parcel of land spanning the entire block along Cambridge Street between Linden and Highgate Streets. The existing building located within on this property has an address of 334 – 362 Cambridge Street. The frontage of this site is primarily along Cambridge Street (155'±) and Highgate Street (112'±) with minimal frontage along Linden Street (70'±).

2.1 Sanitary Sewer Infrastructure and Generation

Figure S/D-1 shows the existing sanitary sewer and storm drainage utilities that are located within the roadways abutting this portion of the project. The sewer and drain pipes located in the vicinity of this property are owned and maintained by the BWSC. More specifically, the sewer system servicing the existing building on this site discharges into the 24"x31" sanitary sewer main located within Cambridge Street. This effluent is transported to the Deer Island Treatment Plan for treatment and disposal.

The Applicant and Design Team will coordinate with the BWSC on the design of the proposed connections from the new building on this site to the public sewer system. In addition, the Applicant and Design Team will submit an Application and Site Plan to the BWSC for review and approval during the design stage of the proposed project.

Table 2-1 summarizes the existing and anticipated sewage generation for this site based upon the design flow criteria established within the Massachusetts DEP's State Environmental Code (Title 5; 310 CMR 15.203 - *System Sewage Flow Design Criteria)* for specific uses within the building. The sewage generation calculated for the existing building is approximate as it is based upon an estimated number of people that was historically associated with the warehouse use. The total number of people used for this assumption is based upon the parking requirement (1 parking space per 2,000 gross square feet of warehouse area) set forth within the Boston Zoning Code. In total, the proposed development contained within this site is estimated to generate an increase of 7,703 gallons per day (gpd) of daily sewage flows.

Table 2-1 Existing & Anticipated Sewerage Generation

Building	Use	Quantity	Unit Flow Rate	Sewage Generation (gpd*)
Existing Estimated Sewage Generation				
334 – 362 Cambridge Street	Residential	14 Bdrm**	110 gpd / Bdrm	1,540
	Warehouse	21 people	15 gpd / person	315
Total Daily Sewage Generated (Existing)				*1,855*
Total Anticipated Sewage Generation from 334 Cambridge Street				
334 Cambridge Street	Residential	85 Bdrm	110 gpd / Bdrm	9,350
	Retail Store	4,160 sf	50 gpd / 1,000 sf	208
Total Daily Sewage Generated (Anticipated)				*9,558*
Net Increase of Sewage Increase				**7,703**

Notes:
* gpd is an abbreviation for gallons per day.
**Bdrm is an abbreviation for Bedroom.

Sanitary sewer connections for the site are anticipated to connect to the sewer main located within Cambridge Street. The existing 24-inch x 31-inch sewer main (owned by the BWSC) located within Cambridge Street is accessible along the site's frontage in several locations. The residential and retail components of the sanitary sewer are anticipated to discharge to the sewer main via several sewer laterals.

The development of this site will also include the construction of an underground parking garage with 35 parking spaces. Drains located within the parking garage will collect water, oils, and other liquids and discharge to the existing aforementioned sewer main in Cambridge Street after treatment by an MWRA & BWSC approved oil trap. The connection from the drains in the parking garage will be separate from the connection for the sanitary sewer associated with the residential and retail uses.

All building sanitary sewer connections and infrastructure will be reviewed and approved by the BWSC.

2.2 Water Supply and Consumption

Figure W-1 shows the existing domestic and fire protection lines that are located within the roadways abutting the site. The water pipes located in the vicinity of this site are owned and maintained by the BWSC. More specifically, the water system servicing the existing building on the property and nearby fire hydrants are as follows:

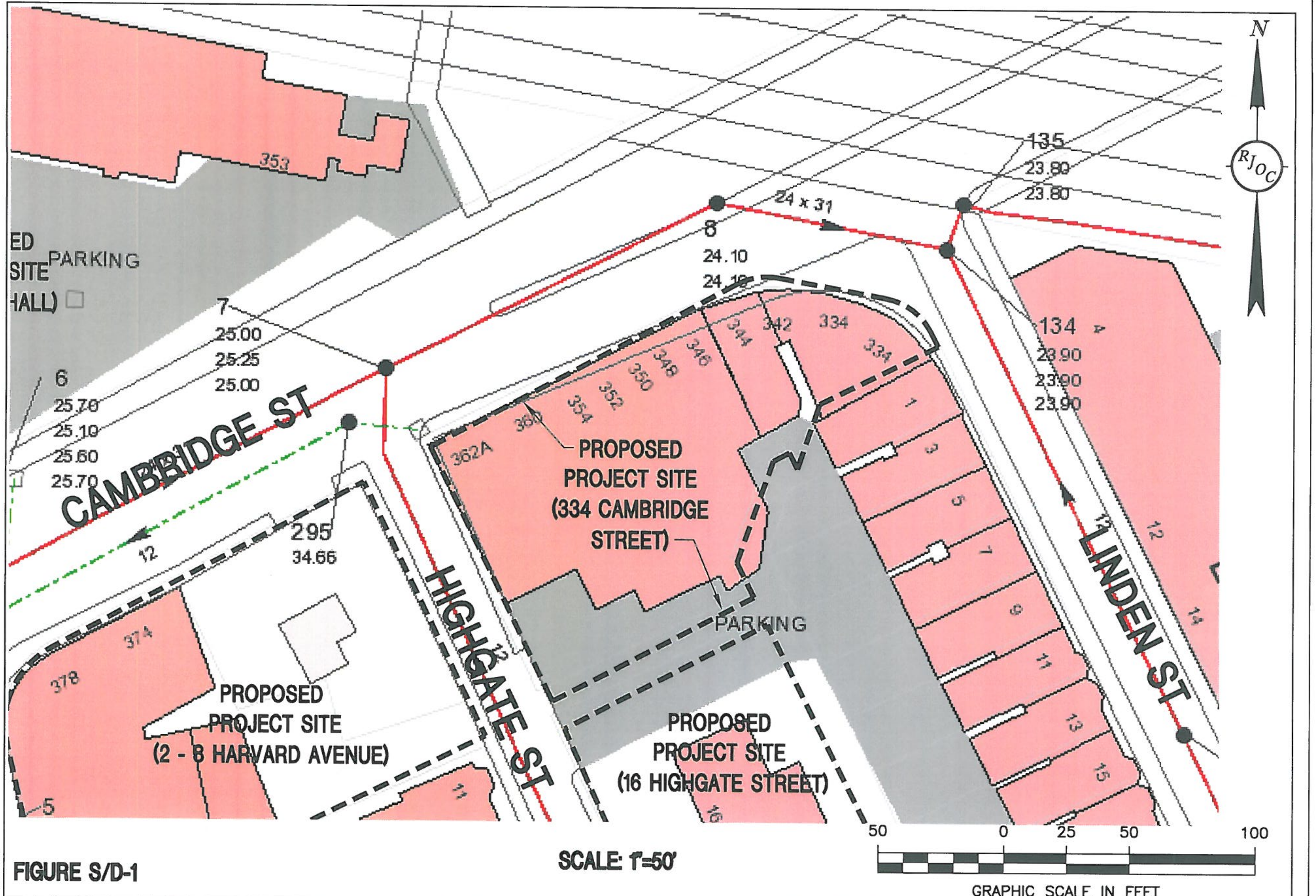


FIGURE S/D-1

SCALE: 1"=50'

ALLSTON SQUARE, BOSTON (ALLSTON), MA
334 CAMBRIDGE STREET

RJO'CONNELL
& ASSOCIATES, INC.
CIVIL ENGINEERS, SURVEYORS
& LAND PLANNERS
80 MONTVALE AVE
STONEHAM, MA 02180
781-279-0180 FAX: 781-279-0173

EXISTING SEWER AND DRAINAGE INFRASTRUCTURE
SOURCE: BWSC RECORD WATER MAPS, APRIL 2018

Drawing name: G:\City Real Estate Development Corp\Projects\Allston\Allston Square\Exhibits\18018_Exhibit_Sewer.dwg
Apr 25, 2018 - 14:08pm

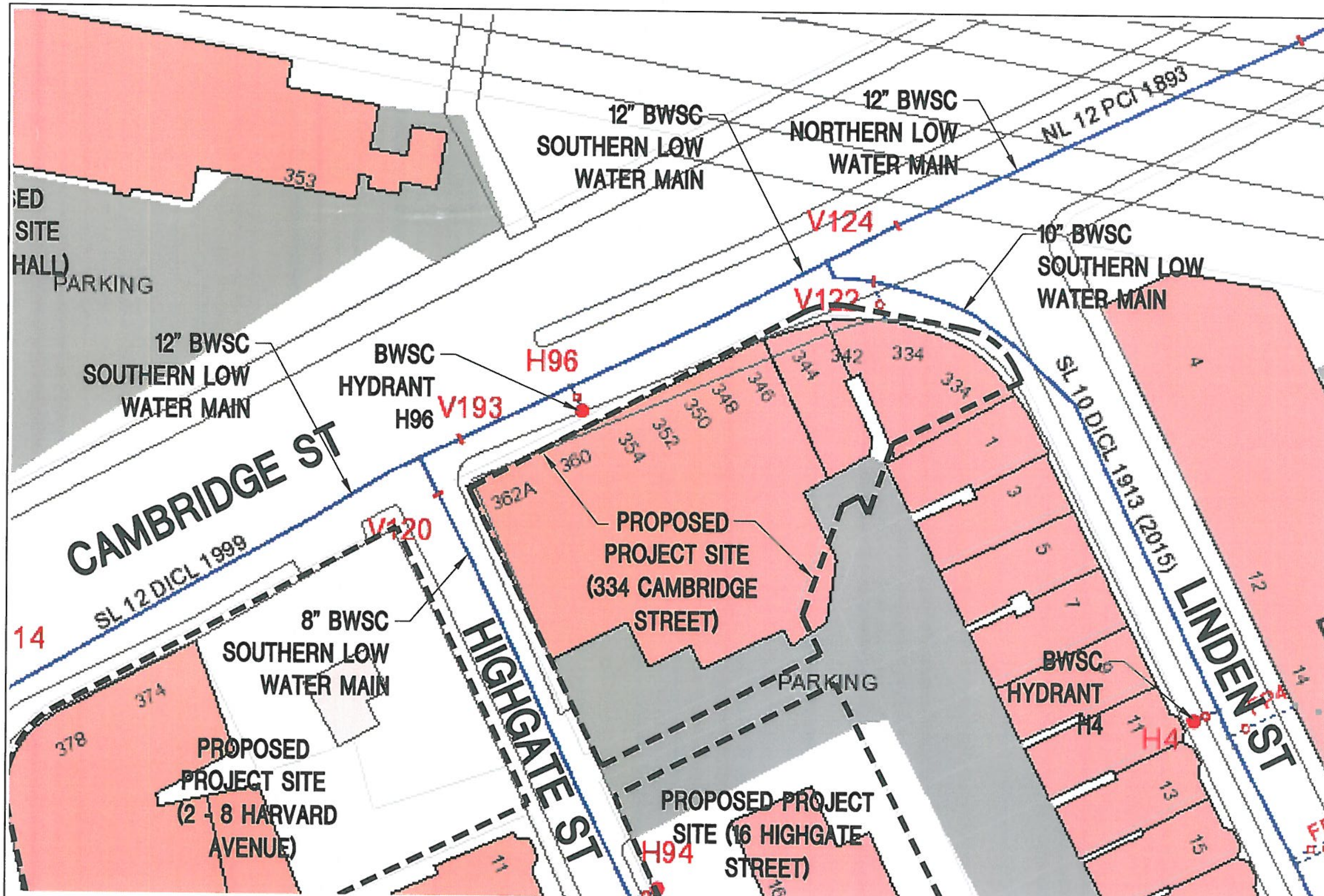
- An 8-inch Southern Low Water Main located within Highgate Street;
- A 10-inch Southern Low Water Main located within Linden Street; and
- A 12-inch Southern Low Water Main located within Cambridge Street.

The Applicant and Design Team will coordinate with the BWSC on the design of the proposed connections from the new building on the site to the public water system. It is anticipated that several domestic water services and fire suppression lines will be installed from the new building on the site to the existing water mains in Cambridge Street and Highgate Street. The domestic and fire suppression lines will be cement lined, ductile iron pipes. The specific sizes of the respective services will be determined by the Project MEP/Plumber during the design phase of the project after performing flow and pressure tests of the existing water lines. The Applicant and Design Team will submit an Application and Site Plan to the BWSC for review and approval during the design stage of the proposed project.

The anticipated domestic water demand for the new development on this site is based upon the estimated sewage generation plus a factor of 10 percent for consumption, system losses and other use. Based upon this assumption, the new development on this site will require approximately 10,514 gpd of domestic water.

2.3 Water Supply Mitigation

Water Conservation Measures will be implemented as part of the overall project. Conservation measures will include the design of low flow, water efficient plumbing fixtures. These fixtures shall be designed and installed in accordance with all applicable Codes.



SCALE: 1"=50'

50 0 25 50 100

GRAPHIC SCALE IN FEET

FIGURE W-1

ALLSTON SQUARE, BOSTON (ALLSTON), MA

334 CAMBRIDGE STREET

RJO'CONNELL
& ASSOCIATES, INC.
CIVIL ENGINEERS, SURVEYORS
& LAND PLANNERS
80 MONTVALE AVE
STONEHAM, MA 02180
781-279-0180 FAX: 781-279-0173

EXISTING WATER INFRASTRUCTURE
SOURCE: BWSC RECORD WATER MAPS, APRIL 2018

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Apr 25, 2018 - 13:39pm

2.4 Stormwater Management

Existing Storm Drainage System

There is an existing storm drainage system located within Cambridge Street that is owned and maintained by the BWSC. Existing runoff is collected by a catch basin located at the intersection of Cambridge and Highgate Streets and directed into a 12" drain line located in Cambridge Street that transports runoff to the south. The existing storm drainage system is depicted on Figure S/D-1.

The existing site is covered entirely by impervious surfaces comprised of roof area and paved parking areas. Existing stormwater runoff from the roof of the existing building flows off the building via a gutters and downspouts that discharge onto the surface next to the building. The majority of this runoff then flows into the aforementioned drainage system located in Cambridge Street.

Proposed Storm Drainage System

The Proposed Site Design for this property does not anticipate adding any impervious surfaces to the site (since the existing site is entirely impervious). As part of this project, a stormwater infiltration system (drywell) will be designed to infiltrate the volume of stormwater runoff required by the BWSC (1-inch times the total impervious surface on the site). These drywells are anticipated to be comprised of gravity based recharge chambers that will be installed both outside of the building foundation (if space allows) and under the building foundation (if groundwater is not observed). If a gravity based system is not feasible, then a pressure based injection well system will be designed. In either case, all drywells will have overflows installed that will connect to the existing storm drainage system in Cambridge Street. All infiltration systems will need to be closely designed with the Project's Licensed Site Professional to ensure that the drywell design is coordinated with any needed soil remediation. It is anticipated that the remainder of the runoff will be directed to the existing storm drainage system via sheet/surface flow.

The installation of proposed drywells on the site will lead to a reduction of the total volume and rate of stormwater runoff leaving the site.

The proposed drainage piping will be designed to capture and convey the 10-year design storm.

The Proposed Storm Drainage System will be submitted to the BWSC for review and approval during the design stage of the proposed project.

2.5 Compliance with DEP Stormwater Management Standards

The BWSC will likely apply the Massachusetts Stormwater Management Policy to this project. The Policy requires specific stormwater management standards for redevelopment projects, including urban pollutant removal criteria for projects that may impact environmental resource areas. Therefore, we have provided a brief explanation of each Policy Standard and how the proposed project is anticipated to comply with these requirements:

Standard #1: *No new stormwater conveyances (e.g., outfalls) may discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth.*

Compliance: The proposed design is intended to comply with this Standard. New untreated stormwater will not be directly discharged to, nor will erosion be caused to wetlands or waters of the Commonwealth as a result of stormwater discharges related to the proposed Project.

The Applicant is exploring subsurface stormwater infiltration systems and injection wells as potential stormwater control measures. Any stormwater runoff collected from parking areas will be treated prior to infiltration or connection to the BWSC drainage system.

Standard #2: *Stormwater management systems must be designed so that post-development peak discharge rates do not exceed pre-development peak discharge rates.*

Compliance: The proposed Project will be designed to comply with this Standard. The existing discharge rate is expected to be met or decreased as a result of the infiltration that will be proposed in association with the proposed Project. The project does not anticipate to increase the amount of impervious surfaces on this site.

Standard #3: *Loss of annual recharge to groundwater should be minimized through* the use of infiltration measures to the maximum extent practicable. The annual recharge from the post development site should approximate the annual recharge from the pre-development or existing site conditions, based on soil types.

Compliance: The proposed Project will explore the use of recharge to the maximum extent feasible by infiltration chambers or injection wells.

Standard #4: *For new development, stormwater management systems must be designed to remove 80% of the average annual load (post-development conditions) of Total Suspended Solids (TSS). It is presumed that this standard is met when: Suitable nonstructural practices for source control and pollution prevention are implemented; Stormwater management best management practices (BMPs) are sized to capture the prescribed runoff volume; and Stormwater management BMPs are maintained as designed.*

Compliance: The proposed designed is expected to include BMPs intended to remove TSS from paved surfaces. However, the majority of the site is anticipated to be covered by building roof area which generates "clean" runoff.

Standard #5: *For land uses with higher potential pollutant loads, source control and pollution prevention shall be implemented in accordance with the Massachusetts Stormwater Handbook to eliminate or reduce the discharge of stormwater runoff from such land uses to the maximum extent practicable. If, through source control and/or pollution prevention, all land uses with higher potential pollutant loads cannot be completely protected from exposure to rain, snow, snow melt, and stormwater runoff, the proponent shall use the specific structural stormwater*

BMPs determined by the Department to be suitable for such uses as provided in the Massachusetts Stormwater Handbook. Stormwater discharges from land uses with higher potential pollutant loads shall also comply with the requirements of the Massachusetts Clean Waters Act, M.G.L.c.21,~~gg~~ 26-53 and the regulation promulgated there under at 314 CMR 3.00, 314 CMR 4.00 and 314 CMR 5.00.

Compliance: The vast majority of the site area will be occupied by building footprints not associated with land uses with higher potential pollutant loads. The proposed parking structure will drain via an oil/sand separator to the sanitary sewer system.

Standard #6: *Stormwater discharge to critical areas must utilize certain stormwater management BMPs approved for critical areas. Critical areas are Outstanding Resource Waters (ORWs), shellfish beds, swimming beaches, cold-water fisheries and recharge areas for public water supplies.*

Compliance: The proposed Project does not discharge to a critical area.

Standard #7: *A redevelopment project is required to meet the following Stormwater Management Standards only to the maximum extent practicable: Standard 2, Standard 3, and the pretreatment and structural stormwater best management practice requirements of Standards 4, 5, and 6. Existing stormwater discharges shall comply with Standard 1 only to the maximum extent practicable. A redevelopment project shall also comply with all other requirements of the Stormwater Management Standards and improve existing conditions.*

Compliance: The Project is considered a redevelopment project. The proposed Project will comply with the Stormwater Management Standards to the extent practicable and is anticipated to improve upon existing conditions.

Standard #8: *Erosion and sediment controls must be implemented to prevent impacts during construction or land disturbance activities.*

Compliance: Sedimentation and erosion controls will be incorporated as part of the design of the Project components and employed during the various phases of construction.

Standard #9: *A Long-Term Operation and Maintenance (O&M) Plan shall be developed and implemented to ensure that stormwater management systems function as designed.*

Compliance: An O&M Plan will be developed during the design process.

Standard #10: *All illicit dis*charges to the stormwater management system are prohibited.

Compliance: There are no currently known illicit discharges. All proposed discharges will be reviewed by the BWSC to ensure consistency with this standard.

2.6 Other Utilities

Gas

Gas service at the Site is provided by National Grid. There is a 24-inch and 6-inch gas main in Cambridge Street, a 4-inch gas main in Highgate Street, and a 6-inch gas main in Linden Street. The Project Team will coordinate the final design with National Grid to define the service requirements while also identifying which main(s) to connect the services.

Electric

NStar Eversource Electric owns and operates the electric system in the vicinity of the Site. It is anticipated that there is adequate service available to support the proposed development. The Applicant and Design Team will confirm adequate capacity and coordinate the final design with NStar Eversource as the proposed design is finalized.

Telecommunications

The Applicant will select private telecommunications companies to provide telephone, cable and data services. There is telecommunication duct bank systems and/or overhead wires in the abutting streets which provide these services. Upon selection of a provider (or providers), the Applicant will coordinate service connection locations and obtain appropriate approvals.

16 Highgate Street

3.0 Introduction

The site is 0.2 ± acre parcel of land having frontage on Highgate Street. The existing building located on this property has an address of 16 – 18 Highgate Street. The building is located on the center of the lot which is covered by grass and landscaped areas. A retaining wall is located along the western and rear sides of the property.

3.1 Sanitary Sewer Infrastructure and Generation

Figure S/D-2 shows the existing sanitary sewer and storm drainage utilities that are located within Highgate Street abutting this portion of the project. The sewer and drain pipes located in the vicinity of this property are owned and maintained by the BWSC. More specifically, the sewer system servicing the existing building on this site discharges into the 12" sanitary sewer main located within Highgate Street. This effluent flows westerly beneath Highgate Street, connects into the 24"x31" sewer main in Cambridge Street and then is transported to the Deer Island Treatment Plan for treatment and disposal.

The Applicant and Design Team will coordinate with the BWSC on the design of the proposed connections from the new building on this site to the public sewer system. In addition, the Applicant and Design Team will submit an Application and Site Plan to the BWSC for review and approval during the design stage of the proposed project.

Table 3-1 summarizes the existing and anticipated sewage generation for this site based upon the design flow criteria established within the Massachusetts DEP's State Environmental Code (Title 5; 310 CMR 15.203 - *System Sewage Flow Design Criteria)* for specific uses within the building. In total, the development contained within Site 2 is estimated to generate an increase of 2,090 gallons per day (gpd) of daily sewage flows.

Table 3-1 Existing & Anticipated Sewerage Generation

Building	Use	Quantity	Unit Flow Rate	Sewage Generation (gpd*)
Existing Estimated Sewage Generation				
16 – 18 Highgate Street	Residential	8 Bdrm**	110 gpd / Bdrm	880
Total Daily Sewage Generated (Existing)				*880*
Total Anticipated Sewage Generation from 16 Highgate Street				
16 – 18 Highgate Street	Residential	27 Bdrm	110 gpd / Bdrm	2,970
Total Daily Sewage Generated (Anticipated)				*2,970*
Net Increase of Sewage Increase				**2,090**

Notes:
* gpd is an abbreviation for gallons per day.
**Bdrm is an abbreviation for Bedroom.

Sanitary sewer connections for the site are anticipated to connect to the sewer main located within Highgate Street. The existing 12-inch sewer main (owned by the BWSC) located within Highgate Street is accessible along the site's frontage. The residential component of the sanitary sewer will discharge to the sewer main via a sewer lateral.

The development of this site will also include the construction of an underground parking garage with 6 parking spaces. Drains located within the parking garage will collect water, oils, and other liquids and discharge to the existing aforementioned sewer main in Highgate Street after treatment by an MWRA & BWSC approved oil trap. The connection from the drains in the parking garage will be separate from the connection for the sanitary sewer associated with the residential use.

All building sanitary sewer connections and infrastructure will be reviewed and approved by the BWSC.

3.2 Water Supply and Consumption

Figure W-2 shows the existing domestic and fire protection lines that are located within Highgate Street abutting the site. The water pipe located in the vicinity of this site is owned and maintained by the BWSC. More specifically, the water system servicing the existing building on the property and nearby fire hydrants is as follows:

- An 8-inch Southern Low Water Main located within Highgate Street.

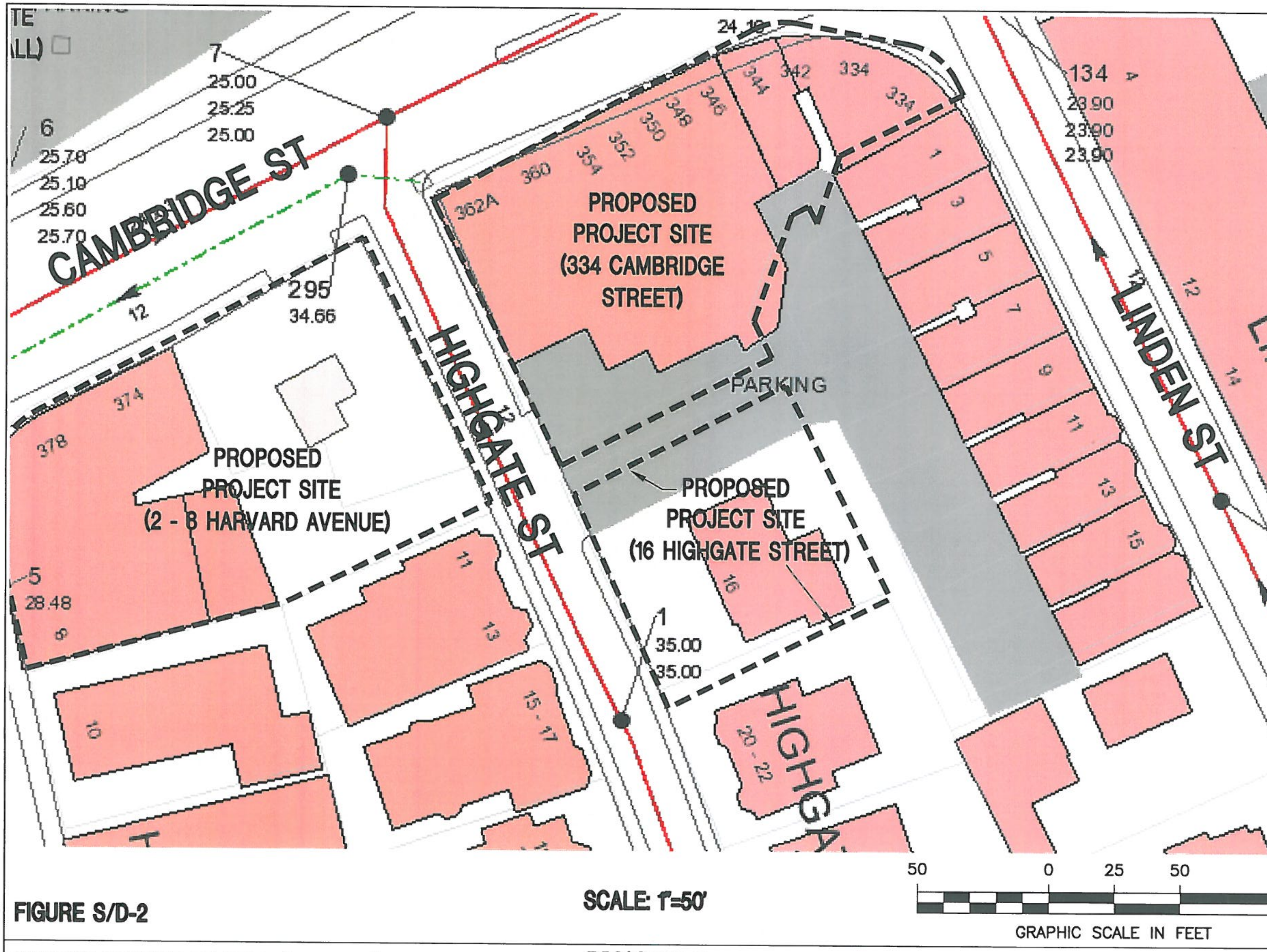

FIGURE S/D-2

SCALE: 1"=50'

ALLSTON SQUARE, BOSTON (ALLSTON), MA
16 HIGHGATE STREET

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781-279-0180 FAX: 781-279-0173

EXISTING SEWER AND DRAINAGE INFRASTRUCTURE
SOURCE: BWSC RECORD WATER MAPS, APRIL 2018

Drawing name: G:\City Real Estate Development Corp\Projects\Allston\Allston Square\Exhibits\18018_Exhibit_Sewer.dwg
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The Applicant and Design Team will coordinate with the BWSC on the design of the proposed connections from the new building on the site to the public water system. It is anticipated that a domestic water service and separate fire suppression line will be installed from the new building to the existing water main in Highgate Street. The domestic and fire suppression lines will likely be cement lined, ductile iron pipes. The specific sizes of the respective services will be determined by the Project MEP/Plumber during the design phase of the project after performing flow and pressure tests of the existing water lines. The Applicant and Design Team will submit an Application and Site Plan to the BWSC for review and approval during the design stage of the proposed project.

The anticipated domestic water demand for the new building on this site is based upon the estimated sewage generation plus a factor of 10 percent for consumption, system losses and other use. Based upon this assumption, the new building on this site will require approximately 3,267 gpd of domestic water.

3.3 Water Supply Mitigation

Water Conservation Measures will be implemented as part of the overall project. Conservation measures will include the design of low flow, water efficient plumbing fixtures. These fixtures shall be designed and installed in accordance with all applicable Codes.

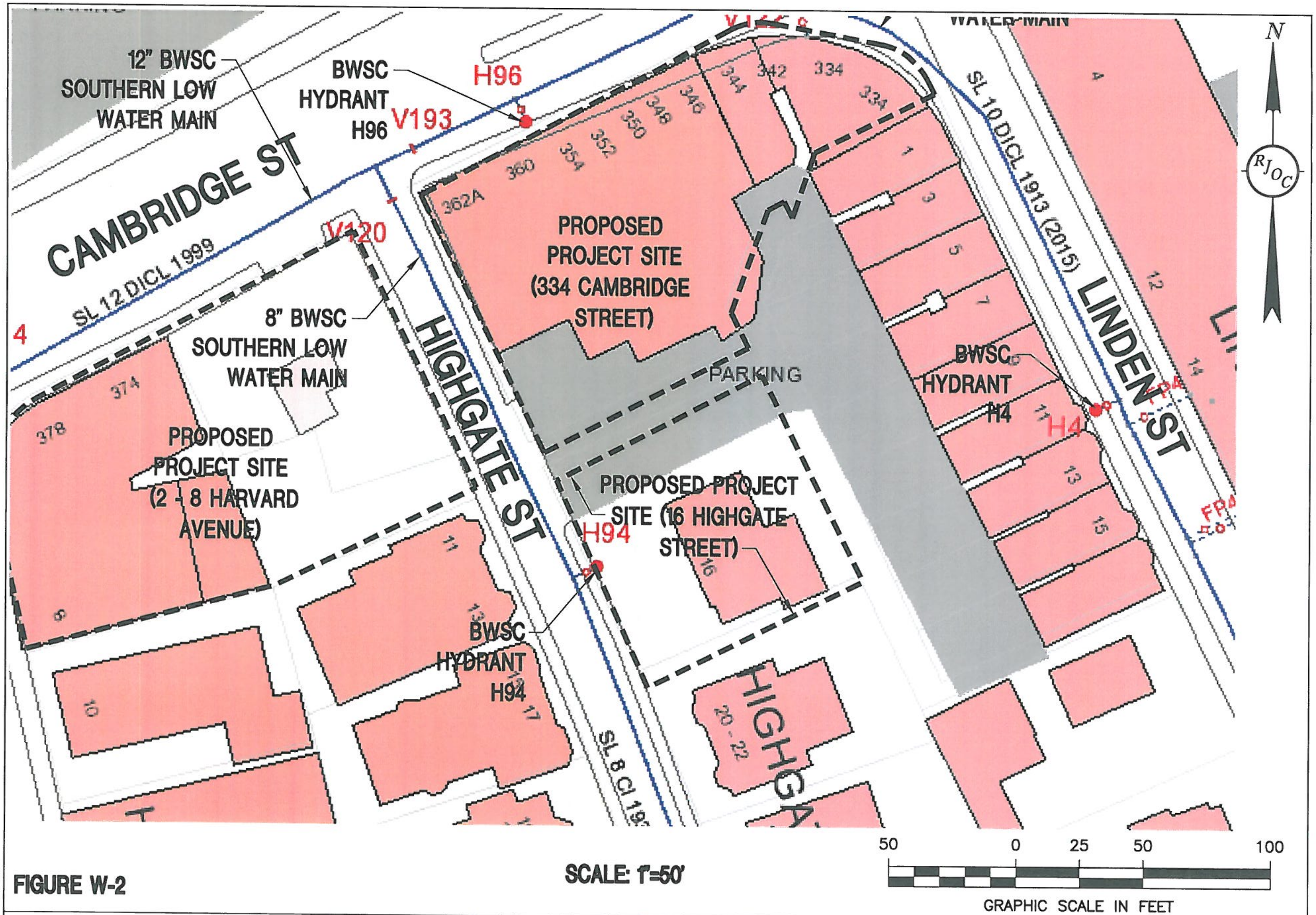

FIGURE W-2

SCALE: 1"=50'

ALLSTON SQUARE, BOSTON (ALLSTON), MA

16 HIGHGATE STREET

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& LAND PLANNERS
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STONEHAM, MA 02180
781-279-0180 FAX: 781-279-0173

EXISTING WATER INFRASTRUCTURE
SOURCE: BWSC RECORD WATER MAPS, APRIL 2018

Drawing name: G:\City Real Estate Development Corp\Projects\Allston\Allston Square\Exhibits\18018_Exhibit.dwg
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3.4 Stormwater Management

Existing Storm Drainage System

There is an existing storm drainage system located within Cambridge Street that is owned and maintained by the BWSC. Existing runoff is collected by a catch basin located at the intersection of Cambridge and Highgate Streets and directed into the 12" drain line located in Cambridge Street that transports runoff to the south. The existing storm drainage system is depicted on Figure S/D-2.

The existing site is covered by a multi-family building, walkway, and grassed areas. Existing stormwater runoff from the roof of the existing building flows off the building via a gutters and downspouts that discharge onto the grassed/landscaped surface next to the building. The topography of the site is such that this runoff sheet flows into Highgate Street and is eventually captured in the aforementioned drainage system located in Cambridge Street.

Proposed Storm Drainage System

The Proposed Site Design for this property anticipates adding impervious surfaces to the site. This increase is anticipated to be attributable to the footprint of the proposed building. As part of this project, a stormwater infiltration system (drywell) will be designed to infiltrate the volume of stormwater runoff required by the BWSC (1-inch times the total impervious surface on the site). These drywells are anticipated to be comprised of gravity based recharge chambers that will be installed both outside of the building foundation (if space allows) and under the building foundation (if groundwater is not observed). If a gravity based system is not feasible, then a pressure based injection well system will be designed. In addition to meeting the volumetric requirements of the BWSC, these systems will be sized to mitigate for any increase in the volume and rate of stormwater runoff generated by the proposed development. All infiltration systems will need to be closely designed with the Project's Licensed Site Professional to ensure that the drywell design is coordinated with any needed soil remediation. It is anticipated that the remainder of the runoff will be directed to the existing storm drainage system.

The installation of proposed drywells on the site will lead to a reduction of the total volume and rate of stormwater runoff leaving the site.

The proposed drainage piping will be designed to capture and convey the 10-year design storm.

The Proposed Storm Drainage System will be submitted to the BWSC for review and approval during the design stage of the proposed project.

3.5 Compliance with DEP Stormwater Management Standards

The BWSC will likely apply the Massachusetts Stormwater Management Policy to this project. The Policy requires specific stormwater management standards for redevelopment projects, including urban pollutant removal criteria for projects that may impact environmental resource areas. Therefore, we have provided a brief explanation of each Policy Standard and how the proposed project is anticipated to comply with these requirements:

Standard #1: *No new stormwater conveyances (e.g., outfalls) may discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth.*

Compliance: The proposed design is intended to comply with this Standard. New untreated stormwater will not be directly discharged to, nor will erosion be caused to wetlands or waters of the Commonwealth as a result of stormwater discharges related to the proposed Project.

The Applicant is exploring subsurface stormwater infiltration systems and injection wells as potential stormwater control measures. Any stormwater runoff collected from parking areas will be treated prior to infiltration or connection to the BWSC drainage system.

Standard #2: *Stormwater management systems must be designed so that post-development peak discharge rates do not exceed pre-development peak discharge rates.*

Compliance: The proposed Project will be designed to comply with this Standard. The existing discharge rate is expected to be met or decreased as a result of the infiltration that will be proposed in association with the proposed Project.

Standard #3: *Loss of annual recharge to groundwater should be minimized through* the use of infiltration measures to the maximum extent practicable. The annual recharge from the post development site should approximate the annual recharge from the pre-development or existing site conditions, based on soil types.

Compliance: The proposed Project will explore the use of recharge to the maximum extent feasible by infiltration chambers or injection wells.

Standard #4: *For new development, stormwater management systems must be designed to remove 80% of the average annual load (post-development conditions) of Total Suspended Solids (TSS). It is presumed that this standard is met when: Suitable nonstructural practices for source control and pollution prevention are implemented; Stormwater management best management practices (BMPs) are sized to capture the prescribed runoff volume; and Stormwater management BMPs are maintained as designed.*

Compliance: The proposed designed is expected to include BMPs intended to remove TSS from paved surfaces. However, the majority of the site is anticipated to be covered by building roof area which generates "clean" runoff.

Standard #5: *For land uses with higher potential pollutant loads, source control and pollution prevention shall be implemented in accordance with the Massachusetts Stormwater Handbook to eliminate or reduce the discharge of stormwater runoff from such land uses to the maximum extent practicable. If, through source control and/or pollution prevention, all land uses with higher potential pollutant loads cannot be completely protected from exposure to rain, snow, snow melt, and stormwater runoff, the proponent shall use the specific structural stormwater BMPs determined by the Department to be suitable for such uses as provided in the*

Massachusetts Stormwater Handbook. Stormwater discharges from land uses with higher potential pollutant loads shall also comply with the requirements of the Massachusetts Clean Waters Act, M.G.L.c.21,~~gg~~ 26-53 and the regulation promulgated there under at 314 CMR 3.00, 314 CMR 4.00 and 314 CMR 5.00.

Compliance: The vast majority of the site area will be occupied by building footprints not associated with land uses with higher potential pollutant loads. The proposed parking structure will drain via an oil/sand separator to the sanitary sewer system.

Standard #6: *Stormwater discharge to critical areas must utilize certain stormwater management BMPs approved for critical areas. Critical areas are Outstanding Resource Waters (ORWs), shellfish beds, swimming beaches, cold-water fisheries and recharge areas for public water supplies.*

Compliance: The proposed Project does not discharge to a critical area.

Standard #7: *A redevelopment project is required to meet the following Stormwater Management Standards only to the maximum extent practicable: Standard 2, Standard 3, and the pretreatment and structural stormwater best management practice requirements of Standards 4, 5, and 6. Existing stormwater discharges shall comply with Standard 1 only to the maximum extent practicable. A redevelopment project shall also comply with all other requirements of the Stormwater Management Standards and improve existing conditions.*

Compliance: The Project is considered a redevelopment project. The proposed Project will comply with the Stormwater Management Standards to the extent practicable and is anticipated to improve upon existing conditions.

Standard #8: *Erosion and sediment controls must be implemented to prevent impacts during construction or land disturbance activities.*

Compliance: Sedimentation and erosion controls will be incorporated as part of the design of the Project components and employed during the various phases of construction.

Standard #9: *A Long-Term Operation and Maintenance (O&M) Plan shall be developed and implemented to ensure that stormwater management systems function as designed.*

Compliance: An O&M Plan will be developed during the design process.

Standard #10: *All illicit dis*charges to the stormwater management system are prohibited.

Compliance: There are no currently known illicit discharges. All proposed discharges will be reviewed by the BWSC to ensure consistency with this standard.

3.6 Other Utilities

Gas

Gas service at the Site is provided by National Grid from Highgate Street. There is a 4-inch gas main in Highgate Street which will be able to provide gas to the new building. The Project Team will coordinate the final design with National Grid to define the service requirements while also identifying which main(s) to connect the services.

Electric

NStar Eversource Electric owns and operates the electric system in the vicinity of the Site. It is anticipated that there is adequate service available to support the proposed development. The Applicant and Design Team will confirm adequate capacity and coordinate the final design with NStar Eversource as the proposed design is finalized.

Telecommunications

The Applicant will select private telecommunications companies to provide telephone, cable and data services. There is telecommunication duct bank systems and/or overhead wires in the abutting street which provide these services. Upon selection of a provider (or providers), the Applicant will coordinate service connection locations and obtain appropriate approvals.

2 – 8 Harvard Avenue

4.0 Introduction

This site is comprised of two parcels of land fronting on Highgate Street, Cambridge Street, and Harvard Avenue. The combined area of these two parcels is 0.4 ± acres. The site is comprised of a multistory masonry building and a detached garage/shed type structure. This site has an address of 2 – 8 Harvard Avenue. The building is located along the southern half of the site fronting on Harvard Avenue. The remainder of the site is covered by an asphalt parking area.

4.1 Sanitary Sewer Infrastructure and Generation

Figure S/D-3 shows the existing sanitary sewer and storm drainage utilities that are located within the streets abutting this portion of the project. The sewer and drain pipes located in the vicinity of this site are owned and maintained by the BWSC. More specifically, the sewer system servicing the existing building on this site discharges into the 12" sanitary sewer main located within Harvard Avenue and the 24"x31" sewer main in Cambridge Street. The effluent that flows into the main beneath Harvard Avenue flows westerly into the 24"x31" sewer main in Cambridge Street and then is transported to the Deer Island Treatment Plan for treatment and disposal.

The Applicant and Design Team will coordinate with the BWSC on the design of the proposed connections from the new building on Site 3 to the public sewer system. In addition, the Applicant and Design Team will submit an Application and Site Plan to the BWSC for review and approval during the design stage of the proposed project.

Table 4-1 summarizes the existing and anticipated sewage generation for this site based upon the design flow criteria established within the Massachusetts DEP's State Environmental Code (Title 5; 310 CMR 15.203 - *System Sewage Flow Design Criteria)* for specific uses within the building. The sewage generation calculated for the existing building is approximate as it is based upon an estimated number of people that was historically associated with the warehouse use. The total number of people used for this assumption is based upon the parking requirement (1 parking space per 2,000 gross square feet of warehouse area) set forth within the Boston Zoning Code. In total, the development contained within this site is estimated to generate an increase of 11,478 gallons per day (gpd) of daily sewage flows.

Table 4-1 Existing & Anticipated Sewerage Generation

Building	Use	Quantity	Unit Flow Rate	Sewage Generation (gpd*)
Existing Estimated Sewage Generation				
2 – 8 Harvard Avenue	Warehouse	6 people	15 gpd / person	90
	Office Space	2,000 sf	75 gpd / 1,000 sf	150
Total Daily Sewage Generated (Existing)				*240*
Total Anticipated Sewage Generation from 2 – 8 Harvard Avenue				
2 – 8 Harvard Avenue	Residential	102 Bdrm	110 gpd / Bdrm	11,220
	Retail	9,950 sf	50 gpd / 1,000 sf	498
Total Daily Sewage Generated (Anticipated)				*11,718*
Net Increase of Sewage Increase				**11,478**

Notes:
* gpd is an abbreviation for gallons per day.
**Bdrm is an abbreviation for Bedroom.

Sanitary sewer connections for the site are anticipated to connect to the sewer main located within Highgate Street and Harvard Avenue. Both of these sewer mains (owned by the BWSC) are accessible along the site's frontage. The residential and retail component of the sanitary sewer will discharge to the sewer main via several sewer laterals.

The development of this site will also include the construction of an underground parking garage with 48 parking spaces. Drains located within the parking garage will collect water, oils, and other liquids and discharge to the existing aforementioned sewer main in Highgate Street after treatment by an MWRA & BWSC approved oil trap. The connection from the drains in the parking garage will be separate from the connection for the sanitary sewer associated with the residential use.

All building sanitary sewer connections and infrastructure will be reviewed and approved by the BWSC.

4.2 Water Supply and Consumption

Figure W-3 shows the existing domestic and fire protection lines that are located within the streets abutting the site. The water pipes located in the vicinity of this site are owned and maintained by the BWSC. More specifically, the water system servicing the existing building on the property and nearby fire hydrants are as follows:

- An 8-inch Southern Low Water Main located within Highgate Street;

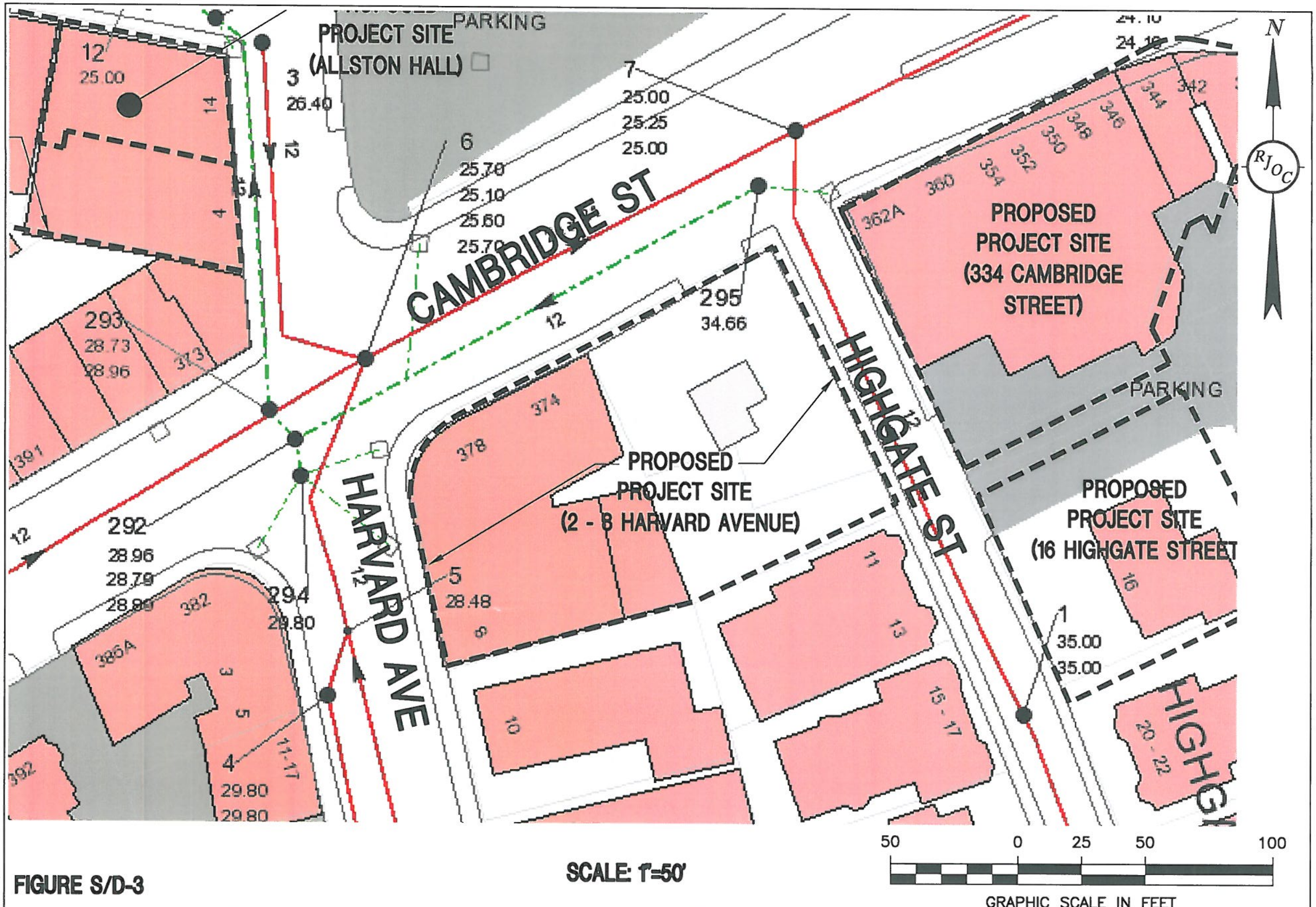

FIGURE S/D-3

SCALE: 1"=50'

ALLSTON SQUARE, BOSTON (ALLSTON), MA

SITE 3 2-8 HARVARD AVENUE

RJO'CONNELL
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& LAND PLANNERS
80 MONTVALE AVE
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781-279-0180 FAX: 781-279-0173

EXISTING SEWER AND DRAINAGE INFRASTRUCTURE
SOURCE: BWSC RECORD WATER MAPS, APRIL 2018

Drawing name: G:\City Real Estate Development Corp\Projects\Allston\Allston Square\Exhibits\18018_Exhibit_Sewer.dwg
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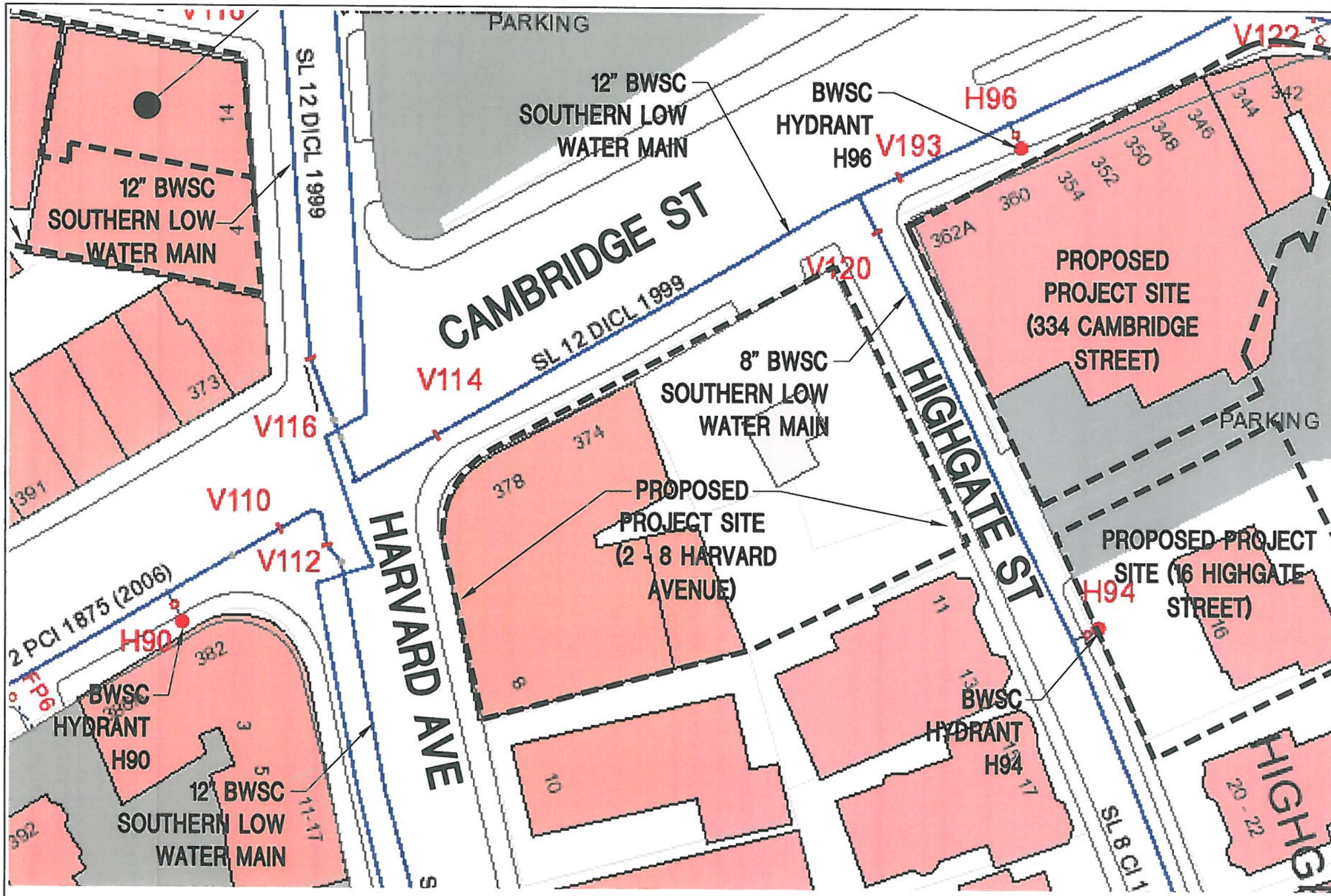
- A 12-inch Southern Low Water Main located within Harvard Avenue; and
- A 12-inch Southern Low Water Main located within Cambridge Street.

The Applicant and Design Team will coordinate with the BWSC on the design of the proposed connections from the new building on the site to the public water system. It is anticipated that domestic water services and separate fire suppression lines will be installed from the building on the site to the existing water main in Harvard Avenue and Highgate Street. The domestic and fire suppression lines will be cement lined, ductile iron pipes. The specific sizes of the respective services will be determined by the Project MEP/Plumber during the design phase of the project after performing flow and pressure tests of the existing water lines. The Applicant and Design Team will submit an Application and Site Plan to the BWSC for review and approval during the design stage of the proposed project.

The anticipated domestic water demand for the new development on this site is based upon the estimated sewage generation plus a factor of 10 percent for consumption, system losses and other use. Based upon this assumption, the new development on this site will require approximately 12,890 gpd of domestic water.

4.3 Water Supply Mitigation

Water Conservation Measures will be implemented as part of the overall project. Conservation measures will include the design of low flow, water efficient plumbing fixtures. These fixtures shall be designed and installed in accordance with all applicable Codes.



SCALE: 1"=50'

50 0 25 50 100
GRAPHIC SCALE IN FEET

FIGURE W-3

ALLSTON SQUARE, BOSTON (ALLSTON), MA
2-8 HARVARD AVENUE

RJO'CONNELL & ASSOCIATES, INC.
CIVIL ENGINEERS, SURVEYORS & LAND PLANNERS
80 MONTVALE AVE
STONEHAM, MA 02180
781-279-0180 FAX: 781-279-0173

EXISTING WATER INFRASTRUCTURE
SOURCE: BWSC RECORD WATER MAPS, APRIL 2018

Drawing name: G:\City Real Estate Development Corp\Projects\Allston\Allston Square\Exhibits\18018_Exhibit.dwg
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4.4 Stormwater Management

Existing Storm Drainage System

There is an existing storm drainage system located within Cambridge Street and Harvard Avenue that is owned and maintained by the BWSC. Existing runoff is collected by catch basins located at the intersections of Cambridge & Highgate Street and Cambridge & Harvard Avenue which is then directed into the 12" drain line located in Cambridge Street that transports runoff to the south. The existing storm drainage system is depicted on Figure S/D-3.

The existing site is covered entirely by impervious surfaces including buildings and an asphalt parking area. The runoff from the roof of the existing building is collected by a roof drain. Runoff flowing from the parking area sheet flows in a southerly direction into Cambridge Street. This runoff is then captured in the aforementioned drainage system located in Cambridge Street.

Proposed Storm Drainage System

The Proposed Site Design for this property anticipates having the same amount of impervious surface on the site. Since there will be no increase in impervious surface, the volume or rate of stormwater runoff generated by the site will not be increased. In fact, as part of this project, a stormwater infiltration system (drywell) will be designed to infiltrate the volume of stormwater runoff required by the BWSC (1-inch times the total impervious surface on the site). This drywell is anticipated to be comprised of gravity based recharge chambers that will be installed under the building foundation (if groundwater is not observed) or via a pressure based injection well system. In either case, all drywells will have overflows installed that will be connected to the existing storm drainage system in Highgate Street and Harvard Avenue. All infiltration systems will need to be closely designed with the Project's Licensed Site Professional to ensure that the drywell design is coordinated with any needed soil remediation.

The installation of proposed drywells on the site will lead to a reduction of the total volume and rate of stormwater runoff leaving the site.

The proposed drainage piping will be designed to capture and convey the 10-year design storm.

The Proposed Storm Drainage System will be submitted to the BWSC for review and approval during the design stage of the proposed project.

4.5 Compliance with DEP Stormwater Management Standards

The BWSC will likely apply the Massachusetts Stormwater Management Policy to this project. The Policy requires specific stormwater management standards for redevelopment projects, including urban pollutant removal criteria for projects that may impact environmental resource areas. Therefore, we have provided a brief explanation of each Policy Standard and how the proposed project is anticipated to comply with these requirements:

Standard #1: *No new stormwater conveyances (e.g., outfalls) may discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth.*

Compliance: The proposed design is intended to comply with this Standard. New untreated stormwater will not be directly discharged to, nor will erosion be caused to wetlands or waters of the Commonwealth as a result of stormwater discharges related to the proposed Project.

The Applicant is exploring subsurface stormwater infiltration systems and injection wells as potential stormwater control measures. Any stormwater runoff collected from parking areas will be treated prior to infiltration or connection to the BWSC drainage system.

Standard #2: *Stormwater management systems must be designed so that post-development peak discharge rates do not exceed pre-development peak discharge rates.*

Compliance: The proposed Project will be designed to comply with this Standard. The existing discharge rate is expected to be met or decreased as a result of the infiltration that will be proposed in association with the proposed Project.

Standard #3: *Loss of annual recharge to groundwater should be minimized through* the use of infiltration measures to the maximum extent practicable. The annual recharge from the post development site should approximate the annual recharge from the pre-development or existing site conditions, based on soil types.

Compliance: The proposed Project will explore the use of recharge to the maximum extent feasible by infiltration chambers or injection wells.

Standard #4: *For new development, stormwater management systems must be designed to remove 80% of the average annual load (post-development conditions) of Total Suspended Solids (TSS). It is presumed that this standard is met when: Suitable nonstructural practices for source control and pollution prevention are implemented; Stormwater management best management practices (BMPs) are sized to capture the prescribed runoff volume; and Stormwater management BMPs are maintained as designed.*

Compliance: The proposed designed is expected to include BMPs intended to remove TSS from paved surfaces. However, the majority of the site is anticipated to be covered by building roof area which generates "clean" runoff.

Standard #5: *For land uses with higher potential pollutant loads, source control and pollution prevention shall be implemented in accordance with the Massachusetts Stormwater Handbook to eliminate or reduce the discharge of stormwater runoff from such land uses to the maximum extent practicable. If, through source control and/or pollution prevention, all land uses with higher potential pollutant loads cannot be completely protected from exposure to rain, snow, snow melt, and stormwater runoff, the proponent shall use the specific structural stormwater BMPs determined by the Department to be suitable for such uses as provided in the Massachusetts Stormwater Handbook. Stormwater discharges from land uses with higher potential pollutant loads shall also comply with the requirements of the Massachusetts Clean*

Waters Act, M.G.L.c.21,~~§§~~ 26-53 and the regulation promulgated there under at 314 CMR 3.00, 314 CMR 4.00 and 314 CMR 5.00.

Compliance: The vast majority of the site area will be occupied by building footprints not associated with land uses with higher potential pollutant loads. The proposed parking structure will drain via an oil/sand separator to the sanitary sewer system.

Standard #6: *Stormwater discharge to critical areas must utilize certain stormwater management BMPs approved for critical areas. Critical areas are Outstanding Resource Waters (ORWs), shellfish beds, swimming beaches, cold-water fisheries and recharge areas for public water supplies.*

Compliance: The proposed Project does not discharge to a critical area.

Standard #7: *A redevelopment project is required to meet the following Stormwater Management Standards only to the maximum extent practicable: Standard 2, Standard 3, and the pretreatment and structural stormwater best management practice requirements of Standards 4, 5, and 6. Existing stormwater discharges shall comply with Standard 1 only to the maximum extent practicable. A redevelopment project shall also comply with all other requirements of the Stormwater Management Standards and improve existing conditions.*

Compliance: The Project is considered a redevelopment project. The proposed Project will comply with the Stormwater Management Standards to the extent practicable and is anticipated to improve upon existing conditions.

Standard #8: *Erosion and sediment controls must be implemented to prevent impacts during construction or land disturbance activities.*

Compliance: Sedimentation and erosion controls will be incorporated as part of the design of the Project components and employed during the various phases of construction.

Standard #9: *A Long-Term Operation and Maintenance (O&M) Plan shall be developed and implemented to ensure that stormwater management systems function as designed.*

Compliance: An O&M Plan will be developed during the design process.

Standard #10: *All illicit dis*charges to the stormwater management system are prohibited.

Compliance: There are no currently known illicit discharges. All proposed discharges will be reviewed by the BWSC to ensure consistency with this standard.

4.6 Other Utilities

<u>Gas</u>

Gas service at the Site is provided by National Grid to this Site. There are 6-inch and 24-inch gas mains in Harvard Avenue & Cambridge Street which will be able to provide gas to the new building. The Project Team will coordinate the final design with National Grid to definethe service requirements while also identifying which main(s) to connect the services.

Electric

NStar Eversource Electric owns and operates the electric system in the vicinity of the Site. It is anticipated that there is adequate service available to support the proposed development. The Applicant and Design Team will confirm adequate capacity and coordinate the final design with NStar Eversource as the proposed design is finalized.

Telecommunications

The Applicant will select private telecommunications companies to provide telephone, cable and data services. There is telecommunication duct bank systems and/or overhead wires in the abutting street which provide these services. Upon selection of a provider (or providers), the Applicant will coordinate service connection locations and obtain appropriate approvals.

Allston Hall

5.0 Introduction

This site is comprised of one parcel of land located at the intersection of Franklin and Braintree Streets having an area of approximately 0.08 ± acres. The site is covered almost entirely by an existing building having an address of 4 Braintree Street.

5.1 Sanitary Sewer Infrastructure and Generation

Figure S/D-4 shows the existing sanitary sewer and storm drainage utilities that are located within the streets abutting this portion of the project. The sewer and drain pipes located in the vicinity of this property are owned and maintained by the BWSC. More specifically, the sewer system servicing the existing building appears to discharge into the 12" sanitary sewer main located within Braintree Street and then is transported to the Deer Island Treatment Plan for treatment and disposal.

The Applicant and Design Team will coordinate with the BWSC on the design of the proposed connections from the renovated building on this site to the public sewer system. In addition, the Applicant and Design Team will submit an Application and Site Plan to the BWSC for review and approval during the design stage of the proposed project.

Table 5-1 summarizes the existing and anticipated sewage generation for this site based upon the design flow criteria established within the Massachusetts DEP's State Environmental Code (Title 5; 310 CMR 15.203 - *System Sewage Flow Design Criteria)* for specific uses within the building. The sewage generation calculated for the existing buildings is approximate as it is based upon an estimated number of people that were historically associated with the warehouse use. The total number of people used for this assumption is based upon the parking requirement (1 parking space per 2,000 gross square feet of warehouse area) set forth within the Boston Zoning Code. In total, the development contained within this site is estimated to generate an increase of 1,565 gallons per day (gpd) of daily sewage flows.

Table 5-1 Existing & Anticipated Sewerage Generation

Building	Use	Quantity	Unit Flow Rate	Sewage Generation (gpd*)
Existing Estimated Sewage Generation				
Allston Hall	Warehouse	6 people	15 gpd / person	90
Total Daily Sewage Generated (Existing)………………………………………………				*90*
Total Anticipated Sewage Generation from Allston Hall				
	Residential	14 Bdrm	110 gpd / Bdrm	1,540
Allston Hall	Retail	2,300 sf	50 gpd / 1,000 sf	115
Total Daily Sewage Generated (Anticipated)………………………………………………				*1,655*
Net Increase of Sewage Increase				**1,565**

Notes:
* gpd is an abbreviation for gallons per day.
**Bdrm is an abbreviation for Bedroom.

The sanitary sewer connection for the site is anticipated to connect to the sewer main located within Braintree Street. This sewer main (owned by the BWSC) is accessible along the site's frontage. The residential and retail component of the sanitary sewer will discharge to the sewer main via a new sewer lateral.

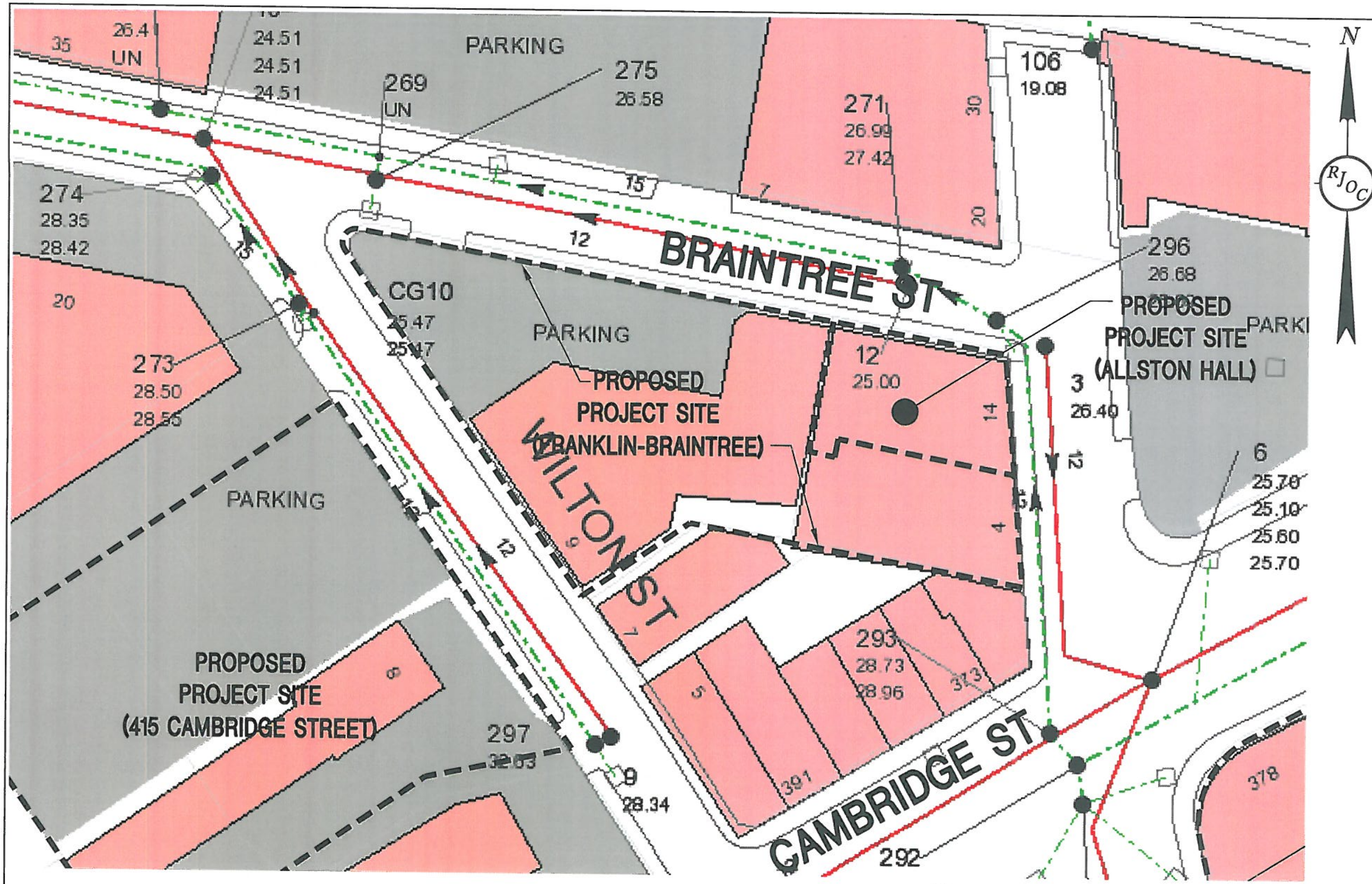
All building sanitary sewer connections and infrastructure will be reviewed and approved by the BWSC.

5.2 Water Supply and Consumption

Figure W-4 shows the existing domestic and fire protection lines that are located within the streets abutting the site. The water pipes located in the vicinity of this site are owned and maintained by the BWSC. More specifically, the water system servicing the existing building on the property and nearby fire hydrants are as follows:

- A 12-inch Southern Low Water Main located within Franklin Street; and
- A 12-inch Southern Low Water Main located within Braintree Street.

The Applicant and Design Team will coordinate with the BWSC on the design of the proposed connections from the renovated building on the site to the public water system. It is anticipated that domestic water services and separate fire suppression lines will be installed from the building on the site to the existing water main in Braintree Street. The domestic and fire



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GRAPHIC SCALE IN FEET

FIGURE S/D-4

SCALE: 1"=50'

ALLSTON SQUARE, BOSTON (ALLSTON), MA

ALLSTON HALL

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EXISTING SEWER AND DRAINAGE INFRASTRUCTURE
SOURCE: BWSC RECORD WATER MAPS, APRIL 2018

Drawing name: G:\City Real Estate Development Corp\Projects\Allston\Allston Square\Exhibits\18018_Exhibit_Sewer.dwg
Apr 25, 2018 – 14:07pm

suppression lines will likely be cement lined, ductile iron pipes. The specific sizes of the respective services will be determined by the Project MEP/Plumber during the design phase of the project after performing flow and pressure tests of the existing water lines. The Applicant and Design Team will submit an Application and Site Plan to the BWSC for review and approval during the design stage of the proposed project.

The anticipated domestic water demand for the renovated building is based upon the estimated sewage generation plus a factor of 10 percent for consumption, system losses and other use. Based upon this assumption, the renovated building will require approximately 1,820 gpd of domestic water.

5.3 Water Supply Mitigation

Water Conservation Measures will be implemented as part of the overall project. Conservation measures will include the design of low flow, water efficient plumbing fixtures. These fixtures shall be designed and installed in accordance with all applicable Codes.

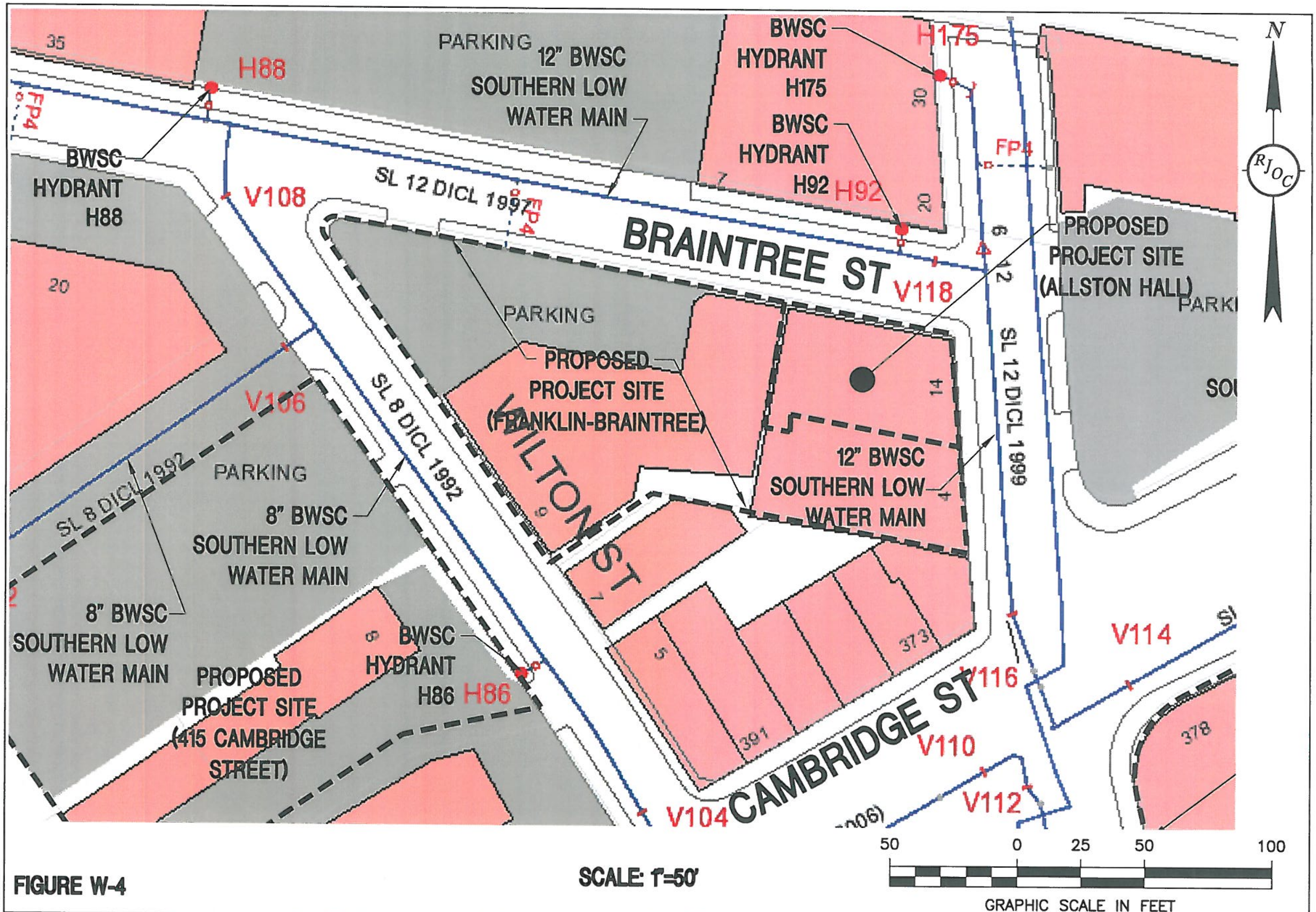

FIGURE W-4

SCALE: 1"=50'

ALLSTON SQUARE, BOSTON (ALLSTON), MA

ALLSTON HALL

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EXISTING WATER INFRASTRUCTURE
SOURCE: BWSC RECORD WATER MAPS, APRIL 2018

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5.4 Stormwater Management

Existing Storm Drainage System

There is an existing storm drainage system located within Braintree Street that is owned and maintained by the BWSC. Existing runoff is collected by catch basins located within these roadways and then directed into the 15" drain line located in Braintree Street that transports runoff to the south. The existing storm drainage system is depicted on Figure S/D-4.

The existing site is covered entirely by the existing building. The runoff from the roof of the existing building is collected by a roof drain and discharged onto the ground abutting the building. This runoff is then captured in the aforementioned drainage system located in Braintree Street.

Proposed Storm Drainage System

The Proposed Site Design for this property anticipates having the slightly less impervious surface on the site than that which exists under the existing conditions. Since there will be no increase in impervious surface, there is not anticipated to be an increase in the volume or rate of stormwater runoff generated by the site. In fact, as part of this project, a stormwater infiltration system (drywell) will be designed to infiltrate the volume of stormwater runoff required by the BWSC (1-inch times the total impervious surface on the site). These drywells are anticipated to be comprised of gravity based recharge chambers that will be installed under the building foundation (if groundwater is not observed) or via a pressure based injection well system. In either case, all drywells will have overflows installed that will be connected to the existing storm drainage system in Braintree Street. All infiltration systems will need to be closely designed with the Project's Licensed Site Professional to ensure that the drywell design is coordinated with any needed soil remediation.

The installation of proposed drywells on the site will lead to a reduction of the total volume and rate of stormwater runoff leaving the site.

The proposed drainage piping will be designed to capture and convey the 10-year design storm.

The Proposed Storm Drainage System will be submitted to the BWSC for review and approval during the design stage of the proposed project.

5.5 Compliance with DEP Stormwater Management Standards

The BWSC will likely apply the Massachusetts Stormwater Management Policy to this project. The Policy requires specific stormwater management standards for redevelopment projects, including urban pollutant removal criteria for projects that may impact environmental resource areas. Therefore, we have provided a brief explanation of each Policy Standard and how the proposed project is anticipated to comply with these requirements:

Standard #1: *No new stormwater conveyances (e.g., outfalls) may discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth.*

Compliance: The proposed design is intended to comply with this Standard. New untreated stormwater will not be directly discharged to, nor will erosion be caused to wetlands or waters of the Commonwealth as a result of stormwater discharges related to the proposed Project.

The Applicant is exploring subsurface stormwater infiltration systems and injection wells as potential stormwater control measures. Any stormwater runoff collected from parking areas will be treated prior to infiltration or connection to the BWSC drainage system.

Standard #2: *Stormwater management systems must be designed so that post-development peak discharge rates do not exceed pre-development peak discharge rates.*

Compliance: The proposed Project will be designed to comply with this Standard. The existing discharge rate is expected to be met or decreased as a result of the infiltration that will be proposed in association with the proposed Project.

Standard #3: *Loss of annual recharge to groundwater should be minimized through* the use of infiltration measures to the maximum extent practicable. The annual recharge from the post development site should approximate the annual recharge from the pre-development or existing site conditions, based on soil types.

Compliance: The proposed Project will explore the use of recharge to the maximum extent feasible by infiltration chambers or injection wells.

Standard #4: *For new development, stormwater management systems must be designed to remove 80% of the average annual load (post-development conditions) of Total Suspended Solids (TSS). It is presumed that this standard is met when: Suitable nonstructural practices for source control and pollution prevention are implemented; Stormwater management best management practices (BMPs) are sized to capture the prescribed runoff volume; and Stormwater management BMPs are maintained as designed.*

Compliance: The proposed designed is expected to include BMPs intended to remove TSS from paved surfaces. However, the majority of the site is anticipated to be covered by building roof area which generates "clean" runoff.

Standard #5: *For land uses with higher potential pollutant loads, source control and pollution prevention shall be implemented in accordance with the Massachusetts Stormwater Handbook to eliminate or reduce the discharge of stormwater runoff from such land uses to the maximum extent practicable. If, through source control and/or pollution prevention, all land uses with higher potential pollutant loads cannot be completely protected from exposure to rain, snow, snow melt, and stormwater runoff, the proponent shall use the specific structural stormwater BMPs determined by the Department to be suitable for such uses as provided in the Massachusetts Stormwater Handbook. Stormwater discharges from land uses with higher potential pollutant loads shall also comply with the requirements of the Massachusetts Clean*

Waters Act, M.G.L.c.21,~~gg~~ 26-53 and the regulation promulgated there under at 314 CMR 3.00, 314 CMR 4.00 and 314 CMR 5.00.

Compliance: The vast majority of the site area will be occupied by building footprints not associated with land uses with higher potential pollutant loads. The proposed parking structure will drain via an oil/sand separator to the sanitary sewer system.

Standard #6: *Stormwater discharge to critical areas must utilize certain stormwater management BMPs approved for critical areas. Critical areas are Outstanding Resource Waters (ORWs), shellfish beds, swimming beaches, cold-water fisheries and recharge areas for public water supplies.*

Compliance: The proposed Project does not discharge to a critical area.

Standard #7: *A redevelopment project is required to meet the following Stormwater Management Standards only to the maximum extent practicable: Standard 2, Standard 3, and the pretreatment and structural stormwater best management practice requirements of Standards 4, 5, and 6. Existing stormwater discharges shall comply with Standard 1 only to the maximum extent practicable. A redevelopment project shall also comply with all other requirements of the Stormwater Management Standards and improve existing conditions.*

Compliance: The Project is considered a redevelopment project. The proposed Project will comply with the Stormwater Management Standards to the extent practicable and is anticipated to improve upon existing conditions.

Standard #8: *Erosion and sediment controls must be implemented to prevent impacts during construction or land disturbance activities.*

Compliance: Sedimentation and erosion controls will be incorporated as part of the design of the Project components and employed during the various phases of construction.

Standard #9: *A Long-Term Operation and Maintenance (O&M) Plan shall be developed and implemented to ensure that stormwater management systems function as designed.*

Compliance: An O&M Plan will be developed during the design process.

Standard #10: *All illicit dis*charges to the stormwater management system are prohibited.

Compliance: There are no currently known illicit discharges. All proposed discharges will be reviewed by the BWSC to ensure consistency with this standard.

5.6 Other Utilities

Gas

Gas service at the Site is provided by National Grid. There is a 10-inch gas main in Franklin Street. This main will be able to provide gas to the new building. The Project Team will coordinate the final design with National Grid to define the service requirements while also identifying which main(s) to connect the services.

Electric

NStar Eversource Electric owns and operates the electric system in the vicinity of the Site. It is anticipated that there is adequate service available to support the proposed development. The Applicant and Design Team will confirm adequate capacity and coordinate the final design with NStar Eversource as the proposed design is finalized.

Telecommunications

The Applicant will select private telecommunications companies to provide telephone, cable and data services. There is telecommunication duct bank systems and/or overhead wires in the abutting street which provide these services. Upon selection of a provider (or providers), the Applicant will coordinate service connection locations and obtain appropriate approvals.

Franklin-Braintree

6.0 Introduction

This site is comprised of several parcels of land fronting on Franklin, Braintree, and Wilton Streets having a combined area of approximately 0.38 ± acres. The site is comprised of two buildings and a paved parking area. This site has the following addresses: 4 Braintree Street and 4-8 Franklin Street. The buildings completely cover 4 Braintree Street. The southern and eastern portion of 20 Braintree Street is covered by a building and the remaining portion of the lot is covered by the paved parking area.

6.1 Sanitary Sewer Infrastructure and Generation

Figure S/D-5 shows the existing sanitary sewer and storm drainage utilities that are located within the streets abutting this portion of the project. The sewer and drain pipes located in the vicinity of this Site are owned and maintained by the BWSC. More specifically, the sewer system servicing these buildings discharge into the 12" sanitary sewer main located within Franklin Street which flows easterly into the 24"x31" sewer main in Cambridge Street and then is transported to the Deer Island Treatment Plan for treatment and disposal. The sewer system servicing the remaining building (20 Braintree Street) discharges into the 12" sanitary sewer main located within Braintree Street and then is transported to the Deer Island Treatment Plan for treatment and disposal.

The Applicant and Design Team will coordinate with the BWSC on the design of the proposed connections from the new building on this site to the public sewer system. In addition, the Applicant and Design Team will submit an Application and Site Plan to the BWSC for review and approval during the design stage of the proposed project.

Table 6-1 summarizes the existing and anticipated sewage generation for this site based upon the design flow criteria established within the Massachusetts DEP's State Environmental Code (Title 5; 310 CMR 15.203 - *System Sewage Flow Design Criteria)* for specific uses within the building. The sewage generation calculated for the existing buildings is approximate as it is based upon an estimated number of people that were historically associated with the warehouse use. The total number of people used for this assumption is based upon the parking requirement (1 parking space per 2,000 gross square feet of warehouse area) set forth within the Boston Zoning Code. In total, the development contained within this site is estimated to generate an increase of 12,105 gallons per day (gpd) of daily sewage flows.

Table 6-1 Existing & Anticipated Sewerage Generation

Building	Use	Quantity	Unit Flow Rate	Sewage Generation (gpd*)
Existing Estimated Sewage Generation				
Franklin – Braintree	Warehouse	6 people	15 gpd / person	90
Total Daily Sewage Generated (Existing)				*90*
Total Anticipated Sewage Generation from Franklin-Braintree				
Franklin – Braintree	Residential	93 Bdrm	110 gpd / Bdrm	10,230
	Restaurant	40 Seats (assumed)	20 gpd / seat	800
Total Daily Sewage Generated (Anticipated)				*11,030*
Net Increase of Sewage Increase				**10,940**

Notes:
* gpd is an abbreviation for gallons per day.
**Bdrm is an abbreviation for Bedroom.

Sanitary sewer connections for the site are anticipated to connect to the sewer main located within Braintree and Wilton Streets. Both of these sewer mains (owned by the BWSC) are accessible along the site's frontage. The residential component of the sanitary sewer will discharge to the sewer main via a sewer lateral. The kitchen flow from the restaurant will pass through a MWRA/BWSC approved grease trap before discharge to the sewer main.

The development of this site will also include the construction of an underground parking garage with 46 parking spaces. Drains located within the parking garage will collect water, oils, and other liquids and discharge to the existing aforementioned sewer main in Wilton Street after treatment by an MWRA & BWSC approved oil trap. The connection from the drains in the parking garage will be separate from the connection for the sanitary sewer associated with the residential and restaurant use.

All building sanitary sewer connections and infrastructure will be reviewed and approved by the BWSC.

6.2 Water Supply and Consumption

Figure W-5 shows the existing domestic and fire protection lines that are located within the streets abutting the site. The water pipes located in the vicinity of this site are owned and

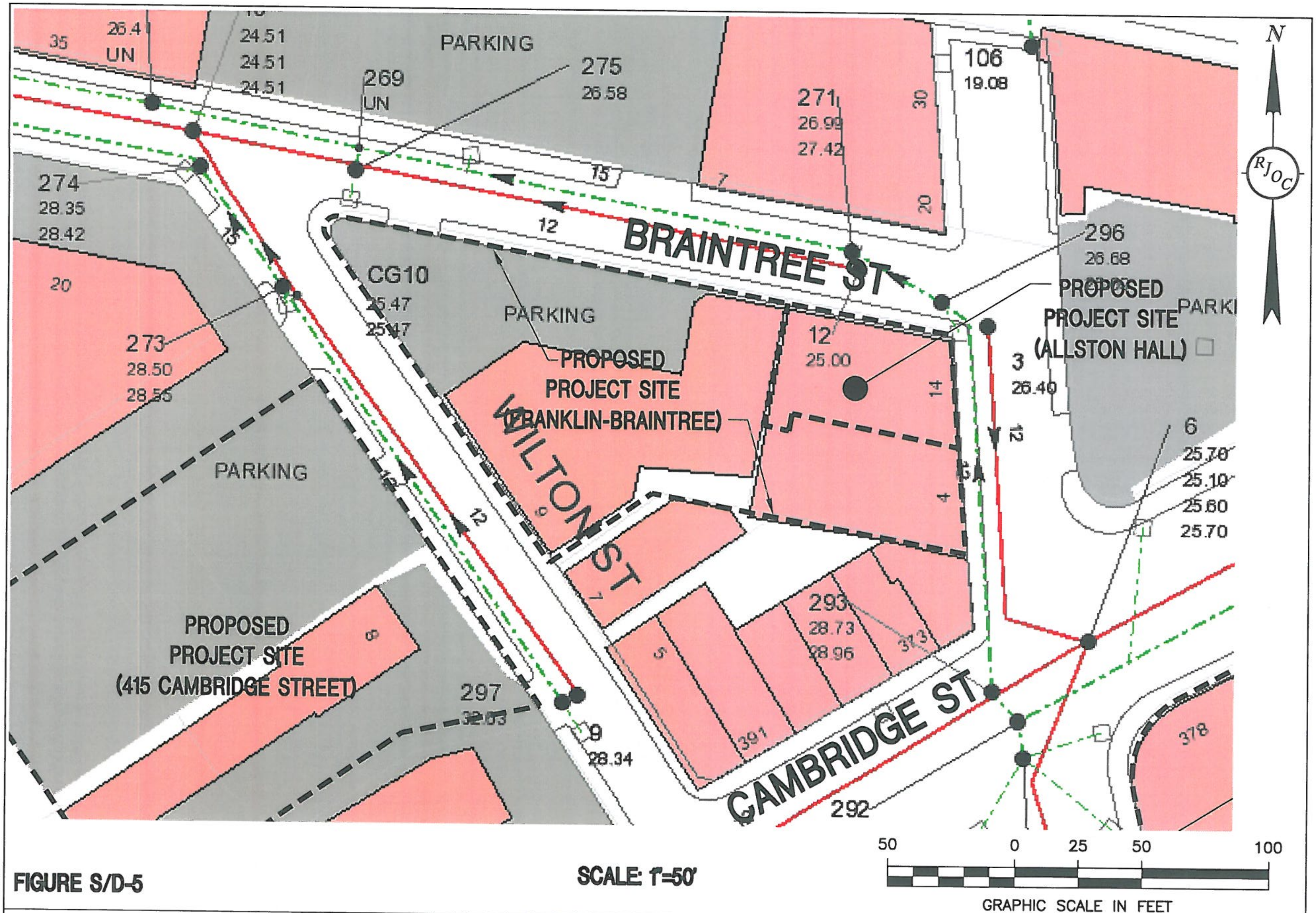

FIGURE S/D-5

SCALE: 1"=50'

ALLSTON SQUARE, BOSTON (ALLSTON), MA

FRANKLIN-BRAINTREE

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EXISTING SEWER AND DRAINAGE INFRASTRUCTURE
SOURCE: BWSC RECORD WATER MAPS, APRIL 2018

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maintained by the BWSC. More specifically, the water system servicing the existing buildings on this property and nearby fire hydrants are as follows:

- An 8-inch Southern Low Water Main located within Wilton Street;
- A 12-inch Southern Low Water Main located within Franklin Street; and
- A 12-inch Southern Low Water Main located within Braintree Street.

The Applicant and Design Team will coordinate with the BWSC on the design of the proposed connections from the new building on the site to the public water system. It is anticipated that domestic water services and separate fire suppression lines will be installed from the building on the site to the existing water mains in Wilton and Braintree Streets. The domestic and fire suppression lines will be cement lined, ductile iron pipes. The specific sizes of the respective services will be determined by the Project MEP/Plumber during the design phase of the project after performing flow and pressure tests of the existing water lines. The Applicant and Design Team will submit an Application and Site Plan to the BWSC for review and approval during the design stage of the proposed project.

The anticipated domestic water demand for the new development on this site is based upon the estimated sewage generation plus a factor of 10 percent for consumption, system losses and other use. Based upon this assumption, the new development on this site will require approximately 12,133 gpd of domestic water.

6.3 Water Supply Mitigation

Water Conservation Measures will be implemented as part of the overall project. Conservation measures will include the design of low flow, water efficient plumbing fixtures. These fixtures shall be designed and installed in accordance with all applicable Codes.

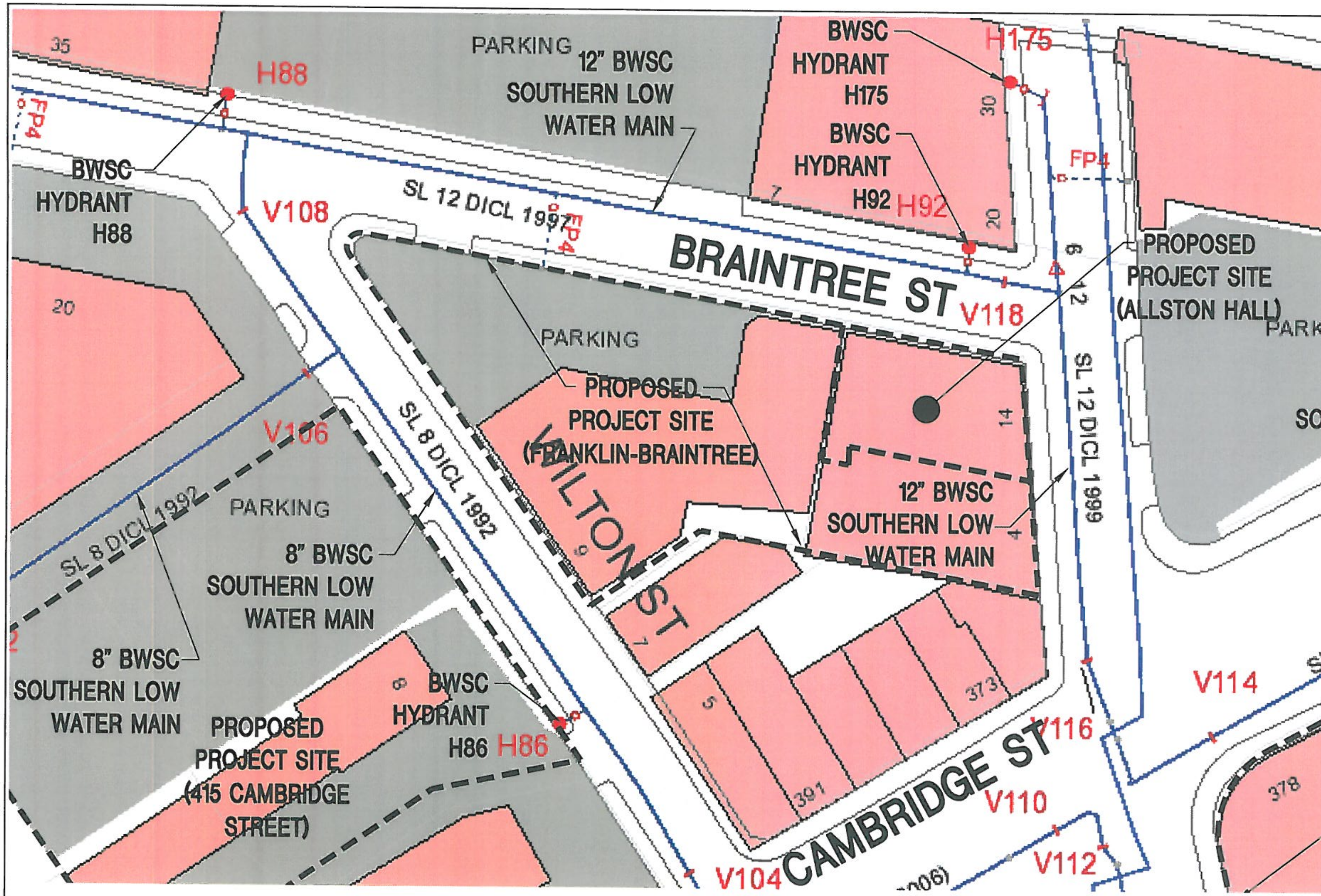

FIGURE W-5

SCALE: 1"=50'

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GRAPHIC SCALE IN FEET

ALLSTON SQUARE, BOSTON (ALLSTON), MA

FRANKLIN-BRAINTREE

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EXISTING WATER INFRASTRUCTURE
SOURCE: BWSC RECORD WATER MAPS, APRIL 2018

Drawing name: G:\City Real Estate Development Corp\Projects\Allston\Allston Square\Exhibits\18018_Exhibit.dwg
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6.4 Stormwater Management

Existing Storm Drainage System

There is an existing storm drainage system located within Braintree and Wilton Streets that is owned and maintained by the BWSC. Existing runoff is collected by catch basins located within these roadways and then directed into the 15" drain line located in Braintree Street that transports runoff to the south. The existing storm drainage system is depicted on Figure S/D-5.

The existing site is covered entirely by impervious surfaces including buildings and an asphalt parking area. The runoff from the roof of the existing building is collected by a roof drain and discharged to the surface next to the buildings. Runoff flowing from the parking area sheet flows in a westerly direction into Braintree Street. This runoff is then captured in the aforementioned drainage system located in Braintree Street.

Proposed Storm Drainage System

The Proposed Site Design for this property anticipates having the slightly less impervious surface on the site than that which exists under the existing conditions. Since there will be no increase in impervious surface, there is not anticipated to be an increase in the volume or rate of stormwater runoff generated by the site. In fact, as part of this project, a stormwater infiltration system (drywell) will be designed to infiltrate the volume of stormwater runoff required by the BWSC (1-inch times the total impervious surface on the site). These drywells are anticipated to be comprised of gravity based recharge chambers that will be installed under the building foundation (if groundwater is not observed) or via a pressure based injection well system. In either case, all drywells will have overflows installed that will be connected to the existing storm drainage system in Braintree Street. All infiltration systems will need to be closely designed with the Project's Licensed Site Professional to ensure that the drywell design is coordinated with any needed soil remediation.

The installation of proposed drywells on the site will lead to a reduction of the total volume and rate of stormwater runoff leaving the site.

The proposed drainage piping will be designed to capture and convey the 10-year design storm.

The Proposed Storm Drainage System will be submitted to the BWSC for review and approval during the design stage of the proposed project.

6.5 Compliance with DEP Stormwater Management Standards

The BWSC will likely apply the Massachusetts Stormwater Management Policy to this project. The Policy requires specific stormwater management standards for redevelopment projects, including urban pollutant removal criteria for projects that may impact environmental resource areas. Therefore, we have provided a brief explanation of each Policy Standard and how the proposed project is anticipated to comply with these requirements:

Standard #1: *No new stormwater conveyances (e.g., outfalls) may discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth.*

Compliance: The proposed design is intended to comply with this Standard. New untreated stormwater will not be directly discharged to, nor will erosion be caused to wetlands or waters of the Commonwealth as a result of stormwater discharges related to the proposed Project.

The Applicant is exploring subsurface stormwater infiltration systems and injection wells as potential stormwater control measures. Any stormwater runoff collected from parking areas will be treated prior to infiltration or connection to the BWSC drainage system.

Standard #2: *Stormwater management systems must be designed so that post-development peak discharge rates do not exceed pre-development peak discharge rates.*

Compliance: The proposed Project will be designed to comply with this Standard. The existing discharge rate is expected to be met or decreased as a result of the infiltration that will be proposed in association with the proposed Project.

Standard #3: *Loss of annual recharge to groundwater should be minimized through* the use of infiltration measures to the maximum extent practicable. The annual recharge from the post development site should approximate the annual recharge from the pre-development or existing site conditions, based on soil types.

Compliance: The proposed Project will explore the use of recharge to the maximum extent feasible by infiltration chambers or injection wells.

Standard #4: *For new development, stormwater management systems must be designed to remove 80% of the average annual load (post-development conditions) of Total Suspended Solids (TSS). It is presumed that this standard is met when: Suitable nonstructural practices for source control and pollution prevention are implemented; Stormwater management best management practices (BMPs) are sized to capture the prescribed runoff volume; and Stormwater management BMPs are maintained as designed.*

Compliance: The proposed designed is expected to include BMPs intended to remove TSS from paved surfaces. However, the majority of the site is anticipated to be covered by building roof area which generates "clean" runoff.

Standard #5: *For land uses with higher potential pollutant loads, source control and pollution prevention shall be implemented in accordance with the Massachusetts Stormwater Handbook to eliminate or reduce the discharge of stormwater runoff from such land uses to the maximum extent practicable. If, through source control and/or pollution prevention, all land uses with higher potential pollutant loads cannot be completely protected from exposure to rain, snow, snow melt, and stormwater runoff, the proponent shall use the specific structural stormwater BMPs determined by the Department to be suitable for such uses as provided in the Massachusetts Stormwater Handbook. Stormwater discharges from land uses with higher potential pollutant loads shall also comply with the requirements of the Massachusetts Clean*

Waters Act, M.G.L.c.21,~~gg~~ 26-53 and the regulation promulgated there under at 314 CMR 3.00, 314 CMR 4.00 and 314 CMR 5.00.

Compliance: The vast majority of the site area will be occupied by building footprints not associated with land uses with higher potential pollutant loads. The proposed parking structure will drain via an oil/sand separator to the sanitary sewer system.

Standard #6: *Stormwater discharge to critical areas must utilize certain stormwater management BMPs approved for critical areas. Critical areas are Outstanding Resource Waters (ORWs), shellfish beds, swimming beaches, cold-water fisheries and recharge areas for public water supplies.*

Compliance: The proposed Project does not discharge to a critical area.

Standard #7: *A redevelopment project is required to meet the following Stormwater Management Standards only to the maximum extent practicable: Standard 2, Standard 3, and the pretreatment and structural stormwater best management practice requirements of Standards 4, 5, and 6. Existing stormwater discharges shall comply with Standard 1 only to the maximum extent practicable. A redevelopment project shall also comply with all other requirements of the Stormwater Management Standards and improve existing conditions.*

Compliance: The Project is considered a redevelopment project. The proposed Project will comply with the Stormwater Management Standards to the extent practicable and is anticipated to improve upon existing conditions.

Standard #8: *Erosion and sediment controls must be implemented to prevent impacts during construction or land disturbance activities.*

Compliance: Sedimentation and erosion controls will be incorporated as part of the design of the Project components and employed during the various phases of construction.

Standard #9: *A Long-Term Operation and Maintenance (O&M) Plan shall be developed and implemented to ensure that stormwater management systems function as designed.*

Compliance: An O&M Plan will be developed during the design process.

Standard #10: *All illicit dis*charges to the stormwater management system are prohibited.

Compliance: There are no currently known illicit discharges. All proposed discharges will be reviewed by the BWSC to ensure consistency with this standard.

6.6 Other Utilities

Gas

Gas service at the Site is provided by National Grid. There is a 4-inch gas main in Wilton Street and a 10-inch gas main in Franklin Street. Both of these mains will be able to provide gas to the new building. The Project Team will coordinate the final design with National Grid to define the service requirements while also identifying which main(s) to connect the services.

Electric

NStar Eversource Electric owns and operates the electric system in the vicinity of the Site. It is anticipated that there is adequate service available to support the proposed development. The Applicant and Design Team will confirm adequate capacity and coordinate the final design with NStar Eversource as the proposed design is finalized.

Telecommunications

The Applicant will select private telecommunications companies to provide telephone, cable and data services. There is telecommunication duct bank systems and/or overhead wires in the abutting street which provide these services. Upon selection of a provider (or providers), the Applicant will coordinate service connection locations and obtain appropriate approvals.

415 Cambridge Street

7.0 Introduction

This site is comprised of several parcels of land fronting on Cambridge Street, Wilton Terrace, and Wilton Streets having a combined area of approximately 0.67 ± acres. The site is covered by a building and a paved parking area. The site slopes away from Cambridge Street.

7.1 Sanitary Sewer Infrastructure and Generation

Figure S/D-6 shows the existing sanitary sewer and storm drainage utilities that are located within the streets abutting this portion of the project. The sewer and drain pipes located in the vicinity of this property are owned and maintained by the BWSC. More specifically, the sewer system servicing the site discharges into the 12" sanitary sewer main located within Wilton Street which then flows westerly into the sewer main in Braintree Street. The effluent is transported to the Deer Island Treatment Plan for treatment and disposal.

The Applicant and Design Team will coordinate with the BWSC on the design of the proposed connections from the new building on this site to the public sewer system. In addition, the Applicant and Design Team will submit an Application and Site Plan to the BWSC for review and approval during the design stage of the proposed project.

Table 7-1 summarizes the existing and anticipated sewage generation for this site based upon the design flow criteria established within the Massachusetts DEP's State Environmental Code (Title 5; 310 CMR 15.203 - *System Sewage Flow Design Criteria)* for specific uses within the building. In total, the proposed development contained within this site is estimated to generate an increase of 14,260 gallons per day (gpd) of daily sewage flows.

Table 7-1 Existing & Anticipated Sewerage Generation

Building	Use	Quantity	Unit Flow Rate	Sewage Generation (gpd*)
Existing Estimated Sewage Generation				
415 Cambridge Street	Garage Bays	4	150 gpd / bay	600
	Retail Store	1,500 sf	50 gpd / 1,000 sf	75
Total Daily Sewage Generated (Existing)				*675*
Total Anticipated Sewage Generation from 415 Cambridge Street				
415 Cambridge Street	Residential	131 Bdrm	110 gpd / Bdrm	14,410
	Retail	2,505 sf	50 gpd / 1,000 sf	125
	Restaurant	20 Seats (assumed)	20 gpd / seat	400
Total Daily Sewage Generated (Anticipated)				*14,935*
Net Increase of Sewage Increase				**14,260**

Notes:
* gpd is an abbreviation for gallons per day.
**Bdrm is an abbreviation for Bedroom.

Sanitary sewer connections for this site are anticipated to connect to the sewer main located within Wilton Street and Cambridge Street. These sewer mains (owned by the BWSC) are accessible along the site's frontage. The residential and retail component of the sanitary sewer will discharge to the sewer mains via several sewer laterals. The kitchen flow from the restaurant will pass through a MWRA/BWSC approved grease trap before discharge to the sewer main.

The development of this site will also include the construction of an underground parking garage with approximately 102 parking spaces. Drains located within the parking garage will collect water, oils, and other liquids and discharge to the existing aforementioned sewer main in Wilton Street after treatment by an MWRA & BWSC approved oil trap. The connection from the drains in the parking garage will be separate from the connection for the sanitary sewer associated with the residential and retail use.

All building sanitary sewer connections and infrastructure will be reviewed and approved by the BWSC.

7.2 Water Supply and Consumption

Figure W-6 shows the existing domestic and fire protection lines that are located within the streets abutting the site. The water pipes located in the vicinity of the site are owned and

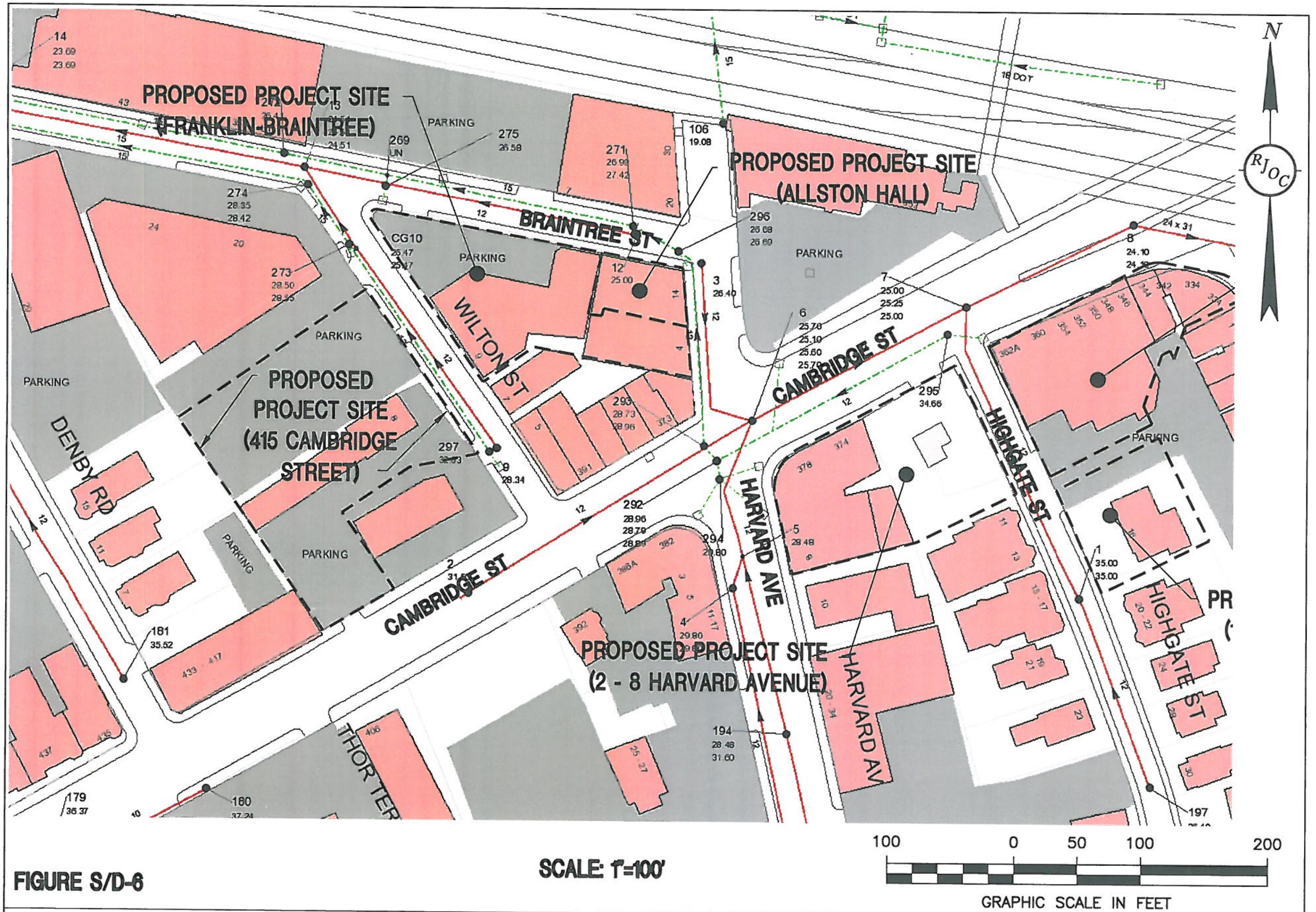

FIGURE S/D-6

ALLSTON SQUARE, BOSTON (ALLSTON), MA

415 CAMBRIDGE STREET

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EXISTING SEWER AND DRAINAGE INFRASTRUCTURE
SOURCE: BWSC RECORD WATER MAPS, APRIL 2018

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Apr 25, 2018 – 14:08pm

maintained by the BWSC. More specifically, the water system servicing the existing building on the property and nearby fire hydrants are as follows:

- An 8-inch Southern Low Water Main located within Wilton Street & Wilton Terrace; and
- A 12-inch Southern Low Water Main located within Cambridge Street.

The Applicant and Design Team will coordinate with the BWSC on the design of the proposed connections from the new building on the site to the public water system. It is anticipated that a new domestic water service and separate fire suppression line will be installed from the new building on the site to the existing water mains in Wilton Street and potentially in Cambridge Street. The domestic and fire suppression lines will be cement lined, ductile iron pipes. The specific sizes of the respective services will be determined by the Project MEP/Plumber during the design phase of the project after performing flow and pressure tests of the existing water lines. The Applicant and Design Team will submit an Application and Site Plan to the BWSC for review and approval during the design stage of the proposed project.

The anticipated domestic water demand for the new development on this site is based upon the estimated sewage generation plus a factor of 10 percent for consumption, system losses and other use. Based upon this assumption, the new development on this site will require approximately 16,429 gpd of domestic water.

7.3 Water Supply Mitigation

Water Conservation Measures will be implemented as part of the overall project. Conservation measures will include the design of low flow, water efficient plumbing fixtures. These fixtures shall be designed and installed in accordance with all applicable Codes.

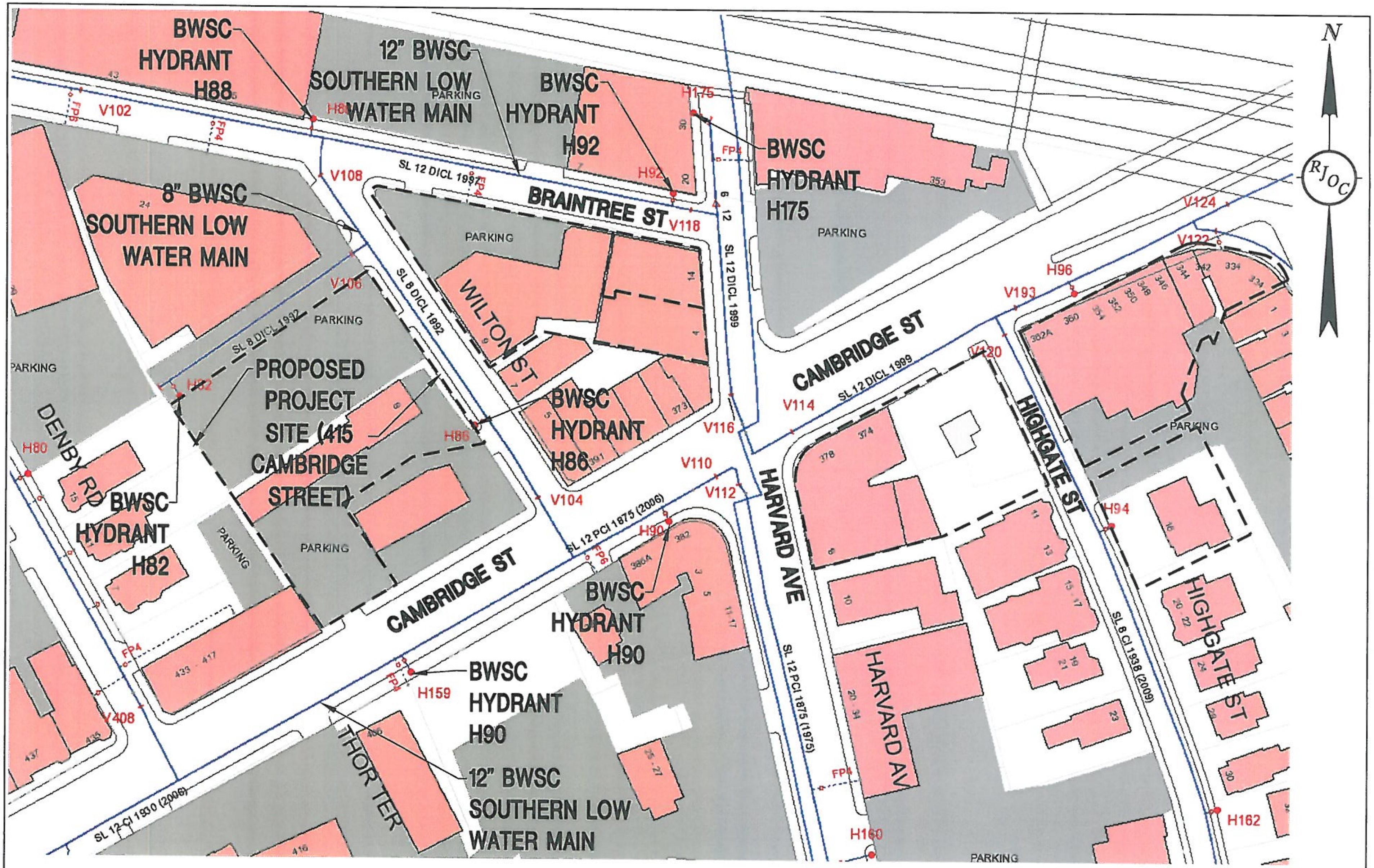


FIGURE W-6

SCALE: 1"=100'

100 0 50 100 200

GRAPHIC SCALE IN FEET

ALLSTON SQUARE, BOSTON (ALLSTON), MA

415 CAMBRIDGE STREET

RJO'CONNELL & ASSOCIATES, INC.
CIVIL ENGINEERS, SURVEYORS & LAND PLANNERS
80 MONTVALE AVE
STONEHAM, MA 02180
781-279-0180 FAX: 781-279-0173

EXISTING WATER INFRASTRUCTURE
SOURCE: BWSC RECORD WATER MAPS, APRIL 2018

Drawing name: G:\City Real Estate Development Corp\Projects\Allston\Allston Square\Exhibits\18018_Exhibit_Sht_6.dwg
Apr 25, 2018 – 13:51pm

7.4 Stormwater Management

Existing Storm Drainage System

There is an existing storm drainage system located within Braintree and Wilton Streets that is owned and maintained by the BWSC. Existing runoff is collected by catch basins located within these roadways and then directed into the 15" drain line located in Braintree Street that transports runoff to the south. The existing storm drainage system is depicted on Figure S/D-6.

The existing site is covered entirely by impervious surfaces including a building and asphalt parking areas. The runoff from the roof of the existing building is collected by a downspout and gutter system which discharges to the surface. Runoff flowing from the parking areas sheet flows in a westerly direction into Wilton Street. This runoff is then captured in the aforementioned drainage system located in Wilton Street and transported to the drain main in Braintree Street.

Proposed Storm Drainage System

The Proposed Site Design for this property anticipates having slightly less impervious surface on the site than that which exists under the existing conditions. Since there will be no increase in impervious surface, there is not anticipated to be an increase in the volume or rate of stormwater runoff generated by the site. In fact, as part of this project, a stormwater infiltration system (drywell) will be designed to infiltrate the volume of stormwater runoff required by the BWSC (1-inch times the total impervious surface on the site). These drywells are anticipated to be comprised of gravity based recharge chambers that will be installed under the building foundation (if groundwater is not observed) or via a pressure based injection well system. In either case, all drywells will have overflows installed that will be connected to the existing storm drainage system in Wilton Street. All infiltration systems will need to be closely designed with the Project's Licensed Site Professional to ensure that the drywell design is coordinated with any needed soil remediation.

The installation of proposed drywells on the site will lead to a reduction of the total volume and rate of stormwater runoff leaving the site.

The proposed drainage piping will be designed to capture and convey the 10-year design storm.

The Proposed Storm Drainage System will be submitted to the BWSC for review and approval during the design stage of the proposed project.

7.5 Compliance with DEP Stormwater Management Standards

The BWSC will likely apply the Massachusetts Stormwater Management Policy to this project. The Policy requires specific stormwater management standards for redevelopment projects, including urban pollutant removal criteria for projects that may impact environmental resource areas. Therefore, we have provided a brief explanation of each Policy Standard and how the proposed project is anticipated to comply with these requirements:

Standard #1: *No new stormwater conveyances (e.g., outfalls) may discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth.*

Compliance: The proposed design is intended to comply with this Standard. New untreated stormwater will not be directly discharged to, nor will erosion be caused to wetlands or waters of the Commonwealth as a result of stormwater discharges related to the proposed Project.

The Applicant is exploring subsurface stormwater infiltration systems and injection wells as potential stormwater control measures. Any stormwater runoff collected from parking areas will be treated prior to infiltration or connection to the BWSC drainage system.

Standard #2: *Stormwater management systems must be designed so that post-development peak discharge rates do not exceed pre-development peak discharge rates.*

Compliance: The proposed Project will be designed to comply with this Standard. The existing discharge rate is expected to be met or decreased as a result of the infiltration that will be proposed in association with the proposed Project.

Standard #3: *Loss of annual recharge to groundwater should be minimized through* the use of infiltration measures to the maximum extent practicable. The annual recharge from the post development site should approximate the annual recharge from the pre-development or existing site conditions, based on soil types.

Compliance: The proposed Project will explore the use of recharge to the maximum extent feasible by infiltration chambers or injection wells.

Standard #4: *For new development, stormwater management systems must be designed to remove 80% of the average annual load (post-development conditions) of Total Suspended Solids (TSS). It is presumed that this standard is met when: Suitable nonstructural practices for source control and pollution prevention are implemented; Stormwater management best management practices (BMPs) are sized to capture the prescribed runoff volume; and Stormwater management BMPs are maintained as designed.*

Compliance: The proposed designed is expected to include BMPs intended to remove TSS from paved surfaces. However, the majority of the site is anticipated to be covered by building roof area which generates "clean" runoff.

Standard #5: *For land uses with higher potential pollutant loads, source control and pollution prevention shall be implemented in accordance with the Massachusetts Stormwater Handbook to eliminate or reduce the discharge of stormwater runoff from such land uses to the maximum extent practicable. If, through source control and/or pollution prevention, all land uses with higher potential pollutant loads cannot be completely protected from exposure to rain, snow, snow melt, and stormwater runoff, the proponent shall use the specific structural stormwater BMPs determined by the Department to be suitable for such uses as provided in the Massachusetts Stormwater Handbook. Stormwater discharges from land uses with higher potential pollutant loads shall also comply with the requirements of the Massachusetts Clean*

Waters Act, M.G.L.c.21,~~gg~~ 26-53 and the regulation promulgated there under at 314 CMR 3.00, 314 CMR 4.00 and 314 CMR 5.00.

Compliance: The vast majority of the site area will be occupied by building footprints not associated with land uses with higher potential pollutant loads. The proposed parking structure will drain via an oil/sand separator to the sanitary sewer system.

Standard #6: *Stormwater discharge to critical areas must utilize certain stormwater management BMPs approved for critical areas. Critical areas are Outstanding Resource Waters (ORWs), shellfish beds, swimming beaches, cold-water fisheries and recharge areas for public water supplies.*

Compliance: The proposed Project does not discharge to a critical area.

Standard #7: *A redevelopment project is required to meet the following Stormwater Management Standards only to the maximum extent practicable: Standard 2, Standard 3, and the pretreatment and structural stormwater best management practice requirements of Standards 4, 5, and 6. Existing stormwater discharges shall comply with Standard 1 only to the maximum extent practicable. A redevelopment project shall also comply with all other requirements of the Stormwater Management Standards and improve existing conditions.*

Compliance: The Project is considered a redevelopment project. The proposed Project will comply with the Stormwater Management Standards to the extent practicable and is anticipated to improve upon existing conditions.

Standard #8: *Erosion and sediment controls must be implemented to prevent impacts during construction or land disturbance activities.*

Compliance: Sedimentation and erosion controls will be incorporated as part of the design of the Project components and employed during the various phases of construction.

Standard #9: *A Long-Term Operation and Maintenance (O&M) Plan shall be developed and implemented to ensure that stormwater management systems function as designed.*

Compliance: An O&M Plan will be developed during the design process.

Standard #10: *All illicit dis*charges to the stormwater management system are prohibited.

Compliance: There are no currently known illicit discharges. All proposed discharges will be reviewed by the BWSC to ensure consistency with this standard.

7.6 Other Utilities

Gas

Gas service at the Site is provided by National Grid. There is a 4-inch gas main in Wilton Street and a 6-inch and 20-inch gas main in Cambridge Street. All of these mains will be able to provide gas to the new building. The Project Team will coordinate the final design with National Grid to define the service requirements while also identifying which main(s) to connect the services.

Electric

NStar Eversource Electric owns and operates the electric system in the vicinity of the Site. It is anticipated that there is adequate service available to support the proposed development. The Applicant and Design Team will confirm adequate capacity and coordinate the final design with NStar Eversource as the proposed design is finalized.

Telecommunications

The Applicant will select private telecommunications companies to provide telephone, cable and data services. There is telecommunication duct bank systems and/or overhead wires in the abutting street which provide these services. Upon selection of a provider (or providers), the Applicant will coordinate service connection locations and obtain appropriate approvals.

Allston Square Development, Allston
Subsection I
334 Cambridge Street

Table of Contents

<u>Appendices</u>

1.0 PROJECT SUMMARY / OVERVIEW

1.1 Introduction

334 Cambridge Street is part of the Allston Square Development Project in the Allston Square section of Allston. The overall project includes a six-building mixed-use development that is approximately 358,520 gross square feet in size. The Proposed Project will include three hundred and thirty-four residential units, two hundred and thirty-seven associated parking spaces, and approximately 22,145 square feet of retail space. **Please see Figure I.1. <u>Project Locus Map</u> and Figure I.2. <u>334 Cambridge Street Breakdown.</u>**

The 334 Cambridge Street portion of the project includes demolishing the existing mixed-use building and erecting a six-story building with sixty-five condominium units, thirty-five parking spaces, and 4,160 square feet of retail space. The overall gross square footage of the building will be approximately 71,505 square feet, with a floor to area ratio of 4.33, and a parking ratio of .54.

The 334 Cambridge Street lot is 16,520 square feet. The lot is located at the west end of the bridge spanning the Massachusetts Turnpike (I-90) that connects Cambridge to the East and Allston to the west. The site has frontage on Cambridge Street and is bordered to the left by Linden Street, to the right by Highgate Street, and to the rear several residential buildings including 16 Highgate Street, which is also involved in this development. Located to the right across Highgate Street is a third building involved in this development which has an address of 2-8 Harvard Ave.

Figure I.1
Project Locus Map

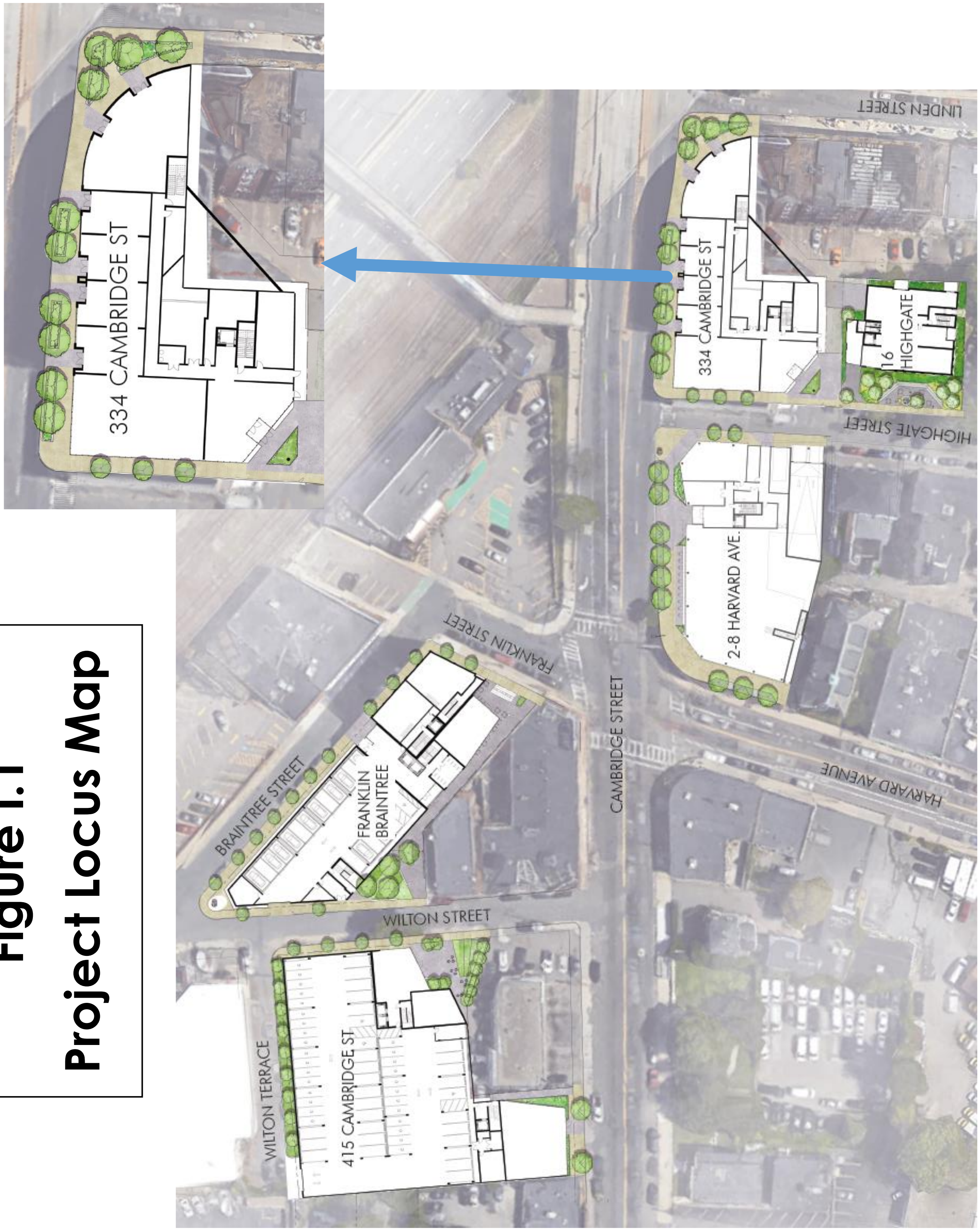


Figure I.2
334 Cambridge Street Breakdown

Table I.3. Approximate Project Dimensions of 334 Cambridge Street

Lot Area:	16,521
Gross Square Feet:	71,505
Units:	65 Condos
Parking:	35 Spaces
Retail:	4,160 Sq. Ft.
FAR:	4.33
Height:	6 Stories/69'

2.0 General Information

2.1 Public Benefits

The Proposed Project will provide substantial benefits to the City of Boston and the Allston-Brighton community. The Proposed Project will generate both direct and indirect economic and social benefits to the Allston-Brighton neighborhood. The Proposed Project provides for:

- Generating much needed market rate residential housing in the Allston-Brighton Neighborhood.
- Meeting the BPDA's inclusionary zoning regulations by creating on-site affordable residential units, which will meet the Boston Planning & Development Agency's affordable housing standards.
- Creating sixty-five condominium residential units.
- Creating a diverse mixture of units including studios, one-bedroom units, two-bedroom units and live/work units.
- Revitalizing an underutilized parcel and replacing the current commercial uses and industrial uses, and limited residential units with modern and energy efficient housing and retail space.
- Creating commercial retail space along the Cambridge Street corridor to accommodate Allston-Brighton's growing population of residents, which will allow residents to not only live, but also shop and have access to amenities in the neighborhood.
- Meeting LEED standards by constructing a building that will incorporate open space in the form of decking and terraces, and energy-efficient appliances, which will result in a high LEED standard for the Project.
- Integrating parking facilities that will accommodate thirty-five parking spaces for the unit residents.
- Dedicated car sharing parking spaces to accommodate the residents of the building, and members of the surrounding community.
- Encouraging alternative modes of transportation through the use of bicycling and walking, due to the close proximity of the bus lines and the Boston Landing MBTA Station.
- Adding revenue in the form of property taxes to the City of Boston.

- Creating full-time jobs (commercial retail).
- Creating temporary construction and labor jobs.
- Proposing ten new street trees.
- Creating 4,162 square feet of additional open space at the ground level.
- Creating new and improved sidewalk space to accommodate general foot traffic and to promote an active pedestrian walkway.
- Creating dedicated art spaces to pay homage to the rich artist heritage of Allston Square.

2.2 Compliance with Boston Zoning Code – Use and Dimensional Requirements

334 Cambridge Street is located within in the Allston-Brighton Neighborhood District, Article 51 of the Boston Zoning Code (the "Code"). Specifically, the property is located within a Community Commercial (CC-1) (See **Table I.4,**).

Some of the proposed uses in this development are allowed uses according the Code. However, some are conditional or forbidden. Therefore, a use variance would need to obtained from the City of Boston Zoning Board of Appeal ("Board"). Additionally, any dimensional regulations that are not adhered to within the project will require variances from the Board.

For a project that is subject to Article 80 Large Project Review, required off-street parking spaces and off-street loading facilities will be determined as a part of the Large Project Review process in accordance with the provisions of Article 80 of the Boston Zoning Code. Design elements of the project will also be reviewed, in accordance with the Article 80 Review process.

The Site is located in an area that contains both residential and commercial uses. The design team feels that given this location, and the structures influencing the design, as well as comparable developments in the neighborhood, that the proposed building heights, massing and scale are appropriate for this location and conducive to the Allston-Brighton neighborhood.

Table I.4. 334 Cambridge Street – Dimensional Regulations

Categories	**Community Commercial Subdistrict (CC-1)**	**Current Proposal**
Minimum Lot Area (Square Feet)	None	16, 521
Floor Area Ratio	1.0	4.33
Minimum Lot Width	None	Approximately 90-150 feet
Minimum Lot Frontage	None	138 Feet
Minimum Front Yard	None	1.5 Feet
Minimum Side Yard	None	8.6/3.3 Feet
Minimum Rear Yard	20 Feet	0 Feet
Maximum Building Height	35 Feet	6 Stories/69 Feet
Minimum Useable Open Space Per Dwelling Unit (Square Feet)	50 S.F. Per Unit	44 S.F. Per Unit
Off-Street Parking Spaces	2.0 Spaces Per Unit (130) 2.0 Spaces Per 1000 Square Feet of Retail Space (8)	35 Spaces

3.0 URBAN DESIGN AND SUSTAINABILITY

3.1 Site and Surroundings

334 Cambridge Street is located at the west end of the bridge spanning the Massachusetts Turnpike (I-90) that connects Cambridge to the East and Allston to the west. The site has street frontage on Cambridge Street from Linden Street to the east to Highgate Street to the west. Directly adjacent to the south on Linden Street are a row of (4) four-story residential buildings that were built as part of the original Allen Building, while further south are three (3) and four-story (4) residential buildings on the west side, with a preschool and surface parking on the east. To the west across Highgate Street will be the proposed project at 2-8 Harvard Ave, while past a public alleyway to the south will be the proposed 16 Highgate Street building. The narrower Highgate Street to the south and west consists mainly of two (2) to four-story (4) single and multi-family residential buildings.

The area of the site is approximately 16,521 SF over a considerable grade change that slopes west, away from the bridge towards Highgate Street. The site has considerable exposure given its street frontage on three sides and its abutment to the public alley to the south. The current site is occupied by the Allen Building on the east side, a rounded multi-family residential building of beige brick with a pronounced cornice that dates back to 1895 and a two-story red brick warehouse building to the west along Highgate Street. The former retail space on the ground floor along with the upper residential floors of the Allen Building as well as the smaller brick warehouse building are all currently occupied by the Jack Young Company as an auto parts warehouse space. **For existing site pictures see Appendix I.1**.

3.2 Urban Design Review

Coming to a height of approximately sixty-nine (69) feet, the proposed six-story (6) project will be highly visible not only upon entering Allston from Cambridge to the east, but also from the Massachusetts Turnpike entering and leaving Boston, therefore serving as an important gateway building. The project will play an important transitional role in negotiating past, present and future by nodding to the history of the Allen Building and the neighborhood of Allston as a whole, while also looking ahead towards the future.

To achieve this, the façade materials chosen include high-density fiber cement panels, zinc panels and glazed storefront enclosures. The running bond fiber cement panels on the lower portions relate to the heavy masonry buildings typical of the area, while the grey-toned zinc penthouse levels and glazed storefront enclosures speak to the newer character of Allston Square. The combination of the simple yet deliberate massing with a layered, textural approach to the façade provide a clear rhythm to the façade that graciously straddles the line between old and new in a rapidly changing neighborhood.

The proposed massing of the building draws its inspiration from the existing Allen Building. The four-story (4) heavy-textured mass is reintroduced, gently faceting around the corner of Linden Street towards Cambridge Street while maintaining similar window proportion to further strengthen the connection. The concept of bay windows is also reinterpreted as they begin to cut through the heavy mass to create additional floor space and sense of rhythm on the facade. A similar, lower-scale volume is added along Highgate Street to further relate to the neighboring buildings in scale. A more plastic, lighter volume sits on the top two levels, folding back to bring down the scale and spilling down to the corner of Cambridge and Highgate. An open, structural layer wraps up from the base of this corner to add another layer of detailing that negotiates between the other two while also opening the ground floor façade up to the street. Each of these moves has been carefully considered as a means of creating a new, unique building while also fitting appropriately within the existing and proposed contexts.

3.3 Building Design Review

The proposed building at 334 Cambridge Street is a six-story (6) mixed-use structure consisting primarily of sixty-five (65) residential units ranging from studios to two-bedroom on the second through sixth floors (2-6) to live/work units on the ground floor. The residential lobby is accessed via a shared entry court down Highgate Street. In addition to a ground floor fitness/yoga studio, building amenities include a lounge that opens to a south-facing, shared roof deck on the sixth floor. Private balconies have also been provided where possible for the residential units. A below-grade parking garage providing thirty-five (35) spaces for the building is accessed by a shared alley off Highgate Street. Two (2) retail spaces are provided, one of 2,060 SF at the corner of Cambridge Street and Linden Street that opens to a plaza and bus stop and the other of 2,102 SF at the corner of Cambridge and Highgate Street for a total of 4,162 SF of new retail space. Between these two retail anchors are four (4) live/work studios that cater to the artist community indigenous to Allston.

The building itself is designed as a series of layers or "skins" that relate to the idea of old and new, acting upon one another and peeling away at important moments throughout the building. The primary layer is a heavy masonry volume that matches the proportions of the existing Allen Building, the second is the more modern, plastic layer that displays its nature through bending and folding, and the third layer is a rigid, structural layer that bridges the two together. These three textures begin to interact with one another, creating unique moments around the different faces of the building. The cantilevered zinc-panel bays cut out the heavier masonry mass below to provide entries to the retail/live work space below and glass fenestration above. The heavier masonry mass begins to peel away at the ground floor, revealing more open structural layer beneath while also opening the retail up to the street. A cutout at the shared entry court on Highgate Street signifies the entry to the residential lobby. Given the large number of adjacencies and exposures the project has, these different textures, or "skins" allow the building to morph in every unique condition to effectively fit into each microcontext.

3.4 Landscape Design

The 334 Cambridge Street site provides generous sidewalks with ten (10) new street trees; six (6) on Cambridge Street, two (2) on Linden Street and two (2) on Highgate Street that align with the regulations as specified by Boston Complete Streets Design Guidelines to provide a proper buffer between cars and pedestrians. The sidewalk along Cambridge Street varies from 14'-10" to 10'-4," where the building has been kept back a considerable amount from the property line to provide ample sidewalk space that does not currently exist. Along Linden Street, the new building steps back to align with the neighboring building to the south, providing an ample sidewalk down into the more residential streets of Allston. At the corner of Linden Street and Cambridge Street, a small park adjacent to the existing bus stop will be provided. An 8'-0" sidewalk along Highgate Street provides expanded access for residents of the building as well as a more welcoming route for local residents residing further down the street. The building entry court will be a combination of hardscape and lush greenery, creating a more secluded retreat from busy Cambridge Street. All details of flora added to site, including caliper and other species, will be approved by the City of Boston Parks and Recreation Commission.

3.5 Urban Design Drawings

The Proposed Project's urban design drawings will include, existing and proposed plot plans, proposed floor plans, elevations, building matrix, building rendering, concept diagram and landscape plan. **To view the full Urban Design Drawings please see Appendix I.2. For the full Accessibility Checklist and Accessibility Diagram please see Appendix I.3.**

4.0 SHADOW STUDY

As typically required by the BPDA, a shadow impact analysis was conducted to investigate shadow impacts from each proposed building during three time periods (9:00 a.m., 12:00 noon, and 3:00 p.m.) during the Vernal Equinox (March 21), Summer Solstice (June 21), Fall Equinox (September 21), and Winter Solstice (December 21).

The shadow analysis presents the existing shadows and new shadows that would be created by the proposed project, illustrating the incremental impact of the project. The analysis focuses on nearby open spaces, sidewalks & streets, and buildings that are in the vicinity of the project site. Shadows have been determined using the applicable Altitude and Azimuth data for Boston. **Figures showing the net new shadow from the project are provided in Appendix I.4 at the end of this section.**

Vernal Equinox (March 21)

At 9:00 a.m. during the Vernal Equinox, a small amount of additional shadow from the project will be cast to the northwest onto the sidewalk across Cambridge Street. An additional sliver of shadow will be cast on Highgate Street and its sidewalks. No new shadow will be cast onto nearby open spaces or buildings.

At 12:00 p.m., new shadow from the project will be cast to the north onto a small section of Cambridge Street. No new shadow will be cast onto nearby open spaces or buildings.

At 3:00 p.m., new shadow from the project will be cast to the northeast onto a small section of sidewalk on Cambridge Street. No new shadow will be cast onto nearby open spaces or buildings.

Summer Solstice (June 21)

At 9:00 a.m. during the Summer Solstice, a small amount of additional shadow from the project will be cast to the northwest onto Highgate Street and its sidewalks. No new shadow will be cast onto nearby open spaces or buildings.

At 12:00 p.m., both the existing and the net new shadow remain more or less the same. No new shadow will be cast onto nearby open spaces or buildings.

At 3:00 p.m., new shadow from the project will be cast to the northeast onto the project's site. No new shadow will be cast onto nearby open spaces or buildings.

Fall Equinox (September 21)

At 9:00 a.m. during the Fall Equinox, a small amount of additional shadow from the project will be cast to the northwest onto the sidewalk across Cambridge Street. An additional sliver of shadow will be cast on Highgate Street and its sidewalks. No new shadow will be cast onto nearby open spaces or buildings.

At 12:00 p.m., new shadow from the project will be cast to the north onto a small section of Cambridge Street. No new shadow will be cast onto nearby open spaces or buildings.

At 3:00 p.m., new shadow from the project will be cast to the northeast onto a small section of sidewalk on Cambridge Street. No new shadow will be cast onto nearby open spaces or buildings.

Winter Solstice (December 21)

The Winter Solstice creates the least favorable conditions for sunlight in New England. The sun angle during the Winter is lower than in any other season, causing the shadows in urban areas to elongate and be cast onto large portions of the surrounding area.

At 9:00 a.m. during the Winter Solstice, a small amount of additional shadow from the project will be cast to the northwest onto the nearby railroad tracks running parallel to Braintree Street. No new shadow will be cast onto nearby open spaces or buildings.

At 12:00 p.m., new shadow from the project will be cast to the north onto a small section of Cambridge Street, its sidewalk, and the nearby railroad tracks. No new shadow will be cast onto nearby open spaces or buildings.
At 3:00 p.m., new shadow from the project will be cast to the northeast onto a small section of Cambridge Street. No new shadow will be cast onto nearby open spaces or buildings.

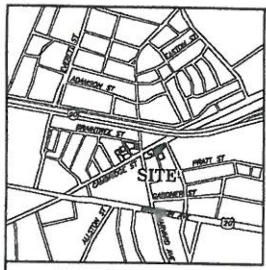
Conclusions

The shadow impact analysis looked at net new shadow created by the project during twelve time periods. New shadow from the project will be mostly limited to nearby streets (Cambridge Street and Highgate Street), and sidewalks. The new shadow cast by the proposed building will have almost no additional impact on the buildings and open spaces directly adjacent to it, as it will be replacing an existing building of similar size and proportion.

5.0 GEOTECHNICAL INFORMATION

A Geotechnical study was conducted by KMM Geotechnical Consultants, LLC for the proposed development. A full report was produced for the proposed 334 Cambridge Street site. **The full result of this Geotechnical Study is located in Appendix I.5.**

334 Cambridge Street



VICINITY SKETCH
SCALE: NTS

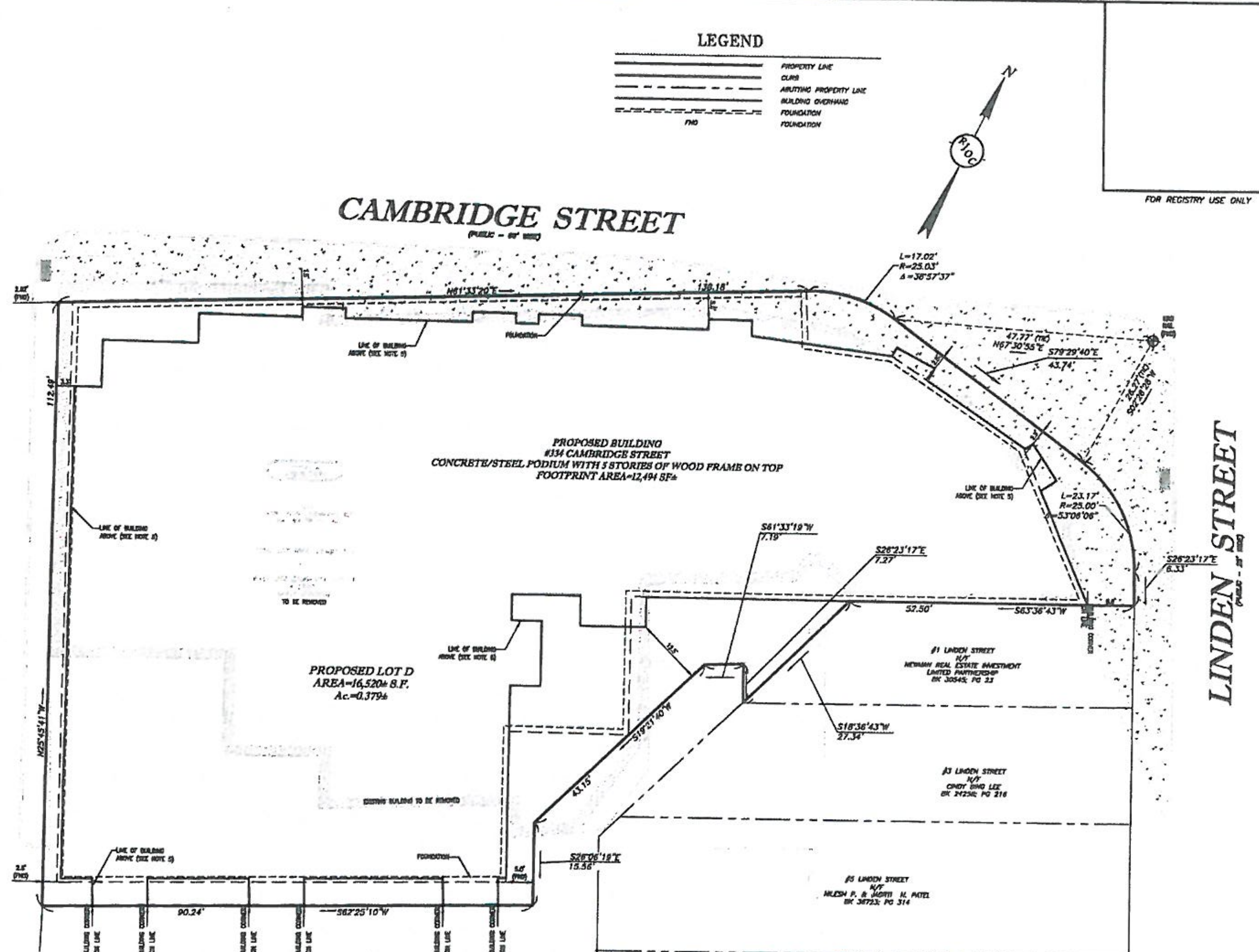
NOTES

1. THIS PLAN WAS PREPARED FROM AN ACTUAL SURVEY MADE ON THE GROUND USING TOTAL STATION METHODS BETWEEN 02/28/2018 AND 03/28/2018.
2. THE HORIZONTAL DATUM IS NORTH AMERICAN DATUM OF 1983 (NAD '83). DATUM WAS ESTABLISHED USING RTK GPS METHODS.
3. THE POSITIONAL ACCURACY OF THE DATA AND PHYSICAL IMPROVEMENTS ON THIS PLAN MAY BE APPROXIMATE. ANY USE OF ELECTRONIC DATA CONTAINED IN AUTOCAD VERSIONS OF THIS PLAN TO GENERATE COORDINATES OR DIMENSIONS NOT SHOWN ON THE PLAN IS NOT AUTHORIZED.
4. THE PARCEL SHOWN IS LOCATED IN ZONE X, AS SHOWN ON "FLOOD INSURANCE RATE MAP, SUFFOLK COUNTY, BOSTON MASSACHUSETTS," MAP NUMBER 25025C0057G, EFFECTIVE DATE SEPTEMBER 25, 2009.
5. "LINE OF BUILDING ABOVE" REPRESENTS THE OUTERMOST FACE OF THE PROPOSED BUILDING ABOVE THE FOUNDATION.

REFERENCES

PLAN BOOK AND PAGES REFERENCE THE SUFFOLK COUNTY REGISTRY OF DEEDS

- PLAN BOOK 18A/PLAN 2
- BK. 24258/PG. 218
- BK. 30545/PG. 33
- BK. 38723/PG. 314
- BK. 58258/PG. 65



WE HEREBY CERTIFY THAT:
THIS PLAN IS THE RESULT OF AN ON THE GROUND SURVEY PERFORMED ON OR BETWEEN FEBRUARY 28, 2018 AND MAY 16, 2018. THE PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE RULES AND REGULATIONS OF THE OF THE REGISTERS OF DEEDS. THE CITY OF BOSTON HAS NOT ADOPTED THE SUBDIVISION CONTROL LAW.

KEVIN J. KIERNAN No.40038

KJK 5/16/18

PROFESSIONAL LAND SURVEYOR FOR RJ O'CONNELL & ASSOCIATES, INC

DATE

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No.	Revision	Date

Record Owner:
SEE PLAN

Location:
334 CAMBRIDGE STREET
ALLSTON SQUARE
BOSTON (ALLSTON) MA

Drawn by:	MSM
Checked by:	KJK
Scale:	1"=10'
Date:	05/16/2018
Field Crew:	TDB/RJK
Field Book:	BK. XX PG. X

Prepared for:
CITY REAL ESTATE DEVELOPMENT CORP.
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Project Name:
ALLSTON SQUARE
BOSTON (ALLSTON) MA

Drawing Name:
CERTIFIED PLOT PLAN PROPOSED LOT D

Drawing No.:
CPP-4

Project No.: 18018

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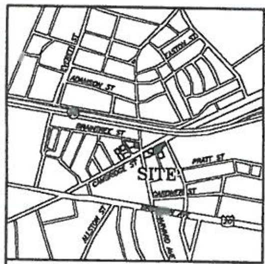
May 16, 2018 – 1:42pm



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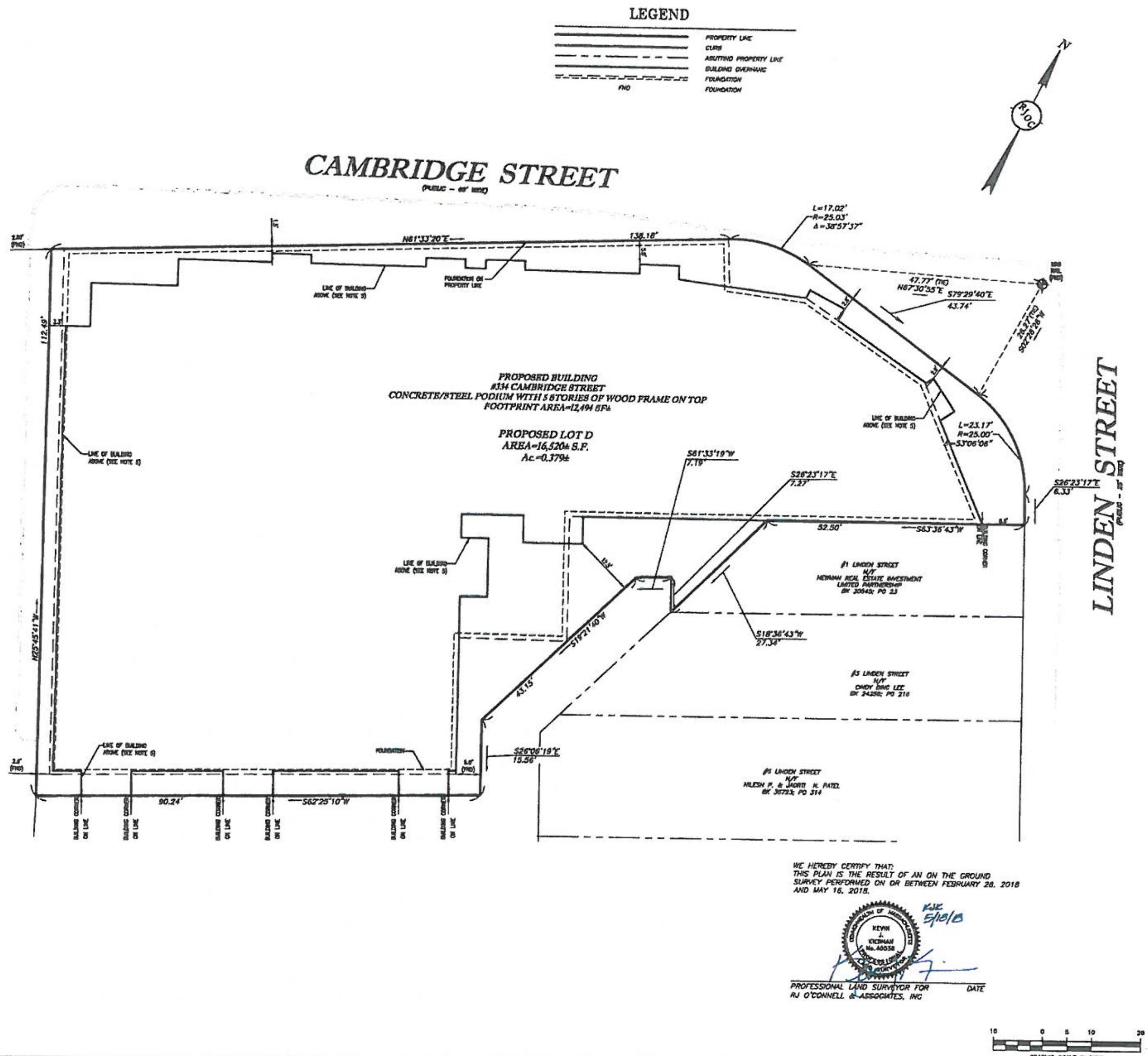


WE HEREBY CERTIFY THAT:
THIS PLAN IS THE RESULT OF AN ON THE GROUND SURVEY PERFORMED ON OR BETWEEN FEBRUARY 28, 2018 AND MAY 16, 2018.

KEVIN J. KICHMAN No. 40038 PROFESSIONAL LAND SURVEYOR

KJK 5/18/18

PROFESSIONAL LAND SURVEYOR FOR RJ O'CONNELL & ASSOCIATES, INC — DATE

DIG SAFE
BEFORE YOU DIG CALL 811

No.	Revision	Date

Record Owner:
SEE PLAN

Location:
334 CAMBRIDGE STREET
ALLSTON SQUARE
BOSTON (ALLSTON) MA

Drawn by:	MSM
Checked by:	KJK
Scale:	1"=10'
Date:	05/16/2018
Field Crew:	TDB/AJK
Field Book:	BK. XX PG. X

Prepared for:
CITY REAL ESTATE DEVELOPMENT CORP.
330 WASHINGTON ST
SUITE 3FF
BROOKLINE, MA 02446

Prepared by:
RJO'CONNELL & ASSOCIATES, INC.
CIVIL ENGINEERS, SURVEYORS & LAND PLANNERS
80 MONTVALE AVE
STONEHAM, MA 02180
781-279-0180
www.rjoconnell.com

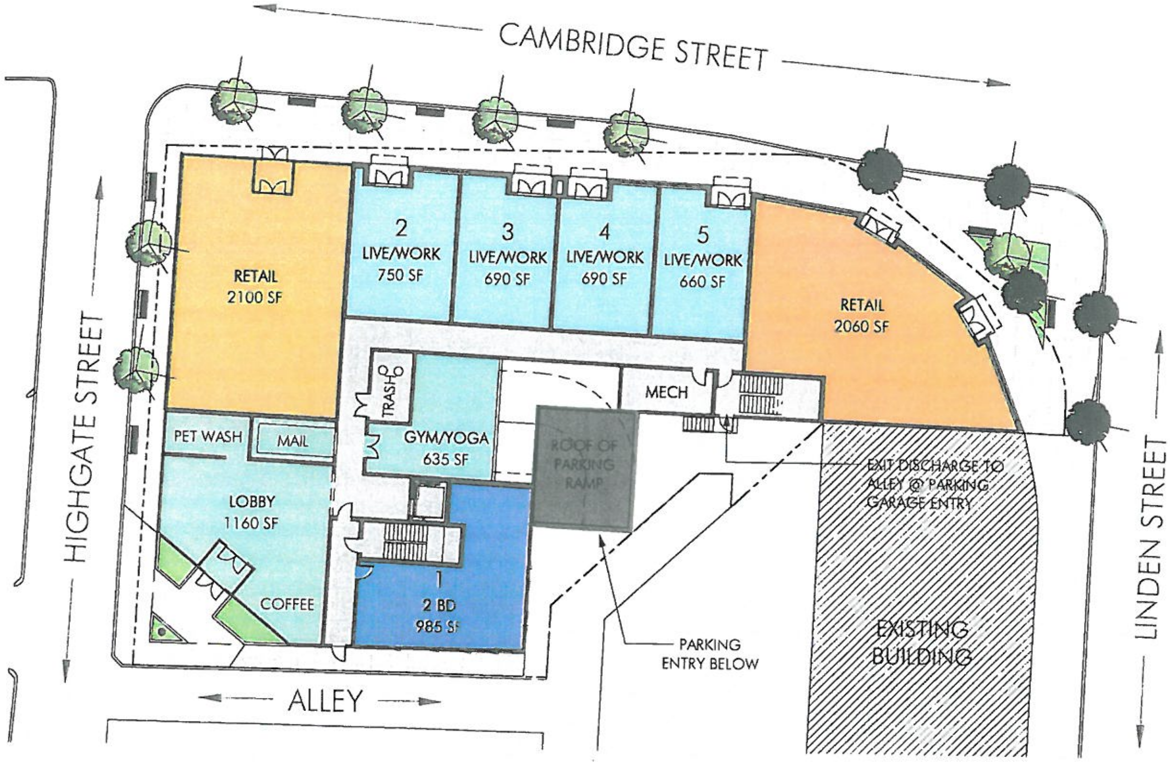
Project Name:
ALLSTON SQUARE
BOSTON (ALLSTON) MA

Drawing Name:
CERTIFIED PLOT PLAN PROPOSED LOT D

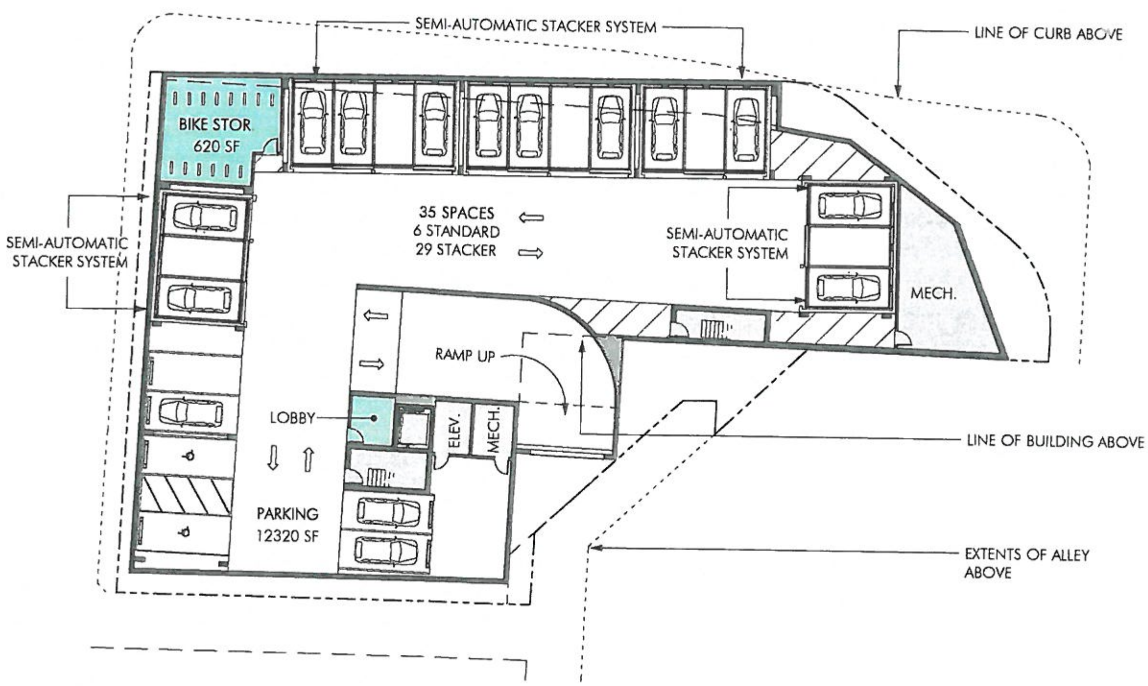
Drawing No.:
PROPERTY EXHIBIT

Project No.: 18018

Drawing name: G:\City Real Estate Development Corp\Projects\Allston\Allston Square\Work\18018_Property_Exhibit.dwg
May 18, 2018 - 14:19pm



1ST FLOOR PLAN | Scale: 1" = 40'



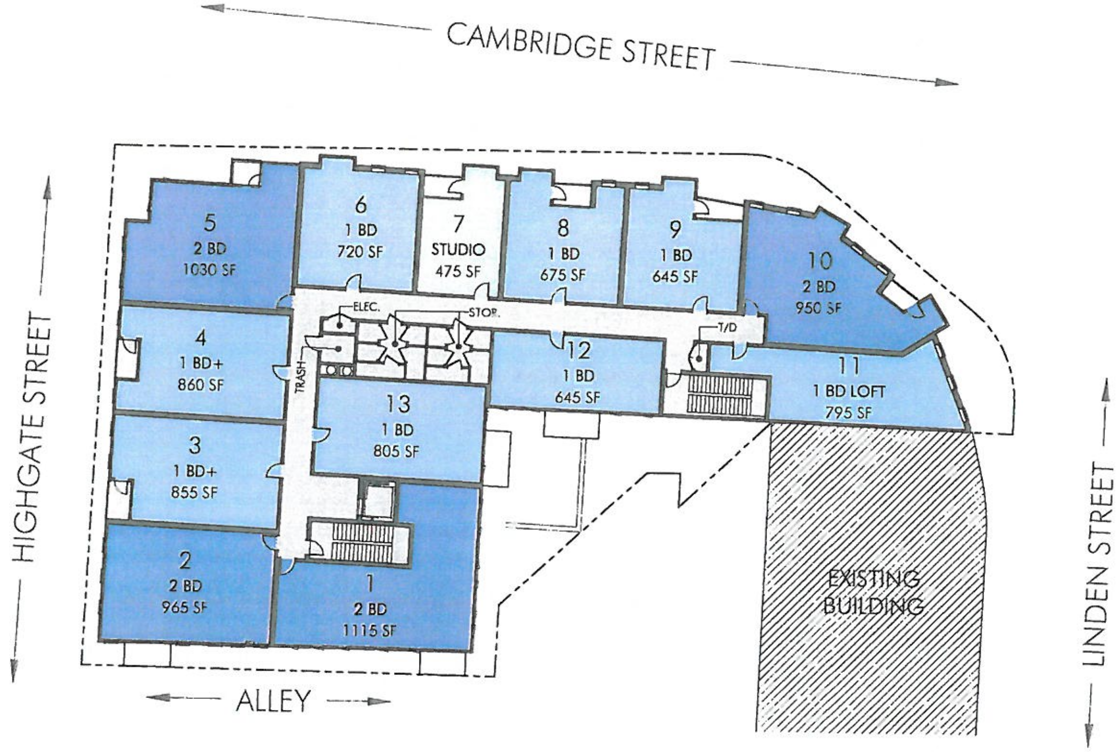
PARKING PLAN PLAN | Scale: 1" = 40'

CITY REALTY

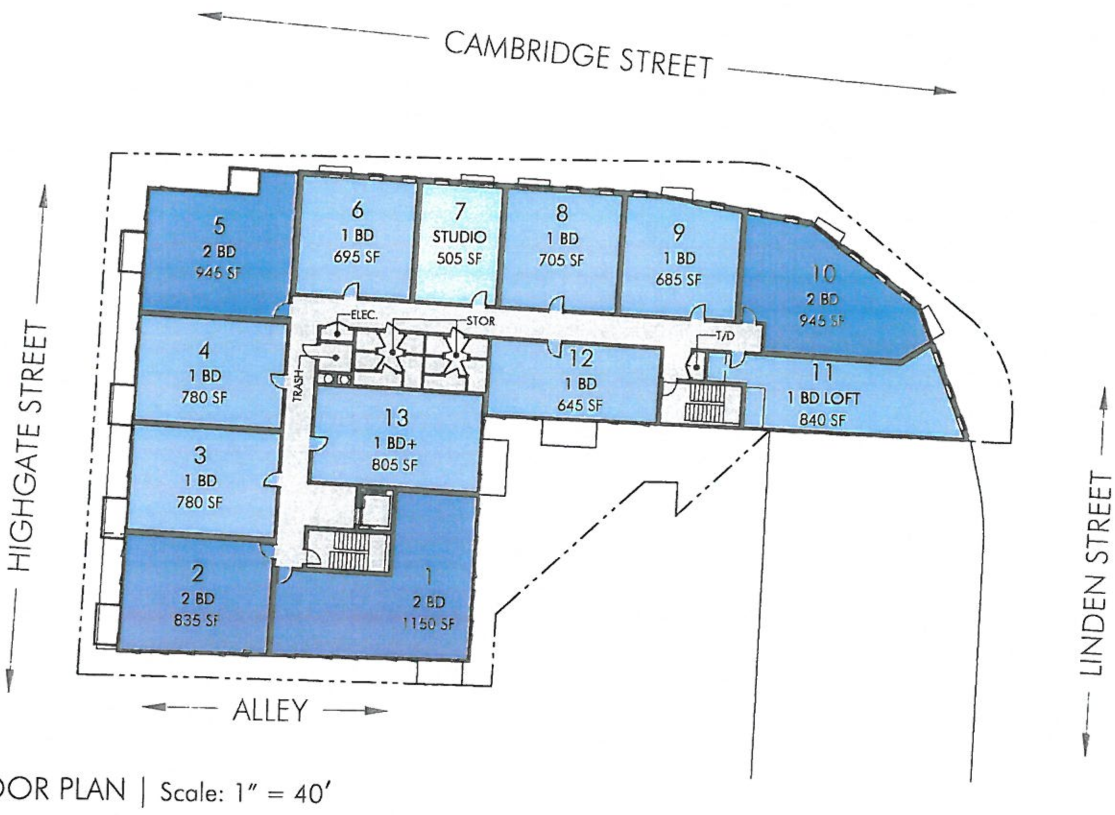
EMBARC

334 CAMBRIDGE STREET

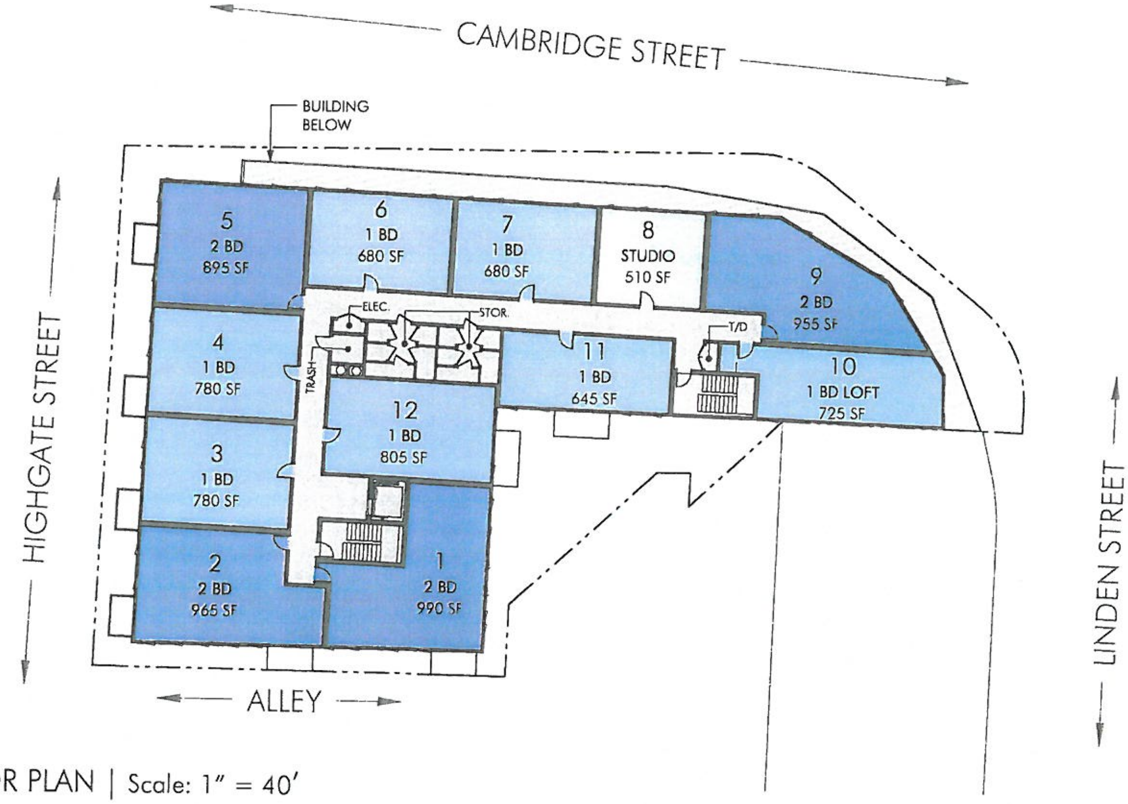
ALLSTON SQUARE



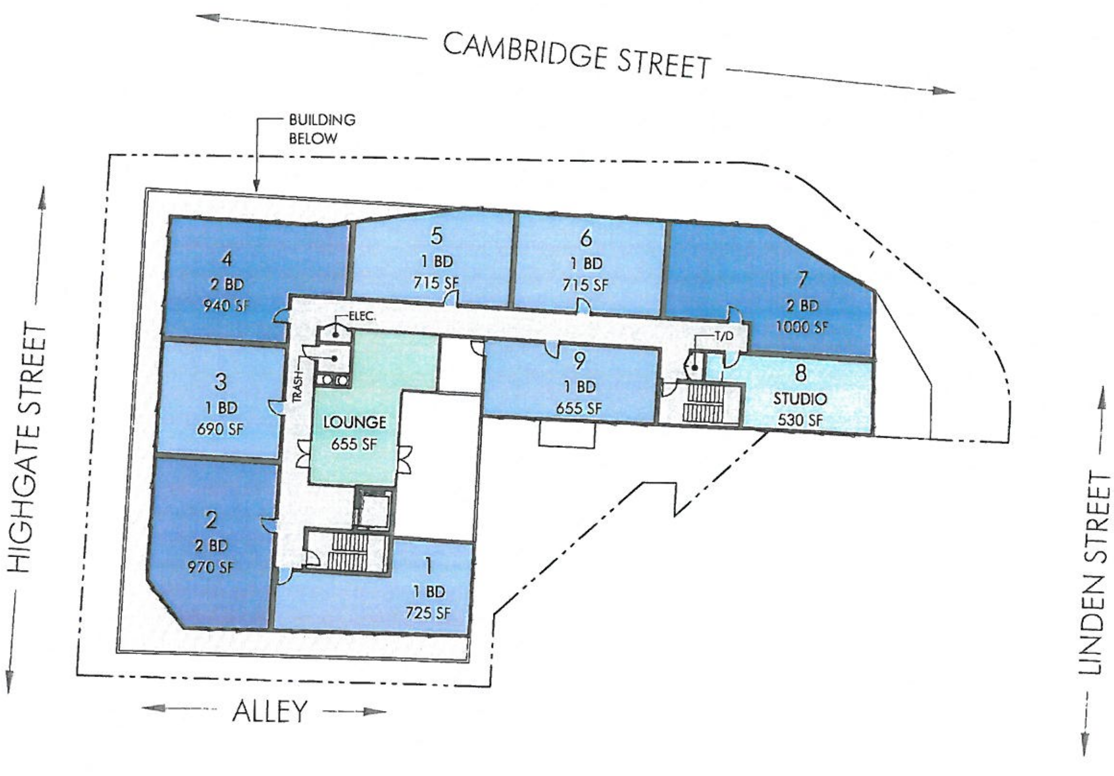
2ND & 3RD FLOOR PLAN | Scale: 1" = 40'



4TH FLOOR PLAN | Scale: 1" = 40'



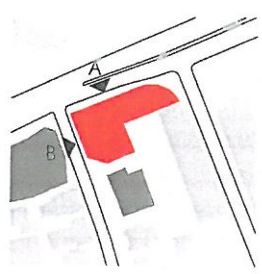
5TH FLOOR PLAN | Scale: 1" = 40'



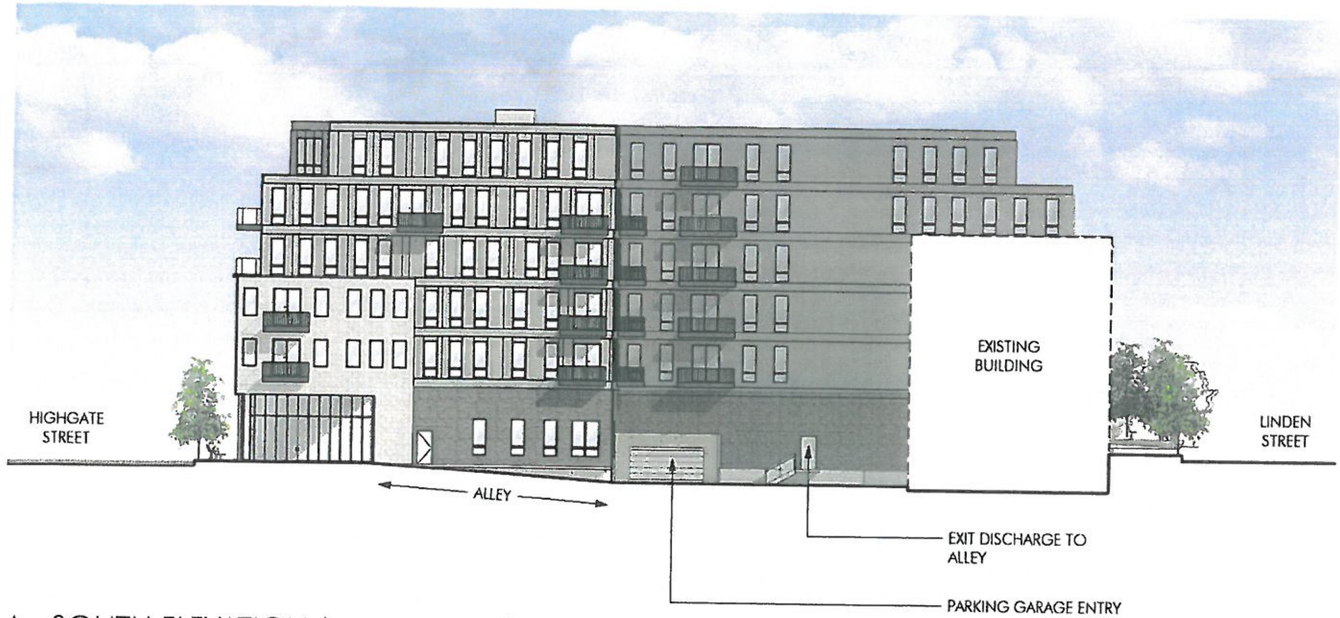
6TH FLOOR PLAN | Scale: 1" = 40'

A -CAMBRIDGE STREET ELEVATION | Scale: 1" = 40'

B - HIGHGATE STREET ELEVATION | Scale: 1" = 40'

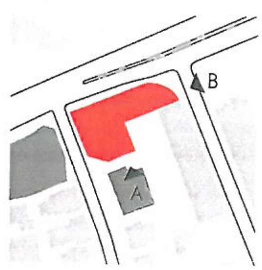


PROJECT
KEY



A - SOUTH ELEVATION | Scale: 1″ = 40′

B - LINDEN STREET ELEVATION | Scale: 1″ = 40′



PROJECT KEY

EMBARC

334 CAMBRIDGE ST
UNIT MATRIX
April 19, 2018

GROSS SQUARE FEET (GSF)

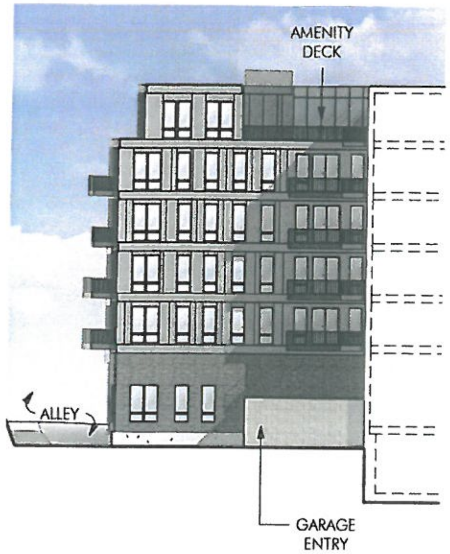
		SELLABLE | RENTABLE GSF		COMMON	COMMON GSF
BASEMENT FLOOR				STAIRS | ELEV | LOBBY	670
				MECH.	745
				BIKE STORAGE	620
FLOOR SUBTOTAL		0			2,035
GROUND FLOOR (5 UNITS)	RETAIL 1	2,100		STAIRS | ELEV | LOBBY	3,775
	RETAIL 2	2,060		MECH | TRASH	370
	UNIT 101	985	2 BR	GYM | PET WASH | MAIL ROOM	995
	LIVE/WORK 102	750	L/W		
	LIVE/WORK 103	690	L/W		
	LIVE/WORK 104	690	L/W		
	LIVE/WORK 105	660	L/W		
FLOOR SUBTOTAL		7,935			5,140
LEVEL 2 (13 UNITS)	UNIT 201	1,115	2 BR	HALL | STO. | STAIRS | ELEV.	2,135
	UNIT 202	965	2 BR		
	UNIT 203	855	1 BR+		
	UNIT 204	860	1 BR+		
	UNIT 205	1,030	2 BR		
	UNIT 206	720	1 BR		
	UNIT 207	475	ST		
	UNIT 208	675	1 BR		
	UNIT 209	645	1 BR		
	UNIT 210	950	2 BR		
	UNIT 211	795	1 BR LOFT		
	UNIT 212	645	1 BR		
	UNIT 213	805	1 BR		
FLOOR SUBTOTAL		10,535			2,135
LEVEL 3 (13 UNITS)	UNIT 301	1,115	2 BR	HALL | STO. | STAIRS | ELEV.	2,135
	UNIT 302	965	2 BR		
	UNIT 303	855	1 BR+		
	UNIT 304	860	1 BR+		
	UNIT 305	1,030	2 BR		
	UNIT 306	720	1 BR		
	UNIT 307	475	ST		
	UNIT 308	675	1 BR		
	UNIT 309	645	1 BR		
	UNIT 310	950	2 BR		
	UNIT 311	795	1 BR LOFT		
	UNIT 312	645	1 BR		
	UNIT 313	805	1 BR		
FLOOR SUBTOTAL		10,535			2,135
LEVEL 4 (13 UNITS)	UNIT 401	1,150	2 BR	HALL | STO. | STAIRS | ELEV.	2,055
	UNIT 402	835	2 BR		
	UNIT 403	780	1 BR		
	UNIT 404	780	1 BR		
	UNIT 405	945	2 BR		
	UNIT 406	695	1 BR		
	UNIT 407	505	ST		
	UNIT 408	705	1 BR		
	UNIT 409	685	1 BR		
	UNIT 410	945	2 BR		
	UNIT 411	840	1 BR LOFT		
	UNIT 412	645	1 BR		
	UNIT 413	805	1 BR+		
FLOOR SUBTOTAL		10,315			2,055
LEVEL 5 (12 UNITS)	UNIT 501	990	2 BR	HALL | STO. | STAIRS | ELEV.	2,055
	UNIT 502	965	2 BR		
	UNIT 503	780	1 BR		
	UNIT 504	780	1 BR		
	UNIT 505	895	2 BR		
	UNIT 506	680	1 BR		
	UNIT 507	680	1 BR		
	UNIT 508	510	ST		
	UNIT 509	955	2 BR		
	UNIT 510	725	1 BR LOFT		
	UNIT 511	645	1 BR		
	UNIT 512	805	1 BR		
FLOOR SUBTOTAL		9,410			2,055
LEVEL 6 (9 UNITS)	UNIT 601	725	1 BR	HALL | STO. | STAIRS | ELEV.	1,660
	UNIT 602	970	2 BR	LOUNGE	655
	UNIT 603	690	1 BR		
	UNIT 604	940	2 BR		
	UNIT 605	715	1 BR		
	UNIT 606	715	1 BR		
	UNIT 607	1,000	2 BR		
	UNIT 608	530	ST		
	UNIT 609	655	1 BR		
FLOOR SUBTOTAL		6,940			2,315
RESIDENTIAL SELLABLE GSF		55,670		COMMON AREA GSF	17,870

BUILDING GSF		
BASEMENT FLOOR	2,035	(Parking not incl.)
GROUND FLOOR	13,075	
SECOND FLOOR	12,670	
THIRD FLOOR	12,670	
FOURTH FLOOR	12,370	
FIFTH FLOOR	11,465	
SIXTH FLOOR	9,255	
TOTAL BUILDING GSF	71,505	(Basement not incl.)
SITE	16,520	
FAR	4.33	
BASEMENT PARKING	12,320	
TOTAL SF	85,860	
LOT COVERAGE	79%	

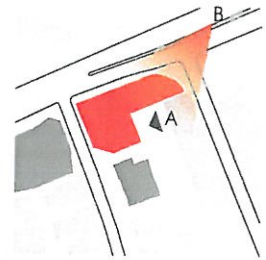
UNIT BREAKDOWN:		AVERAGE SIZE
LIVE/WORK	4	698
STUDIO	5	499
1 BED	27	709
1 BED+	5	847
1 BED LOFT	4	789
2 BED	20	985
TOTAL UNITS	65	792

PARKING SPACES	35
PARKING/UNIT RATIO	0.54

GSF: measured to outside face of exterior walls, centerline of party walls and demising walls



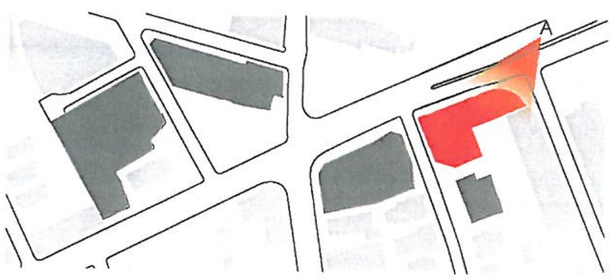
A - EAST ELEVATION | Scale: 1" = 40'



PROJECT KEY

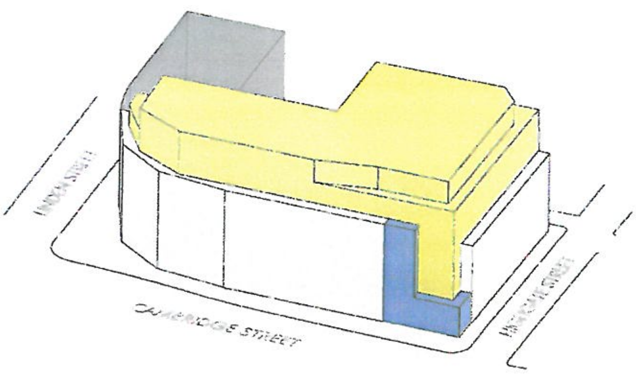
B - CAMBRIDGE STREET PERSPECTIVE

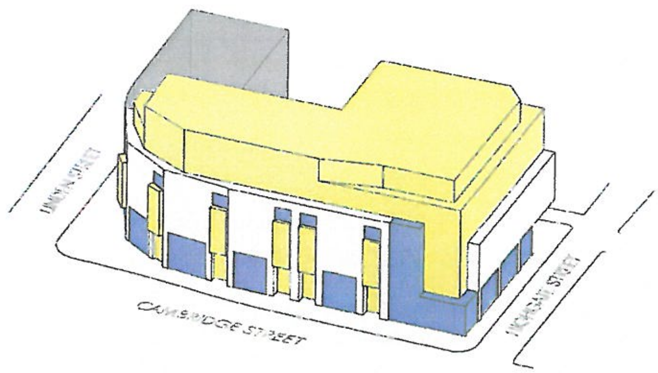
A - CAMBRIDGE STREET PERSPECTIVE



PERSPECTIVE KEY

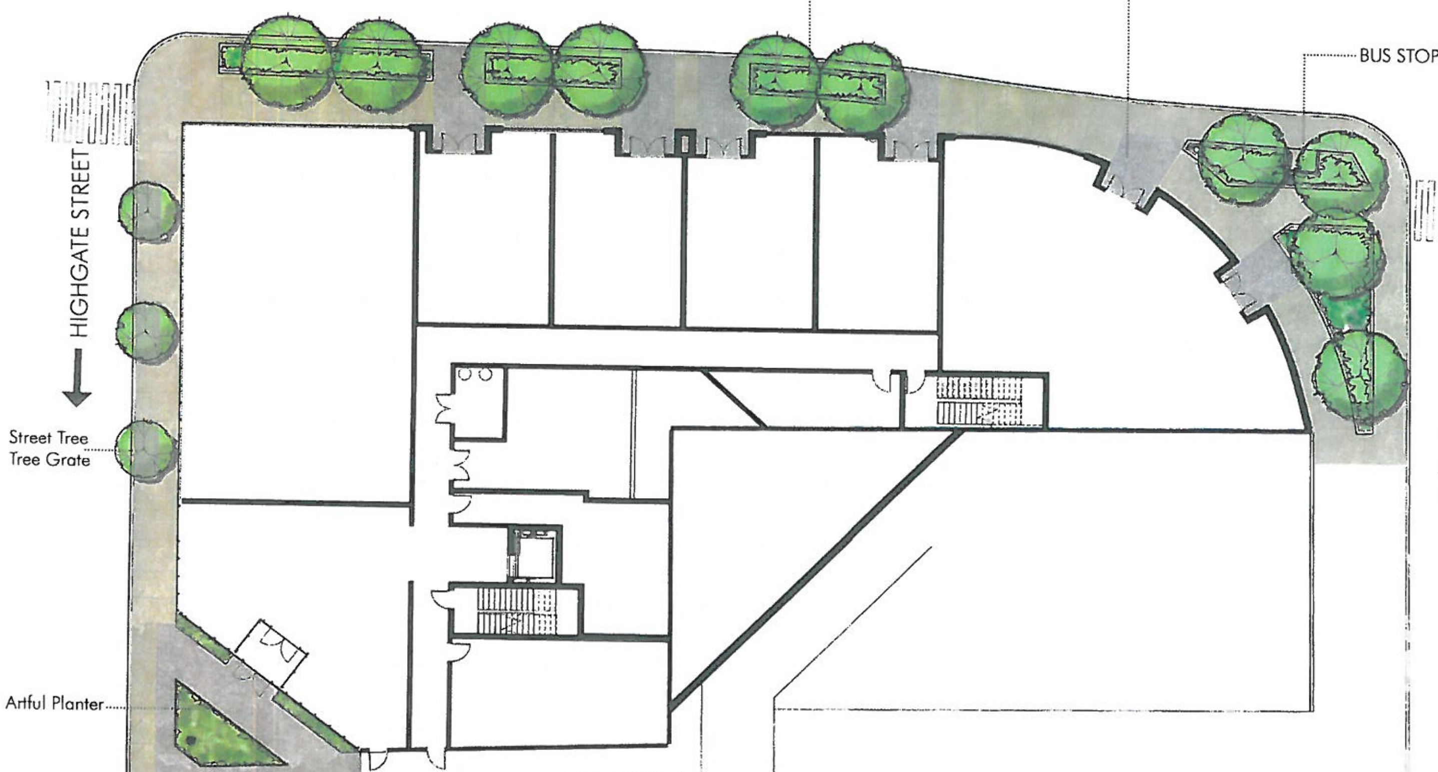
334 CAMBRIDGE STREET





1. THE FORM PROPORTIONS AND TEXTURE OF THE EXISTING ALLEN BUILDING ARE REPRODUCED IN A HEAVY, TEXTURED VOLUME. A SIMILAR BUT LOWER VOLUME IS ADDED TO THE BASE AT HIGHGATE STREET TO FURTHER RELATATE IN SCALE. A MORE PLASTIC, LIGHTER VOLUME SPILLS DOWN FROM THE UPPER LEVELS AND ONTO THE CORNER OF HIGHGATE TO FURTHER RELATE IN SCALE. AN OPEN, STRUCTURAL LAYER WRAPS FROM THE RESIDENTIAL ENTRY ON HIGHGATE AROUND THE RETAIL AND UP THE FRONT FACADE.

2. THE DIFFERENT ELEMENTS BEGIN TO OPERATE ON THE HEAVY MASONRY VOLUME. THEY BAYS SHIFT AND CUT TO CREATE OPENINGS/ENTRIES AT THE GROUND FLOOR TO LIVE/WORK SPACES AND RETAIL SPACE. THE STRUCTURAL LAYER PEELS BACK AT THE BASE OF THE MASONRY VOLUME TO FURTHER OPEN THE GROUND FLOOR SPACES TO THE PUBLIC REALM. AN ANGLED CUTOUT AND CANTILEVER MOMENT HAPPENS AT THE RESIDENTIAL ENTRY ON HIGHGATE.



URBAN DESIGN IMPROVEMENTS

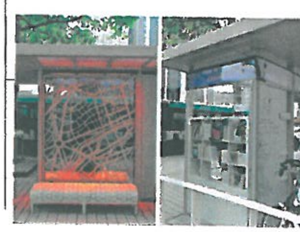
334 CAMBRIDGE STREET

Cambridge Frontage
- Street Trees + Stormwater Planters
- Bike racks
- Bus Stop Improvements

Highgate Frontage
- Artful Planters at Highgate Entry
- Street Tree and Tree Grates
- Bike Racks

Linden Frontage
- Stormwater planter

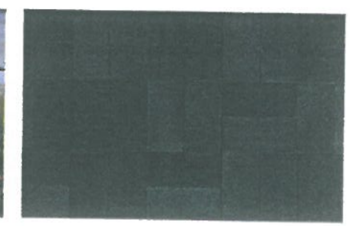
Bike Rack



Artful Bus Stop

Stormwater Planter

Stormwater Planter



Building Entry Pavers

334 CAMBRIDGE STREET

Accessibility Checklist

(to be added to the BRA Development Review Guidelines)

In 2009, a nine-member Advisory Board was appointed to the Commission for Persons with Disabilities in an effort to reduce architectural, procedural, attitudinal, and communication barriers affecting persons with disabilities in the City of Boston. These efforts were instituted to work toward creating universal access in the built environment.

In line with these priorities, the Accessibility Checklist aims to support the inclusion of people with disabilities. In order to complete the Checklist, you must provide specific detail, including descriptions, diagrams and data, of the universal access elements that will ensure all individuals have an equal experience that includes full participation in the built environment throughout the proposed buildings and open space.

In conformance with this directive, all development projects subject to Boston Zoning Article 80 Small and Large Project Review, including all Institutional Master Plan modifications and updates, are to complete the following checklist and provide any necessary responses regarding the following:

- improvements for pedestrian and vehicular circulation and access;
- encourage new buildings and public spaces to be designed to enhance and preserve Boston's system of parks, squares, walkways, and active shopping streets;
- ensure that persons with disabilities have full access to buildings open to the public;
- afford such persons the educational, employment, and recreational opportunities available to all citizens; and
- preserve and increase the supply of living space accessible to persons with disabilities.

We would like to thank you in advance for your time and effort in advancing best practices and progressive approaches to expand accessibility throughout Boston's built environment.

Accessibility Analysis Information Sources:

1. Americans with Disabilities Act – 2010 ADA Standards for Accessible Design
    a. http://www.ada.gov/2010ADAstandards_index.htm
2. Massachusetts Architectural Access Board 521 CMR
    a. http://www.mass.gov/eopss/consumer-prot-and-bus-lic/license-type/aab/aab-rules-and-regulations-pdf.html
3. Boston Complete Street Guidelines
    a. http://bostoncompletestreets.org/
4. City of Boston Mayors Commission for Persons with Disabilities Advisory Board
    a. http://www.cityofboston.gov/Disability
5. City of Boston – Public Works Sidewalk Reconstruction Policy
    a. http://www.cityofboston.gov/images_documents/sidewalk%20policy%200114_tcm3-41668.pdf
6. Massachusetts Office On Disability Accessible Parking Requirements
    a. www.mass.gov/anf/docs/mod/hp-parking-regulations-mod.doc
7. MBTA Fixed Route Accessible Transit Stations
    a. http://www.mbta.com/about_the_mbta/accessibility/

Project Information

Project Name:	ALLSTON SQUARE
Project Address Primary:	334 Cambridge Street, Boston, MA 02134
Project Address Additional:	N/A
Project Contact (name / Title / Company / email / phone):	Jeffrey Drago, Esq. / Drago & Toscano, LLP / jdrago@dtlawllp.com / 617.391.9450

Team Description

Owner / Developer:	CRM Property Development Corp.
Architect:	Embarc Studio LLC.
Engineer (building systems):	TBD
Sustainability / LEED:	Soden Sustainability Consulting
Permitting:	Drago & Toscano, LLP
Construction Management:	TBD

Project Permitting and Phase

At what phase is the project – at time of this questionnaire?

PNF / Expanded PNF Submitted	Draft / Final Project Impact Report Submitted	BRA Board Approved
BRA Design Approved	Under Construction	Construction just completed:

Building Classification and Description

What are the principal Building Uses - select all appropriate uses?

Residential – One to Three Unit	Residential - Multi-unit, Four +	Institutional	Education
Commercial	Office	Retail	Assembly
Laboratory / Medical	Manufacturing / Industrial	Mercantile	Storage, Utility and Other

First Floor Uses (List): *Commercial and Residential Lobby*

What is the Construction Type – select most appropriate type?

Wood Frame	Masonry	Steel Frame	Concrete

Describe the building?

Site Area:	*16,520 SF*	Building Area:	*73,540 SF*
Building Height:	*73 Ft. 0 inches*	Number of Stories:	*6 Flrs.*
First Floor Elevation:	*0' Elev.*	Are there below grade spaces:	*Yes*

Assessment of Existing Infrastructure for Accessibility:

This section explores the proximity to accessible transit lines and proximate institutions such as, but not limited to hospitals, elderly and disabled housing, and general neighborhood information. The proponent should identify how the area surrounding the development is accessible for people with mobility impairments and should analyze the existing condition of the accessible routes through sidewalk and pedestrian ramp reports.

Provide a description of the development neighborhood and identifying characteristics.	The proposed site is in the Allston neighborhood of Boston, situated between Ringer Park to the south, the Honan-Allston branch public library to the north, a major shopping plaza to the west (which includes a super Stop & Shop and Homegoods store among others), and Boston University to the East; all of which are located within a ½ mile radius. The current neighborhood is primarily a mixed-used of multi-family residential developments and retail/commercial buildings. Directly adjacent to site, the main road (Cambridge Street) is flanked by retail stores; making it a busy and high traffic area.

List the surrounding ADA compliant MBTA transit lines and the proximity to the development site: Commuter rail, subway, bus, etc.	**¼ mile Radius:** Cambridge Street @ Franklin Street (Bus 64, 66, 501, 503) / Cambridge Street @ Linden Street (Bus 64, 66, 501, 503, 9701, 9702, 9703) / Brighton Avenue @ Allston Street (Bus 57, 66, 57A). **½ mile Radius:** Harvard Avenue Station (Green Line – B Train) / Griggs Street Station (Green Line – B Train) / Packard's Corner Station (Green Line – B Train).
List the surrounding institutions: hospitals, public housing and elderly and disabled housing developments, educational facilities, etc.	**Hospitals:** Steward Health Care (South West, ¾ mile Radius), Franciscan Children's Hospital (South West, ¾ mile Radius), Boston Orthopedic & Sports Med (South West, ¾ mile Radius), Arbour HRI Hospital (East, ¾ mile Radius), Brigham & Women's Hospital (East, 1 mile Radius). **Educational Facilities:** The Learning Tree Preschool/Daycare (South, ¼ mile Radius), Gardner Pilot Academy Elementary School (North, ½ mile Radius), Bright Horizons Preschool (East, ½ mile Radius), Jackson/Mann K-8 School (South, ½ mile Radius), Horace Mann School for the Deaf (South, ½ mile Radius), Boston Theological Institute (North, ¾ mile Radius), Boston University (East, ¾ mile Radius). **Public Housing:** Glenville Avenue Apartments (South, ½ mile Radius), Commonwealth Avenue Housing (South, ½ mile Radius), Charlesview Inc (North, ¾ mile Radius), Governor Apartments (South, ¾ mile Radius), Comaven Apartments (South, ¾ mile Radius). **Elderly/Disabled Housing:** Brighton-Allston Elderly (North, ½ mile Radius).
Is the proposed development on a priority accessible route to a key public use facility? List the surrounding: government buildings, libraries, community centers and recreational facilities and other related facilities.	**Government Buildings:** Boston Fire Department Engine 41 (South, ¼ mile Radius). **Library:** Honan-Allston Branch Public Library (North East, ½ mile Radius). **Community Center:** Jackson Mann Community Center (South West, ½ mile Radius). **Recreational Facility:** Penniman Road Play Area (West, ¼ mile Radius), Ringer Park (South, ½ mile Radius), Commonwealth Sports Club (East, ½ mile Radius).

Surrounding Site Conditions – Existing:

This section identifies the current condition of the sidewalks and pedestrian ramps around the development site.

Are there sidewalks and pedestrian ramps existing at the development site?	Yes.
If yes above, list the existing sidewalk and pedestrian ramp materials and physical condition at the development site.	Existing sidewalks are concrete with granite curbs, both in acceptable condition.
Are the sidewalks and pedestrian ramps existing-to-remain? If yes,	TBD

have the sidewalks and pedestrian ramps been verified as compliant? If yes, please provide surveyors report.	
Is the development site within a historic district? If yes, please identify.	No.

Surrounding Site Conditions – Proposed

This section identifies the proposed condition of the walkways and pedestrian ramps in and around the development site. The width of the sidewalk contributes to the degree of comfort and enjoyment of walking along a street. Narrow sidewalks do not support lively pedestrian activity, and may create dangerous conditions that force people to walk in the street. Typically, a five foot wide Pedestrian Zone supports two people walking side by side or two wheelchairs passing each other. An eight foot wide Pedestrian Zone allows two pairs of people to comfortable pass each other, and a ten foot or wider Pedestrian Zone can support high volumes of pedestrians.

Are the proposed sidewalks consistent with the Boston Complete Street Guidelines? See: www.bostoncompletestreets.org	Yes.
If yes above, choose which Street Type was applied: Downtown Commercial, Downtown Mixed-use, Neighborhood Main, Connector, Residential, Industrial, Shared Street, Parkway, Boulevard.	The proposed development is bordered by Cambridge St (North), Linden St (East), and Highgate St (West). **STREET TYPES:** - Cambridge Street falls under the **Neighborhood Connector** category. - Linden & Highgate Streets fall under the **Neighborhood Residential** category.
What is the total width of the proposed sidewalk? List the widths of the proposed zones: Frontage, Pedestrian and Furnishing Zone.	TBD
List the proposed materials for each Zone. Will the proposed materials be on private property or will the proposed materials be on the City of Boston pedestrian right-of-way?	TBD
If the pedestrian right-of-way is on private property, will the proponent seek a pedestrian easement with	N/A

the City of Boston Public Improvement Commission?	
Will sidewalk cafes or other furnishings be programmed for the pedestrian right-of-way?	No.
If yes above, what are the proposed dimensions of the sidewalk café or furnishings and what will the right-of-way clearance be?	N/A

Proposed Accessible Parking:

See Massachusetts Architectural Access Board Rules and Regulations 521 CMR Section 23.00 regarding accessible parking requirement counts and the Massachusetts Office of Disability Handicap Parking Regulations.

What is the total number of parking spaces provided at the development site parking lot or garage?	52
What is the total number of accessible spaces provided at the development site?	2, 1 Van accessible.
Will any on street accessible parking spaces be required? If yes, has the proponent contacted the Commission for Persons with Disabilities and City of Boston Transportation Department regarding this need?	No
Where is accessible visitor parking located?	N/A
Has a drop-off area been identified? If yes, will it be accessible?	No, TBD.

Include a diagram of the accessible routes to and from the accessible parking lot/garage and drop-off areas to the development entry locations. Please include route distances.	Attached.

Circulation and Accessible Routes:

The primary objective in designing smooth and continuous paths of travel is to accommodate persons of all abilities that allow for universal access to entryways, common spaces and the visit-ability* of neighbors.

**Visit-ability – Neighbors ability to access and visit with neighbors without architectural barrier limitations*

Provide a diagram of the accessible route connections through the site.	Attached.
Describe accessibility at each entryway: Flush Condition, Stairs, Ramp Elevator.	Residential lobby to be a flush condition with the sidewalk at building exterior, as are the Commercial Space entries. The garage access from the lobby is provided via elevators. From the Lobby, elevator access will provide access to upper floors.
Are the accessible entrance and the standard entrance integrated?	Yes.
If no above, what is the reason?	N/A
Will there be a roof deck or outdoor courtyard space? If yes, include diagram of the accessible route.	Yes. Attached.
Has an accessible routes way-finding and signage package been developed? If yes, please describe.	No.

Accessible Units: (If applicable)

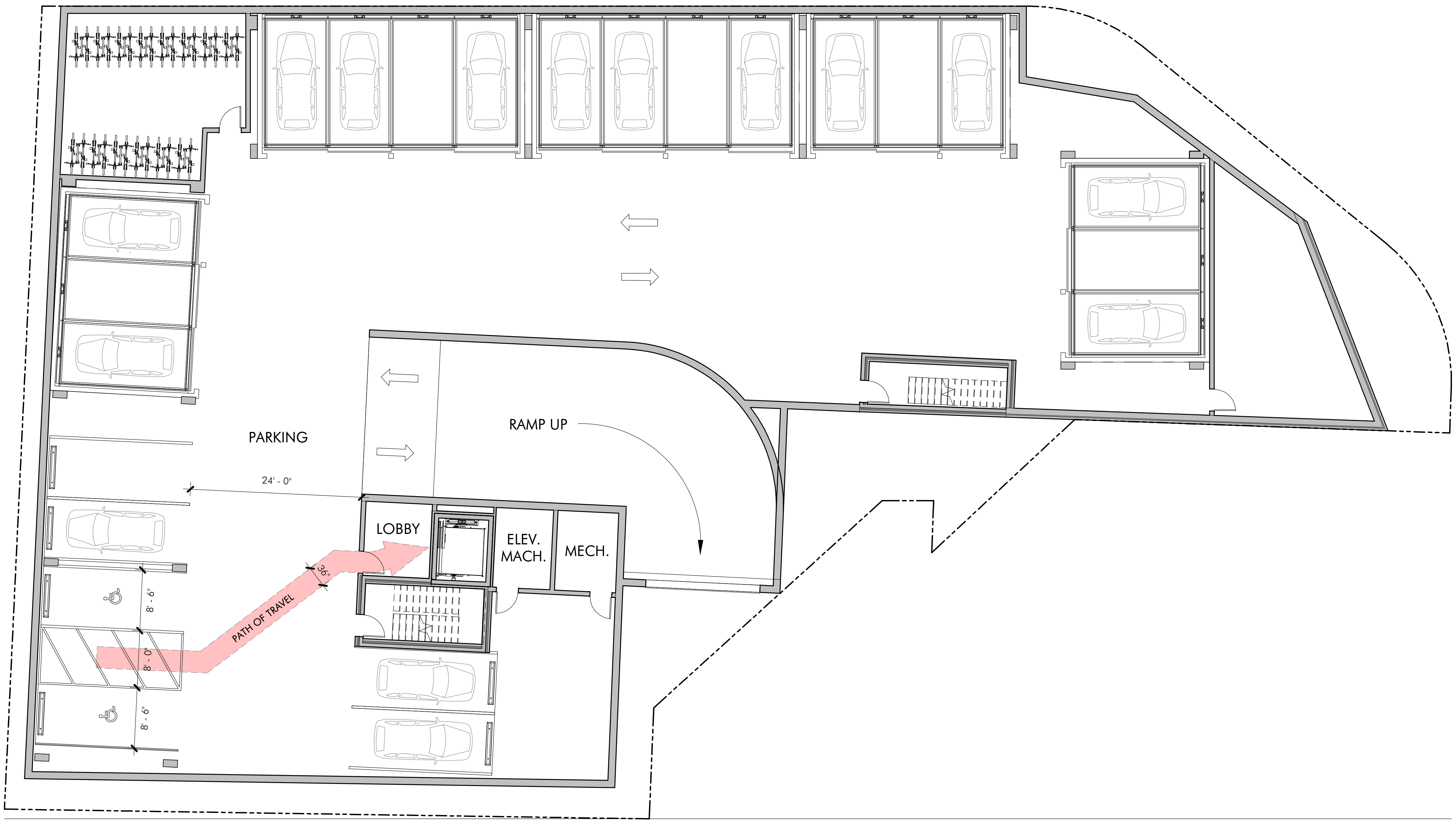
In order to facilitate access to housing opportunities this section addresses the number of accessible units that are proposed for the development site that remove barriers to housing choice.

What is the total number of proposed units for the development?	65
How many units are for sale; how many are for rent? What is the market value vs. affordable breakdown?	**FOR SALE:** 65 Units; Affordable breakdown TBD
How many accessible units are being proposed?	65
Please provide plan and diagram of the accessible units.	Specific unit plans have not been developed.
How many accessible units will also be affordable? If none, please describe reason.	TBD
Do standard units have architectural barriers that would prevent entry or use of common space for persons with mobility impairments? Example: stairs at entry or step to balcony. **If yes,** please provide reason.	No
Has the proponent reviewed or presented the proposed plan to the City of Boston Mayor's Commission for Persons with Disabilities Advisory Board?	No.
Did the Advisory Board vote to support this project? **If no,** what recommendations did the Advisory Board give to make this project more accessible?	N/A

Thank you for completing the Accessibility Checklist!

For questions or comments about this checklist or accessibility practices, please contact:

kathryn.quigley@boston.gov | Mayors Commission for Persons with Disabilities



1/16" = 1'-0"

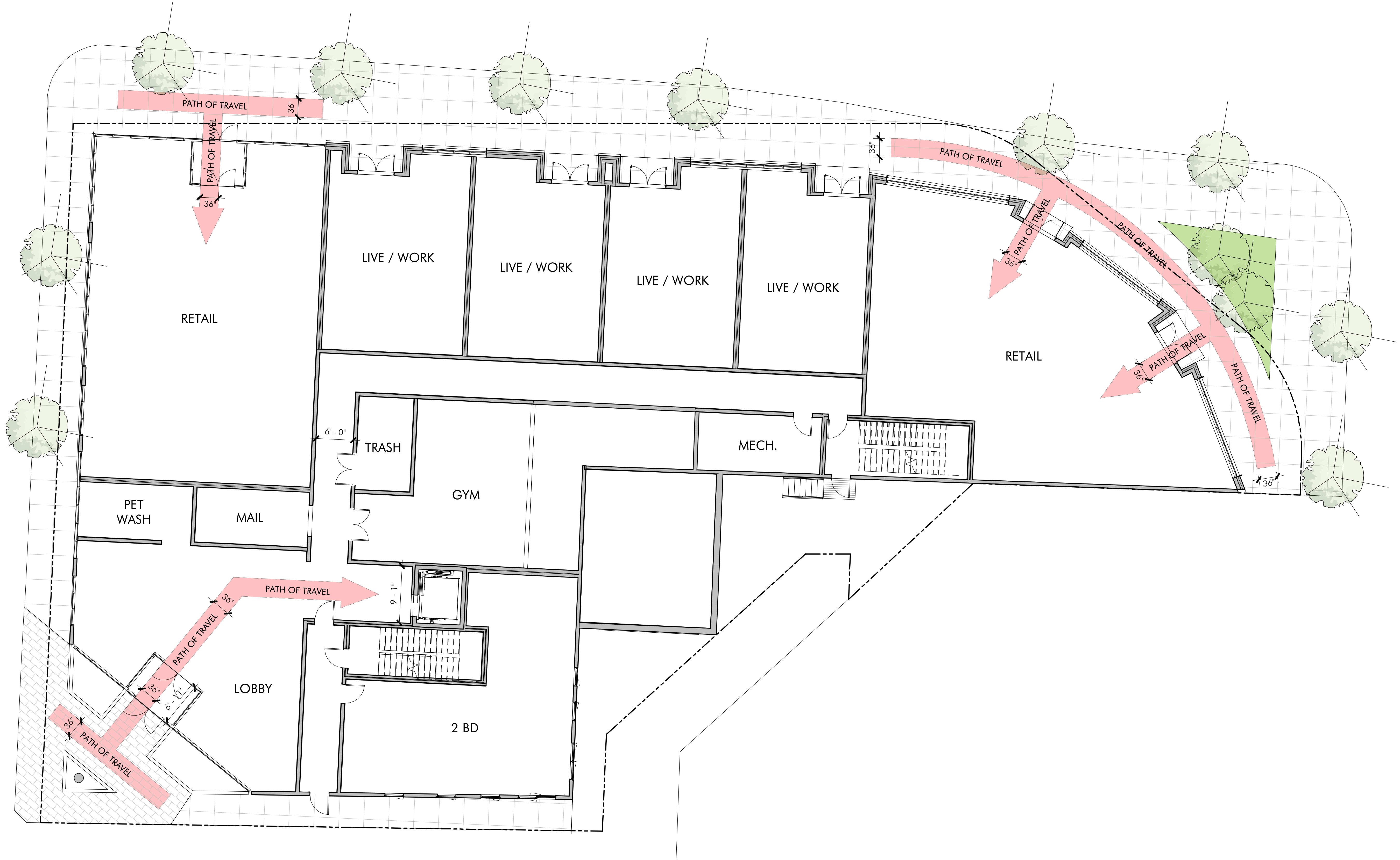
EMBARC STUDIO
ARCHITECTURE + DESIGN

ACCESSIBILITY CHECKLIST - PARKING LEVEL
334 CAMBRIDGE
BOSTON, MA 02134

A1.1

 | 4/11/2018 6:01:01 PM | C:\Users\emoliere\Documents\16117_334 Cambridge Street_SD_emoliere@embarcstudio.com.rvt

APRIL 15, 2018 | EMBARC



1/16" = 1'-0"

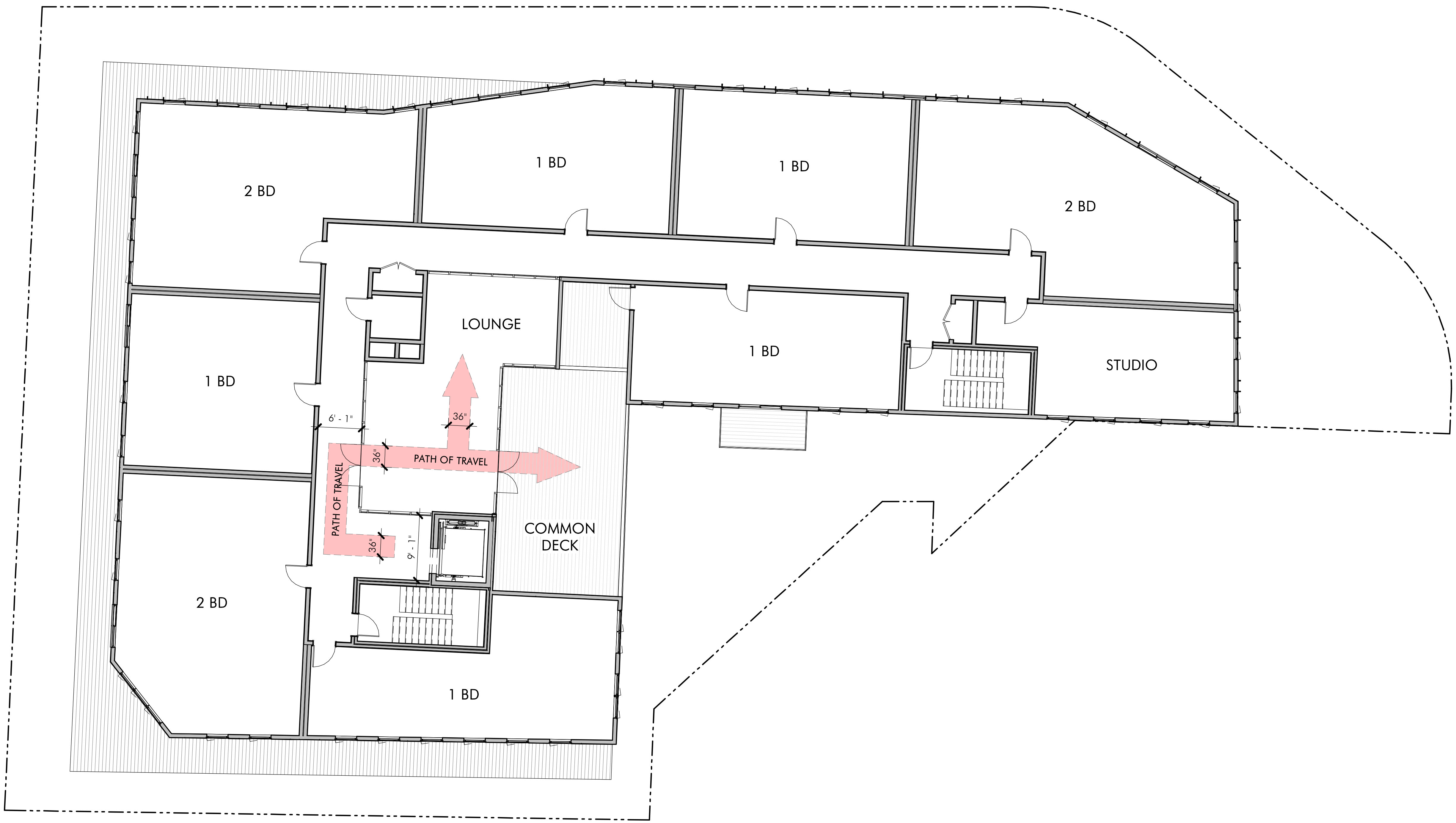
EMBARC STUDIO
ARCHITECTURE + DESIGN

ACCESSIBILITY CHECKLIST - GROUND FLOOR
334 CAMBRIDGE
BOSTON, MA 02134

A1.2

 | 4/11/2018 6:01:18 PM | C:\Users\emoliere\Documents\16117_334 Cambridge Street_SD_emoliere@embarcstudio.com.rvt

APRIL 15, 2018 | EMBARC



1/16" = 1'-0"

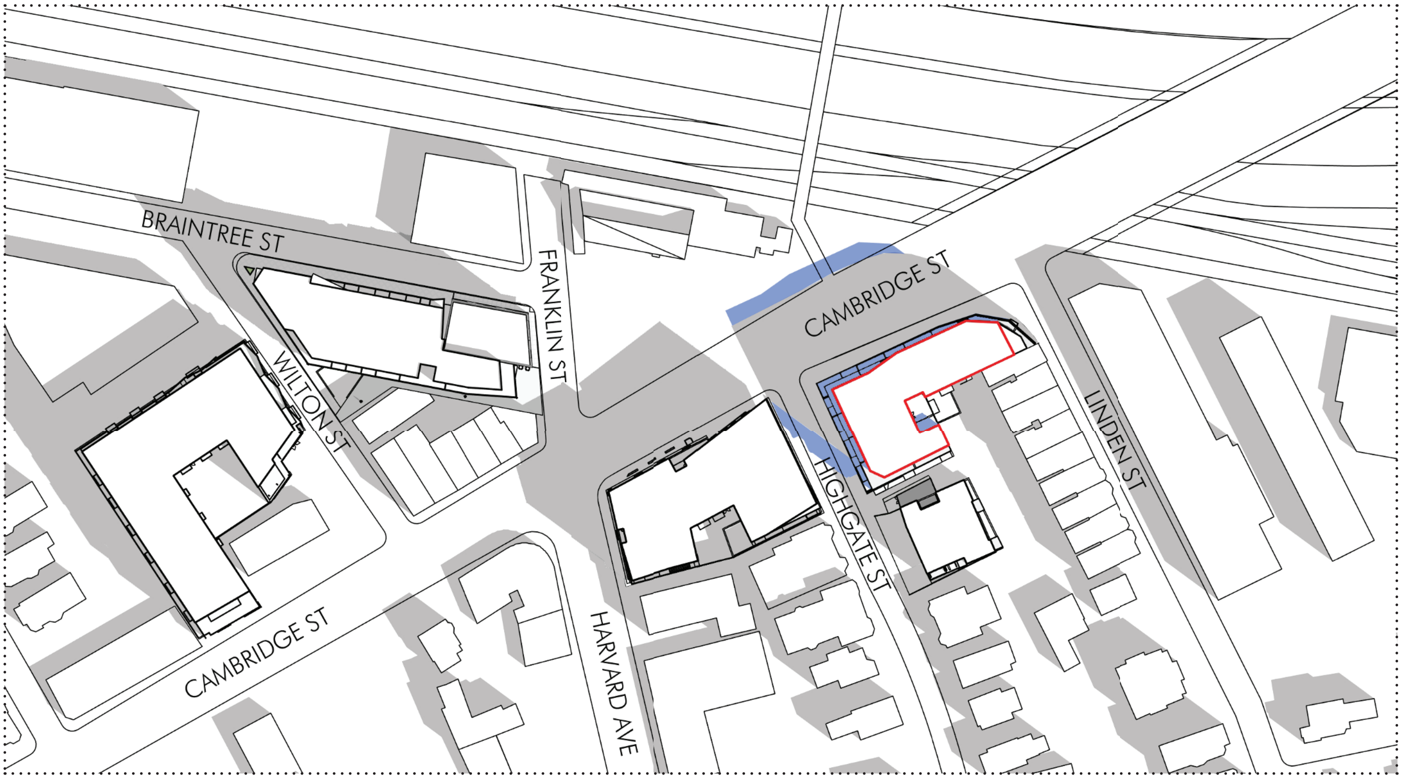
EMBARC STUDIO
ARCHITECTURE + DESIGN

ACCESSIBILITY CHECKLIST - SIXTH FLOOR

334 CAMBRIDGE
BOSTON, MA 02134

A1.3

APRIL 15, 2018 | EMBARC



SHADOW STUDY - VERNAL EQUINOX, 9:00AM

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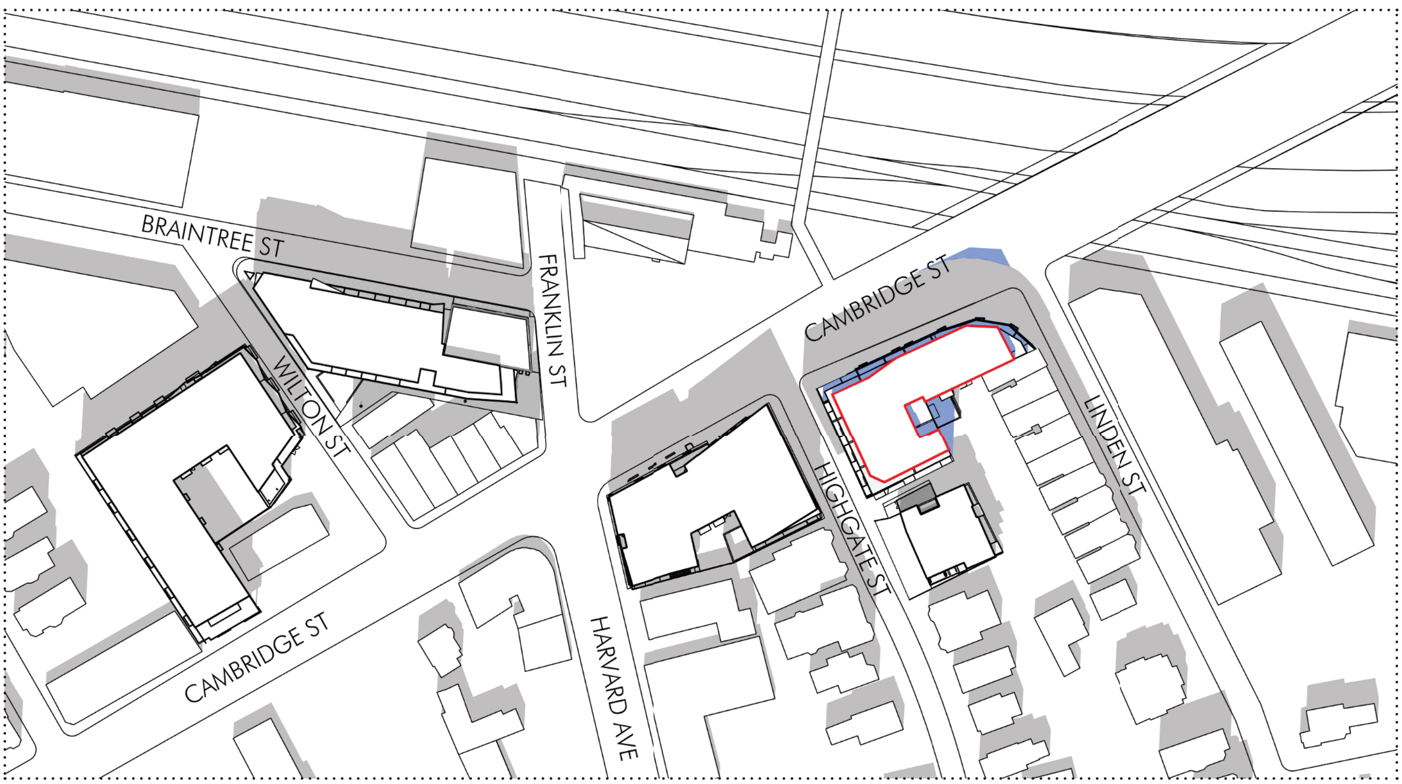

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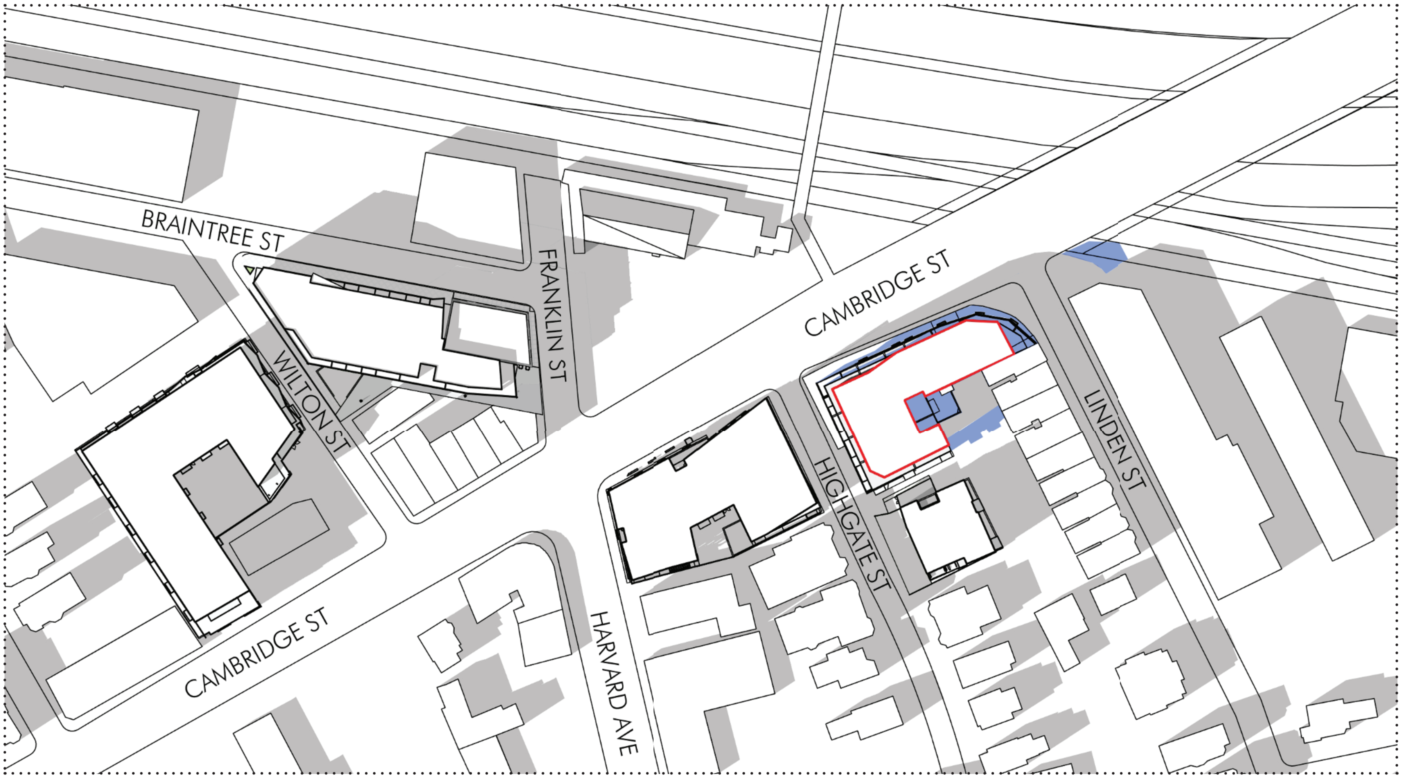

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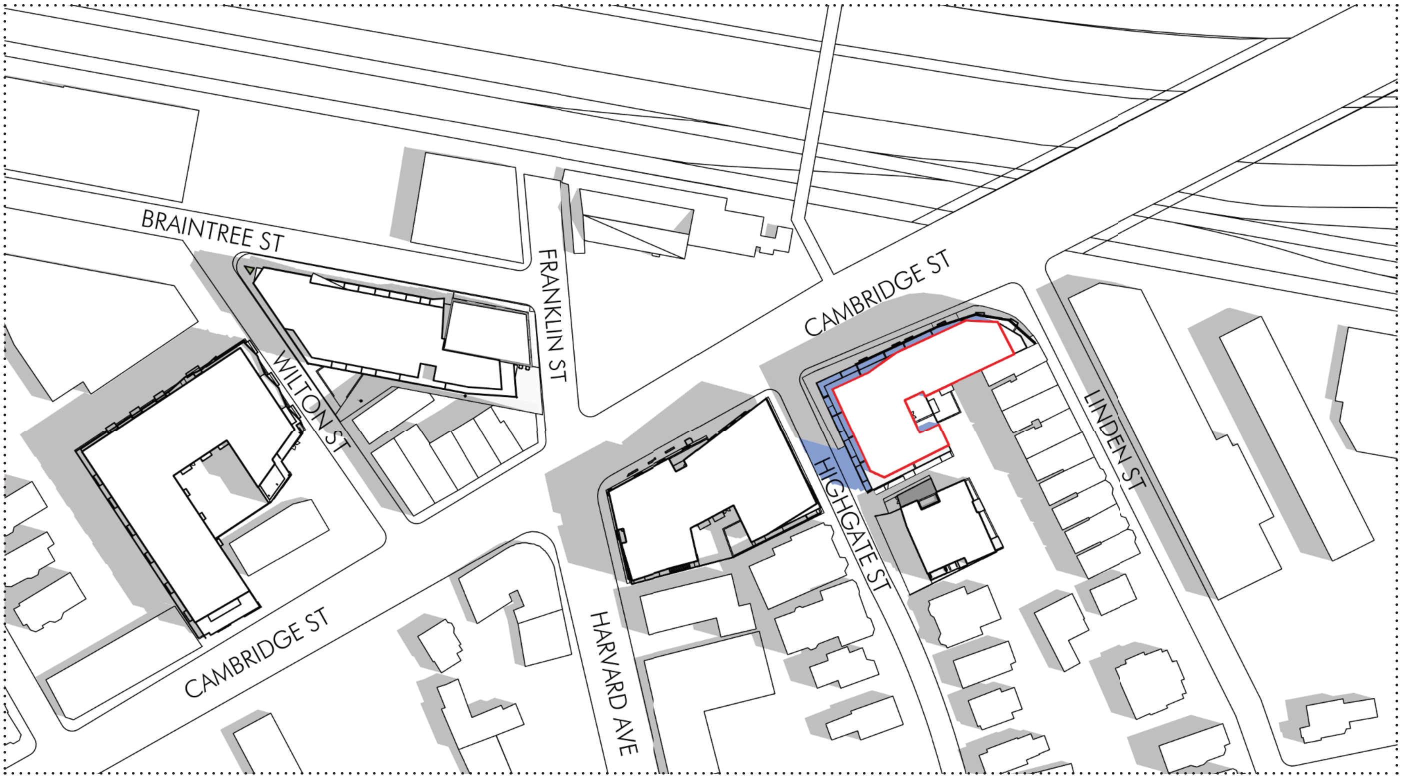

SHADOW STUDY - SUMMER SOLSTICE, 9:00AM

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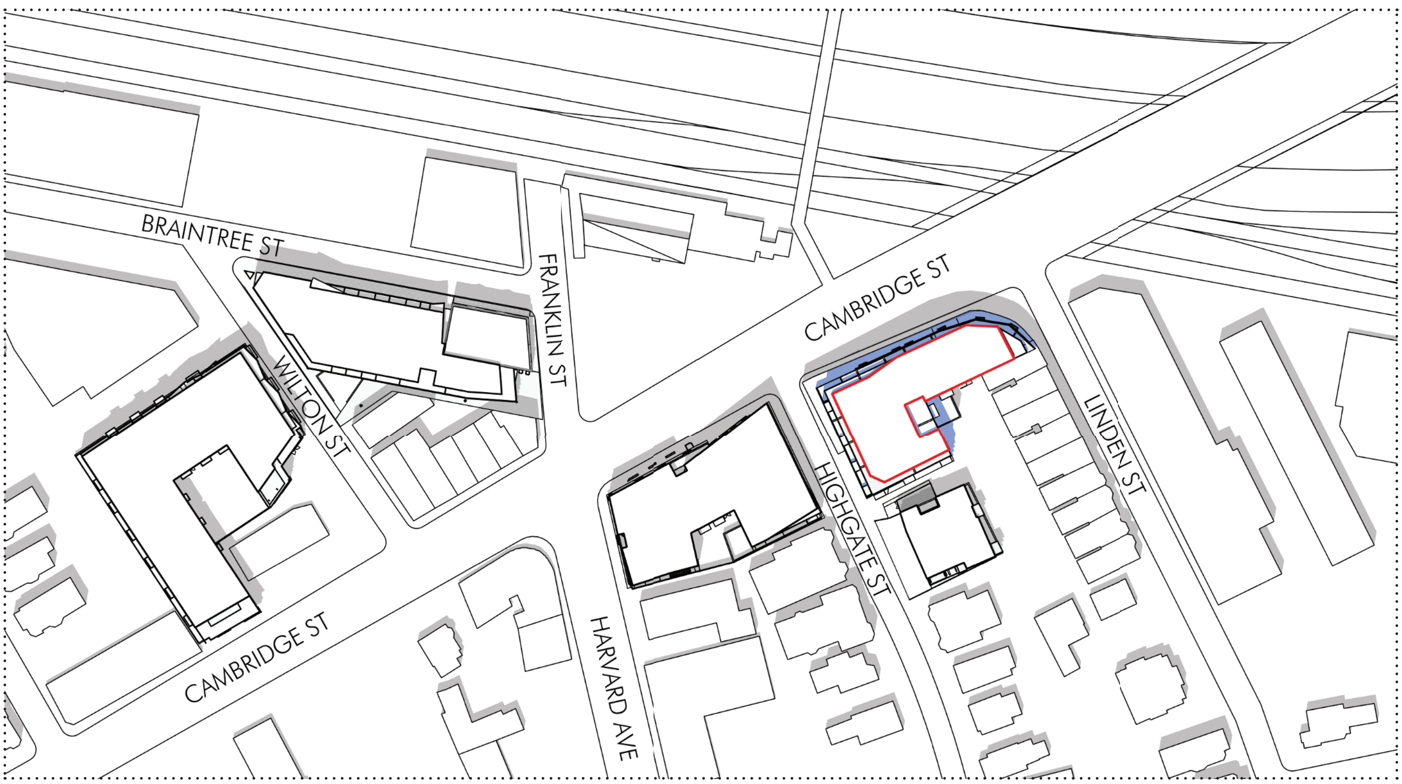

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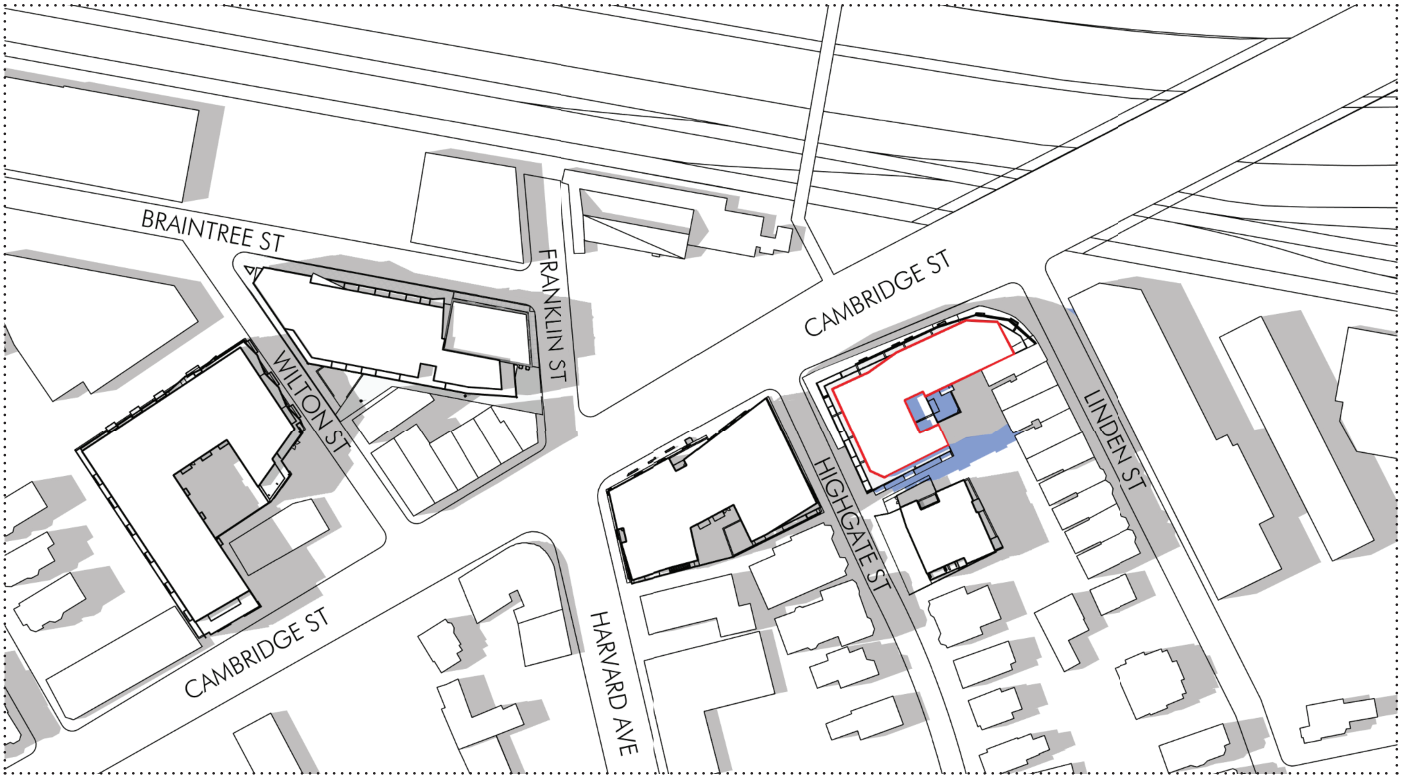

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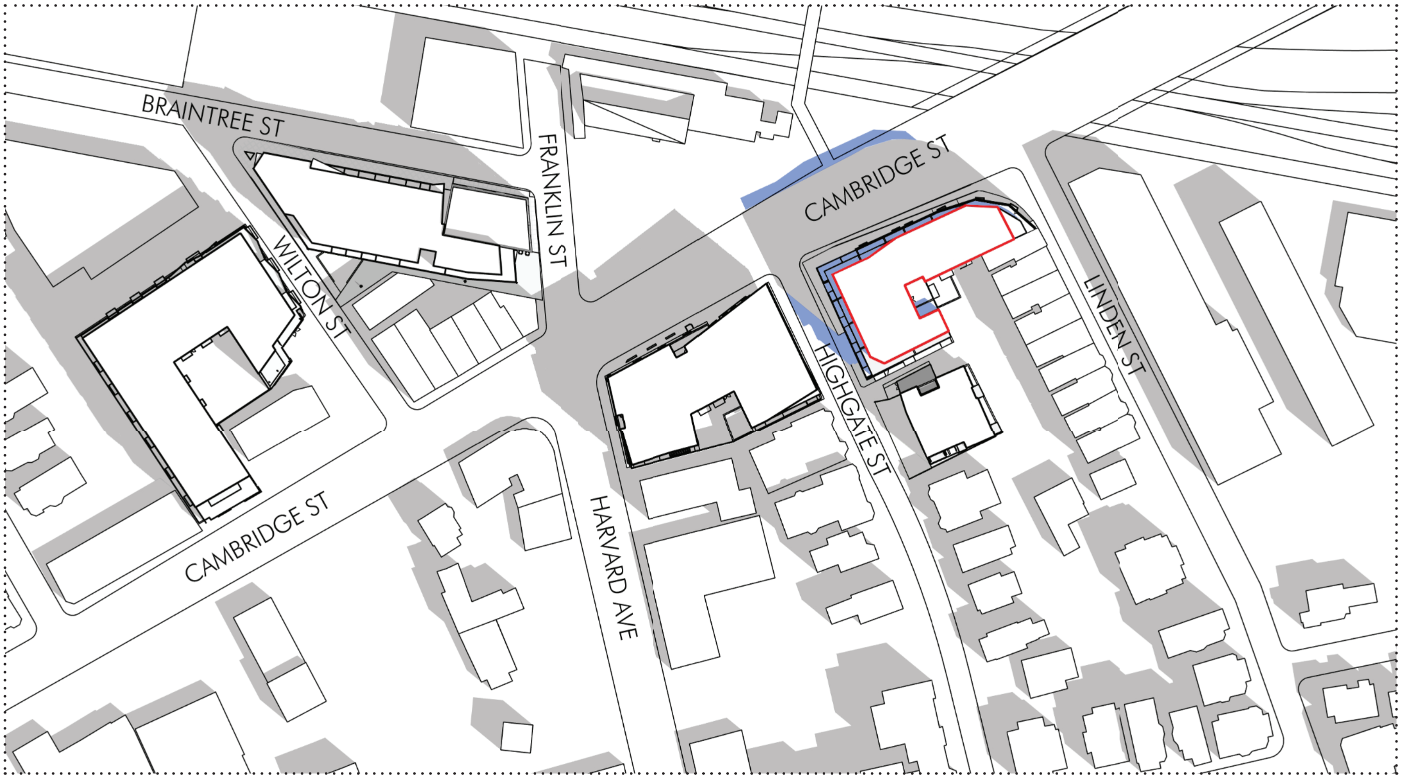

SHADOW STUDY - FALL EQUINOX, 9:00AM

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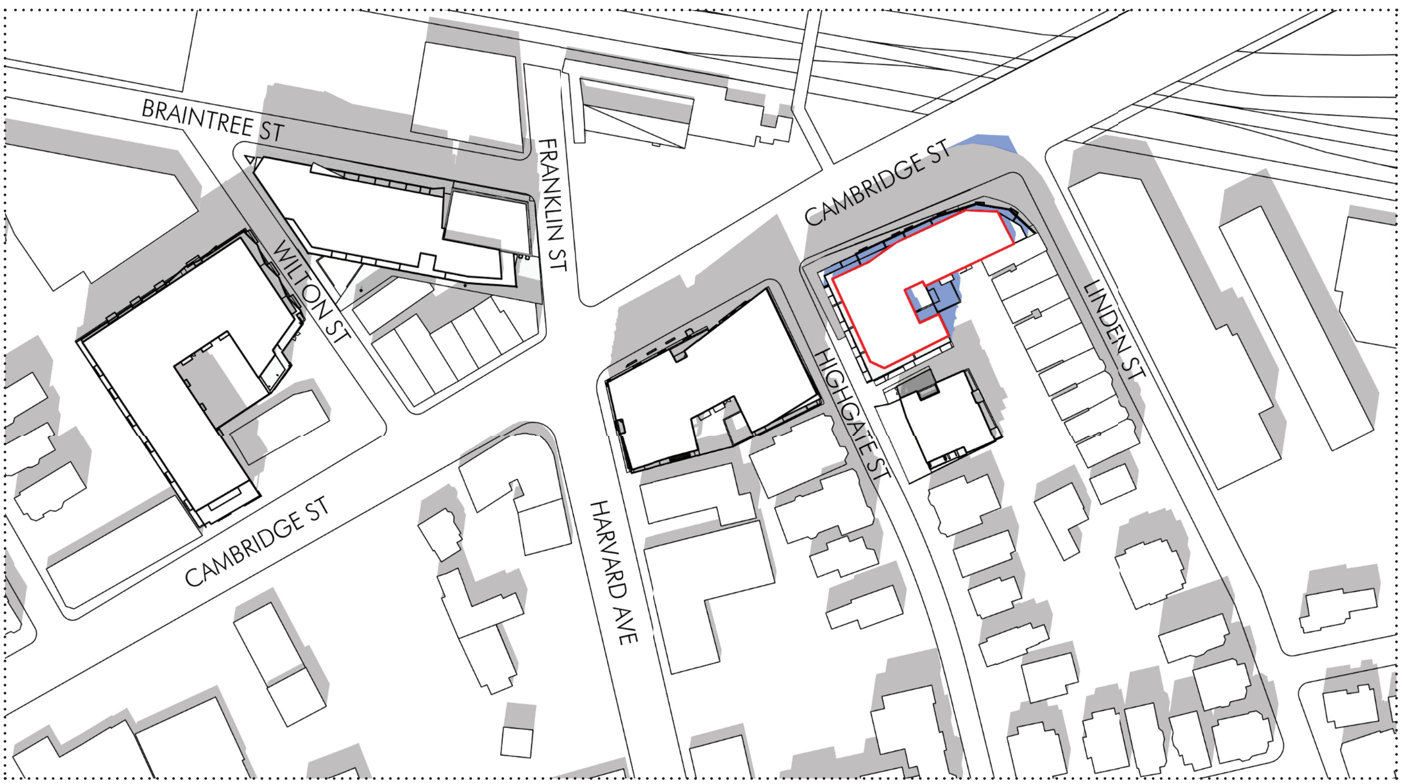

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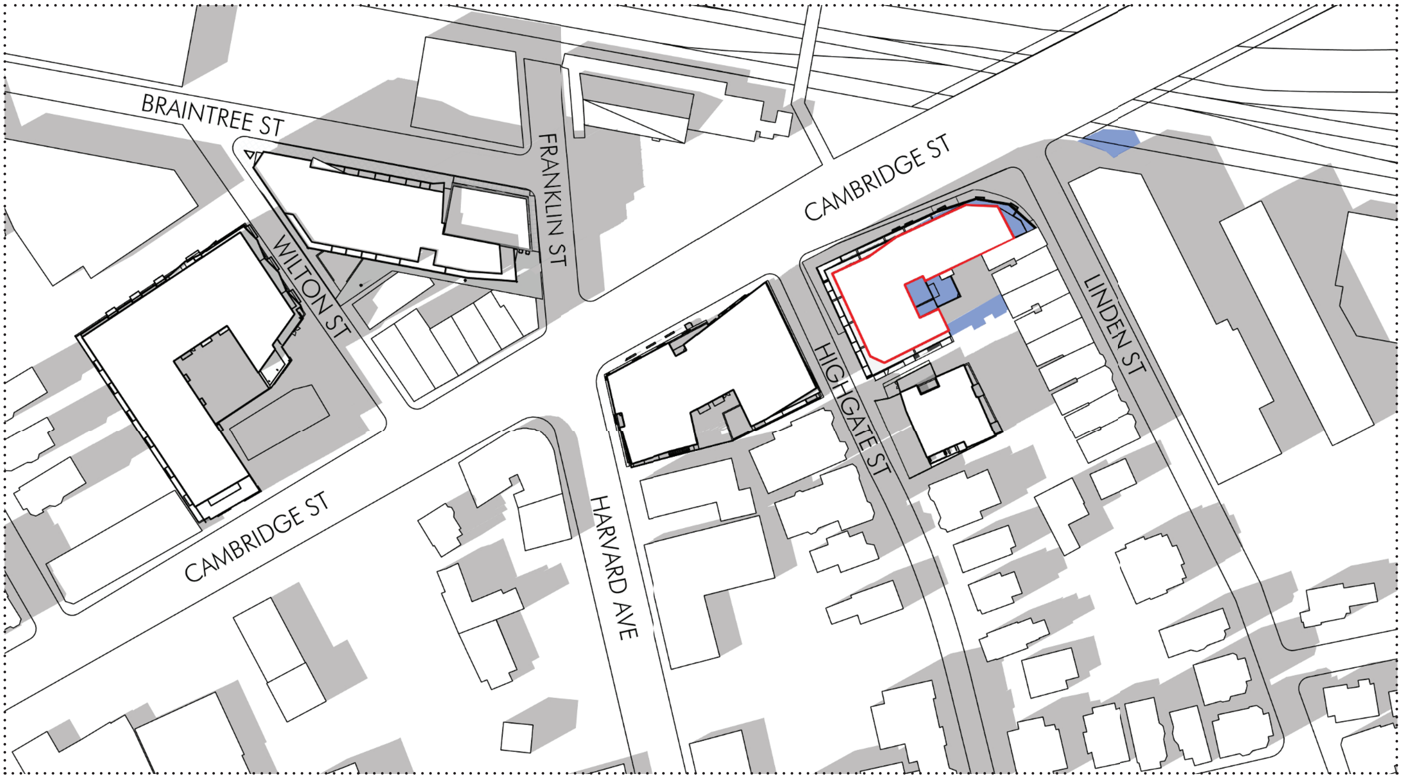

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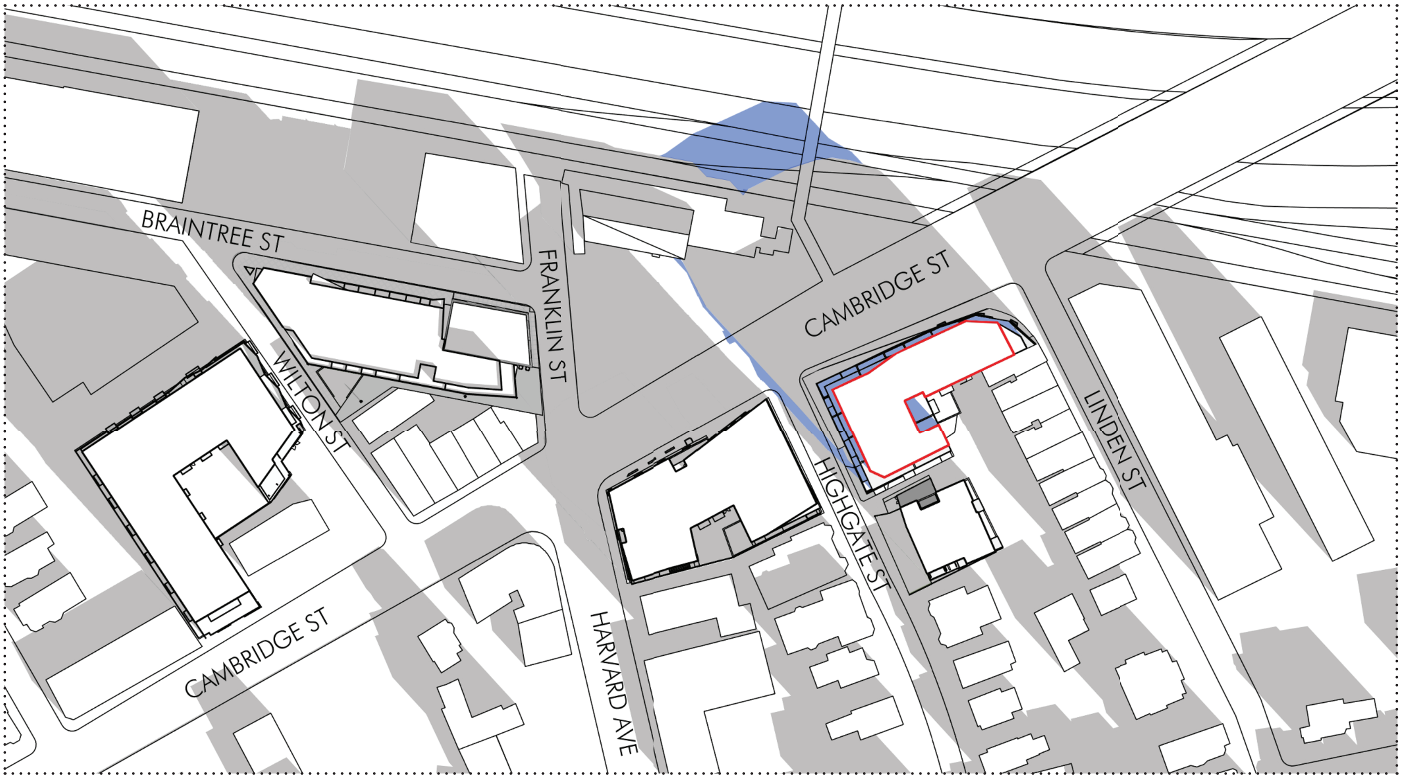

SHADOW STUDY - WINTER SOLSTICE, 9:00AM

NET NEW SHADOW
EXISTING SHADOW
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SHADOW STUDY - WINTER SOLSTICE, 12:00PM

NET NEW SHADOW
EXISTING SHADOW
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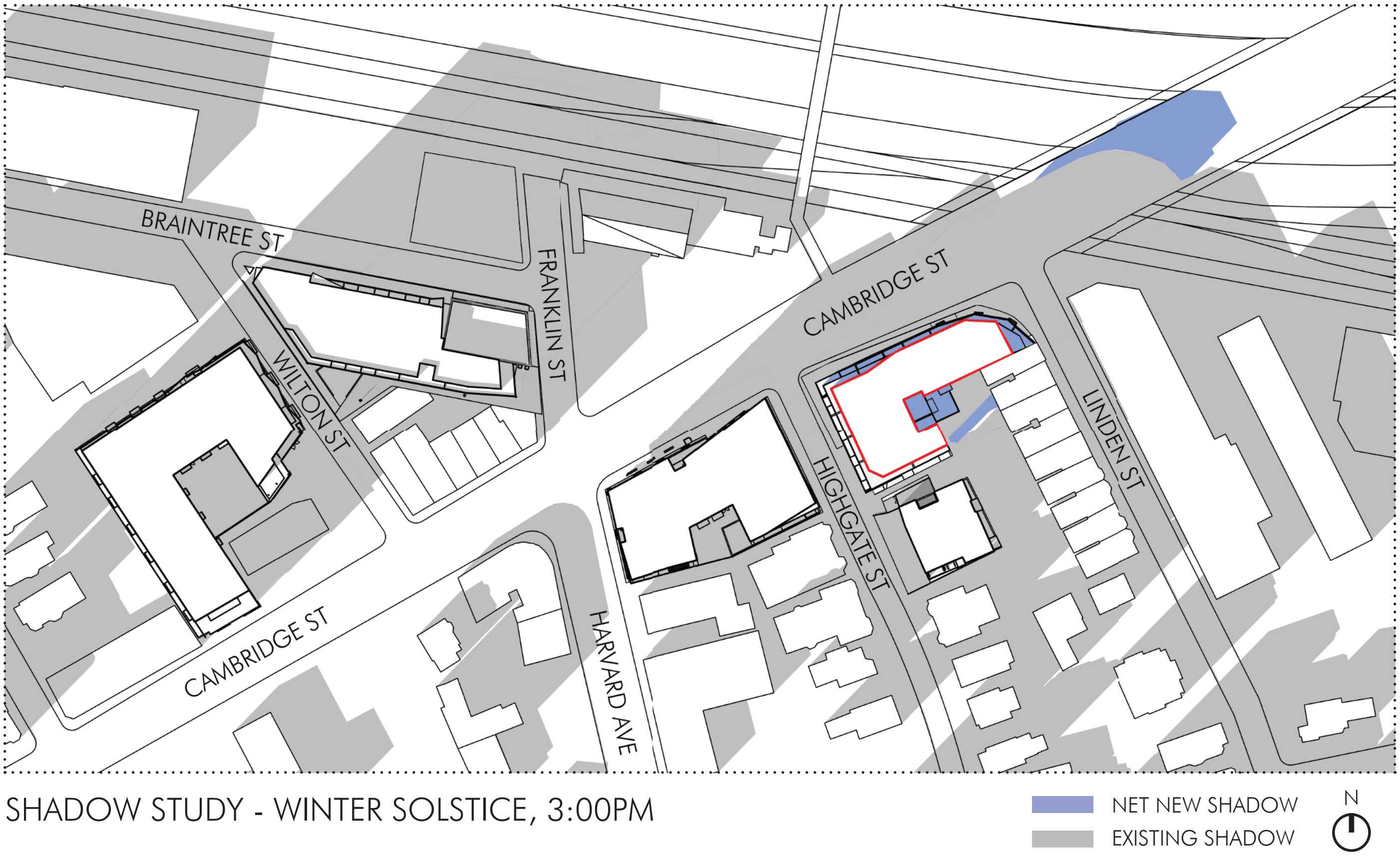


SHADOW STUDY - WINTER SOLSTICE, 3:00PM

KEVIN M. MARTIN, P.E.
KMM GEOTECHNICAL CONSULTANTS, LLC
7 Marshall Road
Hampstead, NH 03841
603-489-5556 (p)/ 603-489-5558 (f)/781-718-4084(m)
kevinmartinpe@aol.com

MEMORANDUM

TO: Jacob Simmons
CRM Property Management Corp.
320 Washington Street, Suite 3FF
Brookline, MA 02445

FROM: Kevin M. Martin, P.E.
Geotechnical Engineer

DATE: April 24, 2018

RE: **GEOTECHNICAL SUMMARY**
PROPOSED MIXED-USE BUILDING
334-362 CAMBRIDGE STREET
ALLSTON, MASSACHUSETTS

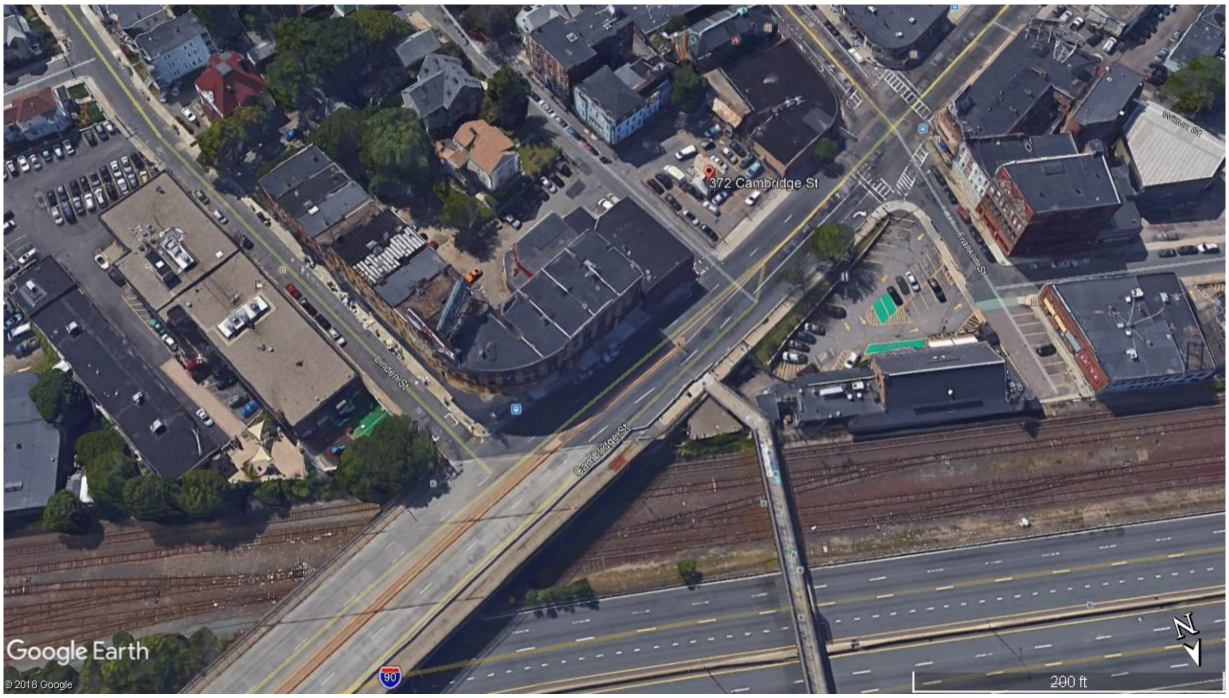
This memorandum serves as a geotechnical summary report for the referenced project. The contents of this memorandum are subject to the attached ***Limitations***.

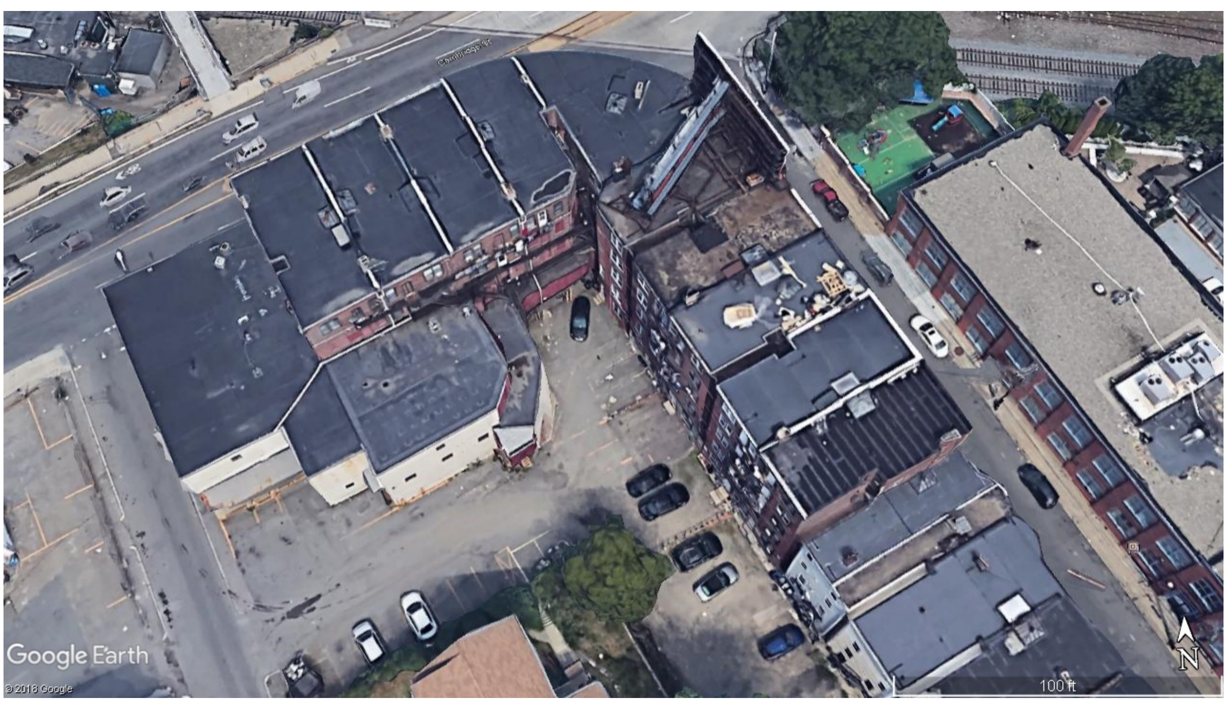
SITE & PROJECT DESCRIPTION

The site is bordered by Cambridge Street to the north, Highgate Street to the west and Linden Street to the east. Present development includes a 4-story, mixed-use, brick building which occupies most of the lot. This building and associated construction will be razed to accommodate the project. KMM has no knowledge of past construction, development or use of the property except what is visible or shown on the *Site Plan*. Based on the *Site Plan*, grades around the site vary from elevation ≈38-49 ft. Site grades are lowest at the rear loading docks.

The project includes a new mixed-use building. The building will include a 6-story, steel framed structure about ≈13,000 ft^2 in footprint area. The building will occupy most of the lot. A basement level parking garage is proposed at elevation 32.0 ft. Some deep cuts about ≈10-20 ft will be necessary to achieve parking level grade. It is intended to support the building on a conventional shallow spread footing foundation. The new building is to abut #1 Linden Street to the east. It is expected that the proposed construction will undermine this building given the depth of basement.

The purpose of this study is to review the subgrade conditions and provide a geotechnical evaluation related to foundation design and construction as required by the *Massachusetts State Building Code*. This report does not include an environmental assessment relative to oil, gasoline, solid waste and/or other hazardous materials. The environmental conditions of the property should be addressed by others as necessary. This study also does not include review of site design or construction issues such as infiltration systems, dry wells, retaining walls, excavation support systems, underground utilities, protection of surrounding buildings/utilities, crane pads, temporary shoring or other site and/or temporary design unless specifically addressed herein.



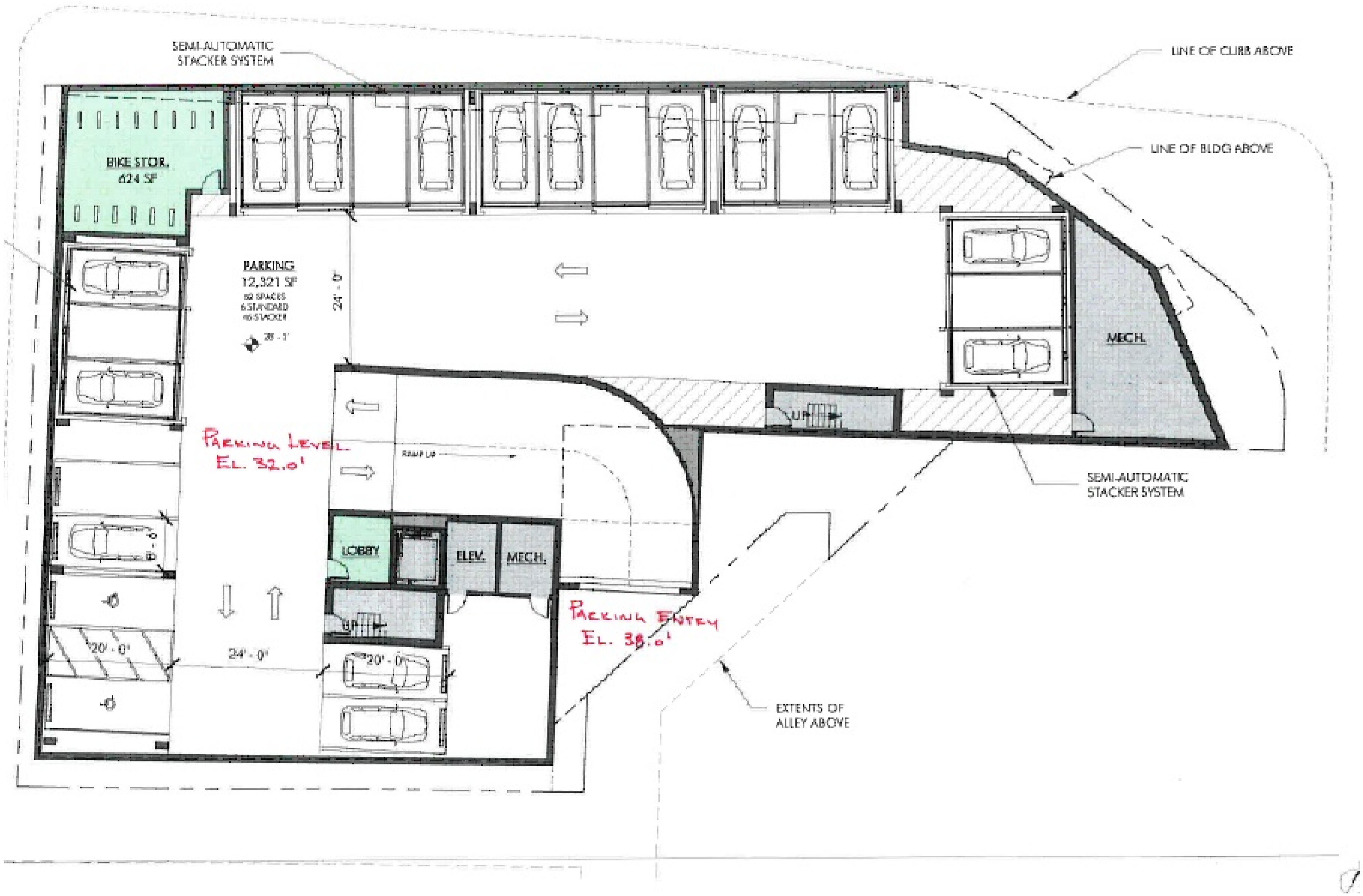


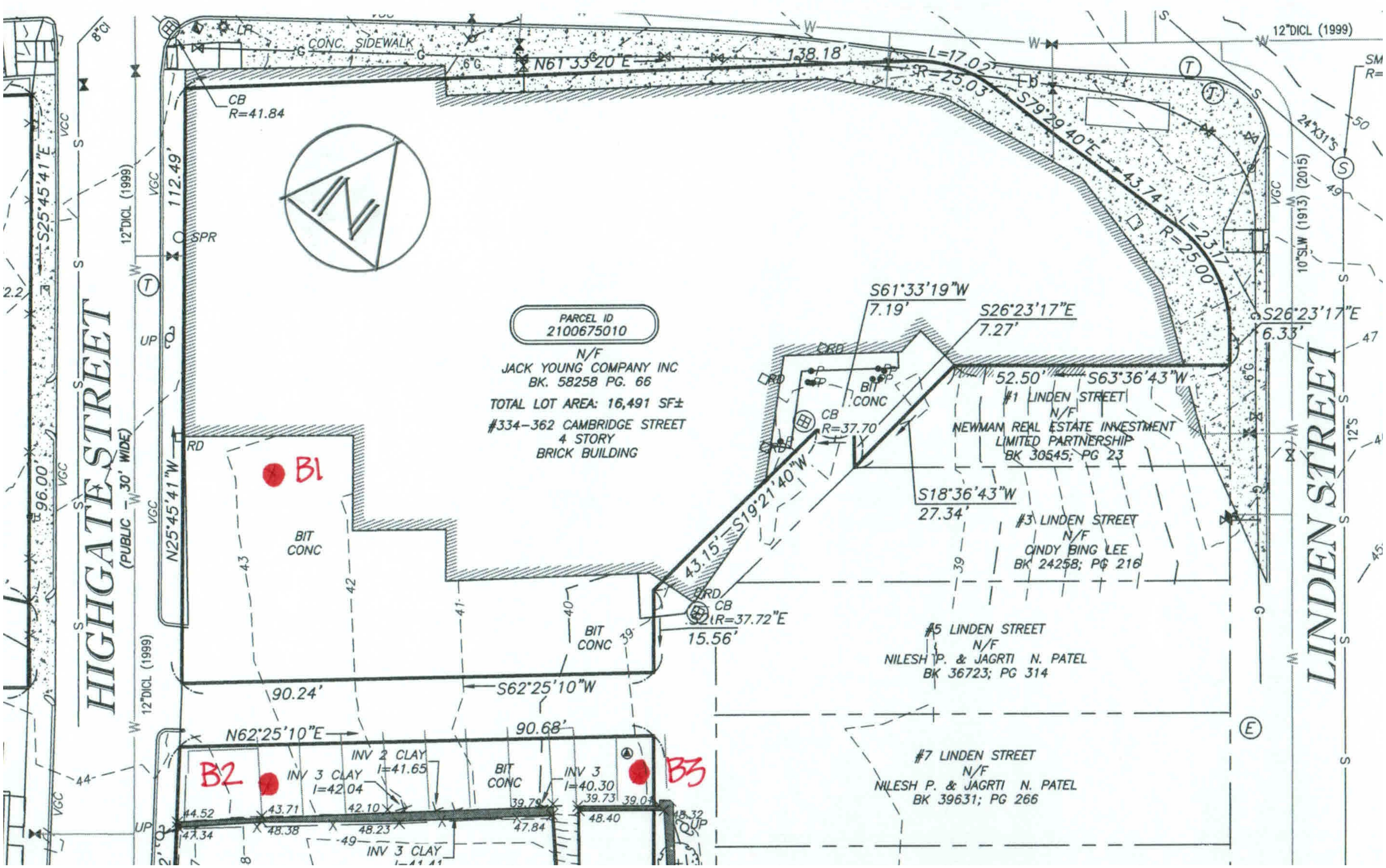

Refinance and save at DCU.org
DO NOT ENTER
Google Earth
© 2018 Google
20 ft


Google Earth
© 2018 Google
7.60 ft

BUILDING PROFILE (BASEMENT GARAGE NOT SHOWN)


CAMBRIDGE STREET
HIGHGATE STREET
LINDEN STREET
ALLEY
RETAIL EL.43.5'
RETAIL
2,102 SF
EL. 44.8'
LIVE/WORK
754 SF
EL. 46.25'
LIVE/WORK
691 SF
EL. 46.25'
LIVE/WORK
691 SF
EL 47.6'
LIVE/WORK
661 SF
RETAIL EL. 48.6'
RETAIL
2,060 SF
LOBBY EL. 43.5'
TRASH
GYM/YOGA
638 SF
MECH
PET WASH
MAIL
LOBBY
1,165 SF
LOBBY EL.43.5
COFFEE
EXIT EL 43.5'
EXIT DISCHARGE TO ALLEY @ PARKING GARAGE ENTRY
PARKING ENTRY BELOW
PARKING ENTRY EL. 38.6'
EXISTING BUILDING
15' - 10 1/2"
10' - 0"
14' - 10'
7' - 9"
8' - 4"
12' - 0"
10' - 4"


SEMI-AUTOMATIC
STACKER SYSTEM
LINE OF CURB ABOVE
LINE OF BLDG ABOVE
BIKE STOR.
624 SF
PARKING
12,321 SF
24' - 0"
MECH.
Parking Level
El. 32.0'
RAMP UP
LOBBY
ELEV.
MECH.
UP
20' - 0"
24' - 0"
Parking Entry
El. 38.0'
SEMI-AUTOMATIC
STACKER SYSTEM
EXTENTS OF
ALLEY ABOVE



TEST BORE LOCATION PLAN

SUBSURFACE EXPLORATION PROGRAM

Test Borings

The exploration program for the project included three (3) test borings around the site where accessible. This included only the lower portions of the site to the south. The test borings (B1 to B3) were advanced to depths of ≈22 ft utilizing 4 inch hollow stem augers. Soil samples were typically retrieved at no greater than 5 ft intervals with a 2 inch diameter split-spoon sampler. Standard Penetration Tests (SPTs) were performed at the sampling intervals in general accordance with ASTM-D1586 (*Standard Method for Penetration Test and Split-Barrel Sampling of Soils*). Field descriptions and penetration resistance of the soils encountered, observed depth to groundwater and other pertinent data are contained on the attached *Test Boring Logs*. The attached *Sketch* shows the test bore locations.

Observation Well

An observation well was installed at B3 to a depth of ≈20 ft. The well includes 2 inch slotted well screen and riser pipe with associated filter sand, bentonite seal and protective road box. The well may be used to monitor (measure) groundwater fluctuations.

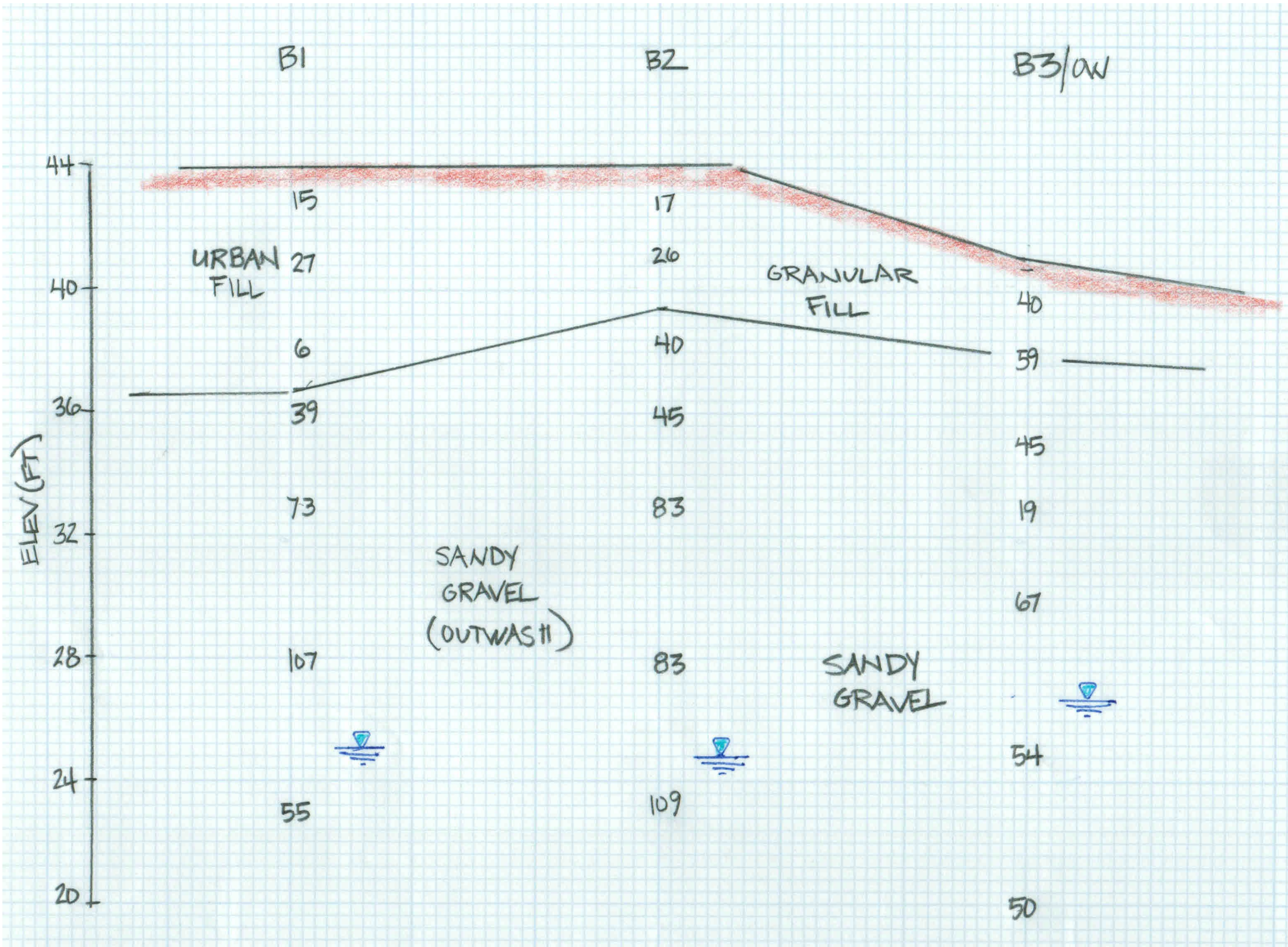
SUBSURFACE CONDITIONS

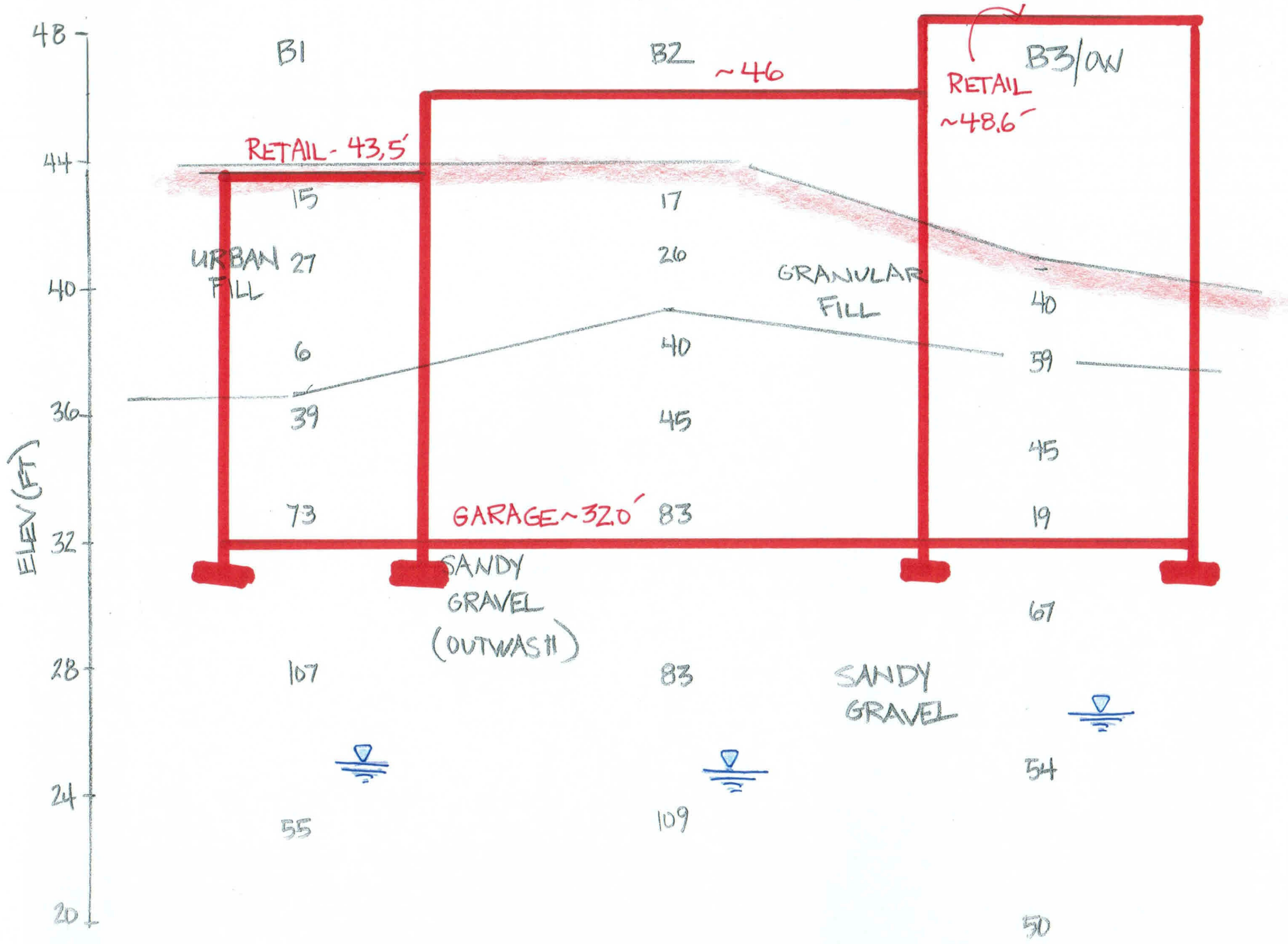
The subsurface conditions below the surface pavement include (1) Granular Fill atop (2) stable Granular Outwash Soils. A *Subsurface Profile* depicting the soil and groundwater conditions is attached for review.

Undocumented Fill was encountered in ALL the test bores to depths of ≈3-7 ft below grade. The Fill varies in composition but generally includes a dark brown, Sand & Gravel, little silt. The Fill is suspected to be re-worked site soils. Trace amounts of brick, rubble and loam are embedded in the Fill. Heavier Urban Fill (loam, brick, glass, ash) was encountered at B1. Some deeper dark brown Sandy Gravel was encountered at ≈ 8 ft at B3. This is suspect Fill which is difficult to differentiate given re-worked soils. These soils were dense and stable. Other Fill should also be expected around the building foundation and intersecting utilities.

The parent site soils consists of stable, granular Outwash. These soils generally include a brown, fine to coarse Sand & Gravel, trace silt. Occasional cobbles and boulders should be expected given the difficulty advancing the augers. These granular soils are stable, well-draining and compact. The Outwash was not penetrated to ≈22 ft below the lower site grade.

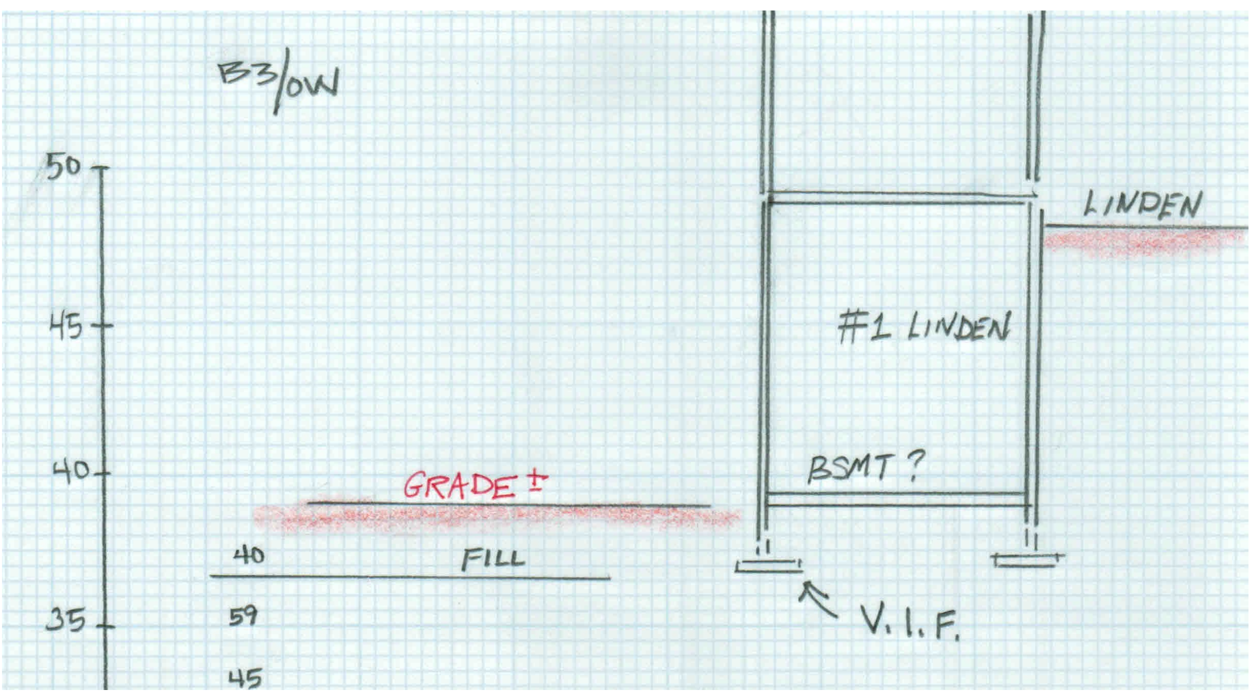
Groundwater was encountered in the test holes at depths of ≈14-19 ft below the lower site grade. This is near elevation ≈25-27 ft. It should be noted that fluctuations in the level of the groundwater may occur due to variations in rainfall, temperature, utilities and other factors differing from the time of the measurements. An observation well was constructed at B3 to measure groundwater fluctuations. This study was completed at a time of seasonally normal groundwater.

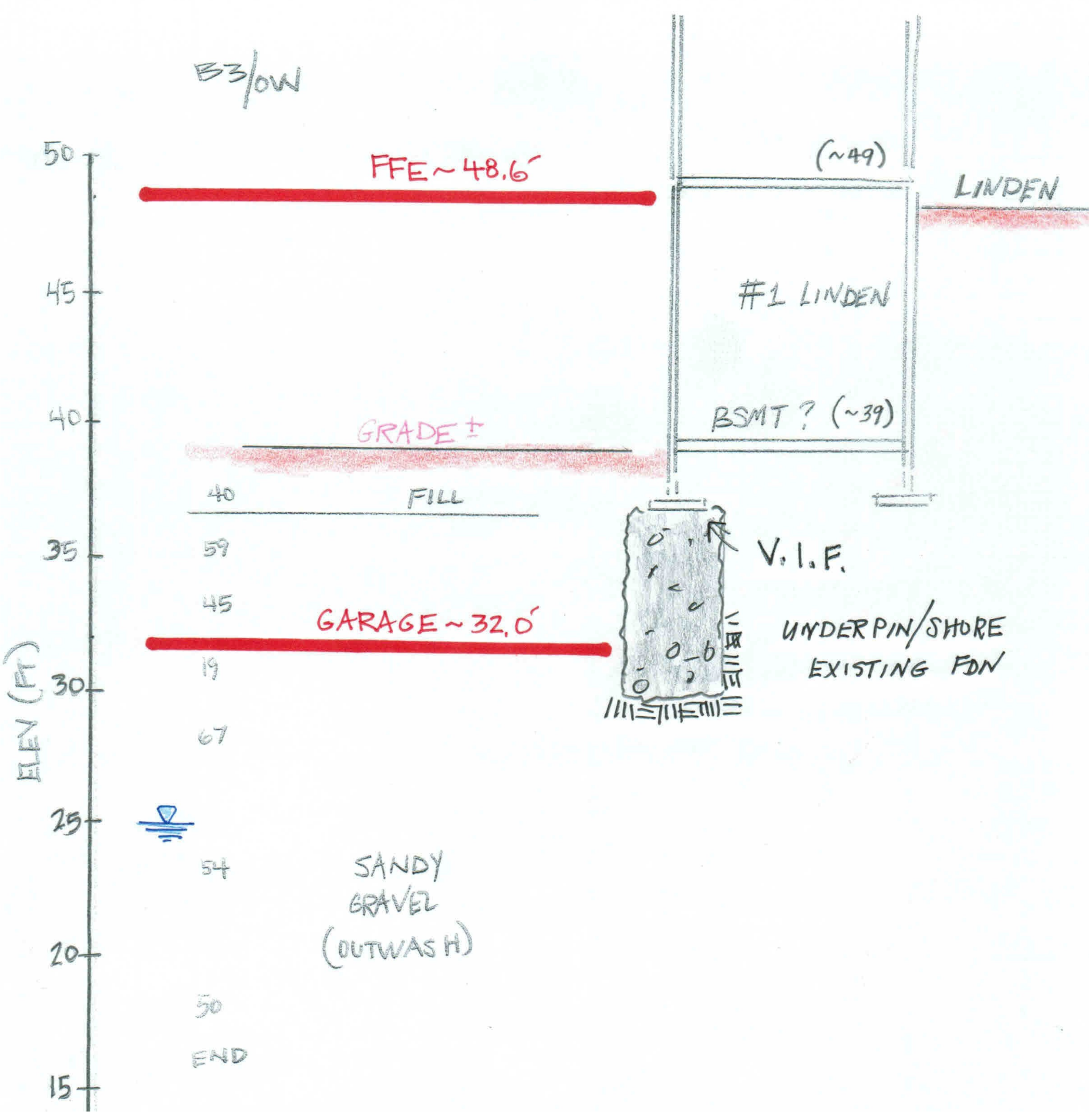

B1
B2
B3/OW
44
40
36
32
28
24
20
ELEV (FT)
URBAN FILL
GRANULAR FILL
SANDY GRAVEL (OUTWASH)
SANDY GRAVEL
15
27
6
39
73
107
55
17
26
40
45
83
83
109
40
59
45
19
67
54
50


48
44
40
36
32
28
24
20
ELEV (FT)
B1
B2
B3/OW
~46
RETAIL
~48.6'
RETAIL - 43.5'
15
17
URBAN FILL
27
26
GRANULAR FILL
40
6
40
59
39
45
45
73
GARAGE ~ 32.0'
83
19
SANDY GRAVEL (OUTWASH)
67
107
83
SANDY GRAVEL
54
55
109
50

PROTECTION OF EXISTING FOUNDATION

It is recommended that where the building adjoins the existing building (#1 Linden Street) that the footings be constructed at similar grade to mitigate the overlapping of stresses. The *Existing Footing Zone of Influence* of the existing foundation should not be encroached or disturbed without review by a Professional Engineer. The *Existing Footing Zone of Influence (EFZOI)* is defined as that area extending laterally one foot from the edge of footing then outward and downward at a 1.5H:1V splay. Per the *Building Code (Section 1805.5)*, an imaginary line drawn between the lower edges of adjoining footings shall not have a steeper slope than 25° (2H:1V) with the horizontal unless the material supporting the higher footing is braced or otherwise retained. This study did not include verification of the existing foundation via test pits. It is expected the existing basement foundation includes spread footers that extend near elevation ≈38 ft. Given a proposed Garage Floor Elevation of 32 ft, this foundation is expected to be undermined to accommodate the project. As such, this existing foundation will likely need to be shored or underpinned. It is expected that conventional concrete pit underpinning will be the most practical. Such underpinning involves staggered undermining of the existing foundation with new concrete pits constructed to lower the BOF. More specifically, concrete pit underpinning involves localized undermining (≈4 ft wide) of the footing with approach pits that are filled with consolidated concrete to lower the BOF. The underpinning is sequentially completed in thirds or quarters to limit the extent of unsupported foundation at one time. It is recommended that an experienced Contractor be retained for the underpinning. A *Technical Submittal* should be provided to outline the proposed means and methods to protect the existing buildings and construct the new underpinning pits.





CONCEPTUAL UNDERPINNING/SHORING

FOUNDATION SUBGRADE RECOMMENDATIONS

Conventional Foundation

The subgrade conditions are suitable for supporting the proposed building on a conventional spread footing foundation with a concrete floor slab. The undocumented fill, intersecting utilities, abandoned foundations and other questionable materials are **not** rendered suitable for foundation support and shall be fully removed from the building pad including the *Footing Zone of Influence* (*FZOI*) to expose the Outwash. The *FZOI* is defined as that area extending laterally one foot from the edge of footing then outward and downward at a 1H:1V splay. It is expected that the majority of the fill and questionable matter will be penetrated for the basement level foundation. Structural Fill necessary to achieve foundation grade should conform to the *Specifications* (Table 1).

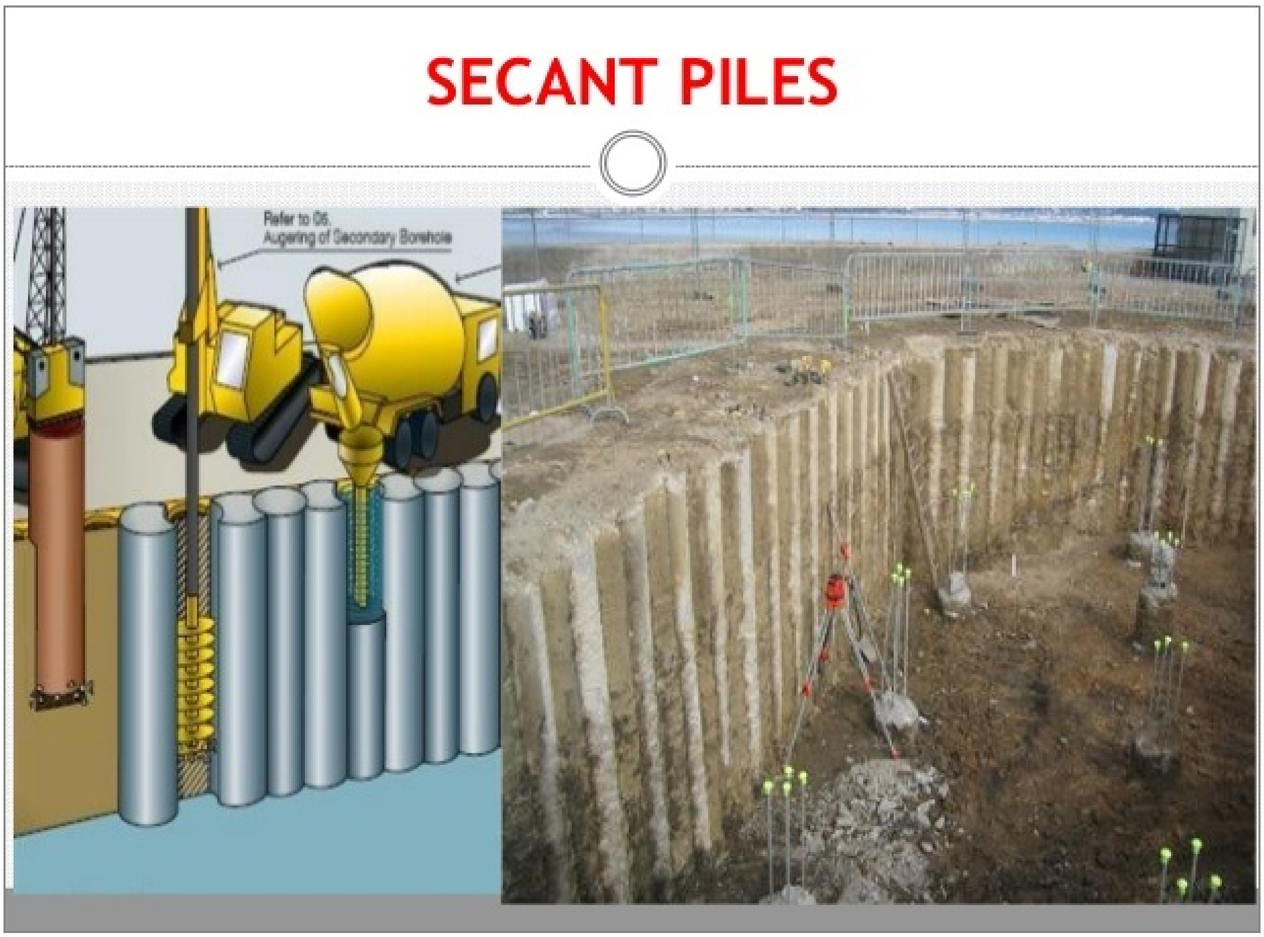
The parent subgrade soils (Glacial) should be exposed in the foundation areas prior to casting the footings or placing structural fill. It is recommended that the parent subgrade soils be proof-rolled with vibratory densification and exhibit stable and compact conditions. The purpose of the proof-rolling is to densify the site soils and identify potential loose or unstable areas which should be removed as necessary. Proof-rolling should involve at least 4-5 passes with a vibratory compactor (minimum 950 pound static weight) operating at peak energy. During the proof rolling, the subgrade should be observed by an Engineer to identify areas exhibiting instability. It will be necessary to remove weakened or unstable soils and replace with a Structural Fill or crushed stone. Proper groundwater control and storm water management are also necessary to maintain site stability.

The subgrade should ultimately be stable, dewatered, compact and protected from frost throughout construction. Bearing subgrades that become weakened or disturbed due to wet conditions will be rendered unsuitable for structural support. The Contractor shall ultimately be responsible for the means and methods of temporary groundwater control, subgrade protection and site stability during construction. An Engineer from KMM should be scheduled to review the foundation subgrade conditions and preparation during construction.

Perimeter Secant Wall Foundation

Given the proposed building will extend to the lot lines, a secant wall system may be considered for the perimeter foundation. Conventional construction would require the installation of temporary or permanent Support of Excavation (SOE). The SOE typically involves soldier piles with wood lagging or steel sheeting. Given SOE that may extend to unbalanced heights of ≈15-20 ft in areas, a braced SOE (tiebacks or internal bracing) would likely be necessary. Cantilevered SOE is generally feasible for unbalanced heights of ≈10 ft. Once the SOE is installed then conventional foundation construction would commence. There is always difficulty with constructing along property line boundaries. There would also be inherent difficulties with a braced excavation. A secant pile wall serves as both the SOE and the perimeter foundation wall. It is the permanent perimeter foundation. A secant pile wall consist of a series of overlapped cast-in-place concrete cylinders that form a continuous wall. The diameter, spacing, depth and structural reinforcement of the cylindrical elements are engineered to meet specific project requirements and subsurface conditions. The elements are typically constructed in a primary-secondary sequence, wherein each secondary pile straddles and overlaps two previously installed primary piles. Secondary piles are often reinforced with either a steel beam or a rebar cage for additional structural capacity.

Such walls are generally "designed-built" by a qualified Geotechnical Contractor. The feasibility of such walls should be considered early in the project as it requires a completely different design approach with the project team. It is also expected that a secant pile wall can provide the necessary shoring below #1 Linden Street to mitigate underpinning. The concept of a secant pile wall should be vetted with a qualified Geotechnical Contractor. KMM can assist as necessary.



FOUNDATION DESIGN RECOMMENDATIONS

The footings are expected to gain bearing support atop the parent glacial soils and/or compacted structural fill. Footings may be designed using an allowable bearing capacity of 6 ksf (FS=3). The allowable bearing capacity may be increased a third (⅓) when considering transient loads such as wind or seismic. The bearing capacity is contingent upon the perimeter strip footings and isolated column footings being no less than 2 ft and 3 ft in width respectively. For footings less than 3 ft in lateral dimension, the net allowable bearing capacity should be reduced to one-third and multiplied by the least lateral footing dimension in feet. Foundation settlement should be less than 1 inch with differential settlement less than ½ inch. The settlement should be elastic and occur during construction. Exterior footings shall be provided with at least 4 ft of frost protection. Proper frost protection should be necessary during winter construction.

The subsurface conditions were reviewed with respect to seismic criteria set forth in the ***Massachusetts State Building Code***. Based on the relative density of the soils and the depth to groundwater, the site is not susceptible to liquefaction in the event of an earthquake. Based on interpretation of the *Building Code*, the *Site Classification* (Section 9.4.1.2.1) is "C" (Very Dense Soil Profile).

It is recommended that a minimum 10-inch base of *Gravel Base Fill* (Table 1) be placed below the concrete floor slab for moisture, strength and frost control. The gravel base shall be increased to no less than 12 inches for exterior concrete slabs exposed to frost or for the building floor slab if the existing Fill is to remain for subgrade support. A subgrade modulus of 175 pci may be used for design of the floor slab. A vapor retarder should be used below the floor slab dependent upon the floor treatment. A vapor barrier should be specified by others per ACI Standards. A vapor retarder is expected to be necessary for the project.

The Granular Fill & Granular Outwash may be suitable for re-use as Structural Fill (possible Gravel Base Fill). The Outwash soils are suitable for re-use provided they are segregated from the organic laden soils, are screened of large stones and conform to Specification.

FOUNDATION DRAINAGE

Due to the proposed basement level, a foundation drainage system will be required to permanently control the high groundwater as required by the *MSBC*. The purpose of the drainage system is to prevent uplift (buoyant) and lateral hydrostatic forces against the foundation walls and protect the basement level from groundwater intrusion.

A perimeter foundation drain should be located at least ≈2-3 inches above the bottom of footing elevation and six inches outward from the edge of footing. The drains should not encroach within the *Footing Zone of Influence* defined as that area extending laterally one foot from the edge of footing then outward and downward at a 1H:1V splay. Furthermore, the invert elevation of the drain should be at least 12 inches below the underside of the adjacent floor slab. The drains should consist of minimum 4 inch diameter, perforated PVC-SDR35 drain pipe encased within 12 inches of ¾-inch stone and wrapped with a filter fabric such as Mirafi 140N or equal. To provide drainage along the basement wall, an 18 inch vertical lift of *Structural Fill* (Table 1) should be placed directly behind the foundation wall to within 18 inches of finish grade. The Clean Outwash may be used for this purpose. The ground surface immediately adjacent to the foundation should be sloped away from the building to allow for positive drainage. It is also recommended that the surficial materials adjacent to the building be relatively impermeable to reduce the volume of precipitation infiltrating into the subsurface. Such impermeable materials include cement concrete, bituminous concrete or a vegetated silty topsoil.

The foundation drains will need to discharge into the storm drain system not subject to surcharge or to a sump with pump. The sumps shall be equipped with duplex pumps. A back up generator and alarm system will also need to be incorporated into the drainage system in the event of power failure. Permits will be required to connect to the City drainage system. The Site Engineer should review the discharge of the foundation drains in this regard. It is recommended that a backflow preventer be installed at the outlet of the drains to reduce the impact of surcharges and to impede rodent activity that may clog the drain. The drains should be provided with permanent clean-outs at convenient locations to facilitate access to all sections of the system. Clean-outs should be located at bends and no greater than 175 ft on-center. Roof gutters and other storm collection should not be discharged to the foundation drains. Recharge systems, infiltrators and/or dry wells shall be kept away from the basement level to prevent hydrostatic surcharge. This should also be reviewed by the Site Engineer.

The basement foundation should be waterproofed or, at a minimum, dampproofed to protect against moisture damage. The basement floor should be dampproofed with minimum ten-mil polyethylene or StegoWrap™ with joints lapped 10 inches below the floor slab or with application of bituminous or other approved material to the surface. Dampproofing of below grade foundation walls should include the application of a bituminous or other approved material from the top of footing to above ground level. Water-proofing should be specified by others. Below slab foundations (such as elevator pits) should be fitted with continuous waterstops in all construction joints and should be waterproofed as well as structurally designed (buoyant load) to protect against groundwater intrusion. Groundwater relief or drainage is typically not feasible for the depressed elevator pit. An equivalent fluid weight of 90 pcf should be used for the design of the elevator pit as the groundwater will not be controlled in this depressed area.

CONSTRUCTION CONCERNS

The contractor should be required to maintain a stable-dewatered subgrade for the building foundation and other concerned areas during construction. Subgrade disturbance may be influenced by excavation methods, moisture, precipitation, groundwater control and construction activities. The site soils are generally not considered vulnerable to moisture disturbance given a granular composition. Nonetheless, the contractor should take precautions to reduce subgrade disturbance. Such precautions may include diverting storm run-off away from construction areas, reducing traffic in sensitive areas, minimizing the extent of exposed subgrade if inclement weather is forecast, backfilling footings as soon as practicable and maintaining an effective dewatering program. Soils exhibiting weaving or instability should be over-excavated to a competent bearing subgrade then replaced with a free draining structural fill or crushed stone. The moisture concerns are typically more problematic if construction takes place during the winter to spring season or other periods of inclement weather. A protective base of ¾-inch minus crushed stone may be placed ≈6 inches below and laterally beyond the footing limits for protection during construction. The stone base is to protect the site soils, facilitate any necessary dewatering and provide a dry/stable base upon which to progress foundation construction. The protective base should be considered elective and dependent upon the site conditions. The stone base should be considered necessary if wet conditions are encountered at footing grade. The protective stone base shall be tamped with a plate compactor and exhibit stable conditions. A stone base is not expected to be necessary given the depressed groundwater table and well-draining Stratified Outwash subgrade.

The groundwater table or puddled storm water, if encountered, will need to be temporarily controlled during construction to complete work in dry conditions and protect the competency of the subgrade. Wet conditions should be continuously maintained at least one foot below construction grade until backfilling is complete. The groundwater or puddled storm water is expected to be controlled with conventional sumps and pumps. The temporary sumps should be filtered with stone and fabric and extend at least ≈18 inches below construction grade. A ≈6 inch lift of ¾-inch minus crushed stone should be placed atop the wet subgrade to protect its competency and facilitate dewatering. Adequate dewatering and storm water management are necessary for maintaining the competency of the site soils.

The bearing subgrade should ultimately be stable, dewatered, protected from frost and compact throughout construction. Soils which become softened or disturbed during construction will be rendered unsuitable for structural bearing support. The Contractor shall ultimately be responsible for the means and methods of temporary groundwater control, subgrade protection and site stability during construction. An Engineer from KMM should be scheduled to review the foundation subgrade conditions and preparation during construction.

LATERAL SUPPORT OF EXCAVATION

Deep excavations (greater than ≈10-20 ft) are expected for foundation construction and possibly for utility installation around the property. Excavations should be sloped and/or laterally supported in accordance with the *Occupational and Health Administration (OSHA)* regulations (29 CFR Part 1926) and the *Commonwealth of Massachusetts Department of Labor and Industries Division of Industrial Safety (DLIDIS) - Rules and Regulations for the Prevention of Accidents in Construction Operations* (454 CMR 10.00), Part 14. Should excavations be sloped, the minimum slope based on soil type (Granular Outwash) is 1.5H:1V provided the groundwater is properly lowered below the bottom of the excavation. The foregoing slope requirement does not consider surcharge loads (stockpiled soils, equipment, materials, etc) which may be situated at the crest of the slope and vibration loads (soil compaction, sheet piling, etc). It should be noted that these slope requirements are minimums required by OSHA/DLIDIS regulations. The contractor should be ultimately responsible for design, maintenance and stability of the temporary slopes and/or shoring associated with construction activities.

Laterally supported earth systems should be designed by a qualified Professional Engineer retained by the contractor per OSHA Regulations. The deep excavations along the property limits are expected to require excavation support given the abutting property limits, existing buildings as well as surrounding utilities and roadways. Cantilevered sheeting or soldier piles with lagging are expected to be feasible for depths of ≈8-10 ft. Bracing or tiebacks will likely be necessary for deeper excavations. Excavation support is expected to impact the project from a budgetary perspective. The Secant Pile wall system may be considered to address the necessary SOE.

CONSTRUCTION MONITORING

It is recommended that a qualified engineer or representative be retained to review earthwork activities such as the preparation of the foundation bearing subgrade and the placement/compaction of Structural Fill. It is recommended that KMM be retained to provide construction monitoring services. This is to observe compliance with the design concepts presented herein.

CLOSING COMMENTS

Subgrade exploration was limited on this site given difficult access. Although we do not expect vastly differing conditions, some means of exploration (test pits or test bores) should be considered at the commencement of construction to verify subgade. This should also be accomplished via the recommended geotechnical subgrade inspections during construction. This study is also considered preliminary in that a conventional foundation may be designed for the building or alternative means (secant wall or similar) may be considered given the project constraints. There are several design and construction issues that will likely need to be reviewed as the project progresses.

We trust the contents of this memorandum report are responsive to your needs at this time. Should you have any questions or require additional assistance, please do not hesitate to contact our office.

Allston334CambridgeStreet.wpd

LIMITATIONS

Explorations

1. The analyses, recommendations and designs submitted in this report are based in part upon the data obtained from preliminary subsurface explorations. The nature and extent of variations between these explorations may not become evident until construction. If variations then appear evident, it will be necessary to re-evaluate the recommendations of this report.

2. The generalized soil profile described in the text is intended to convey trends in subsurface conditions. The boundaries between strata are approximate and idealized and have been developed by interpretation of widely spaced explorations and samples; actual soil transitions are probably more gradual. For specific information, refer to the individual test pit and/or boring logs.

3. Water level readings have been made in the test pits and/or test borings under conditions stated on the logs. These data have been reviewed and interpretations have been made in the text of this report. However, it must be noted that fluctuations in the level of the groundwater may occur due to variations in rainfall, temperature, and other factors differing from the time the measurements were made.

Review

4. It is recommended that this firm be given the opportunity to review final design drawings and specifications to evaluate the appropriate implementation of the recommendations provided herein.

5. In the event that any changes in the nature, design, or location of the proposed areas are planned, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed and conclusions of the report modified or verified in writing by KMM Geotechnical Consultants, LLC.

Construction

6. It is recommended that this firm be retained to provide geotechnical engineering services during the earthwork phases of the work. This is to observe compliance with the design concepts, specifications, and recommendations and to allow design changes in the event that subsurface conditions differ from those anticipated prior to the start of construction.

Use of Report

7. This report has been prepared for the exclusive use of CRM Property Management Corp. in accordance with generally accepted soil and foundation engineering practices. No other warranty, expressed or implied, is made.

8. This report has been prepared for this project by KMM Geotechnical Consultants, LLC. This report was completed for preliminary design purposes and may be limited in its scope to complete an accurate bid. Contractors wishing a copy of the report may secure it with the understanding that its scope is limited to preliminary geotechnical design considerations only.

TABLE 1

Proposed Building
334 Cambridge Street
Allston, MA

Recommended Soil Gradation & Compaction Specifications

Gravel Base Fill
(Select Gravel Fill)

SIEVE SIZE	PERCENT PASSING BY WEIGHT
3 inch	100
3/4 inch	60-90
No. 4	20-70
No. 200	2-8

NOTE: For minimum 10-inch base below Concrete Garage Floor Slab
For minimum 12-inch base for exterior concrete slabs exposed to frost
Shall have less than 12% fines (No. 200 sieve) based on the Sand fraction

Structural Fill
(Gravelly SAND, little Silt)

SIEVE SIZE	PERCENT PASSING BY WEIGHT
5 inch	100
3/4 inch	60-100
No. 4	20-80
No. 200	0-10

NOTE: For use as structural load support below the foundations
For use as backfill behind unbalanced foundation/retaining walls
A one-inch minus crushed stone may be used in wet conditions

Structural Fill placed beneath the foundation should include the *Footing Zone of Influence* which is defined as that area extending laterally one foot from the edge of the footing then outward and downward at a 1H:1V splay. Structural Fill should be placed in loose lifts not exceeding 12 inches for heavy vibratory rollers and 8 inches for vibratory plate compactors. Structural Fill on the project should be compacted to at least 95 percent of maximum dry density as determined by the Modified Proctor Test (ASTM-D1557). The fill shall be compacted within ±2 of the optimum moisture content. The adequacy of the compaction efforts should be verified by field density testing which is also a requirement of the *Massachusetts State Building Code*.

TABLE 2

Proposed Building
334 Cambridge Street
Allston, MA

Recommended Lateral Earth Pressures & Drainage for Unbalanced Walls

Lateral earth pressures for the structural design and stability analysis of unbalanced foundation walls (basement walls, retaining walls, elevator pit, etc) are provided herein. The following table outlines the recommended lateral earth pressure coefficients and equivalent fluid weights:

WALL CONDITION	LATERAL TRANSLATION (Δ/H)	EARTH PRESSURE COEFFICIENT (K)	EQUIVALENT FLUID WEIGHT (γ_{EFW})
restrained	0	K_o	60 pcf
no restraint	0.002	K_a	35 pcf
no restraint	0.02	K_p (FS=3)	125 pcf
seismic	n/a	K_{eq}	see note

where: Δ = movement at top of wall by tilting or lateral translation
H = height of wall

The above lateral earth pressures are based upon:

1. Rankine earth pressure theory;
2. Retaining wall backfilled with Structural Fill (Table 1)
3. Unit weight of backfill less than 125 pcf
4. No hydrostatic pressures
5. No surcharge loading;
6. A level backfill in front and behind of wall;
7. Seismic loads distributed as an inverse triangle over the height of wall (*MSBC*);
8. Dynamic/compaction stresses accounted for with seismic pressures;
9. Soil backfill densified with plate compactors within 3 ft lateral distance of wall;
10. Top 2 ft should not be considered for passive resistance.

The lateral load due to seismic pressure shall be in accordance with *Section 9.5.2.9* of the *MSBC*. *Equation 9.5.2.9* shall be used to estimate the seismic force (F_w). The unit weight of the backfill used in this equation is 125 pcf (Structural Fill). There are no soils subject to liquefaction below and/or behind the wall.

The lateral resistance of retaining walls should also accommodate surcharge loads. Uniformly distributed loads should be superimposed along the face of the wall at a magnitude equal to the surcharge pressure multiplied by the appropriate earth pressure coefficient. Surcharge loads should be considered where they are located within a horizontal distance equivalent to 1.0 times the height of the wall. Anticipated point or line loads situated behind the wall should be evaluated in accordance with linear elastic theory.

For frost and drainage concerns, it is recommended that *Structural Fill* (Table 1) be placed directly behind the unbalanced walls. The Granular soils may be re-used in this regard. The ground surface immediately adjacent to the unbalanced foundation should be sloped away from the building to allow for positive drainage. It is also recommended that the surficial materials adjacent to the building be relatively impermeable to reduce the volume of precipitation infiltrating into the subgrade. Such impermeable materials include Portland cement concrete, bituminous concrete, or a vegetated silty topsoil.

Unbalanced foundation walls should be provided with adequate footing drains per the *MSBC*. The drains should be located along the periphery of the embedded footprint. The perimeter foundation drain should be located at least ≈2-3 inches above the bottom of footing elevation and six inches outward from the edge of footing. The drains should not encroach within the *Footing Zone of Influence* defined as that area extending laterally one foot from the edge of footing then outward and downward at a 1H:1V splay. Furthermore, the invert elevation of the drain should be at least 12 inches below the underside of the adjacent floor slab. The drains should consist of minimum 4 inch diameter, perforated PVC-SDR 35 drain pipe encased within 12 inches of ¾-inch stone and wrapped with a filter fabric such as Mirafi 140N or equal. The drains may discharge via gravity to a storm drain line not subject to surcharge or to a sump pump. The Site Engineer should review the discharge of the drains. The drains should be provided with permanent clean-outs at convenient locations to facilitate access to all sections of the system. Clean-outs should be located at bends and no greater than 175 ft on-center. Roof gutters and other storm collection should not be discharged to the foundation drains. Recharge systems, infiltrators and/or dry wells shall be kept away from the basement level to prevent hydrostatic surcharge.

If the unbalanced foundation walls can not be drained to alleviate hydrostatic forces, then the lateral earth pressure equivalent fluid weight should be increased to 90 pcf. Such earth pressures should be used for elevator pits, if necessary.

The recommended friction factors to be used for retaining wall design are as follows:

<u>Recommended Friction Factor (f)</u>

$f = \tan(\delta)$, where δ is the interface friction angle

- Concrete against the following soils

Structural Fill (Table 1)	0.50
Outwash Soils	0.50

TEST BORING LOG

SHEET 1

Soil Exploration Corp. Geotechnical Drilling Groundwater Monitor Well 148 Pioneer Drive Leominster, MA 01453 978 840-0391	**Proposed Building** **Site 334 Cambridge Street** **Allston, MA.**	BORING B-1 PROJECT NO. 18-0314 DATE: March 12, 2018

Ground Elevation:
Date Started: March 9, 2018
Date Finished: March 9, 2018
Driller: TF
Soil Engineer/Geologist:

GROUNDWATER OBSERVATIONS			
DATE	DEPTH	CASING	STABILIZATION
3/9/18	19 ft	n/a	

Depth Ft.	Casing bl/ft	Sample No.	Pen/Rec	Depth	Blows/6"	Strata	Visual Identification of Soil and / or Rock Sample
						2"	Asphalt
1		1	10"	0'6 – 2'6"	5-7-8-6		Dark Brown, loamy, silty Sand, little gravel, trace brick
		2	8"	2'6" – 4'6"	8-17-10-9		Same trace glass, ash (URBAN FILL)
5		3	7"	5'0"- 7'0"	5-3-3-7	7'	Same, dry
		4	8"	7'0" - 9'0"	8-14-25-32		Brown, fine to medium Sand & Gravel, trace silt, cobbles, boulders
10		5	12"	10'0" - 12'0"	31-38-35-43		
							Brown, f-m Sand & Gravel, little silt, cobbles, dry (OUTWASH)
15		6	10"	15'0" - 17'0"	37-63-44-52		
20		7	10"	20'0"– 22'0"	23-24-31-37		Same, wet
							End of boring at 22 ft Water encountered at 19 ft
25							
30							
35							

Notes: Hollow Stem Auger Size 4-1/4"

Cohesionless: 0 - 4 V. Loose, 4 - 10 Loose, 10 -30 M Dense, 30 -50 Dense, 50+ V Dense.
Cohesive: 0 -2 V Soft, 2 -4 Soft, 4 -8 M 8 -15 Stiff, 15 -30 V. Stiff, 30 + Hard.

Trace	0 to 10%
Little	10 to 20%
Some	20 to 35%
And	35% to 50%

	CASING	SAMPLE	CORE TYPE
ID SIZE (IN)		SS	
HAMMER WGT (LB)		140 lb.	
HAMMER FALL (IN)		30"	

TEST BORING LOG

SHEET 2

Soil Exploration Corp. Geotechnical Drilling Groundwater Monitor Well 148 Pioneer Drive Leominster, MA 01453 978 840-0391	**Proposed Building** **Site 334 Cambridge Street** **Allston, MA.**	BORING B-2 PROJECT NO. 18-0314 DATE: March 12, 2018

Ground Elevation:
Date Started: March 9, 2018
Date Finished: March 9, 2018
Driller: TF
Soil Engineer/Geologist:

GROUNDWATER OBSERVATIONS

DATE	DEPTH	CASING	STABILIZATION
3/9/18	19 ft	n/a	

Depth Ft.	Casing bl/ft	Sample No.	Pen/Rec	Depth	Blows/6"	Strata	Visual Identification of Soil and / or Rock Sample
						2"	Asphalt
1		1	10"	0'6 – 2'6"	6-7-10-11		Dark Brown, fine to medium Sand & Gravel, little silt (FILL)
		2	12"	2'6" – 4'6"	12-8-18-24	4'6"	
5		3	7"	5'0"- 7'0"	12-18-22-20		Brown, f-c Sand & Gravel, trace silt, dry
		4	8"	7'0" - 9'0"	14-19-26-23		(OUTWASH)
10		5	8"	10'0" - 12'0"	21-37-46-49		Brown, fine to coarse Sand & Gravel, trace silt w/ cobbles, boulders
15		6	8"	15'0" - 17'0"	28-46-37-54		Brown, f-c Sand & Gravel, little silt
20		7	8"	20'0"– 21'6"	28-26-83		Sand & Gravel, wet
							End of boring at 21'6" Water encountered at 19 ft
25							
30							
35							

Notes: Hollow Stem Auger Size 4-1/4"

Cohesionless: 0 - 4 V. Loose, 4 - 10 Loose, 10 -30 M Dense, 30 -50 Dense, 50+ V Dense.
Cohesive: 0 -2 V Soft, 2 -4 Soft, 4 -8 M 8 -15 Stiff, 15 -30 V. Stiff, 30 + Hard.

Trace	0 to 10%
Little	10 to 20%
Some	20 to 35%
And	35% to 50%

	CASING	SAMPLE	CORE TYPE
ID SIZE (IN)		SS	
HAMMER WGT (LB)		140 lb.	
HAMMER FALL (IN)		30"	

TEST BORING LOG

SHEET 3

Soil Exploration Corp.
Geotechnical Drilling
Groundwater Monitor Well
148 Pioneer Drive
Leominster, MA 01453
978 840-0391

Proposed Building
Site 334 Cambridge Street
Allston, MA.

BORING B-3/OW

PROJECT NO. 18-0314

DATE: March 20, 2018

Ground Elevation:
Date Started: March 19, 2018
Date Finished: March 19, 2018
Driller: TF
Soil Engineer/Geologist:

GROUNDWATER OBSERVATIONS

DATE	DEPTH	CASING	STABILIZATION
3/19/18	14 ft	n/a	

Depth Ft.	Casing bl/ft	Sample No.	Pen/Rec	Sample Depth	Blows/6"	Strata	Visual Identification of Soil and / or Rock Sample
						3"	Asphalt
1		1	8"	0'6 – 2'6"	11-16-24-30		Dark Brown, Sand & Gravel (FILL)
		2	4"	2'6" – 4'6"	18-23-36-40		Brown, fine to coarse Sand & Gravel, trace silt, cobbles
5		3	3"	5'0"- 7'0"	19-23-22-21		Dark Brown, f-m Sand, little gravel, little silt (POSSIBLE FILL)
		4	12"	7'0" - 9'0"	10-11-8-16		
10		5	4"	10'0" - 12'0"	25-24-43-68		Brown, fine to coarse Sand & Gravel, trace silt, cobbles, boulder
							(OUTWASH)
15		6	10"	15'0" - 17'0"	21-23-31-37		Brown, fine to coarse Sand & Gravel, trace silt, cobbles, boulder
20		7	10"	20'0"– 22'0"	24-21-29-43		End of boring at 22 ft Water encountered at 14 ft Well set at 20 ft
25							
30							
35							

Notes: Hollow Stem Auger Size 4-1/4"

Cohesionless: 0 - 4 V. Loose, 4 - 10 Loose, 10 -30 M Dense, 30 -50 Dense, 50+ V Dense.
Cohesive: 0 -2 V Soft, 2 -4 Soft, 4 -8 M 8 -15 Stiff, 15 -30 V. Stiff, 30 + Hard.

Trace	0 to 10%
Little	10 to 20%
Some	20 to 35%
And	35% to 50%

	CASING	SAMPLE	CORE TYPE
ID SIZE (IN)		SS	
HAMMER WGT (LB)		140 lb.	
HAMMER FALL (IN)		30"	

Allston Square Development, Allston
Subsection II
16 Highgate Street

Table of Contents

<u>Appendices</u>

1.0 PROJECT SUMMARY / OVERVIEW

1.1 Introduction

16 Highgate Street is part of the Allston Square Development Project in the Allston Square section of Allston. The overall project includes a six-building mixed-use development that is approximately 361,800 gross square feet in size. The Proposed Project will include three hundred and thirty-four residential units, two hundred and thirty-seven associated parking spaces, and approximately 22,145 square feet of retail space. **Please see Figure II.1. <u>Project Locus Map</u> and Figure II.2. <u>16 Highgate Street Breakdown.</u>**

The 16 Highgate Street portion of the project includes demolishing the existing three-family structure and erecting a five-story building with twenty residential units and six parking spaces. The overall gross square footage of the building will be approximately 17,605 square feet, with a floor to area ratio of 2.12, and a parking ratio of .30.

The 16 Highgate Street lot is 8,300 square feet. The lot is located on Highgate Street to the south of Cambridge Street and adjacent to the proposed six-story development building at 334 Cambridge Street. The property abuts five-story residences to the rear on Linden Street and a two and a half story residential building to the left along Highgate Street.

Figure II.1
Project Locus Map

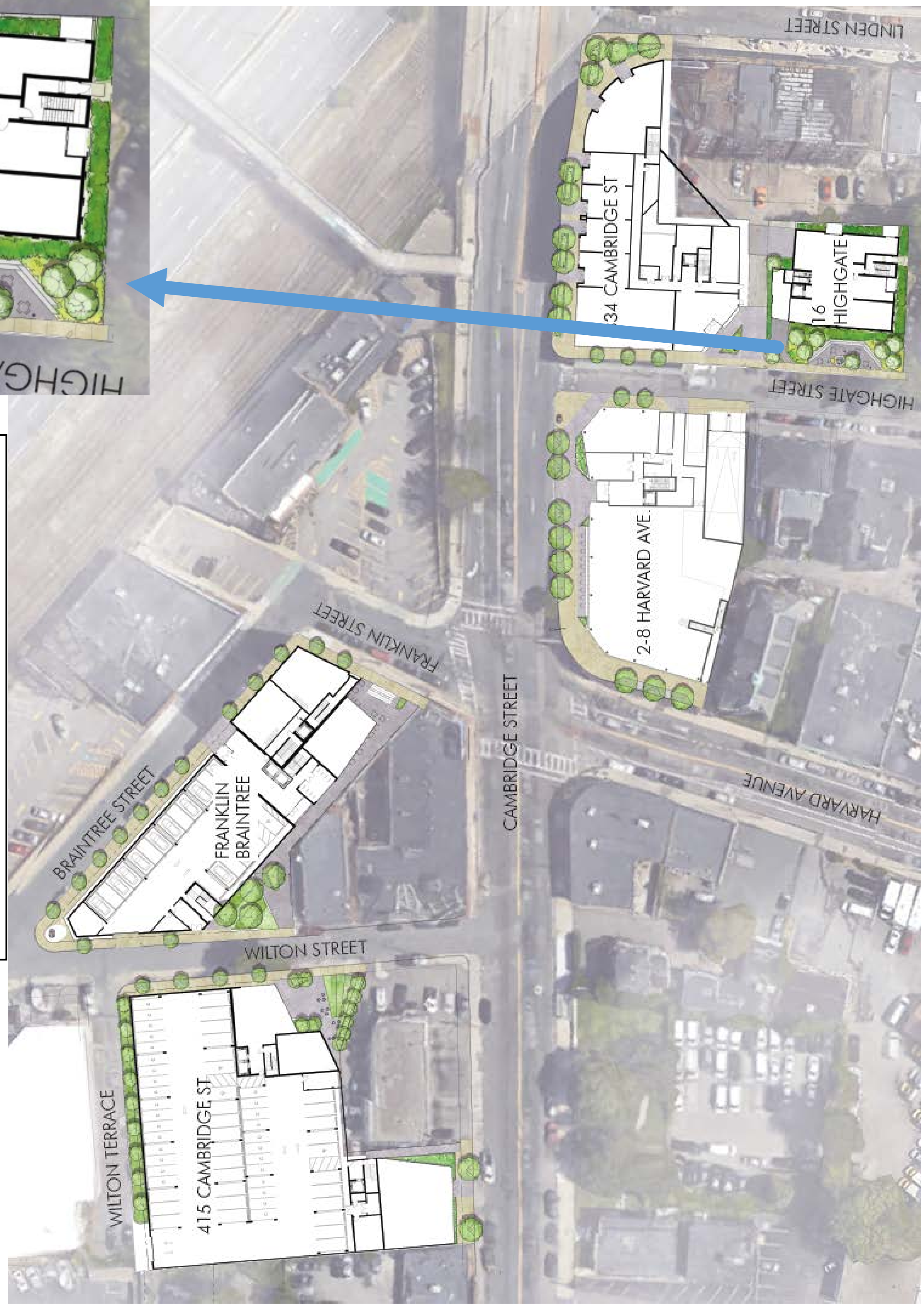


Figure II.2
16 Highgate Street Breakdown

Table II.3. Approximate Project Dimensions of 16 Highgate Street

Lot Area:	8,300
Gross Square Feet:	17,605
Units:	20 Rental
Parking:	6 Spaces
Retail:	0 Sq. Ft.
FAR:	2.12
Height:	5 Stories/49’

2.0 GENERAL INFORMATION

2.1 Public Benefits

The Proposed Project will provide substantial benefits to the City of Boston and the Allston-Brighton community. The Proposed Project will generate both direct and indirect economic and social benefits to the Allston-Brighton neighborhood. The Proposed Project provides for:

- Generating much needed market rate residential housing in the Allston-Brighton Neighborhood.
- Meeting the BPDA's inclusionary zoning regulations by creating on-site affordable residential units, which will meet the Boston Planning & Development Agency's affordable housing standards.
- Creating twenty residential units.
- Creating a diverse mixture of units including studios, one-bedroom units, and two-bedroom units.
- Revitalizing an underutilized parcel and replacing the current three-family structure with modern and energy efficient housing and retail space.
- Meeting LEED standards by constructing a building that will incorporate open space in the form of decking and terraces, and energy-efficient appliances, which will result in a high LEED standard for the Project.
- Integrating parking facilities that will accommodate six parking spaces for the unit residents.
- Encouraging alternative modes of transportation through the use of bicycling and walking, due to the close proximity of the bus lines and the Boston Landing MBTA Station.
- Adding revenue in the form of property taxes to the City of Boston.
- Creating temporary construction and labor jobs.
- Proposing nine new street trees.
- Creating additional open space at the ground level.
- Creating new and improved sidewalk space to accommodate general foot traffic and to promote an active pedestrian walkway.

- Creating dedicated art spaces to pay homage to the rich artist heritage of Allston Square.

2.2 Compliance with Boston Zoning Code – Use and Dimensional Requirements

16 Highgate Street is located within in the Allston-Brighton Neighborhood District, Article 51 of the Boston Zoning Code (the "Code"). Specifically, the property is located within a Three-Family Residential Subdistrict. **See Tables II.4**.

Multi-Family Residential Uses are forbidden within a Three-Family Residential Subdistrict. Therefore, a use variance would need to obtained from the City of Boston Zoning Board of Appeal ("Board"). Additionally, any dimensional regulations that are not adhered to within the project will require variances from the Board.

For a project that is subject to Article 80 Large Project Review, required off-street parking spaces and off-street loading facilities will be determined as a part of the Large Project Review process in accordance with the provisions of Article 80 of the Boston Zoning Code. Design elements of the project will also be reviewed, in accordance with the Article 80 Review process.

The Site is located in an area that contains both residential and commercial uses. The design team feels that given this location, and the structures influencing the design, as well as comparable developments in the neighborhood, that the proposed building heights, massing and scale are appropriate for this location and conducive to the Allston-Brighton neighborhood.

Table II.4. 16 Highgate Street - Dimensional Regulations

Categories	3F-4,000 Subdistrict	Current Proposal
Minimum Lot Area (Square Feet)	4,000 for 1 or 2 Units	8,300
Additional Lot Required Per Additional Dwelling Unit (Square Feet)	2,000 (36,000)	4,300
Floor Area Ratio	.80	2.12
Minimum Lot Width	45	90 Feet
Minimum Lot Frontage	45	89 Feet
Minimum Front Yard	20 Feet	25 Feet
Minimum Side Yard	5 Feet From Side Lot Line 10 Feet From Existing Structure Aggregate Must Not Be Less Than 15 Feet	3 Feet/5 Feet
Minimum Rear Yard	30 Feet	0
Maximum Building Height	35 Feet 3 Stories	49 Feet
Minimum Useable Open Space Per Dwelling Unit (Square Feet)	650 S.F. Per Unit	117 S.F. Per Unit
Maximum Rear Occupancy By An Accessory Building	25 Percent	0
Off-Street Parking Spaces	2.0 Spaces Per Unit (40)	6

3.0 URBAN DESIGN AND SUSTAINABILITY

3.1 Site and Surroundings

16 Highgate Street is located to the south of Cambridge Street and adjacent to the proposed six (6)-story development building at 334 Cambridge Street. Abutting the site to the north and east is an alleyway and a parking area, which separate the site from five (5)-story residences to the east on Linden Street and 334 Cambridge Street to the north. To the South of the site are several 2.5-story residences. Across Highgate Street (to the west) stand three (3) and four (4)-story residential buildings as well as the site for the six (6)-story development building at 2-8 Harvard Avenue.
The area of the site is approximately 8,300 SF and exhibits a pronounced grade change, sloping from 'front' (low) to 'back' (high) of site. The land exhibits pronounced separation from abutting public ways and private property via grade change, retaining walls, and a chain-link fence. The property is currently occupied by a three (3)-story residential building, sided with clapboard, wooden pilasters and trim-work. **For existing site pictures see Appendix II.1.**

3.2 Urban Design Review

Assuming a height of forty-nine (49) above grade, the proposed four (4)-story project adopts an intermediary role between the proposed six (6)-story development building at 334 Cambridge Street to the north and the smaller neighborhood buildings abutting to the south. This mediation is evident in both the material and massing strategies employed in the building's design. The exterior building "skin" will be a combination of brick, cedar, and glass fenestration. The brick is meant to resonate with the existing neighborhood context of the project, while the natural cedar wood provides a warmth and tactility perceived to be appropriate in residential projects. Volumetrically, the building 'pulls back' on the top floor of the south side of the building, resulting in a 'stepping down' of the building from north to south, which corresponds with the transitional nature of the site. This move also lessens the perceivable mass of the building from Highgate Street. Furthermore, in consulting neighborhood committees, and in accordance with the overall project's urban agenda, the proposed building assumes a gracious setback from Highgate Street, allowing for the presence of publicly accessible green space and providing an opportunity for the installation of urban artwork for public enjoyment. The sidewalks are also widened to eight (8) feet along the entirety of its street frontage.

3.3 Building Design Review

The proposed development building at 16 Highgate Street is a four (4)-story residential building, consisting of four (4) levels of multi-family housing (20 rental units total) over one level of parking located below grade. The natural sloping of the site allows for access to the parking garage from the abutting alleyway; this Parking Garage accommodates six (6) parking spaces. The Lobby of the building is located at the northeastern corner of the site, off of a shared plaza between 16 Highgate and the adjacent 334 Cambridge Street development building. No retail space is included in this project.

The building itself is expressed as a cube-like cedar volume housed within a perforated red-brick skin (see Appendix), both of which are anchored by a grey-brick base. The use of red-brick to the third-story acknowledges the existing fabric and scale present immediately across Highgate Street, while the inclusion of a wooden "residential container" signifies the addition of new to old. The structural responsibility of the brick exterior reinforces the integrative reality of the project: using existing identity to incorporate a new neighborhood inhabitant. Regular openings in the red-brick allow for glimpses of cedar to permeate the building and reveal instances of operable windows, Juliet balconies, and decks. These features, when paired with the proposed green space on site, promote an improved connectivity between inhabitants of site and the surrounding public, to that which is currently offered.

3.4 Landscape Design

The proponent intends to plant nine (9) trees on site; eight (8) occurring along the site's Highgate Street frontage, and one (1) at the garage entry. Additionally, the dimension of the sidewalk along Highgate Street is to be widened according to the Landscape Plan to allow for the occurrence of a pedestrian seating area, which will utilize artful accent lighting and will include an urban art installation that will serve as a canvas for local artists and will be viewable from both street and seating area. All details of flora added to site, including caliper and species, will be approved by the City of Boston Parks and Recreation Commission.

3.5 Urban Design Drawings

The Proposed Project's urban design drawings will include, existing and proposed plot plans, proposed floor plans, elevations, building matrix, building rendering, concept diagram and landscape plan. **To view the full Urban Design Drawings please see Appendix II.2. For the full Accessibility Checklist and Accessibility Diagram please see Appendix II.3.**

4.0 SHADOW STUDY

As typically required by the BPDA, a shadow impact analysis was conducted to investigate shadow impacts from each proposed building during three time periods (9:00 a.m., 12:00 noon, and 3:00 p.m.) during the Vernal Equinox (March 21), Summer Solstice (June 21), Fall Equinox (September 21), and Winter Solstice (December 21).

The shadow analysis presents the existing shadows and new shadows that would be created by the proposed project, illustrating the incremental impact of the project. The analysis focuses on nearby open spaces, sidewalks & streets, and buildings that are in the vicinity of the project site. Shadows have been determined using the applicable Altitude and Azimuth data for Boston. **Figures showing the net new shadow from the project are provided in Appendix II.4 at the end of this section.**

Vernal Equinox (March 21)

At 9:00 a.m. during the Vernal Equinox, new shadow from the project will be cast to the northwest onto a sliver of Highgate Street and adjacent sidewalk. New shadow will be cast on the proposed open outdoor area created on the northwest portion of the site, as well as the alley separating Highgate from 334 Cambridge. The lower section of 334 Cambridge's South façade will also receive a bit of cast shadow.

At 12:00 p.m., new shadow from the project will be cast to the north partially onto the existing alley between the Linden Street and Highgate Street apartment buildings. No new shadow will be cast onto nearby open spaces or buildings.

At 3:00 p.m., new shadow from the project will be cast to the northeast partially onto the existing alley between the Linden Street and Highgate Street apartment buildings. The new shadow will also partially impact the West façade (Rear) of multiple 4-5 story buildings on Linden Street.

Summer Solstice (June 21)

At 9:00 a.m. during the Summer Solstice, new shadow from the project will be cast onto the proposed open outdoor area created on the northwest portion of the site, as well as a small section of the sidewalk directly adjacent to the site.

At 12:00 p.m., new shadow from the project will be cast to the north onto a very small area of the site directly surrounding the building. No new shadow will be cast onto nearby open spaces or buildings.

At 3:00 p.m., new shadow from the project will be cast to the northeast onto a negligible section of the existing alley between the Linden Street and Highgate Street apartment buildings. No new shadow will be cast onto nearby buildings.

Fall Equinox (September 21)

At 9:00 a.m. during the Fall Equinox, new shadow from the project will be cast to the northwest partially onto Highgate's sidewalk. New shadow will be cast onto the proposed open outdoor area created on the northwest portion of the site, as well as the alley separating Highgate from 334 Cambridge. The lower section of the proposed building at 334 Cambridge Street South façade will also receive some of the cast shadow.

At 12:00 p.m., new shadow from the project will be cast to the north partially onto the proposed open outdoor area and a section of the existing alley between the Linden Street and Highgate Street apartment buildings. No new shadow will be cast onto nearby buildings.

At 3:00 p.m., new shadow from the project will be cast to the northeast partially onto the existing alley between the Linden Street and Highgate Street apartment buildings. The new elongated shadow will also partially impact the West façade (Rear) of multiple 4-5 story buildings on Linden Street.

Winter Solstice (December 21)

The Winter Solstice creates the least favorable conditions for sunlight in New England. The sun angle during the Winter is lower than in any other season, causing the shadows in urban areas to elongate and be cast onto large portions of the surrounding area.

At 9:00 a.m. during the Winter Solstice, new shadow from the project will be cast to the northwest onto a section of Highgate Street and it sidewalks. New shadow will be cast onto the proposed open outdoor area created on the northwest portion of the site, as well as the alleyway separating Highgate from 334 Cambridge. The South façade of the proposed building at 334 Cambridge Street will also be affected by the new cast shadows.

At 12:00 p.m., new shadow from the project will be cast to the north partially onto the proposed open outdoor area and a section of the existing alley between the Linden Street and Highgate Street apartment buildings. The South façade of the proposed building at 334 Cambridge Street will also be affected by the new cast shadows.

At 3:00 p.m., new shadow from the project will be cast to the northeast. The entirety of the site’s surrounding context is already in shadows, so the difference between the net new shadow and existing shadow will be negligible.

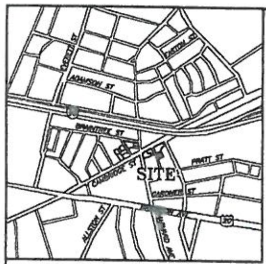
Conclusions

The shadow impact analysis looked at net new shadow created by the project during twelve time periods. New shadow from the project will be mostly limited to the adjacent Highgate Street and sidewalk, the proposed open outdoor area at the northwest corner of the site, and the existing alley to the rear. The shadows cast by the proposed building will have little to no impact on the buildings directly adjacent to it, except during late afternoon times.

5.0 GEOTECHNICAL INFORMATION

A Geotechnical study was conducted by KMM Geotechnical Consultants, LLC for the proposed development. A full report was produced for the proposed 16 Highgate Street site. **The full result of this Geotechnical Study is located in Appendix II.5.**

16 Highgate Street



VICINITY SKETCH
SCALE: NTS

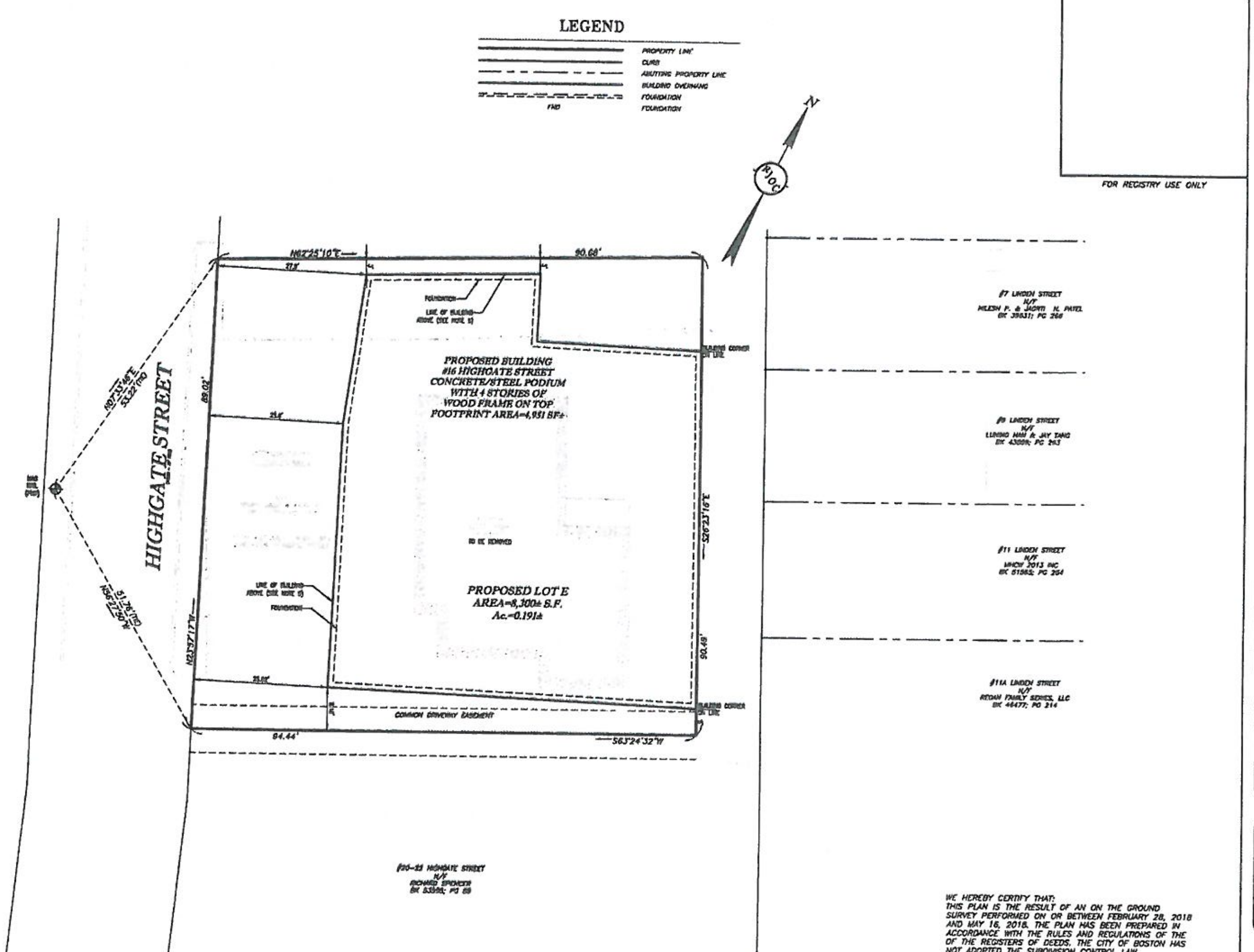
NOTES

1. THIS PLAN WAS PREPARED FROM AN ACTUAL SURVEY MADE ON THE GROUND USING TOTAL STATION METHODS BETWEEN 02/28/2018 AND 03/28/2018.
2. THE HORIZONTAL DATUM IS NORTH AMERICAN DATUM OF 1983 (NAD '83). DATUM WAS ESTABLISHED USING RTK GPS METHODS.
3. THE POSITIONAL ACCURACY OF THE DATA AND PHYSICAL IMPROVEMENTS ON THIS PLAN MAY BE APPROXIMATE. ANY USE OF ELECTRONIC DATA CONTAINED IN AUTOCAD VERSIONS OF THIS PLAN TO GENERATE COORDINATES OR DIMENSIONS NOT SHOWN ON THE PLAN IS NOT AUTHORIZED.
4. THE PARCEL SHOWN IS LOCATED IN ZONE X, AS SHOWN ON "FLOOD INSURANCE RATE MAP, SUFFOLK COUNTY, BOSTON MASSACHUSETTS," MAP NUMBER 25025C0057G, EFFECTIVE DATE SEPTEMBER 25, 2009.
5. "LINE OF BUILDING ABOVE" REPRESENTS THE OUTERMOST FACE OF THE PROPOSED BUILDING ABOVE THE FOUNDATION.

REFERENCES

PLAN BOOK AND PAGES REFERENCE THE SUFFOLK COUNTY REGISTRY OF DEEDS

- BK. 6198/PG. 570
- BK. 58289/PG. 169
- BK. 63595/PG. 89



WE HEREBY CERTIFY THAT:
THIS PLAN IS THE RESULT OF AN ON THE GROUND SURVEY PERFORMED ON OR BETWEEN FEBRUARY 28, 2018 AND MAY 16, 2018. THE PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE RULES AND REGULATIONS OF THE OF THE REGISTERS OF DEEDS. THE CITY OF BOSTON HAS NOT ADOPTED THE SUBDIVISION CONTROL LAW.

COMMONWEALTH OF MASSACHUSETTS
KEVIN J. KIERNAN
No. 40038
PROFESSIONAL LAND SURVEYOR

6/10/18

PROFESSIONAL LAND SURVEYOR FOR RJ O'CONNELL & ASSOCIATES, INC — DATE

DIG SAFE
BEFORE YOU DIG
CALL 811

No.	Revision	Date

Record Owner:
SEE PLAN

Location:
16 HIGHGATE STREET
ALLSTON SQUARE
BOSTON (ALLSTON) MA

Drawn by:	MSM
Checked by:	KJK
Scale:	1"=10'
Date:	05/18/2018
Field Crew:	TDB/RJK
Field Book:	BK. XX PG. X

Prepared for:
CITY REAL ESTATE DEVELOPMENT CORP.
320 WASHINGTON ST
SUITE 3FF
BROOKLINE, MA 02446

Prepared by:
RJO'CONNELL & ASSOCIATES, INC.
CIVIL ENGINEERS, SURVEYORS & LAND PLANNERS
80 MONTVALE AVE
STONEHAM, MA 02180
781-279-0180
www.rjoconnell.com

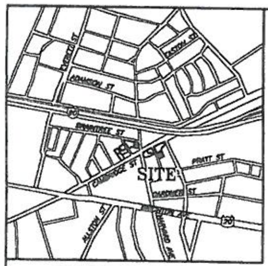
Project Name:
ALLSTON SQUARE
BOSTON (ALLSTON) MA

Drawing Name:
CERTIFIED PLOT PLAN PROPOSED LOT E

Drawing No.:
CPP-5

Project No.: 18018

Drawing name: G:\City Real Estate Development Corp\Projects\Allston\Allston Square\Work\18018_Cert_Plot_Plan.dwg May 18, 2018 - 14:26pm



VICINITY SKETCH
SCALE: NTS

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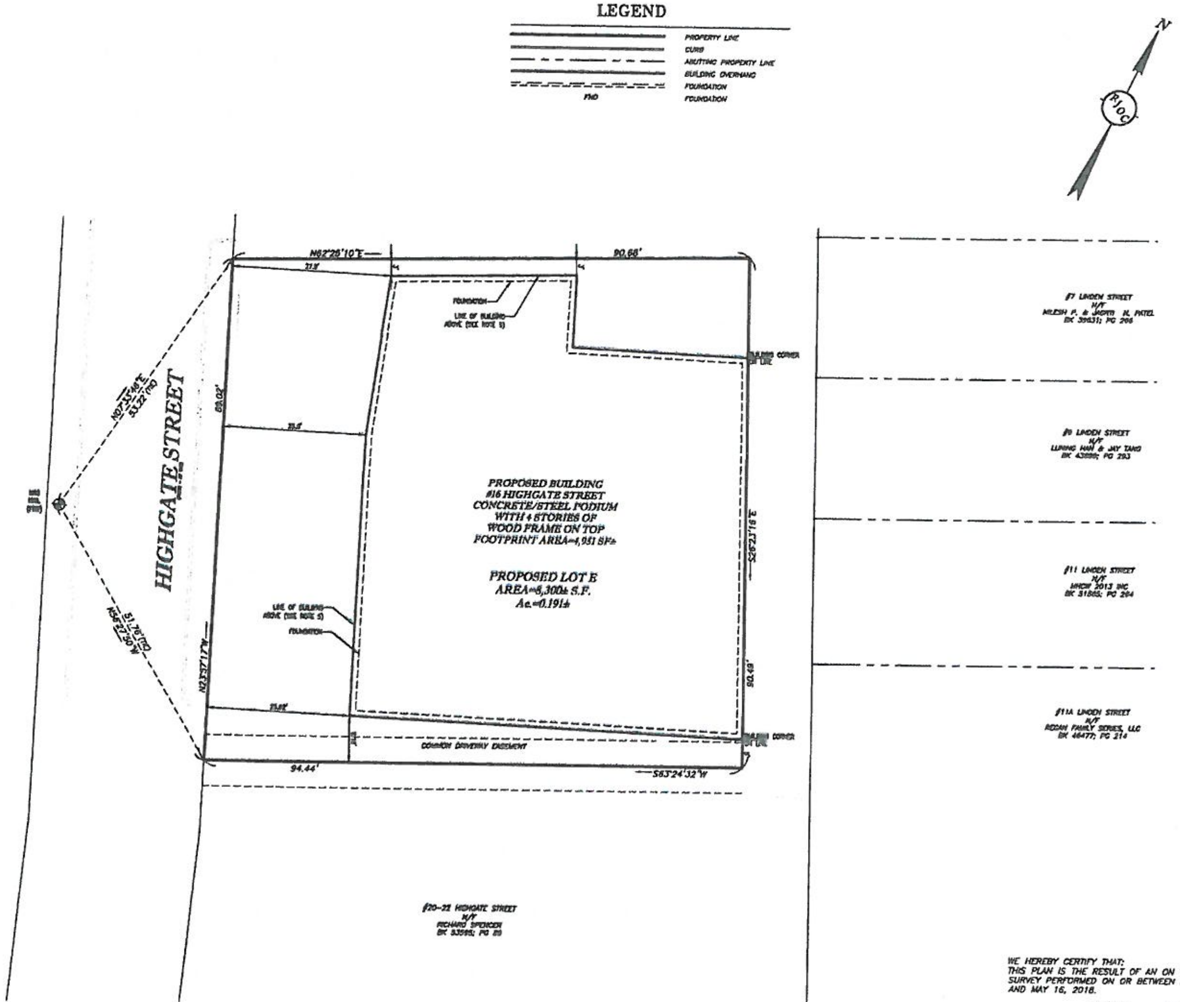
- BK. 58259/PG. 169
- BK. 53595/PG. 69

LEGEND

- PROPERTY LINE
- CURB
- ABUTTING PROPERTY LINE
- BUILDING OVERHANG
- FOUNDATION
- FND FOUNDATION



WE HEREBY CERTIFY THAT:
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KEVIN J. KIERNAN No. 40038

KJK 5/18/18

PROFESSIONAL LAND SURVEYOR FOR RJ O'CONNELL & ASSOCIATES, INC — DATE

10 0 5 10 20
GRAPHIC SCALE IN FEET

DIG SAFE
BEFORE YOU DIG
CALL 811

No.	Revision	Date

Record Owner:
SEE PLAN

Location:
16 HIGHGATE STREET
ALLSTON SQUARE
BOSTON (ALLSTON) MA

Drawn by:	MSM
Checked by:	KJK
Scale:	1"=10'
Date:	05/18/2018
Field Crew:	TDR/AJK
Field Book:	BK. XX PG. X

Prepared for:
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320 WASHINGTON ST
SUITE 3FF
BROOKLINE, MA 02445

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Project Name:
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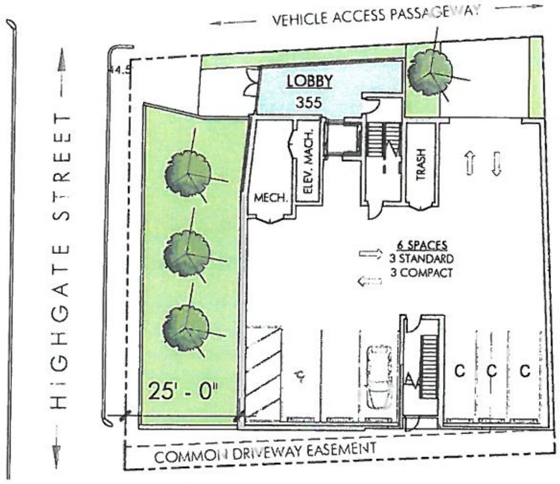
BOSTON (ALLSTON) MA

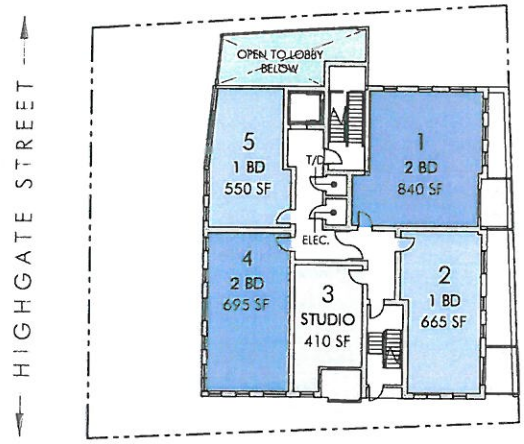
Drawing Name:
CERTIFIED PLOT PLAN PROPOSED LOT E

Drawing No.:
PROPERTY EXHIBIT
Project No.: 18018

Drawing name: Q:\City Real Estate Development Corp\Projects\Allston\Allston Square\Dwg\18018_Property_Exhibit.dwg
May 18, 2018 – 1:41pm

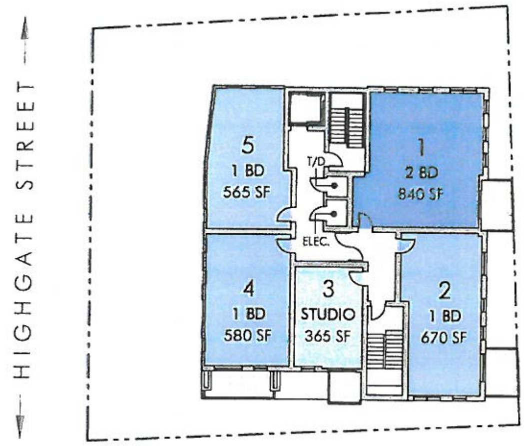


PARKING AND LOBBY PLAN | Scale: 1″ = 40′



2ND FLOOR PLAN | Scale: 1″ = 40′

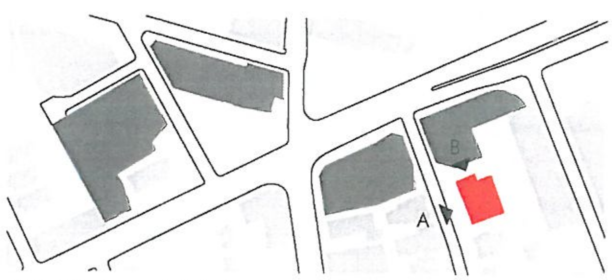
3RD & 4TH FLOOR PLAN | Scale: 1″ = 40′



5TH FLOOR PLAN | Scale: 1″ = 40′

A - HIGHGATE STREET ELEVATION | Scale: 1" = 40'

B - NORTH ELEVATION | Scale: 1" = 40'



PROJECT KEY

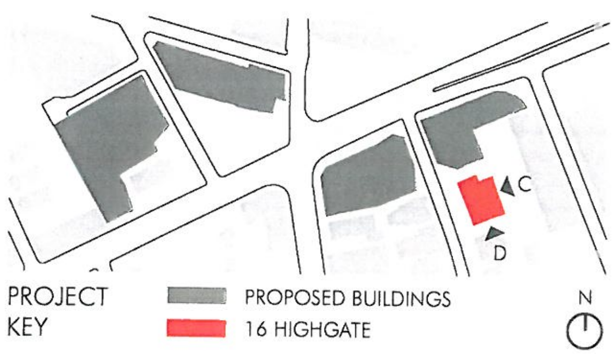
PROPOSED BUILDINGS

16 HIGHGATE

N

C - REAR ELEVATION | Scale: 1" = 40'

D - SOUTH ELEVATION | Scale: 1" = 40'



EMBARC

16 HIGHGATE ST

UNIT MATRIX
April 10, 2018

GROSS SQUARE FEET (GSF)

		SELLABLE | RENTABLE GSF		COMMON	GSF
GROUND FLOOR				STAIRS | ELEV.	505
				MECH | TRASH	535
				LOBBY	355
FLOOR SUBTOTAL		0			1,395
LEVEL 2 (5 UNITS)	UNIT 201	840	2 BR	HALL | STAIRS | ELEV.	950
	UNIT 202	665	1 BR		
	UNIT 203	410	ST		
	UNIT 204	695	2 BR		
	UNIT 205	550	1 BR		
FLOOR SUBTOTAL		3,160			950
LEVEL 3 (5 UNITS)	UNIT 301	840	2 BR	HALL | STAIRS | ELEV.	915
	UNIT 302	670	1 BR		
	UNIT 303	410	ST		
	UNIT 304	700	2 BR		
	UNIT 305	550	1 BR		
FLOOR SUBTOTAL		3,170			915
LEVEL 4 (5 UNITS)	UNIT 401	840	2 BR	HALL | STAIRS | ELEV.	915
	UNIT 402	670	1 BR		
	UNIT 403	410	ST		
	UNIT 404	700	2 BR		
	UNIT 405	550	1 BR		
FLOOR SUBTOTAL		3,170			915
LEVEL 5 (5 UNITS)	UNIT 501	840	2 BR	HALL | STAIRS | ELEV.	910
	UNIT 502	670	1 BR		
	UNIT 503	365	ST		
	UNIT 504	580	1 BR		
	UNIT 505	565	1 BR		
FLOOR SUBTOTAL		3,020			910
RESIDENTIAL SELLABLE GSF		12,520		COMMON AREA GSF	5,085

BUILDING GSF		
GROUND FLOOR	1,395	(Parking not incl.)
SECOND FLOOR	4,110	
THIRD FLOOR	4,085	
FOURTH FLOOR	4,085	
FIFTH FLOOR	3,930	
TOTAL BUILDING GSF	17,605	
SITE	8,300	
FAR	2.12	
GROUND FLOOR PARKING	3,575	
TOTAL SF	21,180	
LOT COVERAGE	60%	

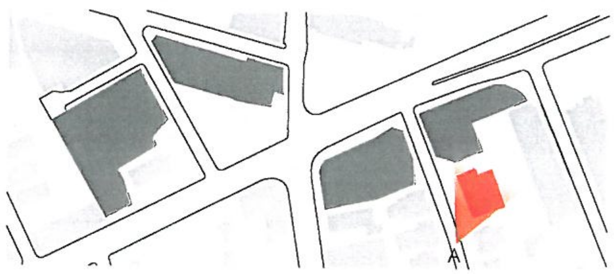
UNIT BREAKDOWN:		AVERAGE SIZE
STUDIO	4	399
1 BED	9	608
2 BED	7	779
TOTAL UNITS	20	626

PARKING SPACES	6
PARKING/UNIT RATIO	0.30

GSF: measured to outside face of exterior walls, centerline of party walls and demising walls

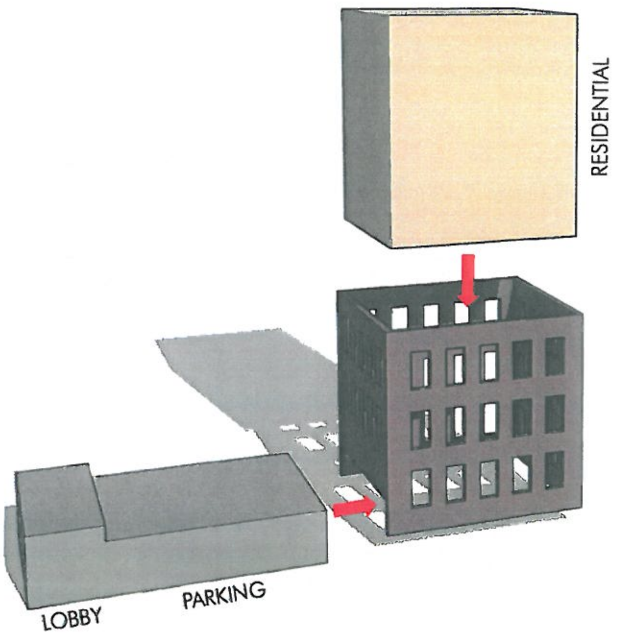
P:\16118_16 Highgate St\documents\program\041018\16118_16 Highgate Street_Unit Breakdown_041018

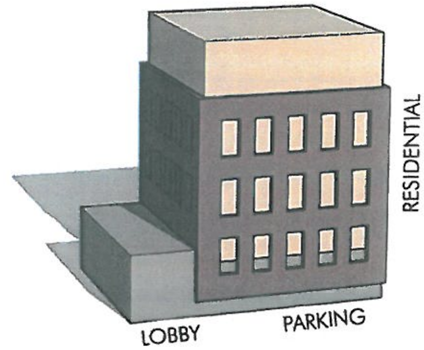
A - HIGHGATE STREET PERSPECTIVE



PERSPECTIVE KEY N

16 HIGHGATE STREET





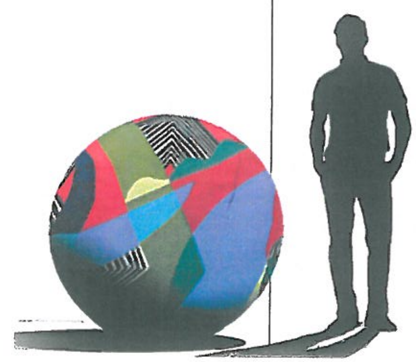
1.THE PROJECT CONSISTS OF THREE MAIN ELEMENTS, TWO PROGRAMMATIC VOLUMES, AND A PERFORATED BRICK SKIN. THE BRICK SKIN IS CHOSEN AS A REPRENTATIVE OF THE EXISTING BUILDINGS IN THE IMMEDIATE NEIGHBORHOOD.

2. THE PROJECT ESTABLISHES HEIRARCHY BETWEEN THE PROGRAMMATIC CONTAINERS (RESIDENTIAL AND LOBBY/PARKING), AND THE BRICK SKIN BY UTILIZING THE LATTER TO ORGANIZE THE FORMER TWO, AND TO PERFORM THE STRUCTURAL ROLE FOR THE PROJECT. THE PERFORATION IN THE BRICK SKIN REINFORCES THIS RELATIONSHIP, ALLOWING THE VOLUMES BEHIND TO PERMEATE THE PROJECT. THIS EXPRESSION IS A NOD TO THE INTRODUCTION AND INTEGRATION OF NEW INHABITANTS TO AN ESTABLISHED NEIGHBORHOOD.

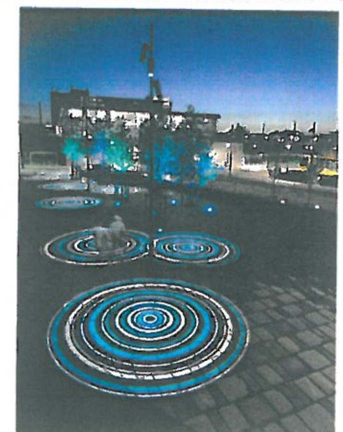
URBAN DESIGN IMPROVEMENTS

16 HIGHGATE STREET

- Curbed Planter
- Pocket Park
- Allston Art Sphere
- Stepped Landscape Element
- Seating
- Planter Beds at Garage Entry



Concrete Sphere that serves as canvas for local artists



Artful Accent Lighting

16 HIGHGATE STREET

Accessibility Checklist

(to be added to the BRA Development Review Guidelines)

In 2009, a nine-member Advisory Board was appointed to the Commission for Persons with Disabilities in an effort to reduce architectural, procedural, attitudinal, and communication barriers affecting persons with disabilities in the City of Boston. These efforts were instituted to work toward creating universal access in the built environment.

In line with these priorities, the Accessibility Checklist aims to support the inclusion of people with disabilities. In order to complete the Checklist, you must provide specific detail, including descriptions, diagrams and data, of the universal access elements that will ensure all individuals have an equal experience that includes full participation in the built environment throughout the proposed buildings and open space.

In conformance with this directive, all development projects subject to Boston Zoning Article 80 Small and Large Project Review, including all Institutional Master Plan modifications and updates, are to complete the following checklist and provide any necessary responses regarding the following:

- improvements for pedestrian and vehicular circulation and access;
- encourage new buildings and public spaces to be designed to enhance and preserve Boston's system of parks, squares, walkways, and active shopping streets;
- ensure that persons with disabilities have full access to buildings open to the public;
- afford such persons the educational, employment, and recreational opportunities available to all citizens; and
- preserve and increase the supply of living space accessible to persons with disabilities.

We would like to thank you in advance for your time and effort in advancing best practices and progressive approaches to expand accessibility throughout Boston's built environment.

Accessibility Analysis Information Sources:

1. Americans with Disabilities Act – 2010 ADA Standards for Accessible Design
    a. http://www.ada.gov/2010ADAstandards_index.htm
2. Massachusetts Architectural Access Board 521 CMR
    a. http://www.mass.gov/eopss/consumer-prot-and-bus-lic/license-type/aab/aab-rules-and-regulations-pdf.html
3. Boston Complete Street Guidelines
    a. http://bostoncompletestreets.org/
4. City of Boston Mayors Commission for Persons with Disabilities Advisory Board
    a. http://www.cityofboston.gov/Disability
5. City of Boston – Public Works Sidewalk Reconstruction Policy
    a. http://www.cityofboston.gov/images_documents/sidewalk%20policy%200114_tcm3-41668.pdf
6. Massachusetts Office On Disability Accessible Parking Requirements
    a. www.mass.gov/anf/docs/mod/hp-parking-regulations-mod.doc
7. MBTA Fixed Route Accessible Transit Stations
    a. http://www.mbta.com/about_the_mbta/accessibility/

Project Information

Project Name:	ALLSTON SQUARE
Project Address Primary:	16 Highgate Street, Boston, MA 02134
Project Address Additional:	
Project Contact (name / Title / Company / email / phone):	Jeffrey Drago, Esq. / Drago & Toscano, LLP / jdrago@dtlawllp.com / 617.391.9450

Team Description

Owner / Developer:	CRM Property Development Corp.
Architect:	Embarc Studio LLC.
Engineer (building systems):	TBD
Sustainability / LEED:	Soden Sustainability Consulting
Permitting:	Drago & Toscano, LLP
Construction Management:	TBD

Project Permitting and Phase

At what phase is the project – at time of this questionnaire?

PNF / Expanded PNF Submitted	Draft / Final Project Impact Report Submitted	BRA Board Approved
BRA Design Approved	Under Construction	Construction just completed:

Building Classification and Description

What are the principal Building Uses - select all appropriate uses?

Residential – One to Three Unit	Residential - Multi-unit, Four +	Institutional	Education
Commercial	Office	Retail	Assembly
Laboratory / Medical	Manufacturing / Industrial	Mercantile	Storage, Utility and Other

First Floor Uses (List): *Residential Lobby*

What is the Construction Type – select most appropriate type?

Wood Frame	Masonry	Steel Frame	Concrete

Describe the building?

Site Area:	*8,300 SF*	Building Area:	*17,890 SF*
Building Height:	*49 Ft. 0 inches*	Number of Stories:	*5 Flrs.*
First Floor Elevation:	*0' Elev.*	Are there below grade spaces:	*Yes*

Assessment of Existing Infrastructure for Accessibility:

This section explores the proximity to accessible transit lines and proximate institutions such as, but not limited to hospitals, elderly and disabled housing, and general neighborhood information. The proponent should identify how the area surrounding the development is accessible for people with mobility impairments and should analyze the existing condition of the accessible routes through sidewalk and pedestrian ramp reports.

Provide a description of the development neighborhood and identifying characteristics.	The proposed site is in the Allston neighborhood of Boston, situated between Ringer Park to the south, the Honan-Allston branch public library to the north, a major shopping plaza to the west (which includes a super Stop & Shop and Homegoods store among others), and Boston University to the East; all of which are located within a ½ mile radius. The current neighborhood is primarily a mixed-used of multi-family residential developments and retail/commercial buildings. Directly adjacent to site, the main road (Cambridge Street) is flanked by retail stores, which makes it a busy, high-traffic area.

List the surrounding ADA compliant MBTA transit lines and the proximity to the development site: Commuter rail, subway, bus, etc.	**¼ mile Radius:** Cambridge Street @ Franklin Street (Bus 64, 66, 501, 503) / Cambridge Street @ Linden Street (Bus 64, 66, 501, 503, 9701, 9702, 9703) / Brighton Avenue @ Allston Street (Bus 57, 66, 57A). **½ mile Radius:** Harvard Avenue Station (Green Line – B Train) / Griggs Street Station (Green Line – B Train) / Packard's Corner Station (Green Line – B Train).
List the surrounding institutions: hospitals, public housing and elderly and disabled housing developments, educational facilities, etc.	**Hospitals:** Steward Health Care (South West, ¾ mile Radius), Franciscan Children's Hospital (South West, ¾ mile Radius), Boston Orthopedic & Sports Med (South West, ¾ mile Radius), Arbour HRI Hospital (East, ¾ mile Radius), Brigham & Women's Hospital (East, 1 mile Radius). **Educational Facilities:** The Learning Tree Preschool/Daycare (South, ¼ mile Radius), Gardner Pilot Academy Elementary School (North, ½ mile Radius), Bright Horizons Preschool (East, ½ mile Radius), Jackson/Mann K-8 School (South, ½ mile Radius), Horace Mann School for the Deaf (South, ½ mile Radius), Boston Theological Institute (North, ¾ mile Radius), Boston University (East, ¾ mile Radius). **Public Housing:** Glenville Avenue Apartments (South, ½ mile Radius), Commonwealth Avenue Housing (South, ½ mile Radius), Charlesview Inc (North, ¾ mile Radius), Governor Apartments (South, ¾ mile Radius), Comaven Apartments (South, ¾ mile Radius). **Elderly/Disabled Housing:** Brighton-Allston Elderly (North, ½ mile Radius).
Is the proposed development on a priority accessible route to a key public use facility? List the surrounding: government buildings, libraries, community centers and recreational facilities and other related facilities.	**Government Buildings:** Boston Fire Department Engine 41 (South, ¼ mile Radius). **Library:** Honan-Allston Branch Public Library (North East, ½ mile Radius). **Community Center:** Jackson Mann Community Center (South West, ½ mile Radius). **Recreational Facility:** Penniman Road Play Area (West, ¼ mile Radius), Ringer Park (South, ½ mile Radius), Commonwealth Sports Club (East, ½ mile Radius).

Surrounding Site Conditions – Existing:

This section identifies the current condition of the sidewalks and pedestrian ramps around the development site.

Are there sidewalks and pedestrian ramps existing at the development site?	Yes.
If yes above, list the existing sidewalk and pedestrian ramp materials and physical condition at the development site.	Existing sidewalks are concrete with granite curbs, both in acceptable condition.
Are the sidewalks and pedestrian ramps existing-to-remain? If yes,	TBD

have the sidewalks and pedestrian ramps been verified as compliant? If yes, please provide surveyors report.	
Is the development site within a historic district? If yes, please identify.	No.

Surrounding Site Conditions – Proposed

This section identifies the proposed condition of the walkways and pedestrian ramps in and around the development site. The width of the sidewalk contributes to the degree of comfort and enjoyment of walking along a street. Narrow sidewalks do not support lively pedestrian activity, and may create dangerous conditions that force people to walk in the street. Typically, a five foot wide Pedestrian Zone supports two people walking side by side or two wheelchairs passing each other. An eight foot wide Pedestrian Zone allows two pairs of people to comfortable pass each other, and a ten foot or wider Pedestrian Zone can support high volumes of pedestrians.

Are the proposed sidewalks consistent with the Boston Complete Street Guidelines? See: www.bostoncompletestreets.org	Yes.
If yes above, choose which Street Type was applied: Downtown Commercial, Downtown Mixed-use, Neighborhood Main, Connector, Residential, Industrial, Shared Street, Parkway, Boulevard.	The proposed development is bordered by Highgate Street (West). **STREET TYPES:** - Highgate Street falls under the **Neighborhood Residential** category.
What is the total width of the proposed sidewalk? List the widths of the proposed zones: Frontage, Pedestrian and Furnishing Zone.	TBD
List the proposed materials for each Zone. Will the proposed materials be on private property or will the proposed materials be on the City of Boston pedestrian right-of-way?	TBD
If the pedestrian right-of-way is on private property, will the proponent seek a pedestrian easement with	N/A

the City of Boston Public Improvement Commission?	
Will sidewalk cafes or other furnishings be programmed for the pedestrian right-of-way?	No.
If yes above, what are the proposed dimensions of the sidewalk café or furnishings and what will the right-of-way clearance be?	N/A

Proposed Accessible Parking:

See Massachusetts Architectural Access Board Rules and Regulations 521 CMR Section 23.00 regarding accessible parking requirement counts and the Massachusetts Office of Disability Handicap Parking Regulations.

What is the total number of parking spaces provided at the development site parking lot or garage?	6
What is the total number of accessible spaces provided at the development site?	1 Van accessible.
Will any on street accessible parking spaces be required? If yes, has the proponent contacted the Commission for Persons with Disabilities and City of Boston Transportation Department regarding this need?	No
Where is accessible visitor parking located?	N/A
Has a drop-off area been identified? If yes, will it be accessible?	No, TBD.

Include a diagram of the accessible routes to and from the accessible parking lot/garage and drop-off areas to the development entry locations. Please include route distances.	Attached.

Circulation and Accessible Routes:

The primary objective in designing smooth and continuous paths of travel is to accommodate persons of all abilities that allow for universal access to entryways, common spaces and the visit-ability* of neighbors.

**Visit-ability – Neighbors ability to access and visit with neighbors without architectural barrier limitations*

Provide a diagram of the accessible route connections through the site.	Attached.
Describe accessibility at each entryway: Flush Condition, Stairs, Ramp Elevator.	Residential lobby to be a flush condition with the sidewalk at building exterior. The garage access from the lobby is provided via elevators. From the Lobby, elevator access will provide access to upper floors.
Are the accessible entrance and the standard entrance integrated?	Yes.
If no above, what is the reason?	N/A
Will there be a roof deck or outdoor courtyard space? If yes, include diagram of the accessible route.	No.
Has an accessible routes way-finding and signage package been developed? If yes, please describe.	No.

Accessible Units: (If applicable)

In order to facilitate access to housing opportunities this section addresses the number of accessible units that are proposed for the development site that remove barriers to housing choice.

What is the total number of proposed units for the development?	20
How many units are for sale; how many are for rent? What is the market value vs. affordable breakdown?	**FOR RENT:** 20 Units; Affordable breakdown TBD
How many accessible units are being proposed?	20
Please provide plan and diagram of the accessible units.	Specific unit plans have not been developed.
How many accessible units will also be affordable? If none, please describe reason.	TBD
Do standard units have architectural barriers that would prevent entry or use of common space for persons with mobility impairments? Example: stairs at entry or step to balcony. **If yes,** please provide reason.	No
Has the proponent reviewed or presented the proposed plan to the City of Boston Mayor's Commission for Persons with Disabilities Advisory Board?	No.
Did the Advisory Board vote to support this project? **If no,** what recommendations did the Advisory Board give to make this project more accessible?	N/A

Thank you for completing the Accessibility Checklist!

For questions or comments about this checklist or accessibility practices, please contact:

kathryn.quigley@boston.gov | Mayors Commission for Persons with Disabilities

1/16" = 1'-0"

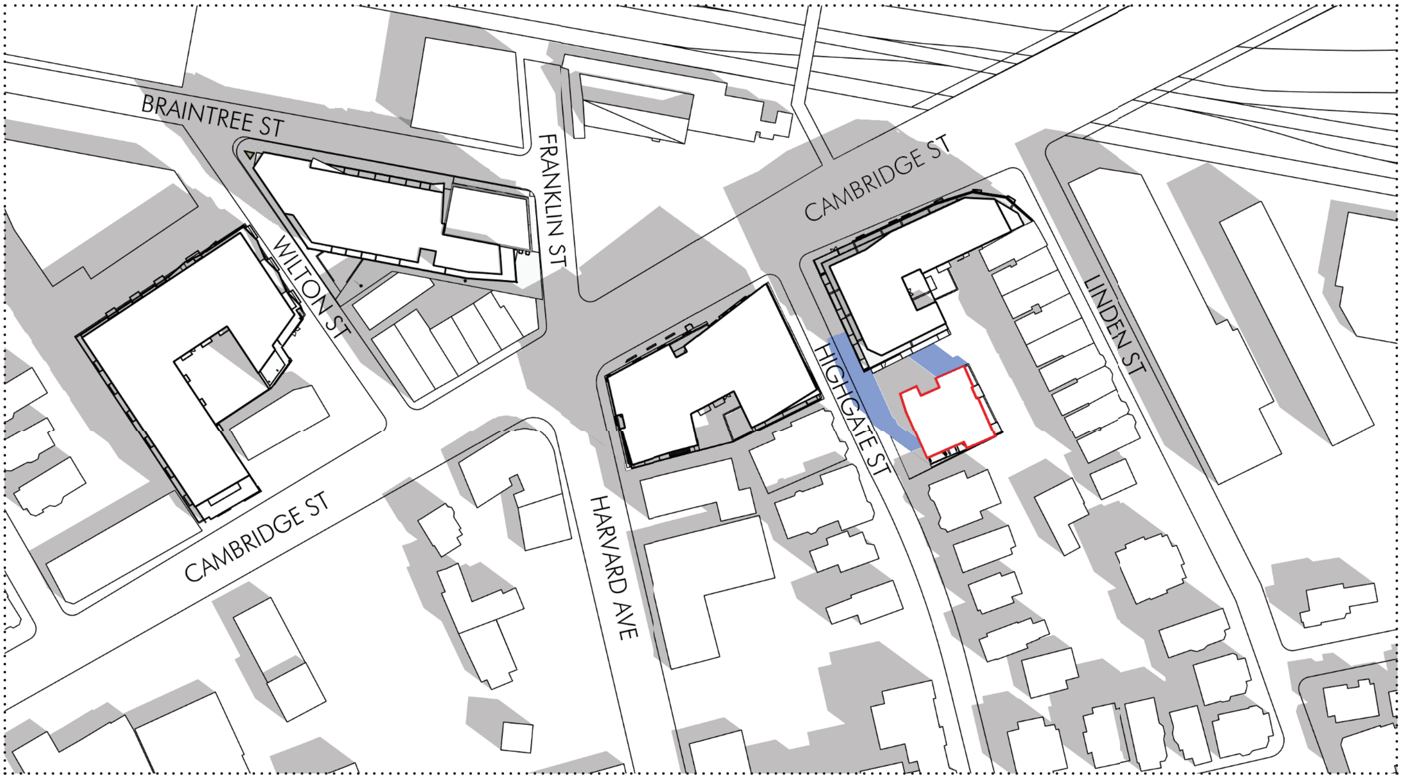
EMBARC STUDIO
ARCHITECTURE + DESIGN

ACCESSIBILITY CHECKLIST - GROUND FLOOR
16 HIGHGATE
16 HIGHGATE STREET BOSTON, MA 02134

A1.1

 | 4/11/2018 5:55:48 PM | C:\Users\emoliere\Documents\16118_16 Highgate Street_SD_emoliere@embarcstudio.com.rvt

APRIL 15, 2018 | EMBARC



SHADOW STUDY - VERNAL EQUINOX, 9:00AM

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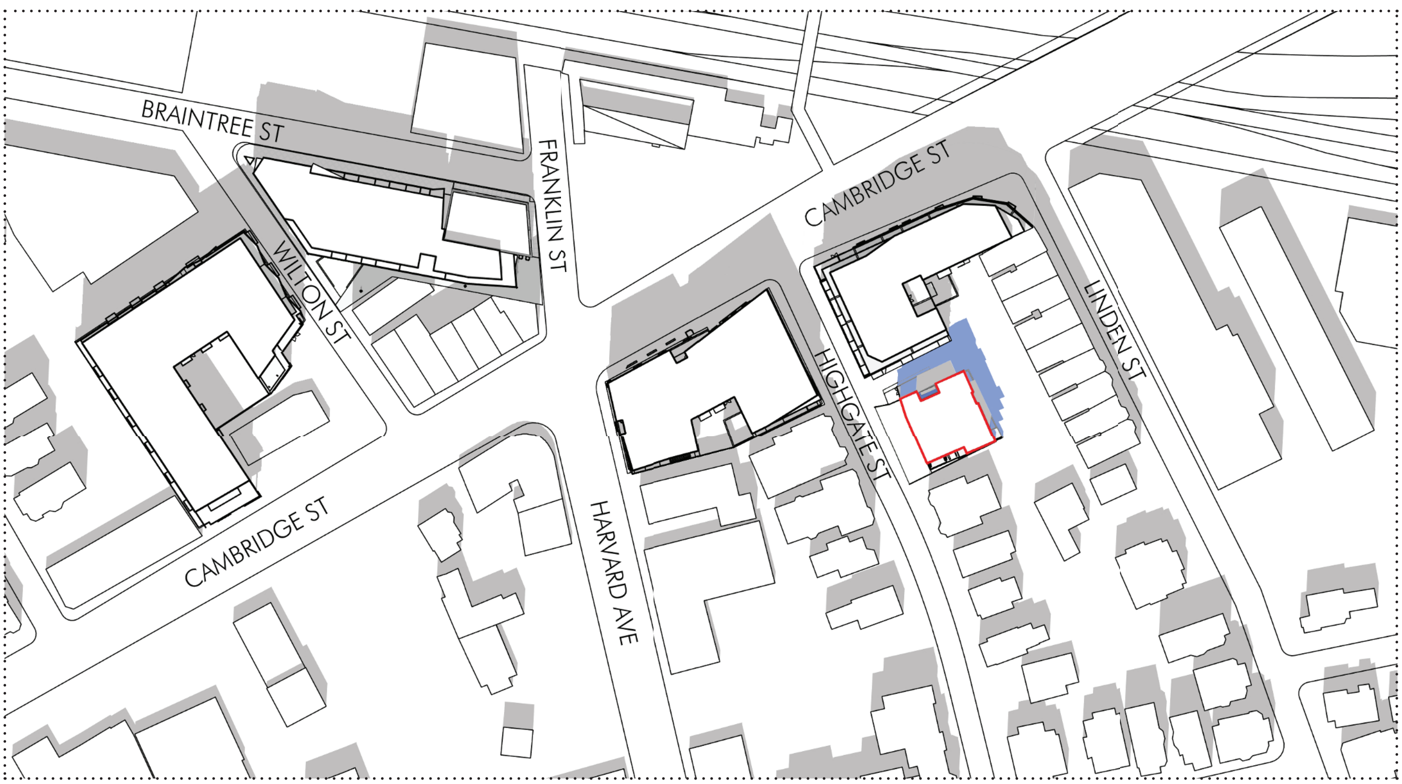

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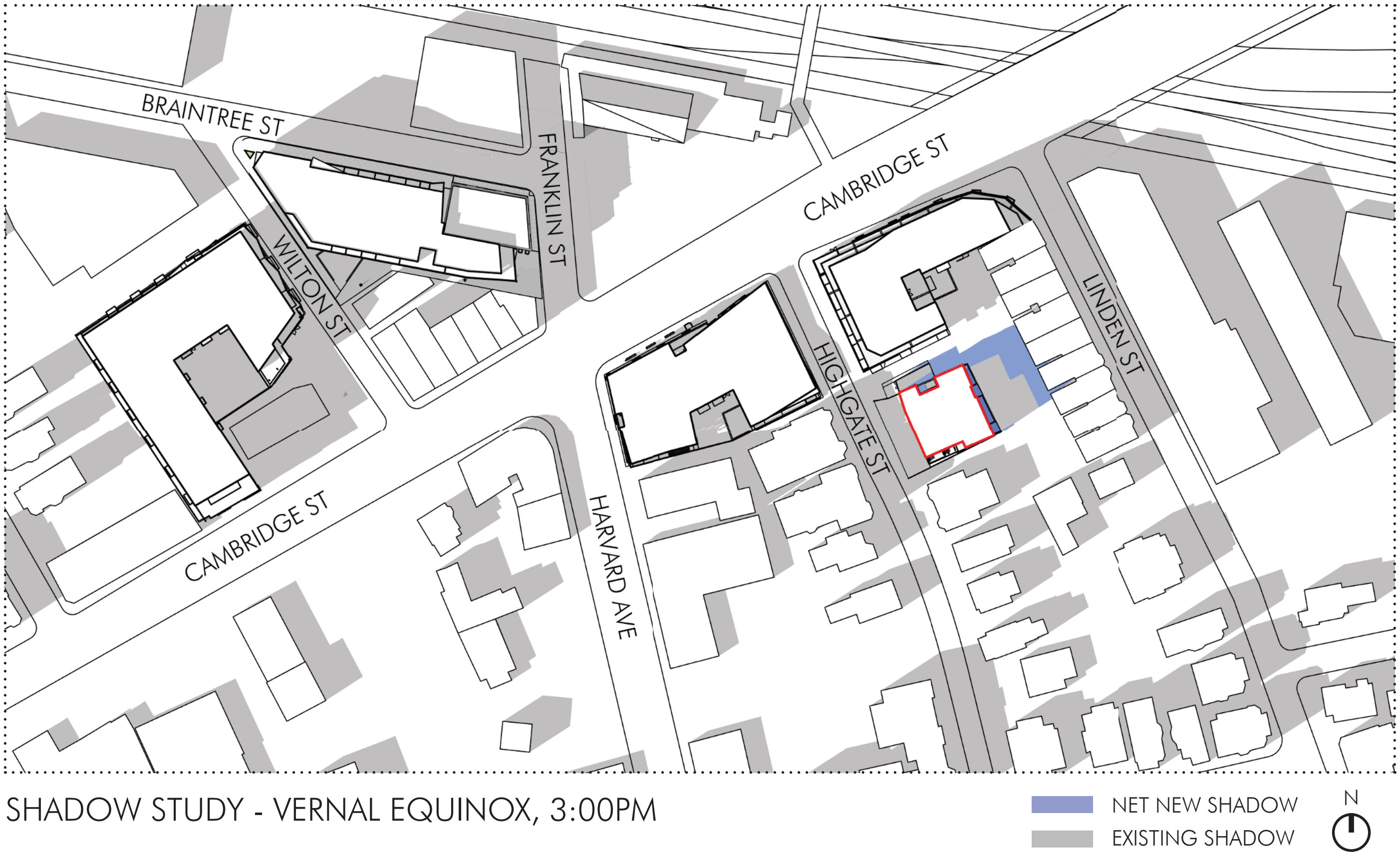

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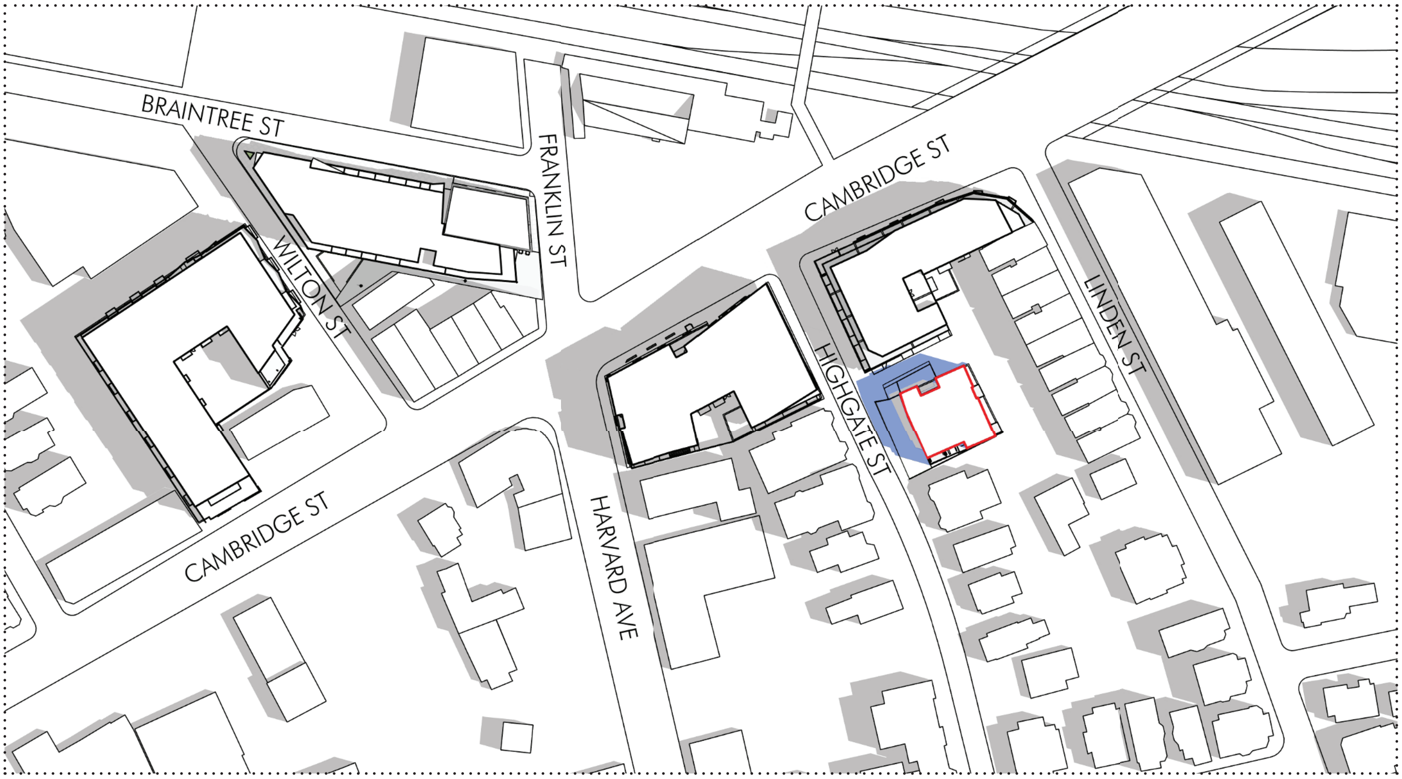

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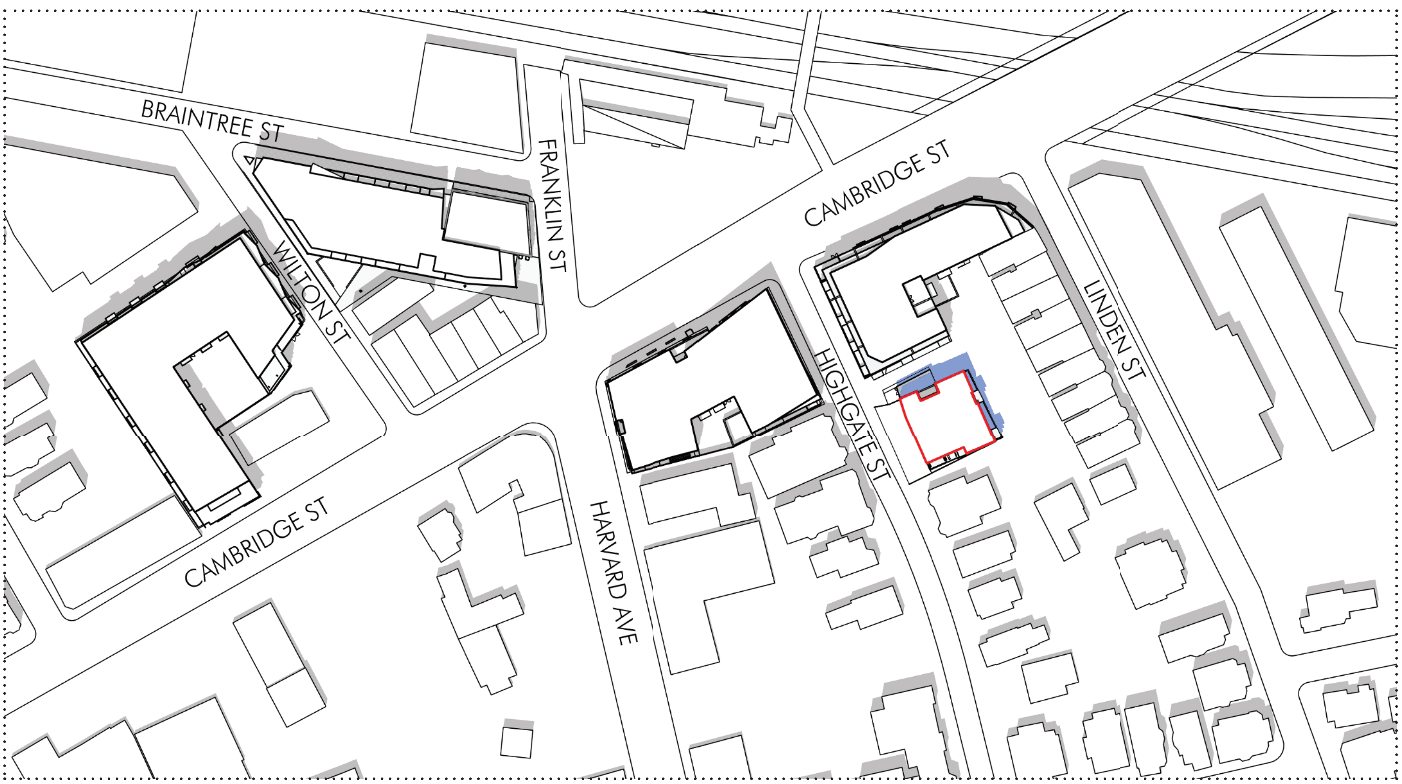

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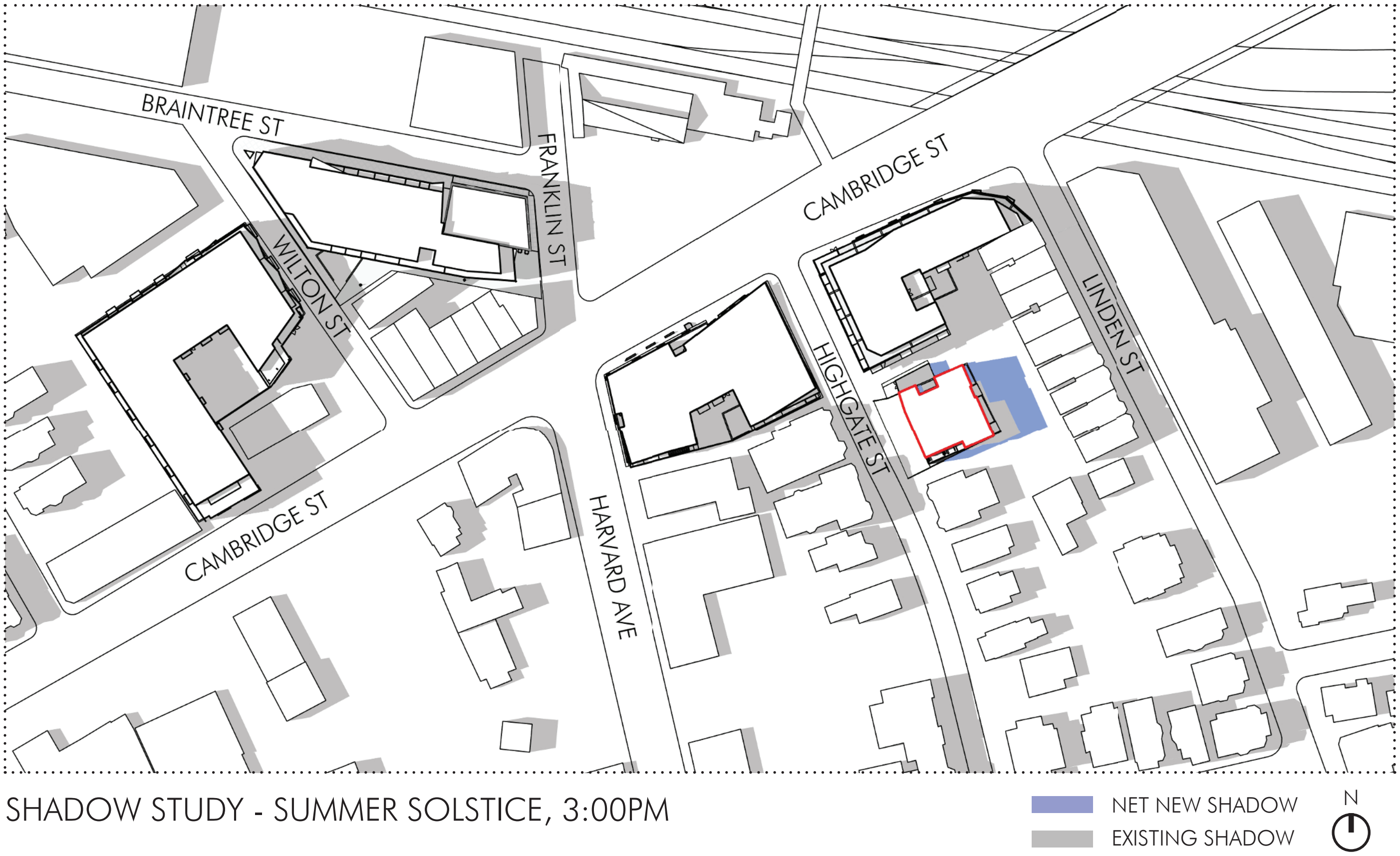

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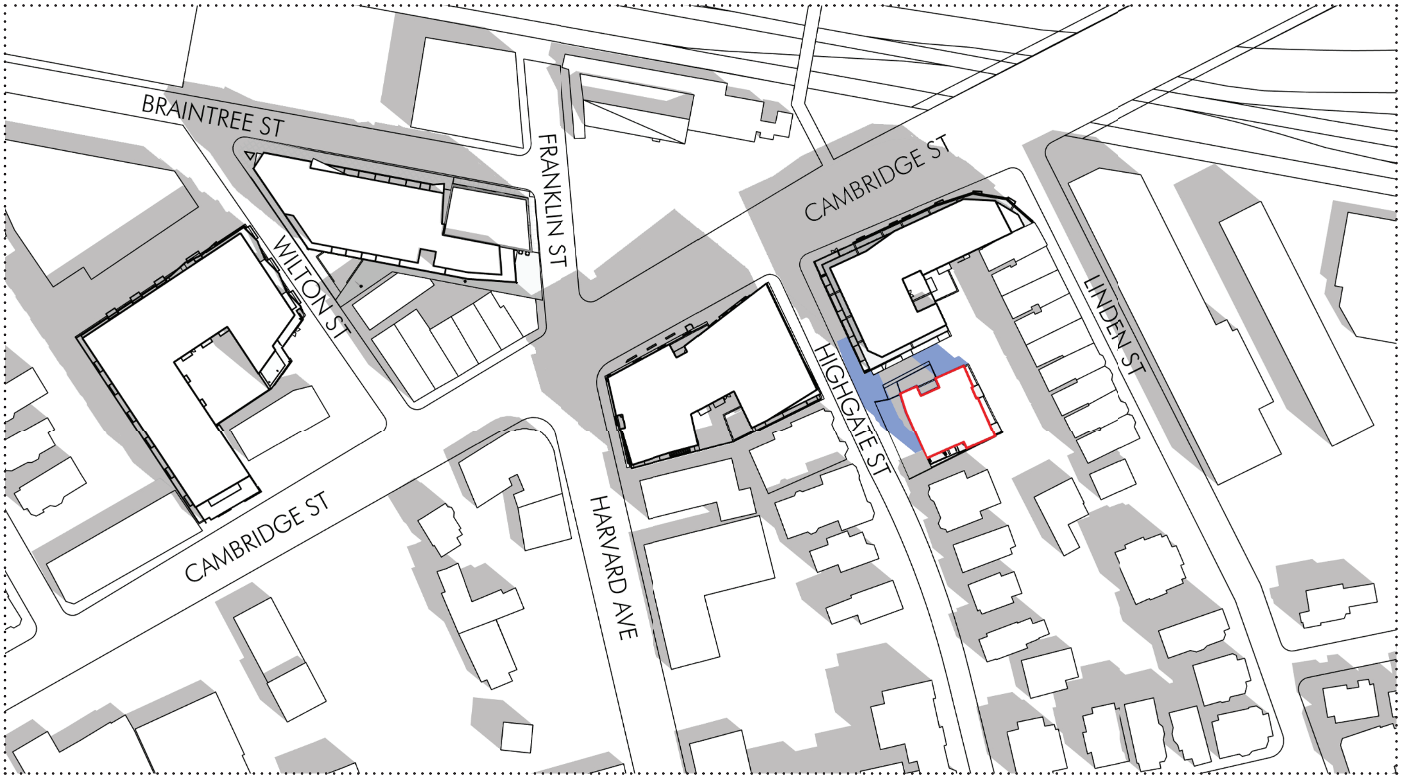

SHADOW STUDY - FALL EQUINOX, 9:00AM

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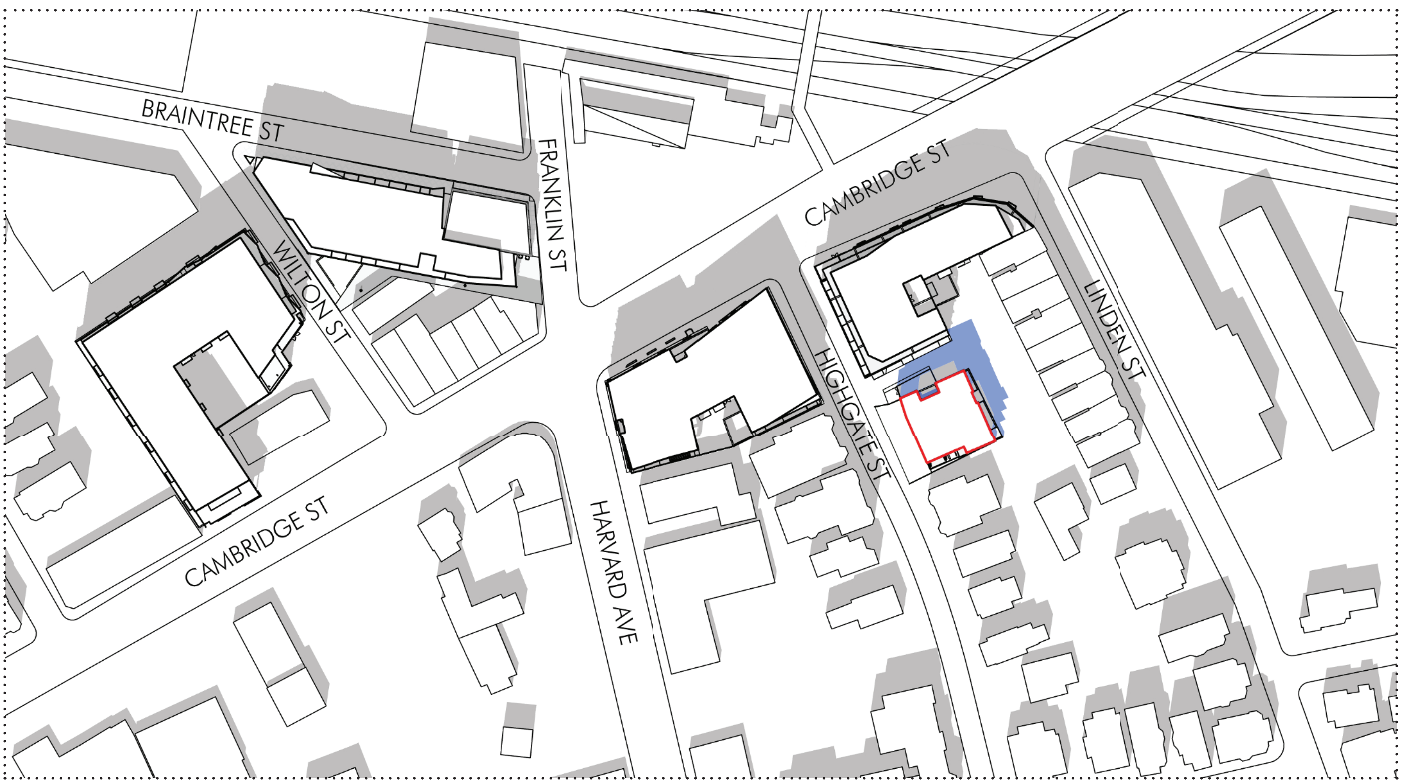

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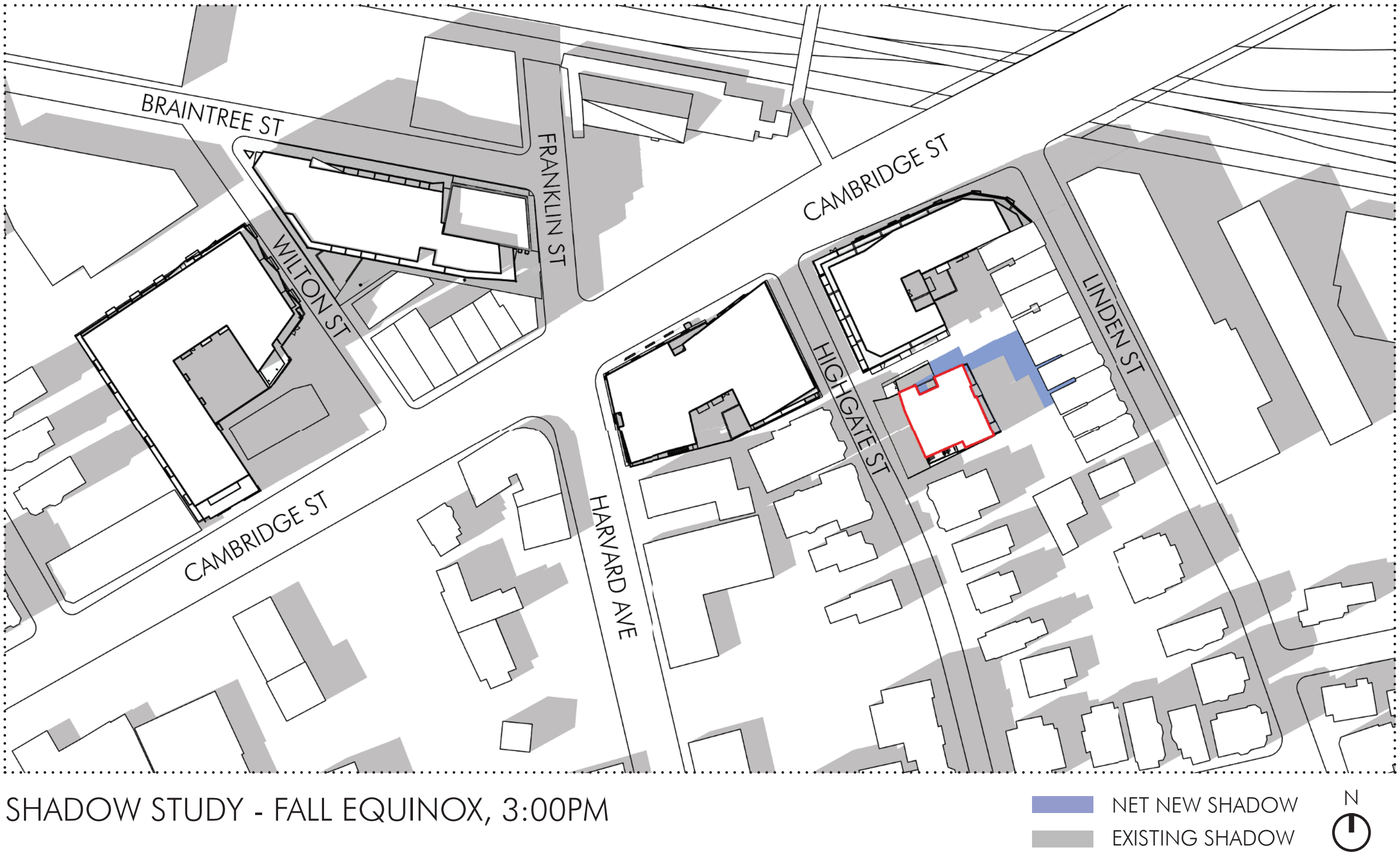

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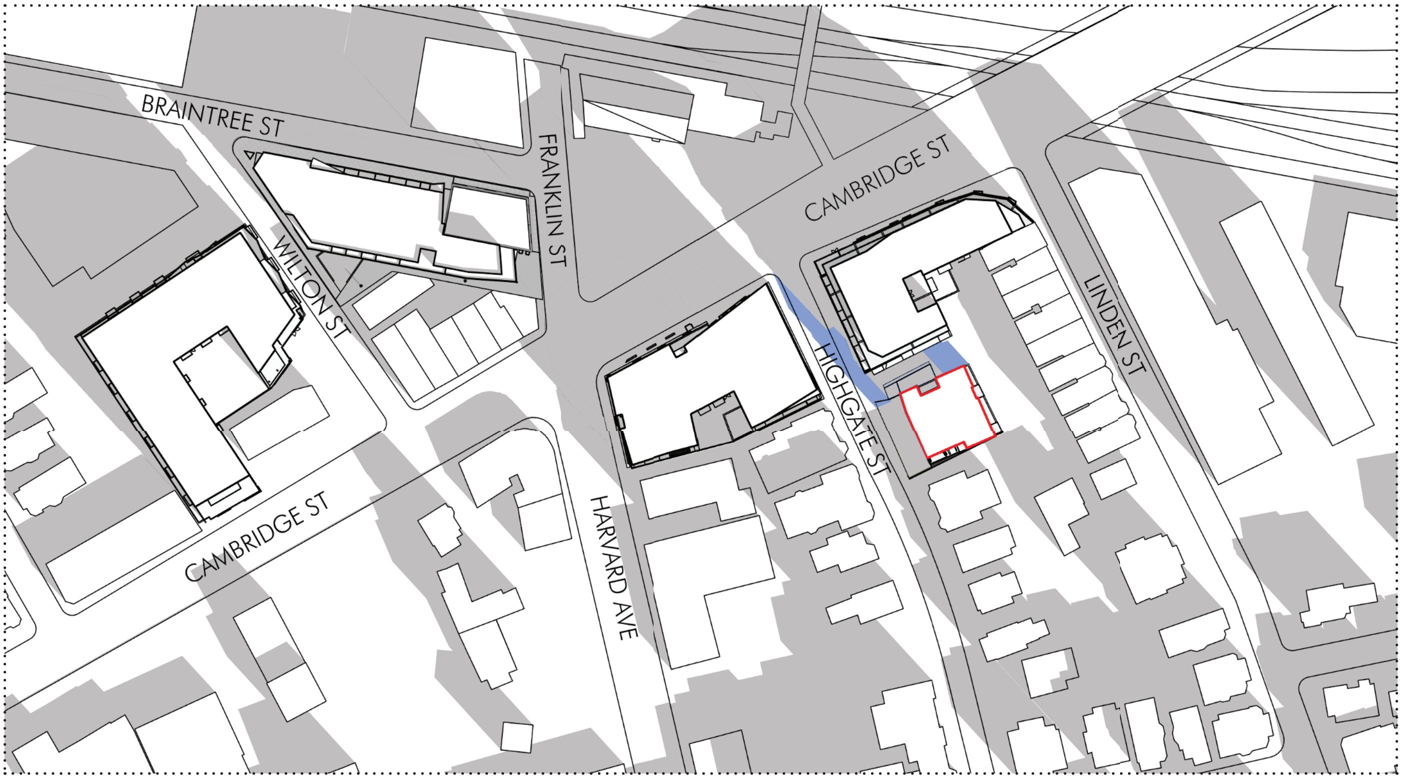

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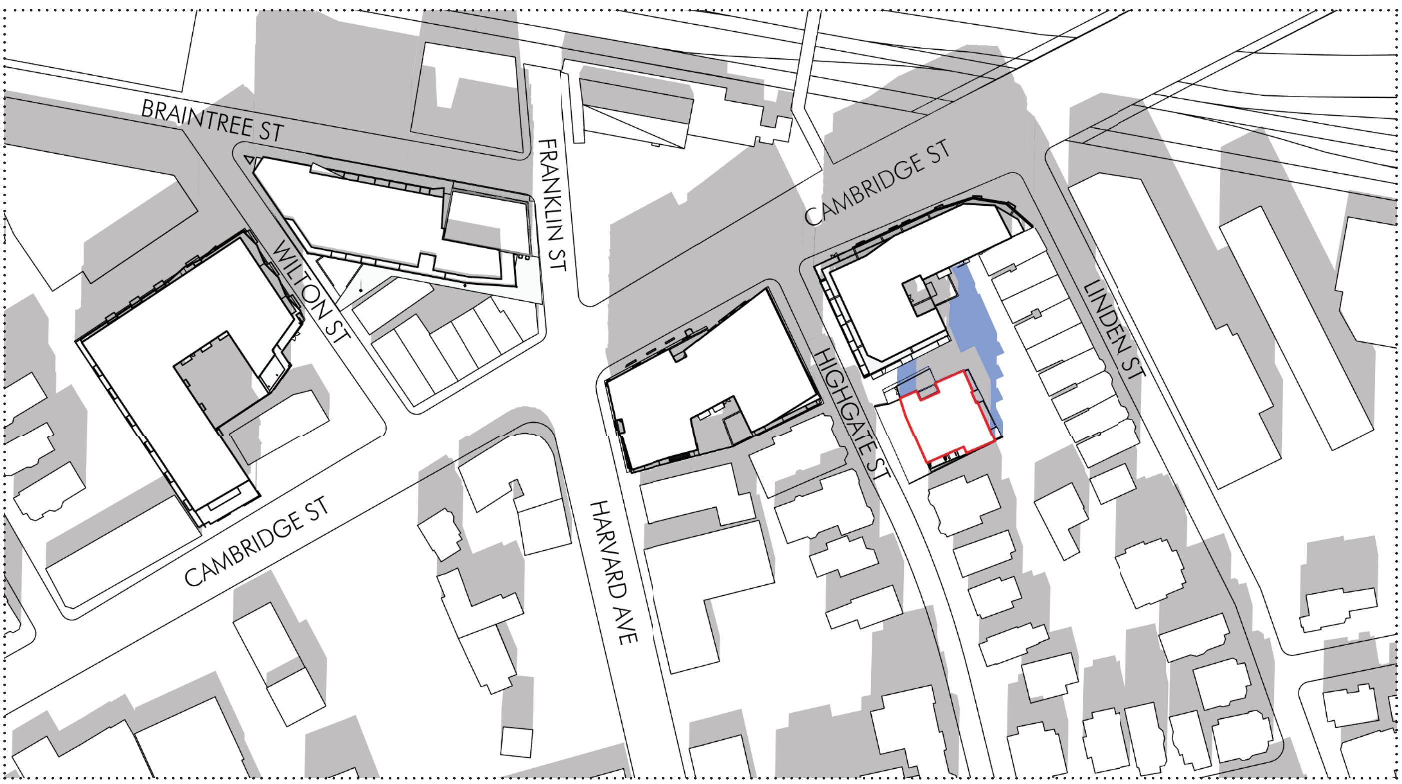

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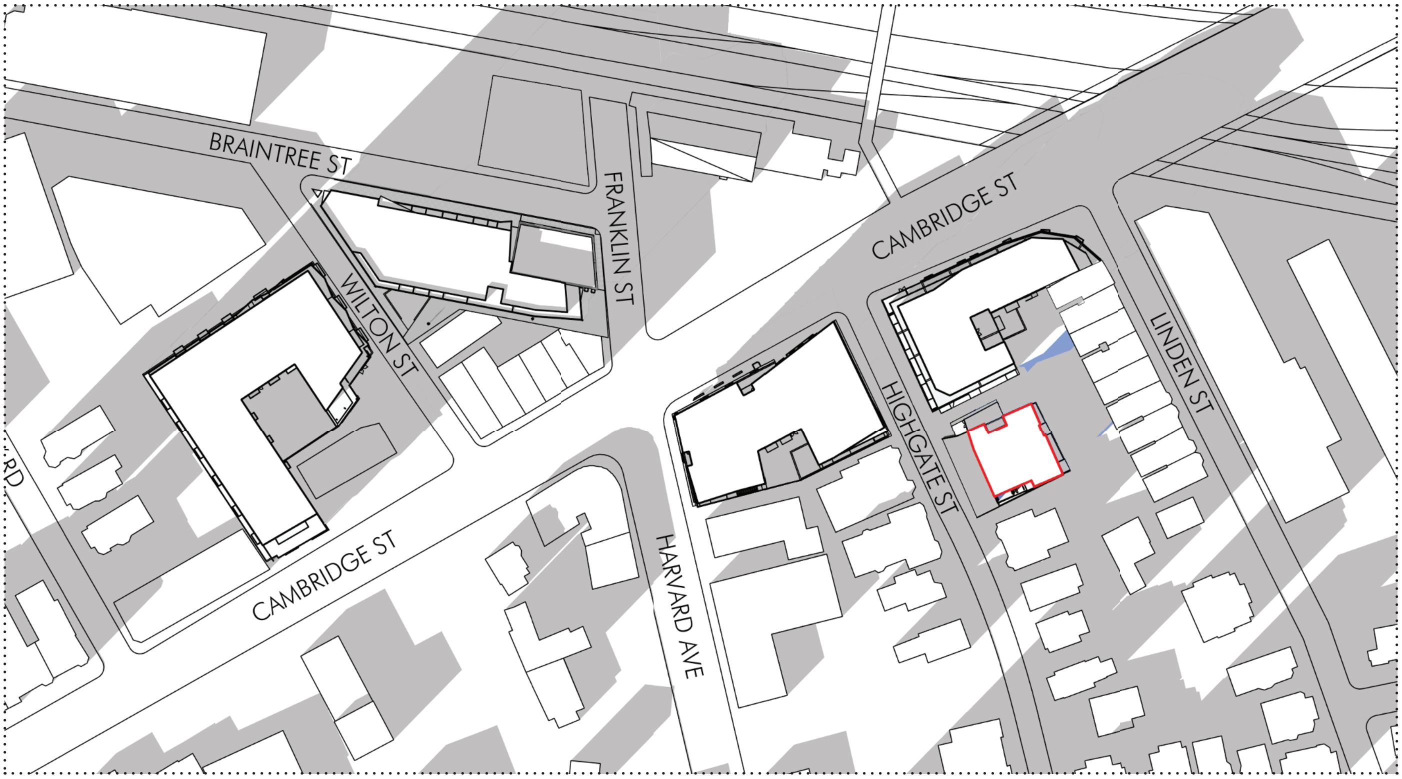


SHADOW STUDY - WINTER SOLSTICE, 3:00PM

NET NEW SHADOW
EXISTING SHADOW
N

KEVIN M. MARTIN, P.E.
KMM GEOTECHNICAL CONSULTANTS, LLC
7 Marshall Road
Hampstead, NH 03841
603-489-5556 (p)/ 603-489-5558 (f)/781-718-4084(m)
kevinmartinpe@aol.com

MEMORANDUM

TO: Jacob Simmons
CRM Property Management Corp.
320 Washington Street, Suite 3FF
Brookline, MA 02445

FROM: Kevin M. Martin, P.E.
Geotechnical Engineer

DATE: April 23, 2018

RE: **GEOTECHNICAL SUMMARY REPORT**
PROPOSED BUILDING
16 HIGHGATE STREET
ALLSTON, MASSACHUSETTS

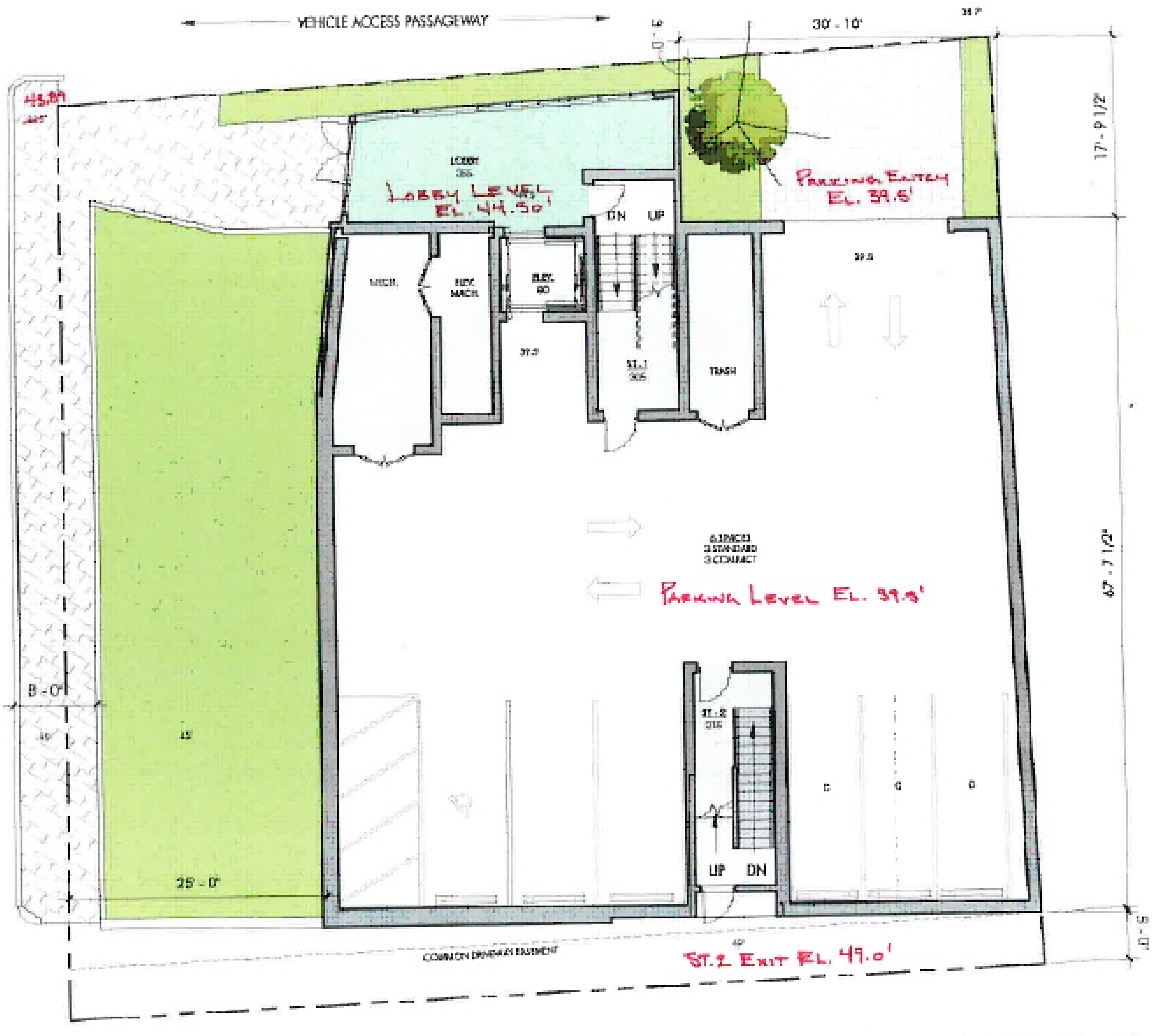
This memorandum serves as a geotechnical summary report for the referenced project. The contents of this memorandum are subject to the attached ***Limitations***.

SITE & PROJECT DESCRIPTION

Present development includes a 3-story, wood-framed residential structure. This building and associated construction will be razed to accommodate the project. KMM has no knowledge of past construction, development or use of the property. Based on the *Site Plan*, grades around the site vary from elevation ≈39-50 ft. There is a retaining wall (≈6-8 ft high) to the north and east. Most of the property is elevated being near elevation ≈47-50 ft.

The project includes a new residential building. The building will include a 5-story, steel and wood-framed structure about ≈4,000 ft² in footprint area. Ground level parking will be provided a first floor (elevation 39.5 ft). Some deep cuts into the elevated contour about ≈10-12 ft will be necessary to achieve parking level grade. It is intended to support the building on a conventional shallow spread footing foundation.

The purpose of this study is to review the subgrade conditions and provide a geotechnical evaluation related to foundation design and construction as required by the *Massachusetts State Building Code*. This report does not include an environmental assessment relative to oil, gasoline, solid waste and/or other hazardous materials. The environmental conditions of the property should be addressed by others as necessary. This study also does not include review of site design or construction issues such as infiltration systems, dry wells, retaining walls, excavation support systems, underground utilities, protection of surrounding buildings/utilities, crane pads, temporary shoring or other site and/or temporary design unless specifically addressed herein.



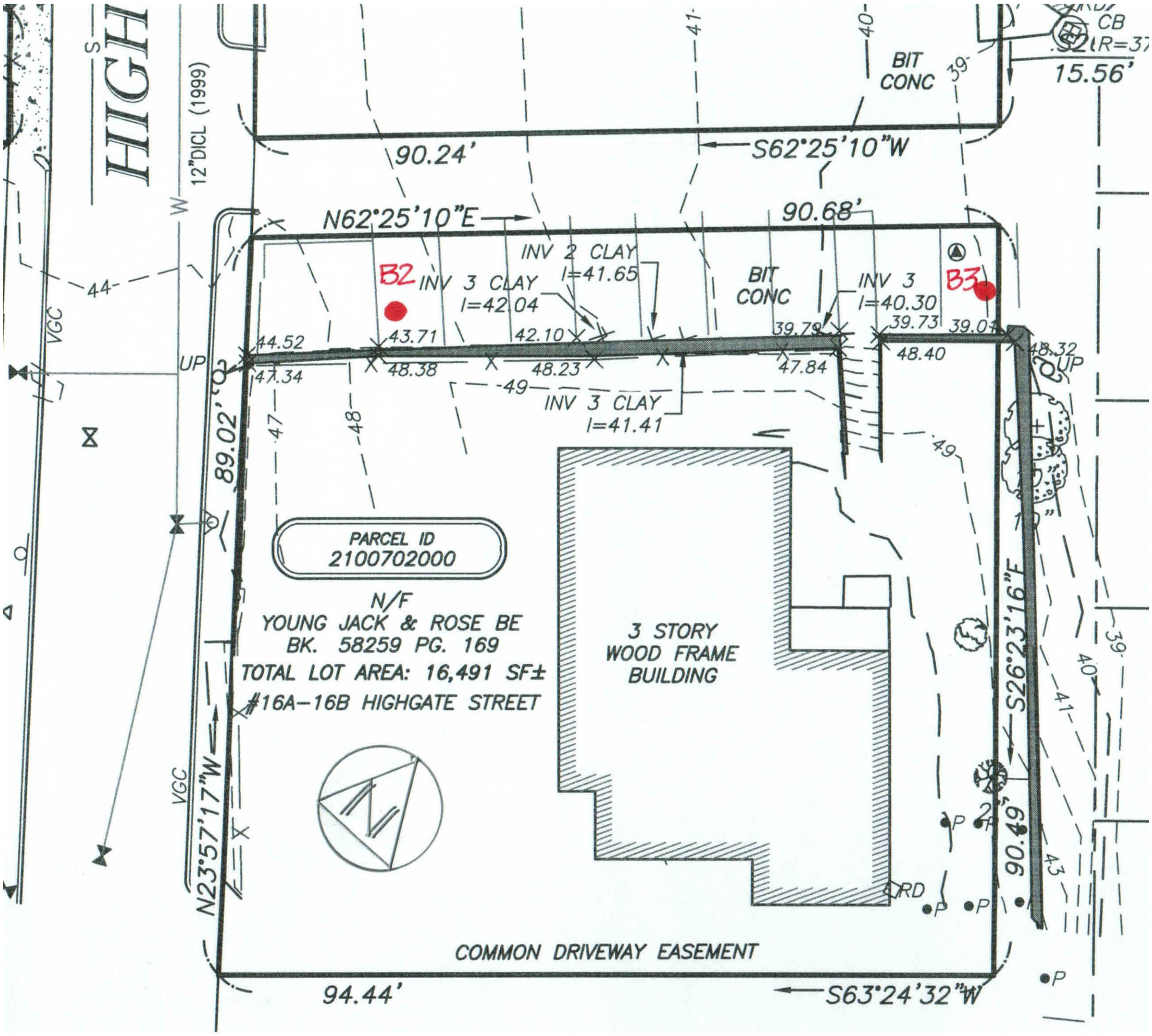
GROUND FLOOR PLAN

PROPOSED BUILDING PROFILE

SUBSURFACE EXPLORATION PROGRAM

Test Borings

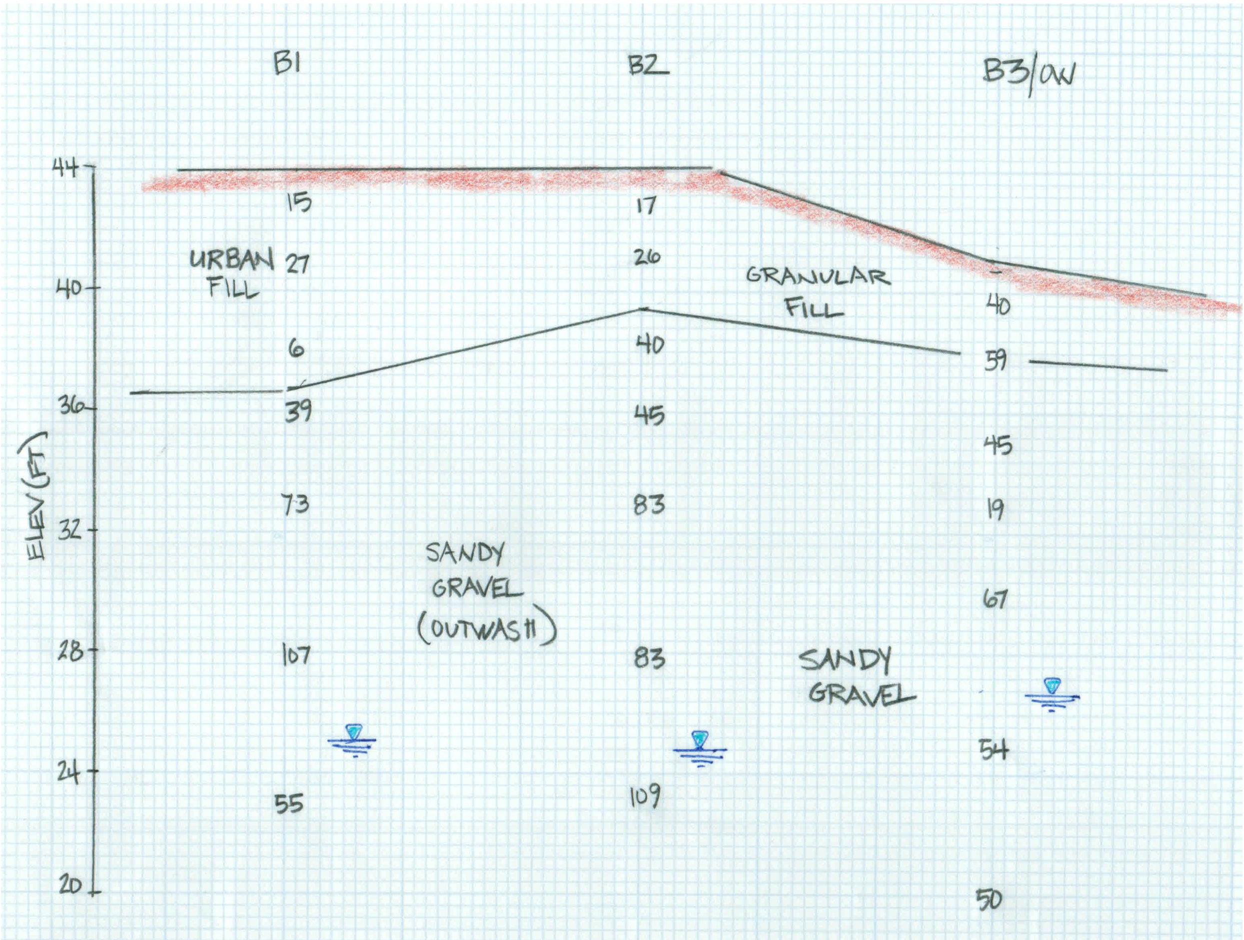
The exploration program for the project included two (2) test borings around the site where accessible. This included only the lower portions of the site to the north. The test borings (B2 & B3) were advanced to depths of ≈22 ft utilizing 4 inch hollow stem augers. Soil samples were typically retrieved at no greater than 5 ft intervals with a 2 inch diameter split-spoon sampler. Standard Penetration Tests (SPTs) were performed at the sampling intervals in general accordance with ASTM-D1586 (*Standard Method for Penetration Test and Split-Barrel Sampling of Soils*). Field descriptions and penetration resistance of the soils encountered, observed depth to groundwater and other pertinent data are contained on the attached *Test Boring Logs*. The attached *Sketch* shows the test bore locations.



TEST BORE LOCATION PLAN

SUBSURFACE CONDITIONS

The subsurface conditions below the surface pavement include (1) Granular Fill atop (2) stable Granular Outwash Soils. A *Subsurface Profile* depicting the soil and groundwater conditions is attached for review.



SUBSURFACE PROFILE

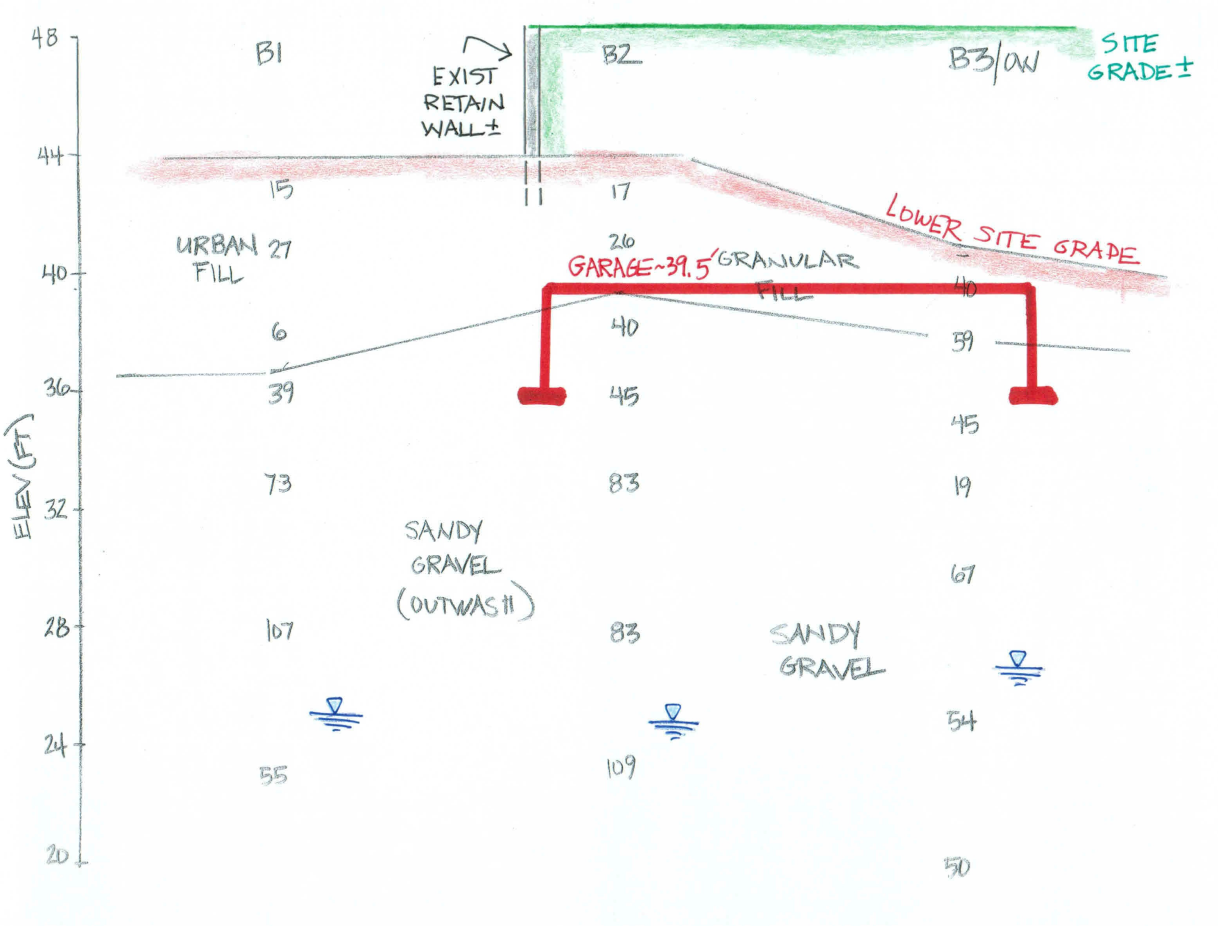
Undocumented Fill was encountered in both test bores to depths of ≈3-5 ft below grade. The Fill varies in composition but generally includes a dark brown, Sand & Gravel, little silt. The Fill is suspected to be re-worked site soils. Trace amounts of brick, rubble and loam are embedded in the Fill. Some deeper dark brown Sandy Gravel was encountered at ≈ 8 ft at B3. This is suspect Fill which is difficult to differentiate given re-worked soils. These soils were dense and stable. Other Fill should also be expected around the building foundation and intersecting utilities.

The parent site soils consists of stable, granular Outwash. These soils generally include a brown, fine to coarse Sand & Gravel, trace silt. Occasional cobbles and boulders should be expected given the difficulty advancing the augers. These granular soils are stable, well-draining and compact. The Outwash was not penetrated to ≈22 ft below the lower site grade.

Groundwater was encountered in the test holes at depths of ≈14-19 ft below the lower site grade. This is near elevation ≈25-27 ft. It should be noted that fluctuations in the level of the groundwater may occur due to variations in rainfall, temperature, utilities and other factors differing from the time of the measurements. An observation well was constructed at B3 to measure groundwater fluctuations. This study was completed at a time of seasonally normal groundwater.

FOUNDATION SUBGRADE RECOMMENDATIONS

The subgrade conditions are suitable for supporting the proposed building on a conventional spread footing foundation with a concrete floor slab. The undocumented fill, intersecting utilities, abandoned foundations and other questionable materials are **not** rendered suitable for foundation support and shall be fully removed from the building pad including the *Footing Zone of Influence* (*FZOI*) to expose the Outwash. The *FZOI* is defined as that area extending laterally one foot from the edge of footing then outward and downward at a 1H:1V splay. It is expected that the majority of the fill and questionable matter will be penetrated for the ground level foundation. Structural Fill necessary to achieve foundation grade should conform to the *Specifications* (Table 1).



PROPOSED FOUNDATION PROFILE

The parent subgrade soils (Glacial) should be exposed in the foundation areas prior to casting the footings or placing structural fill. It is recommended that the parent subgrade soils be proof-rolled with vibratory densification and exhibit stable and compact conditions. The purpose of the proof-rolling is to densify the site soils and identify potential loose or unstable areas which should be removed as necessary. Proof-rolling should involve at least 4-5 passes with a vibratory compactor (minimum 950 pound static weight) operating at peak energy. During the proof rolling, the subgrade should be observed by an Engineer to identify areas exhibiting instability. It will be necessary to remove weakened or unstable soils and replace with a Structural Fill or crushed stone. Proper groundwater control and storm water management are also necessary to maintain site stability.

The subgrade should ultimately be stable, dewatered, compact and protected from frost throughout construction. Bearing subgrades that become weakened or disturbed due to wet conditions will be rendered unsuitable for structural support. The Contractor shall ultimately be responsible for the means and methods of temporary groundwater control, subgrade protection and site stability during construction. An Engineer from KMM should be scheduled to review the foundation subgrade conditions and preparation during construction.

FOUNDATION DESIGN RECOMMENDATIONS

The footings are expected to gain bearing support atop the parent glacial soils and/or compacted structural fill. Footings may be designed using an allowable bearing capacity of 6 ksf (FS=3). The allowable bearing capacity may be increased a third (⅓) when considering transient loads such as wind or seismic. The bearing capacity is contingent upon the perimeter strip footings and isolated column footings being no less than 2 ft and 3 ft in width respectively. For footings less than 3 ft in lateral dimension, the net allowable bearing capacity should be reduced to one-third and multiplied by the least lateral footing dimension in feet. Foundation settlement should be less than 1 inch with differential settlement less than ½ inch. The settlement should be elastic and occur during construction. Exterior footings shall be provided with at least 4 ft of frost protection. Proper frost protection should be necessary during winter construction.

The subsurface conditions were reviewed with respect to seismic criteria set forth in the ***Massachusetts State Building Code***. Based on the relative density of the soils and the depth to groundwater, the site is not susceptible to liquefaction in the event of an earthquake. Based on interpretation of the *Building Code*, the *Site Classification* (Section 9.4.1.2.1) is “C” (Very Dense Soil Profile).

It is recommended that a minimum 10-inch base of *Gravel Base Fill* (Table 1) be placed below the concrete floor slab for moisture, strength and frost control. The gravel base shall be increased to no less than 12 inches for exterior concrete slabs exposed to frost or for the building floor slab if the existing Fill is to remain for subgrade support. A subgrade modulus of 175 pci may be used for design of the floor slab. A vapor retarder should be used below the floor slab dependent upon the floor treatment. A vapor barrier should be specified by others per ACI Standards. A vapor retarder is expected to be necessary for the project.

The Granular Fill & Granular Outwash may be suitable for re-use as Structural Fill (possible Gravel Base Fill). The Outwash soils are suitable for re-use provided they are segregated from the organic laden soils, are screened of large stones and conform to Specification.

CONSTRUCTION CONCERNS

The contractor should be required to maintain a stable-dewatered subgrade for the building foundation and other concerned areas during construction. Subgrade disturbance may be influenced by excavation methods, moisture, precipitation, groundwater control and construction activities. The site soils are generally not considered vulnerable to moisture disturbance given a granular composition. Nonetheless, the contractor should take precautions to reduce subgrade disturbance. Such precautions may include diverting storm run-off away from construction areas, reducing traffic in sensitive areas, minimizing the extent of exposed subgrade if inclement weather is forecast, backfilling footings as soon as practicable and maintaining an effective dewatering program. Soils exhibiting weaving or instability should be over-excavated to a competent bearing subgrade then replaced with a free draining structural fill or crushed stone. The moisture concerns are typically more problematic if construction takes place during the winter to spring season or other periods of inclement weather. A protective base of ¾-inch minus crushed stone may be placed ≈6 inches below and laterally beyond the footing limits for protection during construction. The stone base is to protect the site soils, facilitate any necessary dewatering and provide a dry/stable base upon which to progress foundation construction. The protective base should be considered elective and dependent upon the site conditions. The stone base should be considered necessary if wet conditions are encountered at footing grade. The protective stone base shall be tamped with a plate compactor and exhibit stable conditions. A stone base is not expected to be necessary given the depressed groundwater table and well-draining Stratified Sand subgrade.

The groundwater table or puddled storm water, if encountered, will need to be temporarily controlled during construction to complete work in dry conditions and protect the competency of the subgrade. Wet conditions should be continuously maintained at least one foot below construction grade until backfilling is complete. The groundwater or puddled storm water is expected to be controlled with conventional sumps and pumps. The temporary sumps should be filtered with stone and fabric and extend at least ≈18 inches below construction grade. A ≈6 inch lift of ¾-inch minus crushed stone should be placed atop the wet subgrade to protect its competency and facilitate dewatering. Adequate dewatering and storm water management are necessary for maintaining the competency of the site soils.

The bearing subgrade should ultimately be stable, dewatered, protected from frost and compact throughout construction. Soils which become softened or disturbed during construction will be rendered unsuitable for structural bearing support. The Contractor shall ultimately be responsible for the means and methods of temporary groundwater control, subgrade protection and site stability during construction. An Engineer from KMM should be scheduled to review the foundation subgrade conditions and preparation during construction.

CONSTRUCTION MONITORING

It is recommended that a qualified engineer or representative be retained to review earthwork activities such as the preparation of the foundation bearing subgrade and the placement/compaction of Structural Fill. It is recommended that KMM be retained to provide construction monitoring services. This is to observe compliance with the design concepts presented herein.

CLOSING COMMENTS

Subgrade exploration was limited on this site given difficult access. Although we do not expect vastly differing conditions, some means of exploration (test pits) should be considered at the commencement of construction to verify subgade. This should also be accomplished via the recommended geotechnical subgrade inspections during construction.

We trust the contents of this memorandum report are responsive to your needs at this time. Should you have any questions or require additional assistance, please do not hesitate to contact our office.

Allston16HighgateStreet.wpd

LIMITATIONS

Explorations

1. The analyses, recommendations and designs submitted in this report are based in part upon the data obtained from preliminary subsurface explorations. The nature and extent of variations between these explorations may not become evident until construction. If variations then appear evident, it will be necessary to re-evaluate the recommendations of this report.

2. The generalized soil profile described in the text is intended to convey trends in subsurface conditions. The boundaries between strata are approximate and idealized and have been developed by interpretation of widely spaced explorations and samples; actual soil transitions are probably more gradual. For specific information, refer to the individual test pit and/or boring logs.

3. Water level readings have been made in the test pits and/or test borings under conditions stated on the logs. These data have been reviewed and interpretations have been made in the text of this report. However, it must be noted that fluctuations in the level of the groundwater may occur due to variations in rainfall, temperature, and other factors differing from the time the measurements were made.

Review

4. It is recommended that this firm be given the opportunity to review final design drawings and specifications to evaluate the appropriate implementation of the recommendations provided herein.

5. In the event that any changes in the nature, design, or location of the proposed areas are planned, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed and conclusions of the report modified or verified in writing by KMM Geotechnical Consultants, LLC.

Construction

6. It is recommended that this firm be retained to provide geotechnical engineering services during the earthwork phases of the work. This is to observe compliance with the design concepts, specifications, and recommendations and to allow design changes in the event that subsurface conditions differ from those anticipated prior to the start of construction.

Use of Report

7. This report has been prepared for the exclusive use of CRM Property Management Corp. in accordance with generally accepted soil and foundation engineering practices. No other warranty, expressed or implied, is made.

8. This report has been prepared for this project by KMM Geotechnical Consultants, LLC. This report was completed for preliminary design purposes and may be limited in its scope to complete an accurate bid. Contractors wishing a copy of the report may secure it with the understanding that its scope is limited to preliminary geotechnical design considerations only.

TABLE 1

Proposed Building
16 Highgate Street
Allston, MA

Recommended Soil Gradation & Compaction Specifications

Gravel Base Fill
(Select Gravel Fill)

SIEVE SIZE	PERCENT PASSING BY WEIGHT
3 inch	100
3/4 inch	60-90
No. 4	20-70
No. 200	2-8

NOTE: For minimum 10-inch base below Concrete Garage Floor Slab-on-Grade
For minimum 12-inch base for exterior concrete slabs exposed to frost
Shall have less than 12% fines (No. 200 sieve) based on the Sand fraction

Structural Fill
(Gravelly SAND, little Silt)

SIEVE SIZE	PERCENT PASSING BY WEIGHT
5 inch	100
3/4 inch	60-100
No. 4	20-80
No. 200	0-10

NOTE: For use as structural load support below the foundations
For use as backfill behind unbalanced foundation/retaining walls
A one-inch minus crushed stone may be used in wet conditions

Structural Fill placed beneath the foundation should include the *Footing Zone of Influence* which is defined as that area extending laterally one foot from the edge of the footing then outward and downward at a 1H:1V splay. Structural Fill should be placed in loose lifts not exceeding 12 inches for heavy vibratory rollers and 8 inches for vibratory plate compactors. Structural Fill on the project should be compacted to at least 95 percent of maximum dry density as determined by the Modified Proctor Test (ASTM-D1557). The fill shall be compacted within ±2 of the optimum moisture content. The adequacy of the compaction efforts should be verified by field density testing which is also a requirement of the *Massachusetts State Building Code*.

TABLE 2

Proposed Building
16 Highgate Street
Allston, MA

Recommended Lateral Earth Pressures & Drainage for Unbalanced Walls

Lateral earth pressures for the structural design and stability analysis of unbalanced foundation walls (basement walls, retaining walls, elevator pit, etc) are provided herein. The following table outlines the recommended lateral earth pressure coefficients and equivalent fluid weights:

WALL CONDITION	LATERAL TRANSLATION (Δ/H)	EARTH PRESSURE COEFFICIENT (K)	EQUIVALENT FLUID WEIGHT (γ_{EFW})
restrained	0	K_o	60 pcf
no restraint	0.002	K_a	35 pcf
no restraint	0.02	K_p (FS=3)	125 pcf
seismic	n/a	K_{eq}	see note

where: Δ = movement at top of wall by tilting or lateral translation
H = height of wall

The above lateral earth pressures are based upon:

1. Rankine earth pressure theory;
2. Retaining wall backfilled with Structural Fill (Table 1)
3. Unit weight of backfill less than 125 pcf
4. No hydrostatic pressures
5. No surcharge loading;
6. A level backfill in front and behind of wall;
7. Seismic loads distributed as an inverse triangle over the height of wall (*MSBC*);
8. Dynamic/compaction stresses accounted for with seismic pressures;
9. Soil backfill densified with plate compactors within 3 ft lateral distance of wall;
10. Top 2 ft should not be considered for passive resistance.

The lateral load due to seismic pressure shall be in accordance with *Section 9.5.2.9* of the *MSBC*. *Equation 9.5.2.9* shall be used to estimate the seismic force (F_w). The unit weight of the backfill used in this equation is 125 pcf (Structural Fill). There are no soils subject to liquefaction below and/or behind the wall.

The lateral resistance of retaining walls should also accommodate surcharge loads. Uniformly distributed loads should be superimposed along the face of the wall at a magnitude equal to the surcharge pressure multiplied by the appropriate earth pressure coefficient. Surcharge loads should be considered where they are located within a horizontal distance equivalent to 1.0 times the height of the wall. Anticipated point or line loads situated behind the wall should be evaluated in accordance with linear elastic theory.

For frost and drainage concerns, it is recommended that *Structural Fill* (Table 1) be placed directly behind the unbalanced walls. The Granular soils may be re-used in this regard. The ground surface immediately adjacent to the unbalanced foundation should be sloped away from the building to allow for positive drainage. It is also recommended that the surficial materials adjacent to the building be relatively impermeable to reduce the volume of precipitation infiltrating into the subgrade. Such impermeable materials include Portland cement concrete, bituminous concrete, or a vegetated silty topsoil.

Unbalanced foundation walls should be provided with adequate footing drains per the *MSBC*. The drains should be located along the periphery of the embedded footprint. The perimeter foundation drain should be located at least ≈2-3 inches above the bottom of footing elevation and six inches outward from the edge of footing. The drains should not encroach within the *Footing Zone of Influence* defined as that area extending laterally one foot from the edge of footing then outward and downward at a 1H:1V splay. Furthermore, the invert elevation of the drain should be at least 12 inches below the underside of the adjacent floor slab. The drains should consist of minimum 4 inch diameter, perforated PVC-SDR 35 drain pipe encased within 12 inches of ¾-inch stone and wrapped with a filter fabric such as Mirafi 140N or equal. The drains may discharge via gravity to a storm drain line not subject to surcharge or to a sump pump. The Site Engineer should review the discharge of the drains. The drains should be provided with permanent clean-outs at convenient locations to facilitate access to all sections of the system. Clean-outs should be located at bends and no greater than 175 ft on-center. Roof gutters and other storm collection should not be discharged to the foundation drains. Recharge systems, infiltrators and/or dry wells shall be kept away from the basement level to prevent hydrostatic surcharge.

If the unbalanced foundation walls can not be drained to alleviate hydrostatic forces, then the lateral earth pressure equivalent fluid weight should be increased to 90 pcf. Such earth pressures should be used for elevator pits, if necessary.

The recommended friction factors to be used for retaining wall design are as follows:

<u>Recommended Friction Factor (f)</u>
$f = \tan(\delta)$, where δ is the interface friction angle

- Concrete against the following soils

Structural Fill (Table 1)	0.50
Outwash Soils	0.50

TEST BORING LOG

SHEET 2

Soil Exploration Corp.
Geotechnical Drilling
Groundwater Monitor Well
148 Pioneer Drive
Leominster, MA 01453
978 840-0391

Proposed Building
Site 16 Highgate Street
Allston, MA.

BORING B-2

PROJECT NO. 18-0314

DATE: March 12, 2018

Ground Elevation:
Date Started: March 9, 2018
Date Finished: March 9, 2018
Driller: TF
Soil Engineer/Geologist:

GROUNDWATER OBSERVATIONS

DATE	DEPTH	CASING	STABILIZATION
3/9/18	19 ft	n/a	

Depth Ft.	Casing bl/ft	Sample No.	Pen/Rec	Depth	Blows/6"	Strata	Visual Identification of Soil and / or Rock Sample
						2"	Asphalt
1		1	10"	0'6 – 2'6"	6-7-10-11		
		2	12"	2'6" – 4'6"	12-8-18-24	4'6"	Dark Brown, fine to medium Sand & Gravel, little silt (FILL)
5		3	7"	5'0"- 7'0"	12-18-22-20		Brown, f-c Sand & Gravel, trace silt, dry
		4	8"	7'0" - 9'0"	14-19-26-23		(OUTWASH)
10		5	8"	10'0" - 12'0"	21-37-46-49		Brown, fine to coarse Sand & Gravel, trace silt w/ cobbles, boulders
15		6	8"	15'0" - 17'0"	28-46-37-54		Brown, f-c Sand & Gravel, little silt
20		7	8"	20'0"– 21'6"	28-26-83		Sand & Gravel, wet
							End of boring at 21'6" Water encountered at 19 ft
25							
30							
35							

Notes: Hollow Stem Auger Size 4-1/4"

				CASING	SAMPLE	CORE TYPE
Cohesionless: 0 - 4 V. Loose, 4 - 10 Loose,	Trace	0 to 10%				
10 -30 M Dense, 30 -50 Dense, 50+ V Dense.	Little	10 to 20%	ID SIZE (IN)		SS	
Cohesive: 0 -2 V Soft, 2 -4 Soft, 4 -8 M	Some	20 to 35%	HAMMER WGT (LB)		140 lb.	
8 -15 Stiff, 15 -30 V. Stiff, 30 + Hard.	And	35% to 50%	HAMMER FALL (IN)		30"	

TEST BORING LOG

SHEET 3

Soil Exploration Corp. Geotechnical Drilling Groundwater Monitor Well 148 Pioneer Drive Leominster, MA 01453 978 840-0391	**Proposed Building** **Site 16 Highgate Street** **Allston, MA.**	BORING B-3/OW PROJECT NO. 18-0314 DATE: March 20, 2018

Ground Elevation:
Date Started: March 19, 2018
Date Finished: March 19, 2018
Driller: TF
Soil Engineer/Geologist:

GROUNDWATER OBSERVATIONS			
DATE	DEPTH	CASING	STABILIZATION
3/19/18	14 ft	n/a	

Depth Ft.	Casing bl/ft	Sample No.	Pen/Rec	Depth	Blows/6"	Strata	Visual Identification of Soil and / or Rock Sample
						3"	Asphalt
		1	8"	0'6 – 2'6"	11-16-24-30		Dark Brown, Sand & Gravel (FILL)
1		2	4"	2'6" – 4'6"	18-23-36-40		
							Brown, fine to coarse Sand & Gravel, trace silt, cobbles
5		3	3"	5'0"- 7'0"	19-23-22-21		
		4	12"	7'0" - 9'0"	10-11-8-16		Dark Brown, f-m Sand, little gravel, little silt (POSSIBLE FILL)
10		5	4"	10'0" - 12'0"	25-24-43-68		Brown, fine to coarse Sand & Gravel, trace silt, cobbles, boulder
							(OUTWASH)
15		6	10"	15'0" - 17'0"	21-23-31-37		Brown, fine to coarse Sand & Gravel, trace silt, cobbles, boulder
20		7	10"	20'0"– 22'0"	24-21-29-43		
							End of boring at 22 ft Water encountered at 14 ft Well set at 20 ft
25							
30							
35							

Notes: Hollow Stem Auger Size 4-1/4"

Cohesionless: 0 - 4 V. Loose, 4 - 10 Loose,	Trace 0 to 10%		CASING	SAMPLE	CORE TYPE
10 -30 M Dense, 30 -50 Dense, 50+ V Dense.	Little 10 to 20%	ID SIZE (IN)		SS	
Cohesive: 0 -2 V Soft, 2 -4 Soft, 4 -8 M	Some 20 to 35%	HAMMER WGT (LB)		140 lb.	
8 -15 Stiff, 15 -30 V. Stiff, 30 + Hard.	And 35% to 50%	HAMMER FALL (IN)		30"	

Allston Square Development, Allston
Subsection III
2-8 Harvard Avenue

Table of Contents

<u>Appendices</u>

1.0 PROJECT SUMMARY / OVERVIEW

1.1 Introduction

2-8 Harvard Avenue is part of the Allston Square Development Project in the Allston Square section of Allston. The overall project includes a six-building mixed-use development that is approximately 361,800 gross square feet in size. The Proposed Project will include three hundred and thirty-four residential units, two hundred and thirty-seven associated parking spaces, and approximately 22,145 square feet of retail space. **Please see Figure III.1. <u>Project Locus Map</u> and Figure III.2. <u>2-8 Harvard Avenue Breakdown.</u>**

The 2-8 Harvard Avenue portion of the project includes demolishing the existing commercial structures and erecting a six-story building with seventy-seven residential units and forty-eight parking spaces. The overall gross square footage of the building will be approximately 82,245 square feet, with a floor to area ratio of 4.48, and a parking ratio of .62. The site also proposes approximately 9,945 square feet of retail space. This retail space will be divided into two distinct areas, one with frontage on Harvard Avenue and Cambridge Street, which will be 8,620 square feet, and one with frontage on Cambridge Street and Highgate Street, which will be approximately 1,325 square feet.

The 2-8 Harvard Avenue lot is 18,361 square feet. The lot is located at the intersection of Harvard Avenue and Cambridge Street, just south of the Massachusetts Turnpike. Directly east of the site across Highgate Street is the proposed six-story 334 Cambridge Street project, while across the street to the southeast is the proposed four-story 16 Highgate Street project. Abutting the site to the south is a mixed commercial space. Across Cambridge Street is the old Allston Depot train station, currently housing Pizzeria Regina. To the northwest across the intersection are the proposed Franklin-Braintree and Allston Hall buildings, sitting behind the historic three-story Chester Block building that contains ground floor retail with residential units above. To the south along Harvard Avenue there are one-story commercial buildings with several surface parking lots interspersed throughout.

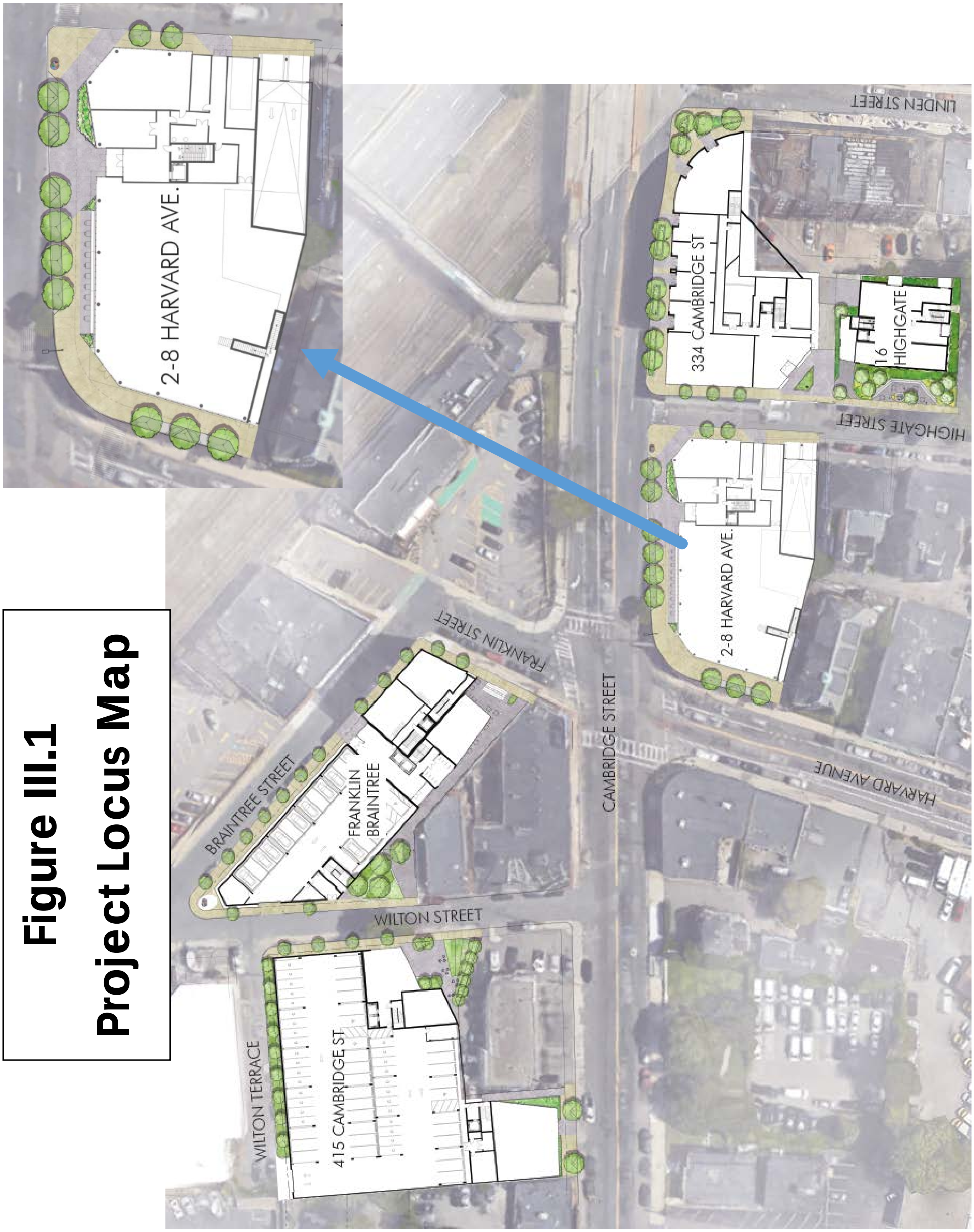


Figure III.1
Project Locus Map

Figure III.2
2-8 Harvard Avenue Breakdown

Table III.3. Approximate Project Dimensions of 2-8 Harvard Avenue

Lot Area:	18,361
Gross Square Feet:	82,245
Units:	77 Rental
Parking:	48 Spaces
Retail:	9,945 Sq. Ft.
FAR:	4.48
Height:	6 Stories/69’

2.0 GENERAL INFORMATION

2.1 Public Benefits

The Proposed Project will provide substantial benefits to the City of Boston and the Allston-Brighton community. The Proposed Project will generate both direct and indirect economic and social benefits to the Allston-Brighton neighborhood. The Proposed Project provides for:

- Generating much needed market rate residential housing in the Allston-Brighton Neighborhood.
- Meeting the BPDA's inclusionary zoning regulations by creating on-site affordable residential units, which will meet the Boston Planning & Development Agency's affordable housing standards.
- Creating seventy-seven residential units.
- Creating a diverse mixture of units including studios, one-bedroom units, and two-bedroom units.
- Revitalizing an underutilized parcel and replacing the current commercial structures and parking facilities with modern and energy efficient housing and retail space.
- Meeting LEED standards by constructing a building that will incorporate open space in the form of decking and terraces, and energy-efficient appliances, which will result in a high LEED standard for the Project.
- Integrating parking facilities that will accommodate forty-eight parking spaces for the unit residents.
- Encouraging alternative modes of transportation through the use of bicycling and walking, due to the close proximity of the bus lines and the Boston Landing MBTA Station.
- Adding revenue in the form of property taxes to the City of Boston.
- Creating full-time jobs (commercial retail).
- Creating temporary construction and labor jobs.
- Proposing eleven new street trees.
- Creating additional open space at the ground level.

- Creating new and improved sidewalk space to accommodate general foot traffic and to promote an active pedestrian walkway.
- Creating dedicated art spaces to pay homage to the rich artist heritage of Allston Square.

2.2 Compliance with Boston Zoning Code – Use and Dimensional Requirements

2-8 Harvard Avenue is located within in the Allston-Brighton Neighborhood District, Article 51 of the Boston Zoning Code (the "Code"). Specifically, the property is located within a Harvard Avenue Community Commercial (Harvard Avenue CC-1) Subdistrict. **See Tables III.4**.

Multi-Family Residential Uses are conditional within a Harvard Avenue Community Commercial Subdistrict. Therefore, a use variance would need to obtained from the City of Boston Zoning Board of Appeal ("Board"). Additionally, any dimensional regulations that are not adhered to within the project will require variances from the Board.

For a project that is subject to Article 80 Large Project Review, required off-street parking spaces and off-street loading facilities will be determined as a part of the Large Project Review process in accordance with the provisions of Article 80 of the Boston Zoning Code. Design elements of the project will also be reviewed, in accordance with the Article 80 Review process.

The Site is located in an area that contains both residential and commercial uses. The design team feels that given this location, and the structures influencing the design, as well as comparable developments in the neighborhood, that the proposed building heights, massing and scale are appropriate for this location and conducive to the Allston-Brighton neighborhood.

Table III.4. 2-8 Harvard Avenue – Dimensional Regulations

Categories	Community Commercial Subdistrict (CC-1)	Current Proposal
Minimum Lot Area (Square Feet)	None	18,361
Floor Area Ratio	1.0	4.48
Minimum Lot Width	None	155 Feet
Minimum Lot Frontage	None	141 Feet
Minimum Front Yard	None	0 Feet
Minimum Side Yard	None	.3 Feet/0-7 Feet
Minimum Rear Yard	20 Feet	0
Maximum Building Height	35 Feet	69 Feet
Minimum Useable Open Space Per Dwelling Unit (Square Feet)	50 S.F. Per Unit	84 S.F. Per Unit
Off-Street Parking Spaces	2.0 Spaces Per Unit (154) 2.0 Spaces Per 1,000 Square Feet of Retail Space (20)	48 Spaces

3.0 URBAN DESIGN AND SUSTAINABILITY

3.1 Site and Surroundings

2-8 Harvard Avenue is located at the intersection of Harvard Avenue and Cambridge Street, just south of the Massachusetts Turnpike (I-90). Directly east of the site across Highgate Street is the proposed six-story (6) 334 Cambridge Street project, while across the street to the southeast is the proposed four-story (4) 16 Highgate Street project. Abutting the site to the south is the old fire house currently being used as mixed commercial space. To the north across Cambridge Street is the old Allston Depot train station, currently housing Pizzeria Regina. To the northwest across the intersection are the proposed Franklin-Braintree and Allston Hall buildings, sitting behind the historic three-story (3) Chester Block building that contains ground floor retail with residential units above. To the south along Harvard Avenue there are one-story (1) commercial buildings with several surface parking lots interspersed throughout.

The area of the site is approximately 18,361 SF and has a large grade change sloping west from Highgate Street toward Harvard Avenue. The site has two prominent exposures along Cambridge Street and Harvard Avenue, as well as highly visible secondary facades along Highgate Street and the south edge of the property line adjacent to the old fire house. The current site is occupied by an unused, one-story (1) stucco building at the corner of Cambridge Street and Harvard Avenue, with a surface parking lot to the east along Highgate Street. **For existing site pictures see Appendix III.1.**

3.2 Urban Design Review

Reaching a height of approximately sixty-nine (69) feet, the proposed six-story (6) building at 2-8 Harvard Avenue will serve as an important gateway into Allston from Cambridge to the east. Given that the building will be highly visible from a variety of vantage points along Cambridge Street, Harvard Avenue and from the Massachusetts Turnpike, it will function as an icon to showcase the arrival of Allston as one of Boston's key neighborhoods. Through carefully selected façade materials and deliberate massing strategies, the proposed project will be a monumental yet highly contextual addition to the neighborhood.

The massing and exterior skin of the building create a new, unique structure that captures the industrial aesthetic of the neighborhood while at the same time directly relating to the immediate context. The massing reacts to various site "forces" and view corridors, which in turn cause the envelope to break away from the "street wall" on Cambridge Street, creating a new hardscape plaza for the residential entry and two adjacent retail components. The entrance to the smaller retail space on the corner of Highgate Street cuts back at an angle which allows the public space to spill back into the shared entry court down Highgate. Along the less prominent sides, portions of the envelope strategically slide in and out to react to neighboring structures while lessening its apparent scale.

To further strengthen the massing strategy, façade textures include colored zinc panels, high-density fiber cement panels and glazed storefront fenestration. The tones of the zinc panels on the main three facades relate to the existing brown and red masonry buildings prevalent in the area while also providing a new, refreshing and modern texture. Much of the ground floor consists of an open, transparent storefront system blurring the lines between indoor and outdoor space and further promoting an active street level throughout the day.

3.3 Building Design Review

The proposed building at 2-8 Harvard Avenue is a six-story (6) mixed-use structure consisting primarily of seventy-seven (77) residential units ranging from studios to two-bedroom units on levels two through six (2-6). In addition to high ceilings and large windows, most of the units will have private balconies. To access the residential units, there is a prominent residential lobby and fitness space on the ground floor off the plaza on Cambridge Street, while on the second floor there is a south-facing roof deck for use by the residents. A parking level is located below grade, accessible by way of Highgate Street. On either side of the residential lobby sits ample retail space to further activate the street level throughout the day. On the corner of Cambridge and Harvard is the larger of the two retail spaces at 8,625 SF while on the corner of Cambridge and Highgate is the smaller retail component at 1,325 SF for a total of 9,950 SF of new retail space. The mechanical space and loading dock are accessed by Highgate Street.

The building form appears as an extruded, zinc-clad volume on a transparent podium that is then acted upon and broken down upon by different site "forces" and view corridors in the area. The key moments where these fissures happen reveal themselves as clear glazed fenestration with protruding balconies, the key moment signifying the residential entry on Cambridge Street. Creative detailing through the use of vertical fins between the zinc panels and extruded metal window trims adds further definition to highlight the split of the envelope from the street wall. The patterning of the zinc is designed to convey a sense of movement and rhythm as cars, bikes and pedestrian pass in all directions. This is most noticeable on the corner of Cambridge Street and Harvard Avenue, where the windows are cantilevered out from the main façade to further accentuate this sense of movement. The clear glazed fenestration wrapping the ground floor promotes a vibrancy at the street level along the main thoroughfares of Cambridge Street and Harvard Avenue.

3.4 Landscape Design

This project provides generous sidewalks with eleven (11) new street trees; six (6) on Cambridge Street, three (3) on Harvard Avenue and two (2) on Highgate Street that align with the regulations as specified by Boston Complete Streets Design Guidelines to provide a proper buffer between cars and pedestrians. The sidewalk along Harvard Avenue will be 16'-0" which leads to a large, open corner providing visual connectivity through the intersection onto Cambridge Street, where a 12'-0" sidewalk is provided. Between this sidewalk and the building envelope is a new hardscaped plaza with sculptural seating elements for use by the retail tenant(s) as well as the residents of the building above and the general public. At the residential entry, angular paving that appears to continue from the plaza in front of Franklin-Braintree interrupts the pattern of the concrete sidewalk to signify that the plaza is part of a larger urban gesture relating to the rest of the Allston Square Master Plan Development. All details of flora added to site, including caliper and species, will be approved by the City of Boston Parks and Recreation Commission.

The current site is occupied by an unused, one-story building along with a surface parking lot to the rear. The proposed building is designed to respond to its immediate context as well as neighborhood concerns while using Boston Complete Streets as a guideline for responsible, pedestrian-oriented urban design. The development team feels that a building height of 6 stories / ~70 feet is an appropriate scale in relation to its neighbors given the building massing strategy and its location in a rapidly growing neighborhood in need of additional residential units.

3.5 Urban Design Drawings

The Proposed Project's urban design drawings will include, existing and proposed plot plans, proposed floor plans, elevations, building matrix, building rendering, concept diagram and landscape plan. **To view the full Urban Design Drawings please see Appendix III.2. For the full Accessibility Checklist and Accessibility Diagram please see Appendix III.3.**

4.0 SHADOW STUDY

As typically required by the BPDA, a shadow impact analysis was conducted to investigate shadow impacts from each proposed building during three time periods (9:00 a.m., 12:00 noon, and 3:00 p.m.) during the Vernal Equinox (March 21), Summer Solstice (June 21), Fall Equinox (September 21), and Winter Solstice (December 21).

The shadow analysis presents the existing shadows and new shadows that would be created by the proposed project, illustrating the incremental impact of the project. The analysis focuses on nearby open spaces, sidewalks & streets, and buildings that are in the vicinity of the project site. Shadows have been determined using the applicable Altitude and Azimuth data for Boston. **Figures showing the net new shadow from the project are provided in Appendix III.4 at the end of this section.**

Vernal Equinox (March 21)

At 9:00 a.m. during the Vernal Equinox, new shadow from the project will be cast to the northwest onto Cambridge Street and it sidewalks. New shadow will also reach a small portion of Franklin Street, and its adjacent sidewalks plus the open parking lot at 15 Franklin Street. The lower retail section of the three-story brick building across Cambridge Street, to the Northwest, will also receive some new shadow.

At 12:00 p.m., new shadow from the project will be cast to the north partially onto Cambridge Street, Highgate Street, and adjacent sidewalks. No new shadow will be cast onto nearby open spaces or buildings.

At 3:00 p.m., new shadow from the project will be cast to the northeast onto Highgate Street and its sidewalk. The new cast shadow will also partially reach the West elevation of the proposed building at 334 Cambridge Street.

Summer Solstice (June 21)

At 9:00 a.m. during the Summer Solstice, new shadow from the project will be cast to the northwest onto a section of Harvard Avenue and Cambridge Street, plus adjacent sidewalks. No new shadow will be cast onto nearby open spaces or buildings.

At 12:00 p.m., new shadow from the project will be cast to the north and is limited to site's surrounding sidewalks, along Cambridge and Highgate Streets. No new shadow will be cast onto nearby open spaces or buildings.

At 3:00 p.m., new shadow from the project will be cast to the northeast onto a portion of Highgate Street and its sidewalks. The new cast shadow will also partially reach the West elevation of the proposed building at 334 Cambridge Street.

Fall Equinox (September 21)

At 9:00 a.m. during the Fall Equinox, new shadow from the project will be cast to the northwest onto Cambridge Street and it sidewalks. The new shadow will also reach a small portion of Harvard Avenue, Franklin Street, and its adjacent sidewalks plus the open parking lot at 15 Franklin Street. The lower retail section of the three-story brick building across Cambridge Street, to the Northwest, will also receive some new shadow.

At 12:00 p.m., new shadow from the project will be cast to the north partially onto Cambridge Street, Highgate Street, and adjacent sidewalks. No new shadow will be cast onto nearby open spaces or buildings.

At 3:00 p.m., new shadow from the project will be cast to the northeast onto Highgate Street and its sidewalk. The new shadow will also affect the West elevation of the proposed building at 334 Cambridge Street.

Winter Solstice (December 21)

The Winter Solstice creates the least favorable conditions for sunlight in New England. The sun angle during the Winter is lower than in any other season, causing the shadows in urban areas to elongate and be cast onto large portions of the surrounding area.

At 9:00 a.m. during the Winter Solstice, new shadow from the project will be cast to the northwest onto Cambridge Street and Franklin Street, plus their respective sidewalks. New shadow will be cast onto most of the open parking lot at 15 Franklin Street. The lower retail section of the three-story buildings across Cambridge Street, to the Northwest, will also receive new shadow.

At 12:00 p.m., new shadow from the project will be cast to the north onto Cambridge Street, its sidewalks, and open parking lot at 15 Franklin Street. New shadow will also be cast onto Highgate Street and sidewalks.

At 3:00 p.m., new shadow from the project will be cast to the northeast onto a section of Cambridge and Highgate Streets. The majority of the site's immediate context is already in shadows, due to existing conditions.

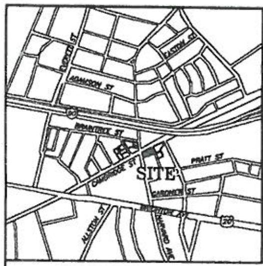
Conclusions

The shadow impact analysis looked at net new shadow created by the project during twelve time periods. New shadows from the project will be mostly limited to the adjacent buildings at Cambridge Street, Harvard Avenue, Franklin Street, Highgate Street, and their respective sidewalks. The shadows cast by the proposed building will have a significant impact on its immediate context. The large difference between net new shadows and existing shadows stems from the fact that half of the site in question was previously occupied by a single story commercial brick building and the other half was, for the most part, an open parking lot. In contrast, the proposed building will cover the entirety of the site and is six stories tall; casting a significant amount of new shadows.

5.0 GEOTECHNICAL INFORMATION

A Geotechnical study was conducted by KMM Geotechnical Consultants, LLC for the proposed development. A full report was produced for the proposed 2-8 Harvard Avenue site. **The full result of this Geotechnical Study is located in Appendix III.5.**

2-8 Harvard Avenue



VICINITY SKETCH
SCALE: NTS

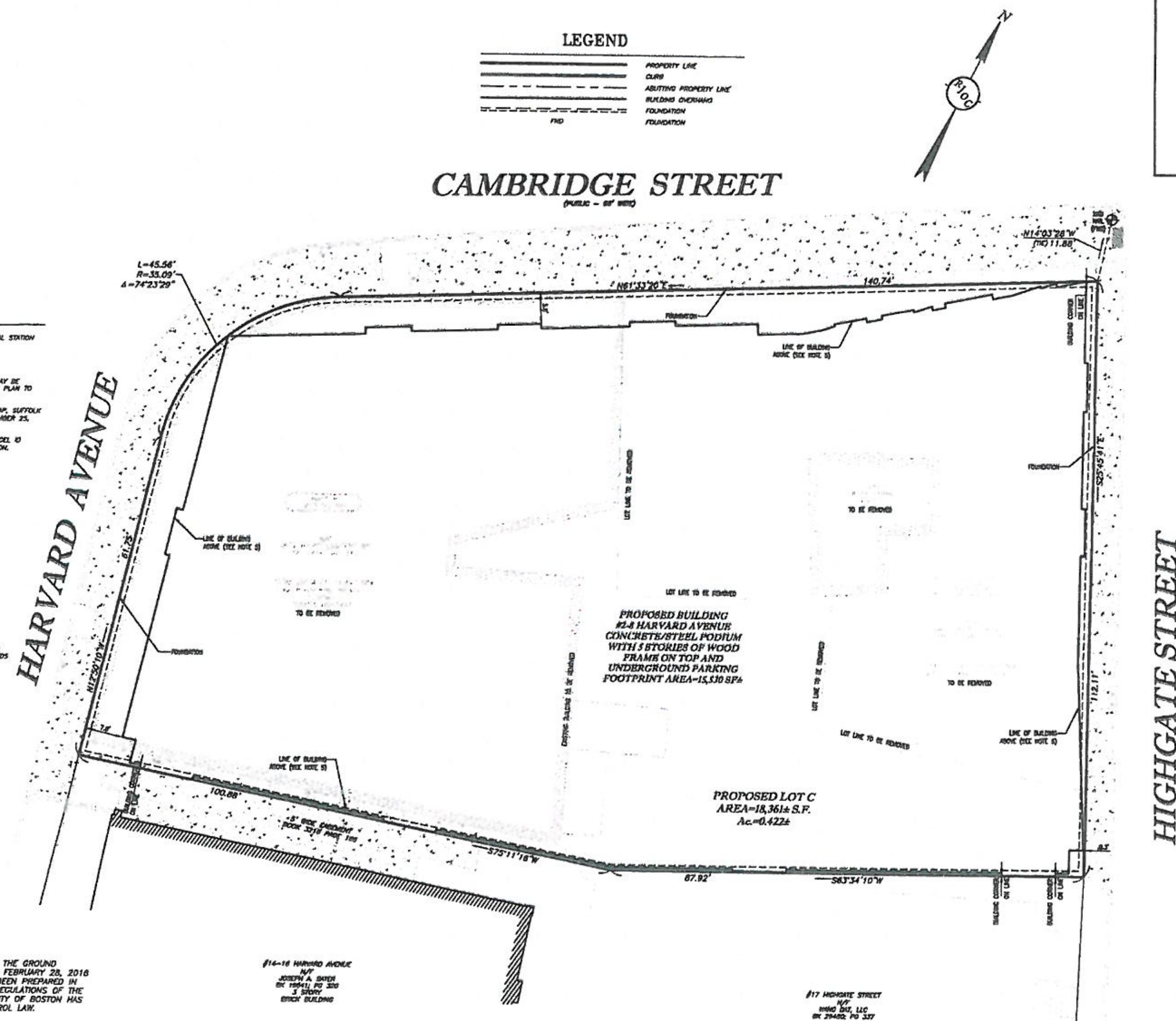
NOTES

1. THIS PLAN WAS PREPARED FROM AN ACTUAL SURVEY MADE ON THE GROUND USING TOTAL STATION METHODS BETWEEN 02/28/2018 AND 03/28/2018.
2. THE HORIZONTAL DATUM IS NORTH AMERICAN DATUM OF 1983 (NAD '83). DATUM WAS ESTABLISHED USING RTK GPS METHODS.
3. THE POSITIONAL ACCURACY OF THE DATA AND PHYSICAL IMPROVEMENTS ON THIS PLAN MAY BE APPROXIMATE. ANY USE OF ELECTRONIC DATA CONTAINED IN AUTOCAD VERSIONS OF THIS PLAN TO GENERATE COORDINATES OR DIMENSIONS NOT SHOWN ON THE PLAN IS NOT AUTHORIZED.
4. THE PARCEL SHOWN IS LOCATED IN ZONE X, AS SHOWN ON "FLOOD INSURANCE RATE MAP, SUFFOLK COUNTY, BOSTON MASSACHUSETTS," MAP NUMBER 25025C0067G, EFFECTIVE DATE SEPTEMBER 25, 2009.
5. THE PURPOSE OF THIS PLAN IS TO CONSOLIDATE LOTS KNOWN AS CITY OF BOSTON PARCEL ID NUMBER 2100682000, 2100683000 INTO ONE LOT (PROPOSED LOT C) AS SHOWN HEREON.

REFERENCES

PLAN BOOK AND PAGES REFERENCE THE SUFFOLK COUNTY REGISTRY OF DEEDS

- BK. 3218/PG. 168
- BK. 29480/PG. 337
- BK. 34741/PG. 287
- BK. 58258/PG. 143
- PLAN BK. 18A/PLAN 2



FOR REGISTRY USE ONLY

WE HEREBY CERTIFY THAT:
THIS PLAN IS THE RESULT OF AN ON THE GROUND SURVEY PERFORMED ON OR BETWEEN FEBRUARY 28, 2018 AND MAY 16, 2018. THE PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE RULES AND REGULATIONS OF THE OF THE REGISTERS OF DEEDS. THE CITY OF BOSTON HAS NOT ADOPTED THE SUBDIVISION CONTROL LAW.

KEVIN J. KIERNAN No. 40038 PROFESSIONAL LAND SURVEYOR

5/18/18

PROFESSIONAL LAND SURVEYOR FOR RJ O'CONNELL & ASSOCIATES, INC — DATE

DIG SAFE
BEFORE YOU DIG
CALL 811

No.	Revision / Date

Record Owner: SEE PLAN

Location: 2-8 HARVARD AVENUE, ALLSTON SQUARE, BOSTON (ALLSTON) MA

Drawn by:	MSM
Checked by:	KJK
Scale:	1"=10'
Date:	05/18/2018
Field Crew:	TDS/KJK
Field Book:	BK. XX PG. X

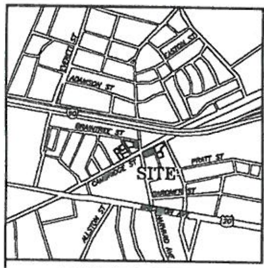
Prepared for:
CITY REAL ESTATE DEVELOPMENT CORP.
320 WASHINGTON ST
SUITE 3FF
BROOKLINE, MA 02445

Prepared by:
RJO'CONNELL & ASSOCIATES, INC.
CIVIL ENGINEERS, SURVEYORS & LAND PLANNERS
80 MONTVALE AVE
STONEHAM, MA 02180
781-279-0180
www.rjoconnell.com

Project Name:
ALLSTON SQUARE
BOSTON (ALLSTON) MA

Drawing Name:
APPROVAL NOT REQUIRED PROPOSED LOT C

Drawing No.:
ANR-3 (CONSOLIDATION)
Project No.: 18018



VICINITY SKETCH
SCALE: NTS

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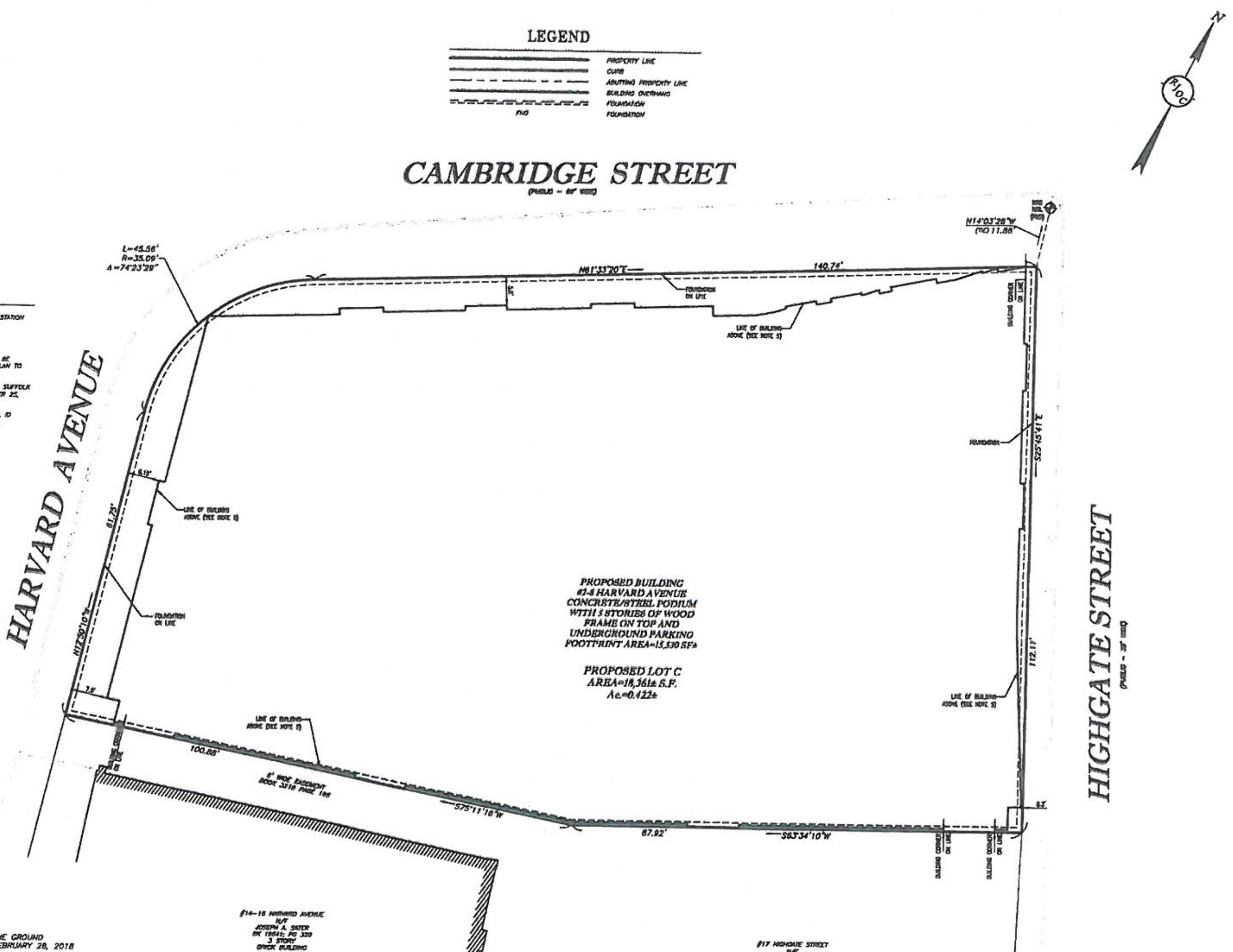
- BK. 29480/PG. 337
- BK. 54741/PG. 267
- BK. 58258/PG. 143
- PLAN BK. 184/PLAN 2

LEGEND

PROPERTY LINE
CURB
ABUTTING PROPERTY LINE
BUILDING OVERHANG
FOUNDATION
FOUNDATION



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KEVIN J. KIERNAN No. 40038 PROFESSIONAL LAND SURVEYOR

5/16/18

PROFESSIONAL LAND SURVEYOR FOR RJ O'CONNELL & ASSOCIATES, INC — DATE

DIG SAFE
BEFORE YOU DIG
CALL 811

Record Owner:
SEE PLAN

Location:
2-8 HARVARD AVENUE
ALLSTON SQUARE
BOSTON (ALLSTON) MA

Drawn by:	MSM
Checked by:	KJK
Scale:	1"=10'
Date:	05/16/2018
Field Crew:	TDB/KJK
Field Book:	BK. XX PG. X

Prepared for:
CITY REAL ESTATE DEVELOPMENT CORP.
320 WASHINGTON ST
SUITE 3FF
BROOKLINE, MA 02446

Prepared by:
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781-279-0180
www.rjoconnell.com

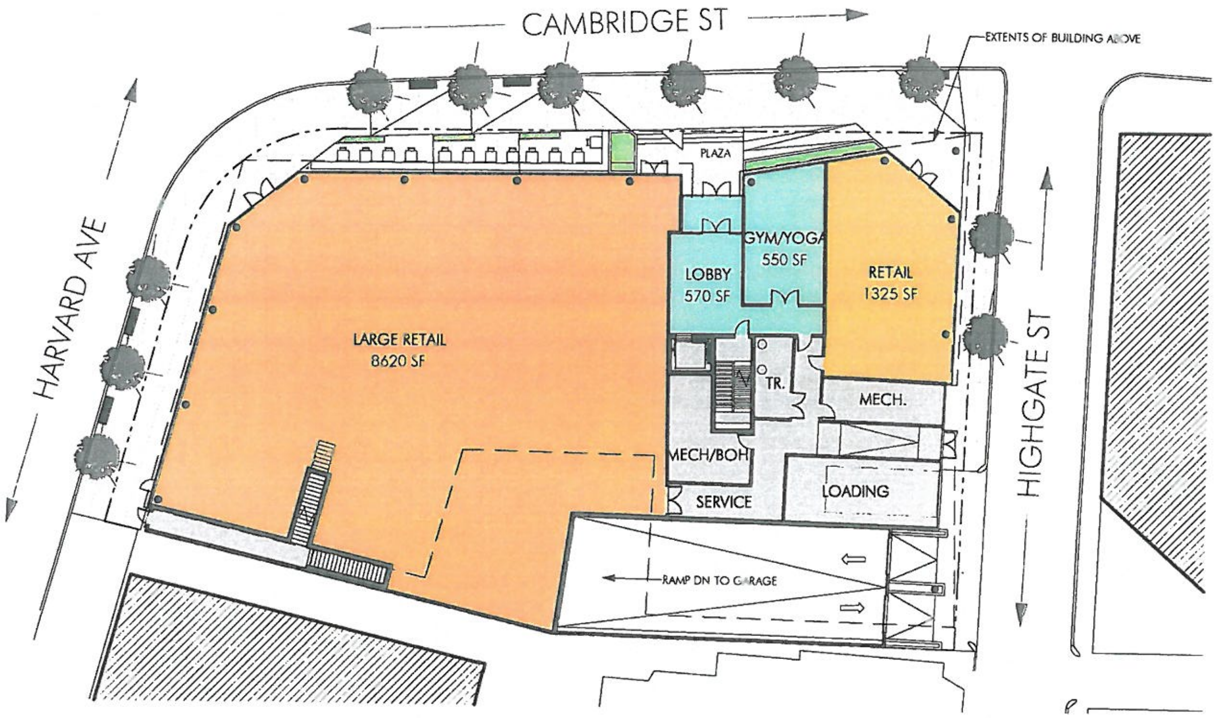
Project Name:
ALLSTON SQUARE
BOSTON (ALLSTON) MA

Drawing Name:
APPROVAL NOT REQUIRED PROPOSED LOT C

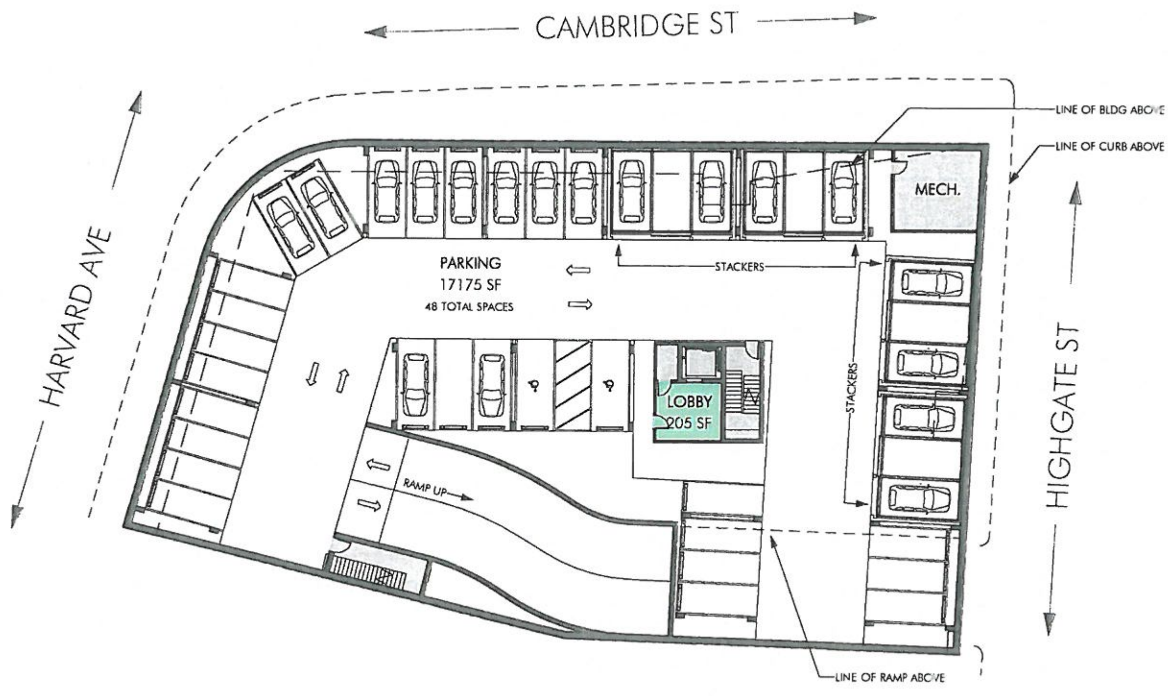
Drawing No.:
PROPERTY EXHIBIT

Project No.: 18018

No. | Revision | Date



GROUND FLOOR PLAN | Scale: 1" = 40'



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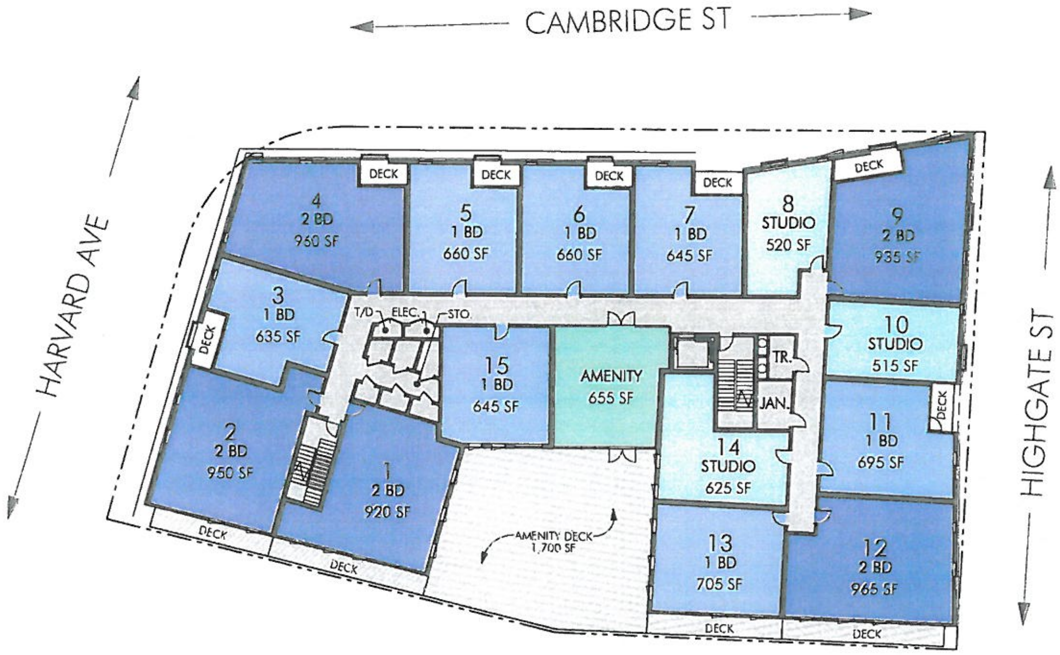
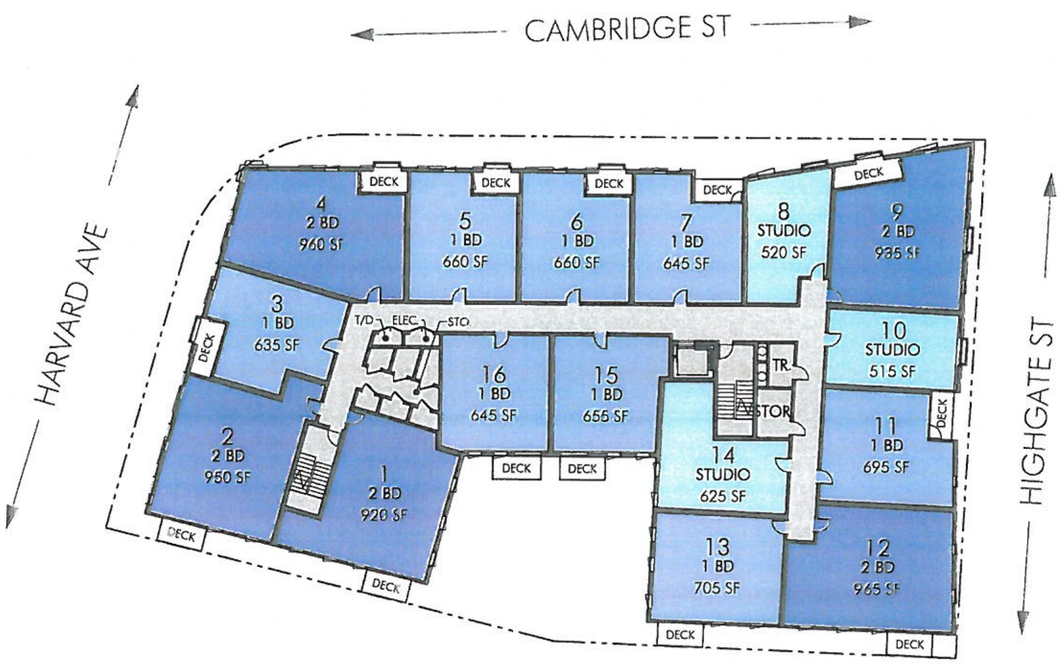
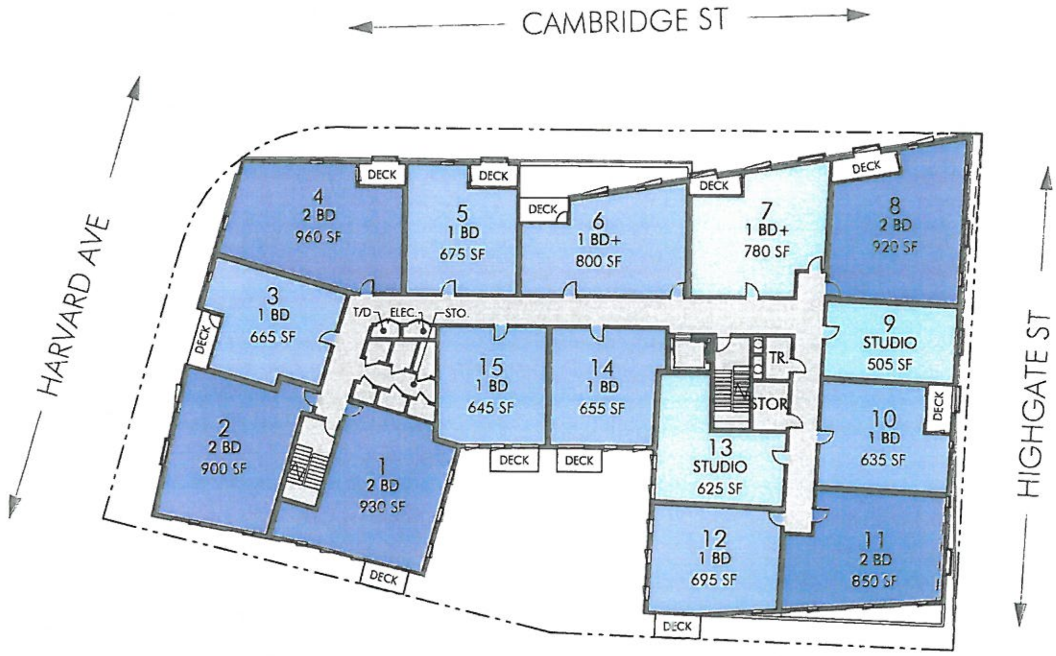


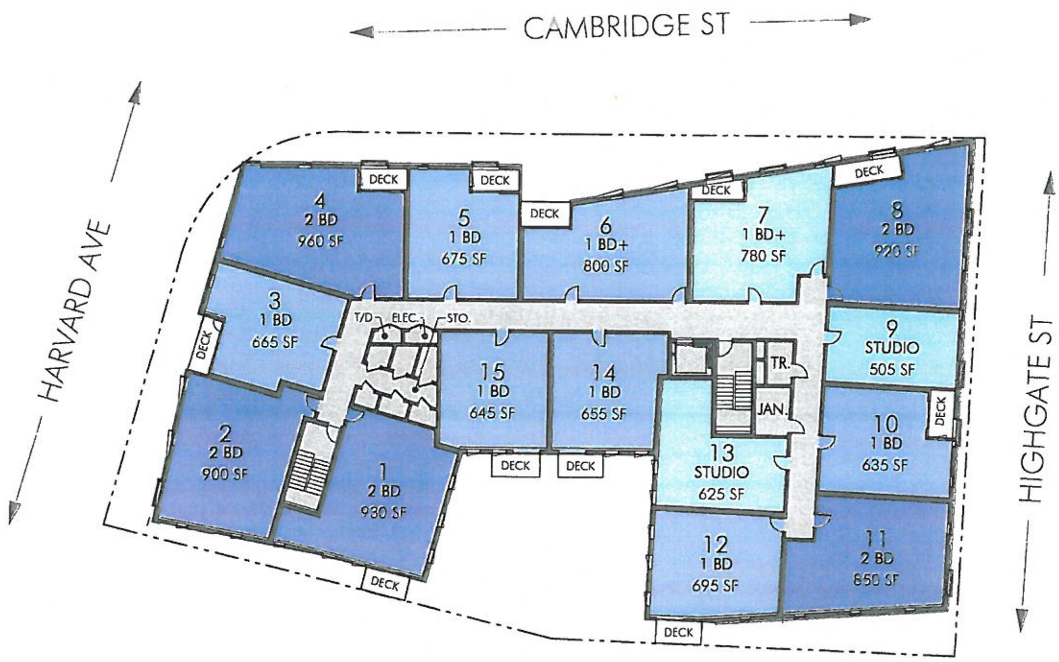
2ND & 3RD FLOOR PLAN | Scale: 1" = 40'



4TH FLOOR PLAN | Scale: 1" = 40'



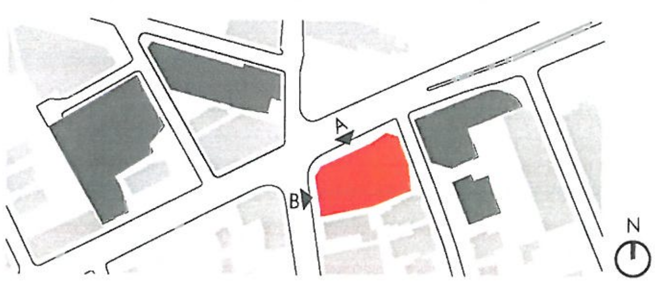
5TH FLOOR PLAN | Scale: 1" = 40'



6TH FLOOR PLAN | Scale: 1" = 40'

A - CAMBRIDGE STREET ELEVATION | Scale: 1" = 40'

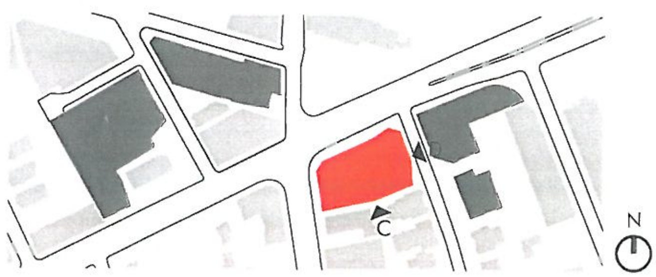
B - HARVARD AVE ELEVATION | Scale: 1" = 40'



ELEVATION KEY

C - SOUTH ELEVATION | Scale: 1" = 40'

D - HIGHGATE STREET ELEVATION | Scale: 1" = 40'



ELEVATION KEY

EMBARC

2-8 HARVARD ST
UNIT MATRIX
April 10, 2018

GROSS SQUARE FEET (GSF)

		SELLABLE : RENTABLE GSF		COMMON	COMMON GSF
BASEMENT FLOOR				STAIRS : ELEV : LOBBY	[illegible]5
				MECH.	425
FLOOR SUBTOTAL		0			1,200
GROUND FLOOR	RETAIL 1	1,325		STAIRS : ELEV : LOBBY	2,490
	RETAIL 2	8,620		MECH : TRASH	740
				GYM	550
FLOOR SUBTOTAL		9,945			3,780
LEVEL 2	UNIT 201	920	2 BR	HALL : STO. : STAIRS : ELEV.	2,235
(15 UNITS)	UNIT 202	950	2 BR	AMENITY	655
	UNIT 203	635	1 BR		
	UNIT 204	960	2 BR		
	UNIT 205	660	1 BR		
	UNIT 206	660	1 BR		
	UNIT 207	645	1 BR		
	UNIT 208	520	ST		
	UNIT 209	935	2 BR		
	UNIT 210	515	ST		
	UNIT 211	695	1 BR		
	UNIT 212	965	2 BR		
	UNIT 213	705	1 BR		
	UNIT 214	625	ST		
	UNIT 215	645	1 BR		
FLOOR SUBTOTAL		11,035			2,890
LEVEL 3	UNIT 301	920	2 BR	HALL : STO. : STAIRS : ELEV.	2,235
(16 UNITS)	UNIT 302	950	2 BR		
	UNIT 303	635	1 BR		
	UNIT 304	960	2 BR		
	UNIT 305	660	1 BR		
	UNIT 306	660	1 BR		
	UNIT 307	645	1 BR		
	UNIT 308	520	ST		
	UNIT 309	935	2 BR		
	UNIT 310	515	ST		
	UNIT 311	695	1 BR		
	UNIT 312	965	2 BR		
	UNIT 313	705	1 BR		
	UNIT 314	625	ST		
	UNIT 315	655	1 BR		
	UNIT 316	645	1 BR		
FLOOR SUBTOTAL		11,690			2,235
LEVEL 4	UNIT 401	920	2 BR	HALL : STO. : STAIRS : ELEV.	2,130
(16 UNITS)	UNIT 402	900	2 BR		
	UNIT 403	665	1 BR		
	UNIT 404	9[illegible]	2 BR		
	UNIT 405	660	1 BR		
	UNIT 406	660	1 BR		
	UNIT 407	645	1 BR		
	UNIT 408	520	ST		
	UNIT 409	935	2 BR		
	UNIT 410	515	ST		
	UNIT 411	695	1 BR		
	UNIT 412	965	2 BR		
	UNIT 413	705	1 BR		
	UNIT 414	625	ST		
	UNIT 415	655	1 BR		
	UNIT 416	645	1 BR		
FLOOR SUBTOTAL		11,670			2,130
LEVEL 5	UNIT 501	930	2 BR	HALL : STO. : STAIRS : ELEV.	2,195
(15 UNITS)	UNIT 502	900	2 BR		
	UNIT 503	665	1 BR		
	UNIT 504	960	2 BR		
	UNIT 505	675	1 BR		
	UNIT 506	800	1 BR+		
	UNIT 507	780	1 BR+		
	UNIT 508	920	2 BR		
	UNIT 509	505	ST		
	UNIT 510	635	1 BR		
	UNIT 511	850	2 BR		
	UNIT 512	695	1 BR		
	UNIT 513	625	ST		
	UNIT 514	655	1 BR		
	UNIT 515	645	1 BR		
FLOOR SUBTOTAL		11,240			2,195
LEVEL 6	UNIT 601	930	2 BR	HALL : STO. : STAIRS : ELEV.	2,195
(15 UNITS)	UNIT 602	900	2 BR		
	UNIT 603	665	1 BR		
	UNIT 604	960	2 BR		
	UNIT 605	675	1 BR		
	UNIT 606	800	1 BR+		
	UNIT 607	780	1 BR+		
	UNIT 608	920	2 BR		
	UNIT 609	505	ST		
	UNIT 610	635	1 BR		
	UNIT 611	850	2 BR		
	UNIT 612	695	1 BR		
	UNIT 613	625	ST		
	UNIT 614	655	1 BR		
	UNIT 615	645	1 BR		
FLOOR SUBTOTAL		11,240			2,195
RESIDENTIAL SELLABLE GSF		66,820		COMMON AREA GSF	16,625

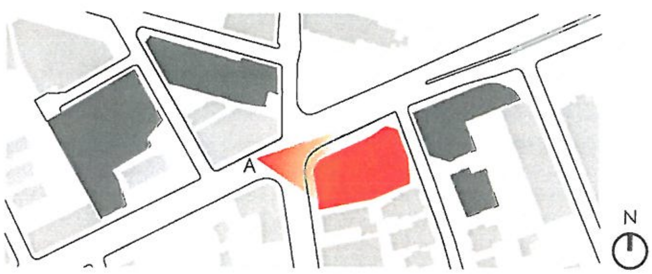
BUILDING GSF		
BASEMENT FLOOR	1,200	(Parking not incl.)
GROUND FLOOR	13,725	
SECOND FLOOR	13,925	
THIRD FLOOR	13,925	
FOURTH FLOOR	13,800	
FIFTH FLOOR	13,435	
SIXTH FLOOR	13,435	
TOTAL BUILDING GSF	82,245	(Basement not incl.)
SITE	18,361	
FAR	4.48	
BASEMENT PARKING	17,155	
TOTAL SF	100,600	
LOT COVERAGE	75%	

UNIT BREAKDOWN:		AVERAGE SIZE
STUDIO	13	557
1 BED	35	645
1 BED+	4	790
2 BED	25	895
TOTAL UNITS	77	739

PARKING SPACES	48
PARKING/UNIT RATIO	0.62

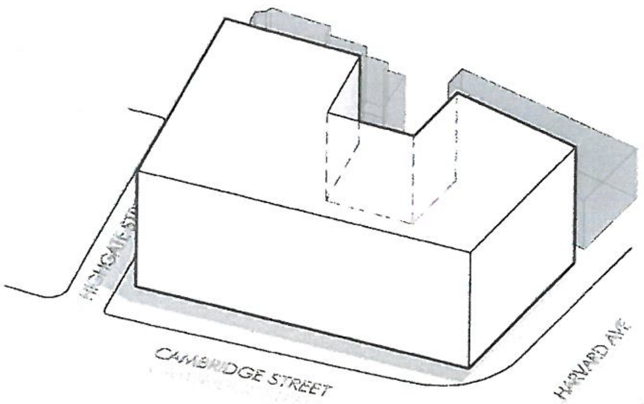
GSF: measured to outside face of exterior walls, centerline of party walls and demising walls

A- CAMBRIDGE STREET PERSPECTIVE

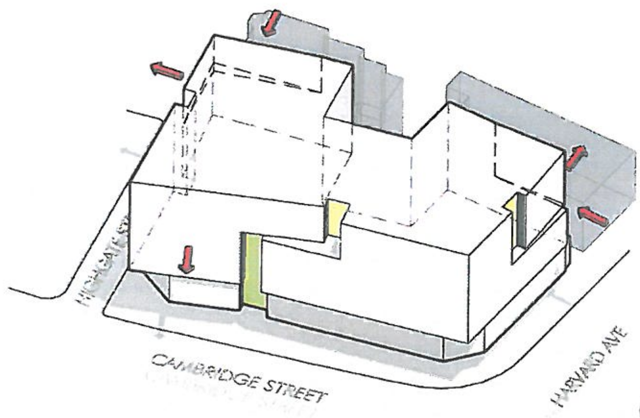


PERSPECTIVE KEY

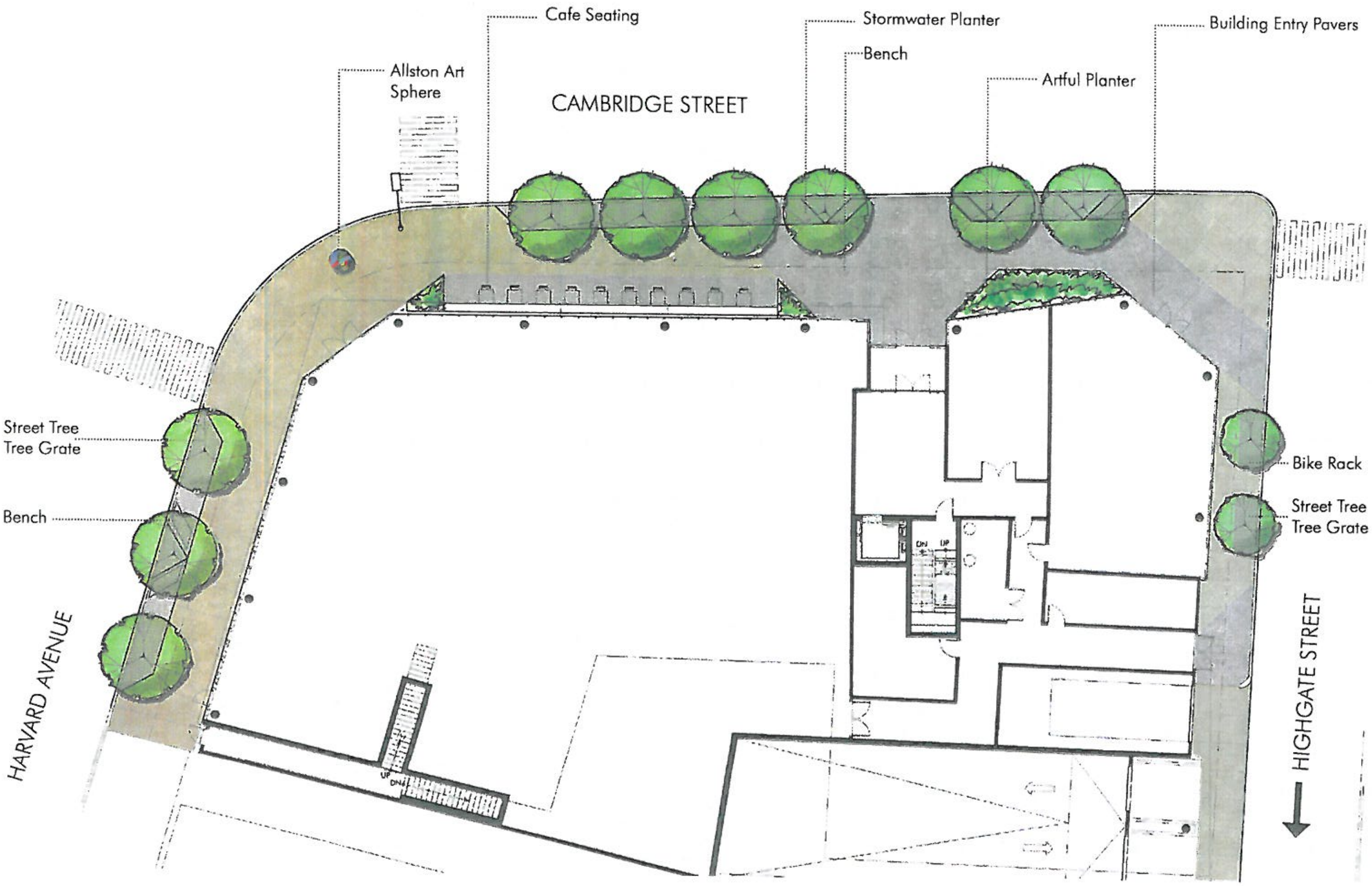
2-8 HARVARD AVENUE



1. SITE - SITE IS EXTRUDED ALONG STREET FACES AND PROPERTY LINES BASED ON REQUIRED SETBACKS AND DESIRED SIDEWALK DIMENSIONS.



2. MASSING - THE BUILDING MASS REACTS TO SITE FORCES AND BREAKS AWAY FROM STREET WALL; IN FRONT TO CREATE NEW PUBLIC SPACE ALONG CAMBRIDGE (VISIBLE FROM ALLEY), ALONG SIDES AND REAR TO REACT TO CONTEXT/NEIGHBORS. BREAKS ARE INTRODUCED AT EACH "INFLECTION" TO FURTHER ACCENTUATE AND ANNOUNCE KEY MOMENTS. FACADE DETAILING FURTHER ACCENTUATES DIFFERENCE BETWEEN FACADES ALONG STREET WALL AND THOSE THAT ARE NOT.

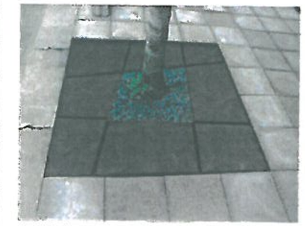


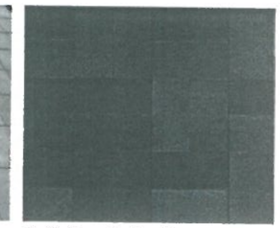
URBAN DESIGN IMPROVEMENTS

2-8 HARVARD AVENUE

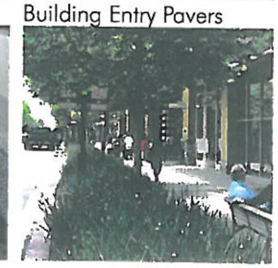
Cambridge Frontage
- Pavers define building entries
- Street Tree + Stormwater Planters
- Bike racks
- Signature benches

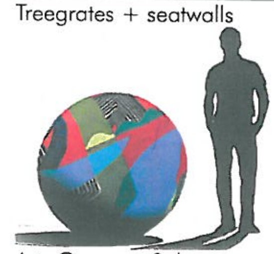
Harvard Street Frontage
- Allston Art Sphere
- Street trees with tree grates
- Bike racks
- Signature benches


Artful Tree Grates


Building Entry Pavers


Treegrates + seatwalls


Stormwater Planter


Art: Concrete Sphere a canvas for local artists


Bike Rack

2-8 HARVARD STREET

Accessibility Checklist
(to be added to the BRA Development Review Guidelines)

In 2009, a nine-member Advisory Board was appointed to the Commission for Persons with Disabilities in an effort to reduce architectural, procedural, attitudinal, and communication barriers affecting persons with disabilities in the City of Boston. These efforts were instituted to work toward creating universal access in the built environment.

In line with these priorities, the Accessibility Checklist aims to support the inclusion of people with disabilities. In order to complete the Checklist, you must provide specific detail, including descriptions, diagrams and data, of the universal access elements that will ensure all individuals have an equal experience that includes full participation in the built environment throughout the proposed buildings and open space.

In conformance with this directive, all development projects subject to Boston Zoning Article 80 Small and Large Project Review, including all Institutional Master Plan modifications and updates, are to complete the following checklist and provide any necessary responses regarding the following:
- improvements for pedestrian and vehicular circulation and access;
- encourage new buildings and public spaces to be designed to enhance and preserve Boston's system of parks, squares, walkways, and active shopping streets;
- ensure that persons with disabilities have full access to buildings open to the public;
- afford such persons the educational, employment, and recreational opportunities available to all citizens; and
- preserve and increase the supply of living space accessible to persons with disabilities.

We would like to thank you in advance for your time and effort in advancing best practices and progressive approaches to expand accessibility throughout Boston's built environment.

Accessibility Analysis Information Sources:
1. Americans with Disabilities Act – 2010 ADA Standards for Accessible Design
    a. http://www.ada.gov/2010ADAstandards_index.htm
2. Massachusetts Architectural Access Board 521 CMR
    a. http://www.mass.gov/eopss/consumer-prot-and-bus-lic/license-type/aab/aab-rules-and-regulations-pdf.html
3. Boston Complete Street Guidelines
    a. http://bostoncompletestreets.org/
4. City of Boston Mayors Commission for Persons with Disabilities Advisory Board
    a. http://www.cityofboston.gov/Disability
5. City of Boston – Public Works Sidewalk Reconstruction Policy
    a. http://www.cityofboston.gov/images_documents/sidewalk%20policy%200114_tcm3-41668.pdf
6. Massachusetts Office On Disability Accessible Parking Requirements
    a. www.mass.gov/anf/docs/mod/hp-parking-regulations-mod.doc
7. MBTA Fixed Route Accessible Transit Stations
    a. http://www.mbta.com/about_the_mbta/accessibility/

Project Information

Project Name:	ALLSTON SQUARE
Project Address Primary:	2-8 Harvard Street, Boston, MA 02134
Project Address Additional:	372 Cambridge Street, Boston, MA 02134
Project Contact (name / Title / Company / email / phone):	Jeffrey Drago / Drago & Toscano, LLP / jdrago@dtlawllp.com / 617.391.9450

Team Description

Owner / Developer:	CRM Property Development Corp.
Architect:	Embarc Studio LLC.
Engineer (building systems):	TBD
Sustainability / LEED:	Soden Sustainability Consulting
Permitting:	Drago & Toscano, LLP
Construction Management:	TBD

Project Permitting and Phase

At what phase is the project – at time of this questionnaire?

PNF / Expanded PNF Submitted	Draft / Final Project Impact Report Submitted	BRA Board Approved
BRA Design Approved	Under Construction	Construction just completed:

Building Classification and Description

What are the principal Building Uses - select all appropriate uses?

Residential – One to Three Unit	Residential - Multi-unit, Four +	Institutional	Education
Commercial	Office	Retail	Assembly
Laboratory / Medical	Manufacturing / Industrial	Mercantile	Storage, Utility and Other

First Floor Uses (List): *Commercial and Residential Lobby*

What is the Construction Type – select most appropriate type?

Wood Frame	Masonry	Steel Frame	Concrete

Describe the building?

Site Area:	*18,361 SF*	Building Area:	*83,445 SF*
Building Height:	*71 Ft. 6 inches*	Number of Stories:	*6 Flrs.*
First Floor Elevation:	*0' Elev.*	Are there below grade spaces:	*Yes*

Assessment of Existing Infrastructure for Accessibility:

This section explores the proximity to accessible transit lines and proximate institutions such as, but not limited to hospitals, elderly and disabled housing, and general neighborhood information. The proponent should identify how the area surrounding the development is accessible for people with mobility impairments and should analyze the existing condition of the accessible routes through sidewalk and pedestrian ramp reports.

Provide a description of the development neighborhood and identifying characteristics.	The proposed site is in the Allston neighborhood of Boston, situated between Ringer Park to the south, the Honan-Allston branch public library to the north, a major shopping plaza to the west (which includes a super Stop & Shop and Homegoods store among others), and Boston University to the East; all of which are located within a ½ mile radius. The current neighborhood is primarily a mixed-used of multi-family residential developments and retail/commercial buildings. Directly adjacent to site, the main road (Cambridge Street) is flanked by retail stores which makes it a busy, high-traffic area.

List the surrounding ADA compliant MBTA transit lines and the proximity to the development site: Commuter rail, subway, bus, etc.	**¼ mile Radius:** Cambridge Street @ Franklin Street (Bus 64, 66, 501, 503) / Cambridge Street @ Linden Street (Bus 64, 66, 501, 503, 9701, 9702, 9703) / Brighton Avenue @ Allston Street (Bus 57, 66, 57A). **½ mile Radius:** Harvard Avenue Station (Green Line – B Train) / Griggs Street Station (Green Line – B Train) / Packard's Corner Station (Green Line – B Train).
List the surrounding institutions: hospitals, public housing and elderly and disabled housing developments, educational facilities, etc.	**Hospitals:** Steward Health Care (South West, ¾ mile Radius), Franciscan Children's Hospital (South West, ¾ mile Radius), Boston Orthopedic & Sports Med (South West, ¾ mile Radius), Arbour HRI Hospital (East, ¾ mile Radius), Brigham & Women's Hospital (East, 1 mile Radius). **Educational Facilities:** The Learning Tree Preschool/Daycare (South, ¼ mile Radius), Gardner Pilot Academy Elementary School (North, ½ mile Radius), Bright Horizons Preschool (East, ½ mile Radius), Jackson/Mann K-8 School (South, ½ mile Radius), Horace Mann School for the Deaf (South, ½ mile Radius), Boston Theological Institute (North, ¾ mile Radius), Boston University (East, ¾ mile Radius). **Public Housing:** Glenville Avenue Apartments (South, ½ mile Radius), Commonwealth Avenue Housing (South, ½ mile Radius), Charlesview Inc (North, ¾ mile Radius), Governor Apartments (South, ¾ mile Radius), Comaven Apartments (South, ¾ mile Radius). **Elderly/Disabled Housing:** Brighton-Allston Elderly (North, ½ mile Radius).
Is the proposed development on a priority accessible route to a key public use facility? List the surrounding: government buildings, libraries, community centers and recreational facilities and other related facilities.	**Government Buildings:** Boston Fire Department Engine 41 (South, ¼ mile Radius). **Library:** Honan-Allston Branch Public Library (North East, ½ mile Radius). **Community Center:** Jackson Mann Community Center (South West, ½ mile Radius). **Recreational Facility:** Penniman Road Play Area (West, ¼ mile Radius), Ringer Park (South, ½ mile Radius), Commonwealth Sports Club (East, ½ mile Radius).

Surrounding Site Conditions – Existing:

This section identifies the current condition of the sidewalks and pedestrian ramps around the development site.

Are there sidewalks and pedestrian ramps existing at the development site?	Yes.
If yes above, list the existing sidewalk and pedestrian ramp materials and physical condition at the development site.	Existing sidewalks are concrete with granite curbs, both in acceptable condition.
Are the sidewalks and pedestrian ramps existing-to-remain? If yes,	TBD

have the sidewalks and pedestrian ramps been verified as compliant? If yes, please provide surveyors report.	
Is the development site within a historic district? If yes, please identify.	No.

Surrounding Site Conditions – Proposed

This section identifies the proposed condition of the walkways and pedestrian ramps in and around the development site. The width of the sidewalk contributes to the degree of comfort and enjoyment of walking along a street. Narrow sidewalks do not support lively pedestrian activity, and may create dangerous conditions that force people to walk in the street. Typically, a five foot wide Pedestrian Zone supports two people walking side by side or two wheelchairs passing each other. An eight foot wide Pedestrian Zone allows two pairs of people to comfortable pass each other, and a ten foot or wider Pedestrian Zone can support high volumes of pedestrians.

Are the proposed sidewalks consistent with the Boston Complete Street Guidelines? See: www.bostoncompletestreets.org	Yes.
If yes above, choose which Street Type was applied: Downtown Commercial, Downtown Mixed-use, Neighborhood Main, Connector, Residential, Industrial, Shared Street, Parkway, Boulevard.	The proposed development is bordered by Cambridge Street (North), Highgate Street (East), and Harvard Avenue (West). **STREET TYPES:** - Cambridge Street falls under the **Neighborhood Connector** category. - Highgate Street falls under the **Neighborhood Residential** category. - Harvard Avenue falls under the **Neighborhood Main** category.
What is the total width of the proposed sidewalk? List the widths of the proposed zones: Frontage, Pedestrian and Furnishing Zone.	TBD
List the proposed materials for each Zone. Will the proposed materials be on private property or will the proposed materials be on the City of Boston pedestrian right-of-way?	TBD
If the pedestrian right-of-way is on private property, will the proponent seek a pedestrian easement with	N/A

the City of Boston Public Improvement Commission?	
Will sidewalk cafes or other furnishings be programmed for the pedestrian right-of-way?	No.
If yes above, what are the proposed dimensions of the sidewalk café or furnishings and what will the right-of-way clearance be?	N/A

Proposed Accessible Parking:

See Massachusetts Architectural Access Board Rules and Regulations 521 CMR Section 23.00 regarding accessible parking requirement counts and the Massachusetts Office of Disability Handicap Parking Regulations.

What is the total number of parking spaces provided at the development site parking lot or garage?	48
What is the total number of accessible spaces provided at the development site?	2 (1 Van accessible).
Will any on street accessible parking spaces be required? If yes, has the proponent contacted the Commission for Persons with Disabilities and City of Boston Transportation Department regarding this need?	No
Where is accessible visitor parking located?	N/A
Has a drop-off area been identified? If yes, will it be accessible?	No, TBD.

Include a diagram of the accessible routes to and from the accessible parking lot/garage and drop-off areas to the development entry locations. Please include route distances.	Attached.

Circulation and Accessible Routes:

The primary objective in designing smooth and continuous paths of travel is to accommodate persons of all abilities that allow for universal access to entryways, common spaces and the visit-ability* of neighbors.

**Visit-ability – Neighbors ability to access and visit with neighbors without architectural barrier limitations*

Provide a diagram of the accessible route connections through the site.	Attached.
Describe accessibility at each entryway: Flush Condition, Stairs, Ramp Elevator.	Residential lobby to be a flush condition with the sidewalk at building exterior, as are the Commercial Space entries. The garage access from the lobby is provided via an elevator. From the Lobby, elevator access will provide access to upper floors.
Are the accessible entrance and the standard entrance integrated?	Yes.
If no above, what is the reason?	N/A
Will there be a roof deck or outdoor courtyard space? If yes, include diagram of the accessible route.	No.
Has an accessible routes way-finding and signage package been developed? If yes, please describe.	No.

Accessible Units: (If applicable)

In order to facilitate access to housing opportunities this section addresses the number of accessible units that are proposed for the development site that remove barriers to housing choice.

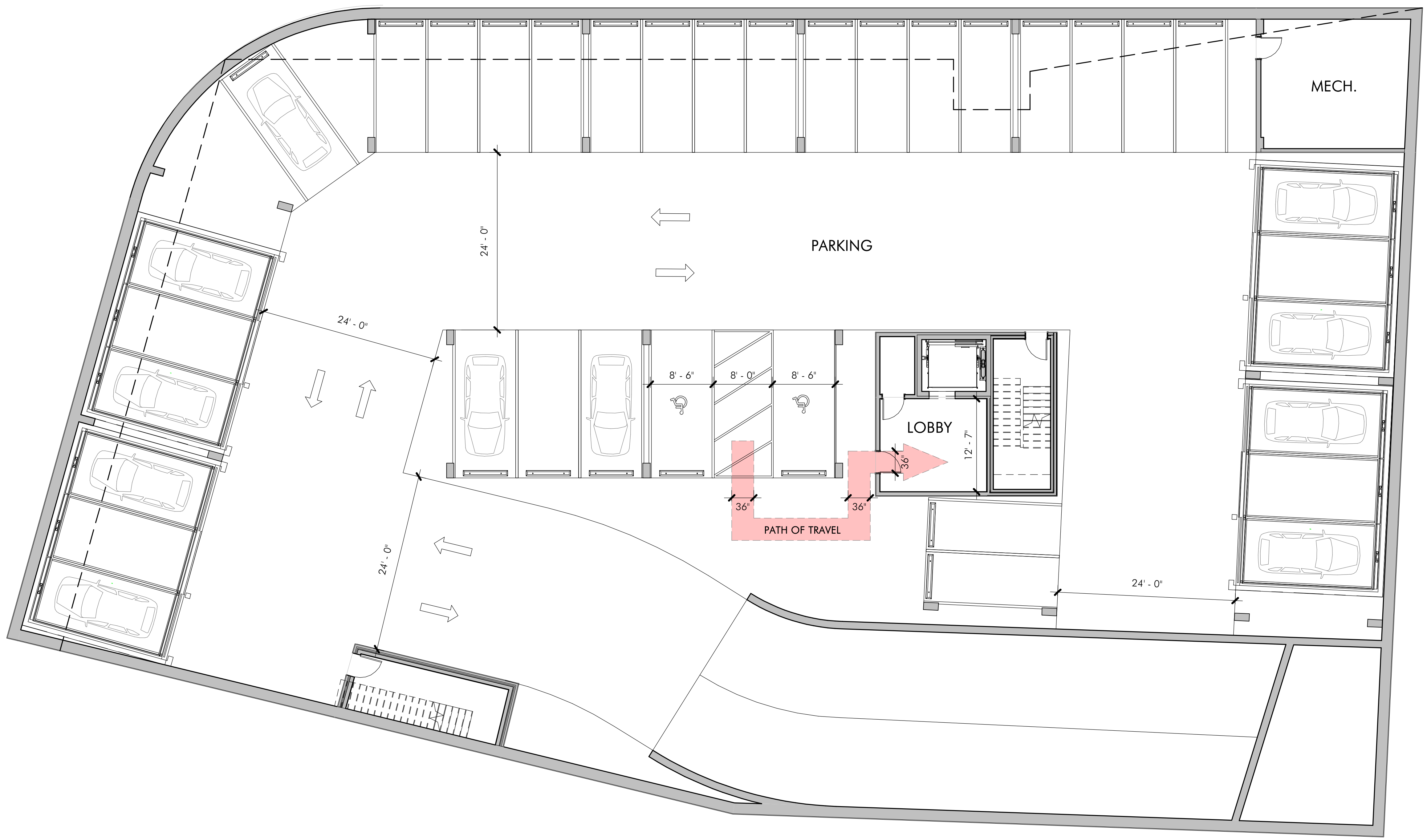
What is the total number of proposed units for the development?	77
How many units are for sale; how many are for rent? What is the market value vs. affordable breakdown?	**FOR RENT:** 77 Units; Affordable breakdown TBD
How many accessible units are being proposed?	77
Please provide plan and diagram of the accessible units.	Specific unit plans have not been developed.
How many accessible units will also be affordable? If none, please describe reason.	TBD
Do standard units have architectural barriers that would prevent entry or use of common space for persons with mobility impairments? Example: stairs at entry or step to balcony. If yes, please provide reason.	No
Has the proponent reviewed or presented the proposed plan to the City of Boston Mayor's Commission for Persons with Disabilities Advisory Board?	No.
Did the Advisory Board vote to support this project? If no, what recommendations did the Advisory Board give to make this project more accessible?	N/A

Article 80 | ACCESSIBILTY CHECKLIST

Thank you for completing the Accessibility Checklist!

For questions or comments about this checklist or accessibility practices, please contact:

kathryn.quigley@boston.gov | Mayors Commission for Persons with Disabilities

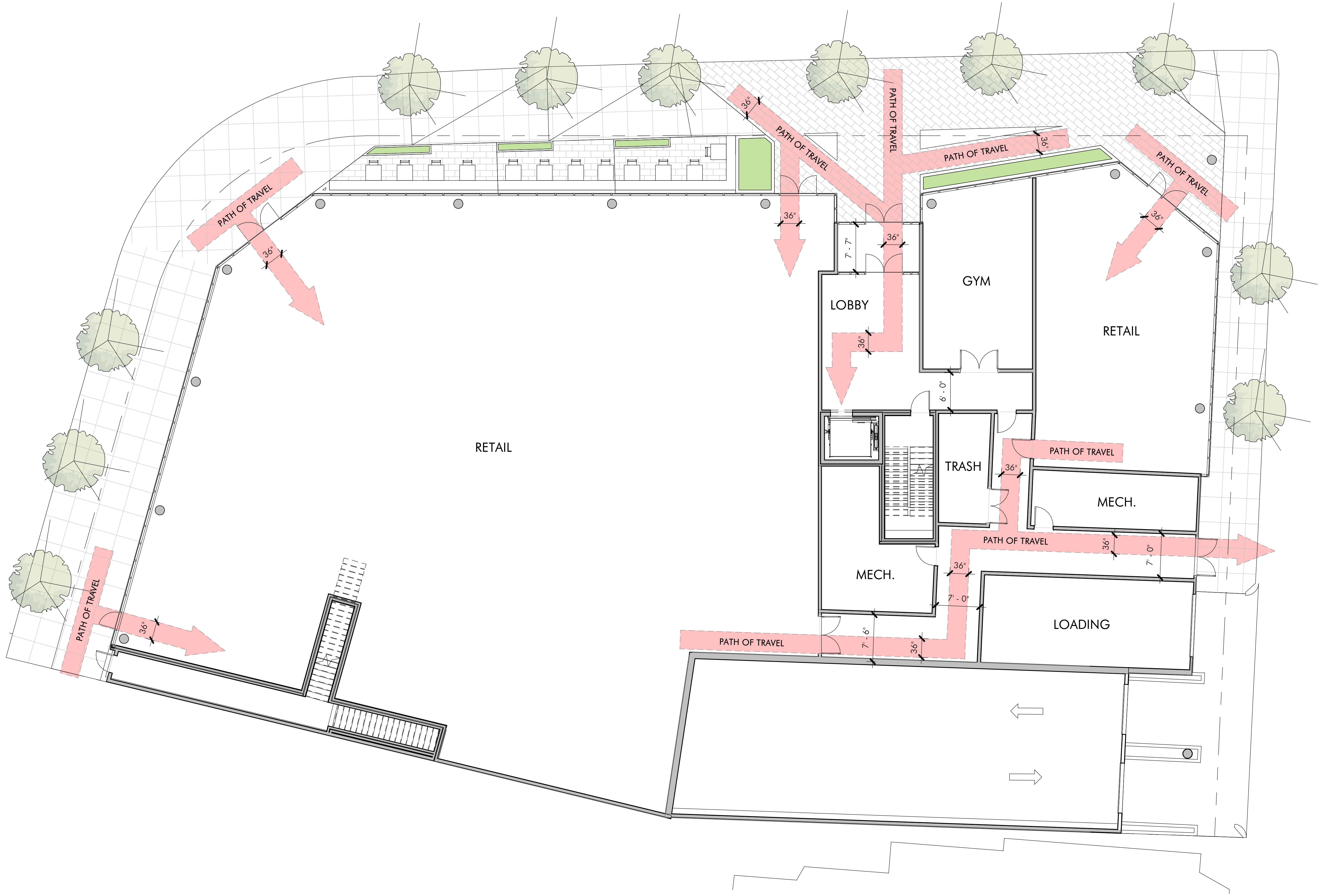


1/16" = 1'-0"

EMBARC STUDIO
ARCHITECTURE + DESIGN

ACCESSIBILITY CHECKLIST - PARKING LEVEL
2-8 HARVARD STREET
BOSTON, MA 02134

A3.1



1/16" = 1'-0"

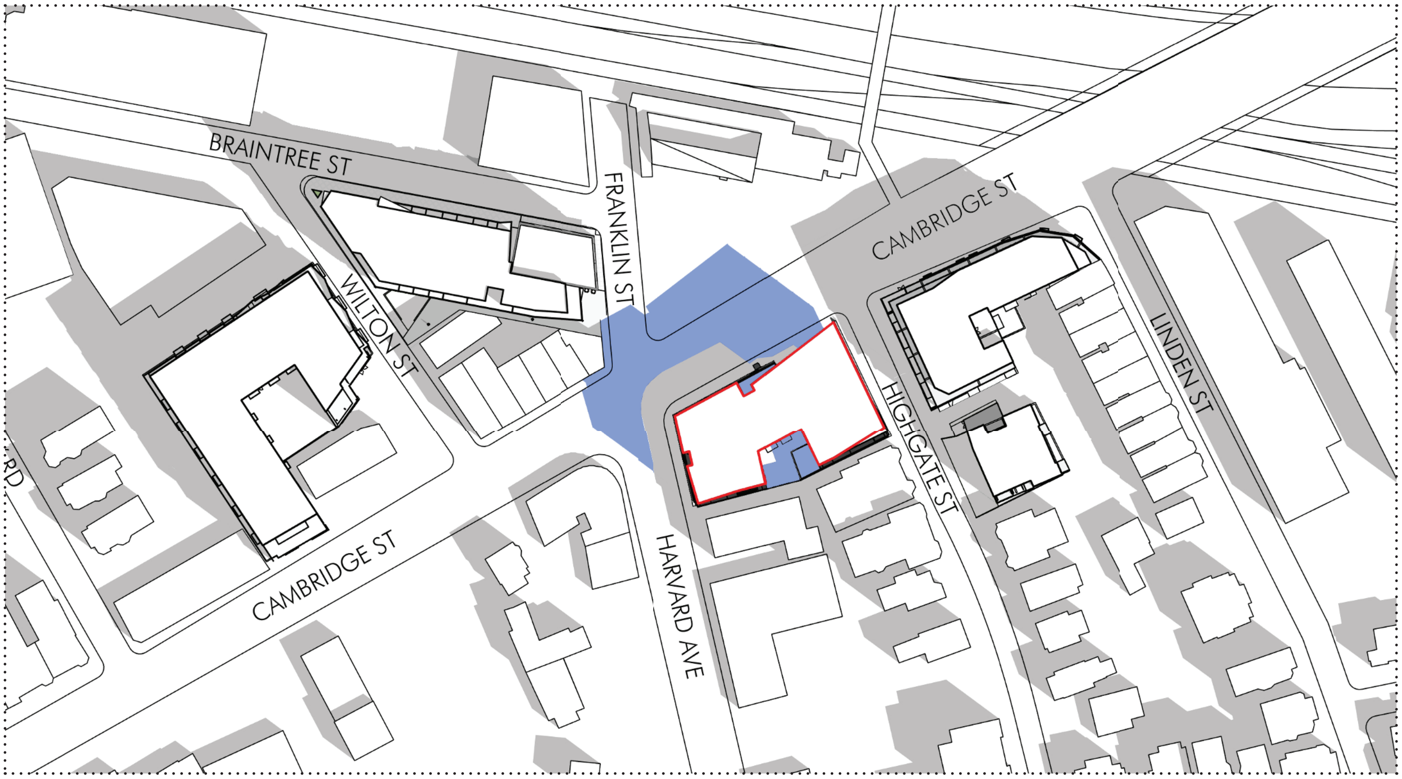
EMBARC STUDIO
ARCHITECTURE + DESIGN

ACCESSIBILITY CHECKLIST - GROUND FLOOR
2-8 HARVARD STREET
BOSTON, MA 02134

A3.2

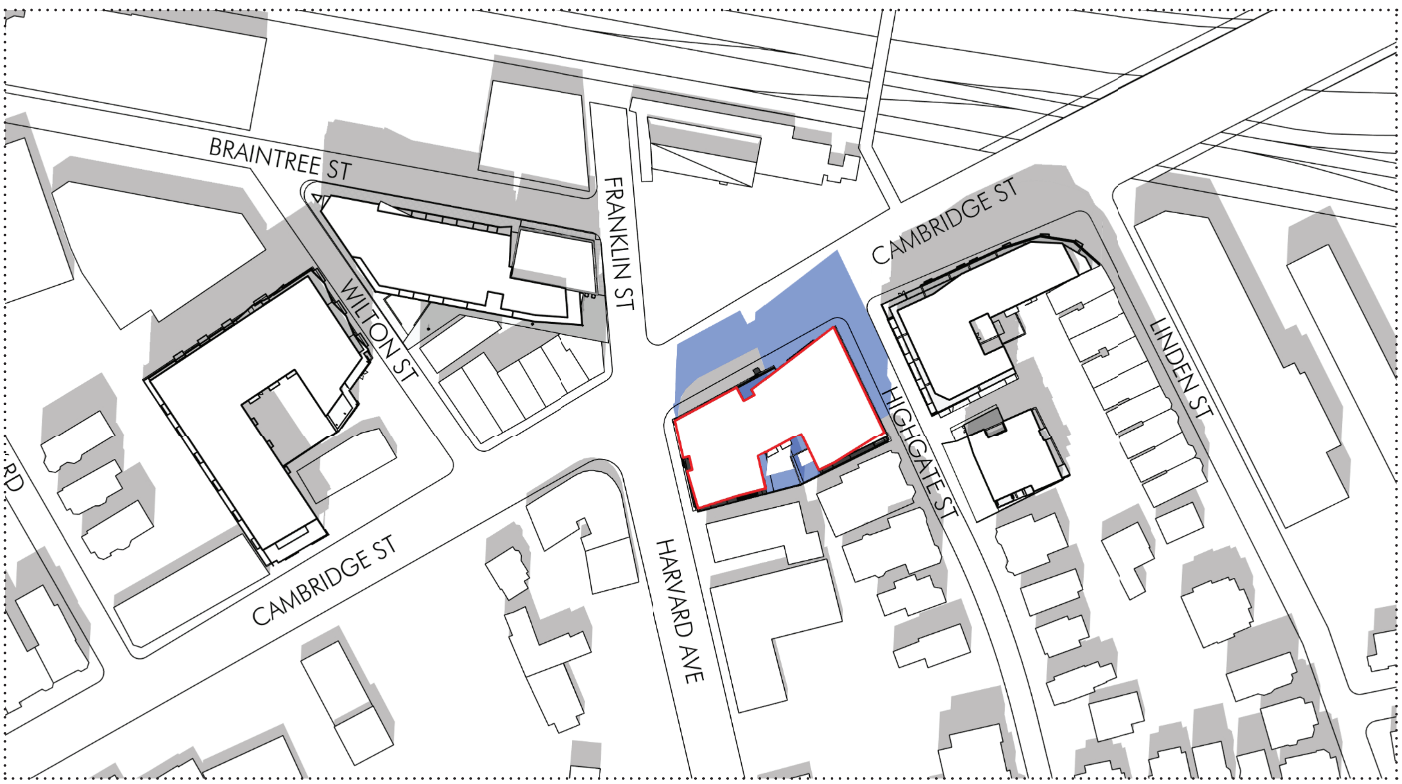
 | 4/11/2018 5:44:29 PM | C:\Users\emoliere\Documents\16119_372 Cambridge Street_SD_emoliere@embarcstudio.com.rvt

APRIL 15, 2018 | EMBARC



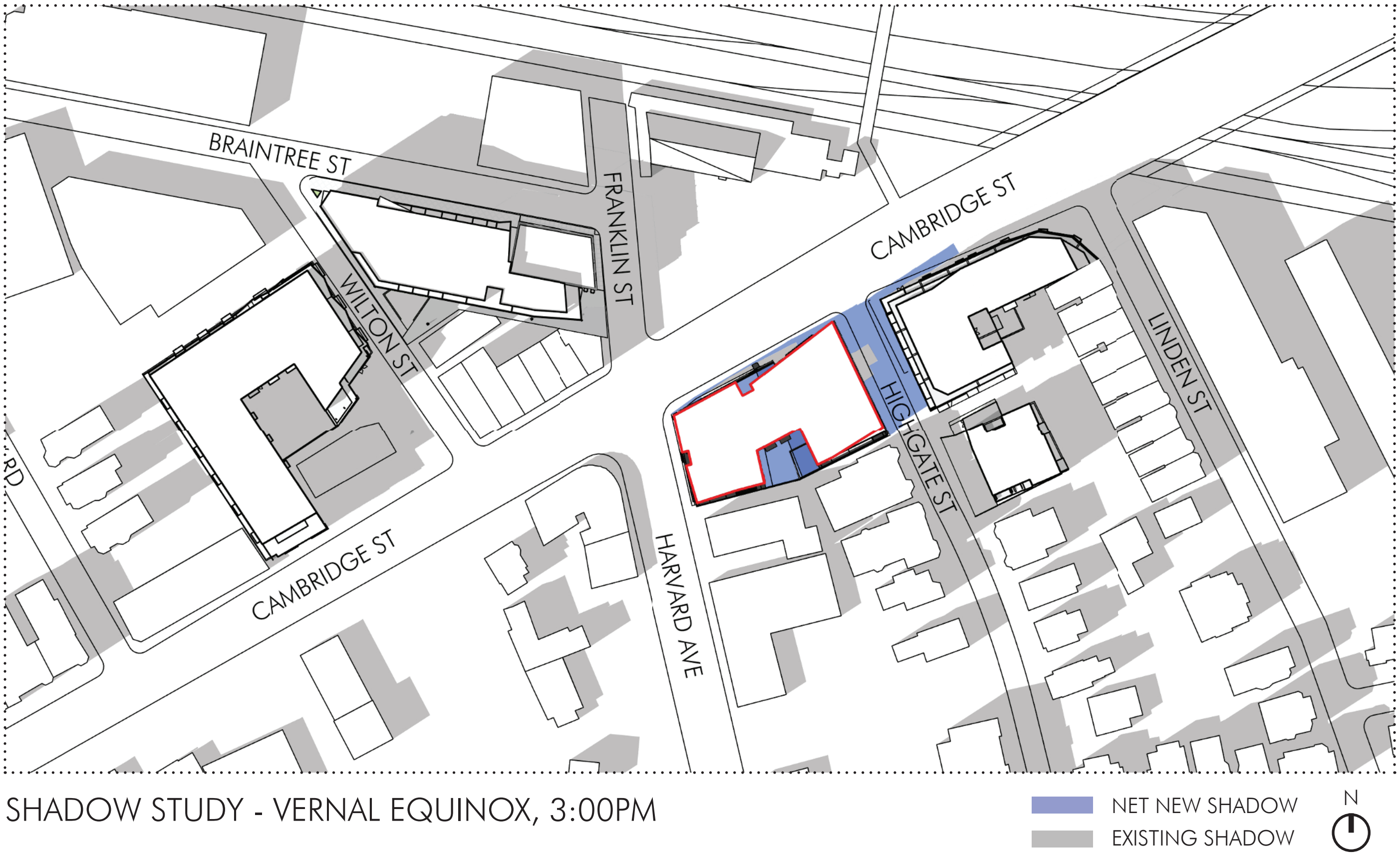
SHADOW STUDY - VERNAL EQUINOX, 9:00AM

NET NEW SHADOW
EXISTING SHADOW
N

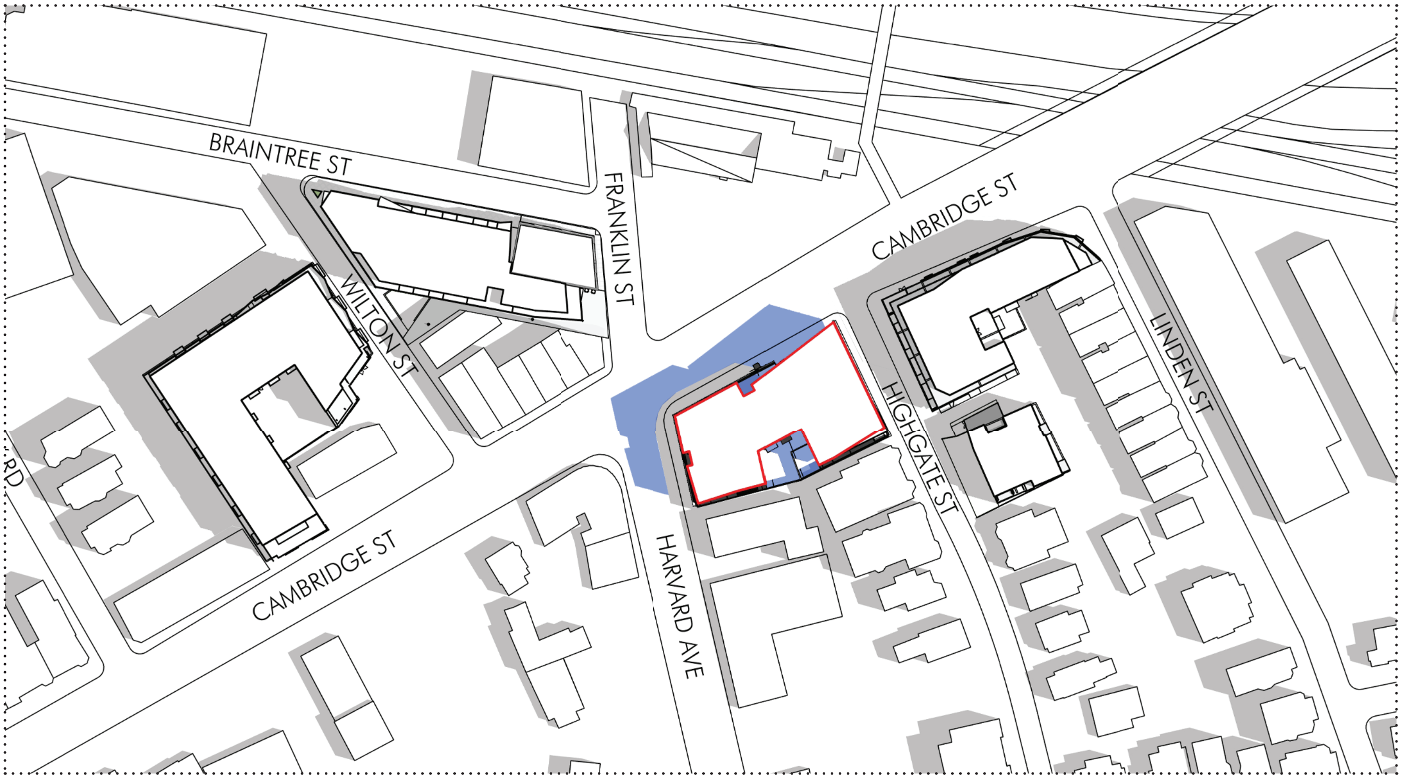


SHADOW STUDY - VERNAL EQUINOX, 12:00PM

NET NEW SHADOW
EXISTING SHADOW
N



SHADOW STUDY - VERNAL EQUINOX, 3:00PM

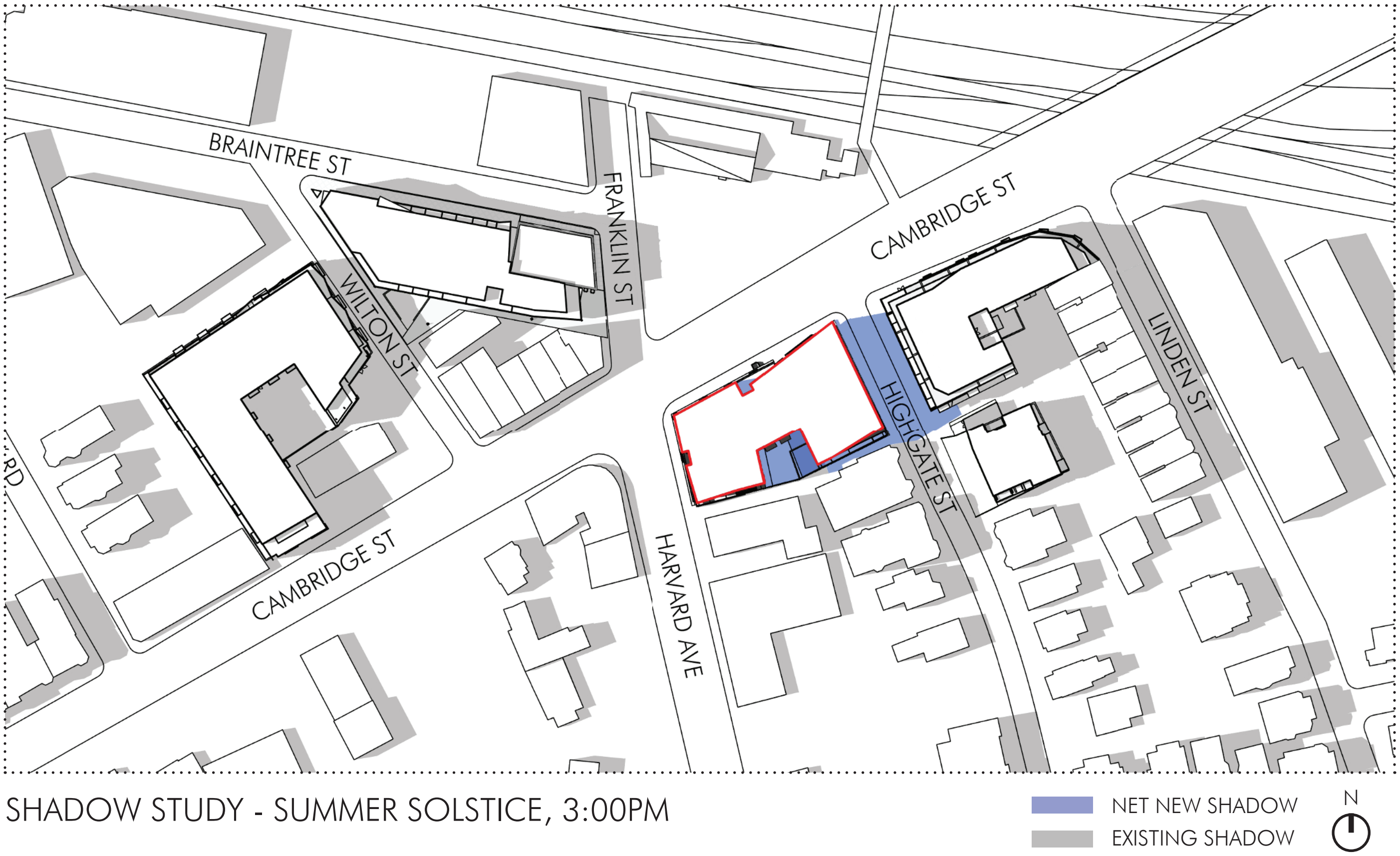


SHADOW STUDY - SUMMER SOLSTICE, 9:00AM

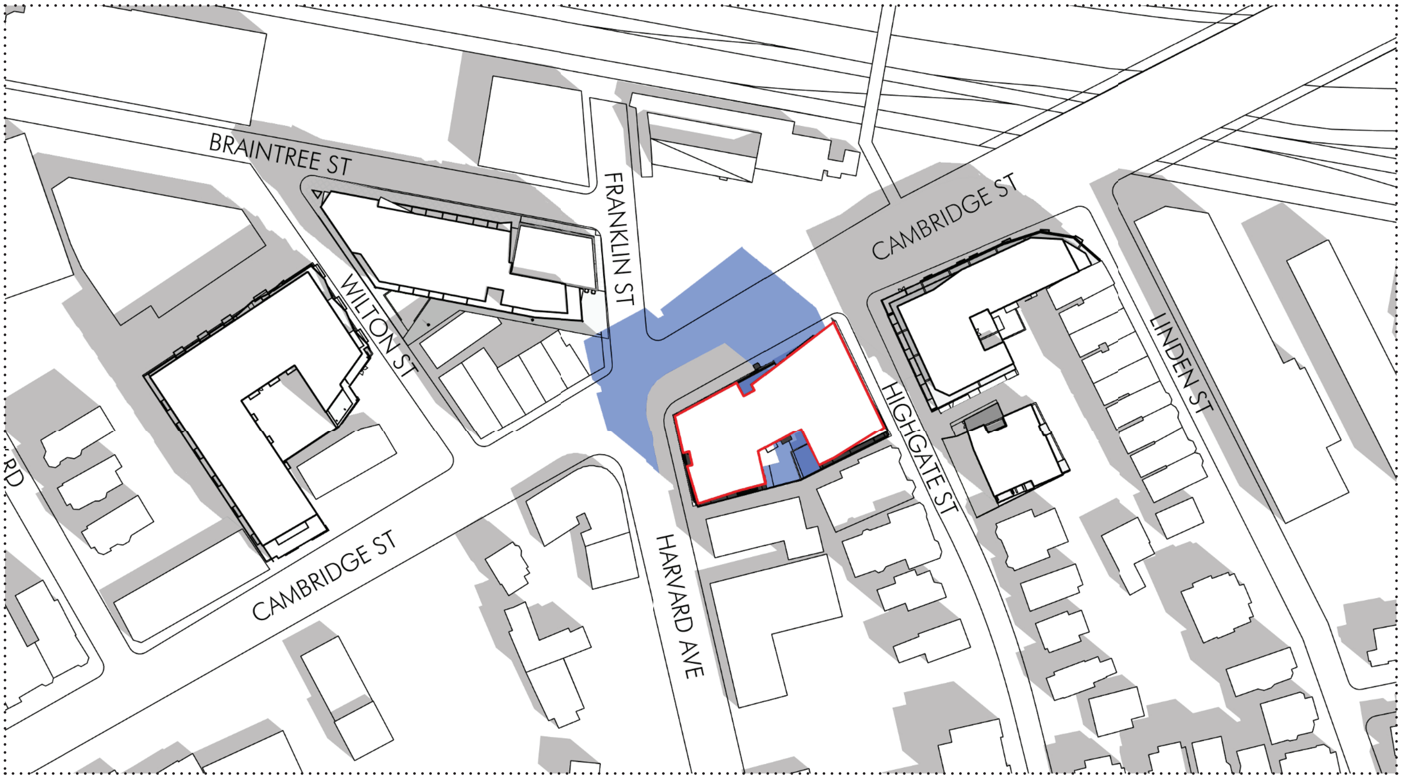
NET NEW SHADOW
EXISTING SHADOW
N

SHADOW STUDY - SUMMER SOLSTICE, 12:00PM

NET NEW SHADOW
EXISTING SHADOW
N

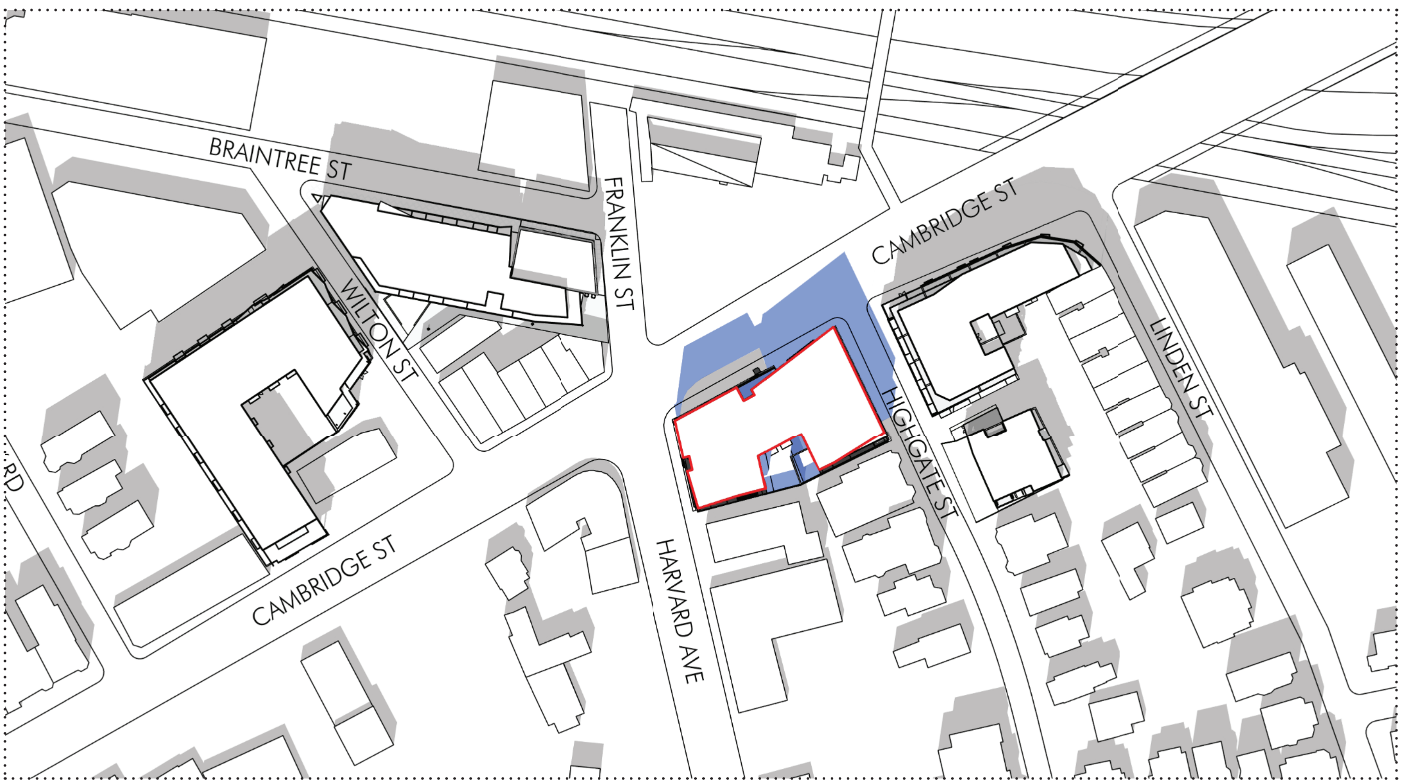


SHADOW STUDY - SUMMER SOLSTICE, 3:00PM



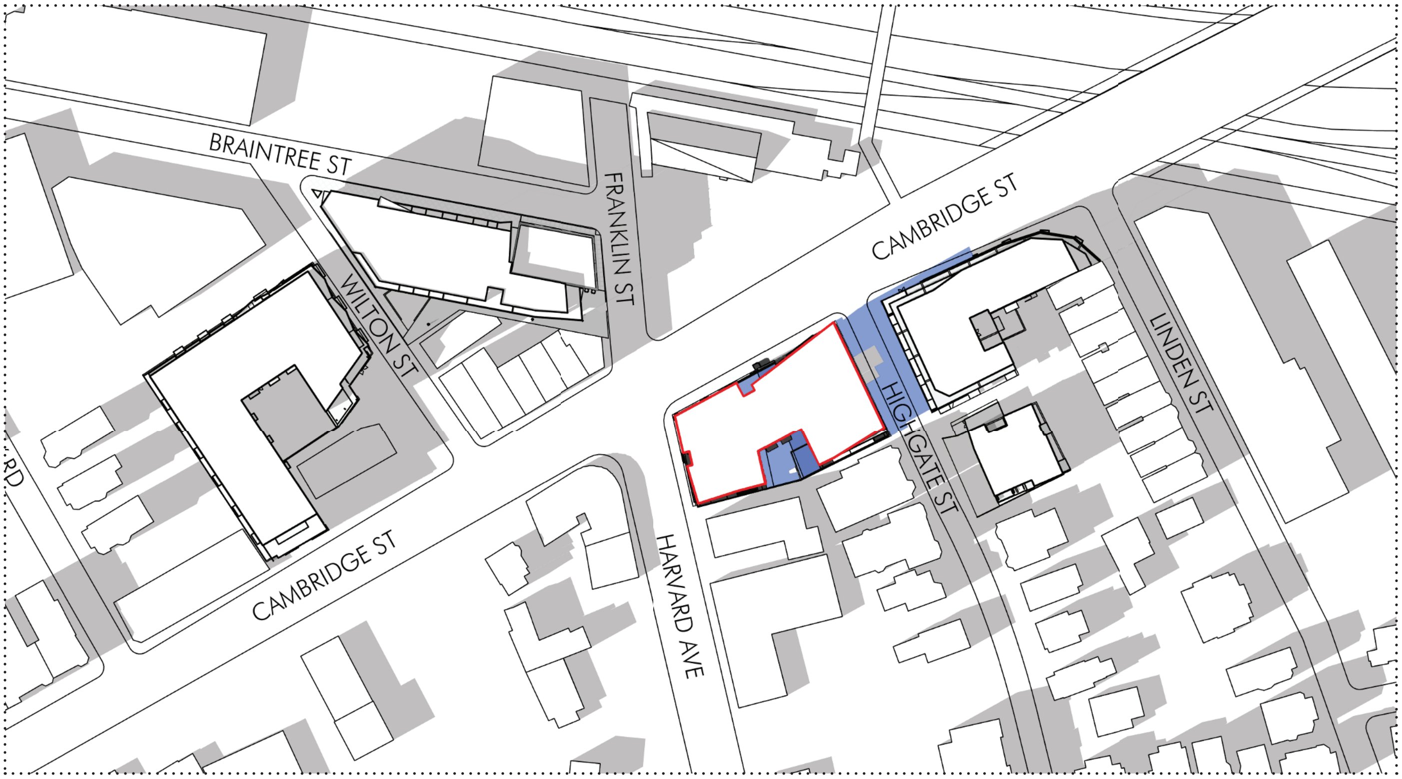
SHADOW STUDY - FALL EQUINOX, 9:00AM

NET NEW SHADOW
EXISTING SHADOW
N



SHADOW STUDY - FALL EQUINOX, 12:00PM

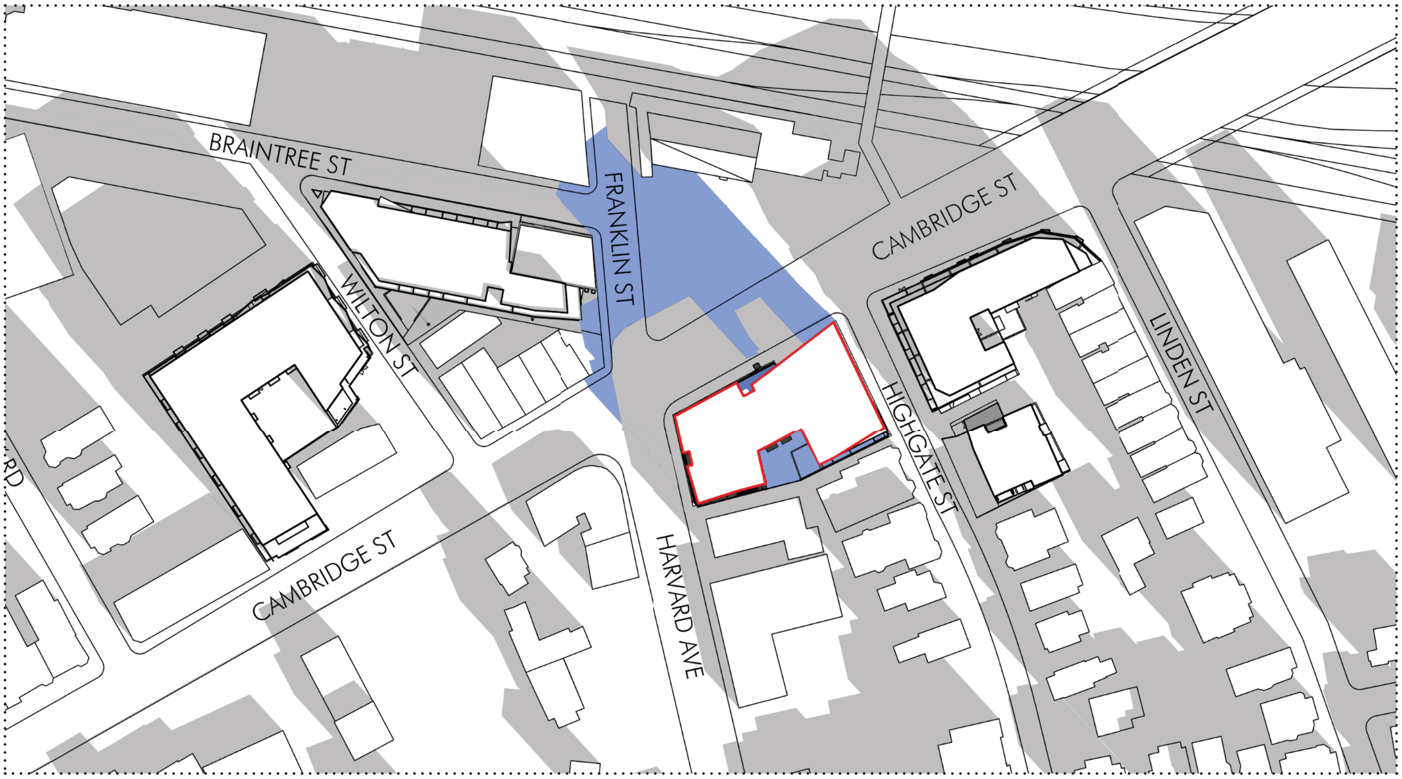
NET NEW SHADOW
EXISTING SHADOW
N



SHADOW STUDY - FALL EQUINOX, 3:00PM

NET NEW SHADOW
EXISTING SHADOW

N

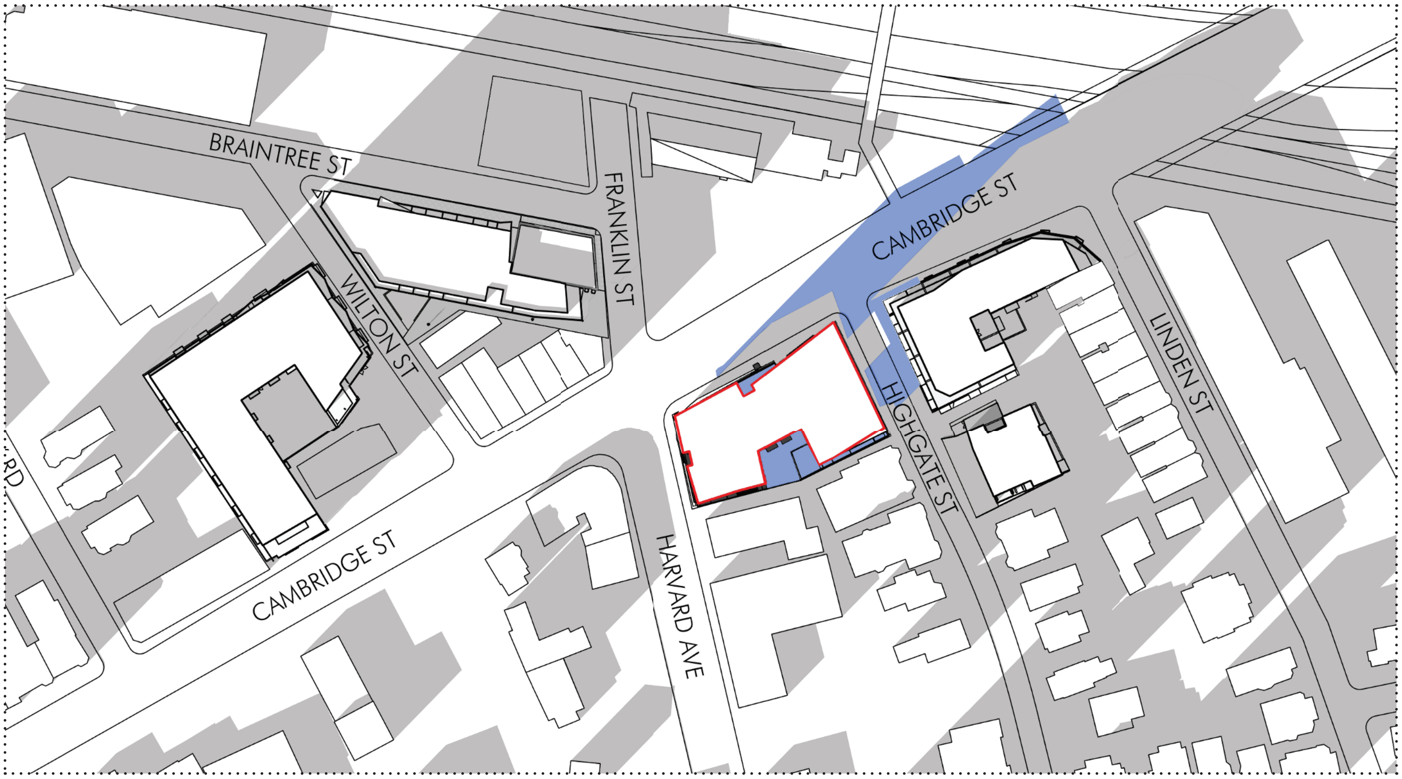


SHADOW STUDY - WINTER SOLSTICE, 9:00AM

NET NEW SHADOW
EXISTING SHADOW
N

SHADOW STUDY - WINTER SOLSTICE, 12:00PM

NET NEW SHADOW
EXISTING SHADOW
N



SHADOW STUDY - WINTER SOLSTICE, 3:00PM

NET NEW SHADOW
EXISTING SHADOW
N

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MEMORANDUM

TO: CRM Property Management Corp.
320 Washington Street, Suite 3FF
Brookline, MA 02445

FROM: Kevin M. Martin, P.E.
Geotechnical Engineer

DATE: May 3, 2018

RE: **PRELIMINARY GEOTECHNICAL SUMMARY**
PROPOSED MIXED-USE BUILDING
372 CAMBRIDGE STREET
2-8 HARVARD AVENUE
ALLSTON, MASSACHUSETTS

This memorandum serves as a preliminary geotechnical summary report for the referenced project. The contents of this memorandum are subject to the attached ***Limitations***.

SITE & PROJECT DESCRIPTION

The site includes 2 contiguous lots. The Harvard Avenue site is developed with a single-story retail building with pavement to the rear. The Cambridge Street property is developed with a small, wood-framed building. This property is understood to have been prior used as a gas station with associated Underground Storage Tanks (USTs). The USTs were reportedly removed in May 2016. KMM has no knowledge of past construction, development or use of the property except what is visible or shown on the *Site Plan*. The buildings appear to be supported on a shallow spread footing foundation with a concrete floor slab-on-grade. These buildings and associated construction will be razed to accommodate the project. Based on the *Site Plan*, grades around the site vary from elevation ≈37-44 ft possessing a gradual downward contour towards the west.

The project includes a new mixed-use building. The building will include a 6-story, steel framed structure about ≈18,000 ft² in footprint area. The building will occupy most of the lot. A basement level parking garage is proposed at elevation 23.2 ft. Some deep cuts about ≈15-23 ft will be necessary to achieve parking level grade. It is intended to support the building on a conventional spread footing foundation.

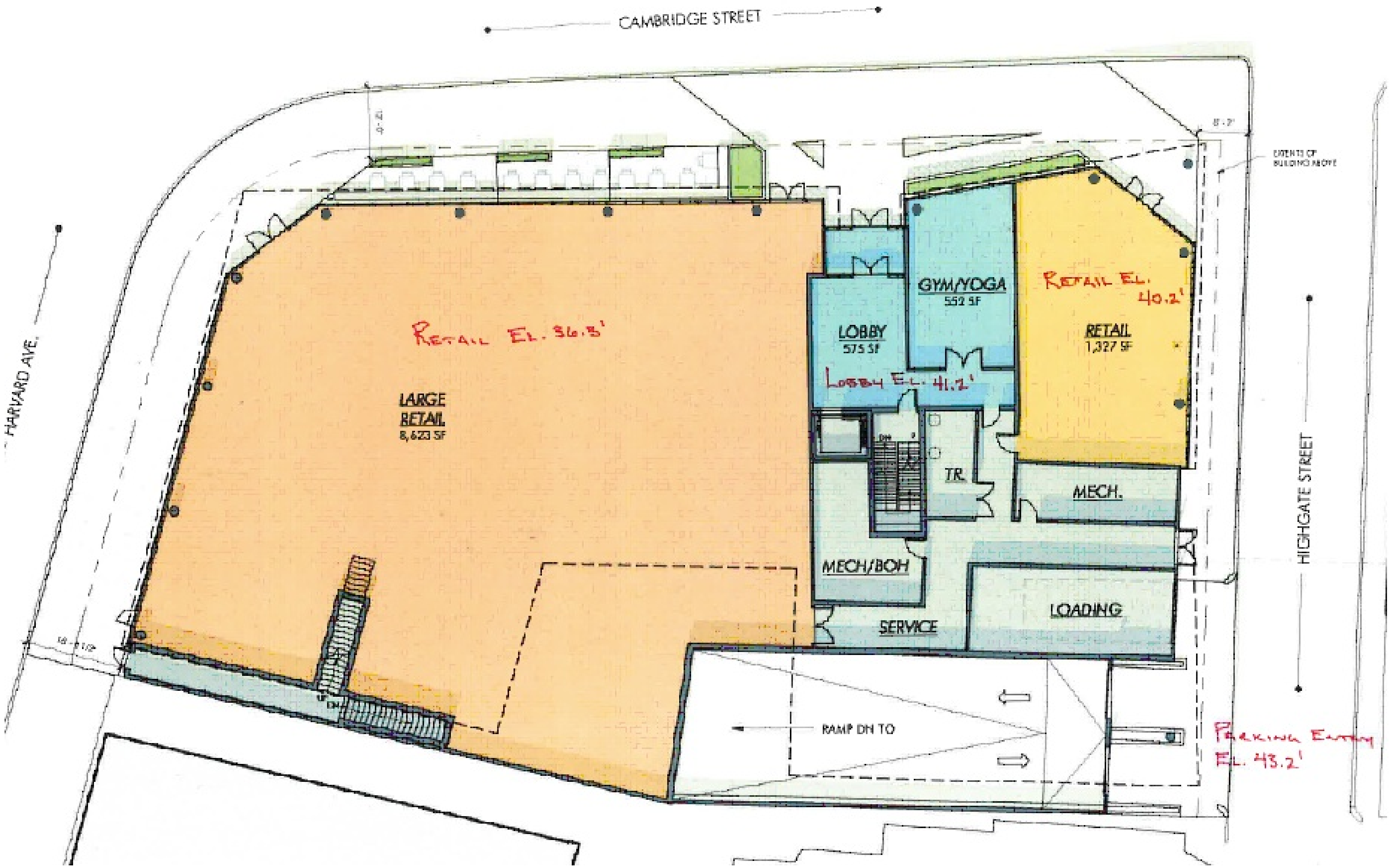
The purpose of this study is to review the subgrade conditions and provide a geotechnical evaluation related to foundation design and construction as required by the *Massachusetts State Building Code*.

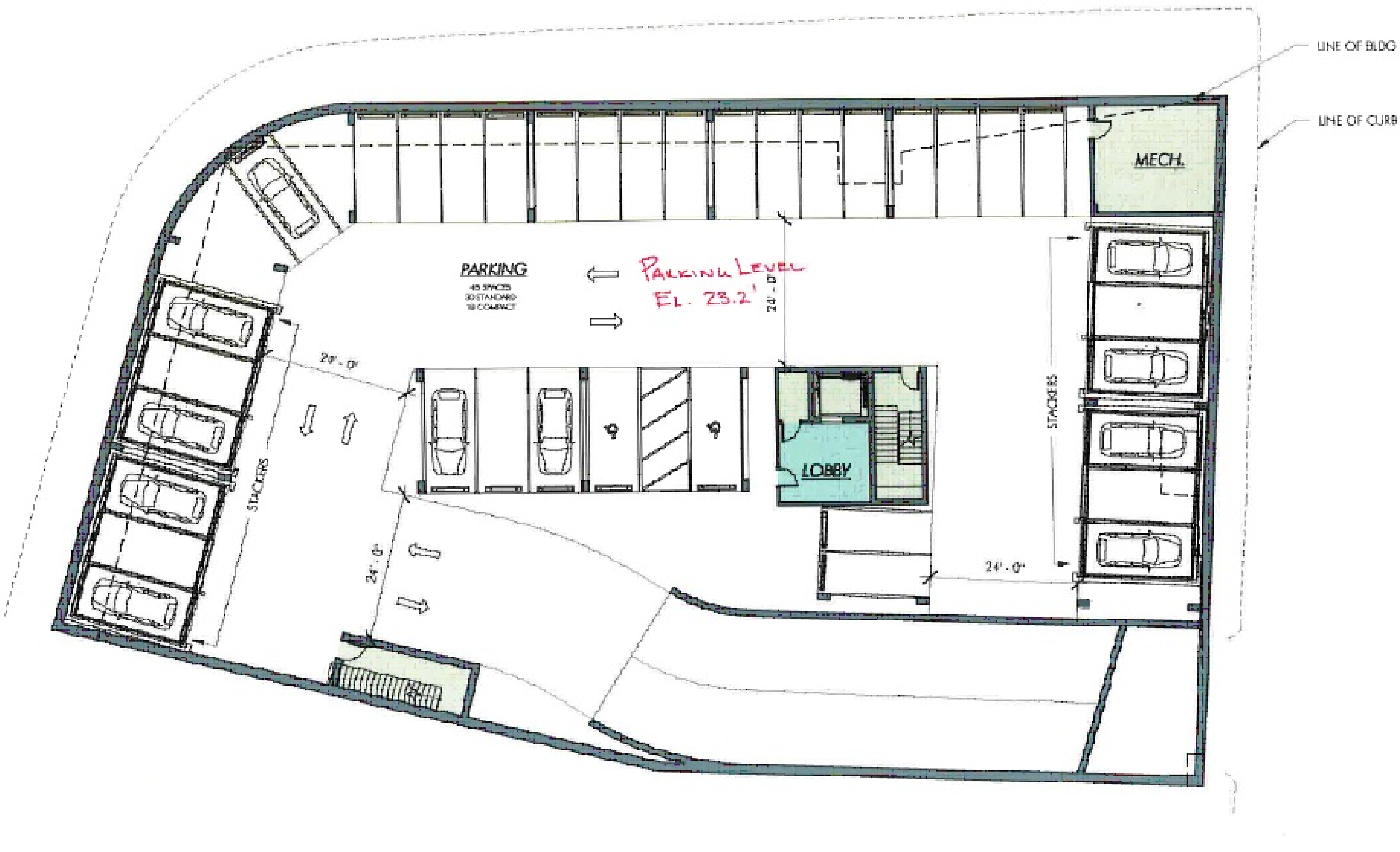
This report does not include an environmental assessment relative to oil, gasoline, solid waste and/or other hazardous materials. The environmental conditions of the property should be addressed by others as necessary. This study also does not include review of site design or construction issues such as infiltration systems, dry wells, retaining walls, excavation support systems, underground utilities, protection of surrounding buildings/utilities, crane pads, temporary shoring or other site and/or temporary design unless specifically addressed herein.

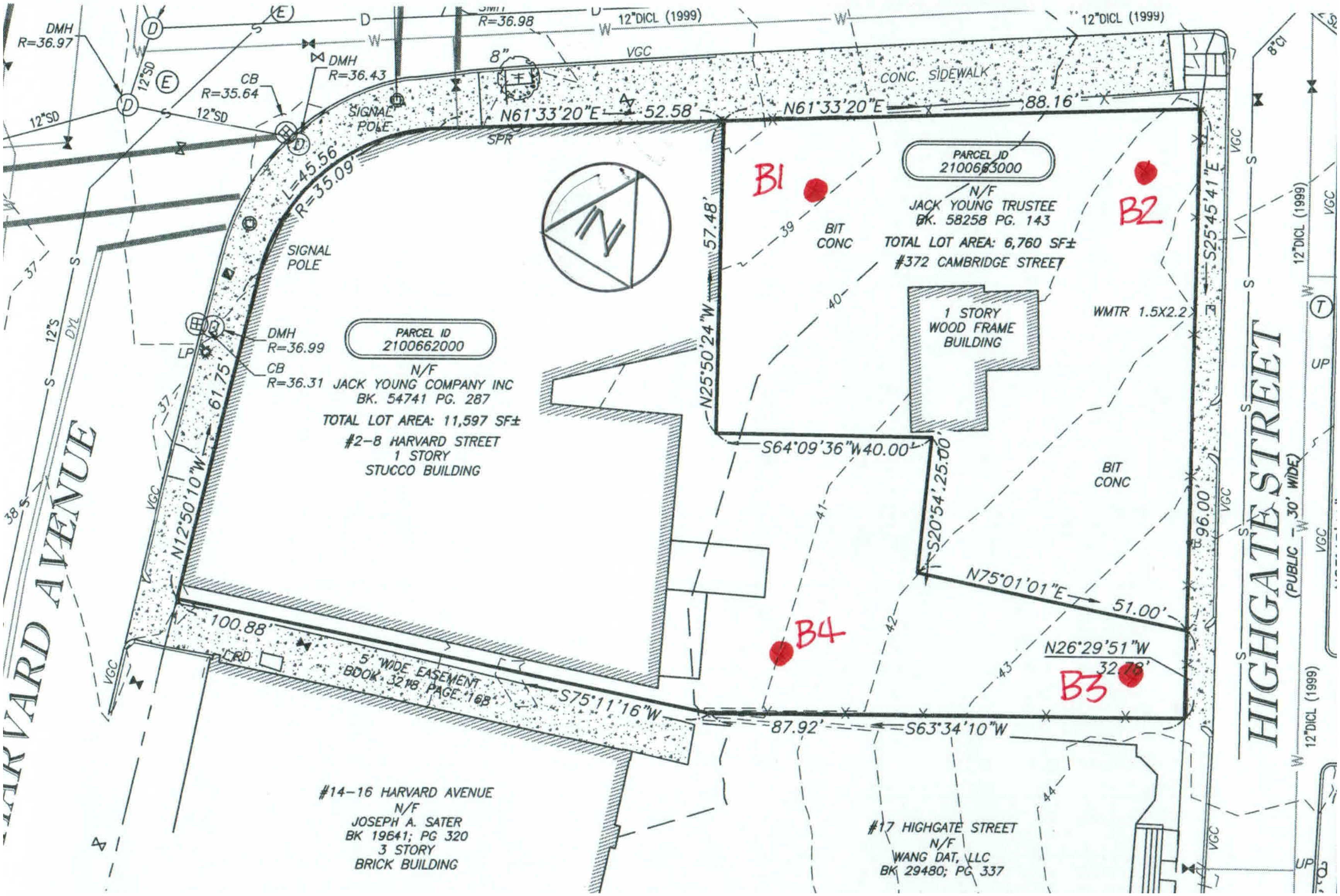

Google Earth
© 2018 Google
N
9.78 ft


Google Earth
© 2018 Google
N
8.40 ft

PROPOSED BUILDING PROFILE


CAMBRIDGE STREET
HARVARD AVE.
HIGHGATE STREET
EXTENTS OF BUILDING ABOVE
RETAIL EL. 36.3'
LARGE RETAIL
8,623 SF
LOBBY
575 SF
LOBBY EL. 41.2'
GYM/YOGA
552 SF
RETAIL EL. 40.2'
RETAIL
1,327 SF
TR.
MECH.
MECH/BOH
SERVICE
LOADING
RAMP DN TO
PARKING ENTRY EL. 43.2'


LINE OF BLDG
LINE OF CURB
MECH.
PARKING
PARKING LEVEL
EL. 23.2'
24' - 0"
24' - 0"
STACKERS
STACKERS
LOBBY
24' - 0"
24' - 0"


HARVARD AVENUE
HIGHGATE STREET
(PUBLIC – 30' WIDE)
PARCEL ID
2100663000
N/F
JACK YOUNG TRUSTEE
BK. 58258 PG. 143
TOTAL LOT AREA: 6,760 SF±
#372 CAMBRIDGE STREET
1 STORY
WOOD FRAME
BUILDING
BIT
CONC
PARCEL ID
2100662000
N/F
JACK YOUNG COMPANY INC
BK. 54741 PG. 287
TOTAL LOT AREA: 11,597 SF±
#2-8 HARVARD STREET
1 STORY
STUCCO BUILDING
#14-16 HARVARD AVENUE
N/F
JOSEPH A. SATER
BK 19641; PG 320
3 STORY
BRICK BUILDING
#17 HIGHGATE STREET
N/F
WANG DAT, LLC
BK 29480; PG 337
5' WIDE EASEMENT
BOOK 3218 PAGE 168
CONC. SIDEWALK
B1
B2
B3
B4
N61°33'20"E 52.58'
N61°33'20"E 88.16'
S25°45'41"E
96.00'
N75°01'01"E 51.00'
N26°29'51"W 32.78'
S63°34'10"W 87.92'
S75°11'16"W
100.88'
N12°50'10"W 61.75'
N25°50'24"W 57.48'
S64°09'36"W 40.00'
S20°54'25.00'
L=45.56'
R=35.09'
WMTR 1.5X2.2
SIGNAL POLE
DMH R=36.97
DMH R=36.43
CB R=35.64
DMH R=36.99
CB R=36.31
12"DICL (1999)

SUBSURFACE EXPLORATION PROGRAM

Test Borings by KMM

The exploration program for the project included four (4) test borings around the site where accessible. The test borings (B1 to B4) were advanced to depths of ≈27-32 ft utilizing 4 inch hollow stem augers. Soil samples were typically retrieved at no greater than 5 ft intervals with a 2 inch diameter split-spoon sampler. Standard Penetration Tests (SPTs) were performed at the sampling intervals in general accordance with ASTM-D1586 (*Standard Method for Penetration Test and Split-Barrel Sampling of Soils*). Field descriptions and penetration resistance of the soils encountered, observed depth to groundwater and other pertinent data are contained on the attached *Test Boring Logs*. The attached *Sketch* shows the test bore locations.

Explorations by Others

EBI completed a *Phase I Initial Site Investigation Report* in May 2017. As part of this study, some test bores (ie: probes) and monitoring wells were installed to review the subgrade.

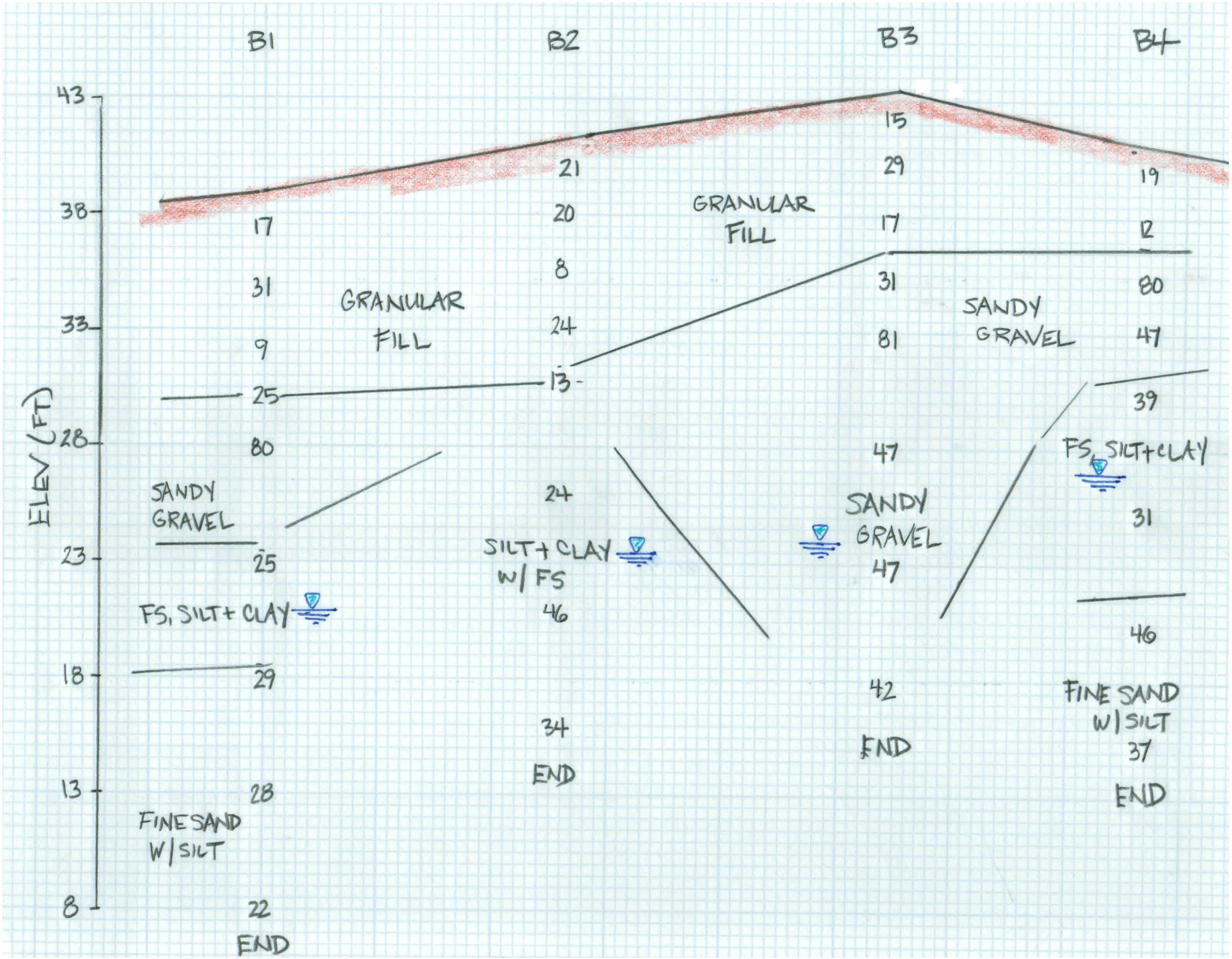
SUBSURFACE CONDITIONS

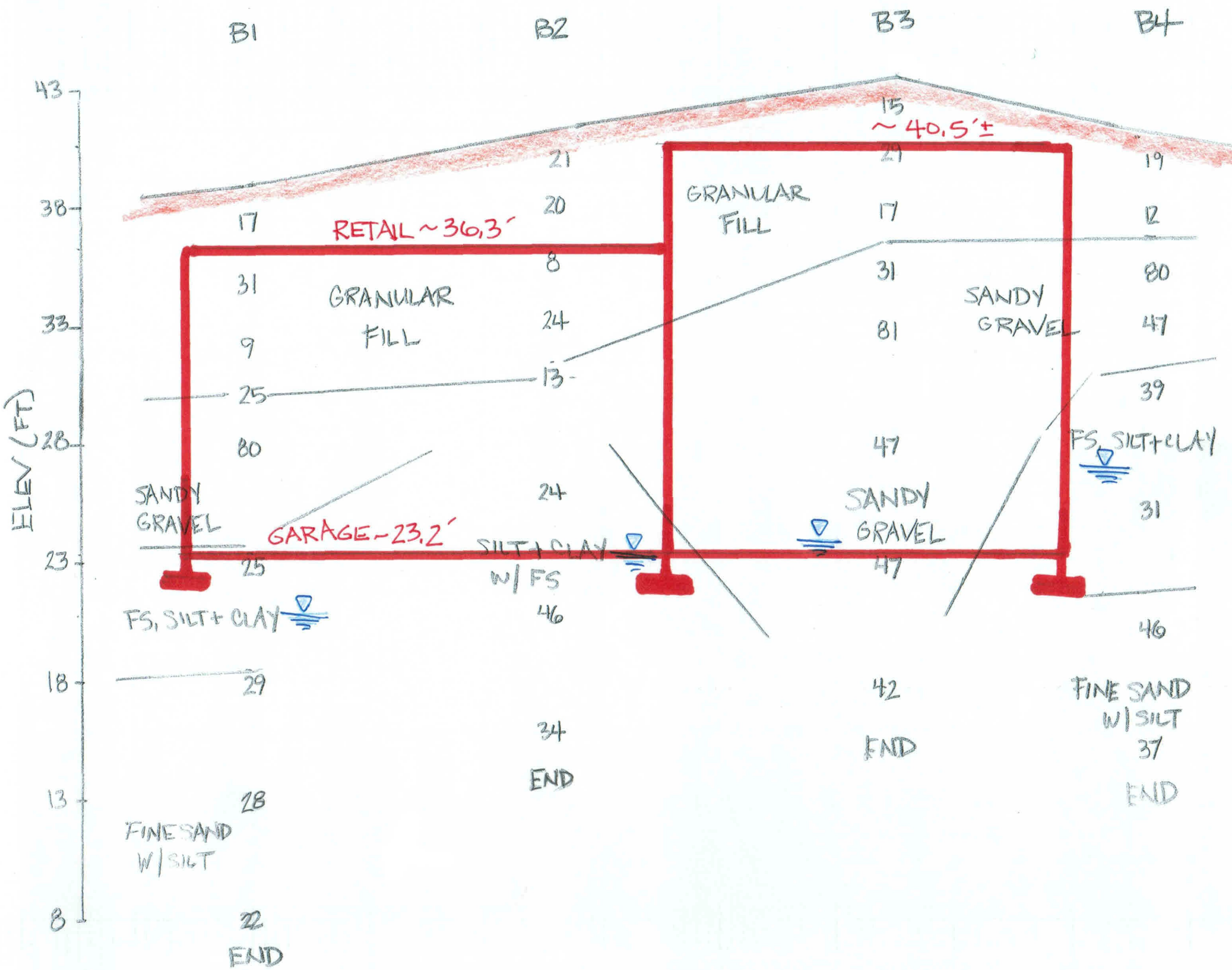
The subsurface conditions below the surface pavement include (1) undocumented Fill atop (2) stable Glacial Soils. The Glacial soils include Granular Outwash but with primary fine-grained Fluvial soils which include Fine Sand, Sand and/or Clay. Similar soils were identified by the *ESA*. A *Subsurface Profile* depicting the soil and groundwater conditions is attached for review.

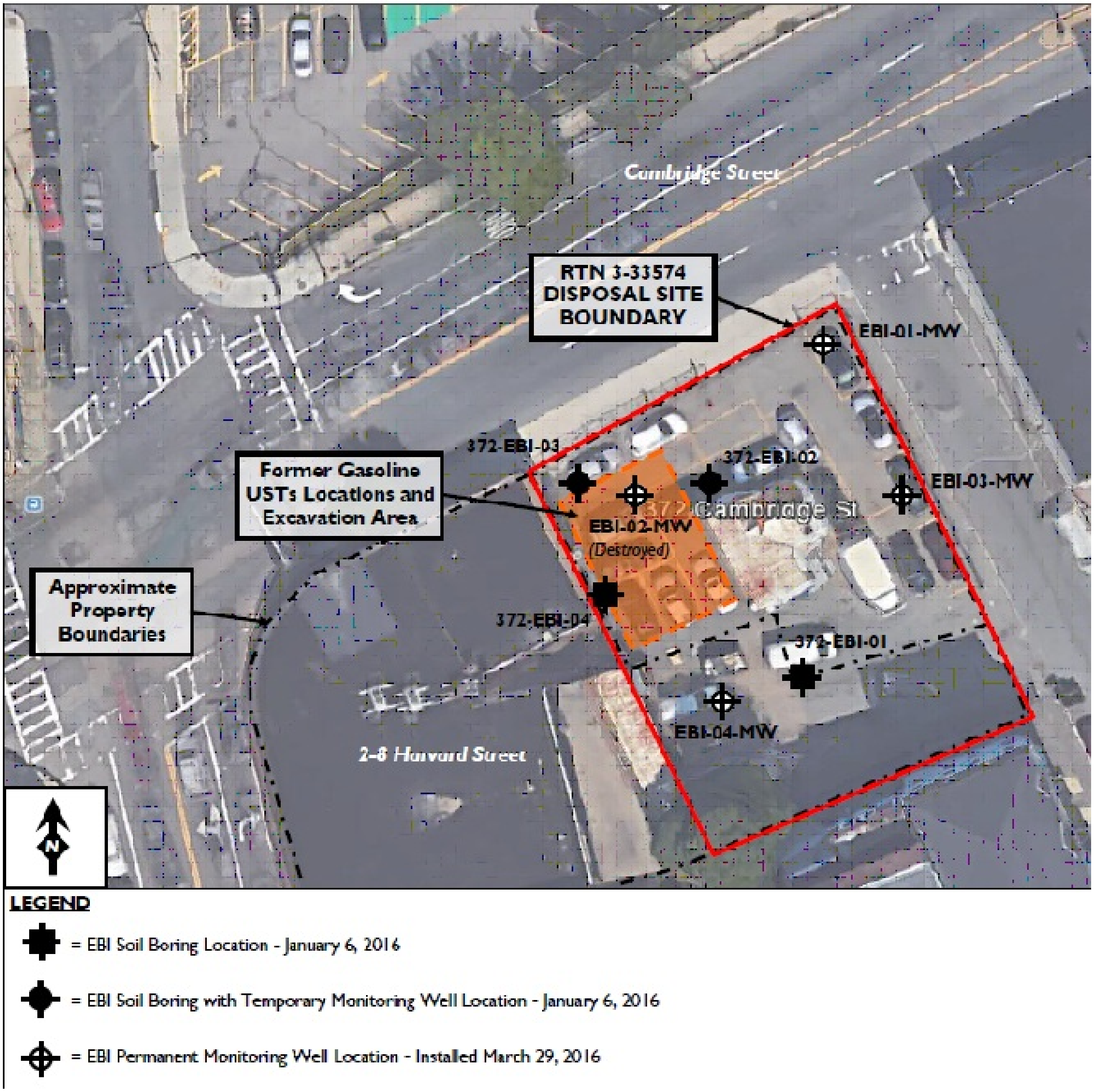
Undocumented Fill was encountered in ALL the test bores to depths of ≈5-15 ft below grade. The Fill varies in composition to include Granular Fill or Urban Fill. The Granular Fill was generally present at shallower depths and likely includes re-worked Outwash soils. The Urban Fill includes trace amounts of brick, rubble, glass, ash, loam, organic, cinders and other matter. The Fill varies from loose to medium dense suggesting limited compaction. Fill should also be expected around the building foundation, UST grave and intersecting utilities.

The Glacial soils vary considerably on this site. These soils include Clean Sand or Sandy Gravel but primarily include fine-grained Fluvial soils which include Fine Sand, Silt and/or Clay. The fine-grained soils are rendered moisture sensitive, poor draining and frost susceptible. There was no uniformity with the Glacial soils. Stratified or layered soils should be expected in this regard. The Glacial soils are stable, dense and compact. Glacial Till nor Bedrock were encountered to ≈30 ft.

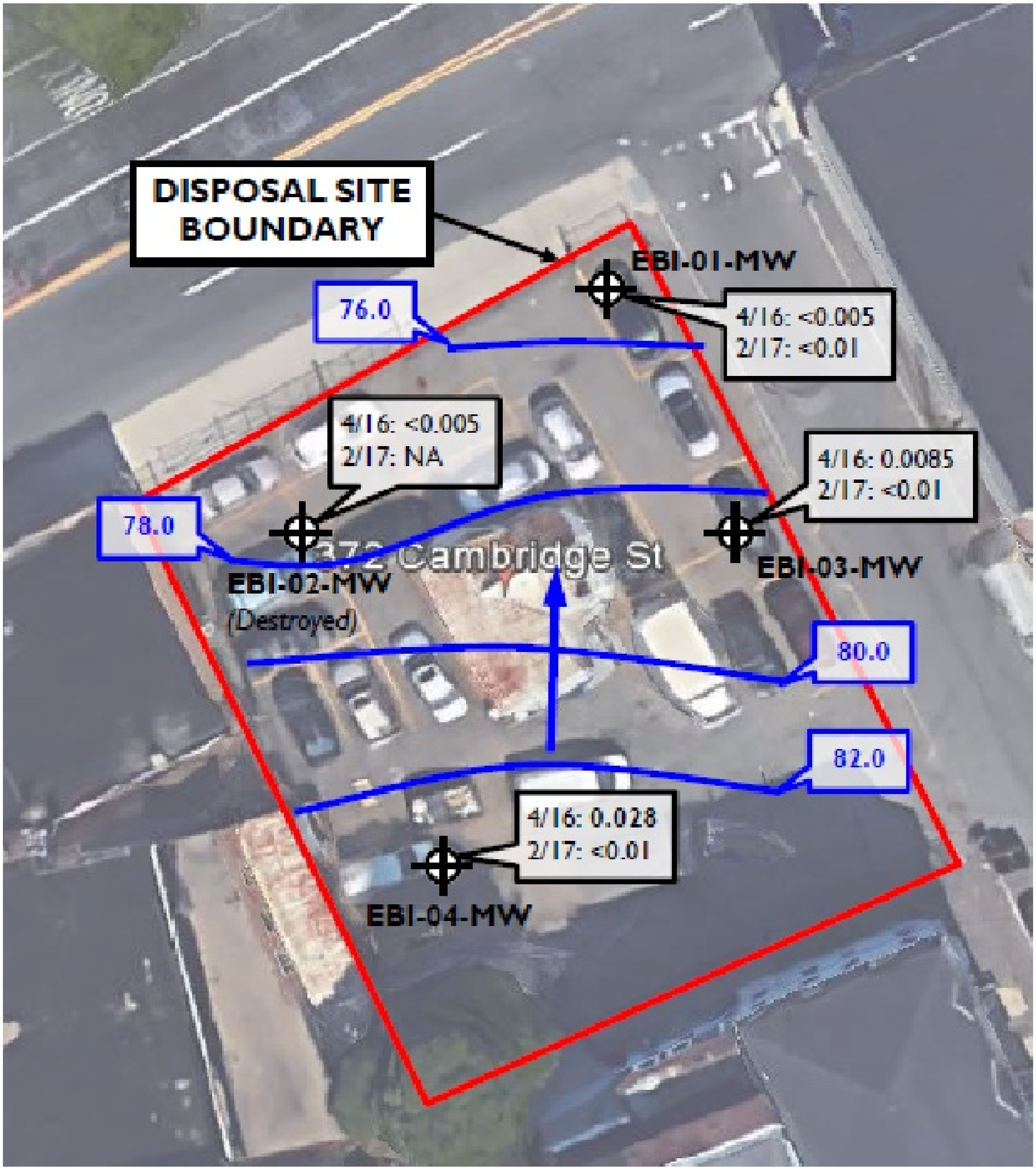
Groundwater was encountered in the test holes at depths of ≈14-18 ft below grade. These correspond to elevation ≈20-28 ft. Monitoring wells for environmental purposes may be used to measure fluctuations. The *ESA Study* had similar groundwater conditions. It should be noted that fluctuations in the level of the groundwater may occur due to variations in rainfall, temperature, utilities and other factors differing from the time of the measurements. This study was completed at a time of seasonally normal groundwater.


B1
B2
B3
B4
ELEV (FT)
43
38
33
28
23
18
13
8
GRANULAR FILL
GRANULAR FILL
SANDY GRAVEL
SANDY GRAVEL
SANDY GRAVEL
FS, SILT+ CLAY
SILT+CLAY W/ FS
FS, SILT+CLAY
FINE SAND W/ SILT
FINE SAND W/ SILT
17
31
9
25
80
25
29
28
22
END
21
20
8
24
13
24
46
34
END
15
29
17
31
81
47
47
42
END
19
12
80
47
39
31
46
37
END

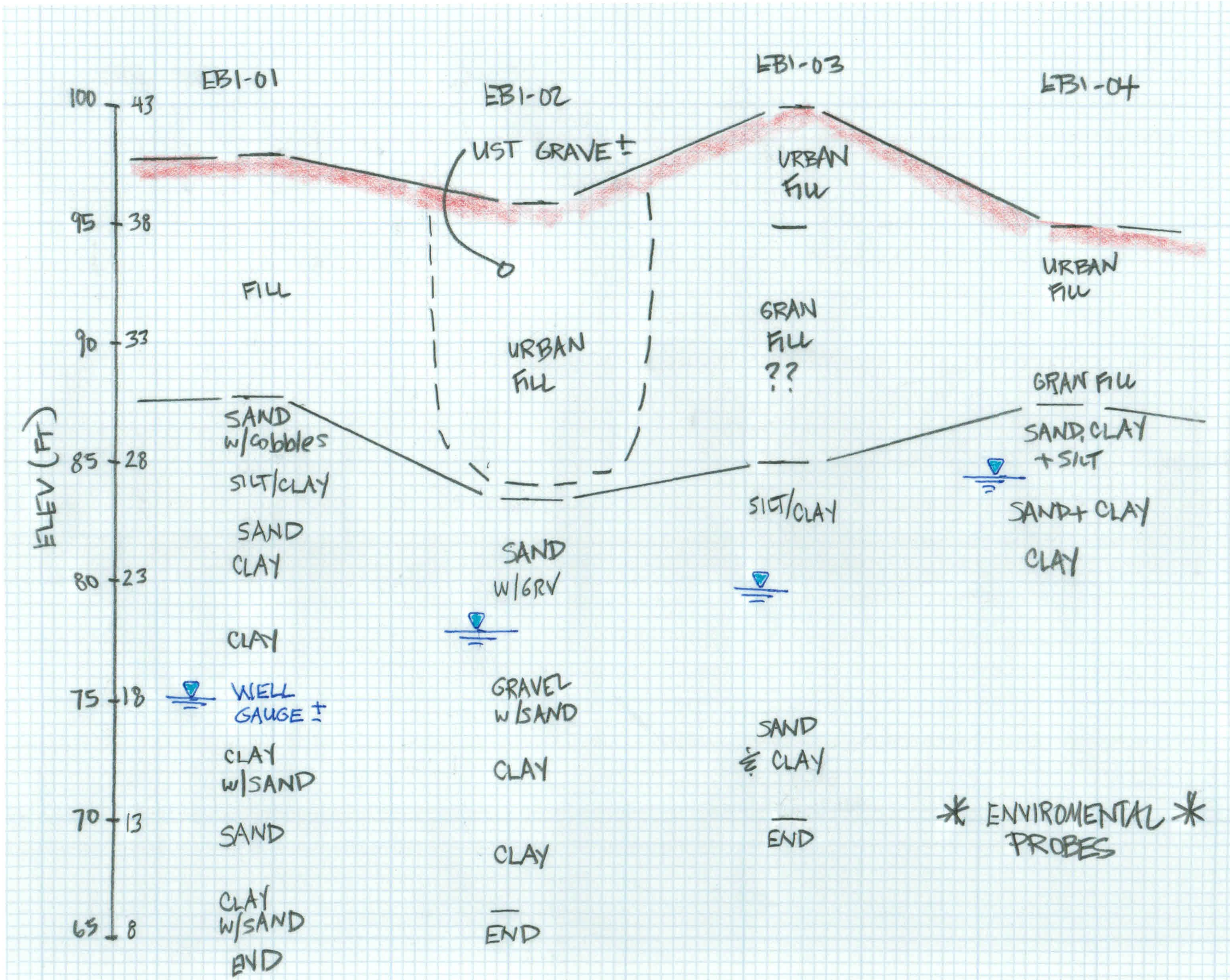

B1
B2
B3
B4
ELEV (FT)
43
38
33
28
23
18
13
8
~40.5'±
RETAIL ~36.3'
GARAGE ~23.2'
GRANULAR FILL
GRANULAR FILL
SANDY GRAVEL
SANDY GRAVEL
SANDY GRAVEL
SILT + CLAY W/ FS
FS, SILT + CLAY
FS, SILT + CLAY
FINE SAND W/ SILT
FINE SAND W/ SILT
17
31
9
25
80
25
29
28
22
END
21
20
8
24
13
24
46
34
END
15
29
17
31
81
47
47
42
END
19
12
80
47
39
31
46
37
END

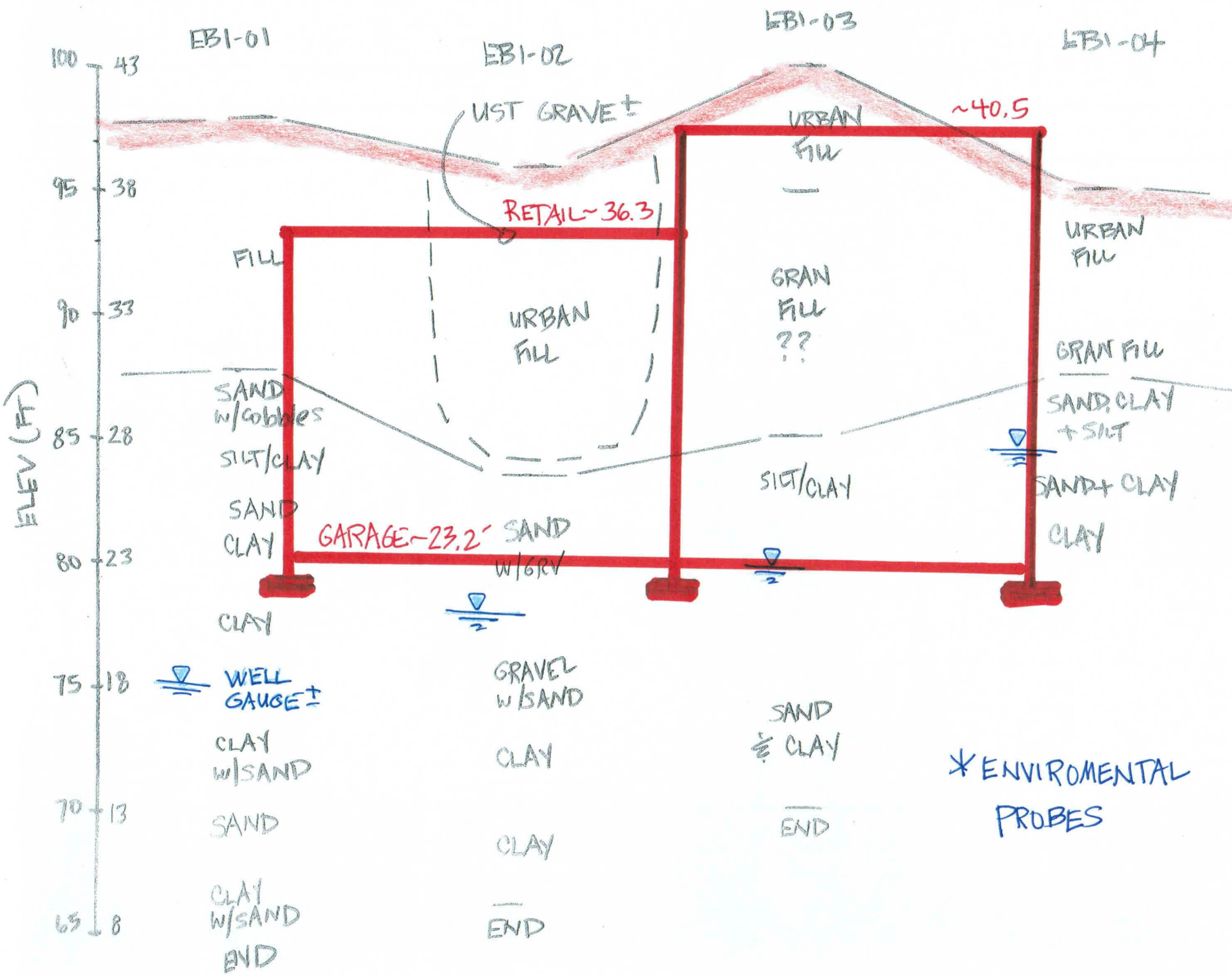


ESA REPORT EXPLORATIONS



GROUNDWATER CONTOUR PLAN


EB1-01
EB1-02
EB1-03
EB1-04
ELEV (FT)
100 43
95 38
90 33
85 28
80 23
75 18
70 13
65 8
UST GRAVE ±
FILL
URBAN FILL
GRAN FILL ??
GRAN FILL
SAND w/cobbles
SILT/CLAY
SAND
CLAY
WELL GAUGE ±
CLAY w/SAND
END
SAND W/GRV
GRAVEL w/SAND
SAND & CLAY
SAND, CLAY + SILT
SAND + CLAY
* ENVIROMENTAL * PROBES


EB1-01
EB1-02
EB1-03
EB1-04
ELEV (FT)
100 43
95 38
90 33
85 28
80 23
75 18
70 13
65 8
UST GRAVE ±
~40.5
URBAN FILL
RETAIL ~ 36.3
FILL
GRAN FILL ??
URBAN FILL
GRAN FILL
SAND w/cobbles
SAND, CLAY + SILT
SILT/CLAY
SILT/CLAY
SAND + CLAY
SAND
CLAY
GARAGE ~ 23.2'
SAND W/GRV
CLAY
CLAY
WELL GAUGE ±
GRAVEL w/SAND
SAND & CLAY
CLAY W/SAND
CLAY
* ENVIROMENTAL PROBES
SAND
END
CLAY
CLAY W/SAND
END
END

PROTECTION OF EXISTING FOUNDATION

It is recommended that where the building is in proximity to existing building that the footings be constructed at similar grade to mitigate the overlapping of stresses. The *Existing Footing Zone of Influence* of the existing foundation should not be encroached or disturbed without review by a Professional Engineer. The *Existing Footing Zone of Influence (EFZOI)* is defined as that area extending laterally one foot from the edge of footing then outward and downward at a 1.5H:1V splay. Per the *Building Code (Section 1805.5)*, an imaginary line drawn between the lower edges of adjoining footings shall not have a steeper slope than 25° (2H:1V) with the horizontal unless the material supporting the higher footing is braced or otherwise retained. This study did not include verification of the existing foundation via test pits. Given a proposed Garage Floor Elevation of 23 ft it is expected that proximate foundations will be undermined to accommodate the project. As such, proximate foundations will likely need to be shored or underpinned. It is expected that conventional concrete pit underpinning will be the most practical. Such underpinning involves staggered undermining of the existing foundation with new concrete pits constructed to lower the BOF. More specifically, concrete pit underpinning involves localized undermining (≈4 ft wide) of the footing with approach pits that are filled with consolidated concrete to lower the BOF. The underpinning is sequentially completed in thirds or quarters to limit the extent of unsupported foundation at one time. It is recommended that an experienced Contractor be retained for the underpinning. A *Technical Submittal* should be provided to outline the proposed means and methods to protect the existing buildings and construct the new underpinning pits.

FOUNDATION SUBGRADE RECOMMENDATIONS

Conventional Foundation

The subgrade conditions are suitable for supporting the proposed building on a conventional spread footing foundation with a concrete floor slab. The undocumented fill, intersecting utilities, abandoned foundations and other questionable materials are **not** rendered suitable for foundation support and shall be fully removed from the building pad including the *Footing Zone of Influence* (*FZOI*) to expose the Glacial subgrade. The *FZOI* is defined as that area extending laterally one foot from the edge of footing then outward and downward at a 1H:1V splay. It is expected that the majority of the fill and questionable matter will be penetrated for the basement level foundation. Structural Fill necessary to achieve foundation grade should conform *Specification* (Table 1).

The parent subgrade soils should be exposed in the foundation areas prior to casting the footings or placing structural fill. It is recommended that the parent subgrade soils be proof-rolled with vibratory densification and exhibit stable and compact conditions. The purpose of the proof-rolling is to densify the site soils and identify potential loose or unstable areas which should be removed as necessary. Proof-rolling should involve at least 4-5 passes with a vibratory compactor (minimum 950 pound static weight) operating at peak energy. During the proof rolling process, the subgrade should be observed by an Engineer to identify areas exhibiting weaving or instability. It will be necessary to remove weakened or unstable soils and replace with a Structural Fill or crushed stone. Proof-rolling should not be used when the subgrade is wet (groundwater, storm water, perched water, etc) as this may result in soil pumping and instability. The contractor should exercise extra precaution to minimize subgrade disturbance in these wet areas. Specifically, the groundwater table should be continuously maintained at least one foot below construction grade until the backfilling is complete. A base of ¾-inch minus crushed stone (or larger graded stone) protected with geotextile fabric should be placed atop the earthen subgrade if wet conditions and groundwater seepage are present. The stone should be *immediately* placed atop the undisturbed subgrade then tamped with a plate compactor exhibiting stable conditions. The purpose of the stone base is to protect the wet subgrade, facilitate necessary dewatering and provide a dry/stable base upon which to progress foundation construction. Groundwater is typically more problematic if construction occurs during the wetter winter or spring season. The drier summer months are more favorable for groundwater control. The groundwater is expected to be encroached given the deep excavations. Smooth bladed equipment shall be used for final excavations into the wet, fine-grained Fluvial soils.

The subgrade should ultimately be stable, dewatered, compact and protected from frost throughout construction. Bearing subgrades that become weakened or disturbed due to wet conditions will be rendered unsuitable for structural support. The Contractor shall ultimately be responsible for the means and methods of temporary groundwater control, subgrade protection and site stability during construction. An Engineer from KMM should be scheduled to review the foundation subgrade conditions and preparation during construction.

Perimeter Secant Wall Foundation

Given the proposed building will extend to the lot lines, a secant wall system may be considered for the perimeter foundation. Conventional construction would require the installation of temporary or permanent Support of Excavation (SOE). The SOE typically involves soldier piles with wood lagging or steel sheeting. Given SOE that may extend to unbalanced heights of ≈15-25 ft in areas, a braced SOE (tiebacks or internal bracing) would likely be necessary. Cantilevered SOE is generally feasible for unbalanced heights of ≈10 ft. Once the SOE is installed then conventional foundation construction would commence. There is always difficulty with constructing along property line boundaries. There would also be inherent difficulties with a braced excavation. A secant pile wall serves as both the SOE and the perimeter foundation wall. It is the permanent perimeter foundation. A secant pile wall consist of a series of overlapped cast-in-place concrete cylinders that form a continuous wall. The diameter, spacing, depth and structural reinforcement of the cylindrical elements are engineered to meet specific project requirements and subsurface conditions. The elements are typically constructed in a primary-secondary sequence, wherein each secondary pile straddles and overlaps two previously installed primary piles. Secondary piles are often reinforced with either a steel beam or a rebar cage for additional structural capacity. The wall may also serve as a groundwater cut-off to limit seepage into the excavation.

Such walls are generally "designed-built" by a qualified Geotechnical Contractor. The feasibility of such walls should be considered early in the project as it requires a completely different design approach with the project team. The concept of a secant pile wall should be vetted with a qualified Geotechnical Contractor. KMM can assist as necessary.

FOUNDATION DESIGN RECOMMENDATIONS

The footings are expected to gain bearing support atop the parent glacial soils and/or compacted structural fill. Footings may be designed using an allowable bearing capacity of 5 ksf (FS=3). The allowable bearing capacity may be increased a third (⅓) when considering transient loads such as wind or seismic. The bearing capacity is contingent upon the perimeter strip footings and isolated column footings being no less than 2 ft and 3 ft in width respectively. For footings less than 3 ft in lateral dimension, the net allowable bearing capacity should be reduced to one-third and multiplied by the least lateral footing dimension in feet. Foundation settlement should be less than 1 inch with differential settlement less than ½ inch. The settlement should be elastic and occur during construction. Exterior footings shall be provided with at least 4 ft of frost protection. Proper frost protection should be necessary during winter construction.

The subsurface conditions were reviewed with respect to seismic criteria set forth in the ***Massachusetts State Building Code***. Based on the relative density of the soils and the depth to groundwater, the site is not susceptible to liquefaction in the event of an earthquake. Based on interpretation of the *Building Code*, the *Site Classification* is “D” (Stable Soil Profile).

Recommendations for the lateral earth pressure against the unbalanced walls and drainage control are outlined on Table 2. Proper drainage behind the unbalanced foundation walls will also be necessary as summarized on Table 2.

FOUNDATION DRAINAGE

Due to the proposed basement level, a foundation drainage system will be required to permanently control the high groundwater as required by the *MSBC*. The purpose of the drainage system is to prevent uplift (buoyant) and lateral hydrostatic forces against the foundation walls and protect the basement level from groundwater intrusion. Given a basement floor elevation near elevation ≈23 ft, an under-slab drain system should also be necessary given expected seasonal groundwater impact. Groundwater was encountered near elevation ≈20-28 ft. The use of a secant pile wall may aid as a cut-off to reduce water seepage. Alternatively, the foundation may be fully water-proofed and structurally designed for hydrostatic and buoyant load. We recommend an Estimated Seasonally High Groundwater Table Elevation (ESHGWT) of 30 ft for design.

A perimeter foundation drain should be located at least ≈2-3 inches above the bottom of footing elevation and six inches outward from the edge of footing. The drains should not encroach within the *Footing Zone of Influence* defined as that area extending laterally one foot from the edge of footing then outward and downward at a 1H:1V splay. Furthermore, the invert elevation of the drain should be at least 15 inches below the underside of the adjacent floor slab. The drains should consist of minimum 4 inch diameter, perforated PVC-SDR35 drain pipe encased within 12 inches of ¾-inch stone and wrapped with a filter fabric such as Mirafi 140N or equal. To provide drainage along the basement wall, an 18 inch vertical lift of *Structural Fill* (Table 1) should be placed directly behind the foundation wall to within 18 inches of finish grade. A prefabricated wall drain such as MiraDrain (Mirafi G100N drainage composite) may also be used for this purpose. The ground surface immediately adjacent to the foundation should be sloped away from the building to allow for positive drainage. It is also recommended that the surficial materials adjacent to the building be relatively impermeable to reduce the volume of precipitation infiltrating into the subsurface. Such impermeable materials include cement concrete, bituminous concrete or a vegetated silty topsoil.

The underslab drainage system shall consist of a minimum 14 inch base of one inch crushed stone placed atop a geotextile filter fabric such as Mirafi 140N or equal. The filter fabric should be over-lapped a minimum one foot at intersecting seams. Furthermore, minimum 4 inch perforated PVC-SDR35 pipe should be embedded in the stone base at maximum ≈35 ft intervals with an invert at least 12 inches below the underside of the slab. The interior drains should also be placed adjacent to the perimeter foundation. The interior drains should not be located lower than the footings.

The foundation drains will need to discharge into the storm drain system not subject to surcharge or to a sump with pump. The sumps shall be equipped with duplex pumps. A back up generator and alarm system will also need to be incorporated into the drainage system in the event of power failure. Permits will be required to connect to the City drainage system. The Site Engineer should review the discharge of the foundation drains in this regard. It is recommended that a backflow preventer be installed at the outlet of the drains to reduce the impact of surcharges and to impede rodent activity that may clog the drain. The drains should be provided with permanent clean-outs at convenient locations to facilitate access to all sections of the system. Clean-outs should be located at bends and no greater than 175 ft on-center. Roof gutters and other storm collection should not be discharged to the foundation drains. Recharge systems, infiltrators and/or dry wells shall be kept away from the basement level to prevent hydrostatic surcharge. This should also be reviewed by the Site Engineer.

The basement foundation should be waterproofed or, at a minimum, damproofed to protect against moisture damage. The basement floor should be damproofed with minimum ten-mil polyethylene or StegoWrap™ with joints lapped 10 inches below the floor slab or with application of bituminous or other approved material to the surface. Damproofing of below grade foundation walls should include the application of a bituminous or other approved material from the top of footing to above ground level. Water-proofing should be specified by others. Below slab foundations (such as elevator pits) should be fitted with continuous waterstops in all construction joints and should be waterproofed as well as structurally designed (buoyant load) to protect against groundwater intrusion. Groundwater relief or drainage is typically not feasible for the depressed elevator pit. An equivalent fluid weight of 90 pcf should be used for the design of the elevator pit as the groundwater will not be controlled in this depressed area.

CONSTRUCTION CONCERNS

The contractor should be required to maintain a stable-dewatered subgrade for the building foundation and other concerned areas during construction. Subgrade disturbance may be influenced by excavation methods, moisture, precipitation, groundwater control and construction activities. The site soils, especially the Silt & Clay as well as the silty Fine Sand, are considered highly vulnerable to potential disturbance when exposed to wet conditions and construction activities. The moisture sensitivity of these soils is associated with the high percentage of fine-grained material (clay/silt/fine sand) which acts to retain moisture. The presence of groundwater water or perched water will further impact the subgrade stability. The contractor should be aware of the moisture concerns and take precautions to reduce subgrade disturbance during construction. Such precautions may include diverting storm run-off away from construction areas, reducing traffic in sensitive areas, minimizing the extent of exposed subgrade if inclement weather is forecast, backfilling footings as soon as practicable and maintaining an effective dewatering program. Soils exhibiting weaving or instability should be over-excavated to a competent bearing subgrade then replaced with a free draining structural fill or crushed stone. The moisture concerns are typically more problematic if construction takes place during the winter to spring season or other periods of inclement weather. A protective base of ¾-inch minus crushed stone may be placed ≈6-8 inches below and laterally beyond the footing limits for protection during construction. The stone shall be protected with a geotextile fabric such as Mirafi 140N or equal. The stone base is to protect the site soils, facilitate any necessary dewatering and provide a dry/stable base upon which to progress foundation construction. The protective base should be considered elective and dependent upon the site conditions. The stone base should be considered necessary if wet conditions are encountered at footing grade. The protective stone base shall be tamped with a plate compactor and exhibit stable conditions. The stone is expected to be necessary given the fine-grained soils and probable wet conditions.

The groundwater table and/or puddled storm water will need to be temporarily controlled during construction to complete work in dry conditions and protect the competency of the subgrade. Wet conditions should be continuously maintained at least one foot below construction grade until backfilling is complete. The groundwater or puddled storm water is expected to be controlled with conventional sumps and pumps. The temporary sumps should be filtered with stone and fabric and extend at least ≈30 inches below construction grade. A ≈6-8 inch lift of ¾-inch minus crushed stone (protected with a geotextile fabric) should be placed atop the wet subgrade to protect its competency and facilitate dewatering. The stone base should have positive slope to the sump. Adequate dewatering and storm water management are necessary for maintaining the competency of the site soils. Discharge of the water shall be reviewed by others.

The subgrade should ultimately be stable, dewatered, compact and protected from frost throughout construction. Bearing subgrades that become weakened or disturbed due to wet conditions will be rendered unsuitable for structural support. The Contractor shall ultimately be responsible for the means and methods of temporary groundwater control, subgrade protection and site stability during construction. An Engineer from KMM should be scheduled to review the foundation subgrade conditions and preparation during construction.

LATERAL SUPPORT OF EXCAVATION

Deep excavations (greater than ≈15-25 ft) are expected for foundation construction and possibly for utility installation around the property. Excavations should be sloped and/or laterally supported in accordance with the *Occupational and Health Administration (OSHA)* regulations (29 CFR Part 1926) and the *Commonwealth of Massachusetts Department of Labor and Industries Division of Industrial Safety (DLIDIS) - Rules and Regulations for the Prevention of Accidents in Construction Operations* (454 CMR 10.00), Part 14. Should excavations be sloped, the minimum slope based on soil type (Granular Outwash) is 1.5H:1V provided the groundwater is properly lowered below the bottom of the excavation. The foregoing slope requirement does not consider surcharge loads (stockpiled soils, equipment, materials, etc) which may be situated at the crest of the slope and vibration loads (soil compaction, sheet piling, etc). It should be noted that these slope requirements are minimums required by OSHA/DLIDIS regulations. The contractor should be ultimately responsible for design, maintenance and stability of the temporary slopes and/or shoring associated with construction activities.

Laterally supported earth systems should be designed by a qualified Professional Engineer retained by the contractor per OSHA Regulations. The deep excavations along the property limits are expected to require excavation support given the abutting property limits, existing buildings as well as surrounding utilities and roadways. Cantilevered sheeting or soldier piles with lagging are expected to be feasible for depths of ≈8-10 ft. Bracing or tiebacks will likely be necessary for deeper excavations. Excavation support is expected to impact the project from a budgetary perspective. The Secant Pile wall system may be considered to address the necessary SOE.

CONSTRUCTION MONITORING

It is recommended that a qualified engineer or representative be retained to review earthwork activities such as the preparation of the foundation bearing subgrade and the placement/compaction of Structural Fill. It is recommended that KMM be retained to provide construction monitoring services. This is to observe compliance with the design concepts presented herein.

CLOSING COMMENTS

Subgrade exploration was limited on this site existing building development. Although we do not expect vastly differing conditions, some means of exploration (test pits or test bores) should be considered at the commencement of construction to verify subgade. This should also be accomplished via the recommended geotechnical subgrade inspections during construction. This study is also considered preliminary in that a conventional foundation may be designed for the building or alternative means (secant wall or similar) may be considered given the project constraints. There are several design and construction issues that will likely need to be reviewed as the project progresses.

We trust the contents of this memorandum report are responsive to your needs at this time. Should you have any questions or require additional assistance, please do not hesitate to contact our office.

Allston372CambridgeStreet.wpd

LIMITATIONS

Explorations

1. The analyses, recommendations and designs submitted in this report are based in part upon the data obtained from preliminary subsurface explorations. The nature and extent of variations between these explorations may not become evident until construction. If variations then appear evident, it will be necessary to re-evaluate the recommendations of this report.

2. The generalized soil profile described in the text is intended to convey trends in subsurface conditions. The boundaries between strata are approximate and idealized and have been developed by interpretation of widely spaced explorations and samples; actual soil transitions are probably more gradual. For specific information, refer to the individual test pit and/or boring logs.

3. Water level readings have been made in the test pits and/or test borings under conditions stated on the logs. These data have been reviewed and interpretations have been made in the text of this report. However, it must be noted that fluctuations in the level of the groundwater may occur due to variations in rainfall, temperature, and other factors differing from the time the measurements were made.

Review

4. It is recommended that this firm be given the opportunity to review final design drawings and specifications to evaluate the appropriate implementation of the recommendations provided herein.

5. In the event that any changes in the nature, design, or location of the proposed areas are planned, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed and conclusions of the report modified or verified in writing by KMM Geotechnical Consultants, LLC.

Construction

6. It is recommended that this firm be retained to provide geotechnical engineering services during the earthwork phases of the work. This is to observe compliance with the design concepts, specifications, and recommendations and to allow design changes in the event that subsurface conditions differ from those anticipated prior to the start of construction.

Use of Report

7. This report has been prepared for the exclusive use of CRM Property Management Corp. in accordance with generally accepted soil and foundation engineering practices. No other warranty, expressed or implied, is made.

8. This report has been prepared for this project by KMM Geotechnical Consultants, LLC. This report was completed for preliminary design purposes and may be limited in its scope to complete an accurate bid. Contractors wishing a copy of the report may secure it with the understanding that its scope is limited to preliminary geotechnical design considerations only.

TABLE 1

Proposed Building
372 Cambridge Street
Allston, MA

Recommended Soil Gradation & Compaction Specifications

Gravel Base Fill
(Select Gravel Fill)

SIEVE SIZE	PERCENT PASSING BY WEIGHT
3 inch	100
3/4 inch	60-90
No. 4	20-70
No. 200	2-8

NOTE: For minimum 14-inch base for exterior concrete slabs exposed to frost
Shall have less than 12% fines (No. 200 sieve) based on the Sand fraction

Structural Fill
(Gravelly SAND, trace Silt)

SIEVE SIZE	PERCENT PASSING BY WEIGHT
5 inch	100
3/4 inch	60-100
No. 4	20-80
No. 200	0-10

NOTE: For use as structural load support below the foundations
For use as backfill behind unbalanced foundation/retaining walls
A one-inch minus crushed stone may be used in wet conditions

Structural Fill placed beneath the foundation should include the *Footing Zone of Influence* which is defined as that area extending laterally one foot from the edge of the footing then outward and downward at a 1H:1V splay. Structural Fill should be placed in loose lifts not exceeding 12 inches for heavy vibratory rollers and 8 inches for vibratory plate compactors. Structural Fill on the project should be compacted to at least 95 percent of maximum dry density as determined by the Modified Proctor Test (ASTM-D1557). The fill shall be compacted within ±2 of the optimum moisture content. The adequacy of the compaction efforts should be verified by field density testing which is also a requirement of the *Massachusetts State Building Code*.

TABLE 2

Proposed Building
372 Cambridge Street
Allston, MA

Recommended Lateral Earth Pressures & Drainage for Unbalanced Walls

Lateral earth pressures for the structural design and stability analysis of unbalanced foundation walls (basement walls, retaining walls, elevator pit, etc) are provided herein. The following table outlines the recommended lateral earth pressure coefficients and equivalent fluid weights:

WALL CONDITION	LATERAL TRANSLATION (Δ/H)	EARTH PRESSURE COEFFICIENT (K)	EQUIVALENT FLUID WEIGHT (γ_{EFW})
restrained	0	K_o	60 pcf
no restraint	0.002	K_a	35 pcf
no restraint	0.02	K_p (FS=3)	125 pcf
seismic	n/a	K_{eq}	see note

where: Δ = movement at top of wall by tilting or lateral translation
H = height of wall

The above lateral earth pressures are based upon:

1. Rankine earth pressure theory;
2. Retaining wall backfilled with Structural Fill (Table 1)
3. Unit weight of backfill less than 125 pcf
4. No hydrostatic pressures
5. No surcharge loading;
6. A level backfill in front and behind of wall;
7. Seismic loads distributed as an inverse triangle over the height of wall (*MSBC*);
8. Dynamic/compaction stresses accounted for with seismic pressures;
9. Soil backfill densified with plate compactors within 3 ft lateral distance of wall;
10. Top 2 ft should not be considered for passive resistance.

The lateral load due to seismic pressure shall be in accordance with *Section 9.5.2.9* of the *MSBC*. *Equation 9.5.2.9* shall be used to estimate the seismic force (F_w). The unit weight of the backfill used in this equation is 125 pcf (Structural Fill). There are no soils subject to liquefaction below and/or behind the wall.

The lateral resistance of retaining walls should also accommodate surcharge loads. Uniformly distributed loads should be superimposed along the face of the wall at a magnitude equal to the surcharge pressure multiplied by the appropriate earth pressure coefficient. Surcharge loads should be considered where they are located within a horizontal distance equivalent to 1.0 times the height of the wall. Anticipated point or line loads situated behind the wall should be evaluated in accordance with linear elastic theory.

For frost and drainage concerns, it is recommended that *Structural Fill* (Table 1) be placed directly behind the unbalanced walls. The Granular soils may be re-used in this regard. The ground surface immediately adjacent to the unbalanced foundation should be sloped away from the building to allow for positive drainage. It is also recommended that the surficial materials adjacent to the building be relatively impermeable to reduce the volume of precipitation infiltrating into the subgrade. Such impermeable materials include Portland cement concrete, bituminous concrete, or a vegetated silty topsoil.

Unbalanced foundation walls should be provided with adequate footing drains per the *MSBC*. The drains should be located along the periphery of the embedded footprint. The perimeter foundation drain should be located at least ≈2-3 inches above the bottom of footing elevation and six inches outward from the edge of footing. The drains should not encroach within the *Footing Zone of Influence* defined as that area extending laterally one foot from the edge of footing then outward and downward at a 1H:1V splay. Furthermore, the invert elevation of the drain should be at least 15 inches below the underside of the adjacent floor slab. The drains should consist of minimum 4 inch diameter, perforated PVC-SDR 35 drain pipe encased within 12 inches of ¾-inch stone and wrapped with a filter fabric such as Mirafi 140N or equal. The under-slab drainage system should consist of a minimum 14 inch base of one inch crushed stone placed atop a geotextile filter fabric such as Mirafi 140N or equal. The under-slab drain system should also consist of minimum 4 inch perforated PVC-SDR35 pipe trenched at maximum ≈35 ft intervals with an invert at least 12 inches below the underside of the slab. The drain pipe should be encased in protected stone base. The interior drains should not be located lower than the foundation footings. The drains shall discharge to an interior sump pit for pump ejection away from the building. Back-up power and duplex pumps shall be provided in the event of a failure. The Site Engineer should review the discharge of the drains. The drains should be provided with permanent clean-outs at convenient locations to facilitate access to all sections of the system. Clean-outs should be located at bends and no greater than 175 ft on-center. Roof gutters and other storm collection should not be discharged to the foundation drains. Recharge systems, infiltrators and/or dry wells shall be kept away from the basement level to prevent hydrostatic surcharge.

If the unbalanced foundation walls can not be drained to alleviate hydrostatic forces, then the lateral earth pressure equivalent fluid weight should be increased to 90 pcf. Such earth pressures should be used for elevator pits, if necessary.

The recommended friction factors to be used for retaining wall design are as follows:

<u>Recommended Friction Factor (f)</u>
f= tan(δ), where δ is the interface friction angle

- Concrete against the following soils

Structural Fill (Table 1)	0.50
Fluvial Soils	0.40

TEST BORING LOG

SHEET 1

Soil Exploration Corp.
Geotechnical Drilling
Groundwater Monitor Well
148 Pioneer Drive
Leominster, MA 01453
978 840-0391

Proposed Building
Site: Gas Station
Highgate and Cambridge Street
Allston, MA.

BORING B-1

PROJECT NO. 18-0314

DATE: March 20, 2018

Ground Elevation:
Date Started: March 16, 2018
Date Finished: March 16, 2018
Driller: TF
Soil Engineer/Geologist:

GROUNDWATER OBSERVATIONS

DATE	DEPTH	CASING	STABILIZATION
3/16/18	18 ft	n/a	

Depth Ft.	Casing bl/ft	Sample No.	Pen/Rec	Depth	Blows/6"	Strata	Visual Identification of Soil and / or Rock Sample
		1	12"	0'0 – 2'0"	8-9-8-10		Brown, Sand & Gravel, trace silt, brick (FILL)
1		2	8"	2'6" – 4'6"	10-17-14-20		Sand, Gravel, Brick (FILL)
5		3		5'0"- 7'0"	7-5-4-8		Same, trace ash, cinders, dry (FILL)
		4	8"	7'0" - 8'0"	8-9	8'	
		5	8"	8'0" – 9'0"	16-21		
10		6	8"	10'0" - 12'0"	22-34-46-40		Brown, fine to coarse Sand & Gravel, trace silt, dry
						15'	
15		7	10"	15'0" - 17'0"	12-14-11-16		Olive, Fine Sand, Clay & Silt Note: Petro Odor (FLUVIAL)
						20'	
20		8	12"	20'0"– 22'0"	14-15-14-19		Brown, Fine Sand, little silt, wet
25		9	19"	25'0" – 27'0"	7-13-15-18		Fine Sand, some silt, wet
30		10	18"	30'0" – 32'0"	9-11-11-15		End of boring at 32 ft Water encountered at 18 ft upon completion
35							

Notes: Hollow Stem Auger Size 4-1/4"

Cohesionless: 0 - 4 V. Loose, 4 - 10 Loose, 10 -30 M Dense, 30 -50 Dense, 50+ V
Cohesive: 0 -2 V Soft, 2 -4 Soft, 4 -8 M 8 -15 Stiff, 15 -30 V. Stiff, 30 + Hard.

Trace	0 to 10%
Little	10 to 20%
Some	20 to 35%
And	35% to 50%

	CASING	SAMPLE	CORE TYPE
ID SIZE (IN)		SS	
HAMMER WGT (LB)		140 lb.	
HAMMER FALL (IN)		30"	

TEST BORING LOG

SHEET 2

Soil Exploration Corp. Geotechnical Drilling Groundwater Monitor Well 148 Pioneer Drive Leominster, MA 01453 978 840-0391	**Proposed Building** **Site: Gas Station** **Highgate and Cambridge Street** **Allston, MA.**	BORING B-2 PROJECT NO. 18-0314 DATE: March 20, 2018

Ground Elevation:
Date Started: March 16, 2018
Date Finished: March 16, 2018
Driller: TF
Soil Engineer/Geologist:

GROUNDWATER OBSERVATIONS

DATE	DEPTH	CASING	STABILIZATION
3/16/18	17 ft	n/a	

Depth Ft.	Casing bl/ft	Sample No.	Pen/Rec	Depth	Blows/6"	Strata	Visual Identification of Soil and / or Rock Sample
						2"	Asphalt
1		1	12"	0'6 – 2'6"	10-10-11-19		Black Sand & Gravel (FILL)
		2	12"	2'6" – 4'6"	12-8-12-10		Brown, fine to coarse Sand & Gravel, trace silt, dry
5		3	6"	5'0"- 7'0"	6-3-5-5		
		4	2"	7'0" - 9'0"	8-12-12-11		Black Sand & Gravel, little brick, rubble, trace wood (FILL)
						9'	
10		5	14"	10'0" - 12'0"	6-6-7-18		Brown, fine to medium Sand, little gravel, little silt (POSSIBLE FILL??)
						13'	
15		6	12"	15'0" - 17'0"	12-11-13-15		
							Brown, Silt & Clay, little fine sand (FLUVIAL)
20		7	12"	20'0"– 22'0"	18-25-21-23		
25		8	14"	25'0" – 27'0"	15-17-17-21		Brown, Silt & Clay w/ fine sand
							End of boring at 27 ft Water encountered at 17 ft upon completion
30							
35							

Notes: Hollow Stem Auger Size 4-1/4"

Cohesionless: 0 - 4 V. Loose, 4 - 10 Loose,	Trace 0 to 10%		CASING	SAMPLE	CORE TYPE
10 -30 M Dense, 30 -50 Dense, 50+ V	Little 10 to 20%	ID SIZE (IN)		SS	
Cohesive: 0 -2 V Soft, 2 -4 Soft, 4 -8 M	Some 20 to 35%	HAMMER WGT (LB)		140 lb.	
8 -15 Stiff, 15 -30 V. Stiff, 30 + Hard.	And 35% to 50%	HAMMER FALL (IN)		30"	

TEST BORING LOG

SHEET 3

Soil Exploration Corp.
Geotechnical Drilling
Groundwater Monitor Well
148 Pioneer Drive
Leominster, MA 01453
978 840-0391

Proposed Building
Site: Gas Station
Highgate and Cambridge Street
Allston, MA.

BORING B-3

PROJECT NO. 18-0314

DATE: March 20, 2018

Ground Elevation:
Date Started: March 16, 2018
Date Finished: March 16, 2018
Driller: TF
Soil Engineer/Geologist:

GROUNDWATER OBSERVATIONS			
DATE	DEPTH	CASING	STABILIZATION
3/16/18	18 ft	n/a	

Depth Ft.	Casing bl/ft	Sample No.	Pen/Rec	Depth	Blows/6"	Strata	Visual Identification of Soil and / or Rock Sample
						3"	Asphalt
		1	14"	0'6 – 2'6"	5-6-9-10		Dark Brown, Sand w/ gravel, little silt
1		2	6"	2'6" – 4'6"	9-8-21-24		Brown, f-m Sand & Gravel, little silt, minor organic (FILL)
5		3	10"	5'0"- 7'0"	4-5-12-15		Sand. Gravel, Brick, rubble, dry (FILL)
		4	6"	7'0" - 9'0"	12-17-14-20	7'	
10		5	8"	10'0" - 12'0"	41-46-35-39		Brown, f-m Sand & Gravel, little silt (OUTWASH)
15		6	10"	15'0" - 17'0"	25-26-21-23		Brown, fine to coarse Sand & Gravel, little silt, cobbles
20		7	12"	20'0"– 22'0"	21-23-24-28		Same, wet
25		8	10"	25'0" – 27'0"	17-22-20-31		Same, wet
							End of boring at 27 ft Water encountered at 18 ft upon completion
30							
35							

Notes: Hollow Stem Auger Size 4-1/4"

Cohesionless: 0 - 4 V. Loose, 4 - 10 Loose, 10 -30 M Dense, 30 -50 Dense, 50+ V
Cohesive: 0 -2 V Soft, 2 -4 Soft, 4 -8 M 8 -15 Stiff, 15 -30 V. Stiff, 30 + Hard.

Trace	0 to 10%
Little	10 to 20%
Some	20 to 35%
And	35% to 50%

	CASING	SAMPLE	CORE TYPE
ID SIZE (IN)		SS	
HAMMER WGT (LB)		140 lb.	
HAMMER FALL (IN)		30"	

TEST BORING LOG

SHEET 4

Soil Exploration Corp.
Geotechnical Drilling
Groundwater Monitor Well
148 Pioneer Drive
Leominster, MA 01453
978 840-0391

Proposed Building
Site: Gas Station
Highgate and Cambridge Street
Allston, MA.

BORING B-4

PROJECT NO. 18-0314

DATE: March 20, 2018

Ground Elevation:
Date Started: March 16, 2018
Date Finished: March 16, 2018
Driller: TF
Soil Engineer/Geologist:

GROUNDWATER OBSERVATIONS

DATE	DEPTH	CASING	STABILIZATION
3/16/18	14 ft	n/a	

Depth Ft.	Casing bl/ft	Sample No.	Pen/Rec	Sample Depth	Blows/6"	Strata	Visual Identification of Soil and / or Rock Sample
						3"	Asphalt
1		1	14"	0'6 – 2'6"	5-9-10-10		Dark Brown, silty Sand, little gravel (FILL)
		2	8"	2'6" – 4'6"	9-6-6-10	4'	
5		3	6"	5'0"- 7'0"	32-31-49-46		Brown, fine to coarse Sand & Gravel, little silt, cobbles
		4	12"	7'0" - 8'0"	32-24	8'	
		4A	12"	8'0" – 9'0"	23-24		
10		5	16"	10'0" - 12'0"	16-17-22-20		Silt, Clay, Fine Sand (FLUVIAL)
15		6	16"	15'0" - 17'0"	12-15-16-18	17'	
20		7	16"	20'0"– 22'0"	23-21-25-26		Dark Grey, Fine Sand, little/some silt (FLUVIAL)
25		8	14"	25'0" – 27'0"	8-20-17-25		
							End of boring at 27 ft Water encountered at 14 ft upon completion
30							
35							

Notes: Hollow Stem Auger Size 4-1/4"

Cohesionless: 0 - 4 V. Loose, 4 - 10 Loose, 10 -30 M Dense, 30 -50 Dense, 50+ V
Cohesive: 0 -2 V Soft, 2 -4 Soft, 4 -8 M 8 -15 Stiff, 15 -30 V. Stiff, 30 + Hard.

Trace	0 to 10%
Little	10 to 20%
Some	20 to 35%
And	35% to 50%

	CASING	SAMPLE	CORE TYPE
ID SIZE (IN)		SS	
HAMMER WGT (LB)		140 lb.	
HAMMER FALL (IN)		30"	

Allston Square Development, Allston
Subsection IV
Allston Hall

Table of Contents

<u>Appendices</u>

1.0 PROJECT SUMMARY / OVERVIEW

1.1 Introduction

Allston Hall is part of the Allston Square Development Project in the Allston Square section of Allston. The overall project includes a six-building mixed-use development that is approximately 361,800 gross square feet in size. The Proposed Project will include three hundred and thirty-four residential units, two hundred and thirty-seven associated parking spaces, and approximately 22,145 square feet of retail space. **Please see Figure IV.1. <u>Project Locus Map</u> and Figure IV.2. <u>Allston Hall Breakdown.</u>**

The Allston Hall portion of the project includes maintaining and restoring the existing commercial structure, which has served as an auto parts warehouse, and converting the four-story building into a mixed-use building with two retail spaces on the first floor and nine residential units. The Allston Hall building currently has an address of 4 Braintree Street according to the Boston City Assessing Department. The overall gross square footage of the building will be approximately 12,900 square feet, with a floor to area ratio of 3.95. The site also proposes approximately 4,325 square feet of retail space. This retail space will be divided into two distinct areas, one with frontage on Braintree Street, which will be 2,155 square feet, and one with frontage along both Braintree Street and Franklin Street, which will be approximately 2,190 square feet.

The Allston Hall lot is 3,260 square feet. The lot is located to the north of Cambridge Street with street frontage on Braintree Street to the north and Franklin Street to the east. The immediate context includes a variety of building uses and scales. To the south, the site is immediately adjacent to a mixed-use three-story masonry building. North of the site, across from Braintree Street, stands a two-story industrial building, open-air parking lots, and the Massachusetts Turnpike. East of the site, across Franklin Street, contains a restaurant and more parking lots. The Allston Hall building also abuts the Franklin-Braintree lot, which is another component of the overall project, and currently houses industrial warehouses and surface parking lots.

Figure IV.1
Project Locus Map

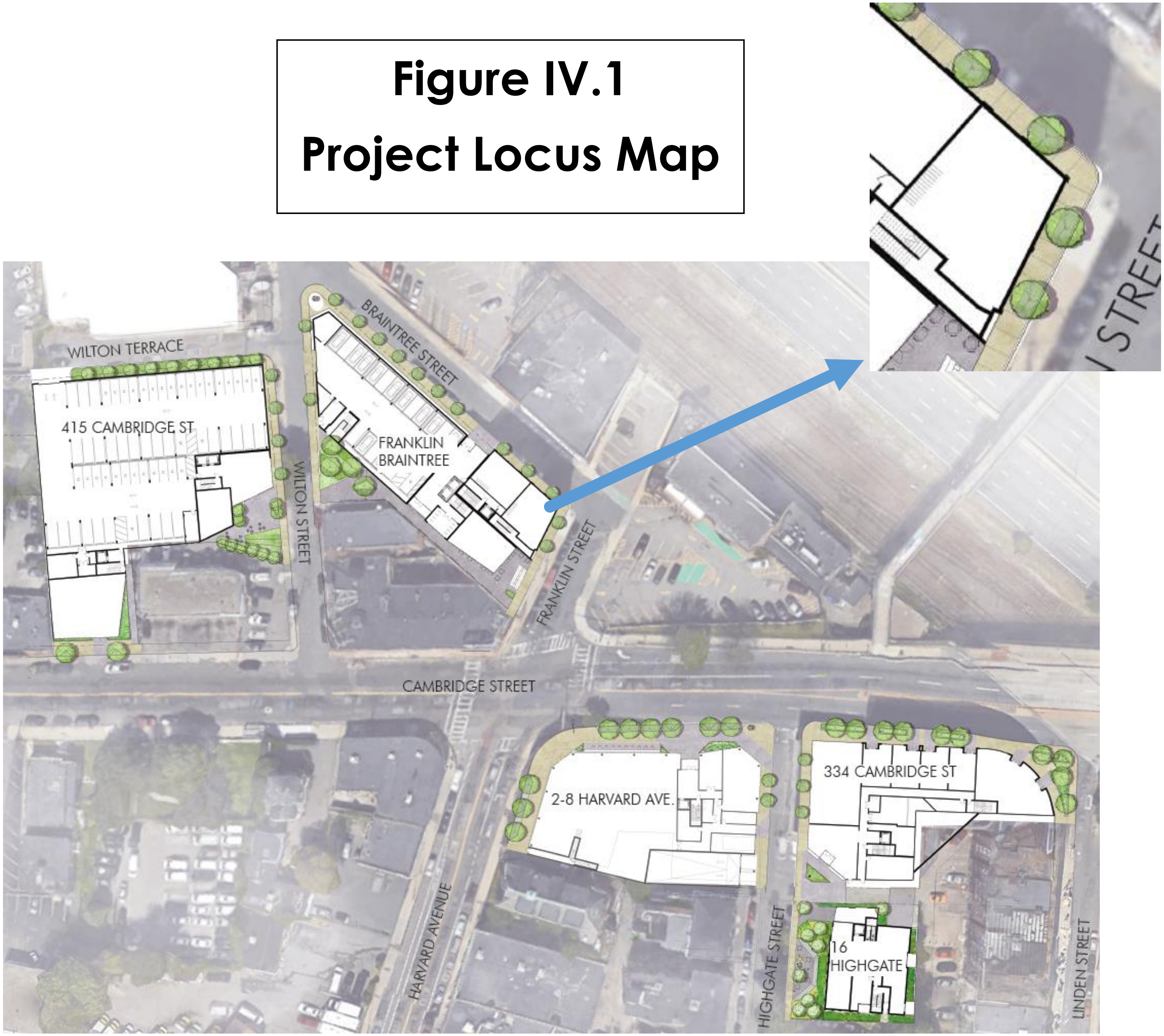


Figure IV.2
Allston Hall Breakdown

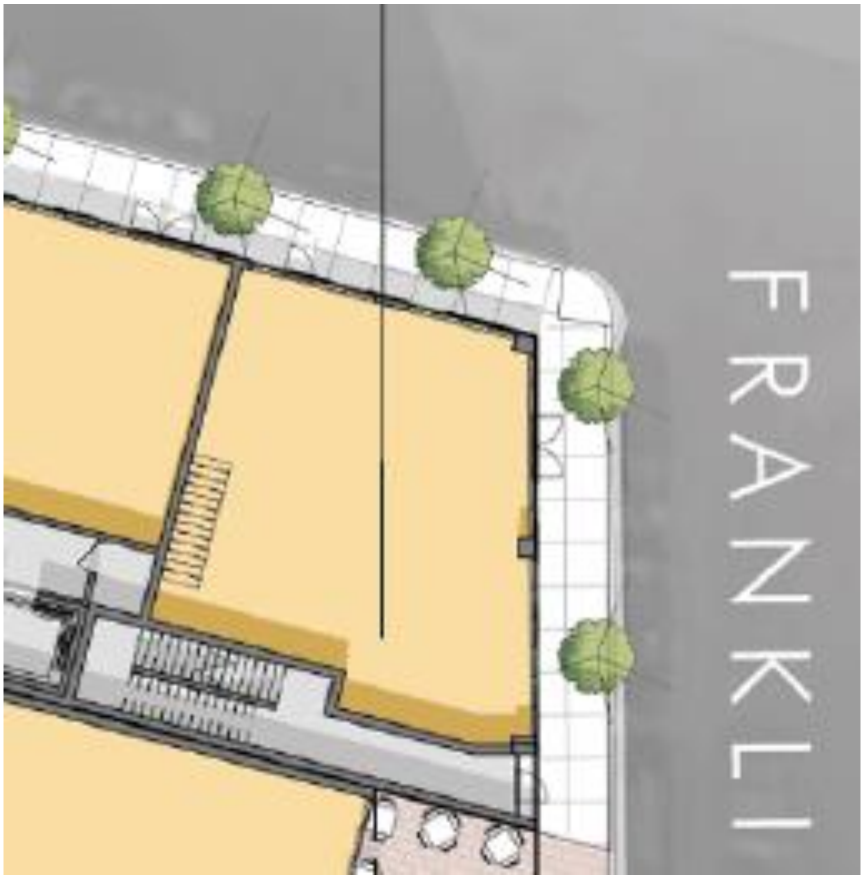


Table IV.3. Approximate Project Dimensions of Allston Hall

Lot Area:	3,260
Gross Square Feet:	12,900
Units:	9 Rental
Parking:	0 Spaces
Retail:	4,325 Sq. Ft.
FAR:	3.95
Height:	4 Stories/60’

2.0 General Information

2.1 Public Benefits

The Proposed Project will provide substantial benefits to the City of Boston and the Allston-Brighton community. The Proposed Project will generate both direct and indirect economic and social benefits to the Allston-Brighton neighborhood. The Proposed Project provides for:

- Generating much needed market rate residential housing in the Allston-Brighton Neighborhood.
- Meeting the BPDA's inclusionary zoning regulations by creating on-site affordable residential units, which will meet the Boston Planning & Development Agency's affordable housing standards.
- Creating nine residential units.
- Creating a diverse mixture of units including one-bedroom units, one-bedroom loft units, and two-bedroom units.
- Revitalizing a historically significant structure and replacing the current warehouse use with modern and energy efficient housing and retail space.
- Meeting LEED standards by constructing a building that will incorporate open space in the form of decking and terraces, and energy-efficient appliances, which will result in a high LEED standard for the Project.
- Encouraging alternative modes of transportation through the use of bicycling and walking, due to the close proximity of the bus lines and the Boston Landing MBTA Station.
- Adding revenue in the form of property taxes to the City of Boston.
- Creating full-time jobs (commercial retail).
- Creating temporary construction and labor jobs.
- Proposing five new street trees.
- Creating additional open space at the ground level.
- Creating new and improved sidewalk space to accommodate general foot traffic and to promote an active pedestrian walkway.

- Maintaining and restoring the Allston Hall building, preserving this historically significant structure.

- Creating dedicated art spaces to pay homage to the rich artist heritage of Allston Square.

2.2 Compliance with Boston Zoning Code – Use and Dimensional Requirements

Allston Hall is located within in the Allston-Brighton Neighborhood District, Article 51 of the Boston Zoning Code (the "Code"). Specifically, the property is located within a Braintree Street Local Industrial (Braintree Street LI-1) Subdistrict. **See Tables IV.4**.

Local retail businesses are an allowed use within a Braintree Street Local Industrial Subdistrict. However, Multi-Family Residential Uses are forbidden within a Braintree Street Local Industrial Subdistrict. Therefore, a use variance would need to obtained from the City of Boston Zoning Board of Appeal ("Board"). Additionally, any dimensional regulations that are not adhered to within the project will require variances from the Board.

For a project that is subject to Article 80 Large Project Review, required off-street parking spaces and off-street loading facilities will be determined as a part of the Large Project Review process in accordance with the provisions of Article 80 of the Boston Zoning Code. Design elements of the project will also be reviewed, in accordance with the Article 80 Review process.

The Site is located in an area that contains both residential and commercial uses. The design team feels that given this location, and the structures influencing the design, as well as comparable developments in the neighborhood, that the proposed restoration of the building and uses, and the massing and scale are appropriate for this location and conducive to the Allston-Brighton neighborhood.

Table IV.4. Allston Hall – Dimensional Regulations

Categories	Braintree Street Local Industrial-1 Subdistrict	Current Proposal
Minimum Lot Area (Square Feet)	None	3,260
Floor Area Ratio	1.0	3.95
Minimum Lot Width	None	47 Feet
Minimum Lot Frontage	None	47 Feet
Minimum Front Yard	None	0 Feet
Minimum Side Yard	None	0 Feet/0 Feet
Minimum Rear Yard	20 Feet	0 Feet
Maximum Building Height	35 Feet	60Feet/4 Stories
Minimum Useable Open Space Per Dwelling Unit (Square Feet)	50 S.F. Per Unit	0 S.F.
Off-Street Parking Spaces	2.0 Spaces Per Unit (18) 2.0 Spaces Per 1000 Square Feet of Retail Space (8)	0 Parking Spaces

3.0 URBAN DESIGN AND SUSTAINABILITY

3.1 Site and Surroundings

Allston Hall is located to the north of Cambridge Street with street frontage on Braintree Street and Franklin Street. The immediate context includes a variety of building uses and scales. To the south, the site is immediately adjacent to a mixed-use three-story masonry building. North of the site, across from Braintree Street, stands a two-story industrial building, open-air parking lots, and the Massachusetts Turnpike. East of the site, across Franklin Street, contains a restaurant and more parking lots. To the West, sits the parcel which will house another portion of this development, the proposed Franklin-Braintree building. The approximately 3,260 SF Allston Hall parcel has minimal grade change. The property is currently occupied by the Allston Hall building, a four-story masonry building built in 1890 that serves as an auto parts warehouse. **For existing site pictures see Appendix IV.1.**

3.2 Urban Design Review

The existing four-story Allston Hall building stands at approximately sixty feet. The building will be repurposed but retain many of the unique and distinctive architectural characteristics which will help to preserve the integrity and historical characteristics of the building.

At the street scale, the project is accessible via entries on Franklin Street and Braintree Street. The sidewalks will be widened to fourteen feet along Braintree and Franklin Streets, to accommodate pedestrian resting areas as well as a higher and more comfortable pedestrian flow. New sidewalk planting is also introduced along Franklin, Braintree, and Wilton Streets.

3.3 Building Design Review

This portion of the project consists of two separate but interconnected buildings, the existing Allston Hall building and the proposed Franklin-Braintree building. These buildings will share a common site, garage, and lobby. The existing Allston Hall is a repurposed four-story masonry building that currently occupies the eastern corner of the site, and Franklin-Braintree is a proposed new six-story building.

The Allston Hall project converts the existing Allston Hall building, a historic building built in 1890, into rental apartments and retail. The repurposed Allston Hall will consist of two (2) retail spaces and storage on the ground floor/basement level and nine (9) residential units distributed across three (3) upper floors. On the outside, Allston Hall will retain most of its original materiality and overall appearance, with the exception of the ground floor where new large openings will be reopened within existing bays to maximize natural light and create store frontage for the proposed retail spaces without compromising the building's structural integrity. All the existing windows will be replaced with new energy efficient windows of similar proportions and appearance. Also, on the ground floor, contrasting materials and modern detailing will be used at new store frontage to deliberately convey the juxtaposition between old and new.

3.4 Landscape Design

As indicated in the Landscape Plan, the Allston Hall and Franklin-Braintree buildings propose a combined twenty (20) new street trees to be planted on the site; two (2) occurring on Franklin

Street, ten (10) along Braintree Street, and another eight (8) on Wilton Street. Spacious sidewalks, adhering to the regulations as specified by the Boston Complete Streets Design Guidelines, will provide a proper buffer between cars and pedestrians. The sidewalks are widened to eight feet (8') along Wilton Street and fourteen feet (14') along Braintree Street and Franklin Street. Generous setbacks are further provided on Franklin Street to accommodate an outdoor café, on Wilton Street to create a public green space, and at the intersection on Wilton Street and Franklin Street to accommodate the installation of urban artwork for public enjoyment. A large alley between the new building and the adjacent mixed-used masonry building will create a public passageway that connects the public green space on Wilton Street to the outdoor café on Franklin Street. The use of murals and artistic lighting displays will help bring vibrancy to the passageway and encourage pedestrian circulation through the site. The public green space on Wilton Street, the passageway, and the outdoor café on Franklin Street are all finished with a contrasting angular paving that interrupts the pattern of the surrounding concrete sidewalk and helps connect this public space to the larger urban gesture present in the rest of the Allston Square Master Plan Development. All details of flora added to site, including caliper and species, will be approved by the City of Boston Parks and Recreation Commission.

3.5 Urban Design Drawings

The Proposed Project's urban design drawings will include, existing and proposed plot plans, proposed floor plans, elevations, building matrix, building rendering, concept diagram and landscape plan. **To view the full Urban Design Drawings please see Appendix IV.2. For the full Accessibility Checklist and Accessibility Diagram please see Appendix IV.3.**

4.0 SHADOW STUDY

As typically required by the BPDA, a shadow impact analysis was conducted to investigate shadow impacts from each proposed building during three time periods (9:00 a.m., 12:00 noon, and 3:00 p.m.) during the Vernal Equinox (March 21), Summer Solstice (June 21), Fall Equinox (September 21), and Winter Solstice (December 21).

The shadow analysis presents the existing shadows and new shadows that would be created by the proposed project, illustrating the incremental impact of the project. The analysis focuses on nearby open spaces, sidewalks & streets, and buildings that are in the vicinity of the project site. Shadows have been determined using the applicable Altitude and Azimuth data for Boston. **Figures showing the net new shadow from the project are provided in Appendix IV.4 at the end of this section.**

Vernal Equinox (March 21)

At 9:00 a.m. during the Vernal Equinox, new shadow from the project will be cast to the northwest onto Braintree Street and it sidewalks. No new shadow will be cast onto nearby open spaces or buildings.

At 12:00 p.m., new shadow from the project will be cast to the north onto Braintree Street and its sidewalks, and partially onto the two-story commercial building (South façade) at 1 Braintree Street and the open parking lot across the street.

At 3:00 p.m., new shadow from the project will be cast to the northeast onto Braintree Street and its sidewalks, as well as Franklin Street and its sidewalks. The new project will also partially cast some shadows onto the south façade of the existing two-story commercial building at 1 Braintree Street and the open parking spaces on both Braintree and Franklin Streets.

Summer Solstice (June 21)

At 9:00 a.m. during the Summer Solstice, new shadow from the project will be cast to the west onto a small section of Wilton Street and it sidewalks. No new shadow will be cast onto nearby open spaces or buildings.

At 12:00 p.m., new shadow from the project will be cast to the north onto a sliver of Braintree Street and the sidewalk directly adjacent to the new building. No new shadow will be cast onto nearby open spaces or buildings.

At 3:00 p.m., new shadow from the project will be cast to the northeast onto a sliver of Braintree Street, as well as a small section of Franklin Street and its sidewalk. No new shadow will be cast onto nearby open spaces or buildings.

Fall Equinox (September 21)

At 9:00 a.m. during the Fall Equinox, new shadow from the project will be cast to the northwest onto a section of Braintree Street and it sidewalks. No new shadow will be cast onto nearby open spaces or buildings.

At 12:00 p.m., new shadow from the project will be cast to the north onto Braintree Street and its sidewalks, and partially onto the two-story commercial building (south façade) at 1 Braintree Street and the open parking lot across the street.

At 3:00 p.m., new shadow from the project will be cast to the northeast onto Braintree Street and its sidewalks, as well as Franklin Street and its sidewalks. The new project will also partially cast some shadows onto the south façade of the existing two-story commercial building at 1 Braintree Street and the open parking spaces on both Braintree and Franklin Streets.

Winter Solstice (December 21)

The Winter Solstice creates the least favorable conditions for sunlight in New England. The sun angle during the Winter is lower than in any other season, causing the shadows in urban areas to elongate and be cast onto large portions of the surrounding area.

At 9:00 a.m. during the Winter Solstice, new shadow from the project will be cast to the northwest onto Braintree Street and it sidewalks. New shadow will be cast onto the entirety of the open parking lot on Braintree Street, as well as the East façade of a one-story warehouse building at 43 Braintree Street.

At 12:00 p.m., new shadow from the project will be cast to the north onto Braintree Street and its sidewalks, and the south façade of the two-story commercial building at 1 Braintree Street. The majority of the open parking lot on Braintree Street will also be in the shadow.

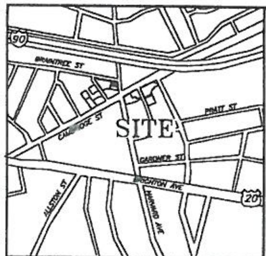
At 3:00 p.m., new shadow from the project will be cast to the northeast onto Braintree Street and its sidewalks, as well as Franklin Street and its sidewalks. The new project will shadow the existing two-story commercial building at 1 Braintree Street and the open parking spaces on both Braintree and Franklin Streets.

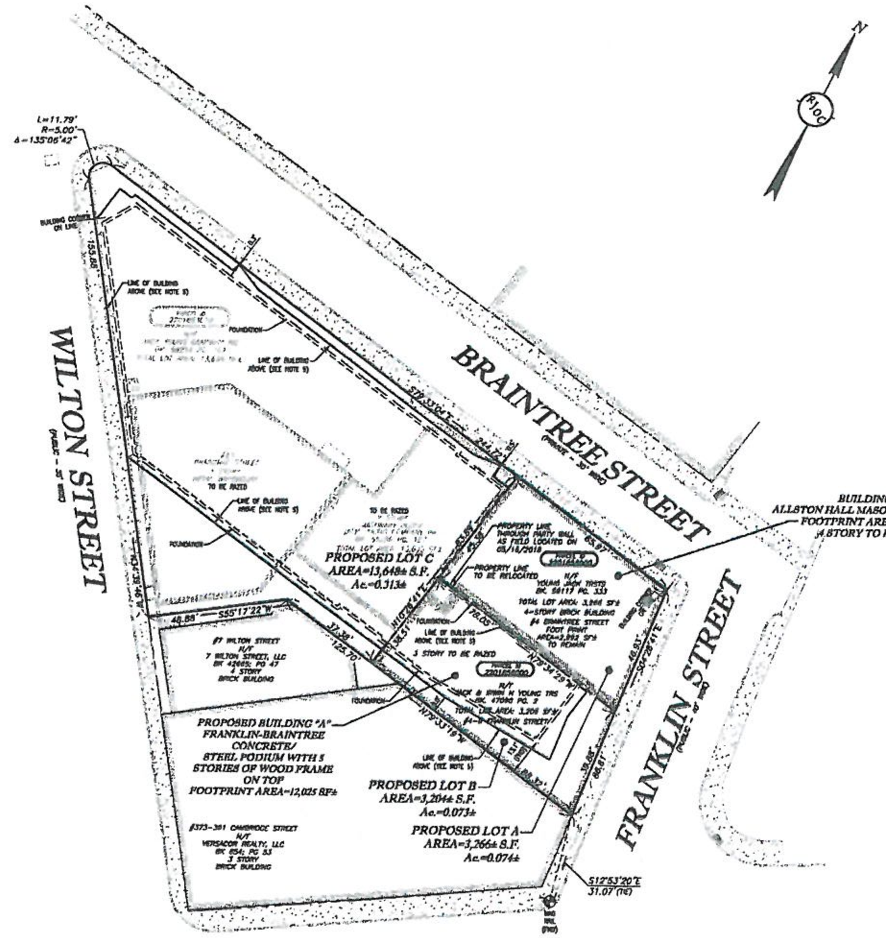
Conclusions

The shadow impact analysis looked at net new shadow created by the project during twelve time periods. New shadow from the project will be mostly limited to nearby streets (Braintree and Franklin Streets), sidewalks, and the adjacent parking lots. The shadows cast by the proposed buildings will have little to no impact on the buildings directly adjacent to it on Franklin Street and Wilton Street. The proposed project will impact the buildings at 1 & 43 Braintree Street, predominantly in the late afternoon.

5.0 GEOTECHNICAL INFORMATION

A Geotechnical study was conducted by KMM Geotechnical Consultants, LLC for the proposed development. However, as the existing Allston Hall building covers the entire lot, and only renovations to the building and no changes to the footprint are being proposed, a Geotechnical Report could not be conducted on this location.





LEGEND

- PROPERTY LINE
- PROPOSED PROPERTY LINE
- CURB
- ABUTTING PROPERTY LINE
- BUILDING OVERHANG
- FOUNDATION
- FND FOUNDATION

FOR REGISTRY USE ONLY

NOTES

1. THIS PLAN WAS PREPARED FROM AN ACTUAL SURVEY MADE ON THE GROUND USING TOTAL STATION METHODS BETWEEN 02/28/2018 AND 05/16/2018.
2. THE HORIZONTAL DATUM IS NORTH AMERICAN DATUM OF 1983 (NAD '83). DATUM WAS ESTABLISHED USING RTK GPS METHODS.
3. THE POSITIONAL ACCURACY OF THE DATA AND PHYSICAL IMPROVEMENTS ON THIS PLAN MAY BE APPROXIMATE. ANY USE OF ELECTRONIC DATA CONTAINED IN AUTOCAD VERSIONS OF THIS PLAN TO GENERATE COORDINATES OR DIMENSIONS NOT SHOWN ON THE PLAN IS NOT AUTHORIZED.
4. THE PARCEL SHOWN IS LOCATED IN ZONE X, AS SHOWN ON "FLOOD INSURANCE RATE MAP, SUFFOLK COUNTY, BOSTON MASSACHUSETTS," MAP NUMBER 25025C0087G, EFFECTIVE DATE SEPTEMBER 25, 2009.
5. "LINE OF BUILDING ABOVE" REPRESENTS THE OUTERMOST FACE OF THE PROPOSED BUILDING ABOVE THE FOUNDATION.
6. THE PURPOSE OF THIS PLAN IS TO RECONFIGURE THE PROPERTY LINE BETWEEN CITY OF BOSTON PARCEL ID NUMBER 2201856000 AND 2201855000.

REFERENCES

PLAN BOOK AND PAGES REFERENCE THE SUFFOLK COUNTY REGISTRY OF DEEDS

- BK. 58259/PG. 107
- BK. 58259/PG. 333
- BK. 59117/PG. 3
- L.C.C 7087-8

WE HEREBY CERTIFY THAT:
THIS PLAN IS THE RESULT OF AN ON THE GROUND SURVEY PERFORMED ON OR BETWEEN FEBRUARY 28, 2018 AND MAY 16, 2018. THE PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE RULES AND REGULATIONS OF THE OF THE REGISTERS OF DEEDS. THE CITY OF BOSTON HAS NOT ADOPTED THE SUBDIVISION CONTROL LAW.

COMMONWEALTH OF MASSACHUSETTS KEVIN J. KIERNAN No. 40038 PROFESSIONAL LAND SURVEYOR

RJK 5/21/18

PROFESSIONAL LAND SURVEYOR FOR RJ O'CONNELL & ASSOCIATES, INC — DATE

10 0 5 10 20
GRAPHIC SCALE IN FEET

DIG SAFE
BEFORE YOU DIG CALL 811

No.	Revision	Date

Record Owner:
SEE PLAN

Location:
FRANKLIN/BRAINTREE STREET
ALLSTON SQUARE
BOSTON (ALLSTON) MA

Drawn by:	MSM
Checked by:	RJK
Scale:	1"=10'
Date:	05/18/2018
Field Crew:	TDB/RJK
Field Book:	BK. XX PG. X

Prepared for:
CITY REAL ESTATE DEVELOPMENT CORP.
320 WASHINGTON ST
SUITE 3FF
BROOKLINE, MA 02446

Prepared by:
RJO'CONNELL & ASSOCIATES, INC.
CIVIL ENGINEERS, SURVEYORS & LAND PLANNERS
80 MONTVALE AVE
STONEHAM, MA 02180
781-279-0180
www.rjoconnell.com

Project Name:
ALLSTON SQUARE
BOSTON (ALLSTON) MA

Drawing Name:
APPROVAL NOT REQUIRED
PROPOSED LOT B

Drawing No.:
ANR-2
(RECONFIGURATION)
Project No.: 18018

Drawing name: G:\City Real Estate Development Corp\Projects\Allston\Allston Square\Work\18018_Cert_Plot_Plan.dwg
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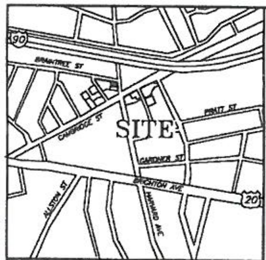

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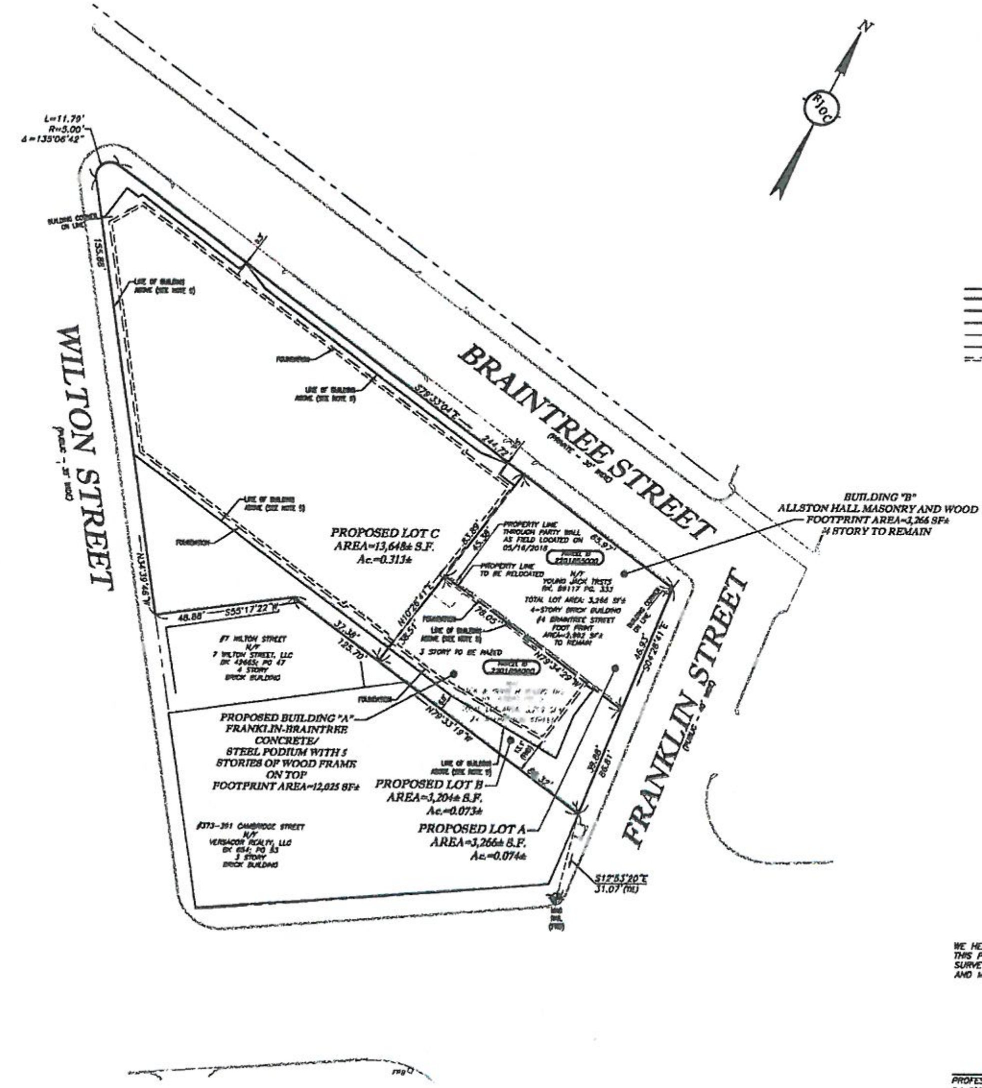

LEGEND

——	PROPERTY LINE
— — —	PROPOSED PROPERTY LINE
——	CURB
— - —	ABUTTING PROPERTY LINE
——	BUILDING OVERHANG
- - -	FOUNDATION
FND	FOUNDATION

WE HEREBY CERTIFY THAT:
THIS PLAN IS THE RESULT OF AN ON THE GROUND SURVEY PERFORMED ON OR BETWEEN FEBRUARY 28, 2018 AND MAY 16, 2018.

COMMONWEALTH OF MASSACHUSETTS
KEVIN J. KIERNAN
No. 40038
PROFESSIONAL LAND SURVEYOR

RJK 5/21/18

PROFESSIONAL LAND SURVEYOR FOR RJ O'CONNELL & ASSOCIATES, INC — DATE

10 0 5 10 20
GRAPHIC SCALE IN FEET

DIG SAFE
BEFORE YOU DIG
CALL 811

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May 21, 2018 - 12:03pm

No.	Revision	Date

Record Owner:
SEE PLAN

Location:
FRANKLIN/BRAINTREE STREET
ALLSTON SQUARE
BOSTON (ALLSTON) MA

Drawn by:	MSM
Checked by:	RJK
Scale:	1"=10'
Date:	05/18/2018
Field Crew:	TDS/RJK
Field Book:	BK. XX PG. X

Prepared for:
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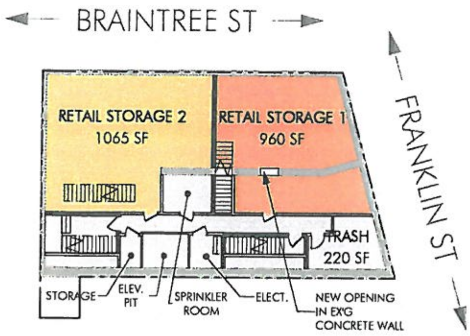
Project Name:
ALLSTON SQUARE
BOSTON (ALLSTON) MA

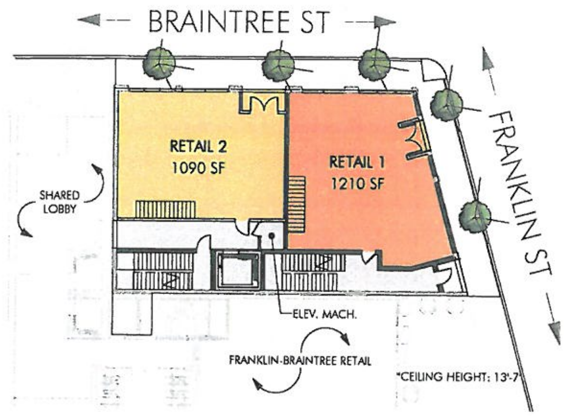
Drawing Name:
APPROVAL NOT REQUIRED PROPOSED LOT B

Drawing No.:
PROPERTY EXHIBIT

Project No.: 18018

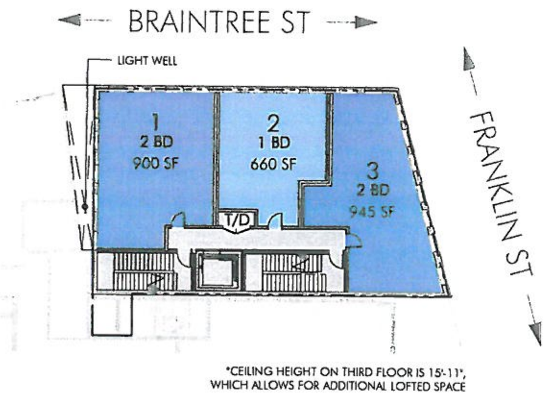


BASEMENT PLAN | Scale: 1" = 40'

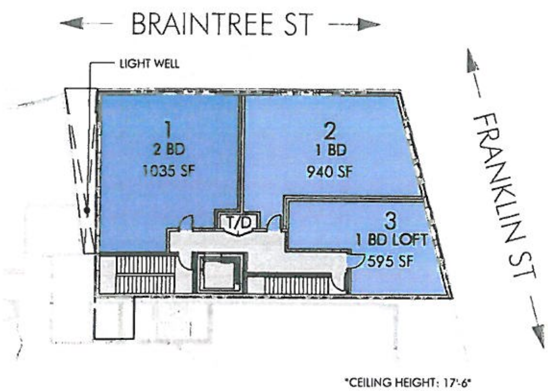


GROUND FLOOR PLAN | Scale: 1" = 40'

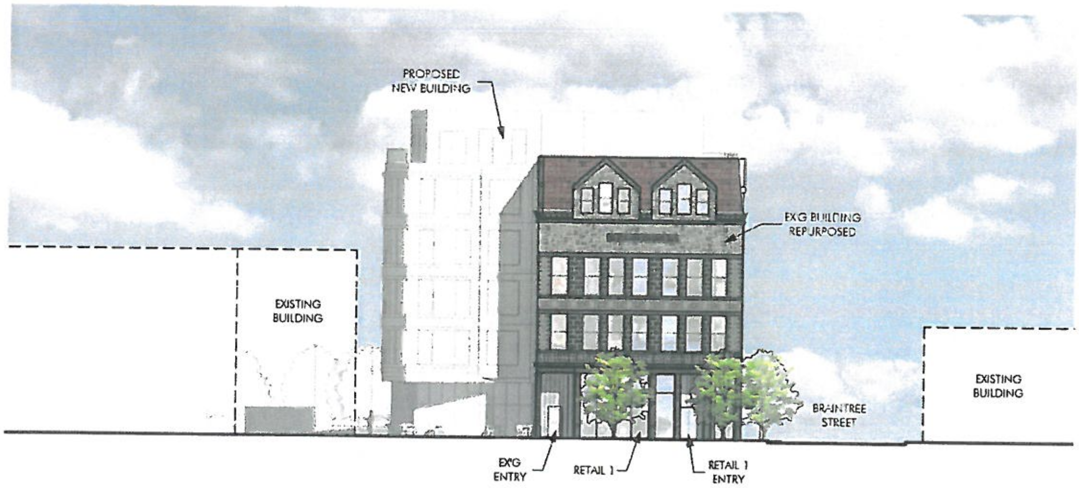
2ND FLOOR PLAN | Scale: 1" = 40'



3RD FLOOR PLAN | Scale: 1" = 40'

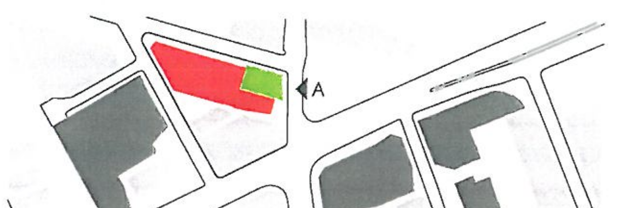


4TH FLOOR PLAN | Scale: 1" = 40'



A -FRANKLIN STREET ELEVATION | Scale: 1" = 40'

B - BRAINTREE STREET ELEVATION | Scale: 1" = 40'



ELEVATION KEY

EMBARC

ALLSTON HALL

UNIT MATRIX
April 10, 2018

GROSS SQUARE FEET (GSF)						
	SELLABLE | RENTABLE			COMMON		
		GSF			GSF	
BASEMENT PLAN						
	RETAIL STORAGE 1	960		STAIRS | ELEV.	720	
	RETAIL STORAGE 2	1,065		MECH | SPRINKLER | STO. | TRASH	480	
FLOOR SUBTOTAL		2,025			1,200	
GROUND FLOOR	RETAIL 1	1,210		HALL | STAIRS | ELEV	925	
	RETAIL 2	1,090				
FLOOR SUBTOTAL		2,300			925	
LEVEL 2	UNIT 201	900	2 BR	HALL | STAIRS | ELEV	720	
(3 UNITS)	UNIT 202	660	1 BR			
	UNIT 203	945	2 BR			
FLOOR SUBTOTAL		2,505			720	
LEVEL 3	UNIT 301	900	2 BR	HALL | STAIRS | ELEV	720	
(3 UNITS)	UNIT 302	660	1 BR			
	UNIT 303	945	2 BR			
FLOOR SUBTOTAL		2,505			720	
LEVEL 4	UNIT 401	1,035	2 BR	HALL | STAIRS | ELEV	655	
(3 UNITS)	UNIT 402	940	1 BR			
	UNIT 403	595	1 BR			
FLOOR SUBTOTAL		2,570			655	
RESIDENTIAL SELLABLE GSF		11,905		COMMON AREA GSF	4,220	

BUILDING GSF	
BASEMENT	3,225
GROUND FLOOR	3,225
SECOND FLOOR	3,225
THIRD FLOOR	3,225
FOURTH FLOOR	3,225
TOTAL BUILDING GSF	12,900

(Parking not incl.)

(Basement not incl.)

SITE	3,262
FAR	3.95
TOTAL SF	16,125
LOT COVERAGE	99%

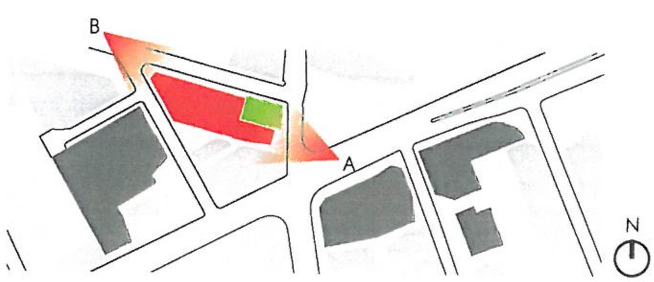
UNIT BREAKDOWN:		AVERAGE SIZE
STUDIO	0	0
1 BED	4	714
2 BED	5	945
TOTAL UNITS	9	842

PARKING SPACES	0
PARKING/UNIT RATIO	N/A

GSF: measured to outside face of exterior walls, centerline of party walls and demising walls

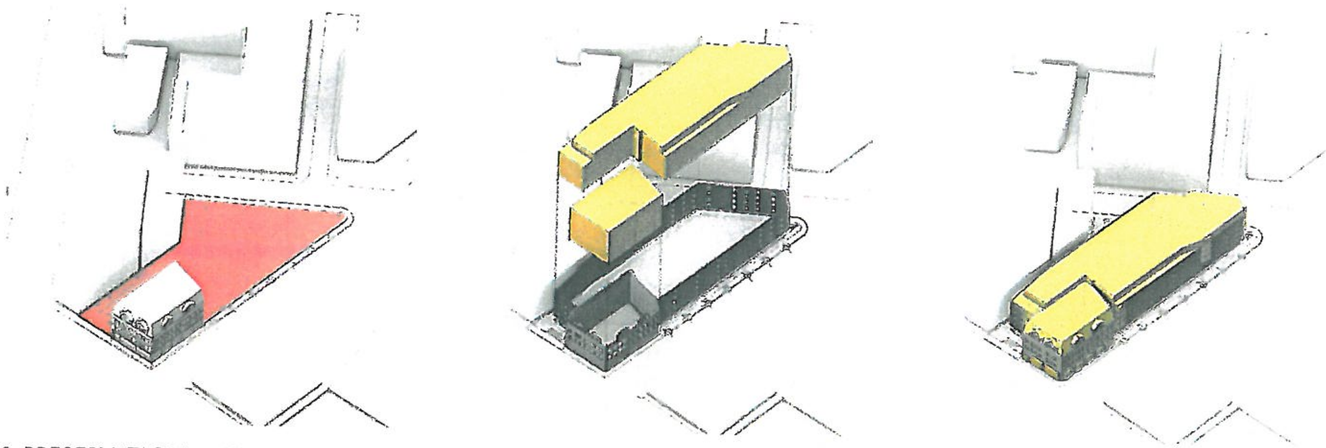
A- FRANKLIN STREET PERSPECTIVE

B- BRAINTREE-WILTON ST PERSPECTIVE



PERSPECTIVE KEY

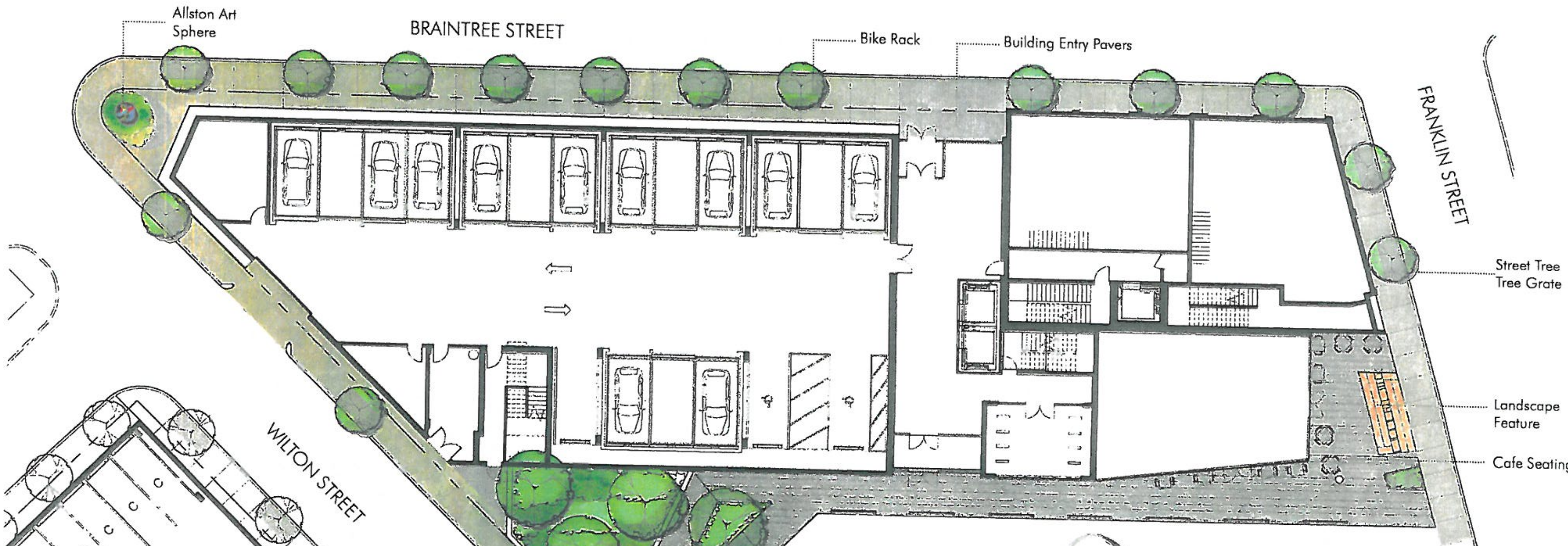
FRANKLIN/BRAINTREE/ALLSTON HALL



1.PRESERVATION - THE NEW PROPOSAL PRESERVES AND REHABILITATES THE EXISTING ALLSTON HALL BUILDING AT THE CORNER OF THE SITE.

2.ENCLOSURE - ALLSTON HALL KEEPS ITS ORIGINAL EXTERIOR ENCLOSURE, WHILE THE INTERIOR VOLUME IS COMPLETELY NEW. FOLLOWING ALONG THE SAME LINE, THE PROPOSED BUILDING IS A MODERN VOLUME WRAPPED WITH A MORE TRADITIONAL SHELL TO HELP RELATE IT BACK TO THE ABUTTING ALLSTON HALL AND SURROUNDING CONTEXT.

3. JUXTAPOSITION (OLD VS. NEW) - AT KEY LOCATIONS WHERE THE NEW BUILDING MEETS THE EXISTING ALLSTON HALL, THE MODERN VOLUME BREAKS THROUGH THE MORE TRADITIONAL SHELL TO REVEAL ITSELF.



URBAN DESIGN IMPROVEMENTS

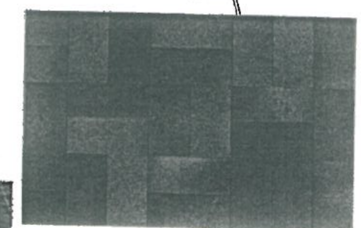
FRANKLIN-BRAINTREE

Franklin Street Frontage
- Cafe Space with Landscape Feature
- Street trees with tree grille strips
- Bike racks

Wilton Street Frontage
- Pocket park
- Street trees with tree grille strips

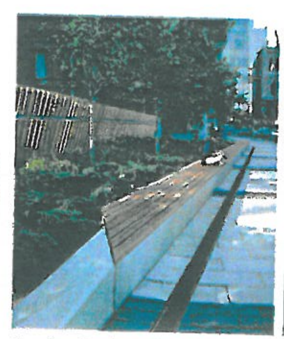
Braintree Street Frontage
- Allston Art Sphere
- Street trees with tree grille strips
- Bike racks

Bike Rack

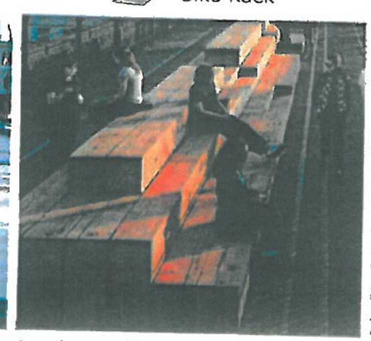


Building Entry Pavers

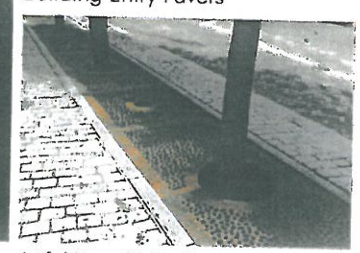
Concrete Sphere that serves as canvas for local artists



Pocket Park with Seating Element



Landscape Feature with Integral Seating and Signage



Artful Tree Grille Strips

FRANKLIN-BRAINTREE

Accessibility Checklist
(to be added to the BRA Development Review Guidelines)

In 2009, a nine-member Advisory Board was appointed to the Commission for Persons with Disabilities in an effort to reduce architectural, procedural, attitudinal, and communication barriers affecting persons with disabilities in the City of Boston. These efforts were instituted to work toward creating universal access in the built environment.

In line with these priorities, the Accessibility Checklist aims to support the inclusion of people with disabilities. In order to complete the Checklist, you must provide specific detail, including descriptions, diagrams and data, of the universal access elements that will ensure all individuals have an equal experience that includes full participation in the built environment throughout the proposed buildings and open space.

In conformance with this directive, all development projects subject to Boston Zoning Article 80 Small and Large Project Review, including all Institutional Master Plan modifications and updates, are to complete the following checklist and provide any necessary responses regarding the following:

- improvements for pedestrian and vehicular circulation and access;
- encourage new buildings and public spaces to be designed to enhance and preserve Boston's system of parks, squares, walkways, and active shopping streets;
- ensure that persons with disabilities have full access to buildings open to the public;
- afford such persons the educational, employment, and recreational opportunities available to all citizens; and
- preserve and increase the supply of living space accessible to persons with disabilities.

We would like to thank you in advance for your time and effort in advancing best practices and progressive approaches to expand accessibility throughout Boston's built environment.

Accessibility Analysis Information Sources:

1. Americans with Disabilities Act – 2010 ADA Standards for Accessible Design
   a. http://www.ada.gov/2010ADAstandards_index.htm
2. Massachusetts Architectural Access Board 521 CMR
   a. http://www.mass.gov/eopss/consumer-prot-and-bus-lic/license-type/aab/aab-rules-and-regulations-pdf.html
3. Boston Complete Street Guidelines
   a. http://bostoncompletestreets.org/
4. City of Boston Mayors Commission for Persons with Disabilities Advisory Board
   a. http://www.cityofboston.gov/Disability
5. City of Boston – Public Works Sidewalk Reconstruction Policy
   a. http://www.cityofboston.gov/images_documents/sidewalk%20policy%200114_tcm3-41668.pdf
6. Massachusetts Office On Disability Accessible Parking Requirements
   a. www.mass.gov/anf/docs/mod/hp-parking-regulations-mod.doc
7. MBTA Fixed Route Accessible Transit Stations
   a. http://www.mbta.com/about_the_mbta/accessibility/

Project Information

Project Name:	ALLSTON SQUARE
Project Address Primary:	14 Franklin Street, Boston, MA 02134
Project Address Additional:	4 Braintree St, Boston, MA 02134
Project Contact (name / Title / Company / email / phone):	Jeffrey Drago, Esq. / Drago & Toscano, LLP / jdrago@dtlawllp.com / 617.391.9450

Team Description

Owner / Developer:	CRM Property Development Corp.
Architect:	Embarc Studio LLC.
Engineer (building systems):	TBD
Sustainability / LEED:	Soden Sustainability Consulting
Permitting:	Drago & Toscano, LLP
Construction Management:	TBD

Project Permitting and Phase

At what phase is the project – at time of this questionnaire?

PNF / Expanded PNF Submitted	Draft / Final Project Impact Report Submitted	BRA Board Approved
BRA Design Approved	Under Construction	Construction just completed:

Building Classification and Description

What are the principal Building Uses - select all appropriate uses?

Residential – One to Three Unit	Residential - Multi-unit, Four +	Institutional	Education
Commercial	Office	Retail	Assembly
Laboratory / Medical	Manufacturing / Industrial	Mercantile	Storage, Utility and Other

First Floor Uses (List): *Commercial and Residential Lobby*

What is the Construction Type – select most appropriate type?

Wood Frame	Masonry	Steel Frame	Concrete

Describe the building?

Site Area:	*3,262 SF*	Building Area:	*16,095 SF*
Building Height:	*61 Ft. 0 inches*	Number of Stories:	*4 Flrs.*
First Floor Elevation:	*0' Elev.*	Are there below grade spaces:	*Yes*

Assessment of Existing Infrastructure for Accessibility:

This section explores the proximity to accessible transit lines and proximate institutions such as, but not limited to hospitals, elderly and disabled housing, and general neighborhood information. The proponent should identify how the area surrounding the development is accessible for people with mobility impairments and should analyze the existing condition of the accessible routes through sidewalk and pedestrian ramp reports.

Provide a description of the development neighborhood and identifying characteristics.	The proposed site is in the Allston neighborhood of Boston, situated between Ringer Park to the south, the Honan-Allston branch public library to the north, a major shopping plaza to the west (which includes a super Stop & Shop and Homegoods store among others), and Boston University to the East; all of which are located within a ½ mile radius. The current neighborhood is primarily a mixed-used of multi-family residential developments and retail/commercial buildings. Directly adjacent to site, the main road (Cambridge Street) is flanked by retail stores, which makes it a busy, high-traffic area.

List the surrounding ADA compliant MBTA transit lines and the proximity to the development site: Commuter rail, subway, bus, etc.	**¼ mile Radius:** Cambridge Street @ Franklin Street (Bus 64, 66, 501, 503) / Cambridge Street @ Linden Street (Bus 64, 66, 501, 503, 9701, 9702, 9703) / Brighton Avenue @ Allston Street (Bus 57, 66, 57A). **½ mile Radius:** Harvard Avenue Station (Green Line – B Train) / Griggs Street Station (Green Line – B Train) / Packard's Corner Station (Green Line – B Train).
List the surrounding institutions: hospitals, public housing and elderly and disabled housing developments, educational facilities, etc.	**Hospitals:** Steward Health Care (South West, ¾ mile Radius), Franciscan Children's Hospital (South West, ¾ mile Radius), Boston Orthopedic & Sports Med (South West, ¾ mile Radius), Arbour HRI Hospital (East, ¾ mile Radius), Brigham & Women's Hospital (East, 1 mile Radius). **Educational Facilities:** The Learning Tree Preschool/Daycare (South, ¼ mile Radius), Gardner Pilot Academy Elementary School (North, ½ mile Radius), Bright Horizons Preschool (East, ½ mile Radius), Jackson/Mann K-8 School (South, ½ mile Radius), Horace Mann School for the Deaf (South, ½ mile Radius), Boston Theological Institute (North, ¾ mile Radius), Boston University (East, ¾ mile Radius). **Public Housing:** Glenville Avenue Apartments (South, ½ mile Radius), Commonwealth Avenue Housing (South, ½ mile Radius), Charlesview Inc (North, ¾ mile Radius), Governor Apartments (South, ¾ mile Radius), Comaven Apartments (South, ¾ mile Radius). **Elderly/Disabled Housing:** Brighton-Allston Elderly (North, ½ mile Radius).
Is the proposed development on a priority accessible route to a key public use facility? List the surrounding: government buildings, libraries, community centers and recreational facilities and other related facilities.	**Government Buildings:** Boston Fire Department Engine 41 (South, ¼ mile Radius). **Library:** Honan-Allston Branch Public Library (North East, ½ mile Radius). **Community Center:** Jackson Mann Community Center (South West, ½ mile Radius). **Recreational Facility:** Penniman Road Play Area (West, ¼ mile Radius), Ringer Park (South, ½ mile Radius), Commonwealth Sports Club (East, ½ mile Radius).

Surrounding Site Conditions – Existing:

This section identifies the current condition of the sidewalks and pedestrian ramps around the development site.

Are there sidewalks and pedestrian ramps existing at the development site?	Yes.
If yes above, list the existing sidewalk and pedestrian ramp materials and physical condition at the development site.	Existing sidewalks are concrete with granite curbs, both in acceptable condition.
Are the sidewalks and pedestrian ramps existing-to-remain? If yes,	TBD

have the sidewalks and pedestrian ramps been verified as compliant? If yes, please provide surveyors report.	
Is the development site within a historic district? If yes, please identify.	No.

Surrounding Site Conditions – Proposed

This section identifies the proposed condition of the walkways and pedestrian ramps in and around the development site. The width of the sidewalk contributes to the degree of comfort and enjoyment of walking along a street. Narrow sidewalks do not support lively pedestrian activity, and may create dangerous conditions that force people to walk in the street. Typically, a five foot wide Pedestrian Zone supports two people walking side by side or two wheelchairs passing each other. An eight foot wide Pedestrian Zone allows two pairs of people to comfortable pass each other, and a ten foot or wider Pedestrian Zone can support high volumes of pedestrians.

Are the proposed sidewalks consistent with the Boston Complete Street Guidelines? See: www.bostoncompletestreets.org	Yes.
If yes above, choose which Street Type was applied: Downtown Commercial, Downtown Mixed-use, Neighborhood Main, Connector, Residential, Industrial, Shared Street, Parkway, Boulevard.	The proposed development is bordered by Braintree St (North), and Franklin St (East). **STREET TYPES:** - Braintree & Franklin Streets fall under the **Neighborhood Connector** category.
What is the total width of the proposed sidewalk? List the widths of the proposed zones: Frontage, Pedestrian and Furnishing Zone.	TBD
List the proposed materials for each Zone. Will the proposed materials be on private property or will the proposed materials be on the City of Boston pedestrian right-of-way?	TBD
If the pedestrian right-of-way is on private property, will the proponent seek a pedestrian easement with	N/A

the City of Boston Public Improvement Commission?	
Will sidewalk cafes or other furnishings be programmed for the pedestrian right-of-way?	No.
If yes above, what are the proposed dimensions of the sidewalk café or furnishings and what will the right-of-way clearance be?	N/A

Proposed Accessible Parking:

See Massachusetts Architectural Access Board Rules and Regulations 521 CMR Section 23.00 regarding accessible parking requirement counts and the Massachusetts Office of Disability Handicap Parking Regulations.

What is the total number of parking spaces provided at the development site parking lot or garage?	0
What is the total number of accessible spaces provided at the development site?	N/A
Will any on street accessible parking spaces be required? If yes, has the proponent contacted the Commission for Persons with Disabilities and City of Boston Transportation Department regarding this need?	No
Where is accessible visitor parking located?	N/A
Has a drop-off area been identified? If yes, will it be accessible?	No, TBD.

Include a diagram of the accessible routes to and from the accessible parking lot/garage and drop-off areas to the development entry locations. Please include route distances.	Attached.

Circulation and Accessible Routes:

The primary objective in designing smooth and continuous paths of travel is to accommodate persons of all abilities that allow for universal access to entryways, common spaces and the visit-ability* of neighbors.

**Visit-ability – Neighbors ability to access and visit with neighbors without architectural barrier limitations*

Provide a diagram of the accessible route connections through the site.	Attached.
Describe accessibility at each entryway: Flush Condition, Stairs, Ramp Elevator.	Franklin-Braintree (Proposed building) and Allston Hall (Repurposed) shares the same entry lobby and garage. Residential lobby to be a flush condition with the sidewalk at building exterior, as are the Commercial Space entries. The garage access from the lobby is to be a flush doorway condition. From the Lobby, elevator access will provide access to upper floors.
Are the accessible entrance and the standard entrance integrated?	Yes.
If no above, what is the reason?	N/A
Will there be a roof deck or outdoor courtyard space? If yes, include diagram of the accessible route.	No
Has an accessible routes way-finding and signage package been developed? If yes, please describe.	No.

Accessible Units: (If applicable)

In order to facilitate access to housing opportunities this section addresses the number of accessible units that are proposed for the development site that remove barriers to housing choice.

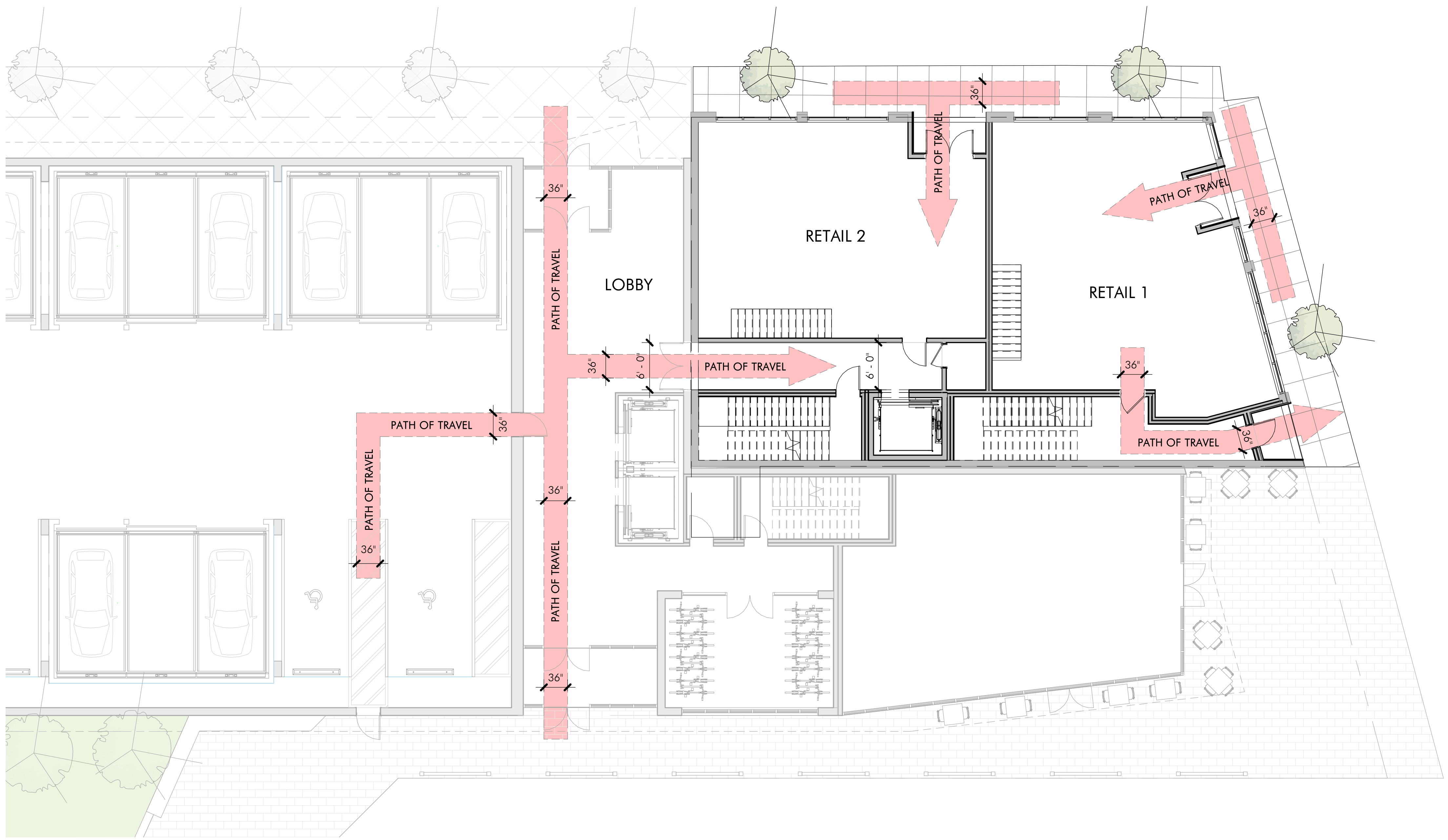
What is the total number of proposed units for the development?	9
How many units are for sale; how many are for rent? What is the market value vs. affordable breakdown?	**FOR RENT:** 9 Units; Affordable breakdown TBD
How many accessible units are being proposed?	9
Please provide plan and diagram of the accessible units.	Specific unit plans have not been developed.
How many accessible units will also be affordable? If none, please describe reason.	TBD
Do standard units have architectural barriers that would prevent entry or use of common space for persons with mobility impairments? Example: stairs at entry or step to balcony. If yes, please provide reason.	No
Has the proponent reviewed or presented the proposed plan to the City of Boston Mayor's Commission for Persons with Disabilities Advisory Board?	No.
Did the Advisory Board vote to support this project? If no, what recommendations did the Advisory Board give to make this project more accessible?	N/A

Article 80 | ACCESSIBILTY CHECKLIST

Thank you for completing the Accessibility Checklist!

For questions or comments about this checklist or accessibility practices, please contact:

kathryn.quigley@boston.gov | Mayors Commission for Persons with Disabilities



1/16" = 1'-0"

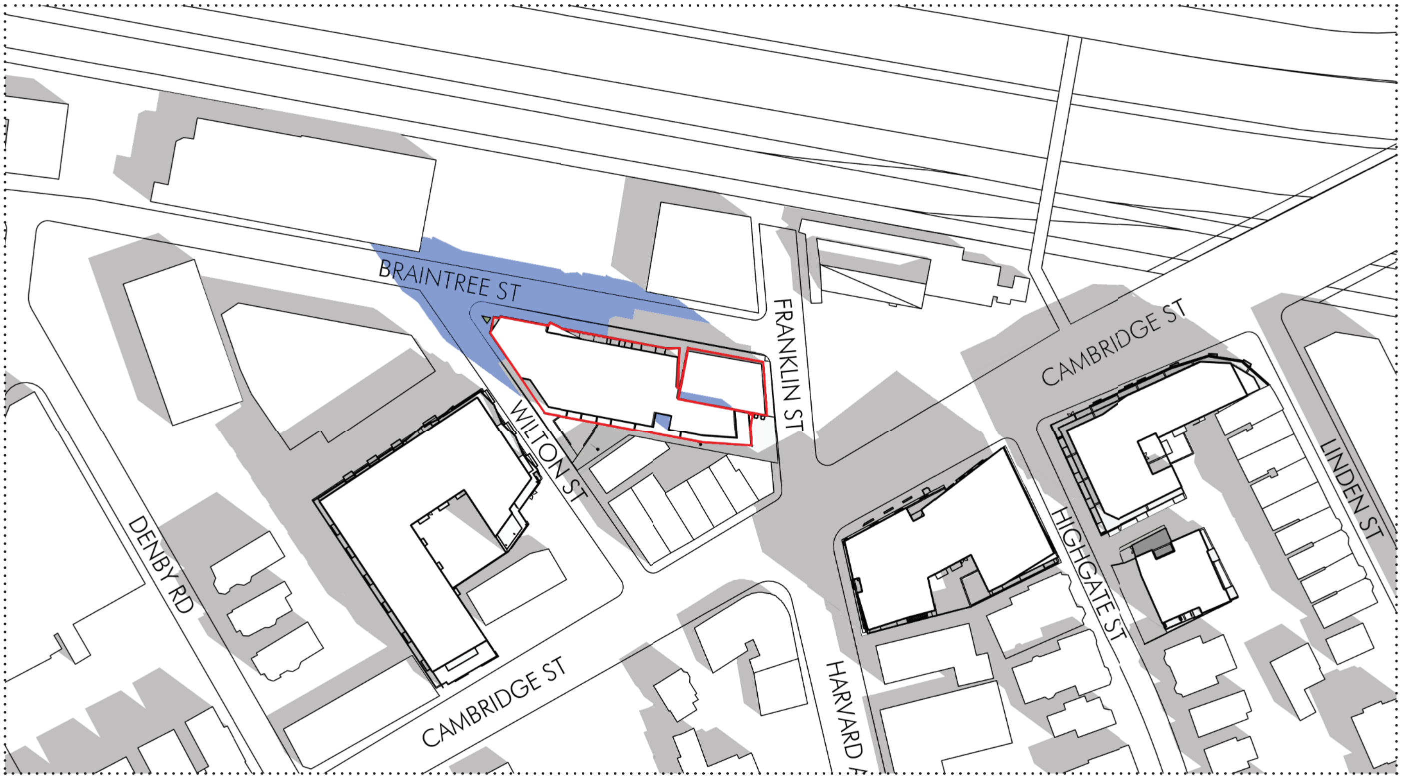
EMBARC STUDIO
ARCHITECTURE + DESIGN

ACCESSIBILITY CHECKLIST - GROUND FLOOR
ALLSTON HALL
4 BRAINTREE STREET BOSTON, MA 02134

A2.1

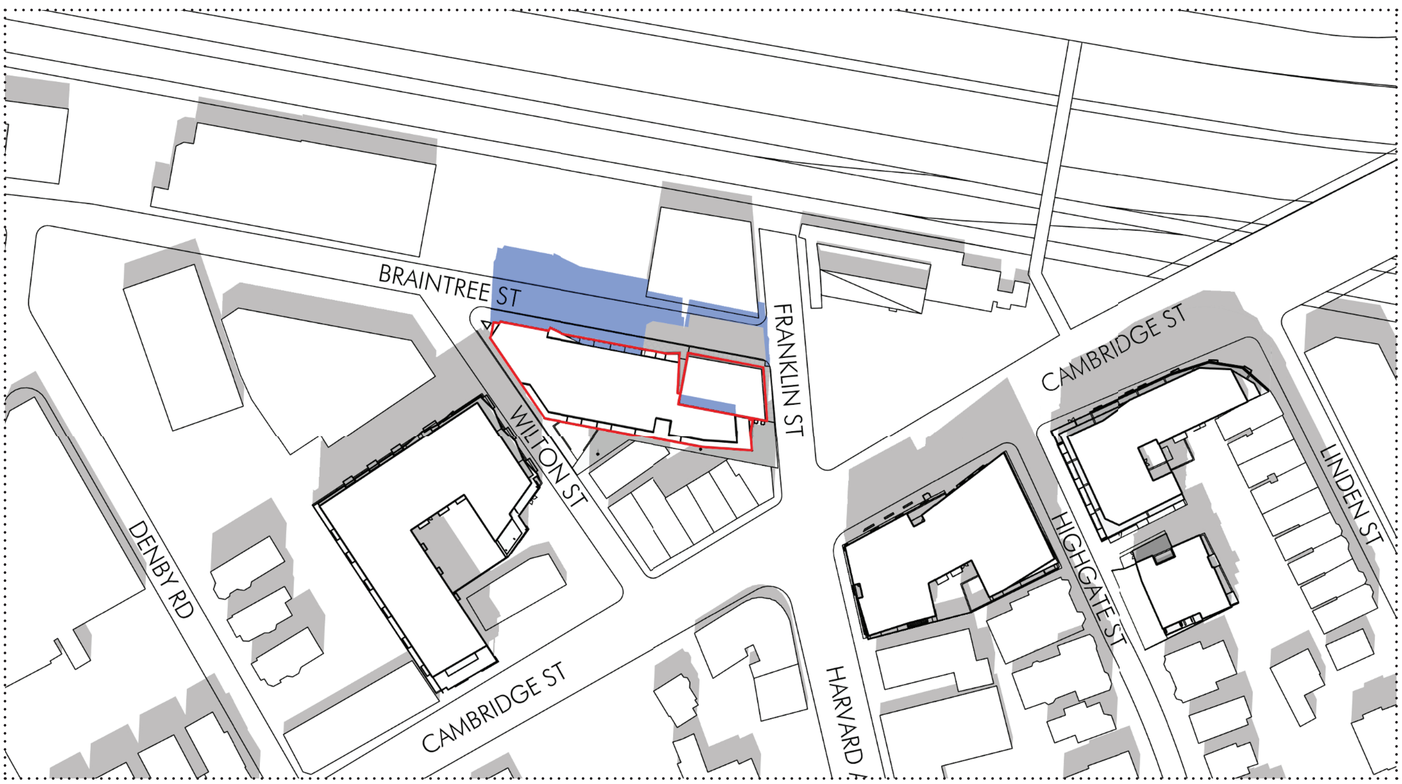
 | 4/11/2018 6:15:28 PM | C:\Users\emoliere\Documents\16121_Allston Hall_SD_emoliere@embarcstudio.com.rvt

APRIL 15, 2018 | EMBARC



SHADOW STUDY - VERNAL EQUINOX, 9:00AM

NET NEW SHADOW
EXISTING SHADOW
N



SHADOW STUDY - VERNAL EQUINOX, 12:00PM

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EXISTING SHADOW
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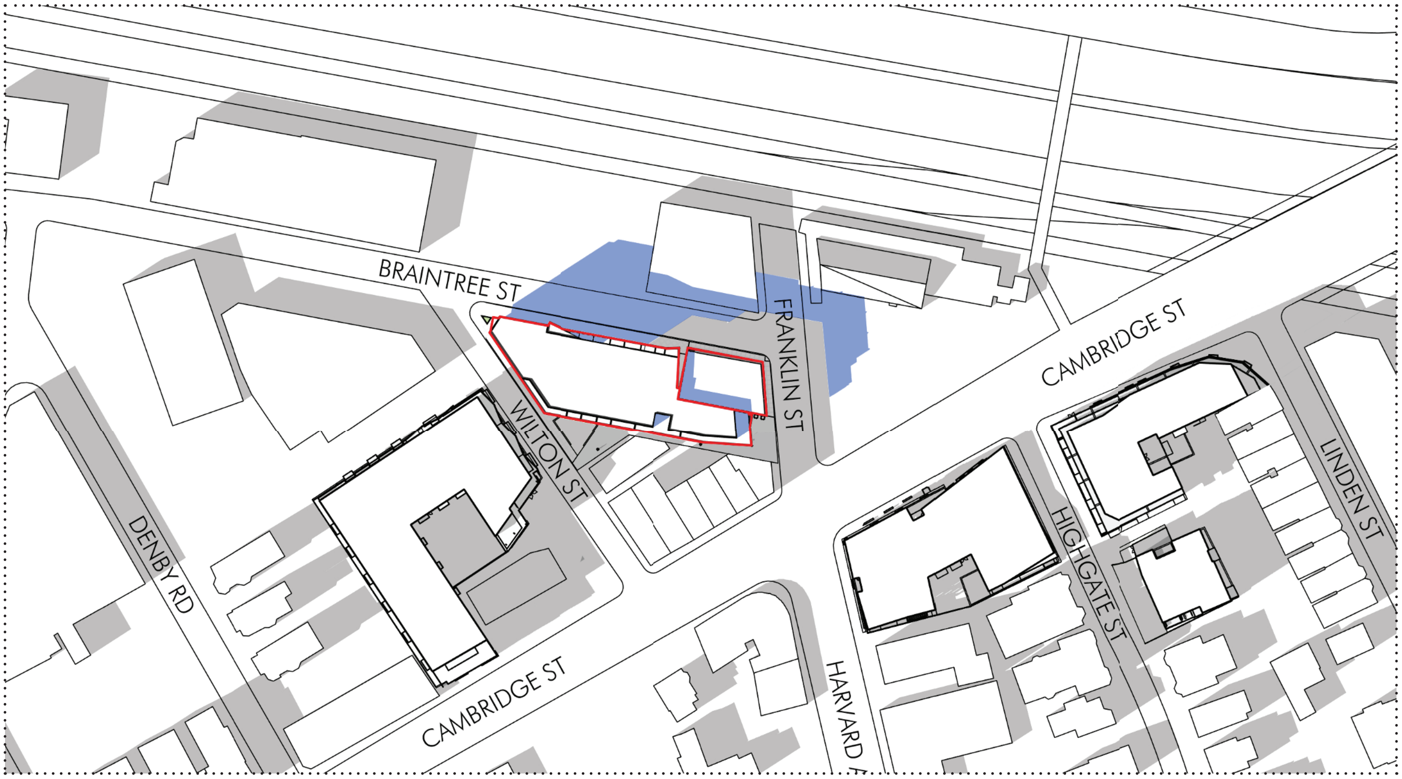

SHADOW STUDY - VERNAL EQUINOX, 3:00PM

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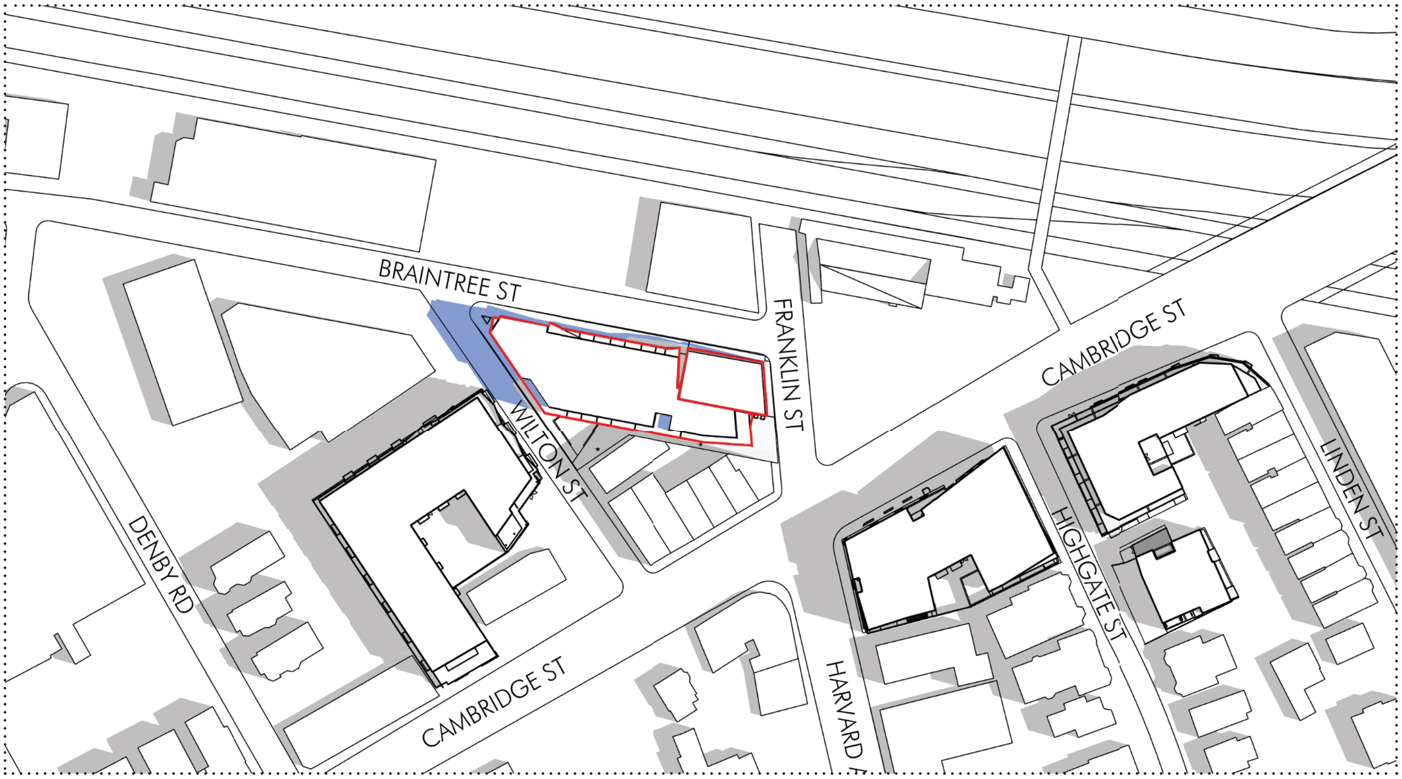
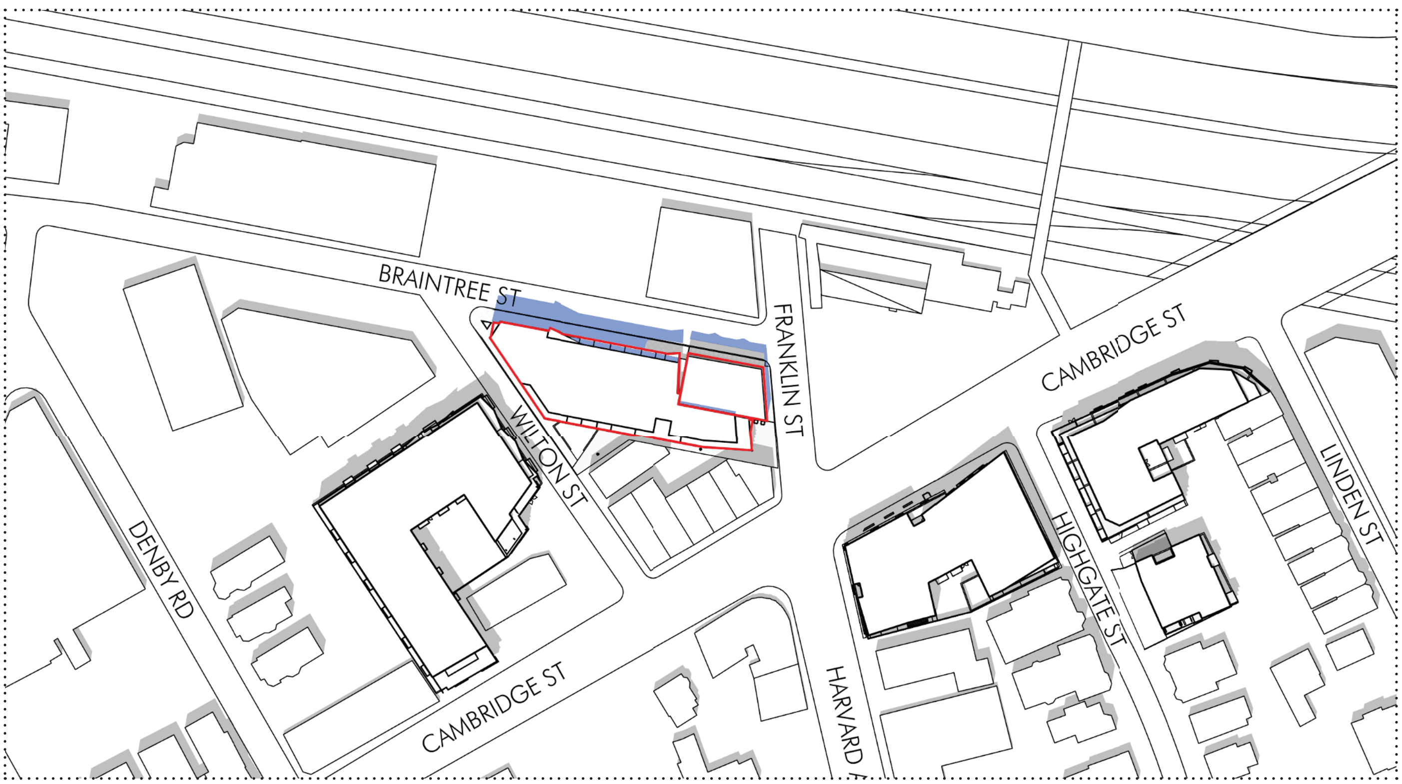
EXISTING SHADOW
N



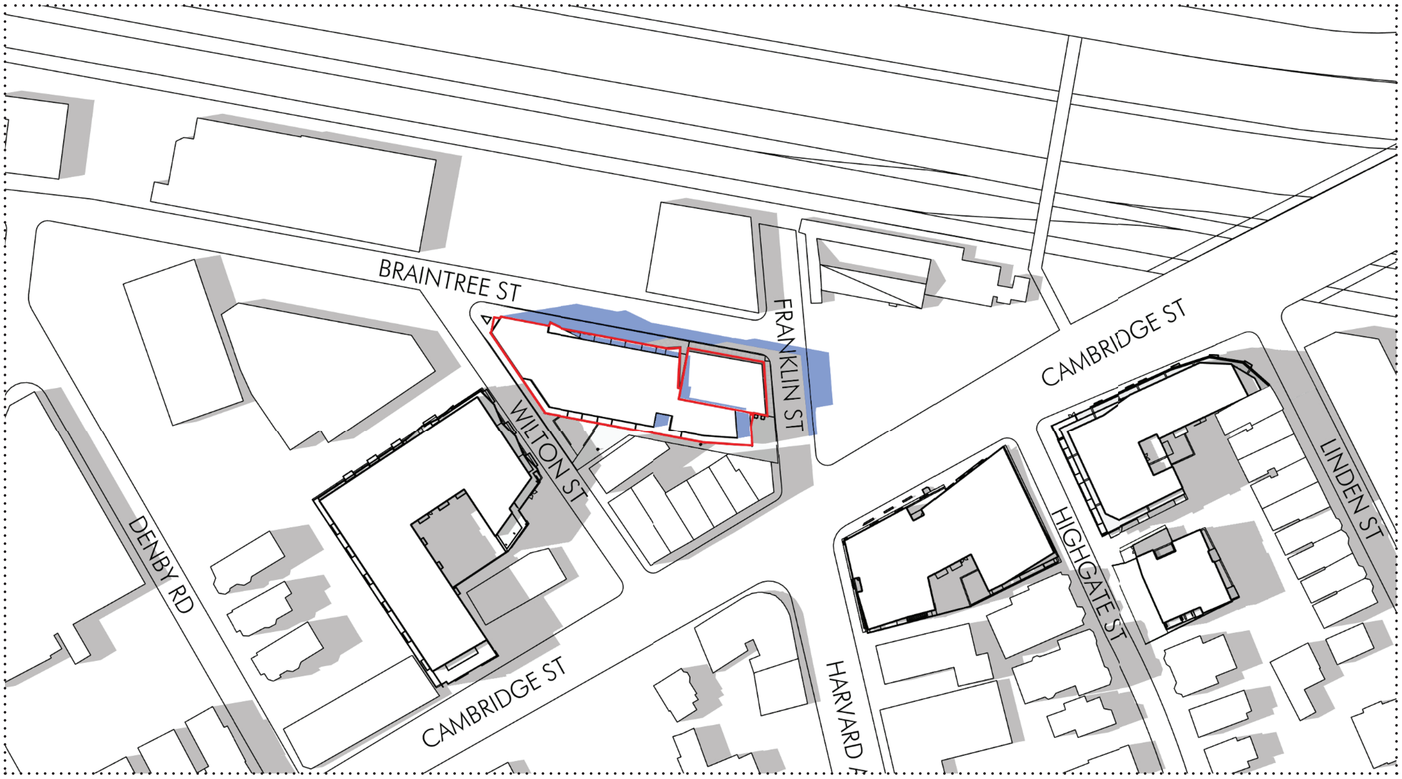
SHADOW STUDY - SUMMER SOLSTICE, 9:00AM

NET NEW SHADOW
EXISTING SHADOW
N



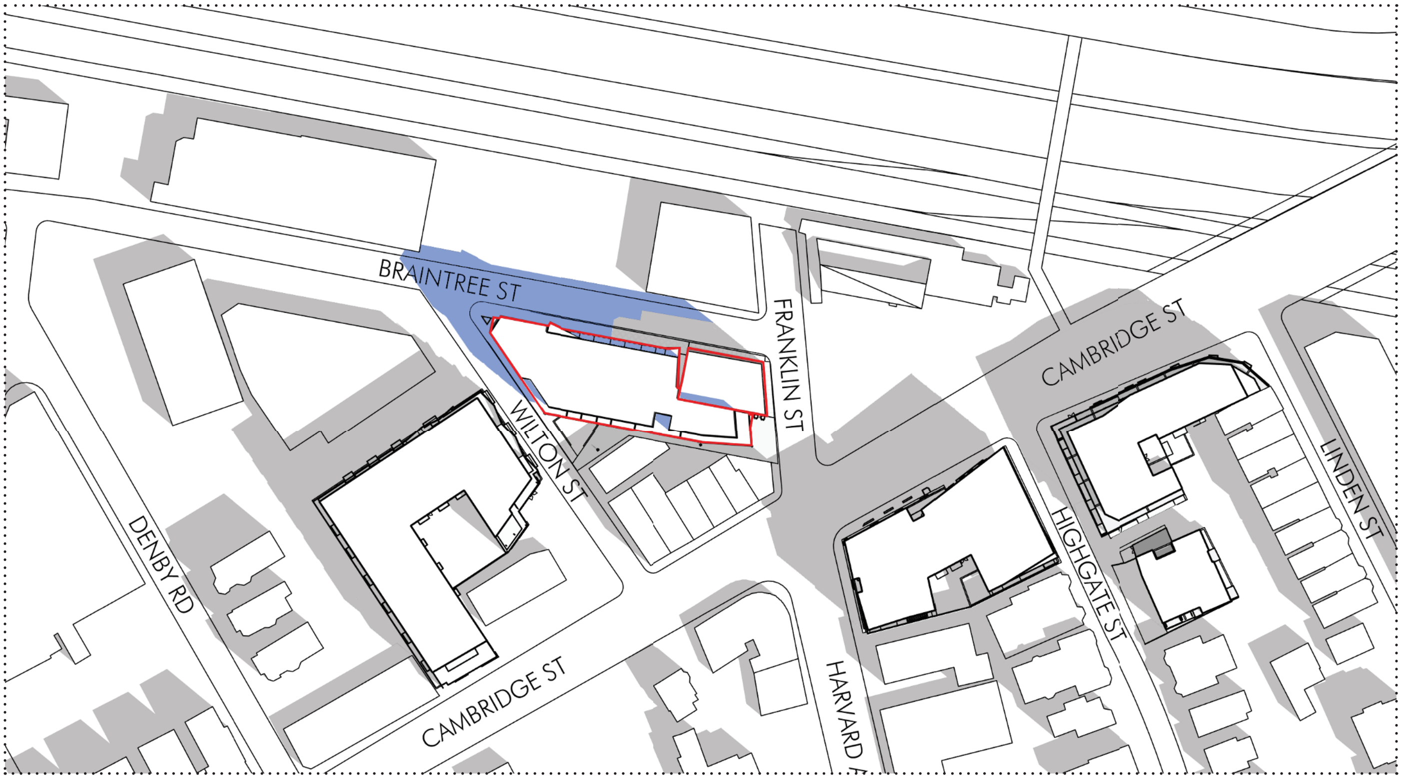
SHADOW STUDY - SUMMER SOLSTICE, 12:00PM

NET NEW SHADOW
EXISTING SHADOW
N



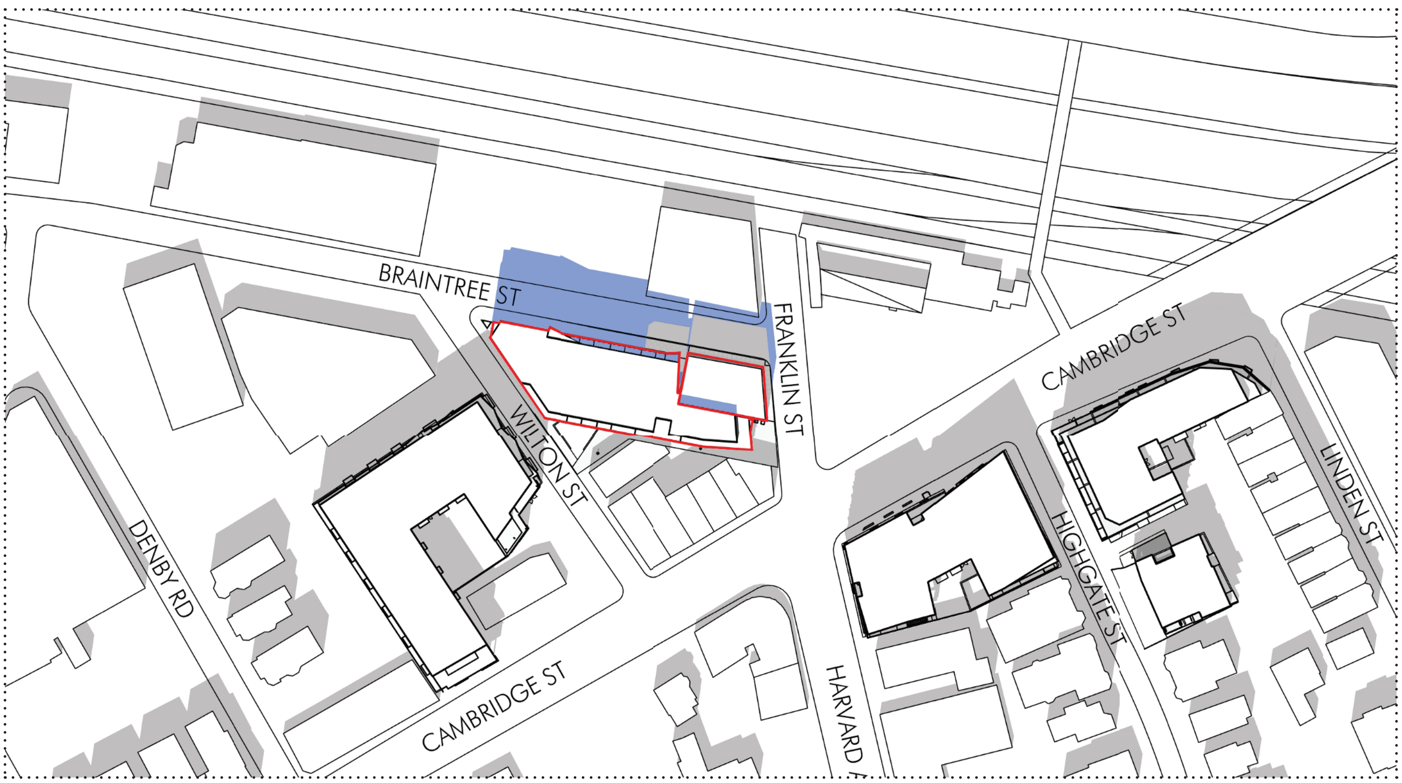
SHADOW STUDY - SUMMER SOLSTICE, 3:00PM

NET NEW SHADOW
EXISTING SHADOW
N



SHADOW STUDY - FALL EQUINOX, 9:00AM

NET NEW SHADOW
EXISTING SHADOW
N



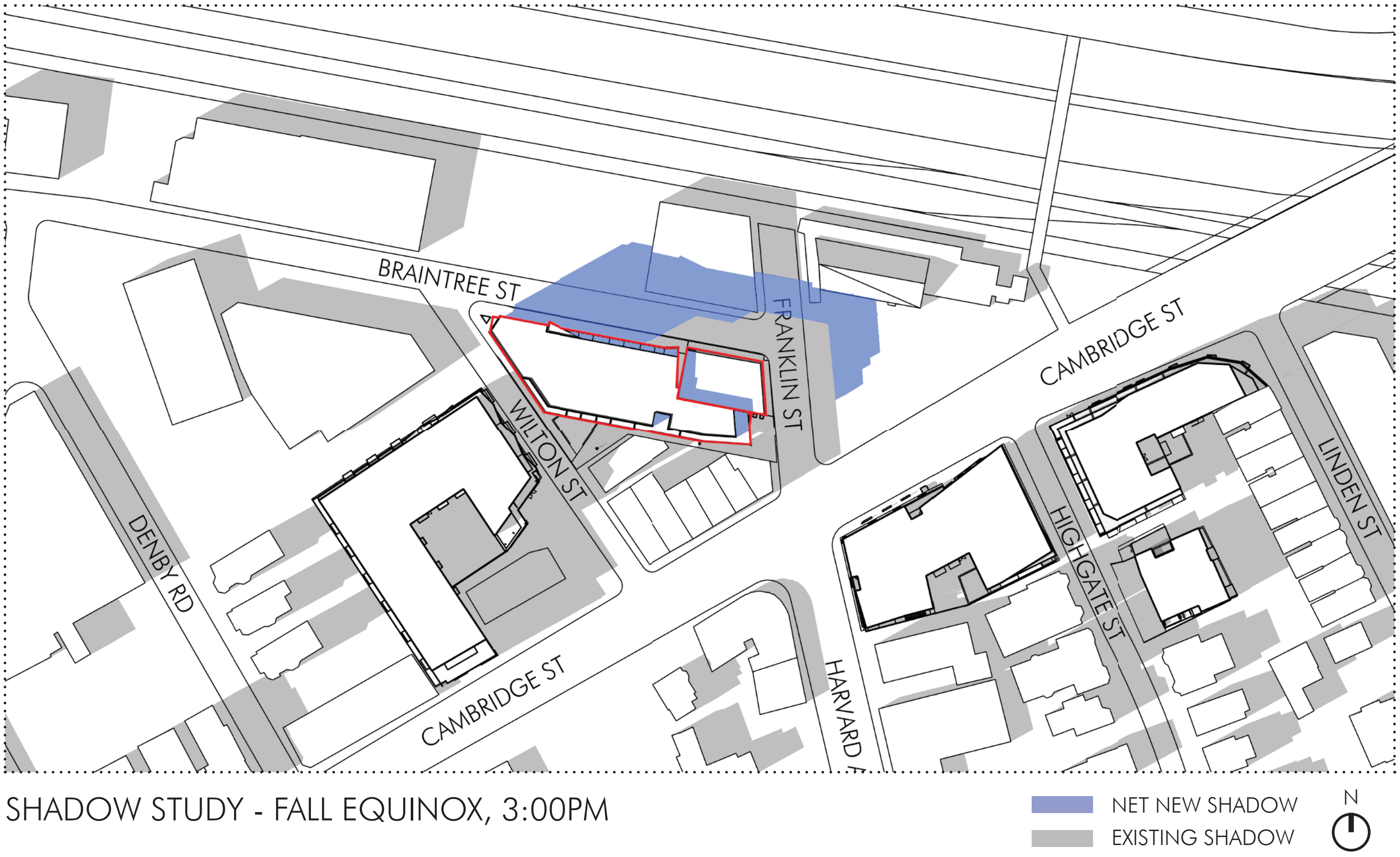
SHADOW STUDY - FALL EQUINOX, 12:00PM

NET NEW SHADOW
EXISTING SHADOW
N

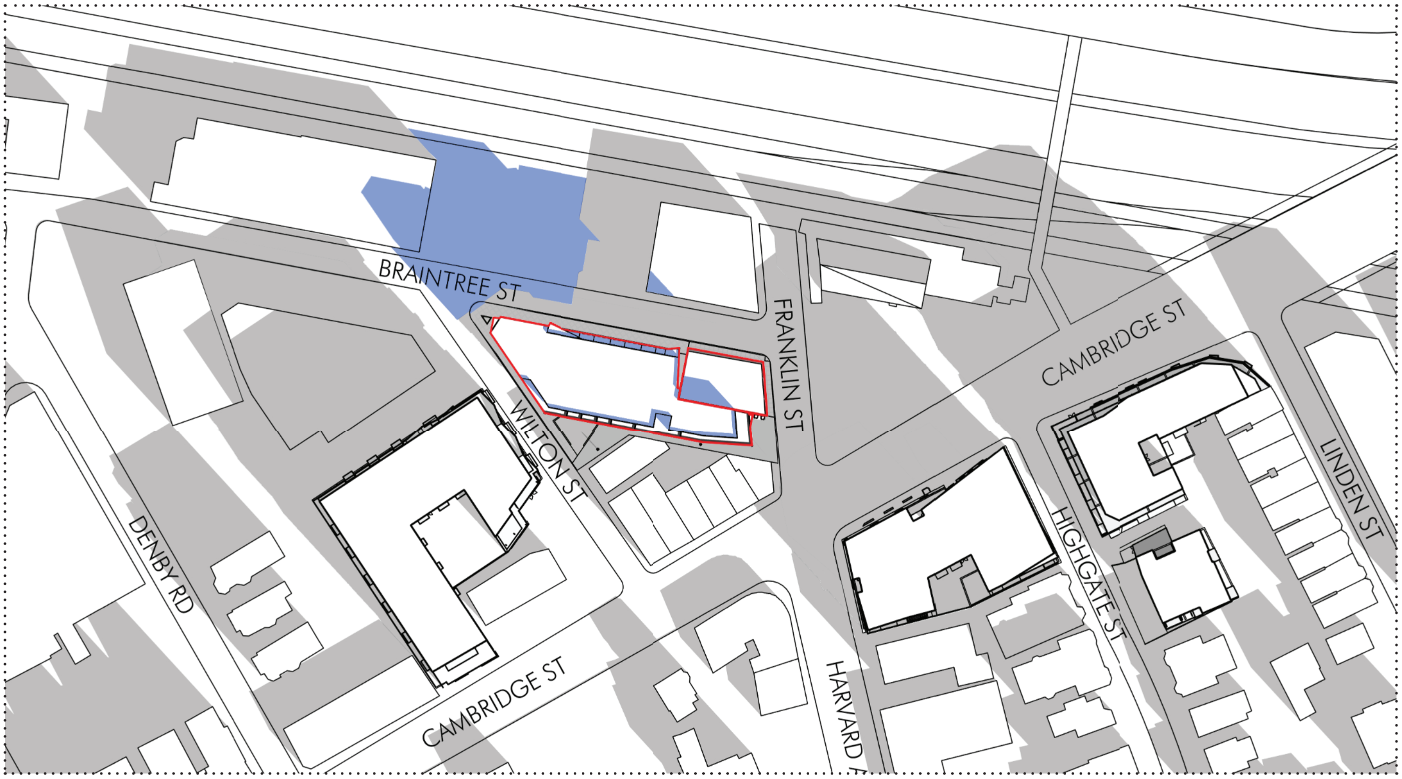
CITY REALTY

EMBARC

ALLSTON SQUARE

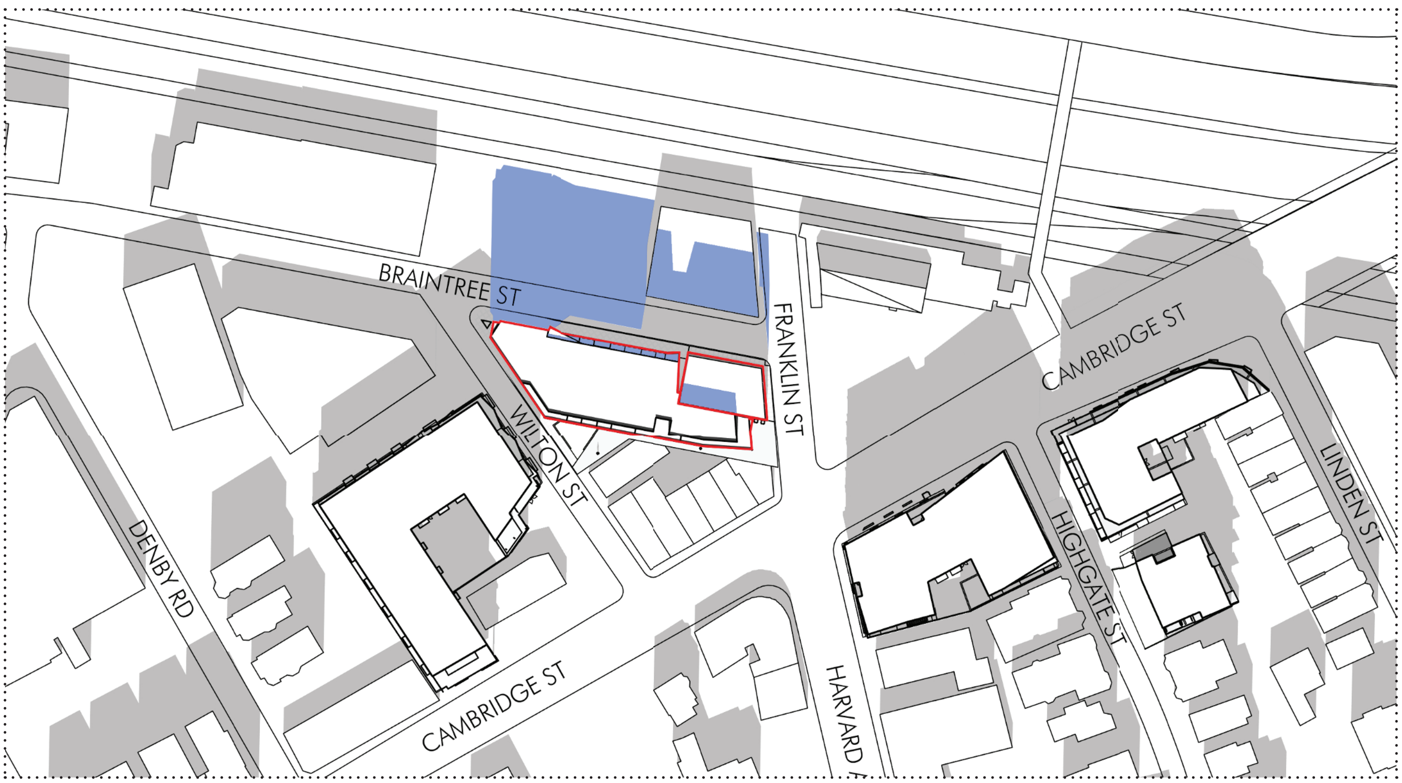


SHADOW STUDY - FALL EQUINOX, 3:00PM



SHADOW STUDY - WINTER SOLSTICE, 9:00AM

NET NEW SHADOW
EXISTING SHADOW
N



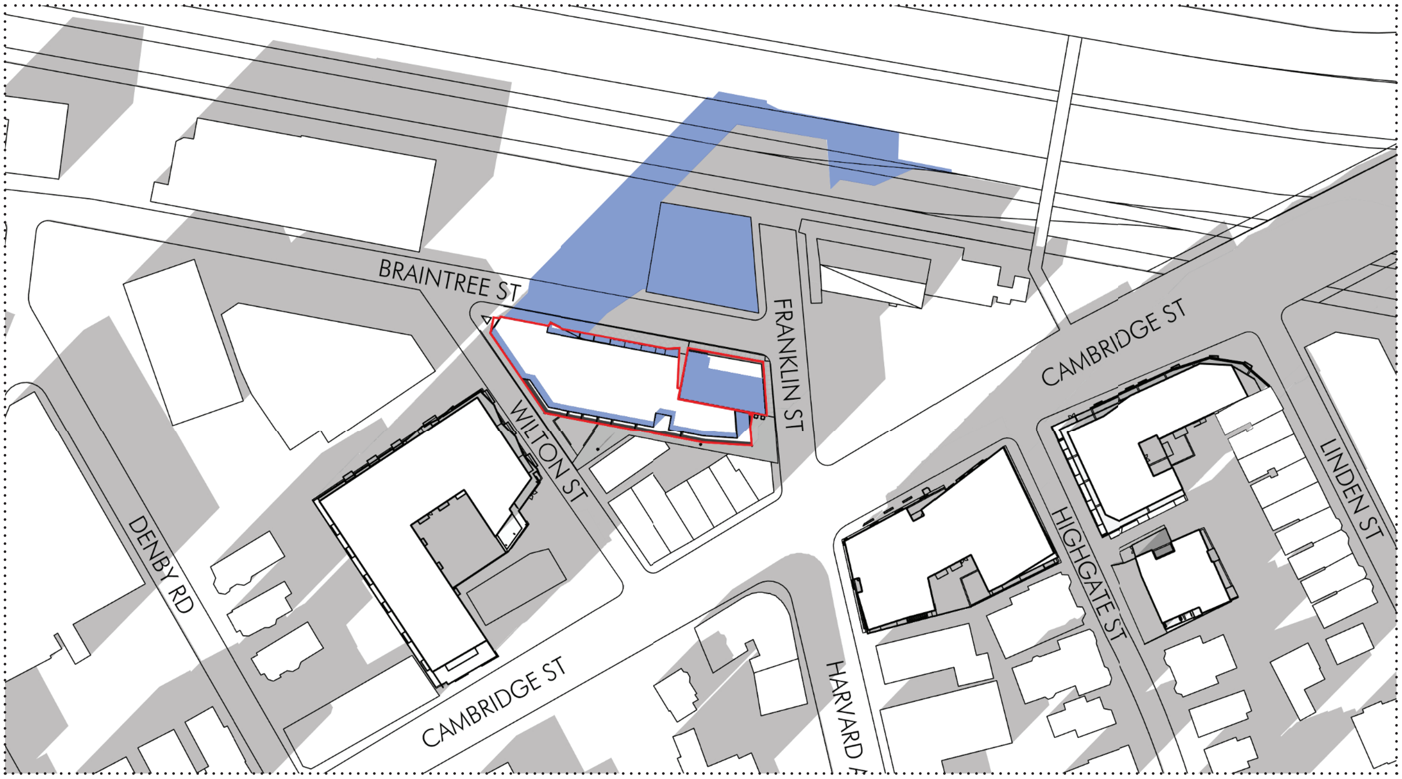
SHADOW STUDY - WINTER SOLSTICE, 12:00PM

NET NEW SHADOW
EXISTING SHADOW
N

CITY REALTY

EMBARC

ALLSTON SQUARE



SHADOW STUDY - WINTER SOLSTICE, 3:00PM

NET NEW SHADOW
EXISTING SHADOW
N

Allston Square Development, Allston
Subsection V
Franklin-Braintree Building

Table of Contents

<u>Appendices</u>

1.0 PROJECT SUMMARY / OVERVIEW

1.1 Introduction

The Franklin-Braintree building is part of the Allston Square Development Project in the Allston Square section of Allston. The overall project includes a six-building mixed-use development that is approximately 361,800 gross square feet in size. The Proposed Project will include three hundred and thirty-four residential units, two hundred and thirty-seven associated parking spaces, and approximately 22,145 square feet of retail space. **Please see Figure V.1. <u>Project Locus Map</u> and Figure V.2. <u>Allston Hall Breakdown.</u>**

The Franklin-Braintree portion of the project includes erecting a six-story mixed-use building with a ground floor commercial space, sixty-two condominium units and forty-six parking spaces. The overall gross square footage of the building will be approximately 66,290 square feet, with a floor to area ratio of 3.91. The site also proposes approximately 1,210 square feet of retail space.

The Franklin-Braintree lot is 16,935 square feet. The lot is located to the north of Cambridge Street with street frontage on Braintree Street to the north and Franklin Street to the east, and Wilton Street to the west. The immediate context includes a variety of building uses and scales. To the south, the site is immediately adjacent to a mixed-use three-story masonry building. North of the site, across from Braintree Street, stands a two-story industrial building, open-air parking lots, and the Massachusetts Turnpike. East of the site, across Franklin Street, contains a restaurant and more parking lots. To the West, across Wilton Street, is the proposed six-story development at 415 Cambridge Street.

Figure V.1
Project Locus Map

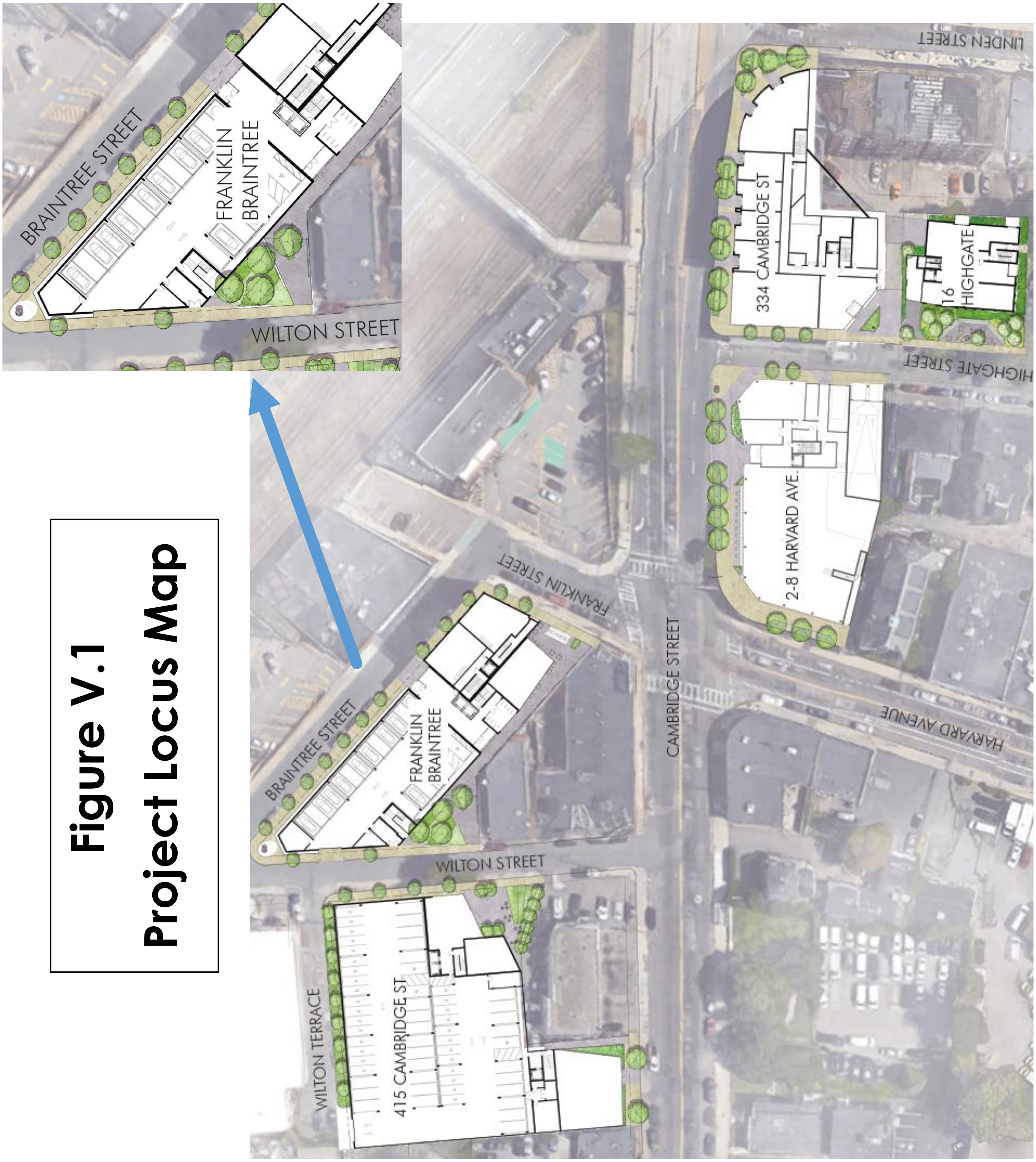


Figure V.2
Franklin-Braintree Breakdown

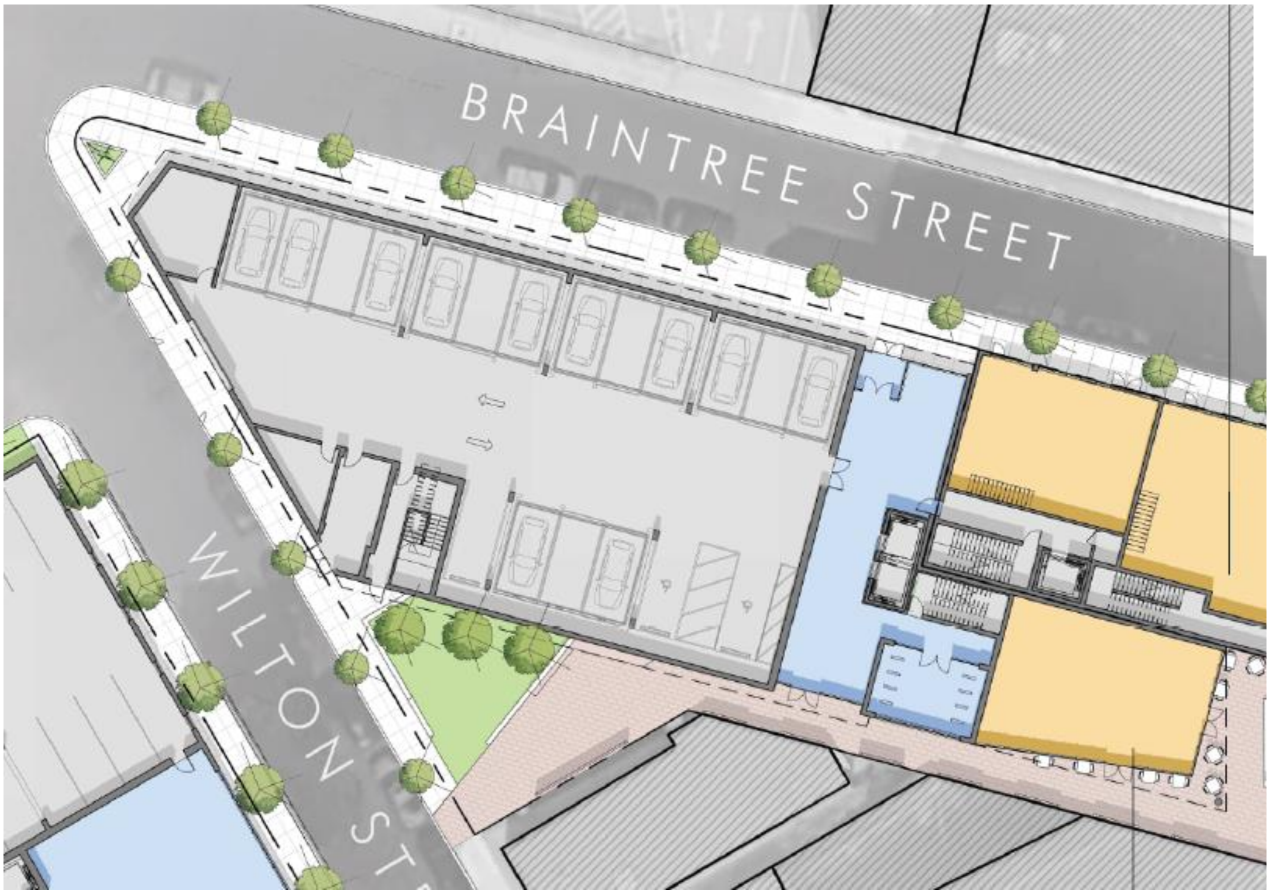


Table V.3. Approximate Project Dimensions of Allston Hall

Lot Area:	16,935
Gross Square Feet:	66,290
Units:	62 Condos
Parking:	46 Spaces
Retail:	1,210 Sq. Ft.
FAR:	3.91
Height:	6 Stories/69’

2.0 General Information

2.1 Public Benefits

The Proposed Project will provide substantial benefits to the City of Boston and the Allston-Brighton community. The Proposed Project will generate both direct and indirect economic and social benefits to the Allston-Brighton neighborhood. The Proposed Project provides for:

- Generating much needed market rate residential housing in the Allston-Brighton Neighborhood.
- Meeting the BPDA's inclusionary zoning regulations by creating on-site affordable residential units, which will meet the Boston Planning & Development Agency's affordable housing standards.
- Creating nine residential units.
- Creating a diverse mixture of units including one-bedroom units, one-bedroom loft units, and two-bedroom units.
- Revitalizing a historically significant structure and replacing the current warehouse use with modern and energy efficient housing and retail space.
- Meeting LEED standards by constructing a building that will incorporate open space in the form of decking and terraces, and energy-efficient appliances, which will result in a high LEED standard for the Project.
- Encouraging alternative modes of transportation through the use of bicycling and walking, due to the close proximity of the bus lines and the Boston Landing MBTA Station.
- Adding revenue in the form of property taxes to the City of Boston.
- Creating full-time jobs (commercial retail).
- Creating temporary construction and labor jobs.
- Proposing five new street trees.
- Creating additional open space at the ground level.
- Creating new and improved sidewalk space to accommodate general foot traffic and to promote an active pedestrian walkway.

- Maintaining and restoring the Allston Hall building, preserving this historically significant structure.

- Creating dedicated art spaces to pay homage to the rich artist heritage of Allston Square.

2.2 Compliance with Boston Zoning Code – Use and Dimensional Requirements

Allston Hall is located within in the Allston-Brighton Neighborhood District, Article 51 of the Boston Zoning Code (the "Code"). Specifically, the property is located within a Braintree Street Local Industrial (Braintree Street LI-1) Subdistrict. **See Table V.4**.

Local retail businesses are an allowed use within a Braintree Street Local Industrial Subdistrict. However, Multi-Family Residential Uses are forbidden within a Braintree Street Local Industrial Subdistrict. Therefore, a use variance would need to obtained from the City of Boston Zoning Board of Appeal ("Board"). Additionally, any dimensional regulations that are not adhered to within the project will require variances from the Board.

For a project that is subject to Article 80 Large Project Review, required off-street parking spaces and off-street loading facilities will be determined as a part of the Large Project Review process in accordance with the provisions of Article 80 of the Boston Zoning Code. Design elements of the project will also be reviewed, in accordance with the Article 80 Review process.

The Site is located in an area that contains both residential and commercial uses. The design team feels that given this location, and the structures influencing the design, as well as comparable developments in the neighborhood, that the proposed restoration of the building and uses, and the massing and scale are appropriate for this location and conducive to the Allston-Brighton neighborhood.

Table V.4. Allston Hall – Dimensional Regulations

Categories	**Braintree Street Local Industrial-1 Subdistrict**	**Current Proposal**
Minimum Lot Area (Square Feet)	None	3,260
Floor Area Ratio	1.0	3.95
Minimum Lot Width	None	47 Feet
Minimum Lot Frontage	None	47 Feet
Minimum Front Yard	None	0 Feet
Minimum Side Yard	None	0 Feet/0 Feet
Minimum Rear Yard	20 Feet	0 Feet
Maximum Building Height	35 Feet	60Feet/4 Stories
Minimum Useable Open Space Per Dwelling Unit (Square Feet)	50 S.F. Per Unit	0 S.F.
Off-Street Parking Spaces	2.0 Spaces Per Unit (18) 2.0 Spaces Per 1000 Square Feet of Retail Space (8)	0 Parking Spaces

3.0 URBAN DESIGN AND SUSTAINABILITY

3.1 Site and Surroundings

Franklin-Braintree is located to the north of Cambridge Street with street frontage on Braintree Street (North), Franklin Street (East), and Wilton Street (West). The immediate context includes a variety of building uses and scales. To the south, the site is immediately adjacent to a mixed-use three (3)-story masonry building. North of the site, across from Braintree Street, stands a two (2)-story industrial building, open-air parking lots, and the Massachusetts Turnpike. East of the site, across Franklin Street, contains a restaurant (Regina Pizzeria) and more parking lots. To the West, sits the parcel which will house another portion of this development, the proposed Franklin-Braintree building. The approximately 3,260 SF Allston Hall parcel has minimal grade change. The property is currently occupied by the Allston Hall building, a four (4)-story masonry building built in 1890 that serves as an auto parts warehouse. **For existing site pictures see Appendix V.1.**

3.2 Urban Design Review

The existing four (4)-story Allston Hall building stands at approximately sixty feet (60'). The building will be repurposed but retain many of the unique and distinctive architectural characteristics which will help to preserve the integrity and historical characteristics of the building.

At the street scale, the project is accessible via entries on Franklin Street and Braintree Street. The sidewalks will be widened to fourteen feet (14') along Braintree and Franklin Streets, to accommodate pedestrian resting areas as well as a higher and more comfortable pedestrian flow. New sidewalk planting is also introduced along Franklin, Braintree, and Wilton Streets.

3.3 Building Design Review

The project consists of two separate but interconnected buildings, the existing Allston Hall building and the proposed Franklin-Braintree building. These buildings will share a common site, garage, and lobby. The existing Allston Hall is a repurposed four-story masonry building that currently occupies the eastern corner of the site, and Franklin-Braintree is a proposed new six (6)-story building.

The Allston Hall project converts the existing Allston Hall building, a historic building built in 1890, into rental apartments and retail. The repurposed Allston Hall will consist of two (2) retail spaces and storage on the ground floor/basement level and nine (9) residential units distributed across three (3) upper floors. On the outside, Allston Hall will retain most of its original materiality and overall appearance, with the exception of the ground floor where new large openings will be reopened within existing bays to maximize natural light and create store frontage for the proposed retail spaces without compromising the building's structural integrity. All the existing windows will be replaced with new energy efficient windows of similar proportions and appearance. Also, on the ground floor, contrasting materials and modern detailing will be used at new store frontage to deliberately convey the juxtaposition between old and new.

3.4 Landscape Design

As indicated in the Landscape Plan, the Allston Hall and Franklin-Braintree buildings propose a combined twenty (20) new street trees to be planted on the site; two (2) occurring on Franklin Street, ten (10) along Braintree Street, and another eight (8) on Wilton Street. Spacious sidewalks, adhering to the regulations as specified by the Boston Complete Streets Design Guidelines, will provide a proper buffer between cars and pedestrians. The sidewalks are widened to eight feet (8') along Wilton Street and fourteen feet (14') along Braintree Street and Franklin Street. Generous setbacks are further provided on Franklin Street to accommodate an outdoor café, on Wilton Street to create a public green space, and at the intersection on Wilton Street and Franklin Street to accommodate the installation of urban artwork for public enjoyment. A large alley between the new building and the adjacent mixed-used masonry building will create a public passageway that connects the public green space on Wilton Street to the outdoor café on Franklin Street. The use of murals and artistic lighting displays will help bring vibrancy to the passageway and encourage pedestrian circulation through the site. The public green space on Wilton Street, the passageway, and the outdoor café on Franklin Street are all finished with a contrasting angular paving that interrupts the pattern of the surrounding concrete sidewalk and helps connect this public space to the larger urban gesture present in the rest of the Allston Square Master Plan Development. All details of flora added to site, including caliper and species, will be approved by the City of Boston Parks and Recreation Commission.

3.5 Urban Design Drawings

The Proposed Project's urban design drawings will include, existing and proposed plot plans, proposed floor plans, elevations, building matrix, building rendering, concept diagram and landscape plan. **To view the full Urban Design Drawings please see Appendix V.2. For the full Accessibility Checklist and Accessibility Diagram please see Appendix V.3.**

4.0 SHADOW STUDY

As typically required by the BPDA, a shadow impact analysis was conducted to investigate shadow impacts from each proposed building during three time periods (9:00 a.m., 12:00 noon, and 3:00 p.m.) during the Vernal Equinox (March 21), Summer Solstice (June 21), Fall Equinox (September 21), and Winter Solstice (December 21).

The shadow analysis presents the existing shadows and new shadows that would be created by the proposed project, illustrating the incremental impact of the project. The analysis focuses on nearby open spaces, sidewalks & streets, and buildings that are in the vicinity of the project site. Shadows have been determined using the applicable Altitude and Azimuth data for Boston. **Figures showing the net new shadow from the project are provided in Appendix V.4 at the end of this section.**

Vernal Equinox (March 21)

At 9:00 a.m. during the Vernal Equinox, new shadow from the project will be cast to the northwest onto Braintree Street and it sidewalks. No new shadow will be cast onto nearby open spaces or buildings.

At 12:00 p.m., new shadow from the project will be cast to the north onto Braintree Street and its sidewalks, and partially onto the two-story commercial building (South façade) at 1 Braintree Street and the open parking lot across the street.

At 3:00 p.m., new shadow from the project will be cast to the northeast onto Braintree Street and its sidewalks, as well as Franklin Street and its sidewalks. The new project will also partially cast some shadows onto the south façade of the existing two-story commercial building at 1 Braintree Street and the open parking spaces on both Braintree and Franklin Streets.

Summer Solstice (June 21)

At 9:00 a.m. during the Summer Solstice, new shadow from the project will be cast to the west onto a small section of Wilton Street and it sidewalks. No new shadow will be cast onto nearby open spaces or buildings.

At 12:00 p.m., new shadow from the project will be cast to the north onto a sliver of Braintree Street and the sidewalk directly adjacent to the new building. No new shadow will be cast onto nearby open spaces or buildings.

At 3:00 p.m., new shadow from the project will be cast to the northeast onto a sliver of Braintree Street, as well as a small section of Franklin Street and its sidewalk. No new shadow will be cast onto nearby open spaces or buildings.

Fall Equinox (September 21)

At 9:00 a.m. during the Fall Equinox, new shadow from the project will be cast to the northwest onto a section of Braintree Street and it sidewalks. No new shadow will be cast onto nearby open spaces or buildings.

At 12:00 p.m., new shadow from the project will be cast to the north onto Braintree Street and its sidewalks, and partially onto the two-story commercial building (south façade) at 1 Braintree Street and the open parking lot across the street.

At 3:00 p.m., new shadow from the project will be cast to the northeast onto Braintree Street and its sidewalks, as well as Franklin Street and its sidewalks. The new project will also partially cast some shadows onto the south façade of the existing two-story commercial building at 1 Braintree Street and the open parking spaces on both Braintree and Franklin Streets.

Winter Solstice (December 21)

The Winter Solstice creates the least favorable conditions for sunlight in New England. The sun angle during the Winter is lower than in any other season, causing the shadows in urban areas to elongate and be cast onto large portions of the surrounding area.

At 9:00 a.m. during the Winter Solstice, new shadow from the project will be cast to the northwest onto Braintree Street and it sidewalks. New shadow will be cast onto the entirety of the open parking lot on Braintree Street, as well as the East façade of a one-story warehouse building at 43 Braintree Street.

At 12:00 p.m., new shadow from the project will be cast to the north onto Braintree Street and its sidewalks, and the south façade of the two-story commercial building at 1 Braintree Street. The majority of the open parking lot on Braintree Street will also be in the shadow.

At 3:00 p.m., new shadow from the project will be cast to the northeast onto Braintree Street and its sidewalks, as well as Franklin Street and its sidewalks. The new project will shadow the existing two-story commercial building at 1 Braintree Street and the open parking spaces on both Braintree and Franklin Streets.

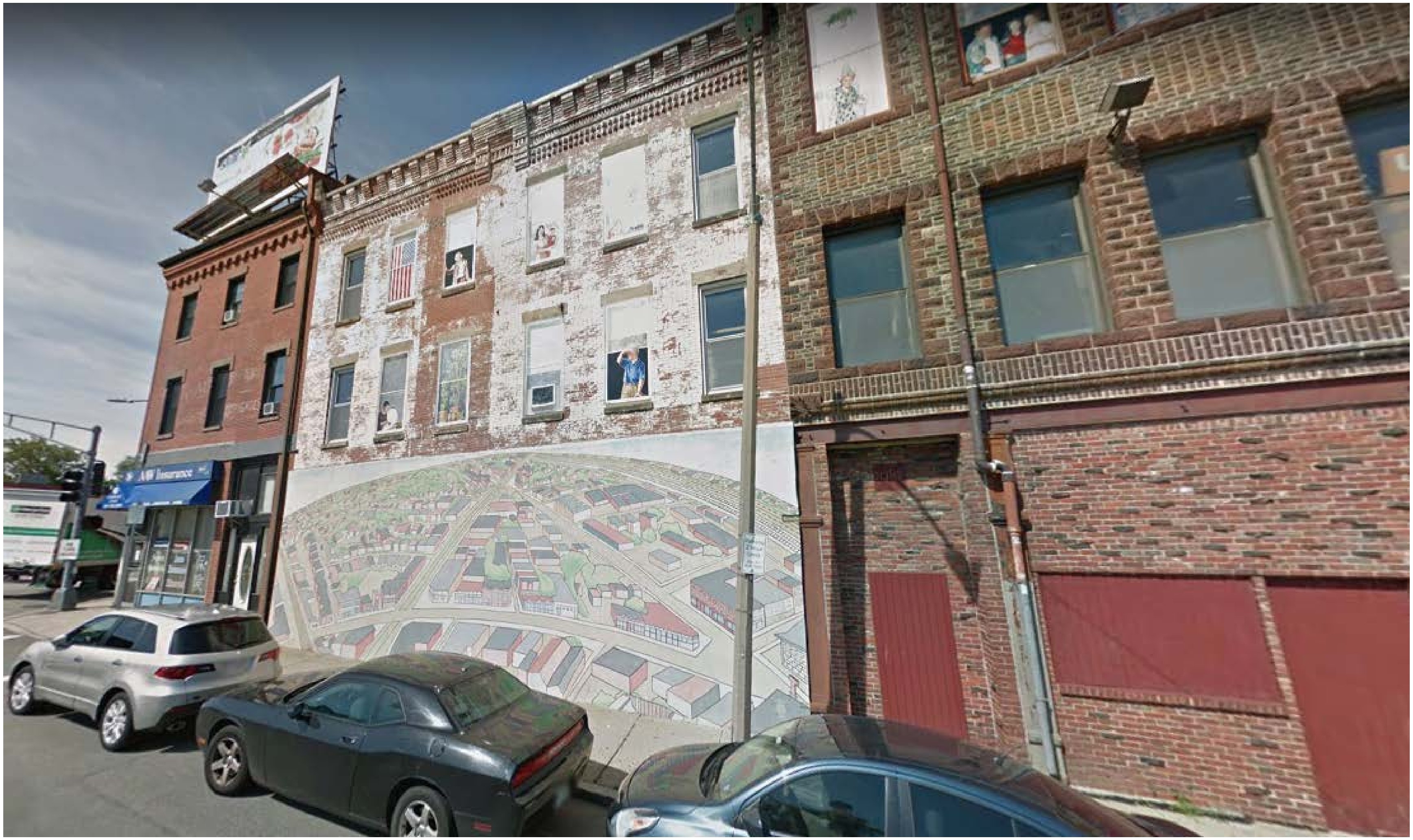
Conclusions

The shadow impact analysis looked at net new shadow created by the project during twelve time periods. New shadow from the project will be mostly limited to nearby streets (Braintree and Franklin Streets), sidewalks, and the adjacent parking lots. The shadows cast by the proposed buildings will have little to no impact on the buildings directly adjacent to it on Franklin Street and Wilton Street. The proposed project will impact the buildings at 1 & 43 Braintree Street, predominantly in the late afternoon.

5.0 GEOTECHNICAL INFORMATION

A Geotechnical study was conducted by KMM Geotechnical Consultants, LLC for the proposed development. A full report was produced for the proposed Franklin-Braintree site. **The full result of this Geotechnical Study is located in Appendix V.5.**

Franklin Braintree



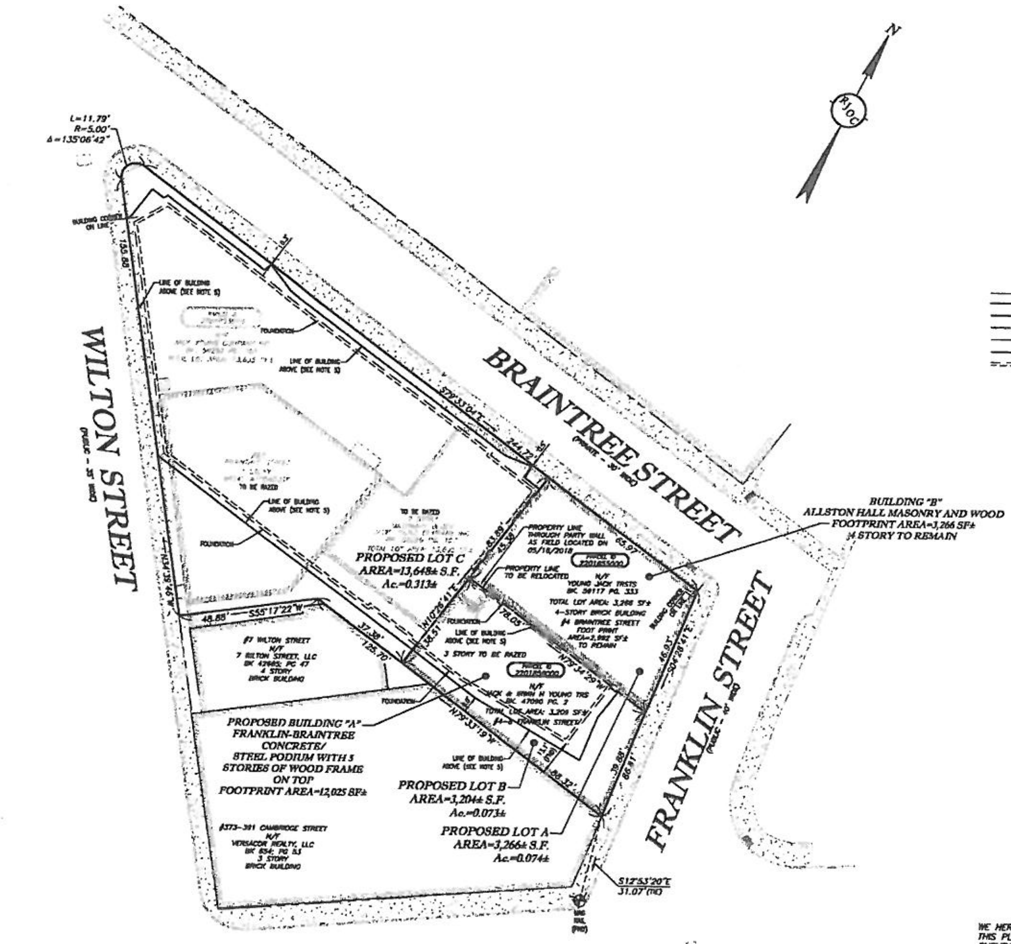
NOTES

1. THIS PLAN WAS PREPARED FROM AN ACTUAL SURVEY MADE ON THE GROUND USING TOTAL STATION METHODS BETWEEN 02/28/2018 AND 05/16/2018.
2. THE HORIZONTAL DATUM IS NORTH AMERICAN DATUM OF 1983 (NAD '83). DATUM WAS ESTABLISHED USING RTK GPS METHODS.
3. THE POSITIONAL ACCURACY OF THE DATA AND PHYSICAL IMPROVEMENTS ON THIS PLAN MAY BE APPROXIMATE. ANY USE OF ELECTRONIC DATA CONTAINED IN AUTOCAD VERSIONS OF THIS PLAN TO GENERATE COORDINATES OR DIMENSIONS NOT SHOWN ON THE PLAN IS NOT AUTHORIZED.
4. THE PARCEL SHOWN IS LOCATED IN ZONE X, AS SHOWN ON "FLOOD INSURANCE RATE MAP, SUFFOLK COUNTY, BOSTON MASSACHUSETTS," MAP NUMBER 25025C0057G, EFFECTIVE DATE SEPTEMBER 25, 2009.
5. "LINE OF BUILDING ABOVE" REPRESENTS THE OUTERMOST FACE OF THE PROPOSED BUILDING ABOVE THE FOUNDATION.
6. THE PURPOSE OF THIS PLAN IS TO RECONFIGURE THE PROPERTY LINE BETWEEN CITY OF BOSTON PARCEL ID NUMBER 2201858000 AND 2201853000.

REFERENCES

PLAN BOOK AND PAGES REFERENCE THE SUFFOLK COUNTY REGISTRY OF DEEDS

- BK. 58250/PG. 107
- BK. 58258/PG. 333
- BK. 59117/PG. 2
- L.C.C 7057-B



LEGEND

PROPERTY LINE
PROPOSED PROPERTY LINE
CURB
ABUTTING PROPERTY LINE
BUILDING OVERHANG
FOUNDATION
FND FOUNDATION

FOR REGISTRY USE ONLY

No.	Revision	Date

Record Owner:
SEE PLAN

Location:
FRANKLIN/BRAINTREE STREET
ALLSTON SQUARE
BOSTON (ALLSTON) MA

Drawn by:	MSH
Checked by:	KJK
Scale:	1"=10'
Date:	05/16/2018
Field Crew:	TDS/RJK
Field Book:	BK. XX PG. X

Prepared for:
CITY REAL ESTATE DEVELOPMENT CORP.
330 WASHINGTON ST
SUITE 3FF
BROOKLINE, MA 02446

Prepared by:
RJO'CONNELL & ASSOCIATES, INC.
CIVIL ENGINEERS, SURVEYORS & LAND PLANNERS
80 MONTVALE AVE
STONEHAM, MA 02180
781-279-0180
www.rjoconnell.com

WE HEREBY CERTIFY THAT:
THIS PLAN IS THE RESULT OF AN ON THE GROUND SURVEY PERFORMED ON OR BETWEEN FEBRUARY 28, 2018 AND MAY 16, 2018. THE PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE RULES AND REGULATIONS OF THE OF THE REGISTERS OF DEEDS. THE CITY OF BOSTON HAS NOT ADOPTED THE SUBDIVISION CONTROL LAW.

COMMONWEALTH OF MASSACHUSETTS
KEVIN J. KIERNAN
No. 40036
PROFESSIONAL LAND SURVEYOR

KJK 5/21/18

PROFESSIONAL LAND SURVEYOR FOR RJ O'CONNELL & ASSOCIATES, INC DATE

10 0 5 10 20
GRAPHIC SCALE IN FEET

DIG SAFE
BEFORE YOU DIG
CALL 811

Project Name:
ALLSTON SQUARE
BOSTON (ALLSTON) MA

Drawing Name:
APPROVAL NOT REQUIRED PROPOSED LOT B

Drawing No.:
ANR-2
(RECONFIGURATION)
Project No.: 18018

Drawing name: Q:\City Real Estate Development Corp\Projects\Allston\Wilton Square\Main\18018_Cert_Plot_Plan.dwg May 21, 2018 — 10:31am

Drawing name: G:\City Real Estate Development Corp\Projects\Allston\Allston Square\Main\18018_Property_Exhibit.dwg
May 21, 2018 – 12:03pm

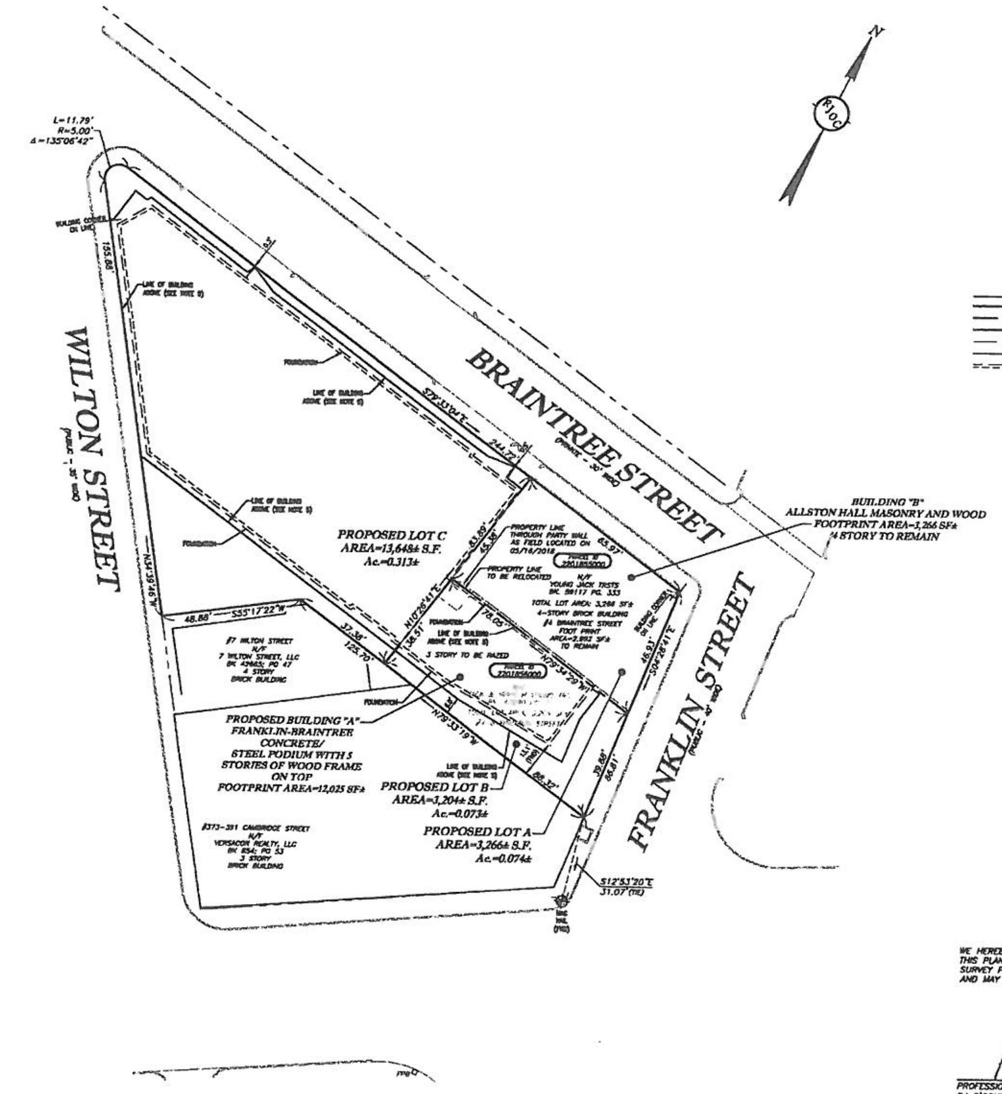
NOTES

1. THIS PLAN WAS PREPARED FROM AN ACTUAL SURVEY MADE ON THE GROUND USING TOTAL STATION METHODS BETWEEN 02/28/2018 AND 05/16/2018.
2. THE HORIZONTAL DATUM IS NORTH AMERICAN DATUM OF 1983 (NAD '83). DATUM WAS ESTABLISHED USING RTK GPS METHODS.
3. THE POSITIONAL ACCURACY OF THE DATA AND PHYSICAL IMPROVEMENTS ON THIS PLAN MAY BE APPROXIMATE. ANY USE OF ELECTRONIC DATA CONTAINED IN AUTOCAD VERSIONS OF THIS PLAN TO GENERATE COORDINATES OR DIMENSIONS NOT SHOWN ON THE PLAN IS NOT AUTHORIZED.
4. THE PARCEL SHOWN IS LOCATED IN ZONE X, AS SHOWN ON "FLOOD INSURANCE RATE MAP, SUFFOLK COUNTY, BOSTON MASSACHUSETTS," MAP NUMBER 25025C0057G, EFFECTIVE DATE SEPTEMBER 25, 2009.
5. "LINE OF BUILDING ABOVE" REPRESENTS THE OUTERMOST FACE OF THE PROPOSED BUILDING ABOVE THE FOUNDATION.
6. THE PURPOSE OF THIS PLAN IS TO RECONFIGURE THE PROPERTY LINE BETWEEN CITY OF BOSTON PARCEL ID NUMBER 2201856000 AND 2201855000.

REFERENCES

PLAN BOOK AND PAGES REFERENCE THE SUFFOLK COUNTY REGISTRY OF DEEDS

- BK. 58258/PG. 107
- BK. 58258/PG. 333
- BK. 59117/PG. 3
- L.C.C 7087-B



LEGEND

PROPERTY LINE
PROPOSED PROPERTY LINE
CURB
ABUTTING PROPERTY LINE
BUILDING OVERHANG
FOUNDATION
FND FOUNDATION

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KJK 5/21/18

COMMONWEALTH OF MASSACHUSETTS KEVIN J. KIERNAN No. 40538 PROFESSIONAL LAND SURVEYOR

PROFESSIONAL LAND SURVEYOR FOR RJ O'CONNELL & ASSOCIATES, INC — DATE

DIG SAFE
BEFORE YOU DIG
CALL 811

10 0 5 10 20
GRAPHIC SCALE IN FEET

No.	Revision	Date

Record Owner:
SEE PLAN

Location:
FRANKLIN/BRAINTREE STREET
ALLSTON SQUARE
BOSTON (ALLSTON) MA

Drawn by:	MSM
Checked by:	KJK
Scale:	1"=10'
Date:	05/18/2018
Field Crew:	TDB/RJK
Field Book:	BK. XX PG. X

Prepared for:
CITY REAL ESTATE DEVELOPMENT CORP.
320 WASHINGTON ST
SUITE 2FF
BROOKLINE, MA 02446

Prepared by:
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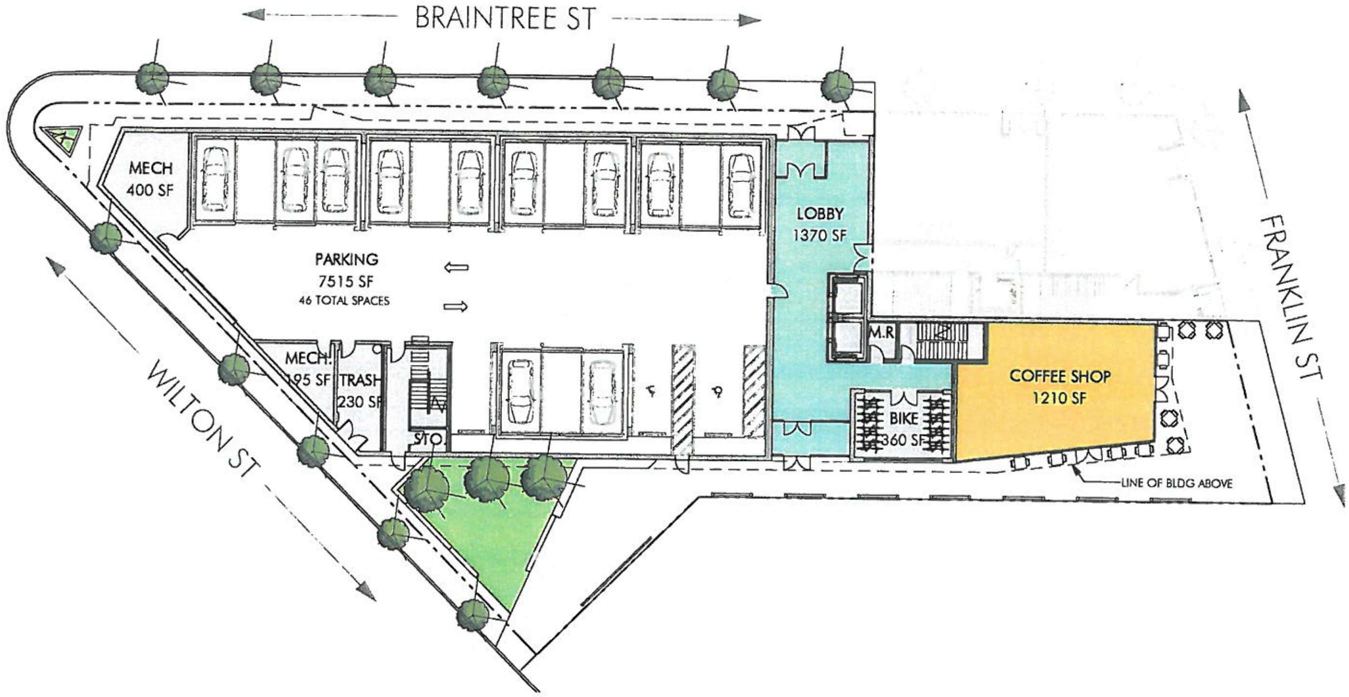
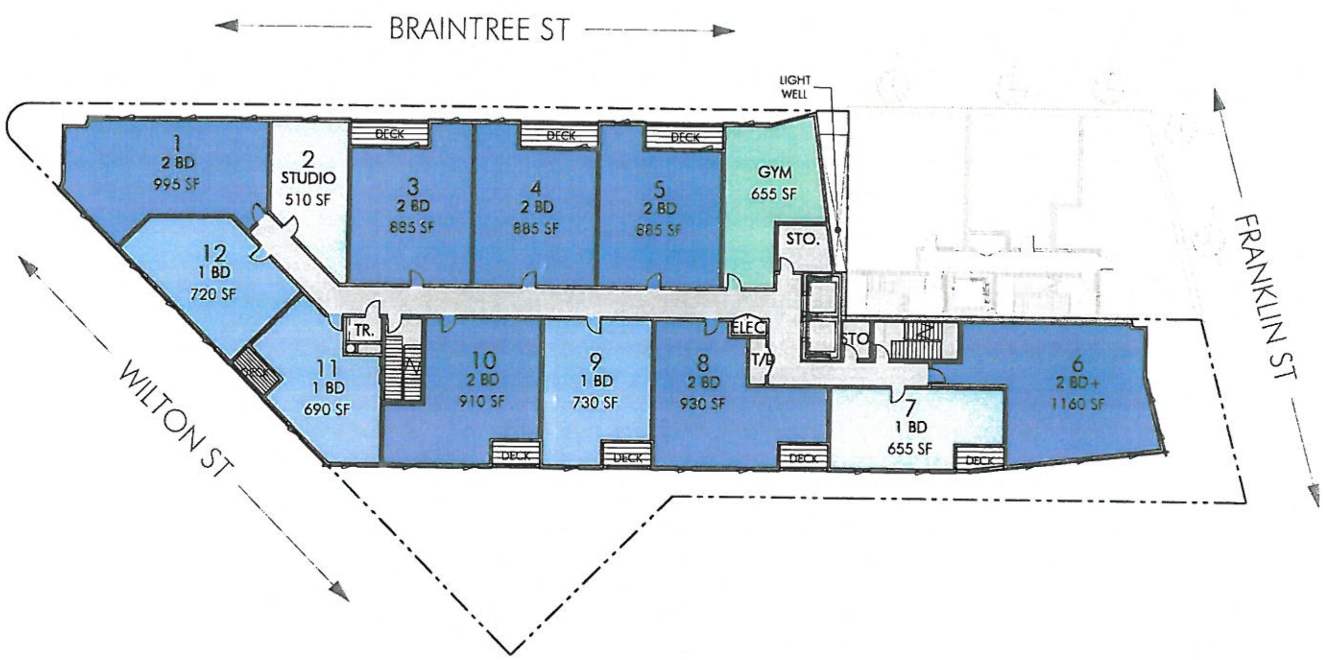
PROPERTY EXHIBIT

Project No.: 18018



GROUND FLOOR PLAN | Scale: 1" = 40'



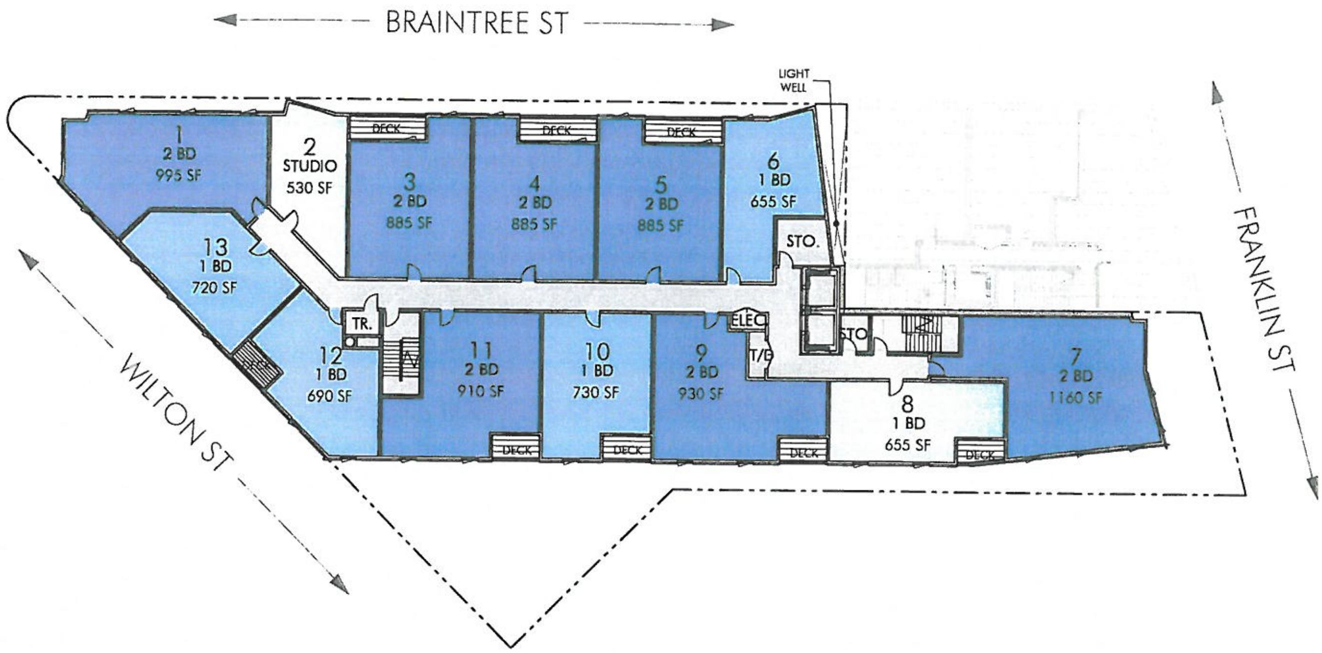
2ND FLOOR PLAN | Scale: 1" = 40'

CITY REALTY

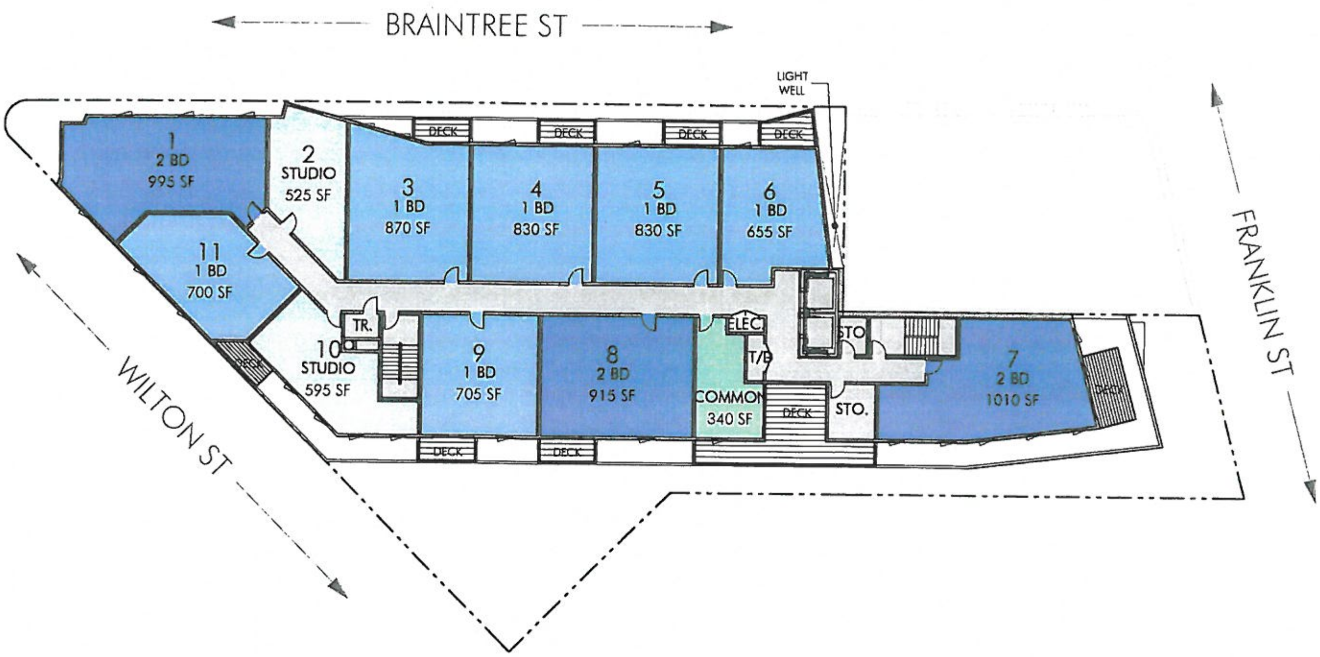
EMBARC

FRANKLIN BRAINTREE / ALLSTON HALL

ALLSTON SQUARE



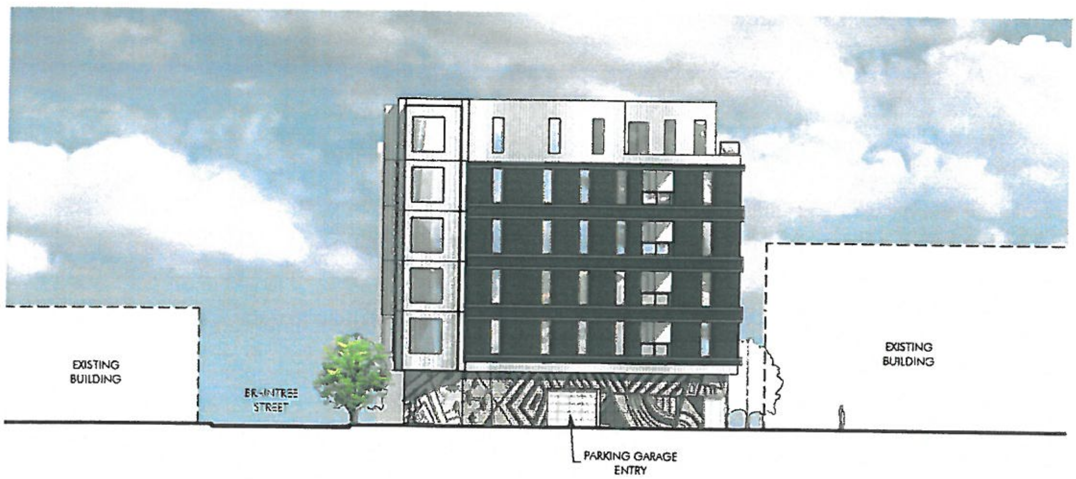
3RD,4TH, & 5TH FLOOR PLAN | Scale: 1" = 40'



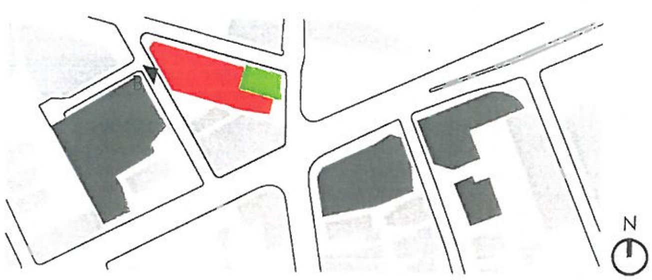
6TH FLOOR PLAN | Scale: 1" = 40'

FRANKLIN BRAINTREE / ALLSTON HALL

A -BRAINTREE STREET ELEVATION | Scale: 1" = 40'

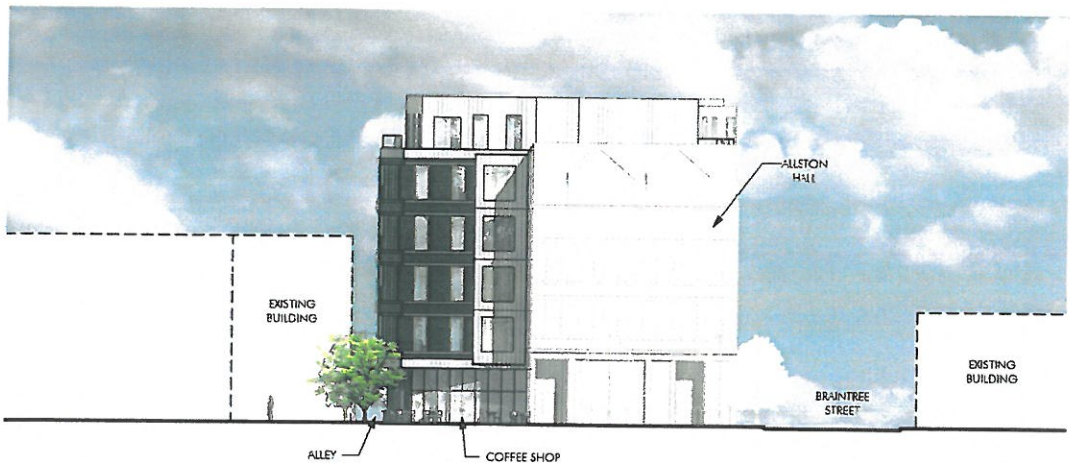


B - WILTON STREET ELEVATION | Scale: 1" = 40'

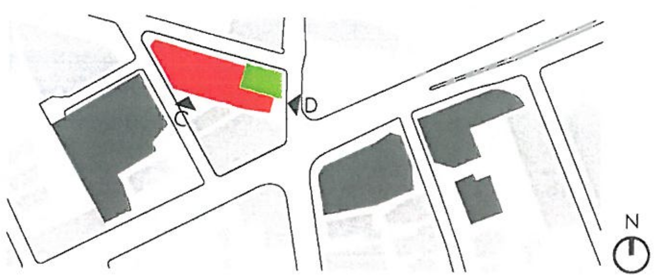


ELEVATION KEY

C - SOUTH ELEVATION | Scale: 1" = 40'



D - FRANKLIN STREET ELEVATION | Scale: 1" = 40'



ELEVATION KEY

FRANKLIN BRAINTREE / ALLSTON HALL

EMBARC

FRANKLIN-BRAINTREE
UNIT MATRIX
April 10, 2018

GROSS SQUARE FEET (GSF)

		SELLABLE | RENTABLE		COMMON	
		GSF			GSF
GROUND FLOOR	RETAIL	1,210		STAIRS | ELEV | LOBBY	2,215
				MECH | TRASH	825
				BIKE STORAGE	360
FLOOR SUBTOTAL		1,210			3,400
LEVEL 2	UNIT 201	995	2 BR	HALL | STAIRS | ELEV | STORAGE	2,060
(12 UNITS)	UNIT 202	510	ST	GYM	655
	UNIT 203	885	2 BR		
	UNIT 204	885	2 BR		
	UNIT 205	885	2 BR		
	UNIT 206	1,160	2 BR		
	UNIT 207	655	1 BR		
	UNIT 208	930	2 BR		
	UNIT 209	730	1 BR		
	UNIT 210	910	2 BR		
	UNIT 211	690	1 BR		
	UNIT 212	720	1 BR		
FLOOR SUBTOTAL		9,955			2,715
LEVEL 3	UNIT 301	995	2 BR	HALL | STAIRS | ELEV | STORAGE	2,040
(13 UNITS)	UNIT 302	530	ST		
	UNIT 303	885	2 BR		
	UNIT 304	885	2 BR		
	UNIT 305	885	2 BR		
	UNIT 306	655	1 BR		
	UNIT 307	1,160	2 BR		
	UNIT 308	655	1 BR		
	UNIT 309	930	2 BR		
	UNIT 310	730	1 BR		
	UNIT 311	910	2 BR		
	UNIT 312	690	1 BR		
	UNIT 313	720	1 BR		
FLOOR SUBTOTAL		10,630			2,040
LEVEL 4	UNIT 401	995	2 BR	HALL | STAIRS | ELEV | STORAGE	2,040
(13 UNITS)	UNIT 402	530	ST		
	UNIT 403	885	2 BR		
	UNIT 404	885	2 BR		
	UNIT 405	885	2 BR		
	UNIT 406	655	1 BR		
	UNIT 407	1,160	2 BR		
	UNIT 408	655	ST		
	UNIT 409	930	2 BR		
	UNIT 410	730	1 BR		
	UNIT 411	910	2 BR		
	UNIT 412	690	1 BR		
	UNIT 413	720	1 BR		
FLOOR SUBTOTAL		10,630			2,040
LEVEL 5	UNIT 501	995	2 BR	HALL | STAIRS | ELEV | STORAGE	2,040
(13 UNITS)	UNIT 502	530	ST		
	UNIT 503	885	2 BR		
	UNIT 504	885	2 BR		
	UNIT 505	885	2 BR		
	UNIT 506	655	1 BR		
	UNIT 507	1,160	2 BR		
	UNIT 508	655	ST		
	UNIT 509	930	2 BR		
	UNIT 510	730	1 BR		
	UNIT 511	910	2 BR		
	UNIT 512	690	1 BR		
	UNIT 513	720	1 BR		
FLOOR SUBTOTAL		10,630			2,040
LEVEL 6	UNIT 601	995	2 BR	HALL | STAIRS | ELEV | STORAGE	2,030
(11 UNITS)	UNIT 602	525	ST	COMMON	340
	UNIT 603	870	1 BR		
	UNIT 604	830	1 BR		
	UNIT 605	830	1 BR		
	UNIT 606	655	1 BR		
	UNIT 607	1,010	2 BR		
	UNIT 608	915	2 BR		
	UNIT 609	705	1 BR		
	UNIT 610	595	ST		
	UNIT 611	700	1 BR		
FLOOR SUBTOTAL		8,630			2,370
RESIDENTIAL SELLABLE GSF		51,685		COMMON AREA GSF	14,605

BUILDING GSF		
GROUND FLOOR	4,610	(Parking not incl.)
SECOND FLOOR	12,670	
THIRD FLOOR	12,670	
FOURTH FLOOR	12,670	
FIFTH FLOOR	12,670	
SIXTH FLOOR	11,000	
TOTAL BUILDING GSF	66,290	
SITE	16,935	
FAR	3.91	
GROUND FLOOR PARKING	7,515	
TOTAL SF	73,805	
LOT COVERAGE	72%	

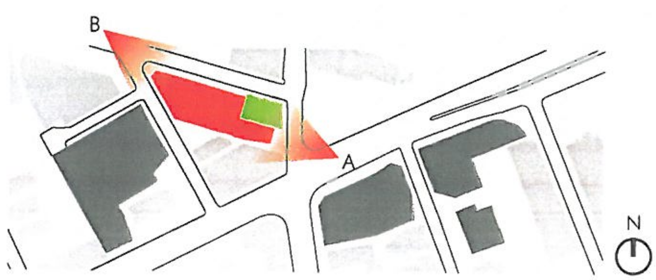
UNIT BREAKDOWN:		AVERAGE SIZE
STUDIO	8	566
1 BED	23	714
2 BED	31	952
TOTAL UNITS	62	814

PARKING SPACES	46
PARKING/UNIT RATIO	0.74

GSF: measured to outside face of exterior walls, centerline of party walls and demising walls

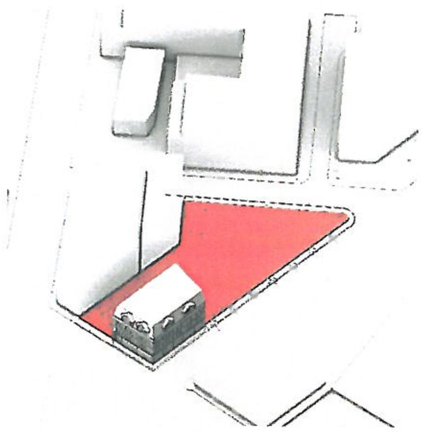
A- FRANKLIN STREET PERSPECTIVE

B- BRAINTREE-WILTON ST PERSPECTIVE

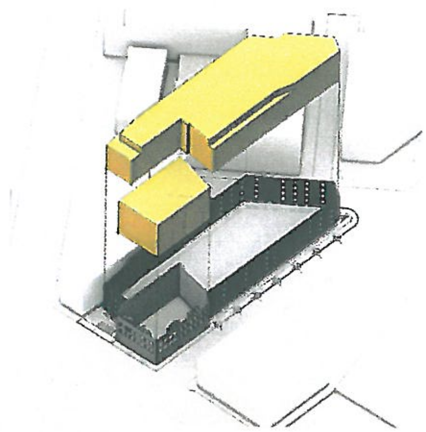


PERSPECTIVE KEY

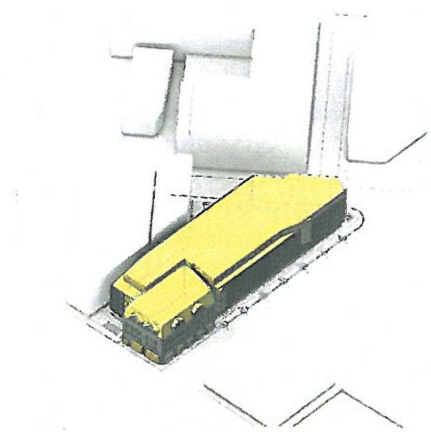
FRANKLIN/BRAINTREE/ALLSTON HALL



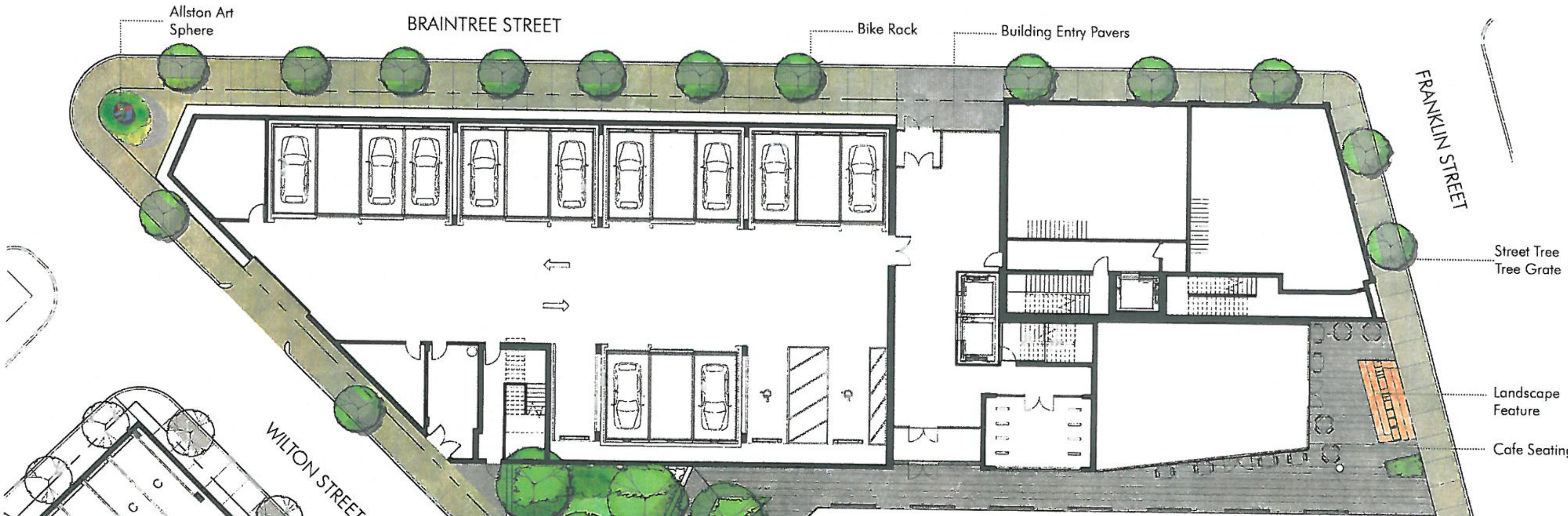
1.PRESERVATION - THE NEW PROPOSAL PRESERVES AND REHABILITATES THE EXISTING ALLSTON HALL BUILDING AT THE CORNER OF THE SITE.



2.ENCLOSURE - ALLSTON HALL KEEPS ITS ORIGINAL EXTERIOR ENCLOSURE, WHILE THE INTERIOR VOLUME IS COMPLETELY NEW. FOLLOWING ALONG THE SAME LINE, THE PROPOSED BUILDING IS A MODERN VOLUME WRAPPED WITH A MORE TRADITIONAL SHELL TO HELP RELATE IT BACK TO THE ABUTTING ALLSTON HALL AND SURROUNDING CONTEXT.



3. JUXTAPOSITION (OLD VS. NEW) - AT KEY LOCATIONS WHERE THE NEW BUILDING MEETS THE EXISTING ALLSTON HALL, THE MODERN VOLUME BREAKS THROUGH THE MORE TRADITIONAL SHELL TO REVEAL ITSELF.



URBAN DESIGN IMPROVEMENTS

FRANKLIN-BRAINTREE

Franklin Street Frontage
- Cafe Space with Landscape Feature
- Street trees with tree grille strips
- Bike racks

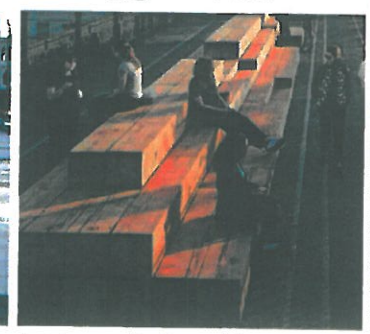
Wilton Street Frontage
- Pocket park
- Street trees with tree grille strips

Braintree Street Frontage
- Allston Art Sphere
- Street trees with tree grille strips
- Bike racks

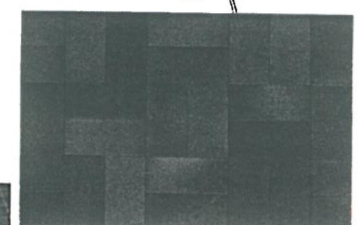
Bike Rack

Concrete Sphere that serves as canvas for local artists

Pocket Park with Seating Element



Landscape Feature with Integral Seating and Signage



Building Entry Pavers

Artful Tree Grille Strips

FRANKLIN-BRAINTREE

Accessibility Checklist

(to be added to the BRA Development Review Guidelines)

In 2009, a nine-member Advisory Board was appointed to the Commission for Persons with Disabilities in an effort to reduce architectural, procedural, attitudinal, and communication barriers affecting persons with disabilities in the City of Boston. These efforts were instituted to work toward creating universal access in the built environment.

In line with these priorities, the Accessibility Checklist aims to support the inclusion of people with disabilities. In order to complete the Checklist, you must provide specific detail, including descriptions, diagrams and data, of the universal access elements that will ensure all individuals have an equal experience that includes full participation in the built environment throughout the proposed buildings and open space.

In conformance with this directive, all development projects subject to Boston Zoning Article 80 Small and Large Project Review, including all Institutional Master Plan modifications and updates, are to complete the following checklist and provide any necessary responses regarding the following:

- improvements for pedestrian and vehicular circulation and access;
- encourage new buildings and public spaces to be designed to enhance and preserve Boston's system of parks, squares, walkways, and active shopping streets;
- ensure that persons with disabilities have full access to buildings open to the public;
- afford such persons the educational, employment, and recreational opportunities available to all citizens; and
- preserve and increase the supply of living space accessible to persons with disabilities.

We would like to thank you in advance for your time and effort in advancing best practices and progressive approaches to expand accessibility throughout Boston's built environment.

Accessibility Analysis Information Sources:

1. Americans with Disabilities Act – 2010 ADA Standards for Accessible Design
    a. http://www.ada.gov/2010ADAstandards_index.htm
2. Massachusetts Architectural Access Board 521 CMR
    a. http://www.mass.gov/eopss/consumer-prot-and-bus-lic/license-type/aab/aab-rules-and-regulations-pdf.html
3. Boston Complete Street Guidelines
    a. http://bostoncompletestreets.org/
4. City of Boston Mayors Commission for Persons with Disabilities Advisory Board
    a. http://www.cityofboston.gov/Disability
5. City of Boston – Public Works Sidewalk Reconstruction Policy
    a. http://www.cityofboston.gov/images_documents/sidewalk%20policy%200114_tcm3-41668.pdf
6. Massachusetts Office On Disability Accessible Parking Requirements
    a. www.mass.gov/anf/docs/mod/hp-parking-regulations-mod.doc
7. MBTA Fixed Route Accessible Transit Stations
    a. http://www.mbta.com/about_the_mbta/accessibility/

Project Information

Project Name:	ALLSTON SQUARE
Project Address Primary:	20 Braintree Street, Boston, MA 02134
Project Address Additional:	4-8 Franklin Street, Boston, MA 02134
Project Contact (name / Title / Company / email / phone):	Jeffrey Drago, Esq. / Drago & Toscano, LLP / jdrago@dtlawllp.com / 617.391.9450

Team Description

Owner / Developer:	CRM Property Development Corp.
Architect:	Embarc Studio LLC.
Engineer (building systems):	TBD
Sustainability / LEED:	Soden Sustainability Consulting
Permitting:	Drago & Toscano, LLP
Construction Management:	TBD

Project Permitting and Phase

At what phase is the project – at time of this questionnaire?

PNF / Expanded PNF Submitted	Draft / Final Project Impact Report Submitted	BRA Board Approved
BRA Design Approved	Under Construction	Construction just completed:

Building Classification and Description

What are the principal Building Uses - select all appropriate uses?

Residential – One to Three Unit	Residential - Multi-unit, Four +	Institutional	Education
Commercial	Office	Retail	Assembly
Laboratory / Medical	Manufacturing / Industrial	Mercantile	Storage, Utility and Other

First Floor Uses (List): *Commercial and Residential Lobby*

What is the Construction Type – select most appropriate type?

Wood Frame	Masonry	Steel Frame	Concrete

Describe the building?

Site Area:	*16,935 SF*	Building Area:	*66,410 SF*
Building Height:	*69 Ft. 3 inches*	Number of Stories:	*6 Flrs.*
First Floor Elevation:	*0' Elev.*	Are there below grade spaces:	*No*

Assessment of Existing Infrastructure for Accessibility:

This section explores the proximity to accessible transit lines and proximate institutions such as, but not limited to hospitals, elderly and disabled housing, and general neighborhood information. The proponent should identify how the area surrounding the development is accessible for people with mobility impairments and should analyze the existing condition of the accessible routes through sidewalk and pedestrian ramp reports.

Provide a description of the development neighborhood and identifying characteristics.	The proposed site is in the Allston neighborhood of Boston, situated between Ringer Park to the south, the Honan-Allston branch public library to the north, a major shopping plaza to the west (which includes a super Stop & Shop and Homegoods store among others), and Boston University to the East; all of which are located within a ½ mile radius. The current neighborhood is primarily a mixed-used of multi-family residential developments and retail/commercial buildings. Directly adjacent to site, the main road (Cambridge Street) is flanked by retail stores, which makes it a busy, high-traffic area.

List the surrounding ADA compliant MBTA transit lines and the proximity to the development site: Commuter rail, subway, bus, etc.	**¼ mile Radius:** Cambridge Street @ Franklin Street (Bus 64, 66, 501, 503) / Cambridge Street @ Linden Street (Bus 64, 66, 501, 503, 9701, 9702, 9703) / Brighton Avenue @ Allston Street (Bus 57, 66, 57A). **½ mile Radius:** Harvard Avenue Station (Green Line – B Train) / Griggs Street Station (Green Line – B Train) / Packard's Corner Station (Green Line – B Train).
List the surrounding institutions: hospitals, public housing and elderly and disabled housing developments, educational facilities, etc.	**Hospitals:** Steward Health Care (South West, ¾ mile Radius), Franciscan Children's Hospital (South West, ¾ mile Radius), Boston Orthopedic & Sports Med (South West, ¾ mile Radius), Arbour HRI Hospital (East, ¾ mile Radius), Brigham & Women's Hospital (East, 1 mile Radius). **Educational Facilities:** The Learning Tree Preschool/Daycare (South, ¼ mile Radius), Gardner Pilot Academy Elementary School (North, ½ mile Radius), Bright Horizons Preschool (East, ½ mile Radius), Jackson/Mann K-8 School (South, ½ mile Radius), Horace Mann School for the Deaf (South, ½ mile Radius), Boston Theological Institute (North, ¾ mile Radius), Boston University (East, ¾ mile Radius). **Public Housing:** Glenville Avenue Apartments (South, ½ mile Radius), Commonwealth Avenue Housing (South, ½ mile Radius), Charlesview Inc (North, ¾ mile Radius), Governor Apartments (South, ¾ mile Radius), Comaven Apartments (South, ¾ mile Radius). **Elderly/Disabled Housing:** Brighton-Allston Elderly (North, ½ mile Radius).
Is the proposed development on a priority accessible route to a key public use facility? List the surrounding: government buildings, libraries, community centers and recreational facilities and other related facilities.	**Government Buildings:** Boston Fire Department Engine 41 (South, ¼ mile Radius). **Library:** Honan-Allston Branch Public Library (North East, ½ mile Radius). **Community Center:** Jackson Mann Community Center (South West, ½ mile Radius). **Recreational Facility:** Penniman Road Play Area (West, ¼ mile Radius), Ringer Park (South, ½ mile Radius), Commonwealth Sports Club (East, ½ mile Radius).

Surrounding Site Conditions – Existing:

This section identifies the current condition of the sidewalks and pedestrian ramps around the development site.

Are there sidewalks and pedestrian ramps existing at the development site?	Yes.
If yes above, list the existing sidewalk and pedestrian ramp materials and physical condition at the development site.	Existing sidewalks are concrete with granite curbs, both in acceptable condition.
Are the sidewalks and pedestrian ramps existing-to-remain? If yes,	TBD

have the sidewalks and pedestrian ramps been verified as compliant? If yes, please provide surveyors report.	
Is the development site within a historic district? If yes, please identify.	No.

Surrounding Site Conditions – Proposed

This section identifies the proposed condition of the walkways and pedestrian ramps in and around the development site. The width of the sidewalk contributes to the degree of comfort and enjoyment of walking along a street. Narrow sidewalks do not support lively pedestrian activity, and may create dangerous conditions that force people to walk in the street. Typically, a five foot wide Pedestrian Zone supports two people walking side by side or two wheelchairs passing each other. An eight foot wide Pedestrian Zone allows two pairs of people to comfortable pass each other, and a ten foot or wider Pedestrian Zone can support high volumes of pedestrians.

Are the proposed sidewalks consistent with the Boston Complete Street Guidelines? See: www.bostoncompletestreets.org	Yes.
If yes above, choose which Street Type was applied: Downtown Commercial, Downtown Mixed-use, Neighborhood Main, Connector, Residential, Industrial, Shared Street, Parkway, Boulevard.	The proposed development is bordered by Braintree Street (North), Franklin Street (East), and Wilton Street (West). **STREET TYPES:** - Braintree Street & Franklin Street fall under the **Neighborhood Connector** category. - Wilton Street falls under the **Neighborhood Residential** category.
What is the total width of the proposed sidewalk? List the widths of the proposed zones: Frontage, Pedestrian and Furnishing Zone.	TBD
List the proposed materials for each Zone. Will the proposed materials be on private property or will the proposed materials be on the City of Boston pedestrian right-of-way?	TBD
If the pedestrian right-of-way is on private property, will the proponent seek a pedestrian easement with	N/A

the City of Boston Public Improvement Commission?	
Will sidewalk cafes or other furnishings be programmed for the pedestrian right-of-way?	No.
If yes above, what are the proposed dimensions of the sidewalk café or furnishings and what will the right-of-way clearance be?	N/A

Proposed Accessible Parking:

See Massachusetts Architectural Access Board Rules and Regulations 521 CMR Section 23.00 regarding accessible parking requirement counts and the Massachusetts Office of Disability Handicap Parking Regulations.

What is the total number of parking spaces provided at the development site parking lot or garage?	46
What is the total number of accessible spaces provided at the development site?	2, 1 Van accessible.
Will any on street accessible parking spaces be required? If yes, has the proponent contacted the Commission for Persons with Disabilities and City of Boston Transportation Department regarding this need?	No
Where is accessible visitor parking located?	N/A
Has a drop-off area been identified? If yes, will it be accessible?	No, TBD.

Include a diagram of the accessible routes to and from the accessible parking lot/garage and drop-off areas to the development entry locations. Please include route distances.	Attached.

Circulation and Accessible Routes:

The primary objective in designing smooth and continuous paths of travel is to accommodate persons of all abilities that allow for universal access to entryways, common spaces and the visit-ability* of neighbors.

**Visit-ability – Neighbors ability to access and visit with neighbors without architectural barrier limitations*

Provide a diagram of the accessible route connections through the site.	Attached.
Describe accessibility at each entryway: Flush Condition, Stairs, Ramp Elevator.	Residential lobby to be a flush condition with the sidewalk at building exterior, as is the Commercial Space/Coffee Shop entry. The garage access from the lobby is to be a flush doorway condition. From the Lobby, elevator access will provide access to upper floors.
Are the accessible entrance and the standard entrance integrated?	Yes.
If no above, what is the reason?	N/A
Will there be a roof deck or outdoor courtyard space? If yes, include diagram of the accessible route.	Yes. Attached.
Has an accessible routes way-finding and signage package been developed? If yes, please describe.	No.

Accessible Units: (If applicable)

In order to facilitate access to housing opportunities this section addresses the number of accessible units that are proposed for the development site that remove barriers to housing choice.

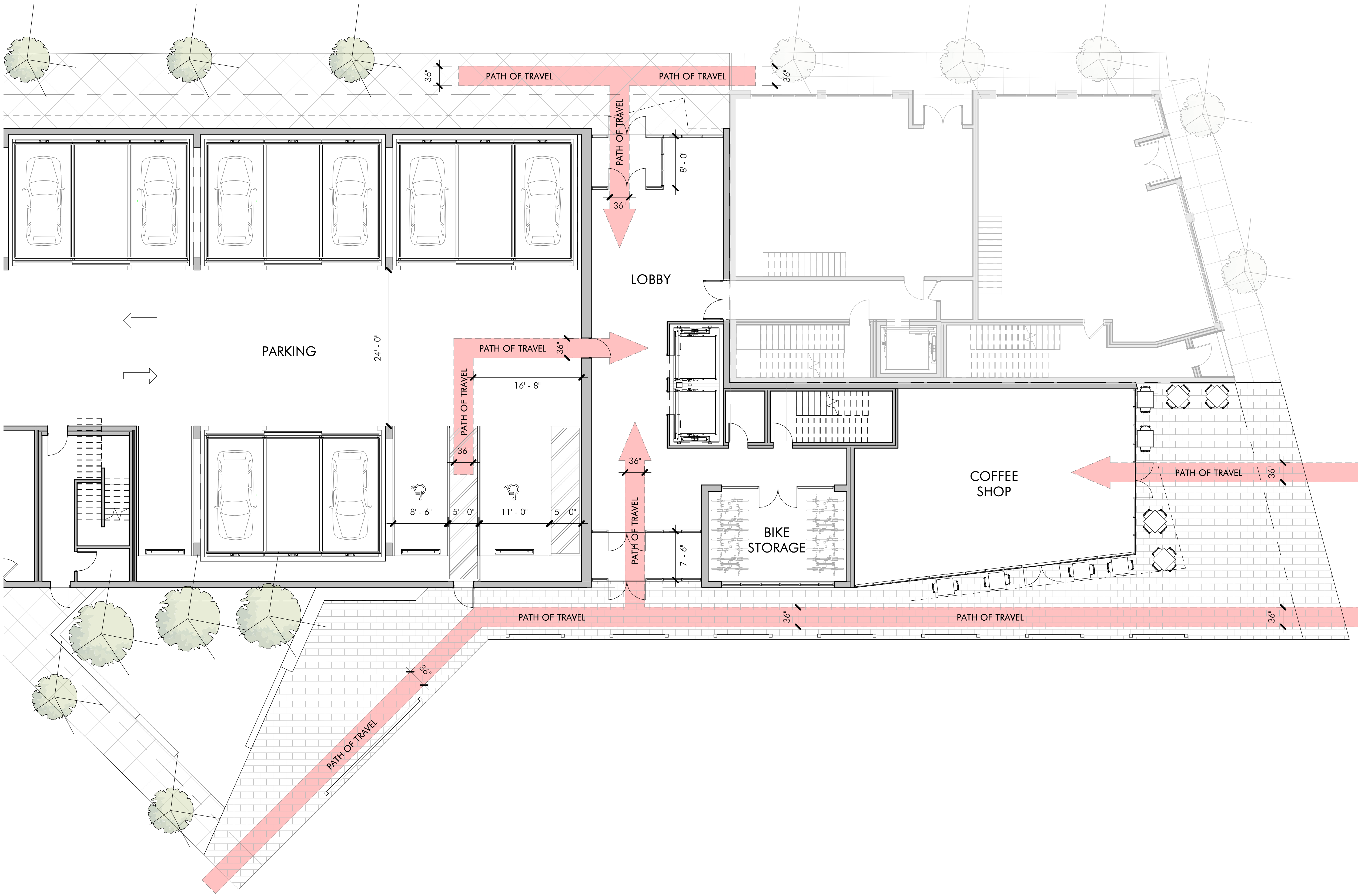
What is the total number of proposed units for the development?	62
How many units are for sale; how many are for rent? What is the market value vs. affordable breakdown?	**FOR SALE:** 62 Units; Affordable breakdown TBD
How many accessible units are being proposed?	62
Please provide plan and diagram of the accessible units.	Specific unit plans have not been developed.
How many accessible units will also be affordable? If none, please describe reason.	TBD
Do standard units have architectural barriers that would prevent entry or use of common space for persons with mobility impairments? Example: stairs at entry or step to balcony. If yes, please provide reason.	No
Has the proponent reviewed or presented the proposed plan to the City of Boston Mayor's Commission for Persons with Disabilities Advisory Board?	No.
Did the Advisory Board vote to support this project? If no, what recommendations did the Advisory Board give to make this project more accessible?	N/A

Article 80 | ACCESSIBILTY CHECKLIST

Thank you for completing the Accessibility Checklist!

For questions or comments about this checklist or accessibility practices, please contact:

kathryn.quigley@boston.gov | Mayors Commission for Persons with Disabilities



1/16" = 1'-0"

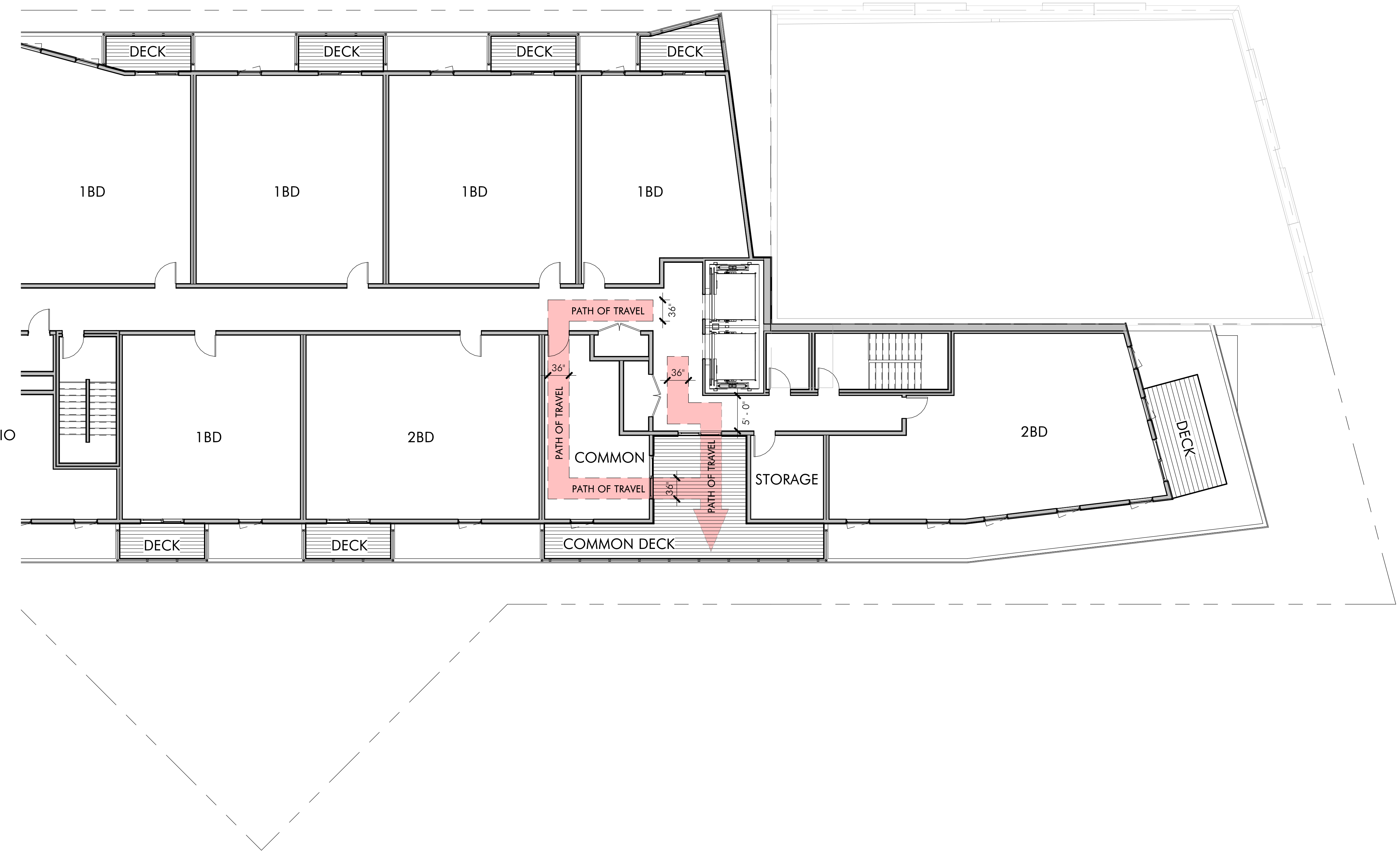
EMBARC STUDIO
ARCHITECTURE + DESIGN

ACCESSIBILITY CHECKLIST - GROUND FLOOR

FRANKLIN BRAINTREE

4 BRAINTREE STREET BOSTON, MA 02134

A2.1



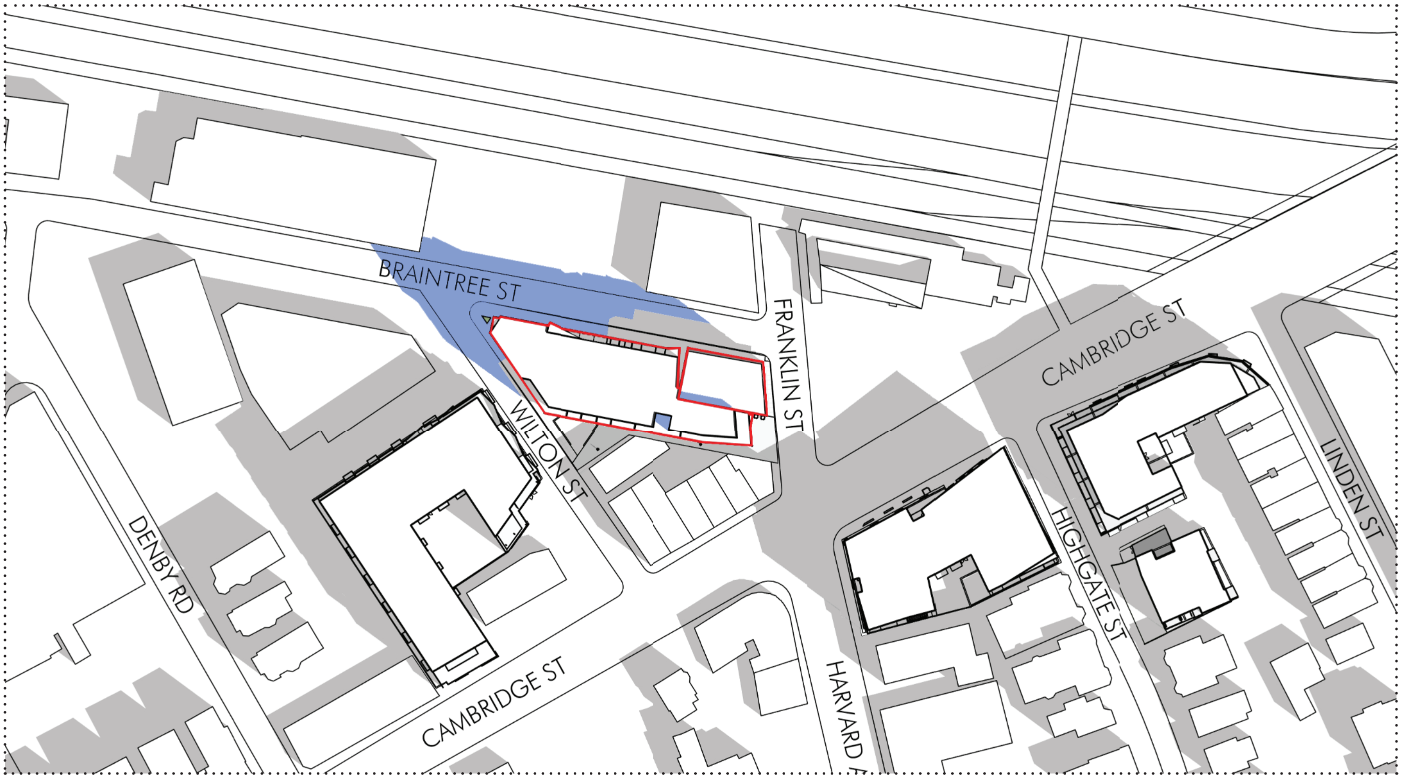
EMBARC STUDIO
ARCHITECTURE + DESIGN

ACCESSIBILITY CHECKLIST - SIXTH FLOOR
FRANKLIN BRAINTREE
4 BRAINTREE STREET BOSTON, MA 02134

A2.2

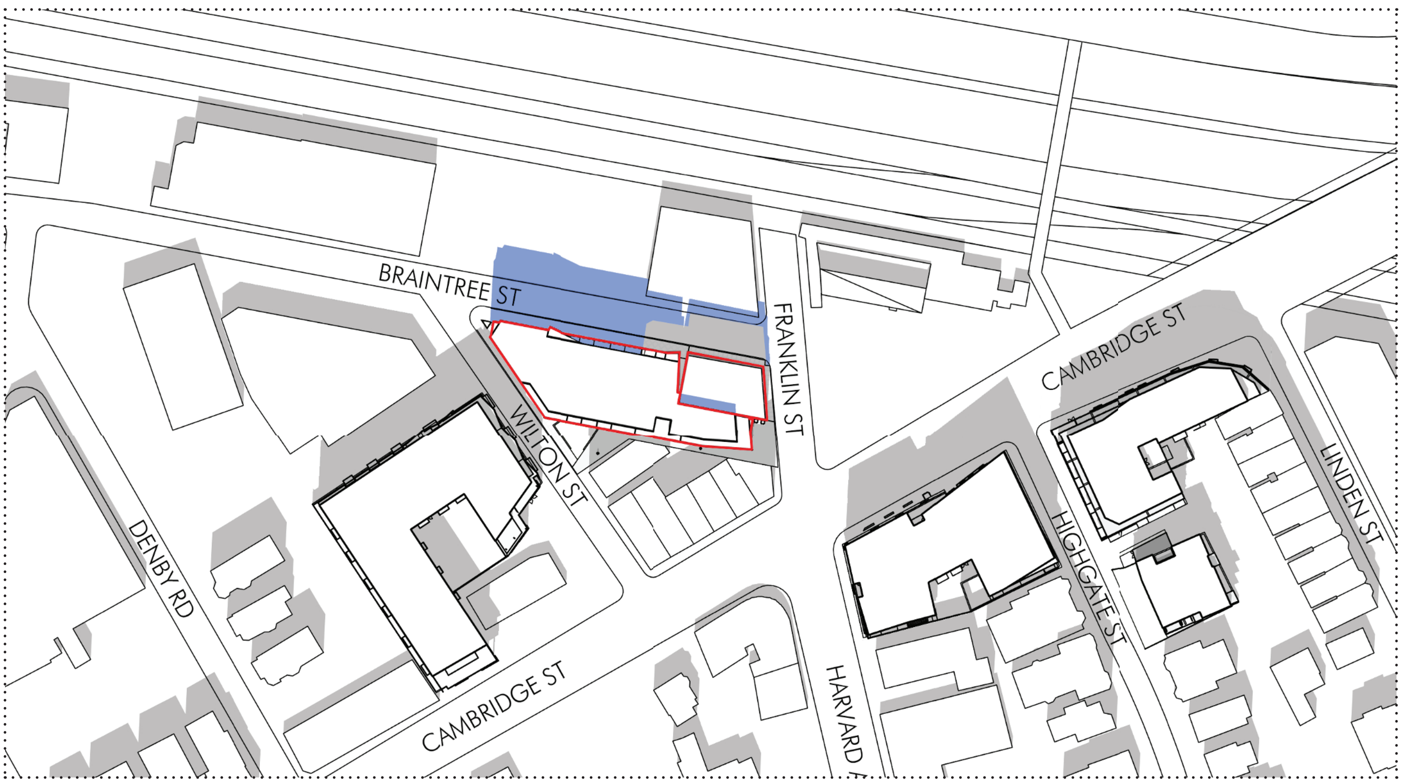
 | 4/11/2018 6:20:32 PM | C:\Users\emoliere\Documents\16121_Franklin-Braintree_SD_emoliere@embarcstudio.com.rvt

APRIL 15, 2018 | EMBARC



SHADOW STUDY - VERNAL EQUINOX, 9:00AM

NET NEW SHADOW
EXISTING SHADOW
N



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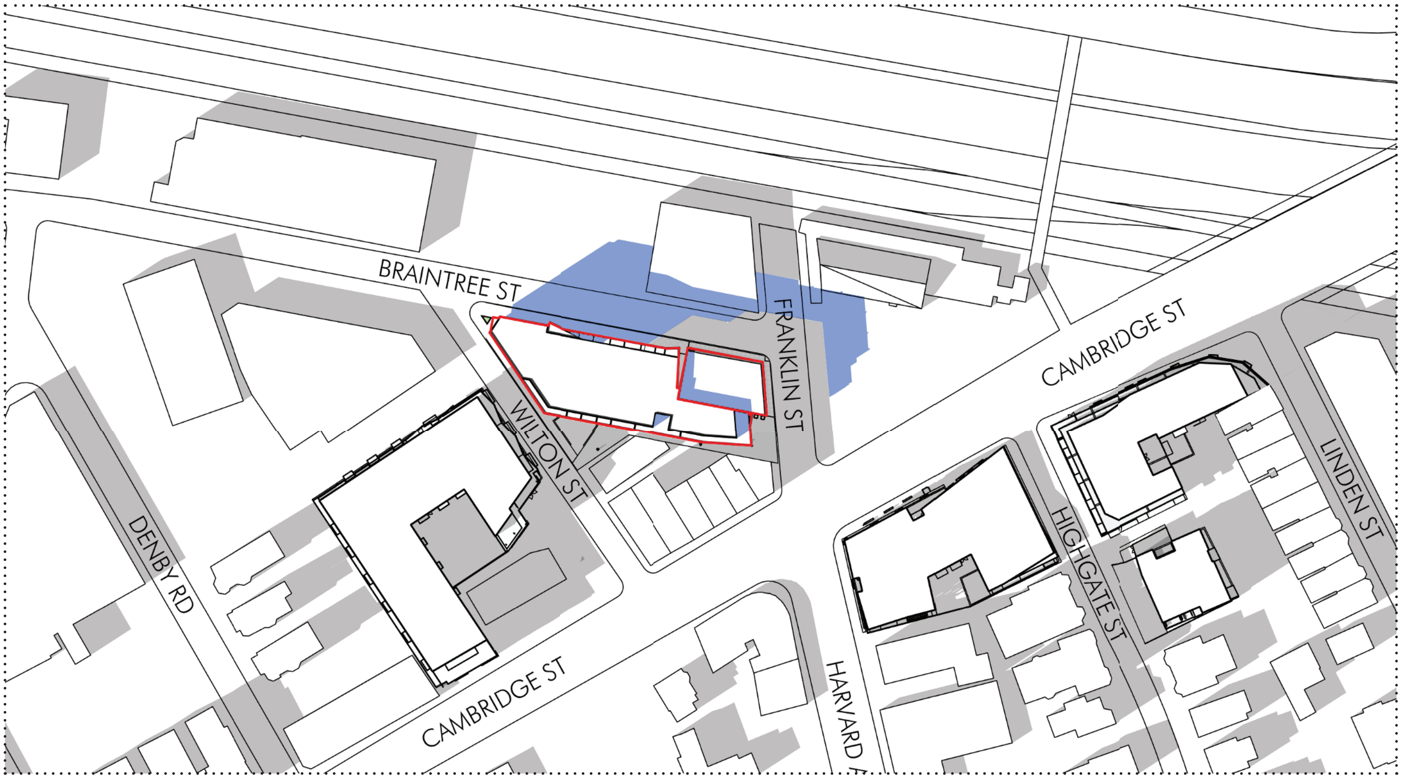

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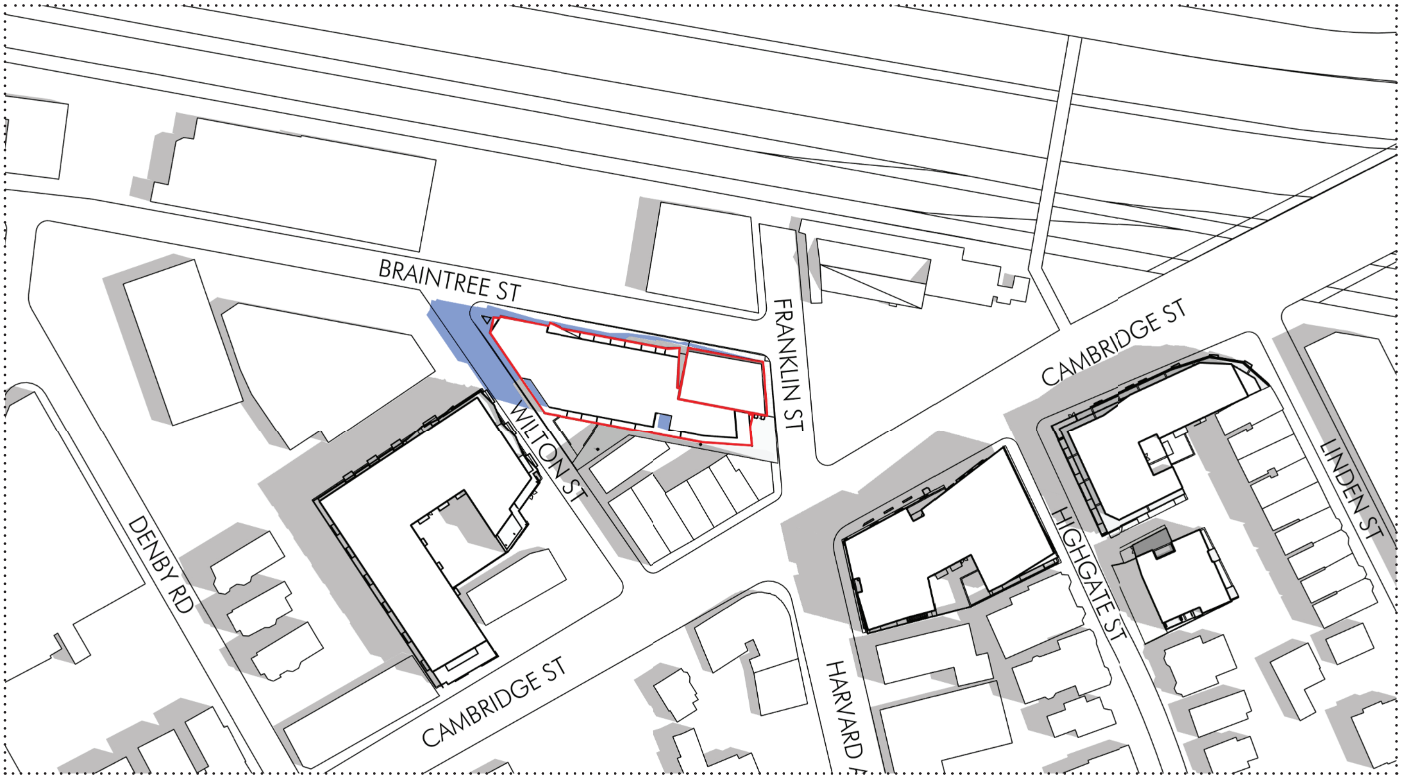

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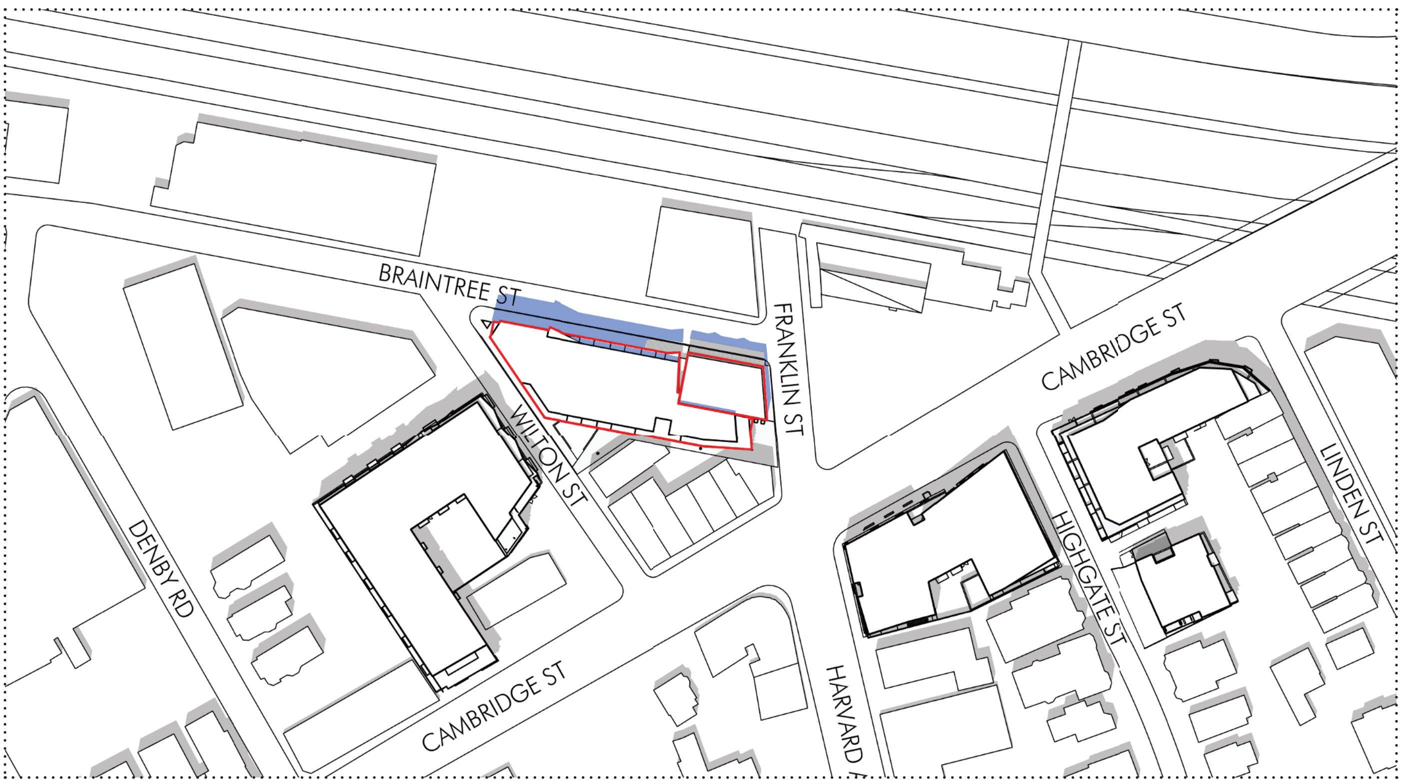

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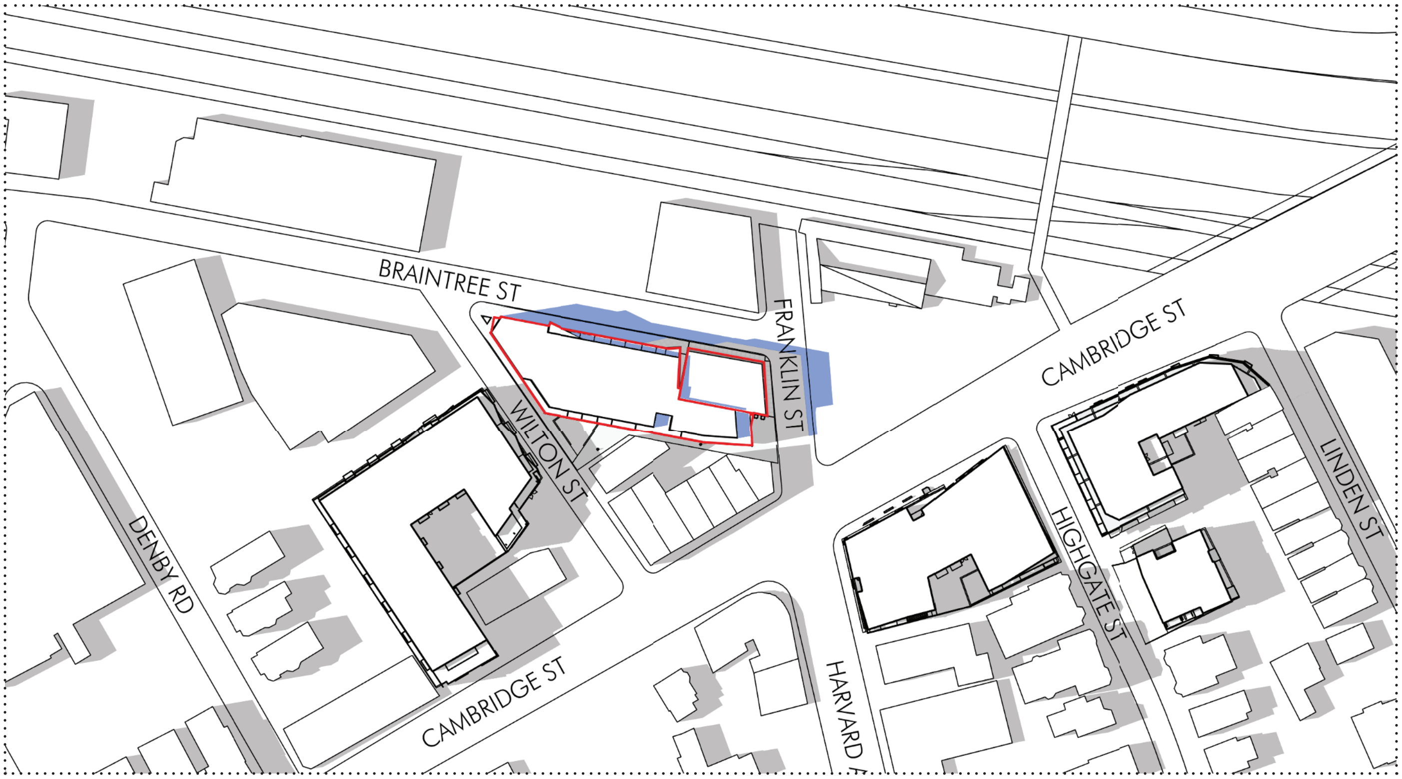

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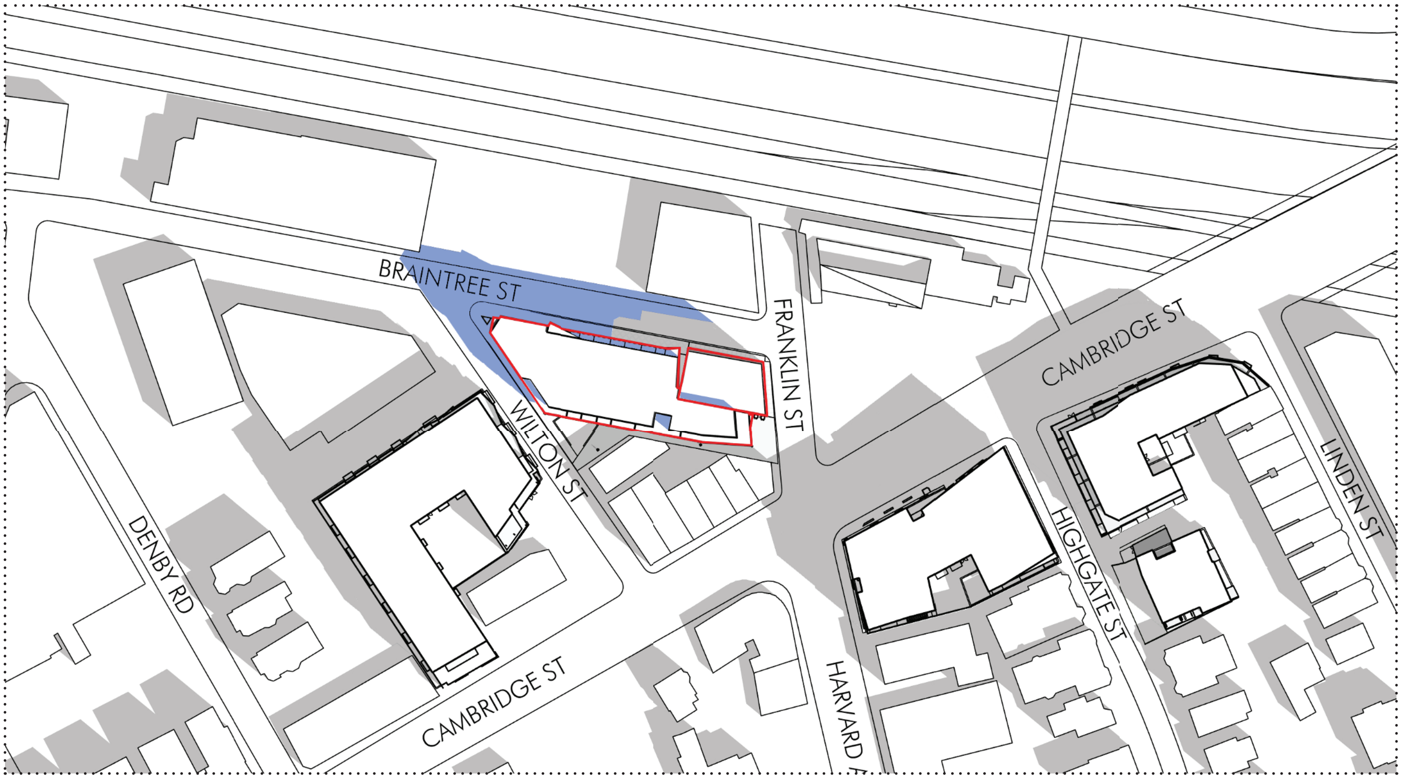

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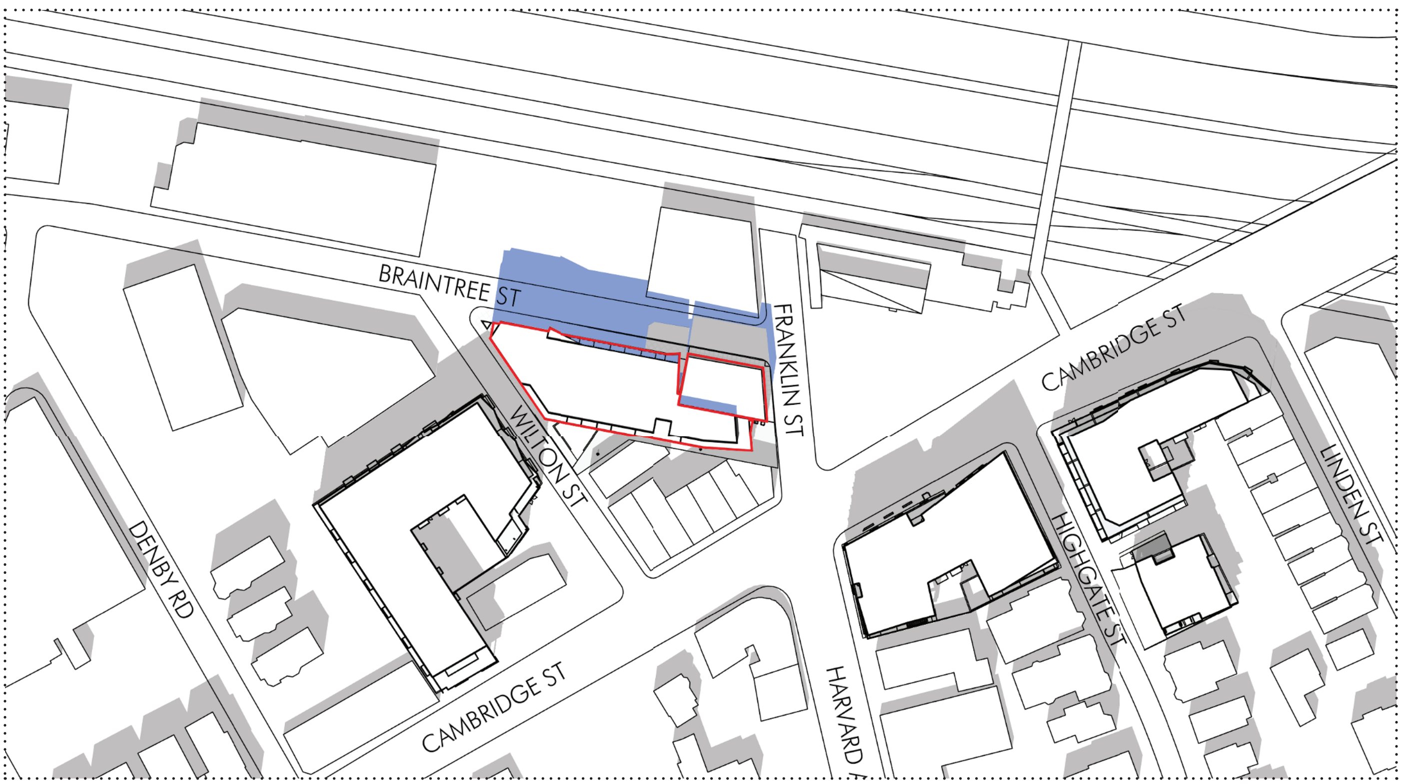


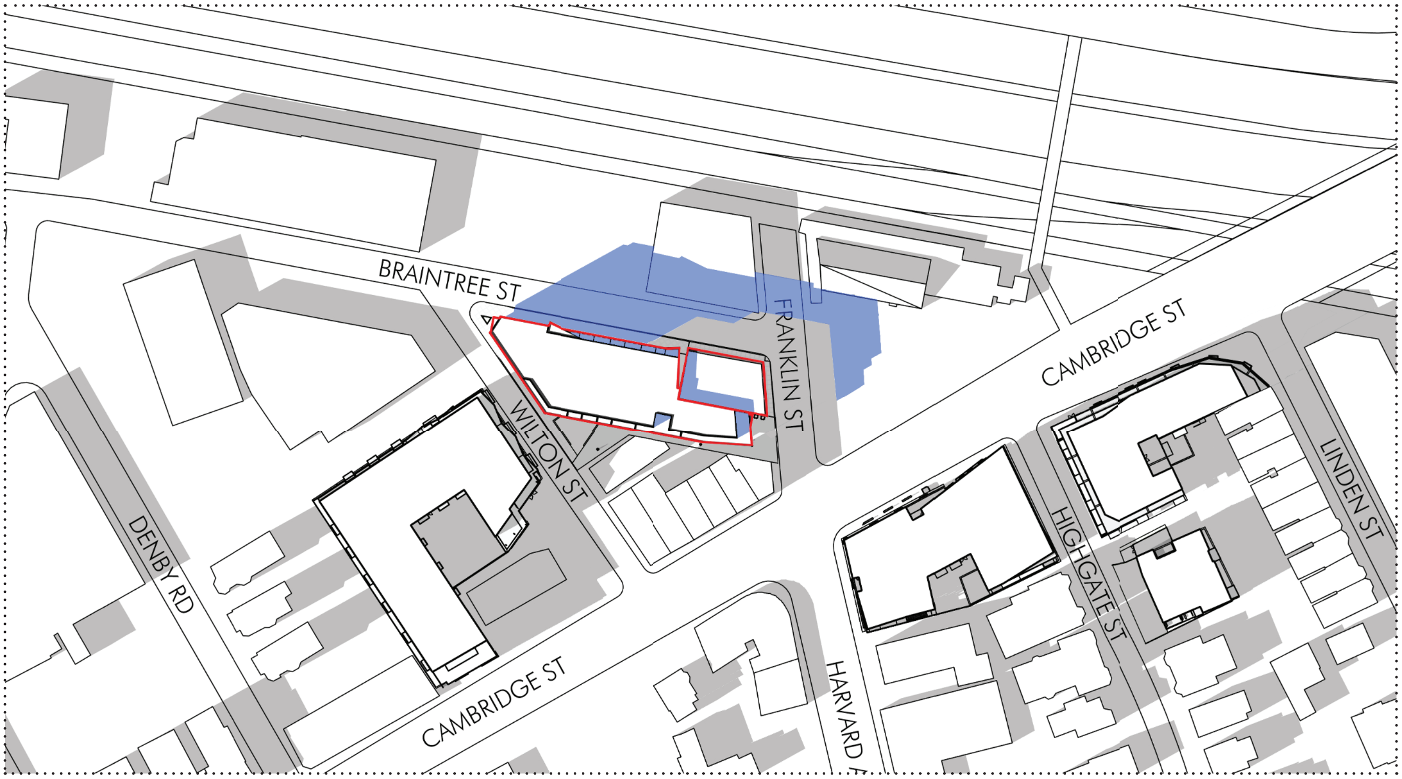
SHADOW STUDY - FALL EQUINOX, 12:00PM

NET NEW SHADOW
EXISTING SHADOW
N

CITY REALTY

EMBARC

ALLSTON SQUARE



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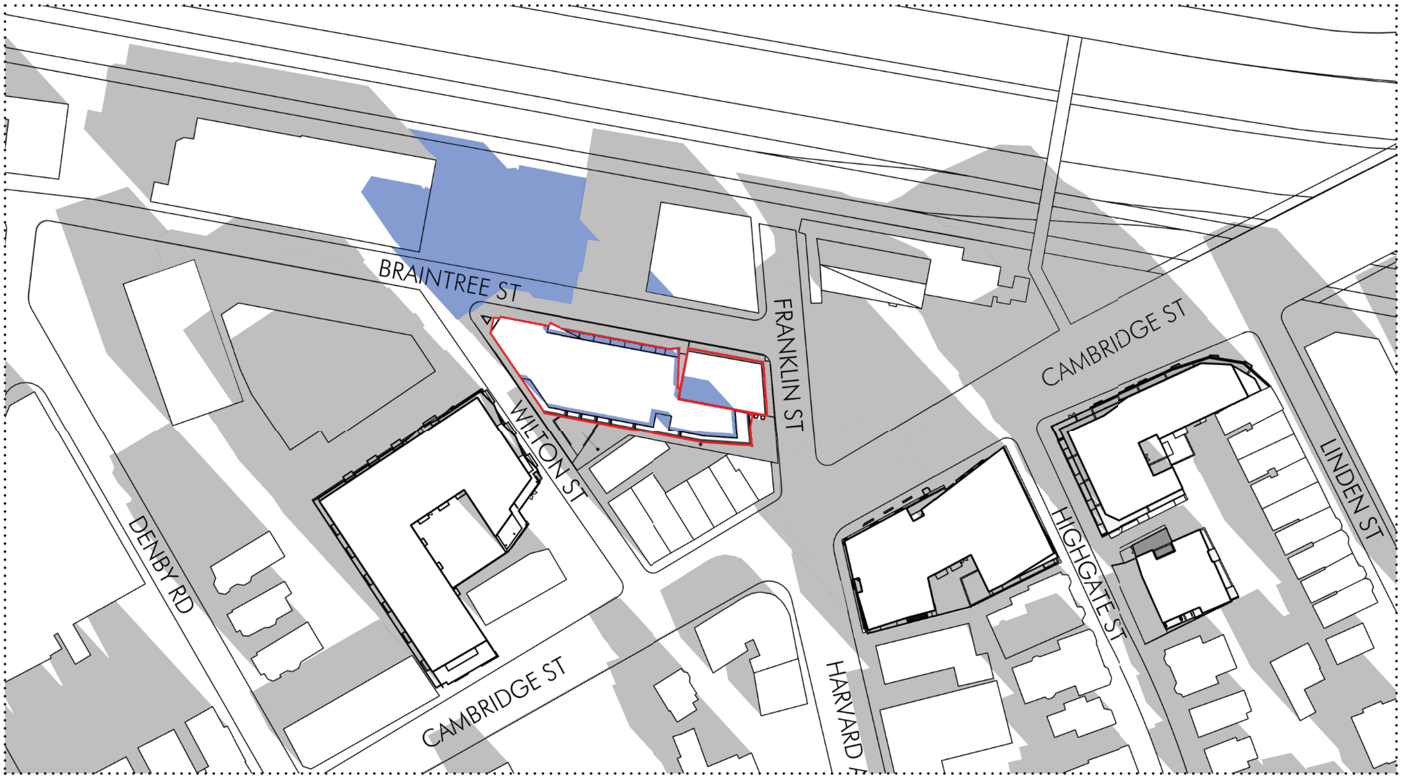

SHADOW STUDY - WINTER SOLSTICE, 9:00AM

NET NEW SHADOW
EXISTING SHADOW
N

SHADOW STUDY - WINTER SOLSTICE, 12:00PM

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EXISTING SHADOW
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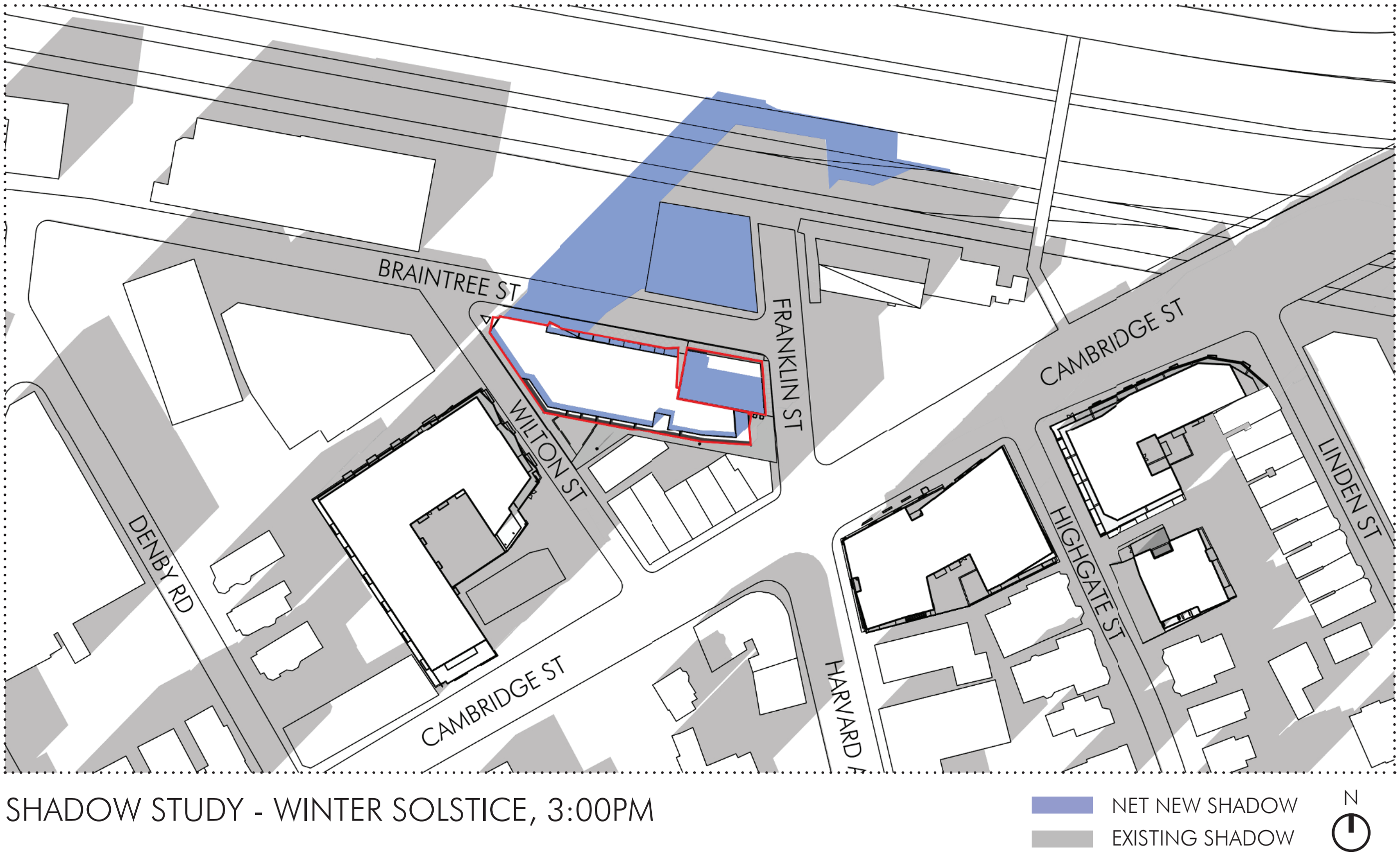


SHADOW STUDY - WINTER SOLSTICE, 3:00PM

CITY REALTY

EMBARC

ALLSTON SQUARE

KEVIN M. MARTIN, P.E.
KMM GEOTECHNICAL CONSULTANTS, LLC
7 Marshall Road
Hampstead, NH 03841
603-489-5556 (p)/ 603-489-5558 (f)/781-718-4084(m)
kevinmartinpe@aol.com

MEMORANDUM

TO: CRM Property Management Corp.
320 Washington Street, Suite 3FF
Brookline, MA 02445

COMMONWEALTH OF MASSACHUSETTS
KEVIN M.
MARTIN
CIVIL
No. 38206
REGISTERED
PROFESSIONAL ENGINEER

FROM: Kevin M. Martin, P.E.
Geotechnical Engineer

DATE: April 30, 2018

RE: **GEOTECHNICAL SUMMARY REPORT**
PROPOSED MIXED-USE BUILDING
FRANKLIN BRAINTREE BUILDING
20 BRAINTREE STREET
ALLSTON HALL(4 BRAINTREE STREET)
ALLSTON, MASSACHUSETTS

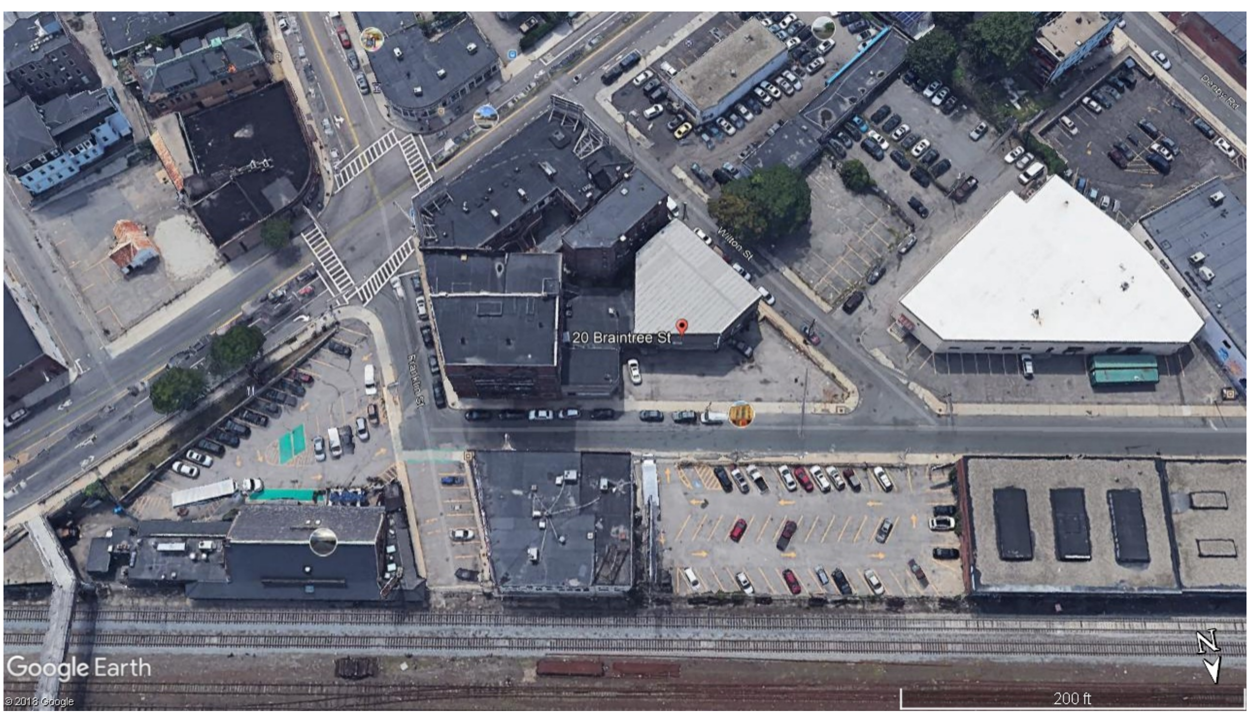
This memorandum serves as a geotechnical summary report for the referenced project. The contents of this memorandum are subject to the attached ***Limitations***.

SITE & PROJECT DESCRIPTION

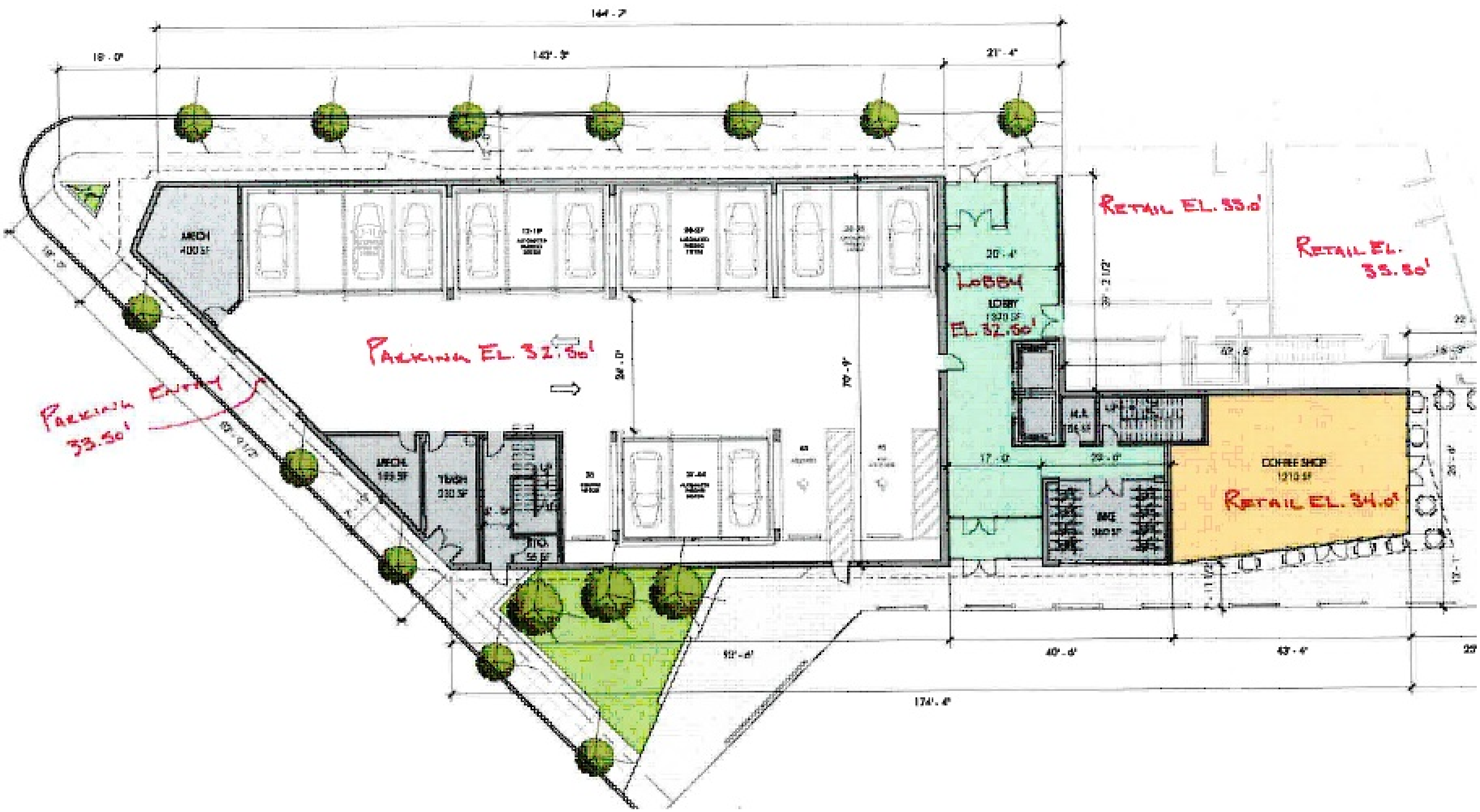
The site includes three (3) contiguous lots bordered by Cambridge Street, Wilton Street, Franklin Street and Braintree Street. Present development includes various buildings which include brick, CMU and metal construction. We understand that Allston Hall (4 Braintree Street) will remain and be rehabilitated for the project. This building includes a 4-story, architectural brick building at the corner of Franklin and Braintree Street. It is reported that this building has a basement foundation that will remain for the project. This study did not include a review of the existing foundations. There will be three (3) remaining buildings that will be razed to accommodate the proposed Franklin Braintree building. A prior *ESA Report* indicates that all the buildings possess a basement level. KMM has no knowledge of past construction, development or use of the property. Based on the *Site Plan*, grades around the site vary from elevation ≈32-36 ft possessing a gradual downward contour towards the north.

The project includes a new mixed-use building with primary residential occupancy (Franklin Braintree building). The building will include a 6-story, steel framed structure about ≈12,000 ft^2 in footprint area. The building will occupy most of the lot. First floor (ground level) will be used for retail (along Cambridge-Franklin Street) but primarily stacked parking. There is no proposed basement level for the building. The ground floor elevations are to step or terrace (≈1-2 ft) to accommodate the surrounding street grades. Ground floor elevations are to vary from elevation 32½-34 ft. It is intended to support the building on a conventional shallow spread footing foundation with a concrete floor slab-on-grade (no basement). Shallow cuts or fills will be required to achieve final grade. Allston Hall is to remain for the project. This building has a basement foundation. There was no information relative to the depth, construction or geometry of this foundation. Review of the foundation via test pits was beyond the scope of this study. The new building (Franklin Braintree) will abut Allston Hall with slab-on-grade construction.

The purpose of this study is to review the subgrade conditions and provide a geotechnical evaluation related to foundation design and construction as required by the *Massachusetts State Building Code*. This report does not include an environmental assessment relative to oil, gasoline, solid waste and/or other hazardous materials. The environmental conditions of the property should be addressed by others as necessary. This study also does not include review of site design or construction issues such as infiltration systems, dry wells, retaining walls, excavation support systems, underground utilities, protection of surrounding buildings/utilities, crane pads, temporary shoring or other site and/or temporary design unless specifically addressed herein.



NOTE: Allston Hall is the 4-story architectural brick building (to remain)



GROUND FLOOR PLAN

SOUTH ELEVATION

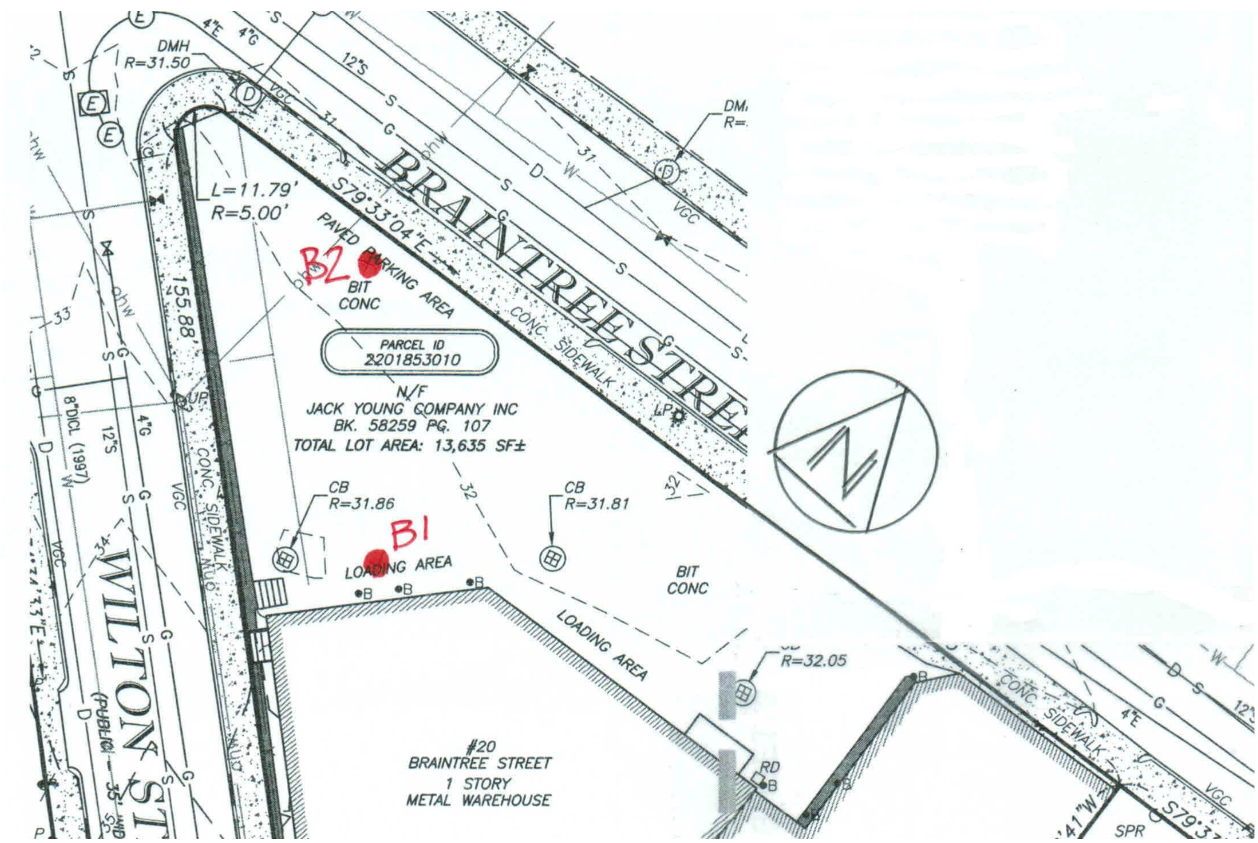
SUBSURFACE EXPLORATION PROGRAM

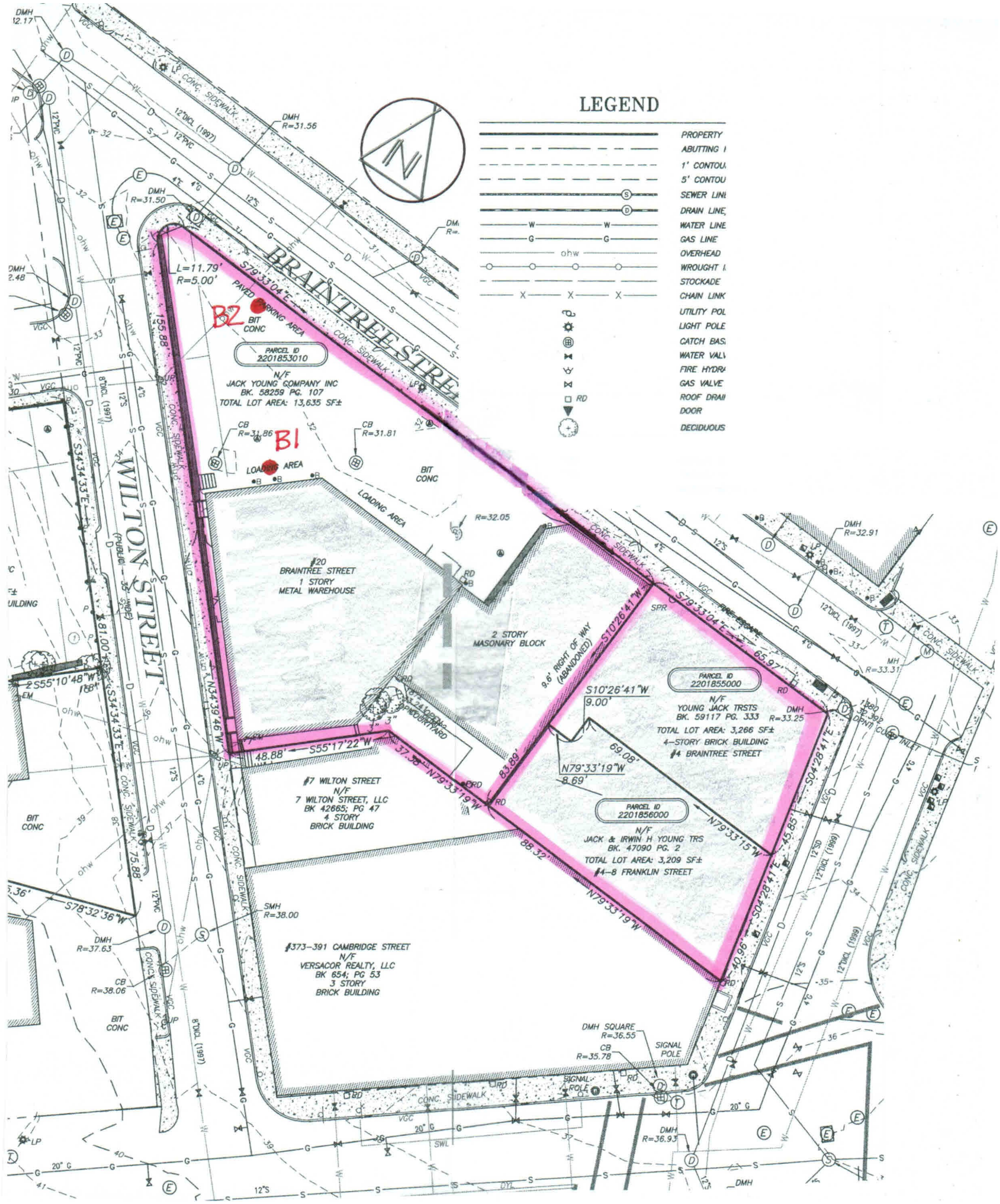
Test Bores by KMM

The exploration program for the project included two (2) test borings around the site where accessible. The test borings (B1 & B2) were advanced to depths of ≈22 ft utilizing 4 inch hollow stem augers. Soil samples were typically retrieved at no greater than 5 ft intervals with a 2 inch diameter split-spoon sampler. Standard Penetration Tests (SPTs) were performed at the sampling intervals in general accordance with ASTM-D1586 (*Standard Method for Penetration Test and Split-Barrel Sampling of Soils*). Field descriptions and penetration resistance of the soils encountered, observed depth to groundwater and other pertinent data are contained on the attached *Test Boring Logs*. The attached *Sketch* shows the test bore locations.

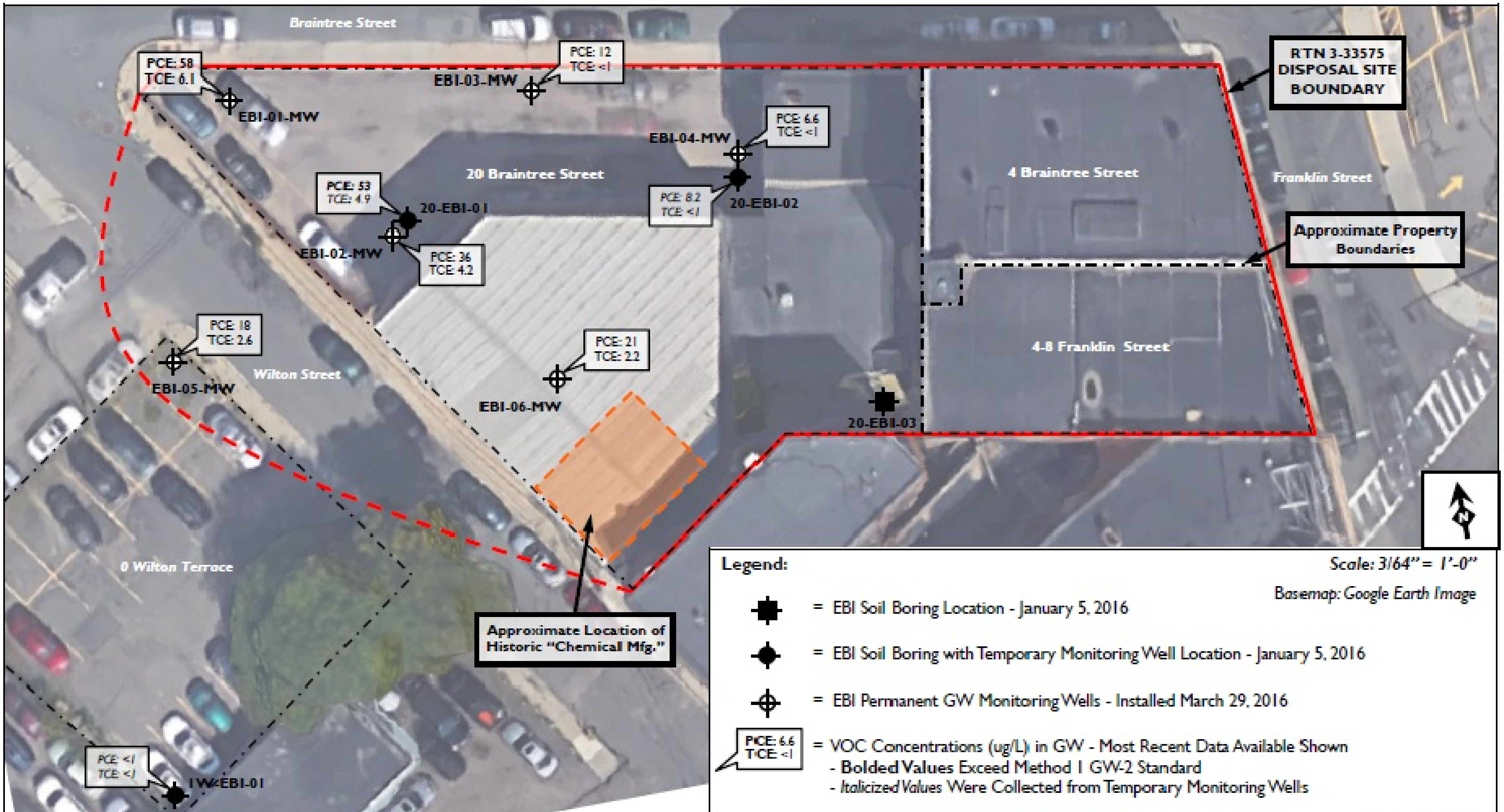
Explorations by Others

EBI completed a *Phase I Initial Site Investigation Report* in May 2017. As part of this environmental study, some test bores (ie: probes) and monitoring wells were installed to review the subgrade.





TEST BORE LOCATIONS



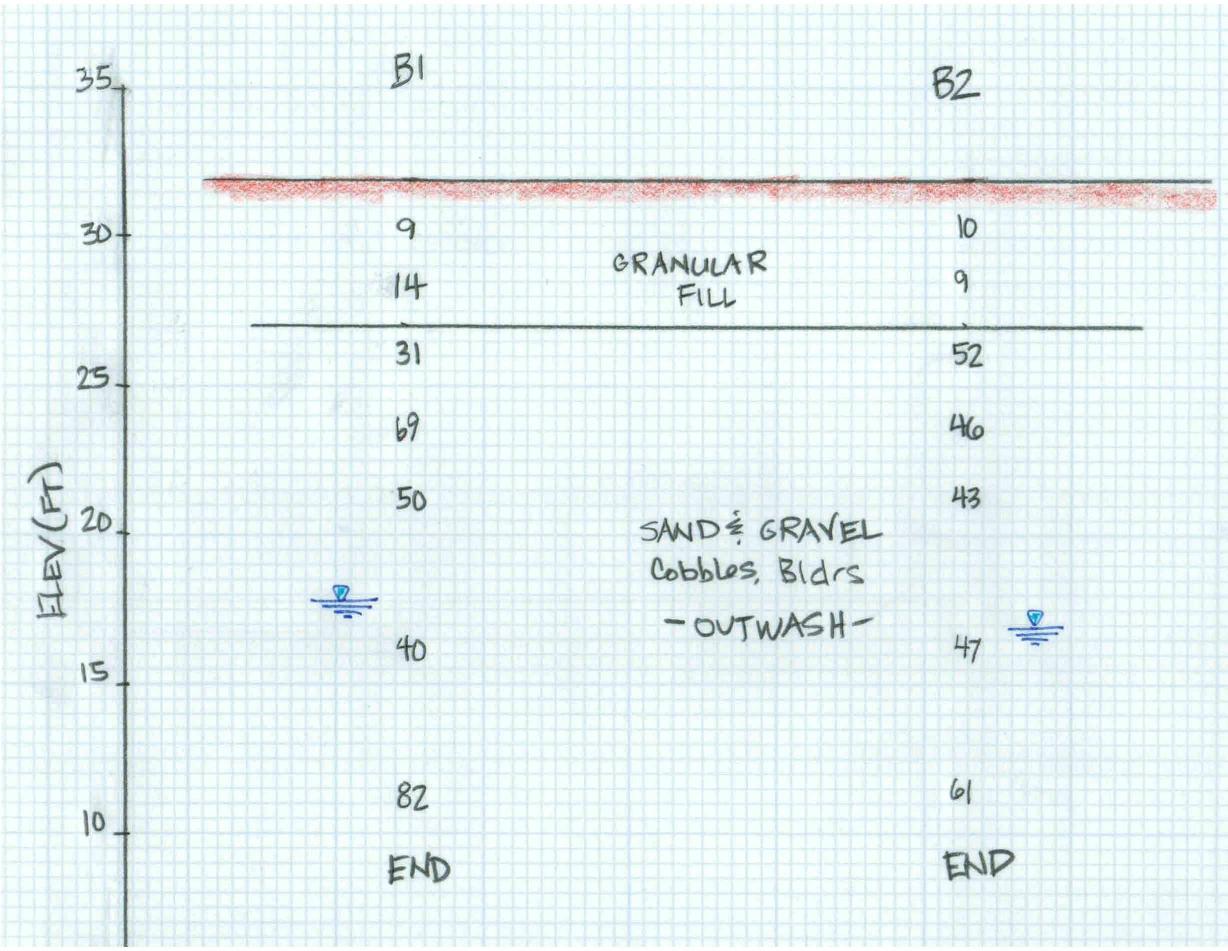
EBI Consulting
environmental | engineering | due diligence

Figure 4 • Disposal Site Map
Groundwater Monitoring Wells and VOC Concentrations
RTN 3-33575 - 20 Braintree Street and 4 Franklin Street, Boston-Allston, Massachusetts

EBI PN: 1217000013

SUBSURFACE CONDITIONS

The subsurface conditions below the surface pavement include (1) Granular Fill atop (2) stable Glacial Soils. A *Subsurface Profiles* depicting the soil and groundwater conditions is attached.



SUBSURFACE PROFILE

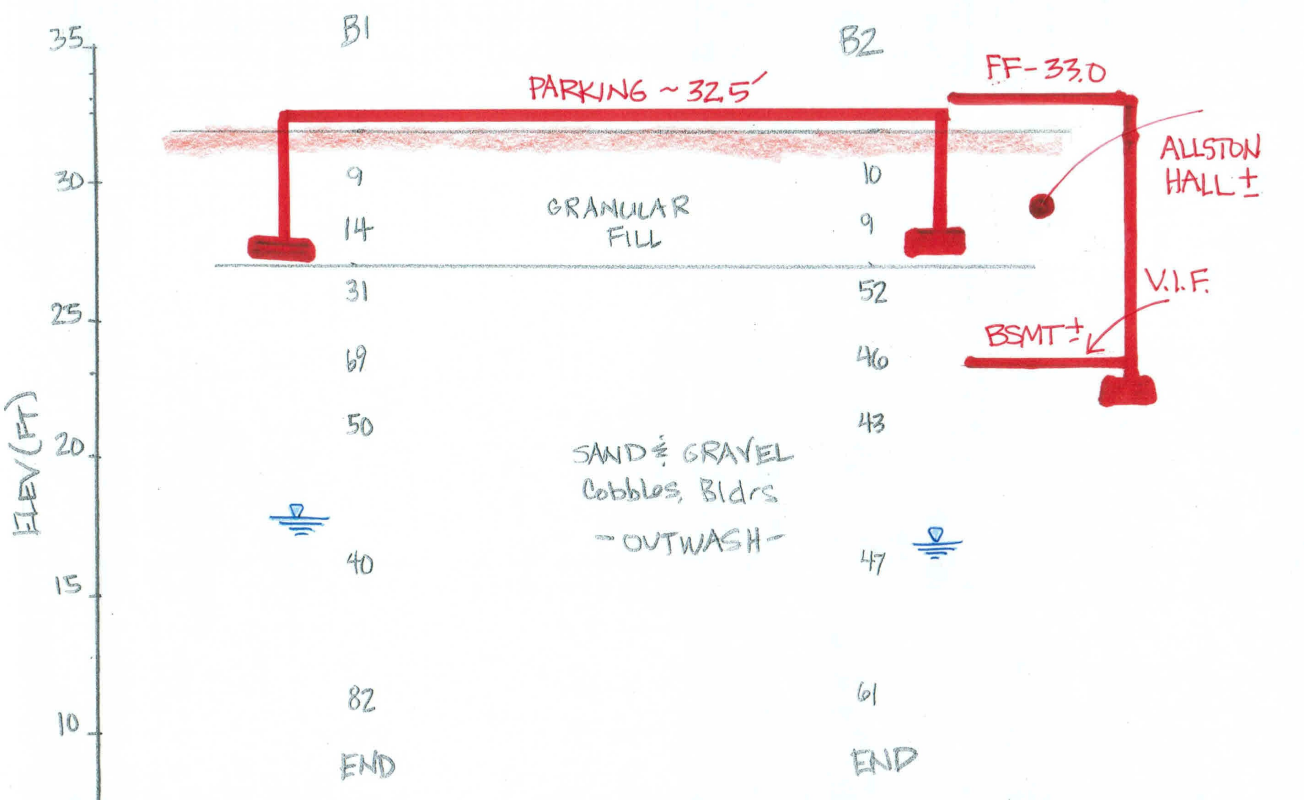
Undocumented Fill was encountered in the test bores to depths of ≈5 ft below grade. The Fill varies in composition but generally includes a dark brown to black, Sand & Gravel, little silt. Trace amounts of brick, rubble, organic, ash and loam are embedded in the Fill. These soils are generally compact. Other Fill should also be expected around the building foundation and intersecting utilities. In some cases, the Fill appears to be re-worked Granular soils making it difficult to distinguish especially with small diameter test bores. Some of the probes noted fill to ≈7 ft with trace brick and rubble.

The parent site soils consists of stable, granular Outwash. Most of the soils generally include a brown, fine to coarse Sand & Gravel, trace silt. Occasional cobbles and boulders should be expected in the Granular Outwash given the difficulty advancing the augers. These granular soils are stable, well-draining and compact. The Outwash was not penetrated to ≈20-25 ft below site grade.

Groundwater was encountered in the test holes at depths of ≈13-14 ft below grade. It should be noted that fluctuations in the level of the groundwater may occur due to variations in rainfall, temperature, utilities and other factors differing from the time of the measurements. This study was completed at a time of seasonally normal groundwater. Observation wells were installed for the ESA study. Groundwater per the *ESA Report* varies from ≈13-15 ft.

FOUNDATION SUBGRADE RECOMMENDATIONS

The subgrade conditions are suitable for supporting the proposed building on a conventional spread footing foundation with a concrete floor slab. The undocumented fill, intersecting utilities, abandoned foundations and other questionable materials are **not** rendered suitable for foundation support given questionable strength and compressibility characteristics. These questionable soils shall be removed from the *Footing Zone of Influence* (*FZOI*) to expose the parent Glacial soils. The *FZOI* is defined as that area extending laterally one foot from the edge of footing then outward and downward at a 1H:1V splay (up to a maximum ≈3 ft lateral distance from the edge of footing). Structural Fill necessary to achieve foundation grade should conform to the *Specifications* (Table 1). The abandoned basements will need to be properly razed and infilled for support of the new foundation.



PROPOSED FOUNDATION PROFILE

There is also concern with the undocumented Fill to remain in-place below the concrete floor slab portions of the building. In general, Granular Fill that is essentially free of organic matter (compressible, decomposable soils) and other unstable soils can likely remain for support of floor slabs or pavements. Such Granular Fill can likely remain with limited risk of post-construction settlement. This is contingent upon the fill being clean and free of organic matter (less than ≈1% by weight). The condition of the fill and presence of organic soils or other unsuitable matter may be reviewed during the deeper footing excavations, the utility removal or prior with test pits. Larger pit excavations provide better review of the subgrade. The existing fill, if to remain, should also be subject to deep densification with a heavy vibratory roller. Specifically, a minimum 2-ton vibratory roller (double-drum vibratory roller) should densify the existing fill making at least 8 passes at peak energy in a cris-cross pattern. As a practical matter, the entire site should be proof-rolled with a heavy roller subsequent to stripping the pavement. This will aid in compacting the shallow fill in the building and pavement areas prior to excavation. The subgrade shall ultimately exhibit stable conditions and be essentially free of organic soils (less than ≈1% by weight). Further review of the dark brown, loamy, silty Sand Fill should be necessary in this regard. Heavy Urban Fill and/or Organic soils should be removed (chased) from the building footprint. Lastly, it is recommended that the gravel base be increased to no less than 14 inches if the existing Fill is to remain below floor slab portions of the building.

The parent subgrade soils should be exposed in the foundation areas prior to casting the footings or placing structural fill. It is recommended that the parent subgrade soils be proof-rolled with vibratory densification and exhibit stable and compact conditions. The purpose of the proof-rolling is to densify the site soils and identify potential loose or unstable areas which should be removed as necessary. Recommended proof-rolling should involve at least 4-5 passes with a vibratory compactor (minimum 950 pound static weight) operating at peak energy. During the proof rolling process, the subgrade should be observed by an Engineer to identify areas exhibiting weaving or instability. It will be necessary to remove weakened or unstable soils and replace with a Structural Fill. Proper groundwater control and storm water management are also necessary to maintain site stability. The drier summer months are typically more favorable for groundwater control.

The subgrade should ultimately be stable, dewatered, compact and protected from frost throughout construction. Bearing subgrades that become weakened or disturbed due to wet conditions will be rendered unsuitable for structural support. The Contractor shall ultimately be responsible for the means and methods of temporary groundwater control, subgrade protection and site stability during construction. An Engineer from KMM should be scheduled to review the foundation subgrade conditions and preparation during construction.

FOUNDATION DESIGN RECOMMENDATIONS

The footings are expected to gain bearing support atop the parent glacial soils and/or compacted structural fill. Footings may be designed using an allowable bearing capacity of 6 ksf (FS=3). The allowable bearing capacity may be increased a third (⅓) when considering transient loads such as wind or seismic. The bearing capacity is contingent upon the perimeter strip footings and isolated column footings being no less than 2 ft and 3 ft in width respectively. For footings less than 3 ft in lateral dimension, the allowable bearing capacity should be reduced to one-third and multiplied by the least lateral footing dimension in feet. Foundation settlement should be less than 1 inch with differential settlement less than ½ inch. The settlement should be elastic and occur during construction. Exterior footings shall be provided with at least 4 ft of frost protection. Proper frost protection should be necessary during winter construction.

The subsurface conditions were reviewed with respect to seismic criteria set forth in the ***Massachusetts State Building Code***. Based on the relative density of the soils and the depth to groundwater, the site is not susceptible to liquefaction in the event of an earthquake. Based on interpretation of the *Building Code*, the *Site Classification* is "D" (Stable Soil Profile).

It is recommended that a minimum 10-inch base of *Gravel Base Fill* (Table 1) be placed below the concrete floor slab for moisture, strength and frost control. The gravel base shall be increased to no less than 14 inches for the garage level slab and exterior concrete slabs exposed to frost. A subgrade modulus of 175 pci may be used for design of the floor slab. A vapor retarder should be used below the floor slab dependent upon the floor treatment. A vapor barrier should be specified by others per ACI Standards.

The clean Granular Fill & Granular Outwash may be suitable for re-use as Structural Fill . The Outwash soils are suitable for re-use provided they are segregated from the organic laden soils, are screened of large stones and conform to Specification. The organic laden soils, heavy Urban Fill (glass, ash, etc) and fine-grained Silt & Fine Sand are **not** suitable for re-use as Structural Fill. These soils should preferably be removed from the site given limited re-use on the project.

PROTECTION OF EXISTING FOUNDATION

It is recommended that where the new building is located near existing buildings that the footings be constructed at similar grade to mitigate the overlapping of stresses. The *Existing Footing Zone of Influence* of the existing foundation should not be encroached or disturbed without review by a Professional Engineer. The *Existing Footing Zone of Influence* is defined as that area extending laterally one foot from the edge of footing then outward and downward at a 1.5H:1V splay. Per the *Building Code (Section 1805.5)*, an imaginary line drawn between the lower edges of adjoining footings shall not have a steeper slope than 25° (2H:1V) with the horizontal unless the material supporting the higher footing is braced or otherwise retained. There is no present information regarding the adjacent buildings. This study did not include verification of the existing foundations via test pits. It is expected that the existing foundation extends the typical ≈4 ft (frost depth) below grade or may possess a basement level foundation. As such, it is not expected that the existing foundation will be compromised during construction. KMM can provide additional technical assistance if the existing foundation needs to be shored or underpinned. It is expected that conventional concrete pit underpinning will be the most practical. It is recommended that an experienced Contractor be retained for the underpinning. A *Technical Submittal* prepared by a qualified Engineer should be provided to outline the proposed means and methods to protect the existing building and construct the new underpinning pits.

CONSTRUCTION CONCERNS

The contractor should be required to maintain a stable-dewatered subgrade for the building foundation and other concerned areas during construction. Subgrade disturbance may be influenced by excavation methods, moisture, precipitation, groundwater control and construction activities. The site soils are generally not considered vulnerable to moisture disturbance given a granular composition. Nonetheless, the contractor should take precautions to reduce subgrade disturbance. Such precautions may include diverting storm run-off away from construction areas, reducing traffic in sensitive areas, minimizing the extent of exposed subgrade if inclement weather is forecast, backfilling footings as soon as practicable and maintaining an effective dewatering program. Soils exhibiting weaving or instability should be over-excavated to a competent bearing subgrade then replaced with a free draining structural fill or crushed stone. The moisture concerns are typically more problematic if construction takes place during the winter to spring season or other periods of inclement weather. A protective base of ¾-inch minus crushed stone may be placed ≈6 inches below and laterally beyond the footing limits for protection during construction. The stone base is to protect the site soils, facilitate any necessary dewatering and provide a dry/stable base upon which to progress foundation construction. The protective base should be considered elective and dependent upon the site conditions. The stone base should be considered necessary if wet conditions are encountered at footing grade. The protective stone base shall be tamped with a plate compactor and exhibit stable conditions. A stone base is not expected to be necessary given the depressed groundwater table and well-draining Stratified Outwash subgrade.

The groundwater table or puddled storm water, if encountered, will need to be temporarily controlled during construction to complete work in dry conditions and protect the competency of the subgrade. Wet conditions should be continuously maintained at least one foot below construction grade until backfilling is complete. The groundwater or puddled storm water is expected to be controlled with conventional sumps and pumps. The temporary sumps should be filtered with stone and fabric and extend at least ≈18 inches below construction grade. A ≈6 inch lift of ¾-inch minus crushed stone should be placed atop the wet subgrade to protect its competency and facilitate dewatering. Adequate dewatering and storm water management are necessary for maintaining the competency of the site soils.

The subgrade should ultimately be stable, dewatered, compact and protected from frost throughout construction. Bearing subgrades that become weakened or disturbed due to wet conditions will be rendered unsuitable for structural support. The Contractor shall ultimately be responsible for the means and methods of temporary groundwater control, subgrade protection and site stability during construction. An Engineer from KMM should be scheduled to review the foundation subgrade conditions and preparation during construction.

LATERAL SUPPORT OF EXCAVATION

Deep excavations (greater than ≈5-9 ft) are expected for foundation construction and possibly for utility installation around the property. Excavations should be sloped and/or laterally supported in accordance with the *Occupational and Health Administration (OSHA)* regulations (29 CFR Part

1926) and the *Commonwealth of Massachusetts Department of Labor and Industries Division of Industrial Safety (DLIDIS) - Rules and Regulations for the Prevention of Accidents in Construction Operations* (454 CMR 10.00), Part 14. Should excavations be sloped, the minimum slope based on soil type (Undocumented Fill/ Granular Outwash) is 1.5H:1V provided the groundwater is properly lowered below the bottom of the excavation. The foregoing slope requirement does not consider surcharge loads (stockpiled soils, equipment, materials, etc) which may be situated at the crest of the slope and vibration loads (soil compaction, sheet piling, etc). It should be noted that these slope requirements are minimums required by OSHA/DLIDIS regulations. The contractor should be ultimately responsible for design, maintenance and stability of the temporary slopes and/or shoring associated with construction activities.

Laterally supported earth systems should be designed by a qualified Professional Engineer retained by the contractor per OSHA Regulations. The deeper excavations along the property limits are expected to require excavation support given the abutting property limits, existing buildings as well as surrounding utilities and roadways. Cantilevered sheeting or soldier piles with lagging are expected to be feasible for depths of ≈8-10 ft. Excavation support is expected to impact the project from a budgetary perspective.

CONSTRUCTION MONITORING

It is recommended that a qualified engineer or representative be retained to review earthwork activities such as the preparation of the foundation bearing subgrade and the placement/compaction of Structural Fill. It is recommended that KMM be retained to provide construction monitoring services. This is to observe compliance with the design concepts presented herein.

We trust the contents of this memorandum report are responsive to your needs at this time. Should you have any questions or require additional assistance, please do not hesitate to contact our office.

Allston20BraintreeStreet.wpd

LIMITATIONS

Explorations

1. The analyses, recommendations and designs submitted in this report are based in part upon the data obtained from preliminary subsurface explorations. The nature and extent of variations between these explorations may not become evident until construction. If variations then appear evident, it will be necessary to re-evaluate the recommendations of this report.

2. The generalized soil profile described in the text is intended to convey trends in subsurface conditions. The boundaries between strata are approximate and idealized and have been developed by interpretation of widely spaced explorations and samples; actual soil transitions are probably more gradual. For specific information, refer to the individual test pit and/or boring logs.

3. Water level readings have been made in the test pits and/or test borings under conditions stated on the logs. These data have been reviewed and interpretations have been made in the text of this report. However, it must be noted that fluctuations in the level of the groundwater may occur due to variations in rainfall, temperature, and other factors differing from the time the measurements were made.

Review

4. It is recommended that this firm be given the opportunity to review final design drawings and specifications to evaluate the appropriate implementation of the recommendations provided herein.

5. In the event that any changes in the nature, design, or location of the proposed areas are planned, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed and conclusions of the report modified or verified in writing by KMM Geotechnical Consultants, LLC.

Construction

6. It is recommended that this firm be retained to provide geotechnical engineering services during the earthwork phases of the work. This is to observe compliance with the design concepts, specifications, and recommendations and to allow design changes in the event that subsurface conditions differ from those anticipated prior to the start of construction.

Use of Report

7. This report has been prepared for the exclusive use of CRM Property Management Corp. in accordance with generally accepted soil and foundation engineering practices. No other warranty, expressed or implied, is made.

8. This report has been prepared for this project by KMM Geotechnical Consultants, LLC. This report was completed for preliminary design purposes and may be limited in its scope to complete an accurate bid. Contractors wishing a copy of the report may secure it with the understanding that its scope is limited to preliminary geotechnical design considerations only.

TABLE 1

Franklin Braintree Building
Allston Hall
Allston, MA

Recommended Soil Gradation & Compaction Specifications

Gravel Base Fill
(Select Gravel Fill)

SIEVE SIZE	PERCENT PASSING BY WEIGHT
3 inch	100
3/4 inch	60-90
No. 4	20-70
No. 200	2-8

NOTE: For minimum 10-inch base below Concrete Floor Slab-on-Grade
For minimum 14-inch base for exterior concrete slabs exposed to frost
For minimum 14-inch base below vehicular garage level slab
Shall have less than 12% fines (No. 200 sieve) based on the Sand fraction

Structural Fill
(Gravelly SAND, little Silt)

SIEVE SIZE	PERCENT PASSING BY WEIGHT
5 inch	100
3/4 inch	60-100
No. 4	20-80
No. 200	0-10

NOTE: For use as structural load support below the foundations
For use as backfill behind unbalanced foundation/retaining walls
A one-inch minus crushed stone may be used in wet conditions

Structural Fill placed beneath the foundation should include the *Footing Zone of Influence* which is defined as that area extending laterally one foot from the edge of the footing then outward and downward at a 1H:1V splay. Structural Fill should be placed in loose lifts not exceeding 12 inches for heavy vibratory rollers and 8 inches for vibratory plate compactors. Structural Fill on the project should be compacted to at least 95 percent of maximum dry density as determined by the Modified Proctor Test (ASTM-D1557). The fill shall be compacted within ±2 of the optimum moisture content. The adequacy of the compaction efforts should be verified by field density testing which is also a requirement of the *Massachusetts State Building Code*.

TEST BORING LOG

SHEET 1

Soil Exploration Corp. Geotechnical Drilling Groundwater Monitor Well 148 Pioneer Drive Leominster, MA 01453 978 840-0391	**Proposed Building** **Site 20 Braintree Street** **Allston, MA.**	BORING B-1 PROJECT NO. 18-0314 DATE: March 12, 2018

Ground Elevation:
Date Started: March 9, 2018
Date Finished: March 9, 2018
Driller: TF
Soil Engineer/Geologist:

GROUNDWATER OBSERVATIONS			
DATE	DEPTH	CASING	STABILIZATION
3/9/18	14 ft	n/a	

Depth Ft.	Casing bl/ft	Sample No.	Pen/Rec	Sample Depth	Blows/6"	Strata	Visual Identification of Soil and / or Rock Sample
						3"	Asphalt
1		1	6"	1'0 – 3'0"	8-4-5-8		fine to coarse Sand & Gravel, trace silt (FILL)
		2	4"	3'0" – 5'0"	4-9-5-16	5'	
5		3	10"	5'0"- 7'0"	11-12-19-22		Brown, fine to coarse Sand & Gravel, trace silt
		4	12"	7'0" - 9'0"	21-30-39-24		Dark Brown, f-c Sand, little gravel, trace silt, cobbles, dry
10		5	12"	10'0" - 12'0"	22-26-24-31		Brown, fine to coarse Sand & Gravel, trace silt, cobbles, dry
15		6	12"	15'0" - 17'0"	14-19-21-26		Same, wet (OUTWASH)
20		7	12"	20'0"– 22'0"	27-38-44-53		Brown, fine to coarse Sand & Gravel, little silt, wet
							End of boring at 22 ft Water encountered at 14 ft
25							
30							
35							

Notes: Hollow Stem Auger Size 4-1/4"

Cohesionless: 0 - 4 V. Loose, 4 - 10 Loose,	Trace	0 to 10%		CASING	SAMPLE	CORE TYPE
10 -30 M Dense, 30 -50 Dense, 50+ V Dense.	Little	10 to 20%	ID SIZE (IN)		SS	
Cohesive: 0 -2 V Soft, 2 -4 Soft, 4 -8 M	Some	20 to 35%	HAMMER WGT (LB)		140 lb.	
8 -15 Stiff, 15 -30 V. Stiff, 30 + Hard.	And	35% to 50%	HAMMER FALL (IN)		30"	

TEST BORING LOG

SHEET 2

Soil Exploration Corp.
Geotechnical Drilling
Groundwater Monitor Well
148 Pioneer Drive
Leominster, MA 01453
978 840-0391

Proposed Building
Site 20 Braintree Street
Allston, MA.

BORING B-2

PROJECT NO. 18-0314

DATE: March 12, 2018

Ground Elevation:
Date Started: March 9, 2018
Date Finished: March 9, 2018
Driller: TF
Soil Engineer/Geologist:

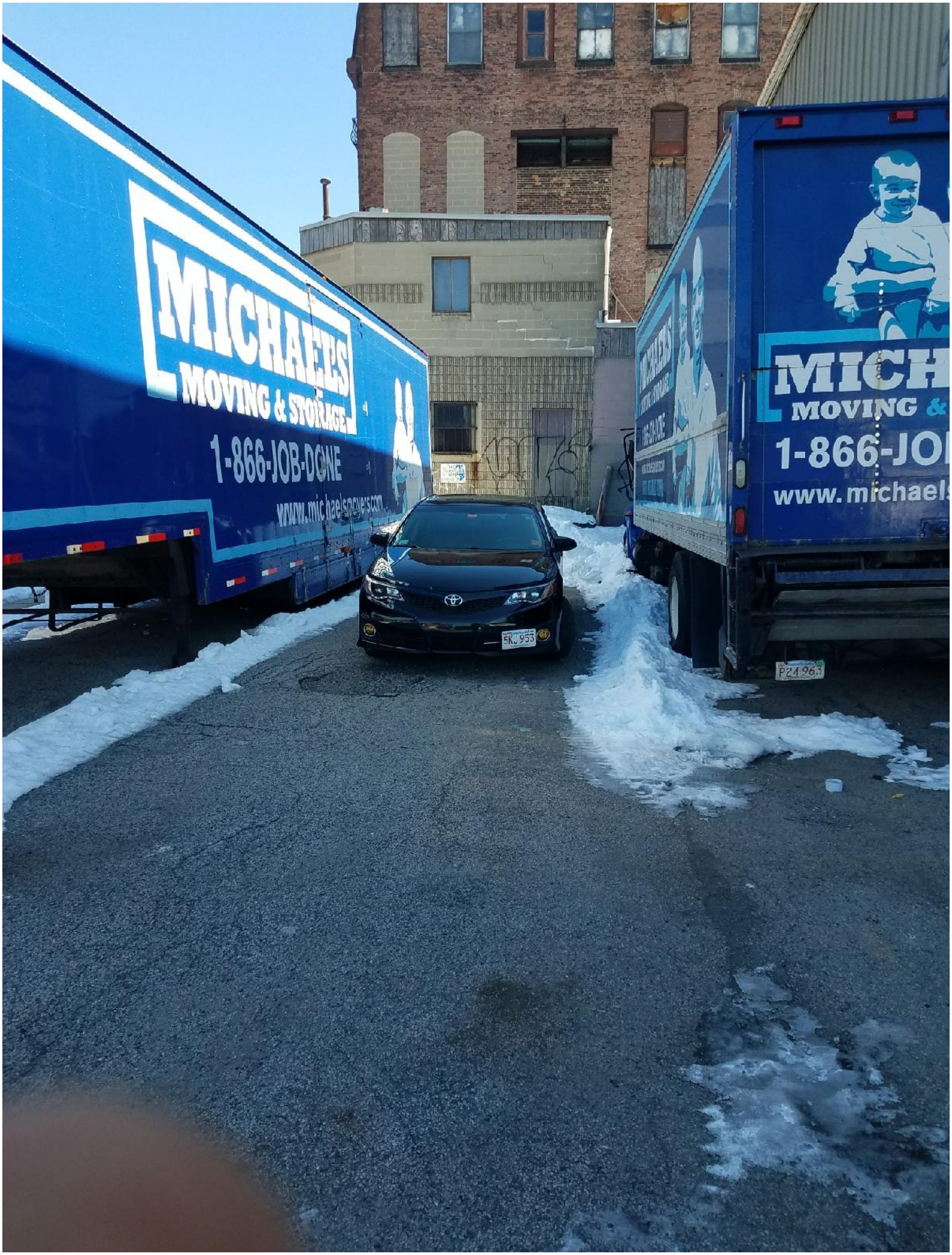
GROUNDWATER OBSERVATIONS

DATE	DEPTH	CASING	STABILIZATION
3/9/18	14 ft	n/a	

Depth Ft.	Casing bl/ft	Sample No.	Pen/Rec	Depth	Blows/6"	Strata	Visual Identification of Soil and / or Rock Sample
							Asphalt
						3"	
		1	12"	0'6" – 2'6"	4-5-5-11		Dark Brown, loamy silty Sand w/ gravel, crushed stone (FILL)
1						2'6"	
		2	10"	2'6" – 4'6"	4-4-5-13		Brown,, fine to medium Sand, some silt, little gravel (FILL)
						5'	
5		3	12"	5'0"- 7'0"	12-18-34-28		
							Brown, fine to coarse Sand & Gravel, trace silt, cobbles
		4	10"	7'0" - 9'0"	19-18-28-33		
							Brown, f-c Sand & Gravel, cobbles (OUTWASH)
10		5	6"	10'0" - 12'0"	15-21-22-28		
15		6	8"	15'0" - 17'0"	18-20-27-29		
							Brown, fine to coarse Sand & Gravel, little silt, cobbles, wet
20		7	10"	20'0"– 22'0"	17-26-35-48		
							End of boring at 22 ft Water encountered at 14 ft
25							
30							
35							

Notes: Hollow Stem Auger Size 4-1/4"

Cohesionless: 0 - 4 V. Loose, 4 - 10 Loose,	Trace 0 to 10%		CASING	SAMPLE	CORE TYPE
10 -30 M Dense, 30 -50 Dense, 50+ V Dense.	Little 10 to 20%	ID SIZE (IN)		SS	
Cohesive: 0 -2 V Soft, 2 -4 Soft, 4 -8 M	Some 20 to 35%	HAMMER WGT (LB)		140 lb.	
8 -15 Stiff, 15 -30 V. Stiff, 30 + Hard.	And 35% to 50%	HAMMER FALL (IN)		30"	



NOTE: Could not access B3 location due to parked vehicles

Allston Square Development, Allston
Subsection VI
415 Cambridge Street

Table of Contents

<u>Appendices</u>

1.0 PROJECT SUMMARY / OVERVIEW

1.1 Introduction

415 Cambridge Street is part of the Allston Square Development Project in the Allston Square section of Allston. The overall project includes a six-building mixed-use development that is approximately 358,520 gross square feet in size. The Proposed Project will include three hundred and thirty-four residential units, two hundred and thirty-seven associated parking spaces, and approximately 22,145 square feet of retail space. **Please see Figure VI.1. <u>Project Locus Map</u> and Figure VI.2. <u>415 Cambridge Street Breakdown.</u>**

The 415 Cambridge Street portion of the project includes demolishing the existing auto shop and auto storage facility and erecting a six-story building with one hundred and one condominium units, one hundred and two parking spaces, and 2,505 square feet of retail space. The overall gross square footage of the building will be approximately 107,975 square feet, with a floor to area ratio of 3.68, and a parking ratio of 1.01.

The 415 Cambridge Street lot is 29,380 square feet. The lot is located on Cambridge Street to the south of I-90 and adjacent to the west of the proposed development building on Franklin Street. The site has frontage along Cambridge Street, Wilton Street, and Wilton Terrace.

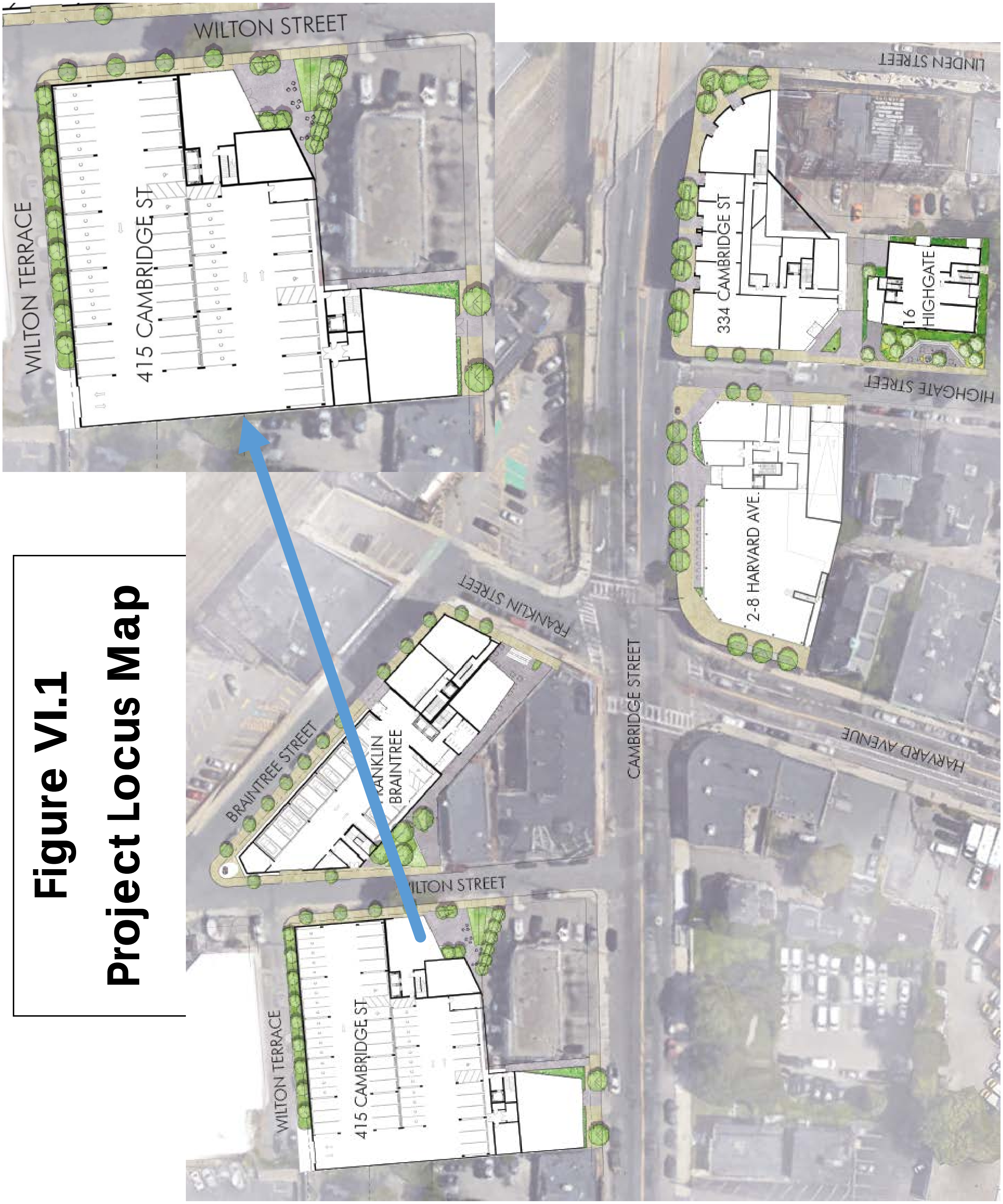


Figure VI.1
Project Locus Map

Figure VI.2
415 Cambridge Street Breakdown

Table VI.3. Approximate Project Dimensions of 415 Cambridge Street

Lot Area:	29, 380
Gross Square Feet:	107, 975
Units:	101 Condos
Parking:	102 Spaces
Retail:	2,505 Sq. Ft.
FAR:	3.68
Height:	6 Stories/70’

2.0 General Information

2.1 Public Benefits

The Proposed Project will provide substantial benefits to the City of Boston and the Allston-Brighton community. The Proposed Project will generate both direct and indirect economic and social benefits to the Allston-Brighton neighborhood. The Proposed Project provides for:

- Generating much needed market rate residential housing in the Allston-Brighton Neighborhood.
- Meeting the BPDA's inclusionary zoning regulations by creating on-site affordable residential units, which will meet the Boston Planning & Development Agency's affordable housing standards.
- Creating one hundred and one condominium residential units.
- Creating a diverse mixture of units including studios, one-bedroom units, and two-bedroom units.
- Revitalizing an underutilized parcel and replacing the current commercial uses and industrial uses, and limited residential units with modern and energy efficient housing and retail space.
- Creating commercial retail space along the Cambridge Street corridor to accommodate Allston-Brighton's growing population of residents, which will allow residents to not only live, but also shop and have access to amenities in the neighborhood.
- Meeting LEED standards by constructing a building that will incorporate open space in the form of decking and terraces, and energy-efficient appliances, which will result in a high LEED standard for the Project.
- Integrating parking facilities that will accommodate one hundred and two parking spaces for the unit residents.
- Dedicated car sharing parking spaces to accommodate the residents of the building, and members of the surrounding community.
- Encouraging alternative modes of transportation through the use of bicycling and walking, due to the close proximity of the bus lines and the Boston Landing MBTA Station.
- Adding revenue in the form of property taxes to the City of Boston.

- Creating full-time jobs (commercial retail).
- Creating temporary construction and labor jobs.
- Proposing thirteen new street trees.
- Creating additional open space at the ground level.
- Creating new and improved sidewalk space to accommodate general foot traffic and to promote an active pedestrian walkway.
- Creating dedicated art spaces to pay homage to the rich artist heritage of Allston Square.

2.2 Compliance with Boston Zoning Code – Use and Dimensional Requirements

415 Cambridge Street is located within in the Allston-Brighton Neighborhood District, Article 51 of the Boston Zoning Code (the "Code"). Specifically, the property is located within the Harvard Avenue Community Commercial I (CC-I) and Braintree Street Local Industrial (LI-I) Subdistricts. **See Tables VI.4 and VI.5**.

Some of the proposed uses in this development are allowed uses according the Code. However, some are conditional or forbidden. Therefore, a use variance would need to obtained from the City of Boston Zoning Board of Appeal ("Board"). Additionally, any dimensional regulations that are not adhered to within the project will require variances from the Board.

For a project that is subject to Article 80 Large Project Review, required off-street parking spaces and off-street loading facilities will be determined as a part of the Large Project Review process in accordance with the provisions of Article 80 of the Boston Zoning Code. Design elements of the project will also be reviewed, in accordance with the Article 80 Review process.

The Site is located in an area that contains both residential and commercial uses. The design team feels that given this location, and the structures influencing the design, as well as comparable developments in the neighborhood, that the proposed building heights, massing and scale are appropriate for this location and conducive to the Allston-Brighton neighborhood.

Table VI.4. 415 Cambridge Street – Dimensional Regulations

Categories	Community Commercial Subdistrict (CC-1)	Current Proposal
Minimum Lot Area (Square Feet)	None	29, 380
Floor Area Ratio	1.0	3.68
Minimum Lot Width	None	65-180 Feet
Minimum Lot Frontage	None	65 Feet
Minimum Front Yard	None	0 Feet
Minimum Side Yard	None	0 Feet
Minimum Rear Yard	20 Feet	0 Feet
Maximum Building Height	35 Feet	70 Feet/6 Stories
Minimum Useable Open Space Per Dwelling Unit (Square Feet)	50 S.F. Per Unit	111 S.F. Per Unit
Off-Street Parking Spaces	2.0 Spaces Per Unit	101 Parking Spaces

Table VI.5. 415 Cambridge Street

Categories	Braintree Street Local Industrial-1 Subdistrict	Proposed
Minimum Lot Area (Square Feet)	None	29, 380
Floor Area Ratio	1.0	3.68
Minimum Lot Width	None	65-180 Feet
Minimum Lot Frontage	None	65 Feet
Minimum Front Yard	None	0 Feet
Minimum Side Yard	None	0 Feet
Minimum Rear Yard	20 Feet	0 Feet
Maximum Building Height	35 Feet	70 Feet/6 Stories
Minimum Useable Open Space Per Dwelling Unit (Square Feet)	50 S.F. Per Unit	TBD
Off-Street Parking Spaces	2.0 Spaces Per Unit (202) 2.0 Spaces Per 1000 Square Feet of Retail Space (5)	101 Parking Spaces

3.0 URBAN DESIGN AND SUSTAINABILITY

3.1 Site and Surroundings

415 Cambridge Street is located on Cambridge Street to the south of I-90 and adjacent to the west of the proposed development building on Franklin Street. The site in question has frontage along Cambridge Street (south), Wilton Street (east), and Wilton Terrace (North). The bounds of the site exclude the property on the corner of Cambridge Street and Wilton Street, however. Abutting to the north is a one (1)-story masonry building; to the east are several three (3) and four (4)-story mixed use buildings made of primarily brick and corrugated metal; to the south is an Advance Auto Parts® store and parking lot; and to the west are several restaurants (along Cambridge Street), as well as three (3) triple-decker residential buildings fronting Denby Road.

The area of the site is approximately 29,380 SF and exhibits a slight slope 'high' to 'low' away from Cambridge Street. The site is currently occupied in part by Allston Auto Brokers, a one (1)-story masonry building, and its associated parking lot. The remainder of the site is allocated to Boston Junk Cars and parking for 8 Wilton Terrace. **For existing site pictures see Appendix VI.1.**

3.2 Urban Design Review

Assuming a height of sixty-nine (69) feet above grade, the proposed six (6)-story project takes advantage of its prominent location and size by expressing elements of Allston's present and historic character. This is evident through the selection of materials and the incorporation of artistic elements in the building's facades. The building's skin will be built out of gray-brick and metal paneling/corrugated metal, which were chosen based on existing materials around the site, as well as their industrial connotation. Given the plans for the dismantling of Allston's railyard, as well as the site's proximity to Allston's original railroad and Railroad Station, the material choices seem appropriate for the conservation of Allston's industrial past. Responding to the current artistic character of the Allston community, the building exudes artistry via both its incorporation of two large-scale murals along its facades that can be easily viewed from Cambridge Street and Wilton Street, as well as through the sculptural quality exhibited by the façade geometry along Wilton Street and Wilton Terrace.

Volumetrically, the building consists of two elongated residential volumes (six stories) that are oriented perpendicular to Cambridge Street, connected by a third volume (six stories) at the 'rear' of the site oriented parallel to Wilton Terrace. This configuration allows for the majority of the building's height to be expressed at the rear of the site and to 'open up' to Cambridge Street. Furthermore, this configuration creates an interior courtyard on the site, which is habitable at the second level, and which offers views toward Boston. The top level of the building 'steps back' significantly on both Cambridge Street and Wilton Street to soften the perception of the building from the Ground Level and to create both private and communal decks at the top floor with views toward Boston and into Allston Square.

In accordance with the overall project's urban agenda, the proposed building sets back from the property line on Wilton Street and Cambridge Street to allow for sidewalks that are eight (8) feet and fourteen (14) feet wide respectively, providing ample space for pedestrian flow and the inclusion of street trees.

3.3 Building Design Review

415 Cambridge Street assumes a height of approximately 70' above grade and totals 107,975 SF, which includes 101 total Residential Units (condos). At the Ground Level, the building programmatically responds to its context by locating 2,500 SF of retail space along Cambridge Street, adjoining the abutting restaurants. The horizontal datum set by the roofs of these restaurants is continued via the Ground Floor ceiling level of the proposed building and its exterior treatment at that elevation. Entries to the building's residential Lobby as well as to its residential Parking Garage (containing 102 spaces) is located off the less heavily trafficked Wilton Street.

Conceptually, the building uses material and massing strategies to integrate Allston Square's industrial history with its present-day artistic personality and future development. Given its proximity to Allston's original Railroad Station (Regina's Pizza), and the anticipated dismantling of its railyard, the building attempts to conserve Allston's past through use of metal and brick in its exterior material expression. The massing strategy (see Appendix) consists of two elongated residential volumes oriented perpendicular to Cambridge Street, connected at the 'rear' of the site by a secondary residential volume. A metal panel skin contains these volumes by 'wrapping' them together on the west, north, and east facades. This 'wrapper' presents a strong face toward the railroad and I-90. Given the predicted inhabitation of the site and its surroundings, the residential volume along Wilton Street 'pulls back' to allow for gathering space outside its Lobby, and simultaneously 'pushes out' toward Braintree Street, causing the wrapper to 'break' and creating a more dynamic condition at the corner of Braintree Street and Wilton Street. This 'break' also allows for the creation of a more spatially dynamic exterior condition along Wilton Street and offers more interesting views from the interior of the building than would be offered by a flat-face at this location.

3.4 Landscape Design

The proponent intends to plant thirteen (13) trees on site; nine (9) occurring along the site's Wilton Street frontage, five (5) along the 'rear' of the site, and two (2) along Cambridge Street. In adherence with 'Complete Streets' guidelines, the width of the sidewalk along Wilton Street is to be widened to 8', and to 14' along Cambridge Street, allowing an ampler corridor for pedestrian traffic. A plaza is to be created at the building's entry on Wilton Street, offering formal and informal seating, and includes grass, shrubbery, and five (5) trees. All details of flora added to site, including caliper and species, will be approved by the City of Boston Parks and Recreation Commission.

3.5 Urban Design Drawings

The Proposed Project's urban design drawings will include, existing and proposed plot plans, proposed floor plans, elevations, building matrix, building rendering, concept diagram and landscape plan. **To view the full Urban Design Drawings please see Appendix VI.2. For the full Accessibility Checklist and Accessibility Diagram please see Appendix VI.3.**

4.0 SHADOW STUDY

As typically required by the BPDA, a shadow impact analysis was conducted to investigate shadow impacts from each proposed building during three time periods (9:00 a.m., 12:00 noon, and 3:00 p.m.) during the Vernal Equinox (March 21), Summer Solstice (June 21), Fall Equinox (September 21), and Winter Solstice (December 21).

The shadow analysis presents the existing shadows and new shadows that would be created by the proposed project, illustrating the incremental impact of the project. The analysis focuses on nearby open spaces, sidewalks & streets, and buildings that are in the vicinity of the project site. Shadows have been determined using the applicable Altitude and Azimuth data for Boston. **Figures showing the net new shadow from the project are provided in Appendix VI.4 at the end of this section.**

Vernal Equinox (March 21)

At 9:00 a.m. during the Vernal Equinox, new shadow from the project will be cast to the northwest onto the immediate open parking lots and alleyways surrounding the building. New Shadow will also be cast on the existing building at 40 Braintree Street.
At 12:00 p.m., new shadow from the project will be cast to the north onto the alleyway separating it from the adjacent one-story commercial warehouse. In addition, new shadow will be partially cast onto Wilton Street and adjacent sidewalks. The west elevation of the one-story auto parts store, located on the southeast corner of the site along Cambridge Street, will also receive cast shadows.
At 3:00 p.m., new shadow from the project will be cast to the northeast onto the entirety of the one-story auto parts store plus its surrounding context. A section of Wilton Street and its sidewalks, as well as the lower west elevation of the proposed building at the intersection of Wilton and Braintree Streets, will also receive cast shadow.

Summer Solstice (June 21)

At 9:00 a.m. during the Summer Solstice, new shadow from the project will be cast to the northwest onto the immediate open parking lots and alleyways surrounding the building.

At 12:00 p.m., new shadow from the project will be cast to the north onto the alleyway separating it from the adjacent one-story commercial warehouse. New shadow will be cast onto a sliver of Wilton Street and adjacent sidewalks. The west elevation of the one-story auto parts store, located on the southeast corner of the site along Cambridge Street, will also receive cast shadow.

At 3:00 p.m., new shadow from the project will be cast to the northeast onto half of the one-story auto parts store plus its surrounding context. A section of Wilton Street and its sidewalks, as well as the lower west elevation of the proposed building at the intersection of Wilton and Braintree Streets, will also receive cast shadows.

Fall Equinox (September 21)

At 9:00 a.m. during the Fall Equinox, new shadow from the project will be cast to the northwest onto a section of the immediate open parking lots, the alleyway separating 415 Cambridge from the adjacent one-story commercial warehouse, and the southern façade of the warehouse itself.

At 12:00 p.m., new shadow from the project will be cast to the north onto the alleyway separating it from the adjacent one-story commercial warehouse. New shadow will be cast onto a section of Wilton Street and adjacent sidewalks. The west elevation of the one-story auto parts store, located on the southeast corner of the site along Cambridge Street, will also receive cast shadow.

At 3:00 p.m., new shadow from the project will be cast to the northeast onto the entirety of the one-story auto parts store plus its surrounding context. A section of Wilton Street and its sidewalks, as well as the west elevation of the proposed building at the intersection of Wilton and Braintree Streets, will also receive cast shadows.

Winter Solstice (December 21)

The Winter Solstice creates the least favorable conditions for sunlight in New England. The sun angle during the Winter is lower than in any other season, causing the shadows in urban areas to elongate and be cast onto large portions of the surrounding area.

At 9:00 a.m. during the Winter Solstice, new shadow from the project will be cast to the northwest onto a section of the immediate open parking lots, the alleyway separating 415 Cambridge from the adjacent one-story commercial warehouse, and the majority of the warehouse itself.

At 12:00 p.m., new shadow from the project will be cast to the north onto the southern façade of an existing one-story commercial warehouse and adjacent alleyway. New shadow will be cast onto a section of Wilton Street, Braintree Street, and their respective sidewalks, as well as the West elevation of the proposed building at the intersection of Wilton and Braintree Streets. The west elevation of the one-story auto parts store, located on the southeast corner of the site along Cambridge Street, will also receive cast shadows.

At 3:00 p.m., new shadow from the project will be cast to the northeast onto the entirety of the one-story auto parts store plus its surrounding context. Most of Wilton Street and its sidewalks, a section of Braintree Street and sidewalks, as well as the west elevation of the proposed & existing buildings along Wilton Street, will also receive cast shadows.

Conclusions

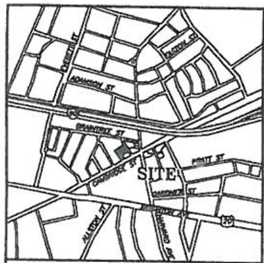
The shadow impact analysis looked at net new shadow created by the project during twelve time periods. New shadow from the project will be mostly limited to nearby streets (Braintree and Wilton Streets), sidewalks, the abutting warehouse and auto parts, and adjacent parking lots. The shadows cast by the proposed building will have a significant impact on its immediate context. The large difference between net new shadows and existing shadows stems from the fact that half of the site in question was previously occupied by a single story commercial building and the other half was, for the most part, open parking lots. In contrast, the proposed building will cover the majority of the site and is six stories tall; casting a significant amount of new shadows.

5.0 GEOTECHNICAL INFORMATION

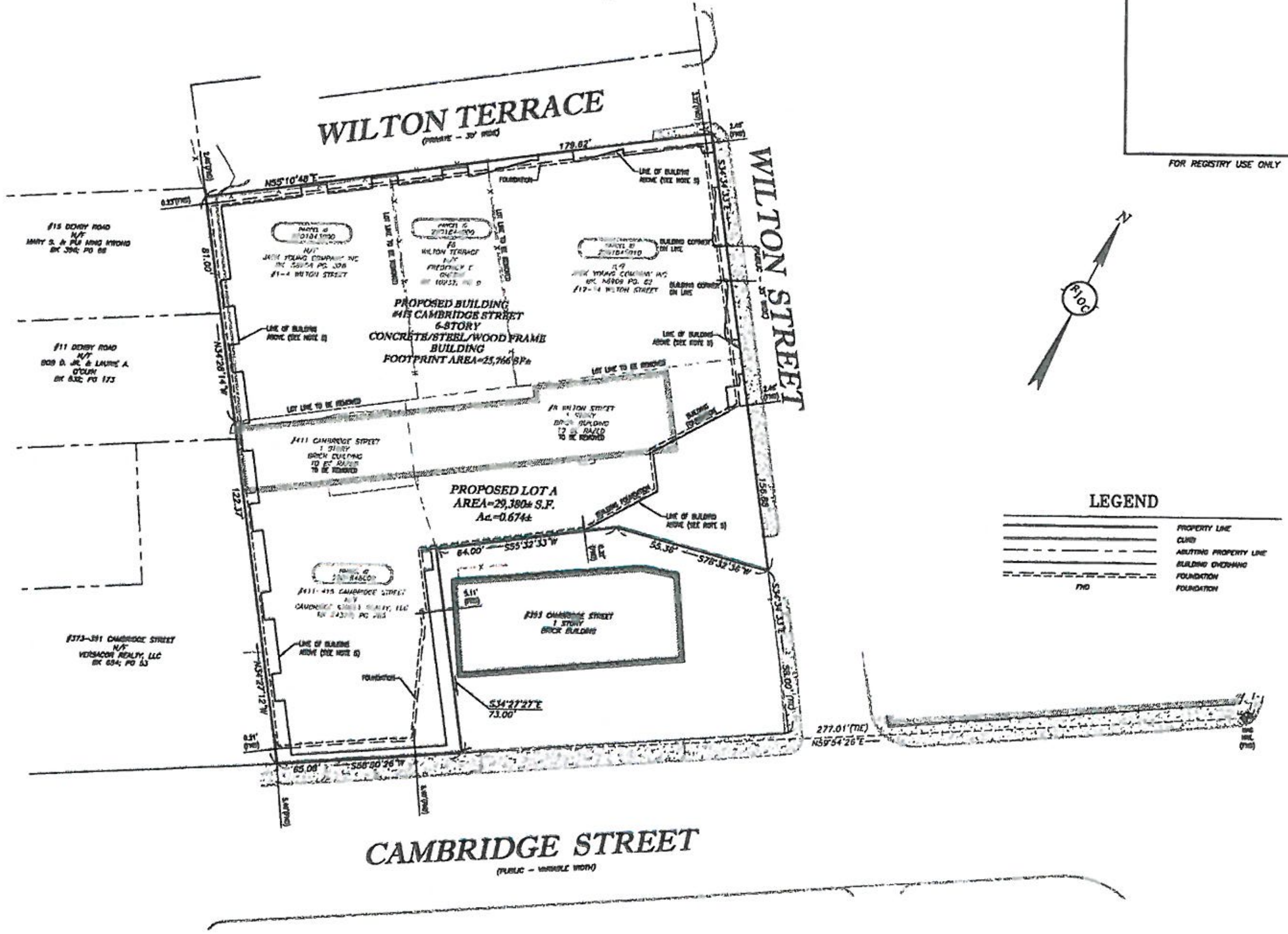
A Geotechnical study was conducted by KMM Geotechnical Consultants, LLC for the proposed development. A full report was produced for the proposed 415 Cambridge Street site. **The full result of this Geotechnical Study is located in Appendix VI.5.**

415 Cambridge Street

415 Cambridge Street (View from Wilton Street)



VICINITY SKETCH
SCALE: NTS



NOTES

1. THIS PLAN WAS PREPARED FROM AN ACTUAL SURVEY MADE ON THE GROUND USING TOTAL STATION METHODS BETWEEN 02/28/2018 AND 03/28/2018.
2. THE HORIZONTAL DATUM IS NORTH AMERICAN DATUM OF 1983 (NAD '83). DATUM WAS ESTABLISHED USING RTK GPS METHODS.
3. THE POSITIONAL ACCURACY OF THE DATA AND PHYSICAL IMPROVEMENTS ON THIS PLAN MAY BE APPROXIMATE. ANY USE OF ELECTRONIC DATA CONTAINED IN AUTOCAD VERSIONS OF THIS PLAN TO GENERATE COORDINATES OR DIMENSIONS NOT SHOWN ON THE PLAN IS NOT AUTHORIZED.
4. THE PARCEL SHOWN IS LOCATED IN ZONE X, AS SHOWN ON "FLOOD INSURANCE RATE MAP, SUFFOLK COUNTY, BOSTON MASSACHUSETTS," MAP NUMBER 25025C0057G, EFFECTIVE DATE SEPTEMBER 25, 2009.
5. THE PURPOSE OF THIS PLAN IS TO CONSOLIDATE LOTS KNOWN AS CITY OF BOSTON PARCEL ID NUMBER 2201843000, 2201843010, 2201844000, 2201848000 INTO ONE LOT (PROPOSED LOT A) AS SHOWN HEREON.

REFERENCES

PLAN BOOK AND PAGES REFERENCE THE SUFFOLK COUNTY REGISTRY OF DEEDS

BK. 632/PG. 173
BK. 654/PG. 53
BK. 396/PG. 88
BK. 10232/PG. 9
BK. 24327/PG. 205
BK. 50909/PG. 62
BK. 50258/PG. 326
BK. 17253/PG. END
BK. 2322/PG. 465
BK. 2322/PG. 465
BK. 8984/ PG. 2
BK. 416/PG. 321
L.C.C. #41637

WE HEREBY CERTIFY THAT:
THIS PLAN IS THE RESULT OF AN ON THE GROUND SURVEY PERFORMED ON OR BETWEEN FEBRUARY 28, 2018 AND MAY 16, 2018. THE PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE RULES AND REGULATIONS OF THE OF THE REGISTERS OF DEEDS. THE CITY OF BOSTON HAS NOT ADOPTED THE SUBDIVISION CONTROL LAW.

KEVIN J. KIERNAN No.40038

LAK 5/18/18

PROFESSIONAL LAND SURVEYOR FOR RJ O'CONNELL & ASSOCIATES, INC — DATE

20 0 10 20 40
GRAPHIC SCALE IN FEET

DIG SAFE
BEFORE YOU DIG
CALL 811

Record Owner:
SEE PLAN

Location:
415 CAMBRIDGE STREET
ALLSTON SQUARE
BOSTON (ALLSTON) MA

Drawn by:	MSM
Checked by:	KJK
Scale:	1"=20'
Date:	05/18/2018
Field Crew:	TDB/KJK
Field Book:	BK. XX PG. X

Prepared for:
CITY REAL ESTATE DEVELOPMENT CORP.
320 WASHINGTON ST
SUITE 3FF
BROOKLINE, MA 02446

Prepared by:
RJO'CONNELL & ASSOCIATES, INC.
CIVIL ENGINEERS, SURVEYORS & LAND PLANNERS
80 MONTVALE AVE
STONEHAM, MA 02180
781-279-0180
www.rjoconnell.com

Project Name:
ALLSTON SQUARE
BOSTON (ALLSTON) MA

Drawing Name:
APPROVAL NOT REQUIRED PROPOSED LOT A

Drawing No.:
ANR-1 (CONSOLIDATION)

Project No.: 18018

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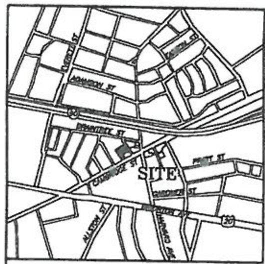
May 18, 2018 - 14:25pm



VICINITY SKETCH
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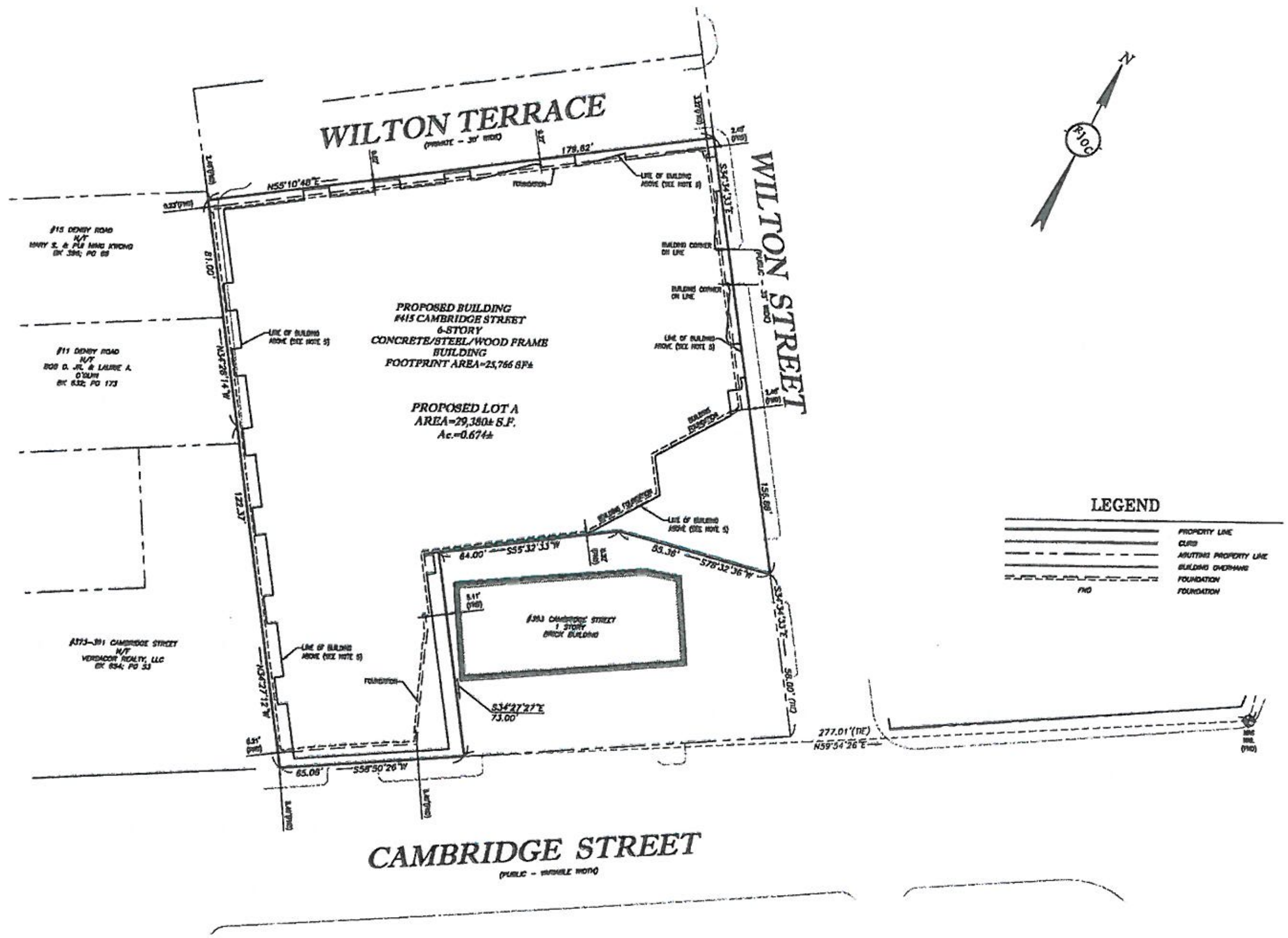

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BK. 10232/PG. 9
BK. 24327/PG. 205
BK. 56909/PG. 62
BK. 58258/PG. 326
BK. 17253/PG. END
BK. 2323/PG. 465
BK. 2323/PG. 465
BK. 6884/ PG. 2
BK. 419/PG. 321
L.C.C. #81637

DIG SAFE
BEFORE YOU DIG
CALL 811

Drawing name: C:\City Real Estate Development Corp\Projects\Allston\Allston Square\Main\18018_Property_Exhibit.dwg
May 16, 2018 - 4:21pm

WE HEREBY CERTIFY THAT:
THIS PLAN IS THE RESULT OF AN ON THE GROUND SURVEY PERFORMED ON OR BETWEEN FEBRUARY 28, 2018 AND MAY 16, 2018.

COMMONWEALTH OF MASSACHUSETTS
KEVIN J. KIERNAN
No. 40038
PROFESSIONAL LAND SURVEYOR

KJK 5/18/18

PROFESSIONAL LAND SURVEYOR FOR RJ O'CONNELL & ASSOCIATES, INC — DATE

20 0 10 20 40
GRAPHIC SCALE IN FEET

No.	Revision	Date

Record Owner:
SEE PLAN

Location:
415 CAMBRIDGE STREET
ALLSTON SQUARE
BOSTON (ALLSTON) MA

Drawn by:	MSM
Checked by:	KJK
Scale:	1"=20'
Date:	05/16/2018
Field Crew:	TDB/NJK
Field Book:	BK. XX PG. X

Prepared for:
CITY REAL ESTATE DEVELOPMENT CORP.
320 WASHINGTON ST
SUITE 3FF
BROOKLINE, MA 02445

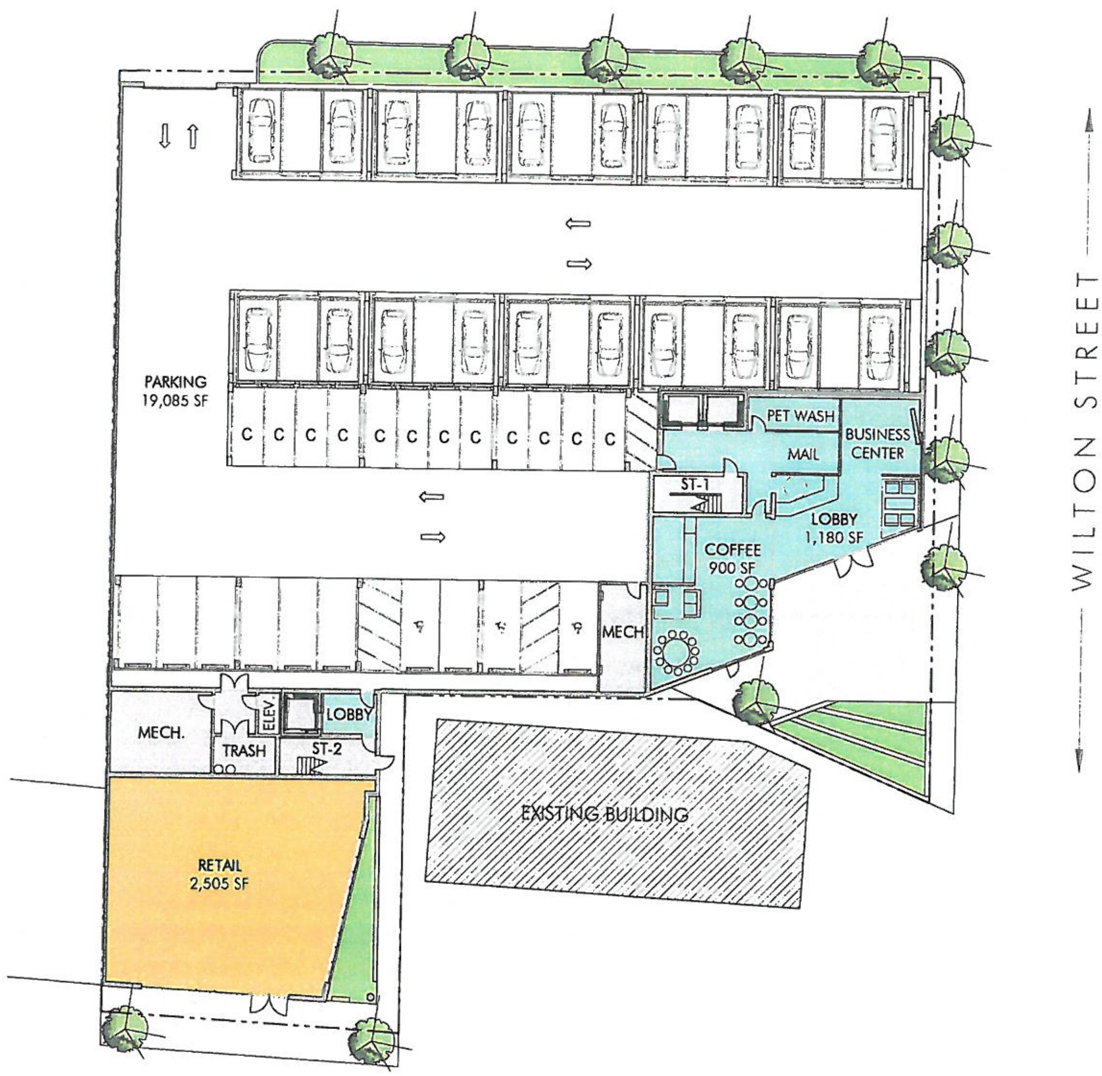
Prepared by:
RJO'CONNELL & ASSOCIATES, INC.
CIVIL ENGINEERS, SURVEYORS & LAND PLANNERS
80 MONTVALE AVE
STONEHAM, MA 02180
781-279-0180
www.rjoconnell.com

Project Name:
ALLSTON SQUARE
BOSTON (ALLSTON) MA

Drawing Name:
APPROVAL NOT REQUIRED PROPOSED LOT A

Drawing No.:
PROPERTY EXHIBIT

Project No.: 18018



GROUND FLOOR PLAN | Scale: 1" = 40'

2ND FLOOR PLAN | Scale: 1" = 40'

415 CAMBRIDGE STREET

CITY REALTY

EMBARC

ALLSTON SQUARE

3RD FLOOR PLAN | Scale: 1" = 40'

EMBARC

415 CAMBRIDGE STREET

ALLSTON SQUARE

FOURTH FLOOR PLAN | Scale: 1" = 40'

N

CITY REALTY

E
EMBARC

415 CAMBRIDGE STREET

ALLSTON SQUARE

FIFTH FLOOR PLAN | Scale: 1" = 40'

415 CAMBRIDGE STREET

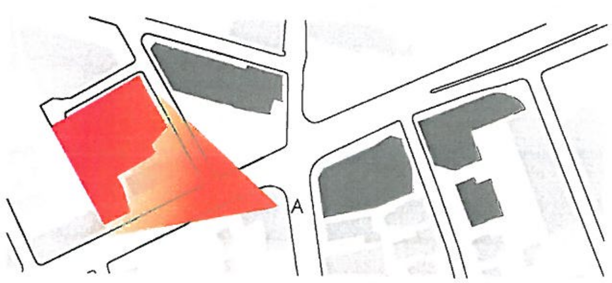
CITY REALTY

EMBARC

ALLSTON SQUARE

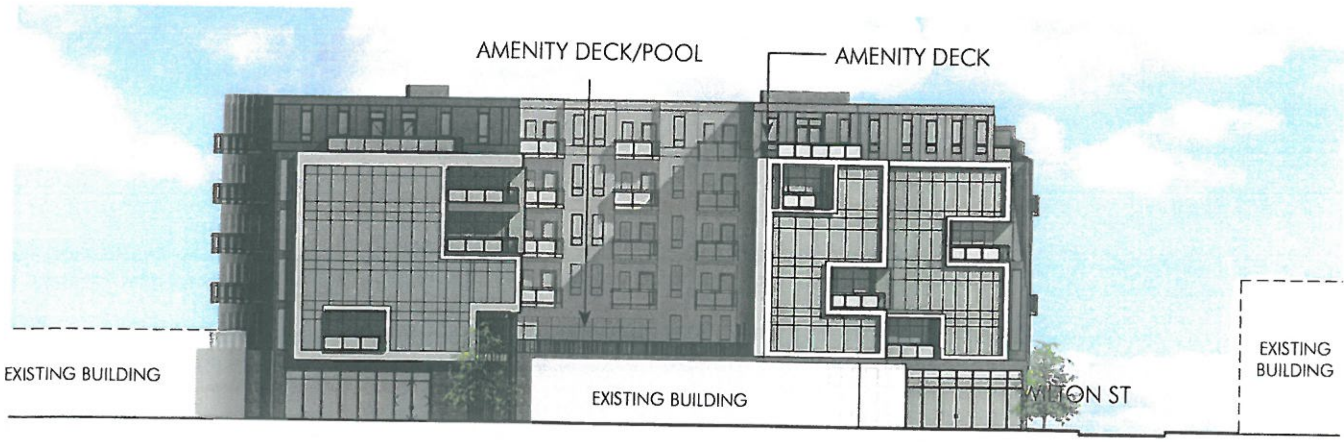
SIXTH FLOOR PLAN | Scale: 1" = 40'

A - CAMBRIDGE STREET PERSPECTIVE



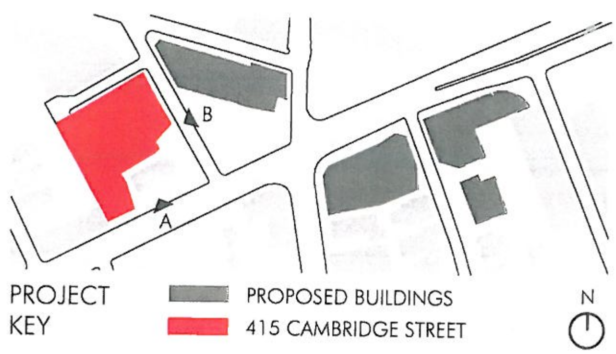
PERSPECTIVE KEY

N



A - CAMBRIDGE STREET ELEVATION | Scale: 1" = 40'

B - WILTON STREET ELEVATION | Scale: 1" = 40'



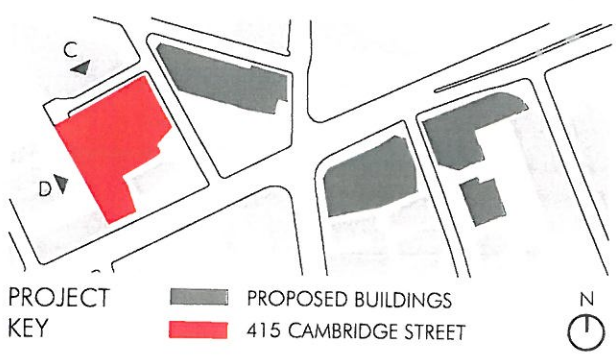
CITY REALTY

EMBARC

ALLSTON SQUARE

C - NORTH ELEVATION | Scale: 1″ = 40′

D - WEST ELEVATION | Scale: 1″ = 40′



CITY REALTY

EMBARC

ALLSTON SQUARE

EMBARC

415 CAMBRIDGE ST
UNIT MATRIX
April 10, 2018

GROSS SQUARE FEET (GSF)

	SELLABLE | RENTABLE	GSF		COMMON	GSF
GROUND FLOOR	RETAIL	2,505		STAIRS | ELEV	820
				MECH | TRASH	925
				PET WASH | BIKE	310
				LOBBY | OFFICE	2,215
FLOOR SUBTOTAL		2,505			4,270
LEVEL 2	UNIT 201	[illegible]	1 BR	HALL | STAIRS | ELEV | STORAGE	5,735
(16 UNITS)	UNIT 202	590	2 BR	COMMON AREA	1,465
	UNIT 203	675	1 BR	SCREENING ROOM	625
	UNIT 204	675	1 BR		
	UNIT 205	665	1 BR		
	UNIT 206	665	1 BR		
	UNIT 207	540	ST		
	UNIT 208	965	2 BR		
	UNIT 209	715	1 BR		
	UNIT 210	715	1 BR		
	UNIT 211	725	1 BR		
	UNIT 212	1,140	2 BR		
	UNIT 213	1,080	2 BR		
	UNIT 214	1,030	2 BR		
	UNIT 215	840	1 BR+		
	UNIT 216	945	2 BR		
FLOOR SUBTOTAL		12,880			7,845
LEVEL 3	UNIT 301	715	1 BR	HALL | STAIRS | ELEV | STORAGE	3,860
(22 UNITS)	UNIT 302	1,045	2 BR		
	UNIT 303	675	1 BR		
	UNIT 304	675	1 BR		
	UNIT 305	660	1 BR		
	UNIT 306	660	1 BR		
	UNIT 307	540	ST		
	UNIT 308	965	2 BR		
	UNIT 309	715	1 BR		
	UNIT 310	715	1 BR		
	UNIT 311	725	1 BR		
	UNIT 312	1,105	2 BR		
	UNIT 313	1,100	2 BR		
	UNIT 314	1,250	2 BR		
	UNIT 315	870	2 BR		
	UNIT 316	910	2 BR		
	UNIT 317	820	1 BR+		
	UNIT 318	550	ST		
	UNIT 319	665	1 BR		
	UNIT 320	715	1 BR		
	UNIT 321	665	1 BR		
	UNIT 322	405	ST		
FLOOR SUBTOTAL		16,930			3,860
LEVEL 4	UNIT 401	670	1 BR	HALL | STAIRS | ELEV | STORAGE	3,870
(22 UNITS)	UNIT 402	1,010	2 BR		
	UNIT 403	670	1 BR		
	UNIT 404	670	1 BR		
	UNIT 405	660	1 BR		
	UNIT 406	660	1 BR		
	UNIT 407	535	ST		
	UNIT 408	940	2 BR		
	UNIT 409	715	1 BR		
	UNIT 410	715	1 BR		
	UNIT 411	720	1 BR		
	UNIT 412	1,140	2 BR		
	UNIT 413	1,200	2 BR		
	UNIT 414	1,240	2 BR		
	UNIT 415	825	1 BR+		
	UNIT 416	975	2 BR		
	UNIT 417	820	1 BR+		
	UNIT 418	555	ST		
	UNIT 419	665	1 BR		
	UNIT 420	710	1 BR		
	UNIT 421	655	1 BR		
	UNIT 422	415	ST		
FLOOR SUBTOTAL		16,815			3,870
LEVEL 5	UNIT 501	645	1 BR	HALL | STAIRS | ELEV | STORAGE	3,805
(22 UNITS)	UNIT 502	1,010	2 BR		
	UNIT 503	670	1 BR		
	UNIT 504	670	1 BR		
	UNIT 505	680	1 BR		
	UNIT 506	660	1 BR		
	UNIT 507	540	ST		
	UNIT 508	955	2 BR		
	UNIT 509	710	1 BR		
	UNIT 510	710	1 BR		
	UNIT 511	720	1 BR		
	UNIT 512	1,110	2 BR		
	UNIT 513	1,110	2 BR		
	UNIT 514	1,045	2 BR		
	UNIT 515	860	2 BR		
	UNIT 516	905	2 BR		
	UNIT 517	820	1 BR+		
	UNIT 518	555	ST		
	UNIT 519	665	1 BR		
	UNIT 520	715	1 BR		
	UNIT 521	665	1 BR		
	UNIT 522	420	ST		
FLOOR SUBTOTAL		16,815			3,805
LEVEL 6	UNIT 601	845	2 BR	HALL | STAIRS | ELEV | STORAGE	3,665
(19 UNITS)	UNIT 602	805	1 BR+	COMMON	420
	UNIT 603	630	1 BR		
	UNIT 604	665	1 BR		
	UNIT 605	660	1 BR		
	UNIT 606	540	ST		
	UNIT 607	860	2 BR		
	UNIT 608	690	1 BR		
	UNIT 609	660	1 BR		
	UNIT 610	665	1 BR		
	UNIT 611	935	2 BR		
	UNIT 612	765	1 BR		
	UNIT 613	815	1 BR+		
	UNIT 614	560	1 BR		
	UNIT 615	820	1 BR+		
	UNIT 616	555	ST		
	UNIT 617	675	1 BR		
	UNIT 618	715	1 BR		
	UNIT 619	1,095	2 BR		
FLOOR SUBTOTAL		14,155			4,085
RESIDENTIAL SELLABLE GSF		80,240		COMMON AREA GSF	21,735

BUILDING GSF	
GROUND FLOOR	6,775
SECOND FLOOR	20,725
THIRD FLOOR	20,830
FOURTH FLOOR	20,685
FIFTH FLOOR	20,720
SIXTH FLOOR	18,240
TOTAL BUILDING GSF	**107,975**

(Parking not incl.)

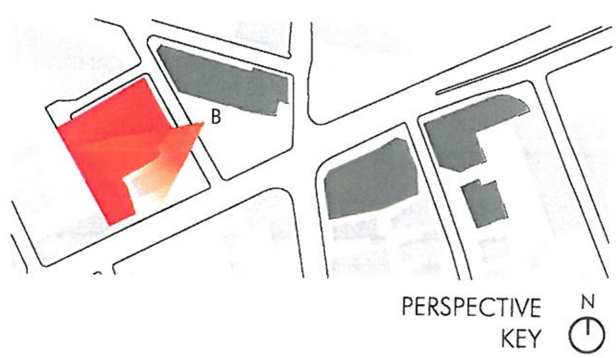
SITE	29,380
FAR	3.68
GROUND FLOOR PARKING	19,085
TOTAL SF	127,060
LOT COVERAGE	88%

UNIT BREAKDOWN:		AVERAGE SIZE
STUDIO	12	515
1 BED	51	682
1 BED+	8	838
2 BED	30	1005
TOTAL UNITS	101	790

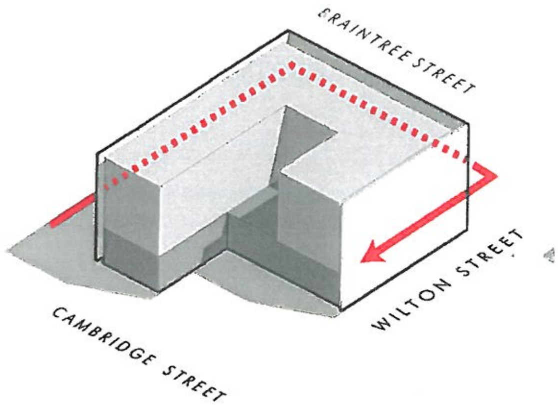
PARKING SPACES	102
PARKING/UNIT RATIO	1.01

GSF: measured to outside face of exterior walls, centerline of party walls and demising walls

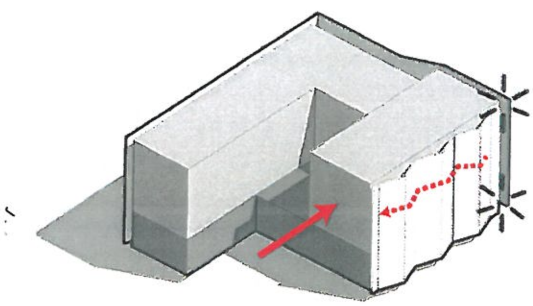
B - WILTON STREET PERSPECTIVE



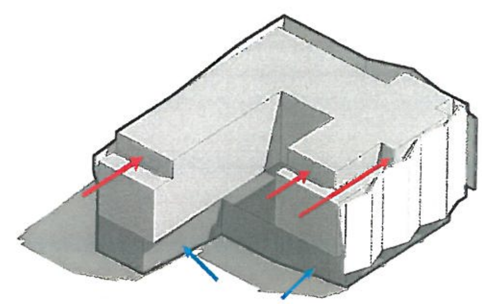
415 CAMBRIDGE STREET



1. WRAPPING - ELONGATED RESIDENTIAL VOLUMES ARE CONTAINED AND LIFTED FROM THE STREET BY WAY OF A PLATFORM (PARKING/LOBBY/RETAIL), AND A WRAPPING 'SKIN'. THE ORIENTATION OF THE RESIDENTIAL VOLUMES AND THE DISCONTINUATION OF THE WRAPPER ON THE CAMBRIDGE STREET FACADES ALLOWS FOR THE BUILDING TO OPEN UP TOWARD ALLSTON SQUARE.



2. SHIFTING - IN AN ATTEMPT TO ADDRESS BOTH SIDES OF THE SITE, ONE RESIDENTIAL VOLUME PUSHES AWAY FROM CAMBRIDGE STREET AND REACHES OUT TOWARD BRAINTREE STREET, BREAKING THE WRAPPER AT THAT LOCATION, AND CREATING DYNAMIC CONDITIONS ALONG THE WILTON STREET FACADE.



3. PUSHING BACK - VOLUMES ARE PUSHED BACK ALONG PUBLIC WAYS IN ORDER TO BOTH PROVIDE WELCOMING RECEPTIONS AT GRADE, AND REDUCE PERCEIVED SCALE ALONG THE PUBLIC FACADES.

URBAN DESIGN IMPROVEMENTS

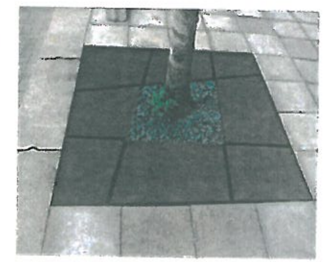
415 CAMBRIDGE STREET

Cambridge St Frontage
- Street Tree Stormwater Planter
- Signature Bench
- Bike Racks

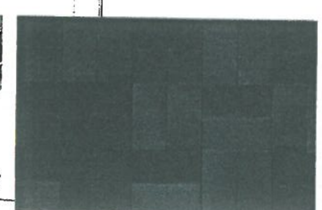
Wilton Street
- Allston Art Sphere
- Trees, shrubs + perennials
- Cast Stone Planters at Building Entry
- Pavers at Building Lobby + Curbed Planters
- Street Trees in grates

Wilton Terrace
- Provide Curbed Planter along garage wall with Fistigate Trees and Plantings


Cast Stone Planter


Artful Tree Grates


Curbed Planter


Building Entry Pavers


Flexible Cafe Seating


Artful Accent Lighting

415 CAMBRIDGE STREET

Accessibility Checklist
(to be added to the BRA Development Review Guidelines)

In 2009, a nine-member Advisory Board was appointed to the Commission for Persons with Disabilities in an effort to reduce architectural, procedural, attitudinal, and communication barriers affecting persons with disabilities in the City of Boston. These efforts were instituted to work toward creating universal access in the built environment.

In line with these priorities, the Accessibility Checklist aims to support the inclusion of people with disabilities. In order to complete the Checklist, you must provide specific detail, including descriptions, diagrams and data, of the universal access elements that will ensure all individuals have an equal experience that includes full participation in the built environment throughout the proposed buildings and open space.

In conformance with this directive, all development projects subject to Boston Zoning Article 80 Small and Large Project Review, including all Institutional Master Plan modifications and updates, are to complete the following checklist and provide any necessary responses regarding the following:

- improvements for pedestrian and vehicular circulation and access;
- encourage new buildings and public spaces to be designed to enhance and preserve Boston's system of parks, squares, walkways, and active shopping streets;
- ensure that persons with disabilities have full access to buildings open to the public;
- afford such persons the educational, employment, and recreational opportunities available to all citizens; and
- preserve and increase the supply of living space accessible to persons with disabilities.

We would like to thank you in advance for your time and effort in advancing best practices and progressive approaches to expand accessibility throughout Boston's built environment.

Accessibility Analysis Information Sources:

1. Americans with Disabilities Act – 2010 ADA Standards for Accessible Design
    a. http://www.ada.gov/2010ADAstandards_index.htm
2. Massachusetts Architectural Access Board 521 CMR
    a. http://www.mass.gov/eopss/consumer-prot-and-bus-lic/license-type/aab/aab-rules-and-regulations-pdf.html
3. Boston Complete Street Guidelines
    a. http://bostoncompletestreets.org/
4. City of Boston Mayors Commission for Persons with Disabilities Advisory Board
    a. http://www.cityofboston.gov/Disability
5. City of Boston – Public Works Sidewalk Reconstruction Policy
    a. http://www.cityofboston.gov/images_documents/sidewalk%20policy%200114_tcm3-41668.pdf
6. Massachusetts Office On Disability Accessible Parking Requirements
    a. www.mass.gov/anf/docs/mod/hp-parking-regulations-mod.doc
7. MBTA Fixed Route Accessible Transit Stations
    a. http://www.mbta.com/about_the_mbta/accessibility/

Project Information

Project Name:	ALLSTON SQUARE
Project Address Primary:	415 Cambridge Street, Boston, MA 02134
Project Address Additional:	8 Wilton Street, Boston, MA 02134
Project Contact (name / Title / Company / email / phone):	Jeffrey Drago, Esq. / Drago & Toscano, LLP / jdrago@dtlawllp.com / 617.391.9450

Team Description

Owner / Developer:	CRM Property Development Corp.
Architect:	Embarc Studio LLC.
Engineer (building systems):	TBD
Sustainability / LEED:	Soden Sustainability Consulting
Permitting:	Drago & Toscano, LLP
Construction Management:	TBD

Project Permitting and Phase

At what phase is the project – at time of this questionnaire?

PNF / Expanded PNF Submitted	Draft / Final Project Impact Report Submitted	BRA Board Approved
BRA Design Approved	Under Construction	Construction just completed:

Building Classification and Description

What are the principal Building Uses - select all appropriate uses?

Residential – One to Three Unit	Residential - Multi-unit, Four +	Institutional	Education
Commercial	Office	Retail	Assembly
Laboratory / Medical	Manufacturing / Industrial	Mercantile	Storage, Utility and Other

First Floor Uses (List): *Commercial and Residential Lobby*

What is the Construction Type – select most appropriate type?

Wood Frame	Masonry	Steel Frame	Concrete

Describe the building?

Site Area:	*29,380 SF*	Building Area:	*108,135 SF*
Building Height:	*69 Ft. 6 inches*	Number of Stories:	*6 Flrs.*
First Floor Elevation:	*0' Elev.*	Are there below grade spaces:	*No*

Assessment of Existing Infrastructure for Accessibility:

This section explores the proximity to accessible transit lines and proximate institutions such as, but not limited to hospitals, elderly and disabled housing, and general neighborhood information. The proponent should identify how the area surrounding the development is accessible for people with mobility impairments and should analyze the existing condition of the accessible routes through sidewalk and pedestrian ramp reports.

Provide a description of the development neighborhood and identifying characteristics.	The proposed site is in the Allston neighborhood of Boston, situated between Ringer Park to the south, the Honan-Allston branch public library to the north, a major shopping plaza to the west (which includes a super Stop & Shop and Homegoods store among others), and Boston University to the East; all of which are located within a ½ mile radius. The current neighborhood is primarily a mixed-used of multi-family residential developments and retail/commercial buildings. Directly adjacent to the site, the main road (Cambridge Street) is flanked by retail stores which makes it a busy, high-traffic area.

List the surrounding ADA compliant MBTA transit lines and the proximity to the development site: Commuter rail, subway, bus, etc.	**¼ mile Radius:** Cambridge Street @ Franklin Street (Bus 64, 66, 501, 503) / Cambridge Street @ Linden Street (Bus 64, 66, 501, 503, 9701, 9702, 9703) / Brighton Avenue @ Allston Street (Bus 57, 66, 57A). **½ mile Radius:** Harvard Avenue Station (Green Line – B Train) / Griggs Street Station (Green Line – B Train) / Packard's Corner Station (Green Line – B Train).
List the surrounding institutions: hospitals, public housing and elderly and disabled housing developments, educational facilities, etc.	**Hospitals:** Steward Health Care (South West, ¾ mile Radius), Franciscan Children's Hospital (South West, ¾ mile Radius), Boston Orthopedic & Sports Med (South West, ¾ mile Radius), Arbour HRI Hospital (East, ¾ mile Radius), Brigham & Women's Hospital (East, 1 mile Radius). **Educational Facilities:** The Learning Tree Preschool/Daycare (South, ¼ mile Radius), Gardner Pilot Academy Elementary School (North, ½ mile Radius), Bright Horizons Preschool (East, ½ mile Radius), Jackson/Mann K-8 School (South, ½ mile Radius), Horace Mann School for the Deaf (South, ½ mile Radius), Boston Theological Institute (North, ¾ mile Radius), Boston University (East, ¾ mile Radius). **Public Housing:** Glenville Avenue Apartments (South, ½ mile Radius), Commonwealth Avenue Housing (South, ½ mile Radius), Charlesview Inc (North, ¾ mile Radius), Governor Apartments (South, ¾ mile Radius), Comaven Apartments (South, ¾ mile Radius). **Elderly/Disabled Housing:** Brighton-Allston Elderly (North, ½ mile Radius).
Is the proposed development on a priority accessible route to a key public use facility? List the surrounding: government buildings, libraries, community centers and recreational facilities and other related facilities.	**Government Buildings:** Boston Fire Department Engine 41 (South, ¼ mile Radius). **Library:** Honan-Allston Branch Public Library (North East, ½ mile Radius). **Community Center:** Jackson Mann Community Center (South West, ½ mile Radius). **Recreational Facility:** Penniman Road Play Area (West, ¼ mile Radius), Ringer Park (South, ½ mile Radius), Commonwealth Sports Club (East, ½ mile Radius).

Surrounding Site Conditions – Existing:

This section identifies the current condition of the sidewalks and pedestrian ramps around the development site.

Are there sidewalks and pedestrian ramps existing at the development site?	Yes.
If yes above, list the existing sidewalk and pedestrian ramp materials and physical condition at the development site.	Existing sidewalks are concrete with granite curbs, both in acceptable condition.
Are the sidewalks and pedestrian ramps existing-to-remain? If yes,	TBD

have the sidewalks and pedestrian ramps been verified as compliant? If yes, please provide surveyors report.	
Is the development site within a historic district? If yes, please identify.	No.

Surrounding Site Conditions – Proposed

This section identifies the proposed condition of the walkways and pedestrian ramps in and around the development site. The width of the sidewalk contributes to the degree of comfort and enjoyment of walking along a street. Narrow sidewalks do not support lively pedestrian activity, and may create dangerous conditions that force people to walk in the street. Typically, a five foot wide Pedestrian Zone supports two people walking side by side or two wheelchairs passing each other. An eight foot wide Pedestrian Zone allows two pairs of people to comfortable pass each other, and a ten foot or wider Pedestrian Zone can support high volumes of pedestrians.

Are the proposed sidewalks consistent with the Boston Complete Street Guidelines? See: www.bostoncompletestreets.org	Yes.
If yes above, choose which Street Type was applied: Downtown Commercial, Downtown Mixed-use, Neighborhood Main, Connector, Residential, Industrial, Shared Street, Parkway, Boulevard.	The proposed development is bordered by Wilton Street (East), and Cambridge Street (South). **STREET TYPES:** - Cambridge Street falls under the **Neighborhood Connector** category. - Wilton Street falls under the **Neighborhood Residential** category.
What is the total width of the proposed sidewalk? List the widths of the proposed zones: Frontage, Pedestrian and Furnishing Zone.	TBD
List the proposed materials for each Zone. Will the proposed materials be on private property or will the proposed materials be on the City of Boston pedestrian right-of-way?	TBD
If the pedestrian right-of-way is on private property, will the proponent seek a pedestrian easement with	N/A

the City of Boston Public Improvement Commission?	
Will sidewalk cafes or other furnishings be programmed for the pedestrian right-of-way?	No.
If yes above, what are the proposed dimensions of the sidewalk café or furnishings and what will the right-of-way clearance be?	N/A

Proposed Accessible Parking:

See Massachusetts Architectural Access Board Rules and Regulations 521 CMR Section 23.00 regarding accessible parking requirement counts and the Massachusetts Office of Disability Handicap Parking Regulations.

What is the total number of parking spaces provided at the development site parking lot or garage?	102
What is the total number of accessible spaces provided at the development site?	3 (1 Van accessible).
Will any on street accessible parking spaces be required? If yes, has the proponent contacted the Commission for Persons with Disabilities and City of Boston Transportation Department regarding this need?	No
Where is accessible visitor parking located?	N/A
Has a drop-off area been identified? If yes, will it be accessible?	No, TBD.

Include a diagram of the accessible routes to and from the accessible parking lot/garage and drop-off areas to the development entry locations. Please include route distances.	Attached.

Circulation and Accessible Routes:

The primary objective in designing smooth and continuous paths of travel is to accommodate persons of all abilities that allow for universal access to entryways, common spaces and the visit-ability* of neighbors.

**Visit-ability – Neighbors ability to access and visit with neighbors without architectural barrier limitations*

Provide a diagram of the accessible route connections through the site.	Attached.
Describe accessibility at each entryway: Flush Condition, Stairs, Ramp Elevator.	Residential lobby to be a flush condition with the sidewalk at building exterior, as are the Commercial Space entries. The garage access from the lobby is to be a flush condition. From the Lobby, elevator access will provide access to upper floors.
Are the accessible entrance and the standard entrance integrated?	Yes.
If no above, what is the reason?	N/A
Will there be a roof deck or outdoor courtyard space? If yes, include diagram of the accessible route.	No.
Has an accessible routes way-finding and signage package been developed? If yes, please describe.	No.

Accessible Units: (If applicable)

In order to facilitate access to housing opportunities this section addresses the number of accessible units that are proposed for the development site that remove barriers to housing choice.

What is the total number of proposed units for the development?	101
How many units are for sale; how many are for rent? What is the market value vs. affordable breakdown?	**FOR SALE:** 101 Units; Affordable breakdown TBD
How many accessible units are being proposed?	101
Please provide plan and diagram of the accessible units.	Specific unit plans have not been developed.
How many accessible units will also be affordable? If none, please describe reason.	TBD
Do standard units have architectural barriers that would prevent entry or use of common space for persons with mobility impairments? Example: stairs at entry or step to balcony. If yes, please provide reason.	No
Has the proponent reviewed or presented the proposed plan to the City of Boston Mayor's Commission for Persons with Disabilities Advisory Board?	No.
Did the Advisory Board vote to support this project? If no, what recommendations did the Advisory Board give to make this project more accessible?	N/A

Article 80 | ACCESSIBILTY CHECKLIST

Thank you for completing the Accessibility Checklist!

For questions or comments about this checklist or accessibility practices, please contact:

kathryn.quigley@boston.gov | Mayors Commission for Persons with Disabilities

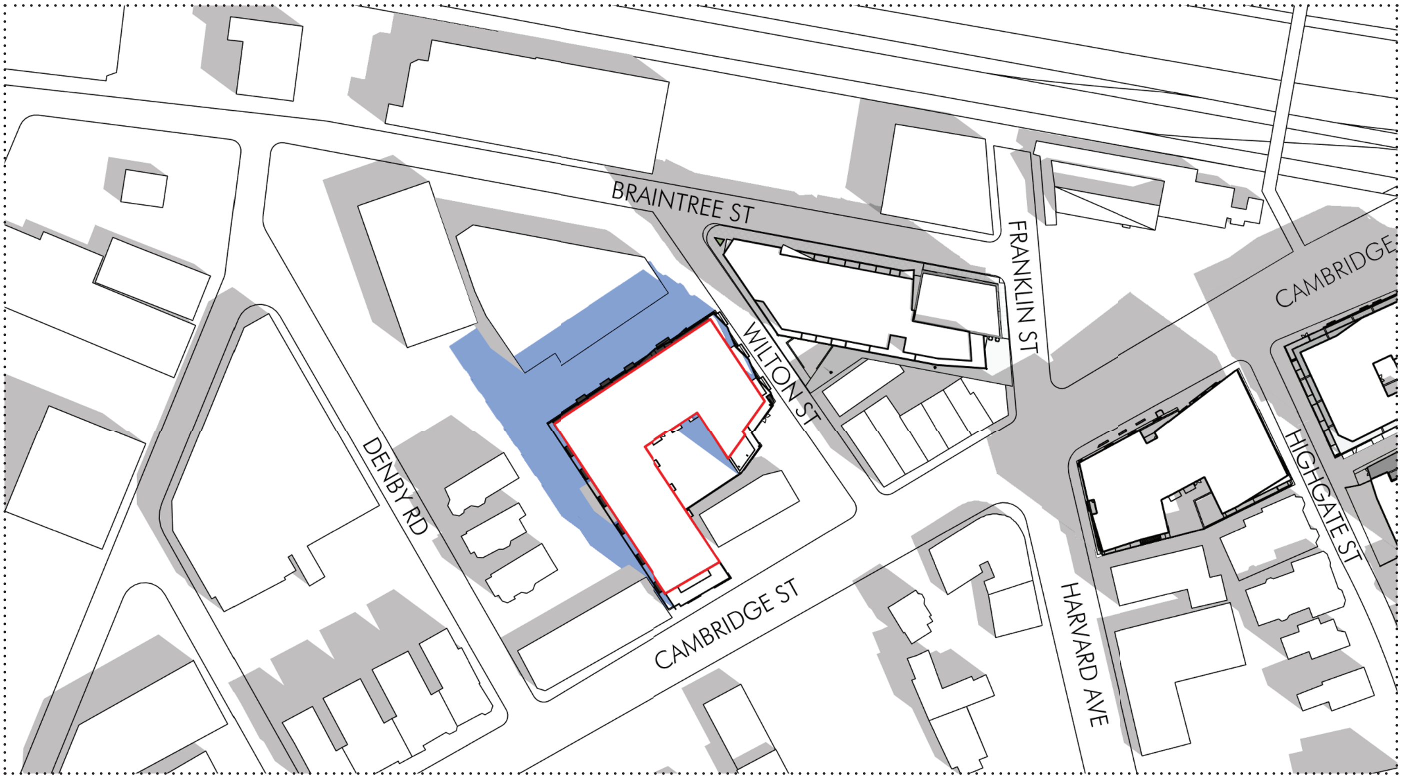
1/16" = 1'-0"

EMBARC STUDIO
ARCHITECTURE + DESIGN

ACCESSIBILITY CHECKLIST - GROUND FLOOR & SIXTH FLOOR
415 CAMBRIDGE STREET
BOSTON, MA 02134

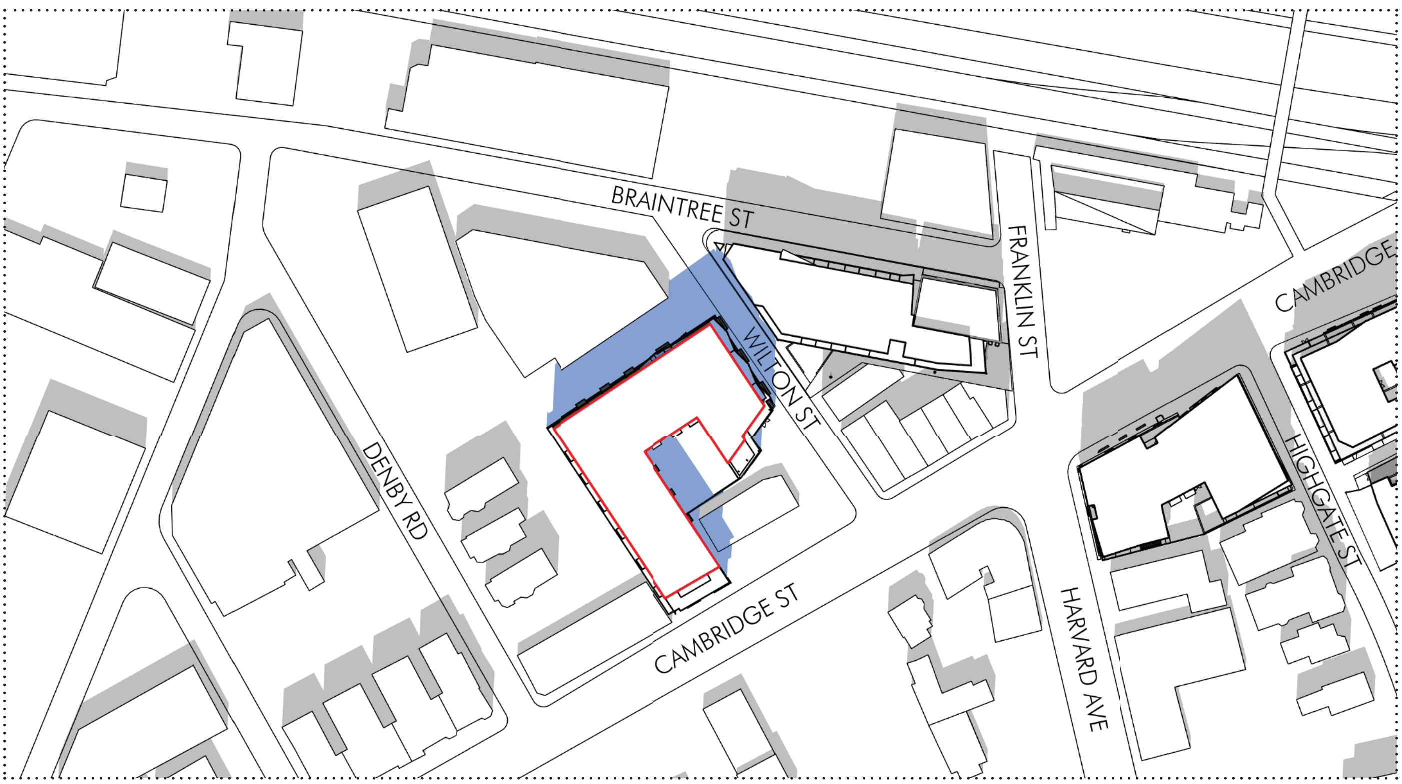
A1.1

APRIL 15, 2018 | EMBARC



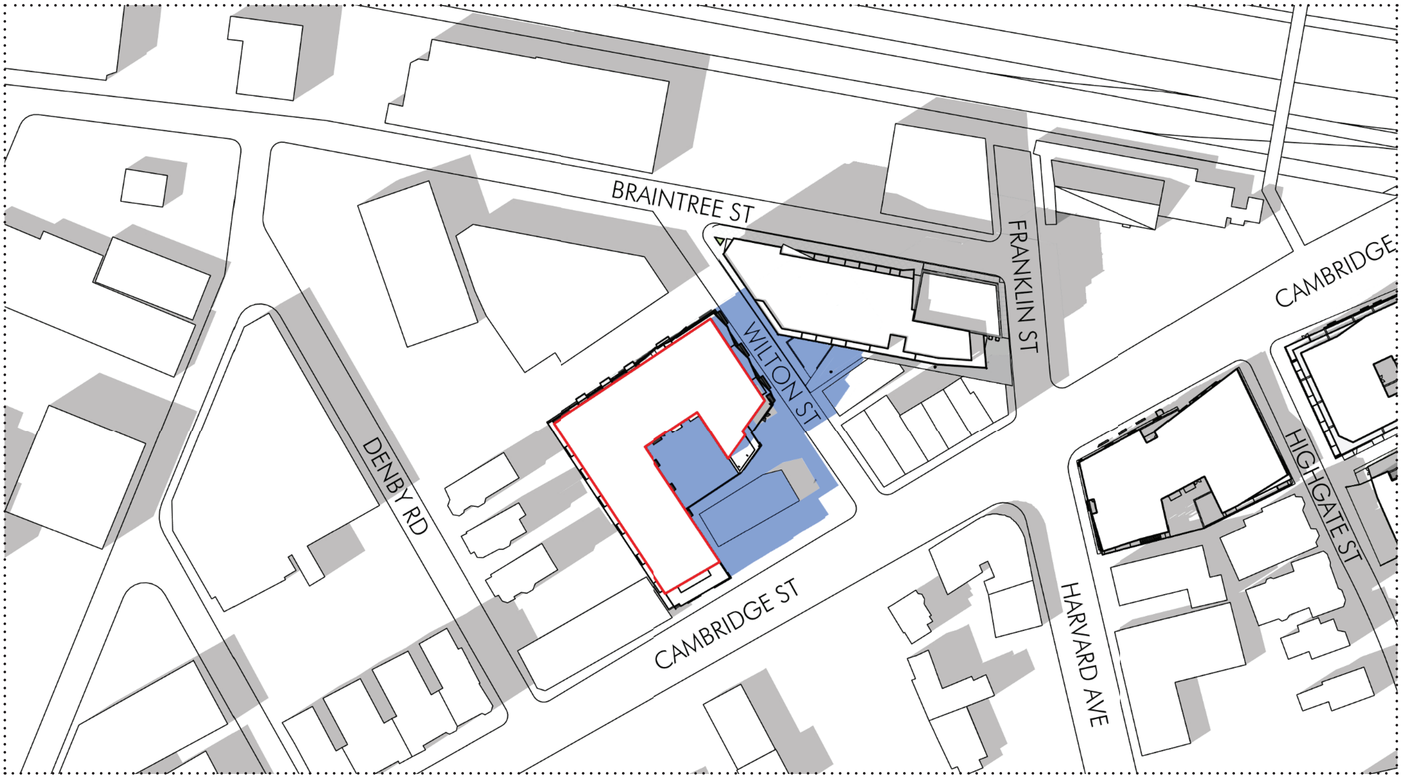
SHADOW STUDY - VERNAL EQUINOX, 9:00AM

NET NEW SHADOW
EXISTING SHADOW
N



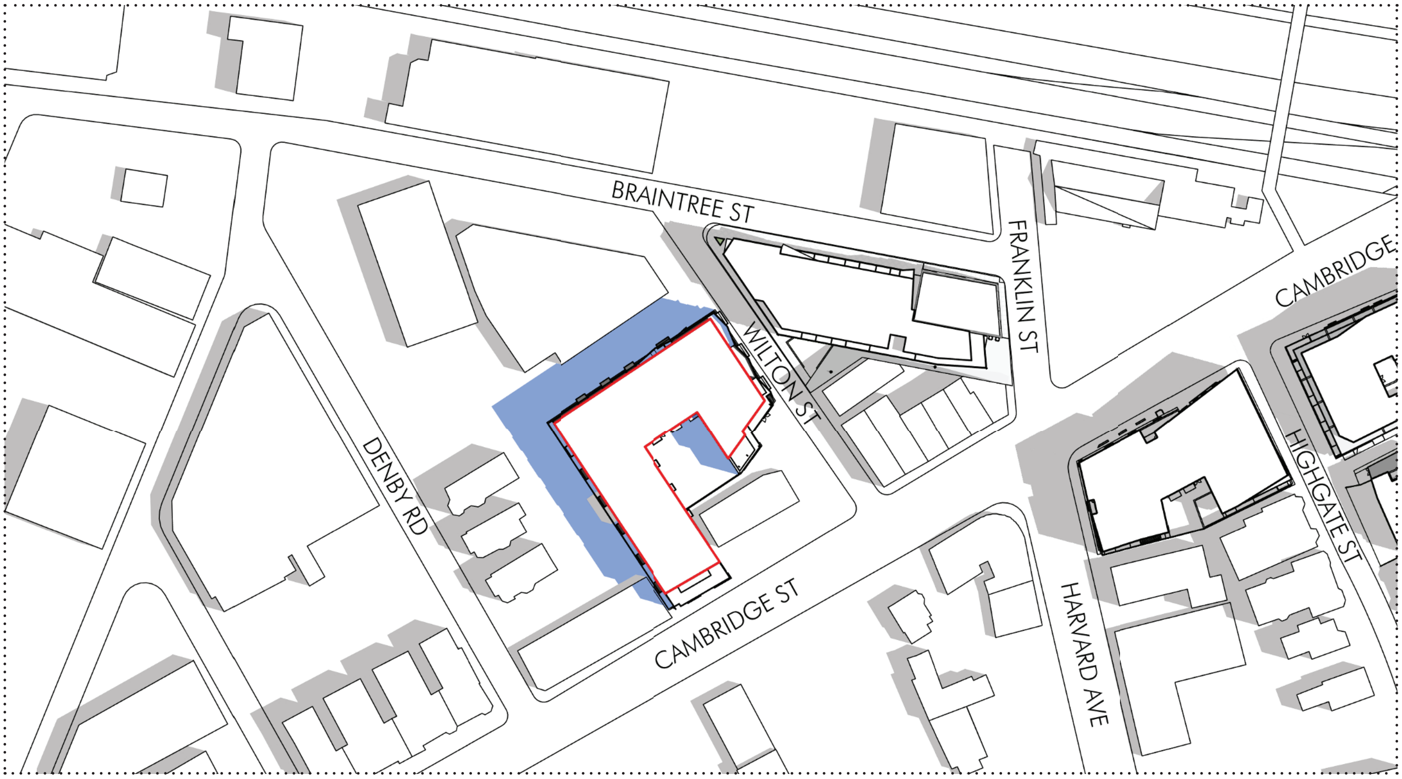
SHADOW STUDY - VERNAL EQUINOX, 12:00PM

NET NEW SHADOW
EXISTING SHADOW
N



SHADOW STUDY - VERNAL EQUINOX, 3:00PM

NET NEW SHADOW
EXISTING SHADOW
N



SHADOW STUDY - SUMMER SOLSTICE, 9:00AM

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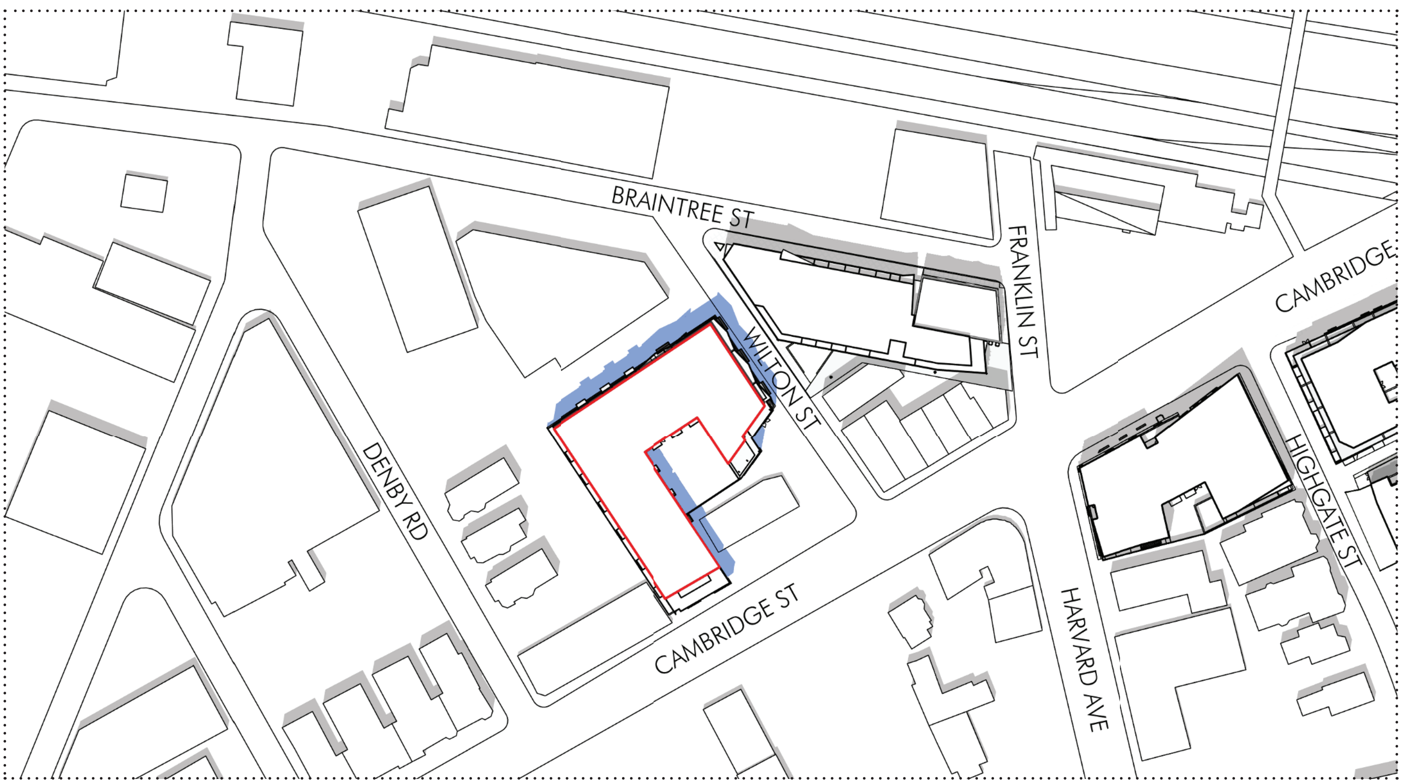

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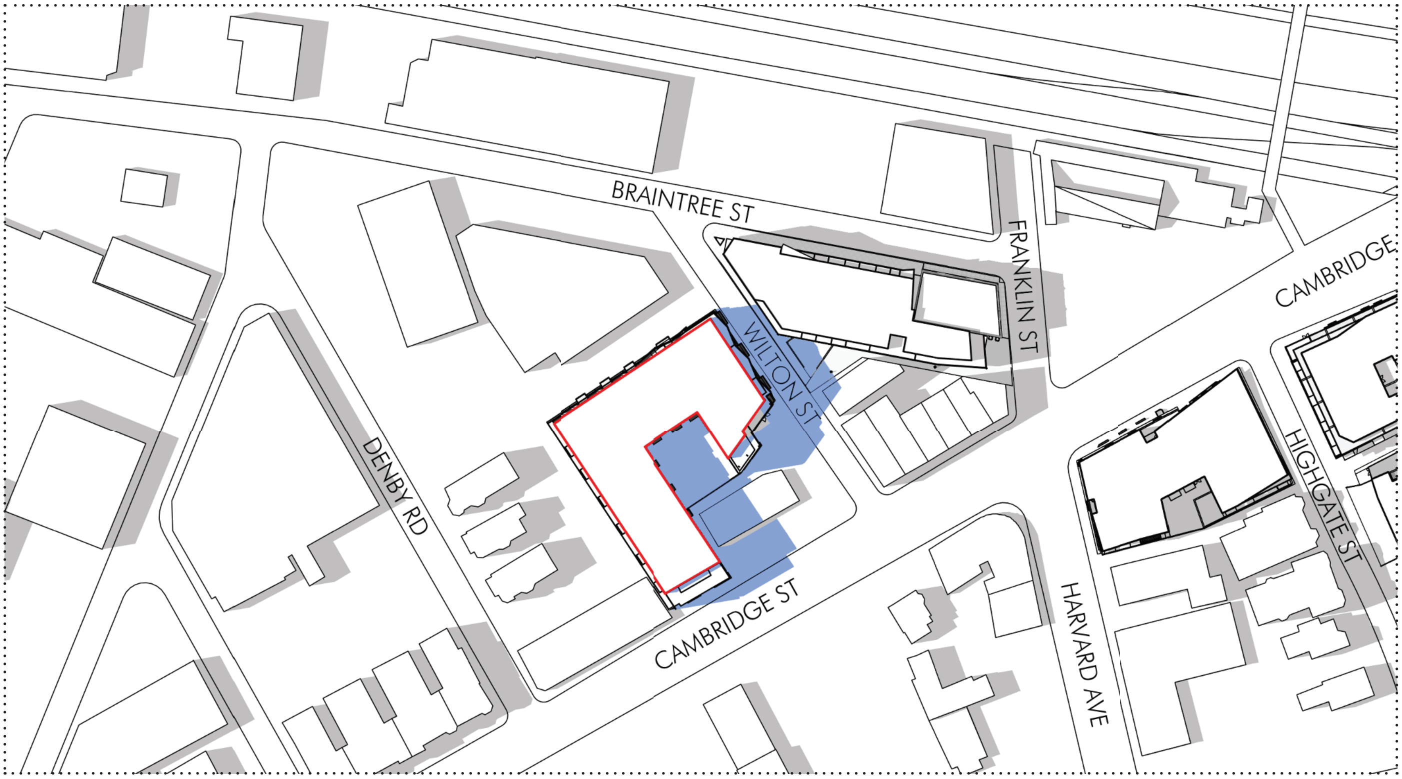

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SHADOW STUDY - FALL EQUINOX, 9:00AM

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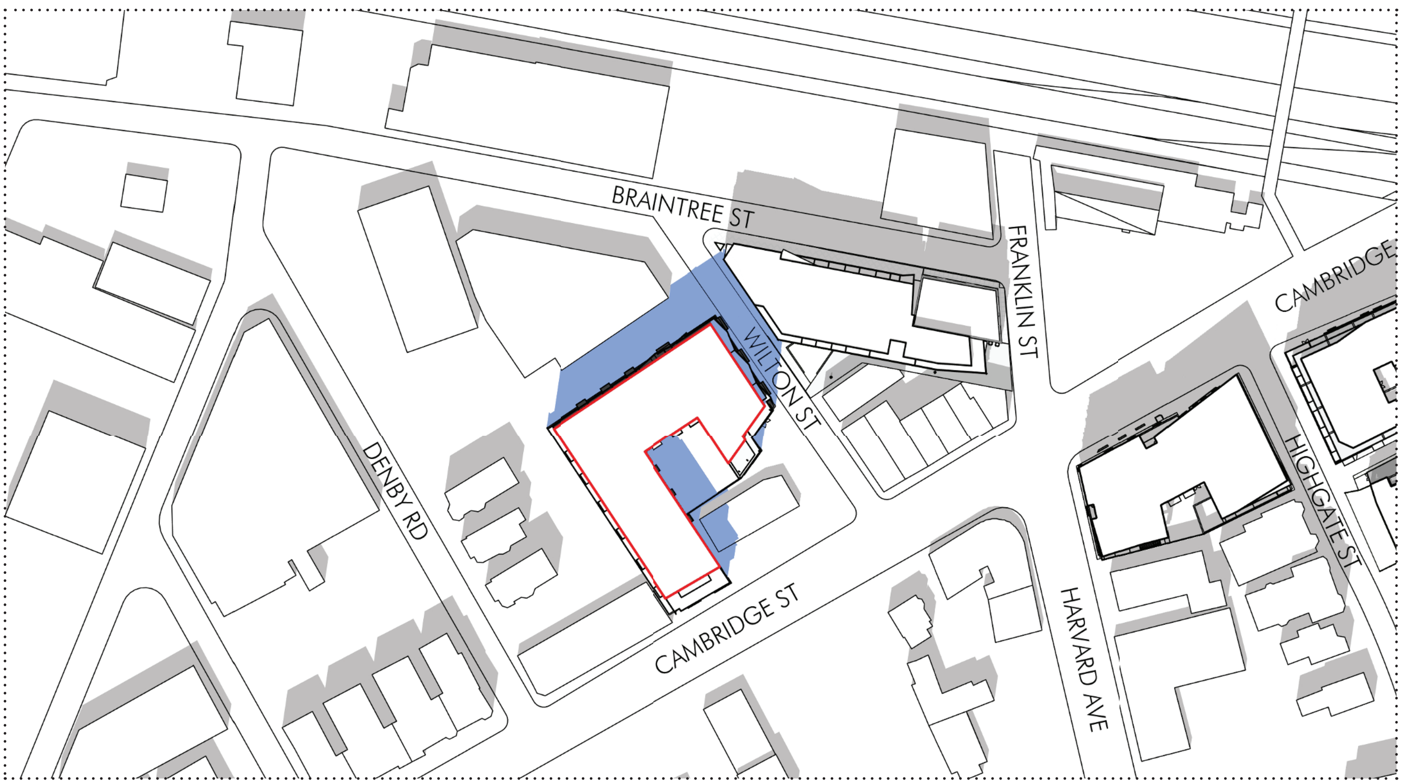

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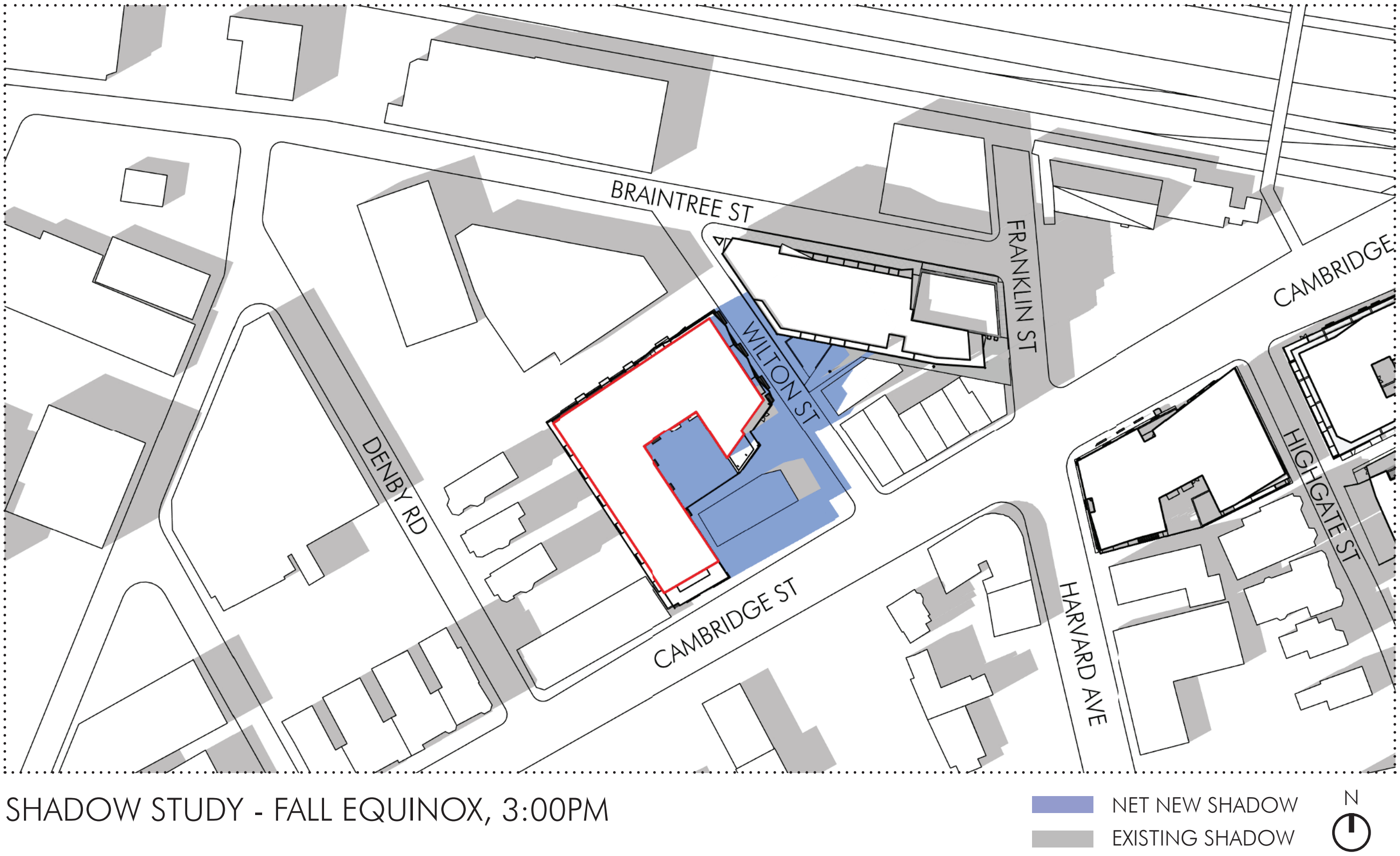

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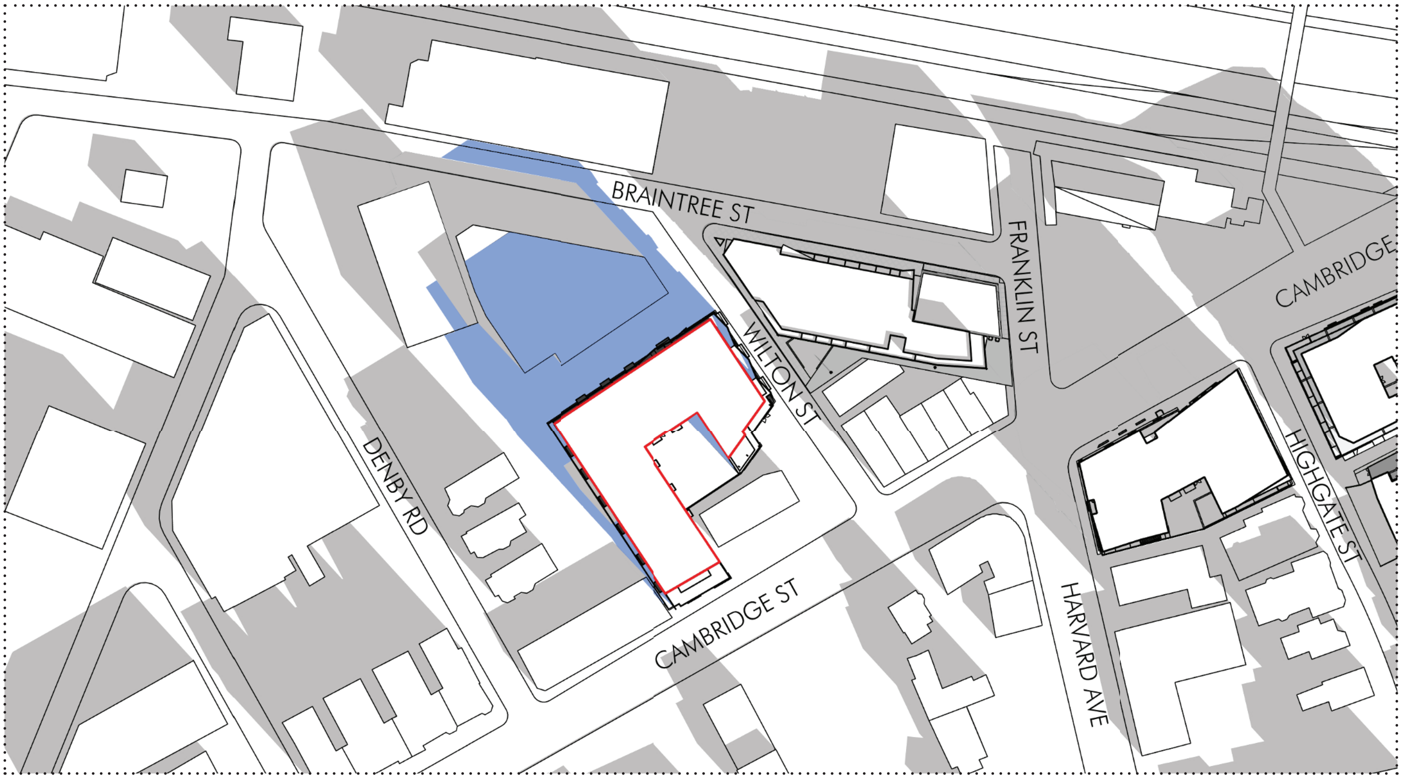

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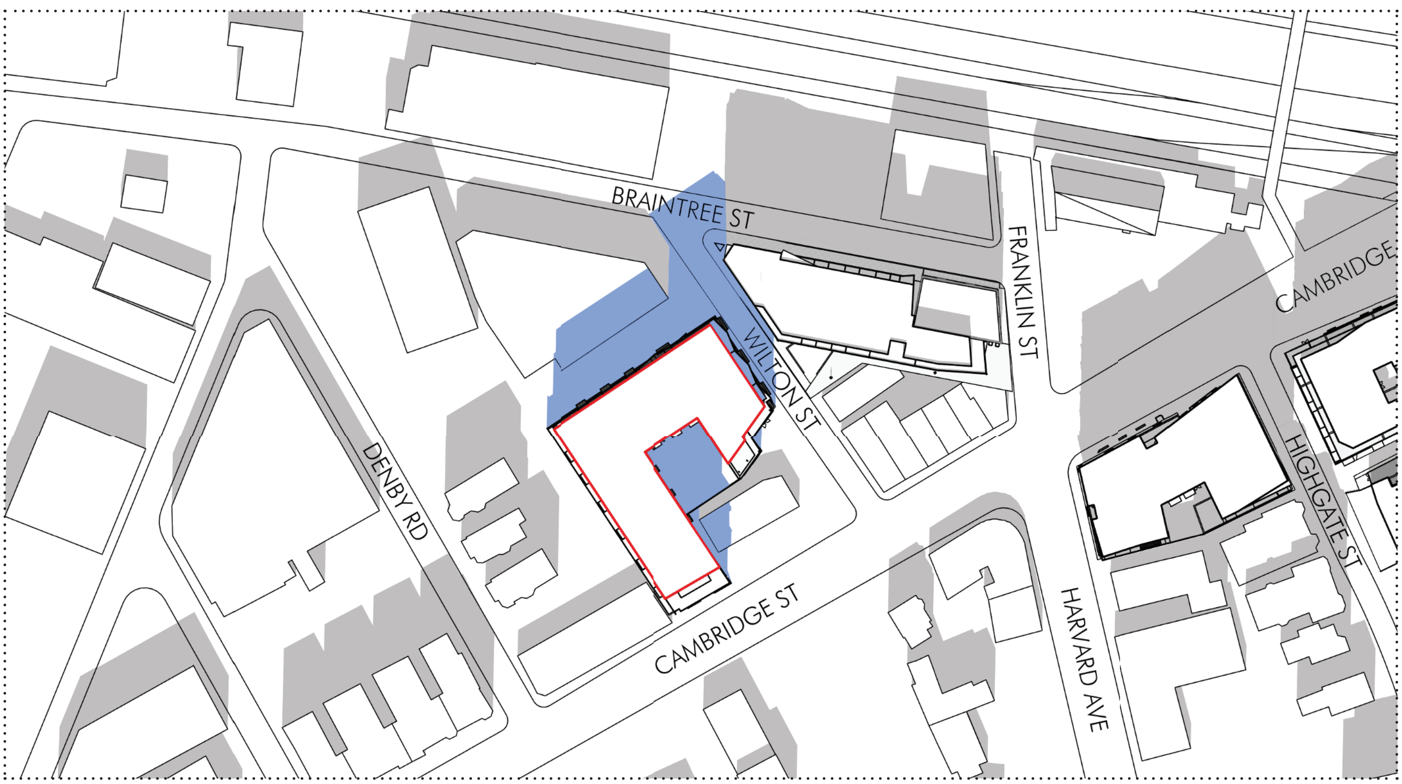

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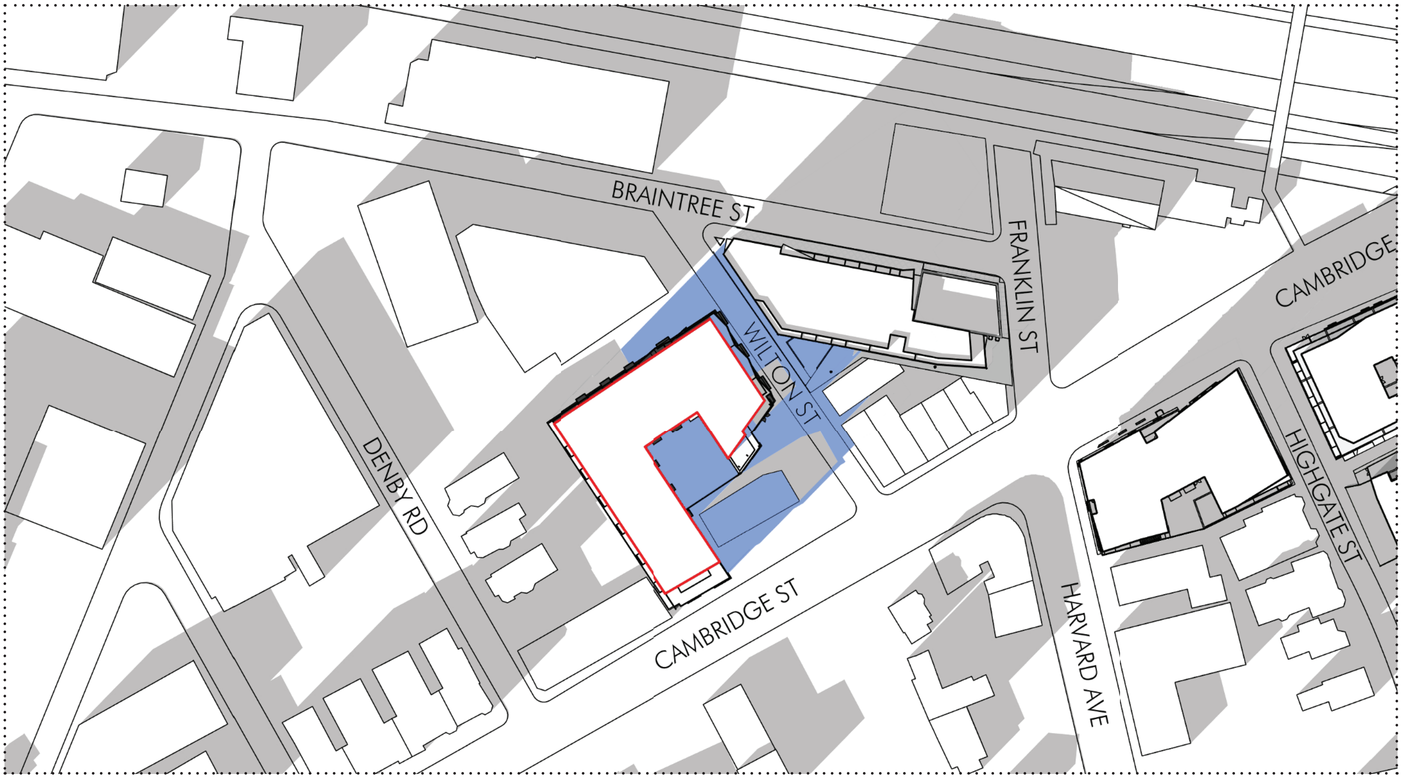


SHADOW STUDY - WINTER SOLSTICE, 3:00PM

NET NEW SHADOW
EXISTING SHADOW
N

KEVIN M. MARTIN, P.E.
KMM GEOTECHNICAL CONSULTANTS, LLC
7 Marshall Road
Hampstead, NH 03841
603-489-5556 (p)/ 603-489-5558 (f)/781-718-4084(m)
kevinmartinpe@aol.com

MEMORANDUM

TO: CRM Property Management Corp.
320 Washington Street, Suite 3FF
Brookline, MA 02445

FROM: Kevin M. Martin, P.E.
Geotechnical Engineer

DATE: April 26, 2018

RE: **GEOTECHNICAL SUMMARY REPORT**
PROPOSED MIXED-USE BUILDING
415 CAMBRIDGE STREET
ALLSTON, MASSACHUSETTS

This memorandum serves as a geotechnical summary report for the referenced project. The contents of this memorandum are subject to the attached ***Limitations***.

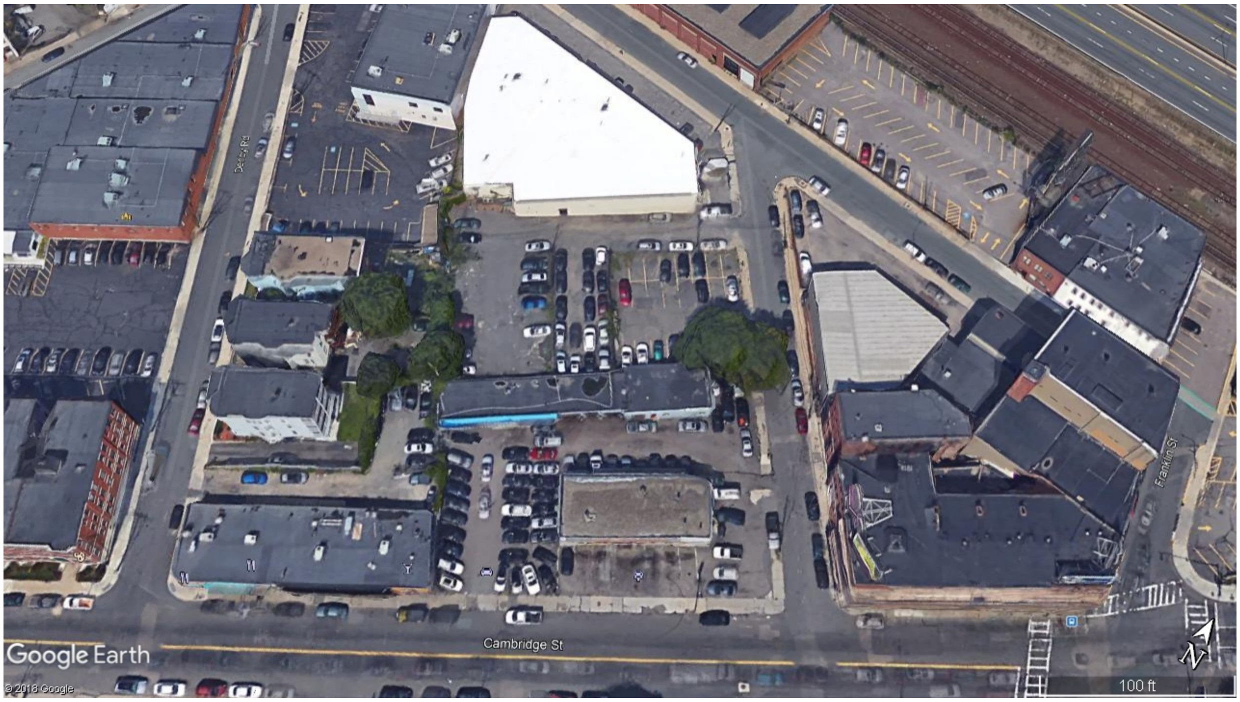
SITE & PROJECT DESCRIPTION

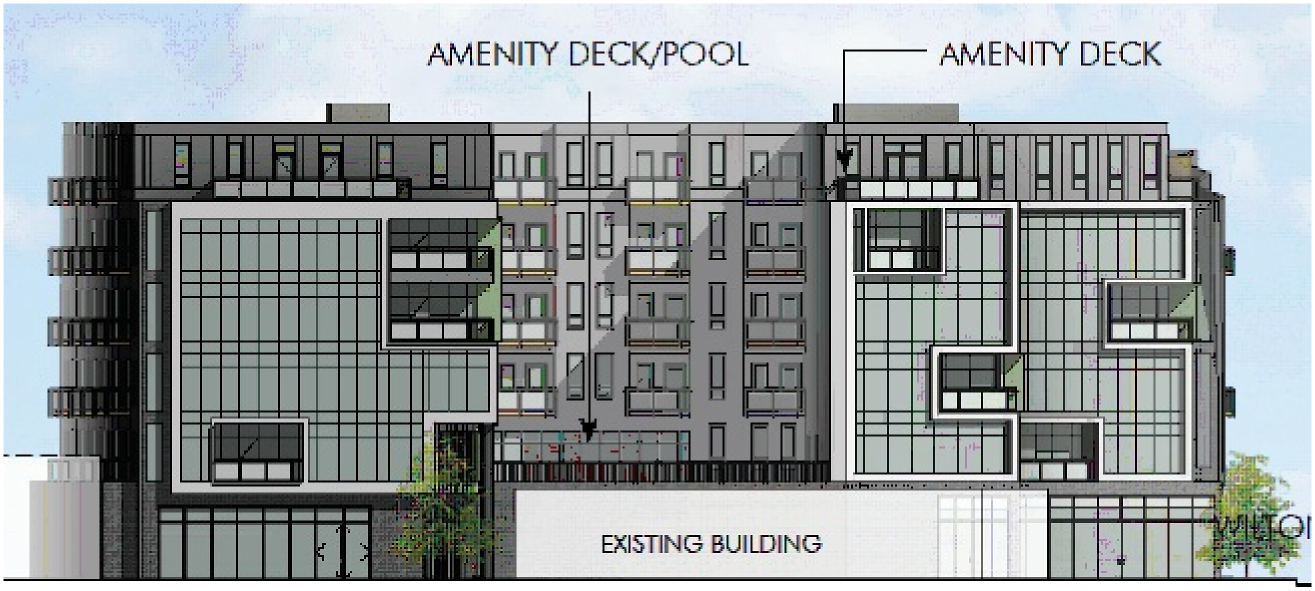
The site includes four (4) contiguous lots bordered by Cambridge Street, Wilton Street and Wilton Terrace. Present development includes a single-story, brick building. Most of the site includes paved parking. KMM has no knowledge of past construction, development or use of the property. The buildings appear to be supported on a shallow spread footing foundation with a concrete floor slab-on-grade. Based on the *Site Plan*, grades around the site vary from elevation ≈34-44 ft possessing a gradual downward contour towards the north.

The project includes a new mixed-use building with primary residential occupancy. The building will include a 6-story, steel framed structure about ≈25,000 ft^2 in footprint area. The building will occupy most of the lot. First floor (ground level) will be used for retail (along Cambridge Street) but primarily stacked parking. There is no proposed basement level for the building. The ground floor elevations are to step or terrace to accommodate the surrounding street grades. Ground floor elevations are to vary from elevation 38-44 ft. It is intended to support the building on a conventional shallow spread footing foundation with a concrete floor slab-on-grade (no basement). Shallow cuts or fills (less than ≈3-6 ft) will be required to achieve final grade.

The purpose of this study is to review the subgrade conditions and provide a geotechnical evaluation related to foundation design and construction as required by the *Massachusetts State Building Code*.

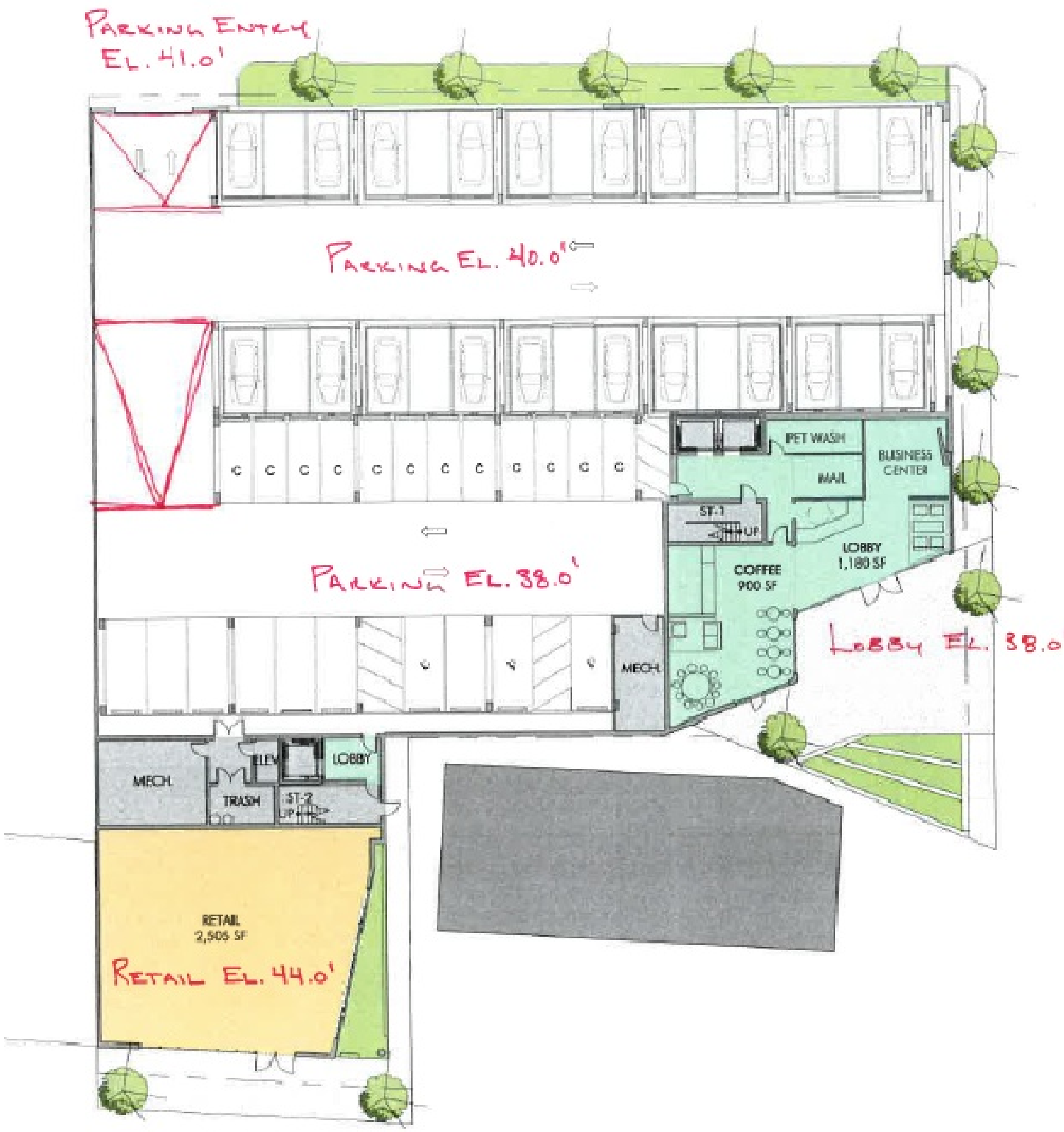
This report does not include an environmental assessment relative to oil, gasoline, solid waste and/or other hazardous materials. The environmental conditions of the property should be addressed by others as necessary. This study also does not include review of site design or construction issues such as infiltration systems, dry wells, retaining walls, excavation support systems, underground utilities, protection of surrounding buildings/utilities, crane pads, temporary shoring or other site and/or temporary design unless specifically addressed herein.





CAMBRIDGE STREET ELEVATION

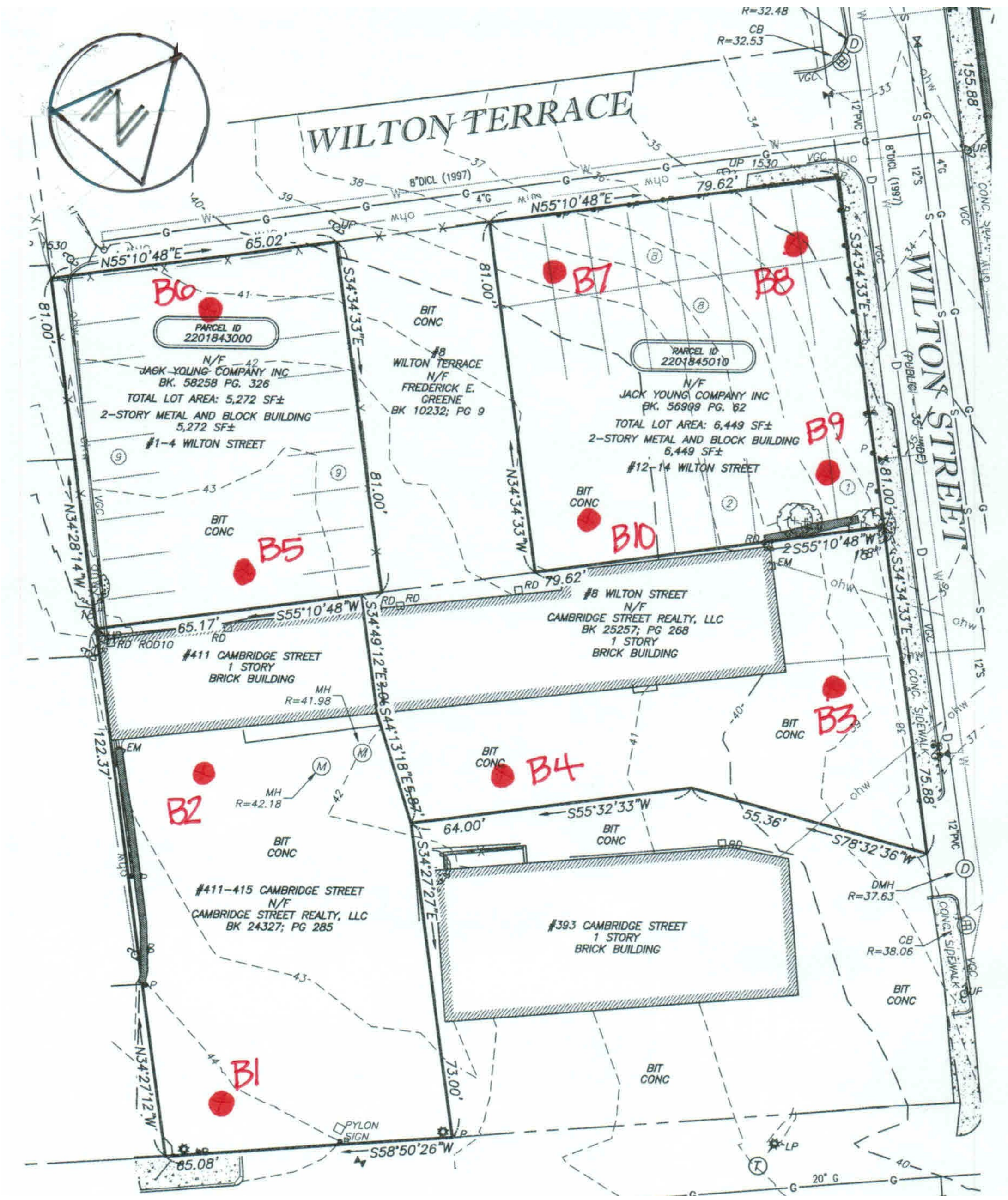
NORTH ELEVATION



GROUND FLOOR PLAN

SUBSURFACE EXPLORATION PROGRAM

The exploration program for the project included ten (10) test borings around the site where accessible. The test borings (B1 to B10) were advanced to depths of ≈22-27 ft utilizing 4 inch hollow stem augers. Soil samples were typically retrieved at no greater than 5 ft intervals with a 2 inch diameter split-spoon sampler. Standard Penetration Tests (SPTs) were performed at the sampling intervals in general accordance with ASTM-D1586 (*Standard Method for Penetration Test and Split-Barrel Sampling of Soils*). Field descriptions and penetration resistance of the soils encountered, observed depth to groundwater and other pertinent data are contained on the attached *Test Boring Logs*. The attached *Sketch* shows the test bore locations.



SUBSURFACE CONDITIONS

The subsurface conditions below the surface pavement include (1) Granular Fill atop (2) stable Glacial Soils. Three (3) *Subsurface Profiles* depicting the soil and groundwater conditions are attached for review.

Undocumented Fill was encountered in ALL the test bores to depths of ≈5-10 ft below grade. The Fill varies in composition but generally includes a dark brown to black, Sand & Gravel, little silt. Trace amounts of brick, rubble, organic, ash and loam are embedded in the Fill. There are pockets of heavier Urban Fill (loam, brick, glass, ash). These soils are generally compact. Other Fill should also be expected around the building foundation and intersecting utilities. There is suspected to have been prior building construction on the vacant properties but KMM has no such knowledge. In some cases, the Fill appears to be re-worked Granular soils making it difficult to distinguish especially with small diameter test bores. A darker color or embedded rubble or foreign matter are distinguishing features.

The parent site soils consists of stable, granular Outwash with embedded layers of Fine Sand & Silt. About a third (⅓) of the samples were fine-grained consisting a sandy Silt, Fine Sand & Silt or silty Sand w/ gravel. These fine-grained soils are moisture sensitive, poor-draining and frost susceptible. Most of the soils generally include a brown, fine to coarse Sand & Gravel, trace silt. Occasional cobbles and boulders should be expected in the Granular Outwash given the difficulty advancing the augers. These granular soils are stable, well-draining and compact. The Outwash was not penetrated to ≈20-25 ft below site grade.

Groundwater was encountered in the test holes at depths of ≈16-20 ft below grade. It should be noted that fluctuations in the level of the groundwater may occur due to variations in rainfall, temperature, utilities and other factors differing from the time of the measurements. This study was completed at a time of seasonally normal groundwater.

FOUNDATION SUBGRADE RECOMMENDATIONS

The subgrade conditions are suitable for supporting the proposed building on a conventional spread footing foundation with a concrete floor slab. The undocumented fill, intersecting utilities, abandoned foundations and other questionable materials are **not** rendered suitable for foundation support given questionable strength and compressibility characteristics. These questionable soils shall be removed from the *Footing Zone of Influence* (*FZOI*) to expose the parent Glacial soils. The *FZOI* is defined as that area extending laterally one foot from the edge of footing then outward and downward at a 1H:1V splay (up to a maximum ≈3 ft lateral distance from the edge of footing). The approximate limits of the Undocumented Fill are shown on the attached *Profiles*. Structural Fill necessary to achieve foundation grade should conform to the *Specifications* (Table 1).

There is also concern with the undocumented Fill to remain in-place below the concrete floor slab portions of the building. In general, Granular Fill that is essentially free of organic matter (compressible, decomposable soils) and other unstable soils can likely remain for support of floor slabs or pavements. Such Granular Fill can likely remain with limited risk of post-construction settlement. This is contingent upon the fill being clean and free of organic matter (less than ≈1% by weight). The condition of the fill and presence of organic soils or other unsuitable matter may be reviewed during the deeper footing excavations, the utility removal or prior with test pits. Larger pit excavations provide better review of the subgrade. The existing fill, if to remain, should also be subject to deep densification with a heavy vibratory roller. Specifically, a minimum 2-ton vibratory roller (double-drum vibratory roller) should densify the existing fill making at least 8 passes at peak energy in a cris-cross pattern. As a practical matter, the entire site should be proof-rolled with a heavy roller subsequent to stripping the pavement. This will aid in compacting the shallow fill in the building and pavement areas prior to excavation. The subgrade shall ultimately exhibit stable conditions and be essentially free of organic soils (less than ≈1% by weight). Further review of the dark brown, loamy, silty Sand Fill should be necessary in this regard. Heavy Urban Fill and/or Organic soils should be removed (chased) from the building footprint. Lastly, it is recommended that the gravel base be increased to no less than 14 inches if the existing Fill is to remain below floor slab portions of the building.

The parent subgrade soils should be exposed in the foundation areas prior to casting the footings or placing structural fill. It is recommended that the parent subgrade soils be proof-rolled with vibratory densification and exhibit stable and compact conditions. The purpose of the proof-rolling is to densify the site soils and identify potential loose or unstable areas which should be removed as necessary. Recommended proof-rolling should involve at least 4-5 passes with a vibratory compactor (minimum 950 pound static weight) operating at peak energy. During the proof rolling process, the subgrade should be observed by an Engineer to identify areas exhibiting weaving or instability. It will be necessary to remove weakened or unstable soils and replace with a Structural Fill. Proof-rolling should not be used when the subgrade is wet as this may result in soil pumping and instability. The contractor should exercise extra precaution to minimize subgrade disturbance in these wet areas. Wet conditions, if present, should be continuously maintained at least one foot below construction grade until the backfilling is complete. A base of ¾-inch minus crushed stone should be placed atop the earthen subgrade if wet conditions are present. The stone should be *immediately* placed atop the undisturbed subgrade then tamped with a plate compactor exhibiting stable conditions. The purpose of the stone base is to protect the wet subgrade, facilitate necessary dewatering and provide a dry/stable base upon which to progress foundation construction. Proper groundwater control and storm water management are also necessary to maintain site stability. Groundwater is not expected to impact the project but the restrictive Fine Sand & Silt will inhibit storm drainage and retain water. Wet conditions may be an issue if construction occurs during the winter or spring season. The drier summer months are typically more favorable for groundwater control.

The subgrade should ultimately be stable, dewatered, compact and protected from frost throughout construction. Bearing subgrades that become weakened or disturbed due to wet conditions will be rendered unsuitable for structural support. The Contractor shall ultimately be responsible for the means and methods of temporary groundwater control, subgrade protection and site stability during construction. An Engineer from KMM should be scheduled to review the foundation subgrade conditions and preparation during construction.

FOUNDATION DESIGN RECOMMENDATIONS

The footings are expected to gain bearing support atop the parent glacial soils and/or compacted structural fill. Footings may be designed using an allowable bearing capacity of 6 ksf (FS=3). The allowable bearing capacity may be increased a third (⅓) when considering transient loads such as wind or seismic. The bearing capacity is contingent upon the perimeter strip footings and isolated column footings being no less than 2 ft and 3 ft in width respectively. For footings less than 3 ft in lateral dimension, the allowable bearing capacity should be reduced to one-third and multiplied by the least lateral footing dimension in feet. Foundation settlement should be less than 1 inch with differential settlement less than ½ inch. The settlement should be elastic and occur during construction. Exterior footings shall be provided with at least 4 ft of frost protection. Proper frost protection should be necessary during winter construction.

The subsurface conditions were reviewed with respect to seismic criteria set forth in the ***Massachusetts State Building Code***. Based on the relative density of the soils and the depth to groundwater, the site is not susceptible to liquefaction in the event of an earthquake. Based on interpretation of the *Building Code*, the *Site Classification* is "D" (Stable Soil Profile).

It is recommended that a minimum 10-inch base of *Gravel Base Fill* (Table 1) be placed below the concrete floor slab for moisture, strength and frost control. The gravel base shall be increased to no less than 14 inches for the garage level slab and exterior concrete slabs exposed to frost. A subgrade modulus of 175 pci may be used for design of the floor slab. A vapor retarder should be used below the floor slab dependent upon the floor treatment. A vapor barrier should be specified by others per ACI Standards.

The clean Granular Fill & Granular Outwash may be suitable for re-use as Structural Fill . The Outwash soils are suitable for re-use provided they are segregated from the organic laden soils, are screened of large stones and conform to Specification. The organic laden soils, heavy Urban Fill (glass, ash, etc) and fine-grained Silt & Fine Sand are **not** suitable for re-use as Structural Fill. These soils should preferably be removed from the site given limited re-use on the project.

PROTECTION OF EXISTING FOUNDATION

It is recommended that where the new building is located near existing buildings (393 Cambridge Street) that the footings be constructed at similar grade to mitigate the overlapping of stresses. The *Existing Footing Zone of Influence* of the existing foundation should not be encroached or disturbed without review by a Professional Engineer. The *Existing Footing Zone of Influence* is defined as that area extending laterally one foot from the edge of footing then outward and downward at a 1.5H:1V splay. Per the *Building Code (Section 1805.5)*, an imaginary line drawn between the lower edges of adjoining footings shall not have a steeper slope than 25° (2H:1V) with the horizontal unless the material supporting the higher footing is braced or otherwise retained. There is no present information regarding the adjacent building. This study did not include verification of the existing foundation via test pits. It is expected that the existing foundation extends the typical ≈4 ft (frost depth) below grade). As such, it is not expected that the existing foundation will be compromised during construction. KMM can provide additional technical assistance if the existing foundation needs to be shored or underpinned. It is expected that conventional concrete pit underpinning will be the most practical. It is recommended that an experienced Contractor be retained for the underpinning. A *Technical Submittal* prepared by a qualified Engineer should be provided to outline the proposed means and methods to protect the existing building and construct the new underpinning pits.

CONSTRUCTION CONCERNS

The contractor should be required to maintain a stable-dewatered subgrade for the building foundation and other concerned areas during construction. Subgrade disturbance may be influenced by excavation methods, moisture, precipitation, groundwater control and construction activities. The site soils, especially the Fine Sand & Silt as well as the silty Fill, are considered vulnerable to potential disturbance when exposed to wet conditions and construction activities. The moisture sensitivity of these soils is associated with the high percentage of fine-grained material (silt/fine sand) which acts to retain moisture. The presence of a perched or standing water will further impact the subgrade stability. The Granular Outwash soils are not considered moisture sensitive given good drainage. The contractor should be aware of the moisture concerns and take precautions to reduce subgrade disturbance during construction. Such precautions may include diverting storm run-off away from construction areas, reducing traffic in sensitive areas, minimizing the extent of exposed subgrade if inclement weather is forecast, backfilling footings as soon as practicable and maintaining an effective dewatering program. Soils exhibiting weaving or instability should be over-excavated to a competent bearing subgrade then replaced with a free draining structural fill or crushed stone. The moisture concerns are typically more problematic if construction takes place during the winter to spring season or other periods of inclement weather. A protective base of ¾-inch minus crushed stone may be placed ≈6 inches below and laterally beyond the footing limits for protection during construction. The stone base is to protect the site soils, facilitate any necessary dewatering and provide a dry/stable base upon which to progress foundation construction. The protective base should be considered elective and dependent upon the site conditions. The stone base should be considered necessary if wet conditions are encountered at footing grade. The protective stone base shall be tamped with a plate compactor and exhibit stable conditions. The granular Outwash, if exposed at foundation grade, is well-draining and should not require protective stone.

The groundwater table or puddled storm water, if encountered, will need to be temporarily controlled during construction to complete work in dry conditions and protect the competency of the subgrade. Wet conditions should be continuously maintained at least one foot below construction grade until backfilling is complete. The groundwater or puddled storm water is expected to be controlled with conventional sumps and pumps. The temporary sumps should be filtered with stone and fabric and extend at least ≈18 inches below construction grade. A ≈6 inch lift of ¾-inch minus crushed stone should be placed atop the wet subgrade to protect its competency and facilitate dewatering. The stone base should have positive slope to the sump. Adequate dewatering and storm water management are necessary for maintaining the competency of the site soils.'

The subgrade should ultimately be stable, dewatered, compact and protected from frost throughout construction. Bearing subgrades that become weakened or disturbed due to wet conditions will be rendered unsuitable for structural support. The Contractor shall ultimately be responsible for the means and methods of temporary groundwater control, subgrade protection and site stability during construction. An Engineer from KMM should be scheduled to review the foundation subgrade conditions and preparation during construction.

LATERAL SUPPORT OF EXCAVATION

Deep excavations (greater than ≈5-9 ft) are expected for foundation construction and possibly for utility installation around the property. Excavations should be sloped and/or laterally supported in accordance with the *Occupational and Health Administration (OSHA)* regulations (29 CFR Part 1926) and the *Commonwealth of Massachusetts Department of Labor and Industries Division of Industrial Safety (DLIDIS) - Rules and Regulations for the Prevention of Accidents in Construction Operations* (454 CMR 10.00), Part 14. Should excavations be sloped, the minimum slope based on soil type (Undocumented Fill/ Granular Outwash) is 1.5H:1V provided the groundwater is properly lowered below the bottom of the excavation. The foregoing slope requirement does not consider surcharge loads (stockpiled soils, equipment, materials, etc) which may be situated at the crest of the slope and vibration loads (soil compaction, sheet piling, etc). It should be noted that these slope requirements are minimums required by OSHA/DLIDIS regulations. The contractor should be ultimately responsible for design, maintenance and stability of the temporary slopes and/or shoring associated with construction activities.

Laterally supported earth systems should be designed by a qualified Professional Engineer retained by the contractor per OSHA Regulations. The deeper excavations along the property limits are expected to require excavation support given the abutting property limits, existing buildings as well as surrounding utilities and roadways. Cantilevered sheeting or soldier piles with lagging are expected to be feasible for depths of ≈8-10 ft. Excavation support is expected to impact the project from a budgetary perspective.

CONSTRUCTION MONITORING

It is recommended that a qualified engineer or representative be retained to review earthwork activities such as the preparation of the foundation bearing subgrade and the placement/compaction of Structural Fill. It is recommended that KMM be retained to provide construction monitoring services. This is to observe compliance with the design concepts presented herein.

We trust the contents of this memorandum report are responsive to your needs at this time. Should you have any questions or require additional assistance, please do not hesitate to contact our office.

LIMITATIONS

Explorations

1. The analyses, recommendations and designs submitted in this report are based in part upon the data obtained from preliminary subsurface explorations. The nature and extent of variations between these explorations may not become evident until construction. If variations then appear evident, it will be necessary to re-evaluate the recommendations of this report.

2. The generalized soil profile described in the text is intended to convey trends in subsurface conditions. The boundaries between strata are approximate and idealized and have been developed by interpretation of widely spaced explorations and samples; actual soil transitions are probably more gradual. For specific information, refer to the individual test pit and/or boring logs.

3. Water level readings have been made in the test pits and/or test borings under conditions stated on the logs. These data have been reviewed and interpretations have been made in the text of this report. However, it must be noted that fluctuations in the level of the groundwater may occur due to variations in rainfall, temperature, and other factors differing from the time the measurements were made.

Review

4. It is recommended that this firm be given the opportunity to review final design drawings and specifications to evaluate the appropriate implementation of the recommendations provided herein.

5. In the event that any changes in the nature, design, or location of the proposed areas are planned, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed and conclusions of the report modified or verified in writing by KMM Geotechnical Consultants, LLC.

Construction

6. It is recommended that this firm be retained to provide geotechnical engineering services during the earthwork phases of the work. This is to observe compliance with the design concepts, specifications, and recommendations and to allow design changes in the event that subsurface conditions differ from those anticipated prior to the start of construction.

Use of Report

7. This report has been prepared for the exclusive use of CRM Property Management Corp. in accordance with generally accepted soil and foundation engineering practices. No other warranty, expressed or implied, is made.

8. This report has been prepared for this project by KMM Geotechnical Consultants, LLC. This report was completed for preliminary design purposes and may be limited in its scope to complete an accurate bid. Contractors wishing a copy of the report may secure it with the understanding that its scope is limited to preliminary geotechnical design considerations only.

TABLE 1

Proposed Building
415 Cambridge Street
Allston, MA

Recommended Soil Gradation & Compaction Specifications

Gravel Base Fill
(Select Gravel Fill)

SIEVE SIZE	PERCENT PASSING BY WEIGHT
3 inch	100
3/4 inch	60-90
No. 4	20-70
No. 200	2-8

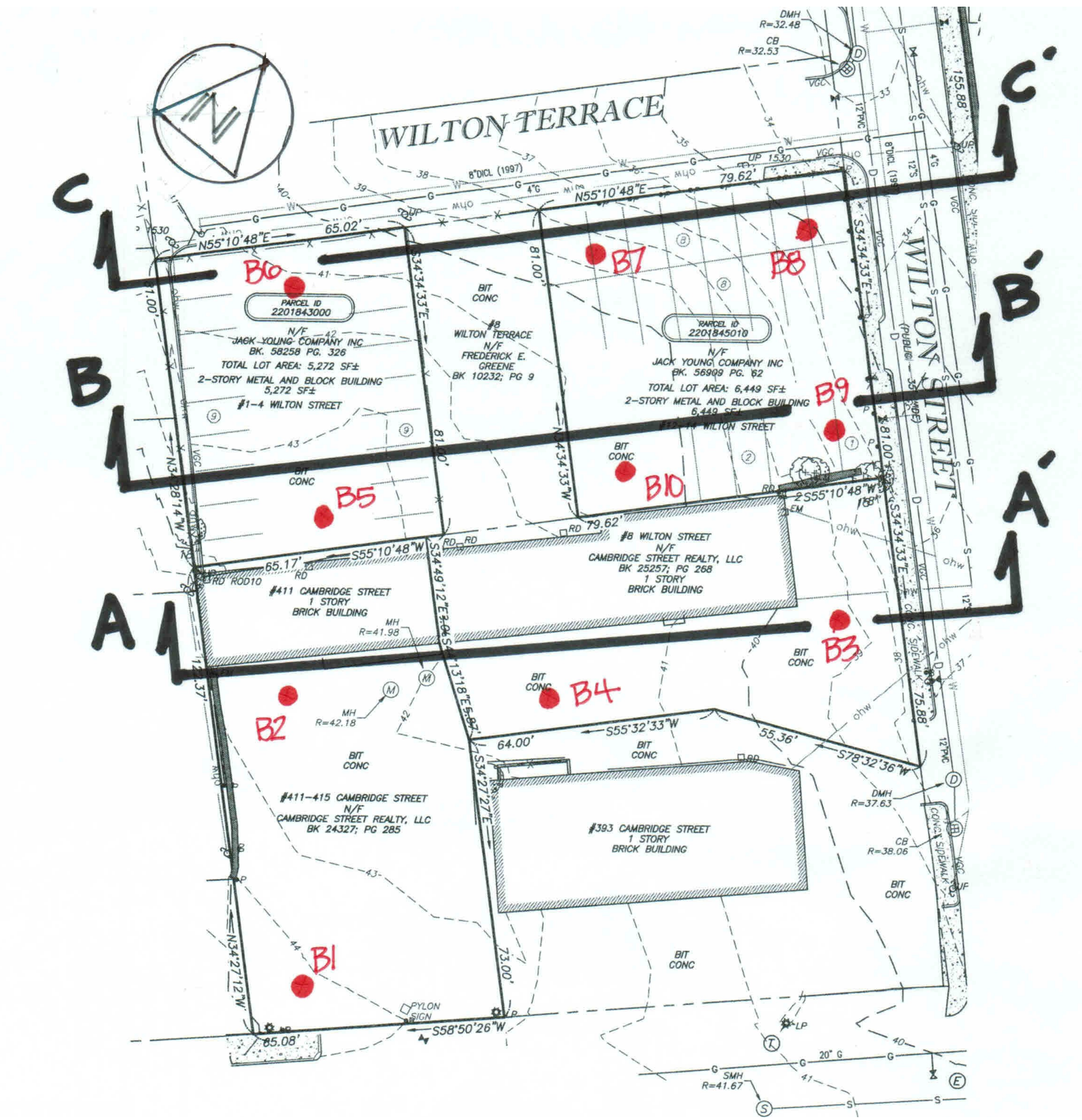
NOTE: For minimum 10-inch base below Concrete Floor Slab-on-Grade
For minimum 14-inch base for exterior concrete slabs exposed to frost
For minimum 14-inch base below vehicular garage level slab
Shall have less than 12% fines (No. 200 sieve) based on the Sand fraction

Structural Fill
(Gravelly SAND, little Silt)

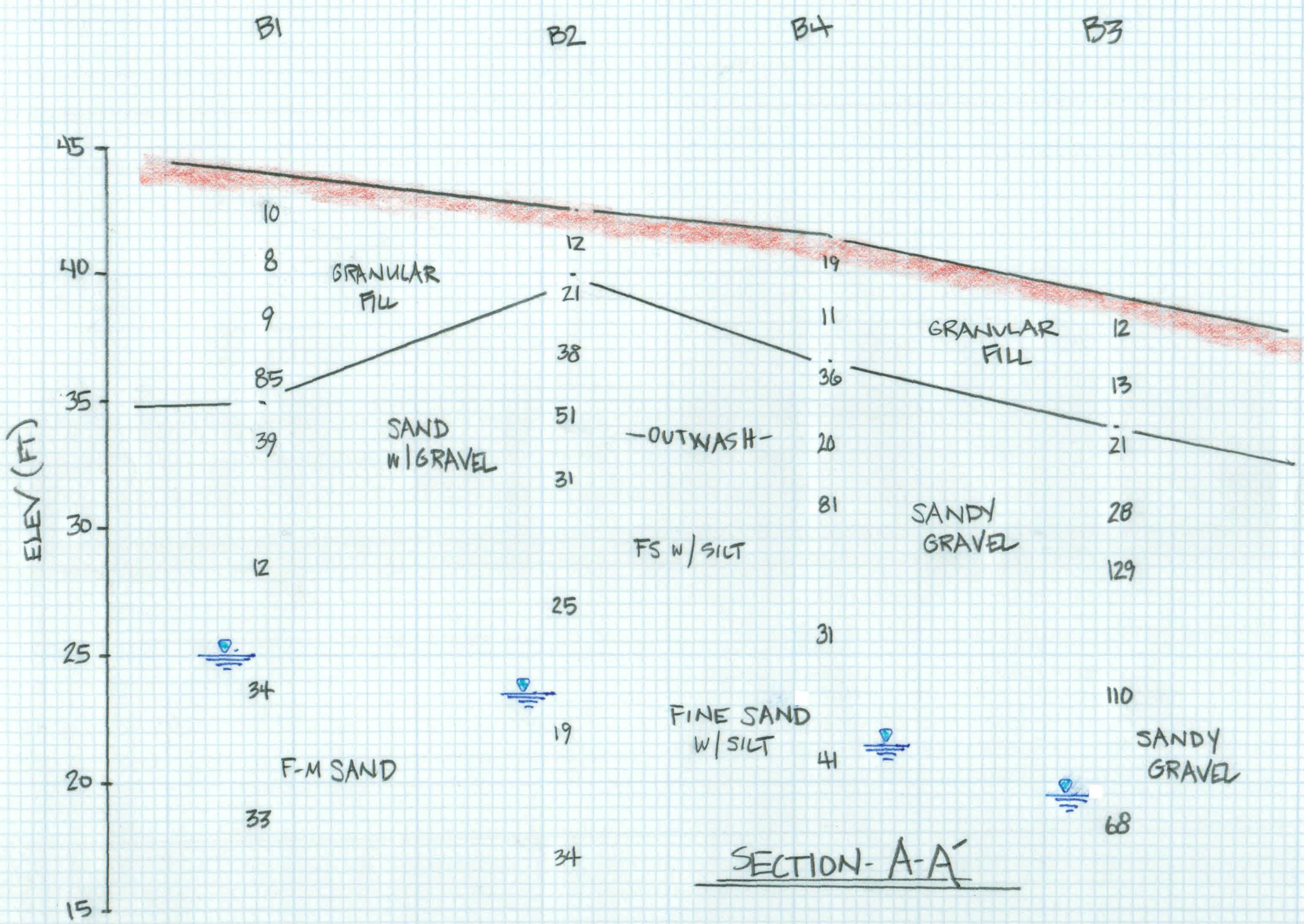
SIEVE SIZE	PERCENT PASSING BY WEIGHT
5 inch	100
3/4 inch	60-100
No. 4	20-80
No. 200	0-10

NOTE: For use as structural load support below the foundations
For use as backfill behind unbalanced foundation/retaining walls
A one-inch minus crushed stone may be used in wet conditions

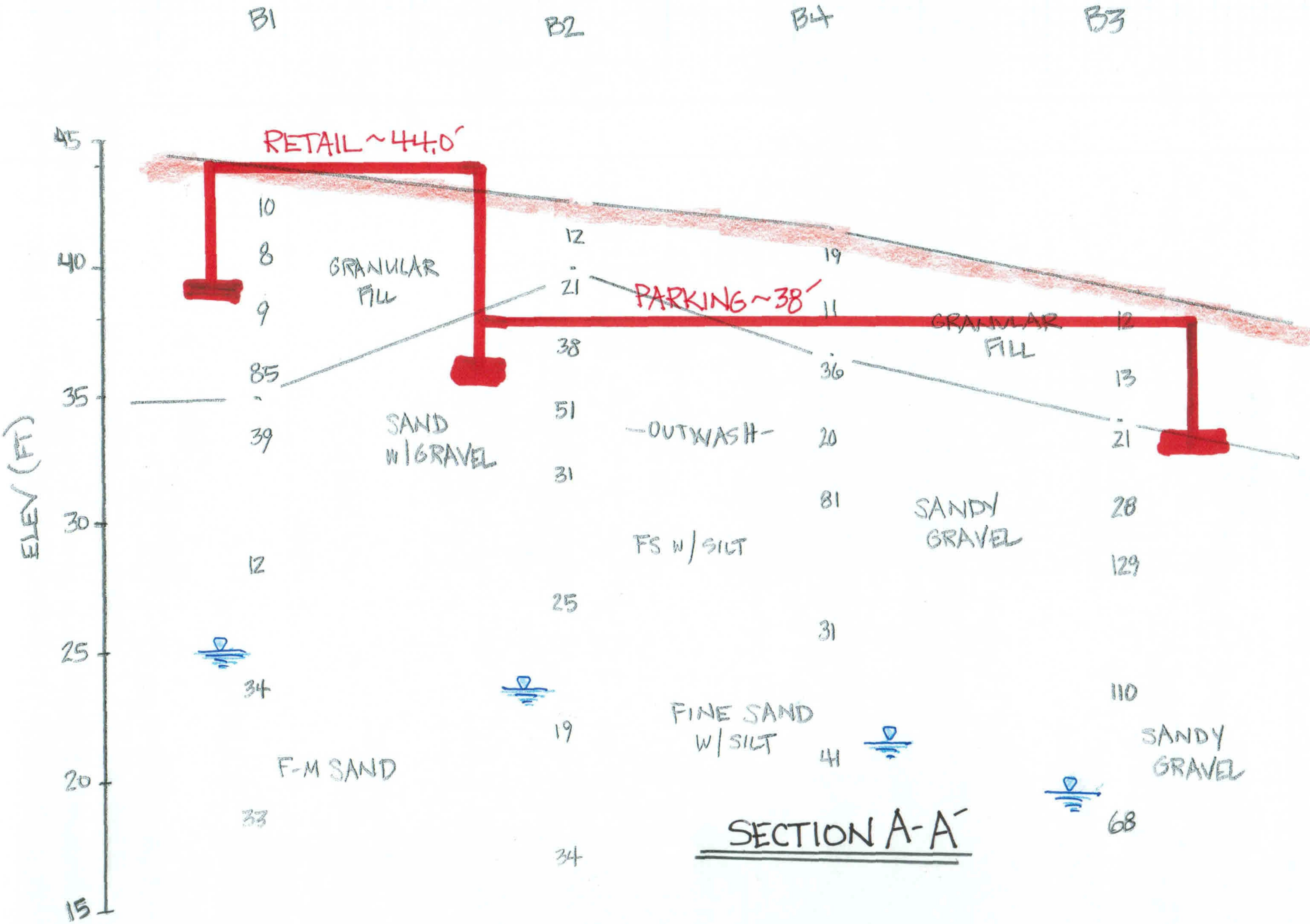
Structural Fill placed beneath the foundation should include the *Footing Zone of Influence* which is defined as that area extending laterally one foot from the edge of the footing then outward and downward at a 1H:1V splay. Structural Fill should be placed in loose lifts not exceeding 12 inches for heavy vibratory rollers and 8 inches for vibratory plate compactors. Structural Fill on the project should be compacted to at least 95 percent of maximum dry density as determined by the Modified Proctor Test (ASTM-D1557). The fill shall be compacted within ±2 of the optimum moisture content. The adequacy of the compaction efforts should be verified by field density testing which is also a requirement of the *Massachusetts State Building Code*.



TEST BORE LOCATIONS & PROFILE SECTIONS



B1
B2
B4
B3
45
40
35
30
25
20
15
ELEV (FT)
10
8
9
85
39
12
34
33
12
21
38
51
31
25
19
34
19
11
36
20
81
31
41
12
13
21
28
129
110
68
GRANULAR FILL
GRANULAR FILL
SAND W/GRAVEL
-OUTWASH-
FS W/SILT
SANDY GRAVEL
FINE SAND W/SILT
F-M SAND
SANDY GRAVEL
SECTION- A-A´


B1
B2
B4
B3
RETAIL ~ 44.0'
PARKING ~ 38'
GRANULAR FILL
GRANULAR FILL
SAND W/GRAVEL
-OUTWASH-
FS W/SILT
SANDY GRAVEL
FINE SAND W/SILT
F-M SAND
SANDY GRAVEL
ELEV (FT)
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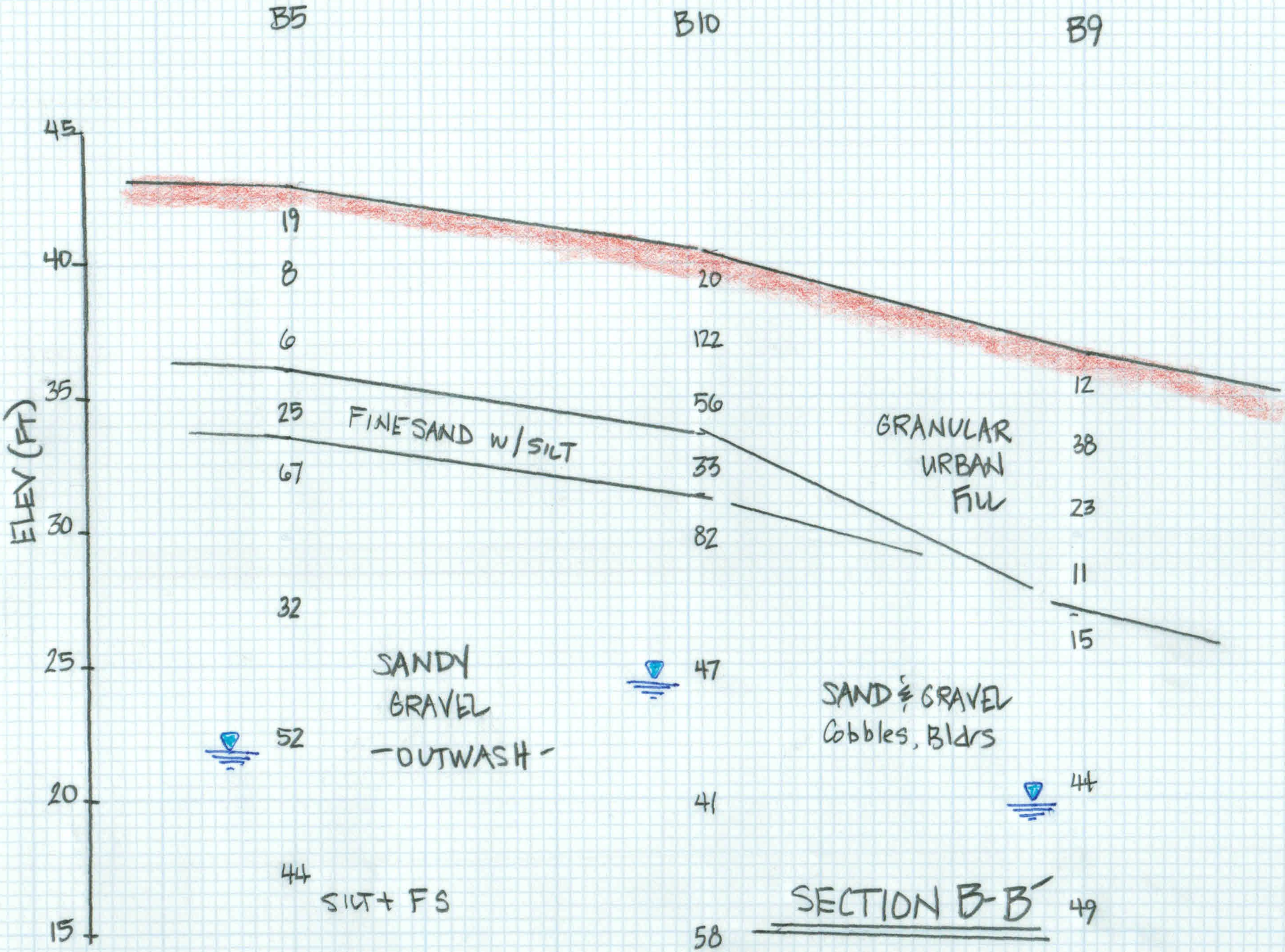
SECTION A-A'


B5
B10
B9
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15
ELEV (FT)
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6
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67
32
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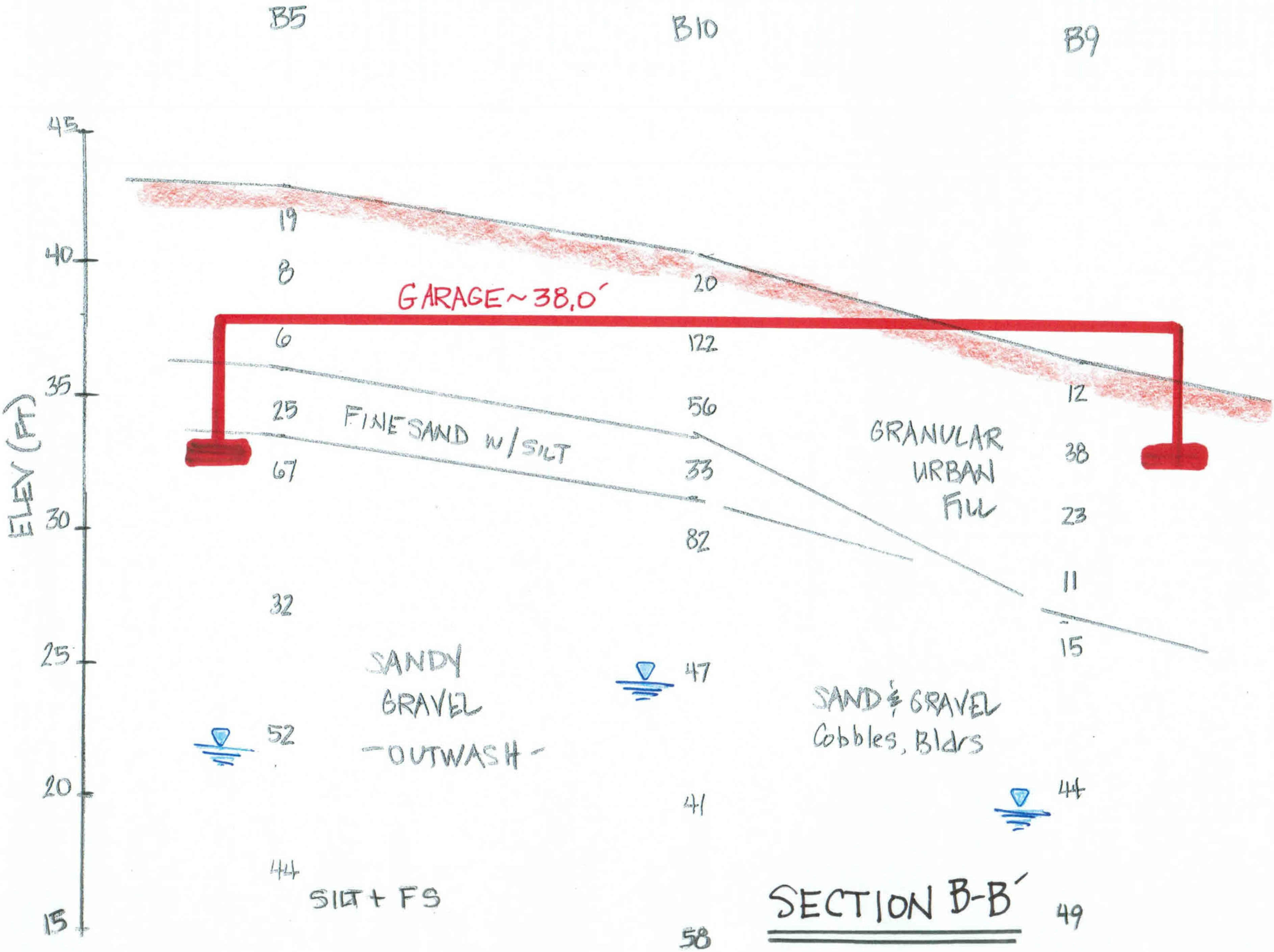
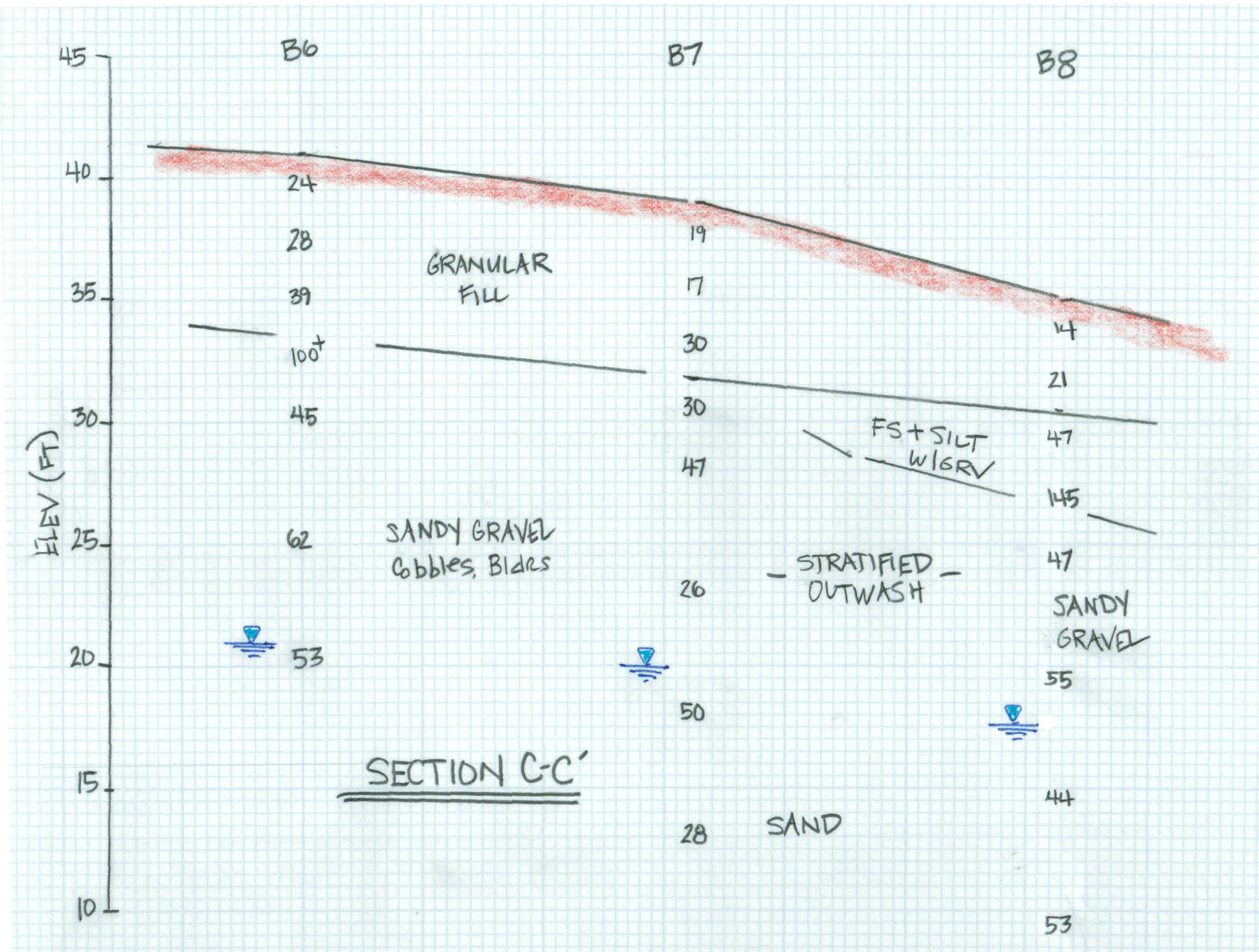
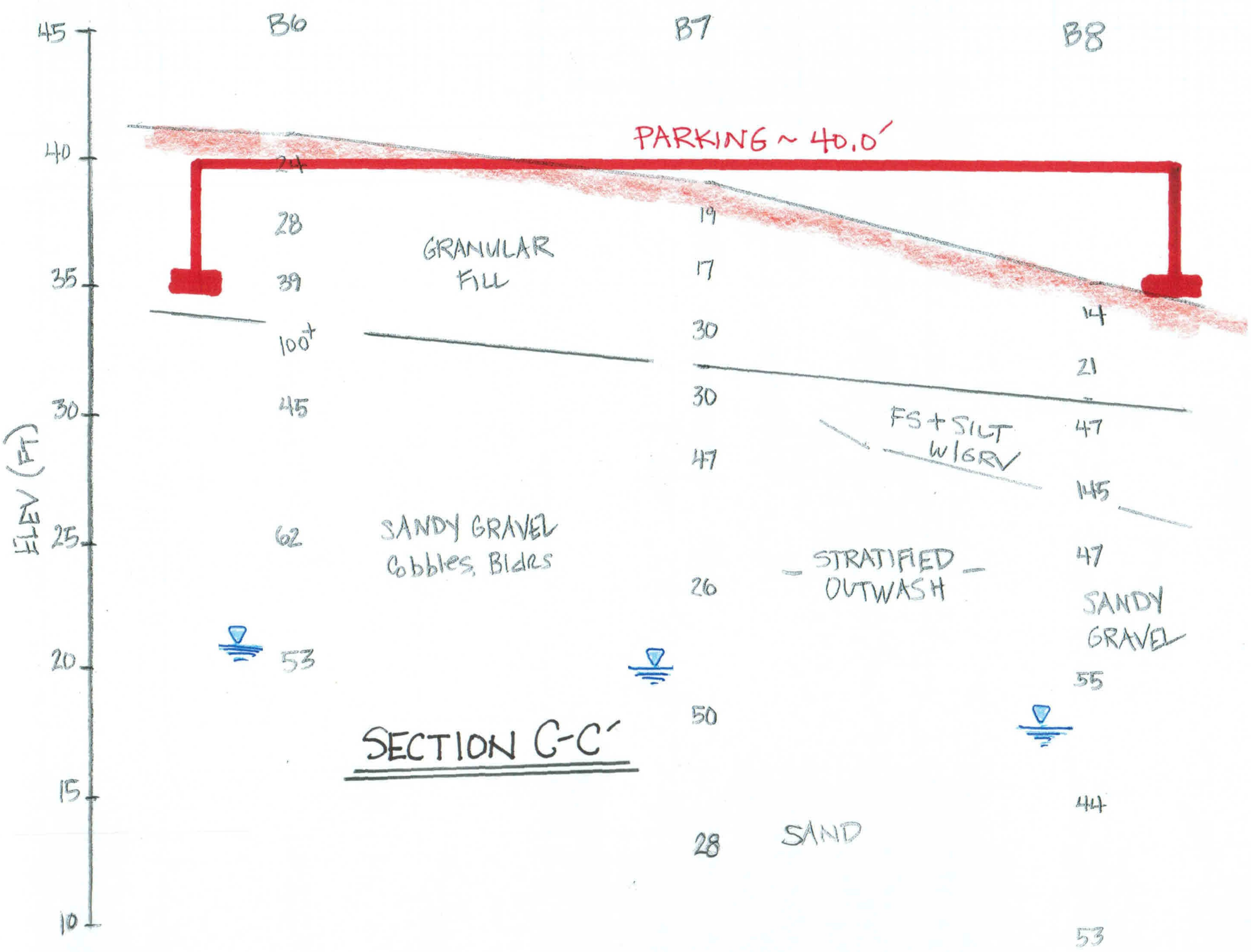
44
20
122
56
33
82
47
41
58
12
38
23
11
15
44
49
FINE SAND w/ SILT
GRANULAR URBAN FILL
SANDY GRAVEL
-OUTWASH-
SAND & GRAVEL
Cobbles, Bldrs
SILT + FS
SECTION B-B'


B5
B10
B9
45
40
35
30
25
20
15
ELEV (FT)
GARAGE ~ 38.0'
19
8
6
25
67
32
52
44
20
122
56
33
82
47
41
58
12
38
23
11
15
44
49
FINE SAND w/SILT
GRANULAR URBAN FILL
SANDY GRAVEL
-OUTWASH-
SAND & GRAVEL
Cobbles, Bldrs
SILT + FS

SECTION B-B'


B6
B7
B8
ELEV (FT)
45
40
35
30
25
20
15
10
24
28
39
100+
45
62
53
19
17
30
30
47
26
50
28
14
21
47
145
47
55
44
53
GRANULAR
FILL
SANDY GRAVEL
Cobbles, Bldrs
FS + SILT
W/GRV
STRATIFIED
OUTWASH
SANDY
GRAVEL
SAND
SECTION C-C'


B6
B7
B8
PARKING ~ 40.0'
ELEV (FT)
45
40
35
30
25
20
15
10
24
28
39
100+
45
62
53
19
17
30
30
47
26
50
28
14
21
47
145
47
55
44
53
GRANULAR FILL
SANDY GRAVEL Cobbles, Bldrs
FS + SILT W/GRV
STRATIFIED OUTWASH
SANDY GRAVEL
SAND
SECTION C-C'

TEST BORING LOG

SHEET 1

Soil Exploration Corp.
Geotechnical Drilling
Groundwater Monitor Well
148 Pioneer Drive
Leominster, MA 01453
978 840-0391

Proposed Building
Site 411-415 Cambridge Street
Allston, MA.

BORING B-1

PROJECT NO. 18-0314

DATE: March 14, 2018

Ground Elevation:
Date Started: March 12, 2018
Date Finished: March 12, 2018
Driller: TF
Soil Engineer/Geologist:

GROUNDWATER OBSERVATIONS

DATE	DEPTH	CASING	STABILIZATION
3/12/18	19 ft	n/a	Upon Completion

Depth Ft.	Casing bl/ft	Sample No.	Sample Pen/Rec	Sample Depth	Sample Blows/6"	Strata	Visual Identification of Soil and / or Rock Sample
							Asphalt
						4"	
		1	12"	0'6 – 2'6"	7-6-4-5		
1							Dark Brown, silty Sand w/ gravel, brick, rubble (FILL)
		2	10"	2'6" – 4'6"	4-4-4-6		
							Dark Brown, silty Sand, gravel, cobbles, brick, concrete (FILL)
5		3	10"	5'0"- 7'0"	5-4-5-7		
						7'	
		4	8"	7'0" - 9'0"	7-51-34-12		Sand w/ gravel, rubble, dry (FILL)
						9'	
10		5	14"	10'0" - 12'0"	9-13-26-21		Brown, fine to medium Sand, little gravel, dry
						14'	
15		6	12"	15'0" - 17'0"	5-6-6-7		Brown, mottled, Silt, little fine sand
						18'	
20		7	14"	20'0"– 22'0"	12-15-19-18		Brown, fine to medium Sand, little gravel, little silt, wet
25		8	20"	25'0" – 27'0"	14-15-18-22		
							End of boring at 27 ft Water encountered at 19 ft upon completion
30							
35							

Notes: Hollow Stem Auger Size 4-1/4"

Cohesionless: 0 - 4 V. Loose, 4 - 10 Loose, 10 -30 M Dense, 30 -50 Dense, 50+ V
Cohesive: 0 -2 V Soft, 2 -4 Soft, 4 -8 M 8 -15 Stiff, 15 -30 V. Stiff, 30 + Hard.

Trace	0 to 10%
Little	10 to 20%
Some	20 to 35%
And	35% to 50%

	CASING	SAMPLE	CORE TYPE
ID SIZE (IN)		SS	
HAMMER WGT (LB)		140 lb.	
HAMMER FALL (IN)		30"	

TEST BORING LOG

SHEET 2

Soil Exploration Corp. Geotechnical Drilling Groundwater Monitor Well 148 Pioneer Drive Leominster, MA 01453 978 840-0391	**Proposed Building** **Site 411-415 Cambridge Street** **Allston, MA.**	BORING B-2 PROJECT NO. 18-0314 DATE: March 14, 2018

Ground Elevation:
Date Started: March 12, 2018
Date Finished: March 12, 2018
Driller: TF
Soil Engineer/Geologist:

GROUNDWATER OBSERVATIONS

DATE	DEPTH	CASING	STABILIZATION
3/12/18	20 ft	n/a	

Depth Ft.	Casing bl/ft	Sample No.	Pen/Rec	Depth	Blows/6"	Strata	Visual Identification of Soil and / or Rock Sample
							Asphalt
						3"	
		1	6"	0'6 – 2'6"	4-5-7-6		Black, silty Sand, little gravel (FILL)
1							
		2	12"	2'6" – 4'6"	7-10-11-14	2'6"	Brown, fine to coarse Sand & Gravel, trace silt, cobbles
5		3	12"	5'0"- 7'0"	16-17-21-23		Brown, f-m Sand, some gravel, little silt
		4	10"	7'0" - 9'0"	15-19-32-31		Brown, f-c Sand & Gravel (SANDY GRAVEL)
						10'	
10		5	18"	10'0" - 12'0"	22-17-14-15		Brown, Fine Sand & Silt, little gravel
							Brown, Silt w/ Fine Sand
15		6	6"	15'0" - 16'0"	12-14	16'	
		6A	6"	16'0" - 17'0"	11-11		Brown, f-m Sand, trace silt, dry
						18'	
20		7	18"	20'0"– 22'0"	10-8-11-16		Brown, Silt, trace sand, clay, gravel
25		8	12"	25'0" – 27'0"	12-14-20-17		Brown, fine to medium Sand, wet Brown Silt, wet
							End of boring at 27 ft Water Encountered at 20 ft
30							
35							

Notes: Hollow Stem Auger Size 4-1/4"

Cohesionless: 0 - 4 V. Loose, 4 - 10 Loose,	Trace 0 to 10%		CASING	SAMPLE	CORE TYPE
10 -30 M Dense, 30 -50 Dense, 50+ V	Little 10 to 20%	ID SIZE (IN)		SS	
Cohesive: 0 -2 V Soft, 2 -4 Soft, 4 -8 M	Some 20 to 35%	HAMMER WGT (LB)		140 lb.	

TEST BORING LOG

SHEET 3

Soil Exploration Corp. Geotechnical Drilling Groundwater Monitor Well 148 Pioneer Drive Leominster, MA 01453 978 840-0391	**Proposed Building** **Site 411-415 Cambridge Street** **Allston, MA.**	BORING B-3 PROJECT NO. 18-0314 DATE: March 14, 2018

Ground Elevation:
Date Started: March 12, 2018
Date Finished: March 12, 2018
Driller: TF
Soil Engineer/Geologist:

GROUNDWATER OBSERVATIONS

DATE	DEPTH	CASING	STABILIZATION
3/12/18	20 ft	n/a	

Depth Ft.	Casing bl/ft	Sample No.	Pen/Rec	Depth	Blows/6"	Strata	Visual Identification of Soil and / or Rock Sample
							Asphalt
						3"	
		1	10"	0'6" – 2'6"	5-5-7-8		Black Sand & Gravel, little silt
1							
		2	12"	2'6" – 4'6"	8-7-6-7		Same trace ash, rubble, glass, brick (FILL)
						5'	
5		3	10"	5'0"- 7'0"	9-10-11-16		Brown, fine to coarse Sand & Gravel, trace silt, dry
		4	12"	7'0" - 9'0"	11-12-16-15		
							Brown, fine to coarse Sand & Gravel, trace silt, cobbles, dry
10		5	6"	10'0" - 11'6"	47-56-73		
							(OUTWASH)
15		6	8"	15'0" - 17'0"	37-42-68		Brown, fine to coarse Sand & Gravel, trace silt, small boulders, cobbles, dry
20		7	8"	20'0"– 22'0"	29-37-31-52		Same, wet
							End of boring at 22 ft Water encountered at 20 ft upon completion
25							
30							
35							

Notes: Hollow Stem Auger Size 4-1/4"

Cohesionless: 0 - 4 V. Loose, 4 - 10 Loose,	Trace 0 to 10%		CASING	SAMPLE	CORE TYPE
10 -30 M Dense, 30 -50 Dense, 50+ V	Little 10 to 20%	ID SIZE (IN)		SS	
Cohesive: 0 -2 V Soft, 2 -4 Soft, 4 -8 M	Some 20 to 35%	HAMMER WGT (LB)		140 lb.	
8 -15 Stiff, 15 -30 V. Stiff, 30 + Hard.	And 35% to 50%	HAMMER FALL (IN)		30"	

TEST BORING LOG

SHEET 4

Soil Exploration Corp.
Geotechnical Drilling
Groundwater Monitor Well
148 Pioneer Drive
Leominster, MA 01453
978 840-0391

Proposed Building
Site 411-415 Cambridge Street
Allston, MA.

BORING B-4

PROJECT NO. 18-0314

DATE: March 14, 2018

Ground Elevation:
Date Started: March 12, 2018
Date Finished: March 12, 2018
Driller: TF
Soil Engineer/Geologist:

GROUNDWATER OBSERVATIONS

DATE	DEPTH	CASING	STABILIZATION
3/12/18	20 ft	n/a	

Depth Ft.	Casing bl/ft	Sample No.	Pen/Rec	Depth	Blows/6"	Strata	Visual Identification of Soil and / or Rock Sample
						3"	Asphalt
1		1	12"	0'6" – 2'6"	6-7-12-14	2'6"	Black, Sand & Gravel, little silt
		2	12"	2'6" – 4'6"	17-5-6-5	5'	Black Sand, gravel, cinders, ash, glass (URBAN FILL)
5		3	6"	5'0"- 7'0"	7-15-21-27		Brown, fine to coarse Sand & Gravel, trace silt
		4	12"	7'0" - 9'0"	9-9-11-15	10'	Dark Brown, Sand & Gravel (POSSIBLE FILL?)
10		5	6"	10'0" - 12'0"	26-44-37-53	12'	Brown, fine to coarse Sand, little gravel, trace silt
15		6		15'0" - 17'0"	12-16-15-18	18'	Brown, fine to medium Sand, trace silt, dry
20		7	10"	20'0"– 22'0"	21-22-19-28		Brown, Fine Sand, some silt, wet
							End of boring at 22 ft Water encountered at 20 ft upon completion
25							
30							
35							

Notes: Hollow Stem Auger Size 4-1/4"

			CASING	SAMPLE	CORE TYPE
Cohesionless: 0 - 4 V. Loose, 4 - 10 Loose,	Trace	0 to 10%			
10 -30 M Dense, 30 -50 Dense, 50+ V	Little	10 to 20%	ID SIZE (IN)	SS	
Cohesive: 0 -2 V Soft, 2 -4 Soft, 4 -8 M	Some	20 to 35%	HAMMER WGT (LB)	140 lb.	
8 -15 Stiff, 15 -30 V. Stiff, 30 + Hard.	And	35% to 50%	HAMMER FALL (IN)	30"	

TEST BORING LOG
SHEET 1

Soil Exploration Corp.
Geotechnical Drilling
Groundwater Monitor Well
148 Pioneer Drive
Leominster, MA 01453
978 840-0391

Proposed Building
Site: 1-4 Wilton Terrace
Allston, MA.

BORING B-5

PROJECT NO. 18-0314

DATE: March 20, 2018

Ground Elevation:
Date Started: March 16, 2018
Date Finished: March 16, 2018
Driller: TF
Soil Engineer/Geologist:

GROUNDWATER OBSERVATIONS

DATE	DEPTH	CASING	STABILIZATION
3/16/18	19 ft	n/a	

Depth Ft.	Casing bl/ft	Sample No.	Pen/Rec	Depth	Blows/6"	Strata	Visual Identification of Soil and / or Rock Sample
							Asphalt
						2"	
1		1	12"	0'6 – 2'6"	7-8-11-12		Brown, silty Sand w/ gravel, brick, rubble
		2	6"	2'6" – 4'6"	10-4-4-12		Sand w/ gravel, rubble (URBAN FILL)
5		3	6"	5'0"- 7'0"	3-3-3-5		Black, silty Sand, little gravel, clay, cobbles, bricks (FILL)
						7'	
		4	12"	7'0" - 9'0"	7-11-14-14		Brown, mottled, Fine Sand & Silt
						9'	
10		5	8"	10'0" - 12'0"	18-26-41-57		Brown, fine to coarse Sand & Gravel, trace silt, cobbles, dry
15		6	12"	15'0" - 17'0"	12-14-18-27		Brown, f-c Sand & Gravel, little silt, dry (OUTWASH)
20		7	18"	20'0"– 22'0"	21-24-28-31		Brown, fine to coarse Sand & Gravel, trace silt, cobbles, dry
						22'	
25		8	16"	25'0" – 27'0"	19-21-23-26		Brown, Silt w/ Fine Sand, wet
							End of boring at 27 ft Water encountered at 21 ft upon completion
30							
35							

Notes: Hollow Stem Auger Size 4-1/4"

Cohesionless: 0 - 4 V. Loose, 4 - 10 Loose, 10 -30 M Dense, 30 -50 Dense, 50+ V
Cohesive: 0 -2 V Soft, 2 -4 Soft, 4 -8 M 8 -15 Stiff, 15 -30 V. Stiff, 30 + Hard.

Trace	0 to 10%
Little	10 to 20%
Some	20 to 35%
And	35% to 50%

	CASING	SAMPLE	CORE TYPE
ID SIZE (IN)		SS	
HAMMER WGT (LB)		140 lb.	
HAMMER FALL (IN)		30"	

TEST BORING LOG

SHEET 2

Soil Exploration Corp. Geotechnical Drilling Groundwater Monitor Well 148 Pioneer Drive Leominster, MA 01453 978 840-0391	**Proposed Building** **Site: 1-4 Wilton Terrace** **Allston, MA.**	BORING B-6 PROJECT NO. 18-0314 DATE: March 20, 2018

Ground Elevation:
Date Started: March 16, 2018
Date Finished: March 16, 2018
Driller: TF
Soil Engineer/Geologist:

GROUNDWATER OBSERVATIONS

DATE	DEPTH	CASING	STABILIZATION
3/16/18	20 ft	n/a	

Depth Ft.	Casing bl/ft	Sample No.	Pen/Rec	Depth	Blows/6"	Strata	Visual Identification of Soil and / or Rock Sample
						2"	Asphalt
1		1	12"	0'6 – 2'6"	7-8-16-12		Dark Brown, Sand & Gravel, little silt
		2	12"	2'6" – 4'6"	10-16-12-15		Sand/Concrete
5		3	12"	5'0"- 7'0"	18-23-16-42		Brown, fine to coarse Sand & Gravel, brick (FILL)
		4	4"	7'0" - 7'4"	80/4"	8'	cobbles
10		5	10"	10'0" - 12'0"	12-14-31-16		Brown, Sand & Gravel, little silt, dry
15		6	12"	15'0" - 17'0"	24-29-33-37		Brown, fine to coarse Sand & Gravel, trace silt, cobbles, boulders, dry (OUTWASH)
20		7	10"	20'0"– 22'0"	16-24-29-40		End of boring at 22 ft Water encountered at 20 ft upon completion
25							
30							
35							

Notes: Hollow Stem Auger Size 4-1/4"

			CASING	SAMPLE	CORE TYPE
Cohesionless: 0 - 4 V. Loose, 4 - 10 Loose,	Trace 0 to 10%				
10 -30 M Dense, 30 -50 Dense, 50+ V	Little 10 to 20%	ID SIZE (IN)		SS	
Cohesive: 0 -2 V Soft, 2 -4 Soft, 4 -8 M	Some 20 to 35%	HAMMER WGT (LB)		140 lb.	
8 -15 Stiff, 15 -30 V. Stiff, 30 + Hard.	And 35% to 50%	HAMMER FALL (IN)		30"	

TEST BORING LOG

SHEET 1

Soil Exploration Corp. Geotechnical Drilling Groundwater Monitor Well 148 Pioneer Drive Leominster, MA 01453 978 840-0391	**Proposed Building** **Site 12-14 Wilton Street** **Allston, MA.**	BORING B-7 PROJECT NO. 18-0314 DATE: March 14, 2018

Ground Elevation:
Date Started: March 12, 2018
Date Finished: March 12, 2018
Driller: TF
Soil Engineer/Geologist:

GROUNDWATER OBSERVATIONS			
DATE	DEPTH	CASING	STABILIZATION
3/12/18	19 ft	n/a	

Depth Ft.	Casing bl/ft	Sample No.	Pen/Rec	Sample Depth	Blows/6"	Strata	Visual Identification of Soil and / or Rock Sample
						3"	Asphalt
1		1	8"	0'6 – 2'6"	5-16-3-7		Brown, f-c Sand & Gravel, little silt
		2	4"	2'6" – 4'6"	8-12-5-5		Sand, gravel, rubble, brick (FILL)
5		3	12"	5'0"- 7'0"	6-7-23-10	7'	Same, trace organic, ash (FILL)
		4	12"	7'0" - 9'0"	13-18-12-16		Brown, fine to coarse Sand & Gravel, trace silt, dry
10		5	10"	10'0" - 12'0"	16-21-26-27		(STRATIFIED OUTWASH)
15		6	14"	15'0" - 17'0"	8-12-14-20		Brown, fine to medium Sand, dry (SAND)
20		7	16"	20'0"– 22'0"	21-23-27-31		Brown, fine to coarse Sand & Gravel, trace silt, cobbles, wet
25		8	16"	25'0" – 27'0"	10-12-16-17		Brown, fine to medium Sand, trace silt, wet (SAND)
							End of boring at 27 ft Water encountered at 19 ft upon completion
30							
35							

Notes: Hollow Stem Auger Size 4-1/4"

				CASING	SAMPLE	CORE TYPE
Cohesionless: 0 - 4 V. Loose, 4 - 10 Loose,	Trace	0 to 10%				
10 -30 M Dense, 30 -50 Dense, 50+ V	Little	10 to 20%	ID SIZE (IN)		SS	
Cohesive: 0 -2 V Soft, 2 -4 Soft, 4 -8 M	Some	20 to 35%	HAMMER WGT (LB)		140 lb.	
8 -15 Stiff, 15 -30 V. Stiff, 30 + Hard.	And	35% to 50%	HAMMER FALL (IN)		30"	

TEST BORING LOG

SHEET 2

Soil Exploration Corp.
Geotechnical Drilling
Groundwater Monitor Well
148 Pioneer Drive
Leominster, MA 01453
978 840-0391

Proposed Building
Site 12-14 Wilton Street
Allston, MA.

BORING B-8

PROJECT NO. 18-0314

DATE: March 14, 2018

Ground Elevation:
Date Started: March 12, 2018
Date Finished: March 12, 2018
Driller: TF
Soil Engineer/Geologist:

GROUNDWATER OBSERVATIONS			
DATE	DEPTH	CASING	STABILIZATION
3/12/18	18 ft	n/a	

Depth Ft.	Casing bl/ft	Sample No.	Pen/Rec	Depth	Blows/6"	Strata	Visual Identification of Soil and / or Rock Sample
							Asphalt
						3"	
1		1	12"	0'6" – 2'6"	6-6-8-9		Dark Brown, silty Sand, little gravel (FILL)
		2	14"	2'6" – 4'6"	7-7-14-19		Dark Brown, loamy, silty Sand, little gravel, brick (FILL)
						4'6"	
5		3	8"	5'0"- 7'0"	14-20-27-38		Fine Sand & Silt, little clay embedded with gravel, fine to medium sand (POSSIBLE FILL)
		4	10"	7'0" - 8'6"	34-62-83		
						9'	
10		5	12"	10'0" - 12'0"	18-21-26-34		Brown, fine to coarse Sand & Gravel, trace silt, cobbles, dry (OUTWASH)
15		6	12"	15'0" - 17'0"	22-27-28-36		Brown, fine to coarse Sand & Gravel, trace silt, cobbles, dry
20		7	12"	20'0"– 22'0"	17-18-26-29		Brown, fine to coarse Sand & Gravel, trace silt, cobbles, wet
25		8	12"	25'0" – 27'0"	21-24-29-39		Brown, fine to coarse Sand & Gravel, trace silt, cobbles
							End of boring at 27 ft Water encountered at 18 ft upon completion
30							
35							

Notes: Hollow Stem Auger Size 4-1/4"

Cohesionless: 0 - 4 V. Loose, 4 - 10 Loose, 10 -30 M Dense, 30 -50 Dense, 50+ V
Cohesive: 0 -2 V Soft, 2 -4 Soft, 4 -8 M

Trace	0 to 10%
Little	10 to 20%
Some	20 to 35%

	CASING	SAMPLE	CORE TYPE
ID SIZE (IN)		SS	
HAMMER WGT (LB)		140 lb.	

TEST BORING LOG

SHEET 3

Soil Exploration Corp.
Geotechnical Drilling
Groundwater Monitor Well
148 Pioneer Drive
Leominster, MA 01453
978 840-0391

Proposed Building
Site 12-14 Wilton Street
Allston, MA.

BORING B-9

PROJECT NO. 18-0314

DATE: March 14, 2018

Ground Elevation:
Date Started: March 12, 2018
Date Finished: March 12, 2018
Driller: TF
Soil Engineer/Geologist:

GROUNDWATER OBSERVATIONS

DATE	DEPTH	CASING	STABILIZATION
3/12/18	18 ft	n/a	

Depth Ft.	Casing bl/ft	Sample No.	Pen/Rec	Depth	Blows/6"	Strata	Visual Identification of Soil and / or Rock Sample
							Asphalt
						3"	
		1	16"	0'6" – 2'6"	4-5-7-10		Dark Brown, loamy silty Sand, little gravel
1							
		2	8"	2'6" – 4'6"	12-15-23-20		Brown, Sand & Gravel, little silt (FILL)
5		3		5'0"- 7'0"	10-13-10-8		Brown, Sand & Gravel, trace silt
		4	10	7'0" - 9'0"	7-7-4-6		Dark Brown, loamy, Silt & Sand, trace brick, clay, roots (FILL)
10		5	6"	10'0" - 12'0"	5-5-10-21	11'	Brown, fine to medium Sand & Gravel, some silt, cobbles
15		6	14"	15'0" - 17'0"	12-19-25-26		Brown, fine to coarse Sand & Gravel, some silt, cobbles
							(GLACIAL)
20		7	12"	20'0"– 22'0"	18-26-23-28		Brown, f-c Sand & Gravel, wet
							End of boring at 22 ft Water encountered at 18 ft upon completion
25							
30							
35							

Notes: Hollow Stem Auger Size 4-1/4"

Cohesionless: 0 - 4 V. Loose, 4 - 10 Loose, 10 -30 M Dense, 30 -50 Dense, 50+ V
Cohesive: 0 -2 V Soft, 2 -4 Soft, 4 -8 M 8 -15 Stiff, 15 -30 V. Stiff, 30 + Hard.

Trace	0 to 10%
Little	10 to 20%
Some	20 to 35%
And	35% to 50%

	CASING	SAMPLE	CORE TYPE
ID SIZE (IN)		SS	
HAMMER WGT (LB)		140 lb.	
HAMMER FALL (IN)		30"	

TEST BORING LOG

SHEET 4

Soil Exploration Corp.
Geotechnical Drilling
Groundwater Monitor Well
148 Pioneer Drive
Leominster, MA 01453
978 840-0391

Proposed Building
Site 12-14 Wilton Street
Allston, MA.

BORING B-10

PROJECT NO. 18-0314

DATE: March 16, 2018

Ground Elevation:
Date Started: March 16, 2018
Date Finished: March 16, 2018
Driller: TF
Soil Engineer/Geologist:

GROUNDWATER OBSERVATIONS

DATE	DEPTH	CASING	STABILIZATION
3/16/18	16 ft	n/a	

Depth Ft.	Casing bl/ft	Sample No.	Pen/Rec	Depth	Blows/6"	Strata	Visual Identification of Soil and / or Rock Sample
							Asphalt
						3"	
1		1	12"	0'6" – 2'6"	7-8-12-11		Dark Brown, loamy silty Sand w/ gravel, trace brick, ash (FILL)
		2	6"	2'6" – 3'6"	37-85		Sand, gravel, brick, rubble (FILL)
5		3	12	5'0"- 7'0"	23-35-21-19		Dark Brown, loamy, Silt & Sand, trace wood, brick (FILL)
		4	16"	7'0" - 9'0"	14-15-18-18	7'	Brown, mottled, Fine Sand, some silt
						9'	
10		5	12"	10'0" - 12'0"	58-31-51-46		Brown, fine to coarse Sand & Gravel, trace silt, cobbles, boulders
15		6	12"	15'0" - 17'0"	33-31-16-18		Brown, f-c Sand, little gravel (OUTWASH)
20		7	14"	20'0"– 22'0"	14-20-21-25		Brown, f-c Sand & Gravel, little silt, cobbles
25		8	10"	25'0"– 27'0"	26-30-28-35		Brown, fine to coarse Sand & Gravel, trace silt, cobbles
							End of boring at 27 ft Water encountered at 16 ft upon completion
30							
35							

Notes: Hollow Stem Auger Size 4-1/4"

Cohesionless: 0 - 4 V. Loose, 4 - 10 Loose, 10 -30 M Dense, 30 -50 Dense, 50+ V
Cohesive: 0 -2 V Soft, 2 -4 Soft, 4 -8 M 8 -15 Stiff, 15 -30 V. Stiff, 30 + Hard.

Trace	0 to 10%
Little	10 to 20%
Some	20 to 35%
And	35% to 50%

	CASING	SAMPLE	CORE TYPE
ID SIZE (IN)		SS	
HAMMER WGT (LB)		140 lb.	
HAMMER FALL (IN)		30"