

Project Notification Form

Submitted Pursuant to Article 80 of the Boston Zoning Code

THE ROPEWALK

CHARLESTOWN, MASSACHUSETTS

APRIL 30, 2014



Submitted to:

BOSTON REDEVELOPMENT AUTHORITY

One City Hall Square
Boston, MA 02201

Submitted by:

FRONTIER ENTERPRISES, INC.

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In Association with:

NESHAMKIN FRENCH ARCHITECTS, INC.

McCLURG TRANSPORTATION

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1.0 PROJECT SUMMARY

1.1 Project Identification

Project Name:	The Ropewalk
Location:	The Project site is located on Fifth Street in the Charlestown Navy Yard in the Charlestown Neighborhood of the City of Boston.
Proponent:	Frontier Enterprises, Inc. 30 Green Lodge Street Canton, MA 02021 (781) 389-9476 Mr. Joseph Timilty
Architects:	Neshamkin French Architects, Inc. 5 Monument Square Charlestown, MA 02129 (617) 242-7422 Mr. Jack French, AIA
Permitting Consultants:	North East Strategy and Communications Group 11 Beacon Street Boston, MA 02108 617 653 0838 Mr. Thomas Maistros, AIA Ms. Marjorie Decker
Transportation and Parking Consultants:	McClurg Traffic 81 Oakley Rd. Belmont, MA 02478 Mr. Andrew McClurg, AICP
Legal Counsel:	Casner & Edwards, LLP 303 Congress Street Boston, MA 02210 (617) 426-5900 Mr. David Chavolla, Esq. Scanlon Law, LLC 112 Water Street Boston, MA 02109 Ms. Kristen Scanlon, Esq.
Landscape Architect:	CBA Landscape Architects, LLC. 212 Elm Street Somerville, MA 02144 (617) 623-7509 Ms. Clara Bachelor

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Fire Protection Engineer:

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140 Beach Street
Boston, MA 02111
(617) 338-4406
Mr. Muzaffer Muctehitzade, P.E.

Geotechnical/Site
Engineer:

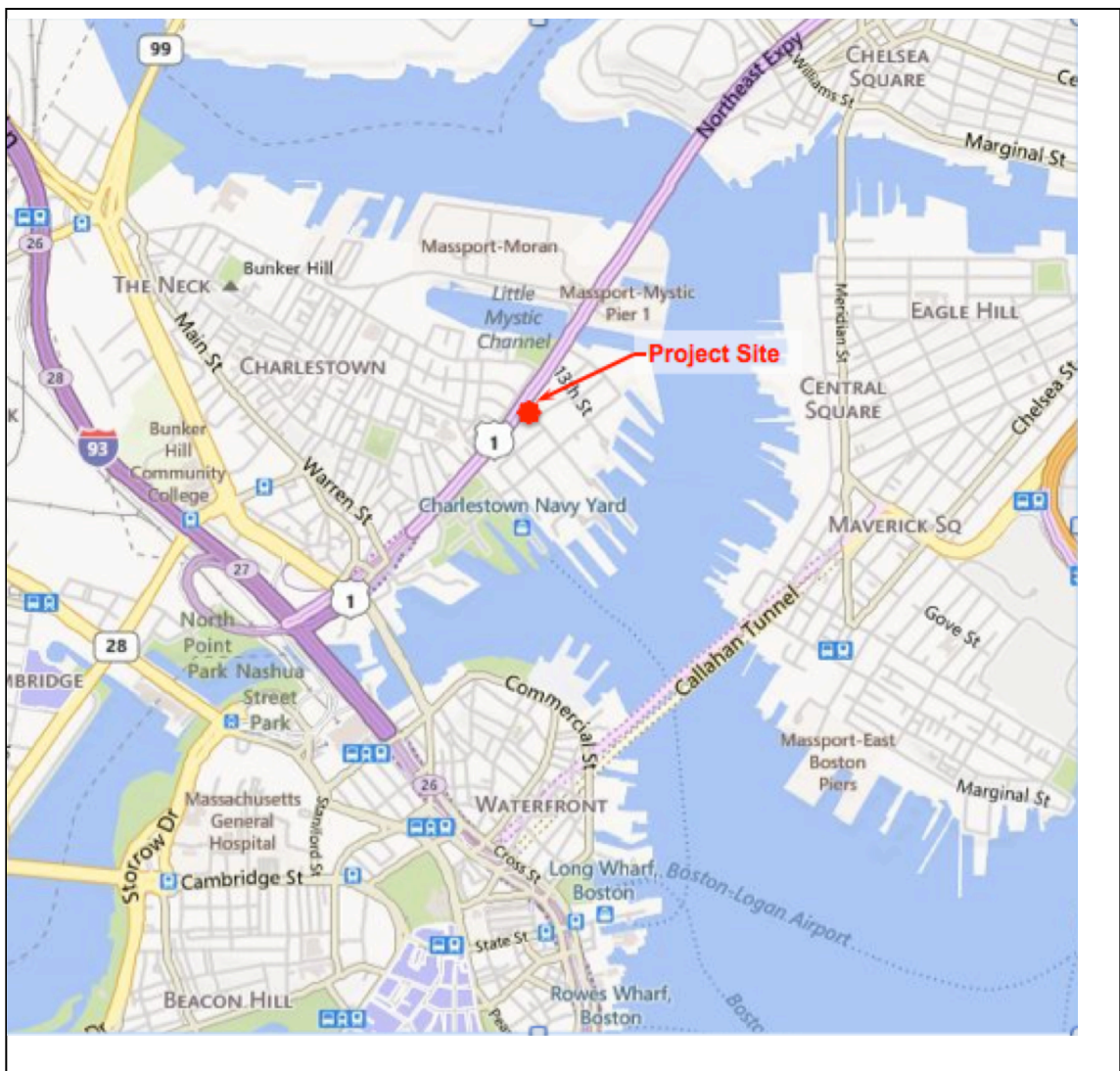
ESS Group, Inc.
100 Fifth Street, 5th Floor
Waltham, MA 02451
(781) 419-7717
Mr. William Chapman

1.2 Project Description

1.2.1 Project Site

The Ropewalk (the “Project”) is located in the Historic Monument Area of the Charlestown Navy Yard in the Charlestown Neighborhood of Boston. The site is bounded by Chelsea Street to the north, Fifth Street to the west and other buildings of the Historic Monument Area to the south and east including Buildings 107 (former Trades Shop), 108 (former Power Plant), 70 and 96 (former storage buildings). The Navy Yard, including the Project Site, is separated from the Charlestown Neighborhood by Chelsea Street and the Route 1 Viaduct, which extend along its northern edge.

Figure 1-1 Locus Plan



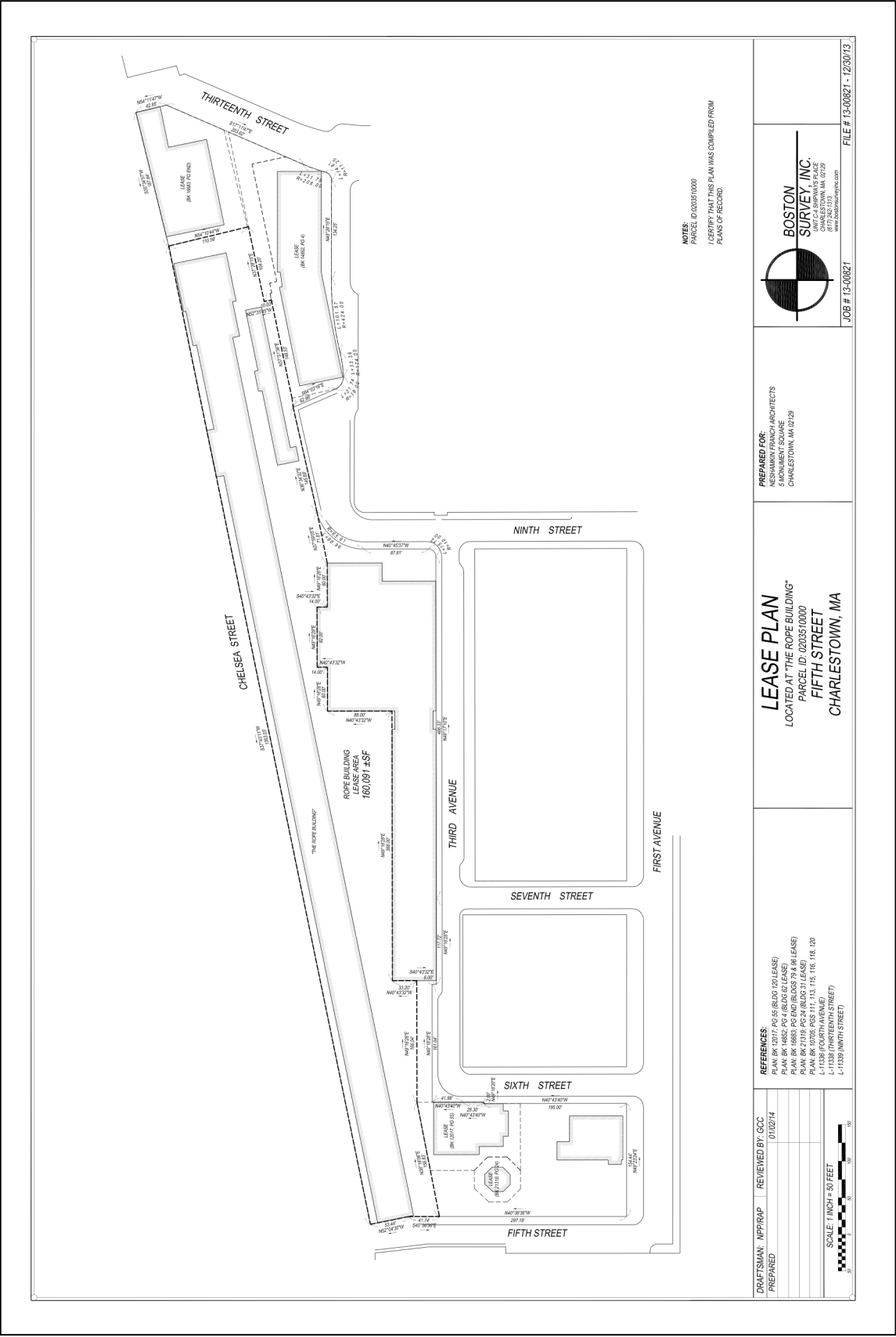
The current site area is approximately 160,000 square feet. The site is occupied by the former Ropewalk (Building 58) and Tar House Buildings (Building 60), which were originally built between 1834 and 1838. The buildings have been vacant since the closure of the Boston Naval Shipyard in 1974. The Property was conveyed to the Boston Redevelopment Authority ("BRA") in 1978. The Site has limited vehicular access.

The Ropewalk is in the section of the Charlestown Navy Yard that was designated by the General Services Administration ("GSA") for preservation and development and by the BRA as the Historic Monument Area ("HMA") to fulfill the GSA mandate. Buildings in this section of the Navy Yard are one, two and three story granite and masonry structures originally constructed to support the operations of the Navy Yard. While many of the historic structures in the HMA have been renovated for commercial office, medical office and biotech research uses, the Ropewalk and Tar Buildings and immediately abutting structures have remained vacant since the closing of the Yard.

Figure 1-2 Context Map



Figure 1-3 Survey Plan



1.2.2 Proposed Development/Program

The Development Team proposes to revitalize these deteriorating structures with a sensitive program of historic restoration and an innovative interior design theme for approximately 90 new residential rental units. Following the design suggestions from the BRA, the Team will create new housing through a renovation process that will retain as much of the existing interior building components as possible. In accordance with the Federal Design and Restoration Guidelines for the Ropewalk the exterior of the Ropewalk building will remain unchanged with the exception of an additional entrance to meet building code requirements for access. The new site design will create a park-like setting for the building including recreation of the Flirtation Walk and new stairs and gates will provide access to the site from Chelsea Street.

The Project will provide a range of housing types with the majority of the units being one and three bedroom townhouses in the Ropewalk. Approximately seventy-six of the units will be in the Ropewalk building and will be accessed via a spectacular interior corridor that will allow the unique experience of this quarter mile long structure to be preserved. More traditional one and two bedroom flats are planned for the Ropewalk's Headhouse and three bedroom townhouses with private entrances are planned for the Tar House. The final design for the Headhouse and Tar House units may be modified to increase total unit count (total bedrooms to remain constant). In addition to the residential use, a museum dedicated to preserving the Ropewalk's history will be established at the Fifth Street end of the building.

In the aggregate, the two buildings will provide up to 110,750 square feet of residential rental use. A trash room with compactors and space for recycling will be located in the Tar House with direct access from Ninth Street.

Parking is available in the several nearby parking garages and lots that have surplus spaces. The final assignment of spaces will be determined through lease arrangements with those facilities and the BRA. All loading activity will take place on the street with move in traffic requiring permits from BTM.

Table 1-1 Approximate Project Dimensions

Project Element	Dimension
Project Site	160,091 SF
Residential Space	Approximately 90 units/110,750 SF
Community (Museum/Wall Mural)	6,300SF
Parking (Garage)	86 spaces (Leased in Navy Yard Garages)
Open Space	92,264SF - 1,025 SF/Unit
Building Height	43FT 10IN (existing)

1.2.3 Public Review

Because the Project will exceed 50,000 square feet of gross floor area, it is subject to Large Project Review under Article 80B of the Boston Zoning Code (the "Code"). This Expanded PNF is being prepared to initiate that review and the Proponent expects that it will provide adequate impact assessment for the Article 80 process and will facilitate an ongoing comprehensive public process including further review with the neighborhood organizations.

The disposition of The Ropewalk and Tar House Buildings has been a long process that began after sections of the former Boston Navy Yard were transferred to the BRA nearly 40 years ago. A more recent time-line delineating the designation of the Proponent and the ongoing activities to secure final designation are as follows:

- Frontier Enterprises, Inc. proposes redevelopment program for subject properties to BRA and Charlestown Neighborhood Groups in 2012.
- Proponent initiates public process to secure support from reviewing organizations including National Park Service, Boston Landmarks Commission, Charlestown Neighborhood Council and the BRA.
- Proponent receives tentative designation from BRA in May of 2013.
- BRA/Proponent advance development review process to refine redevelopment concept including program and restoration guidelines. Input is also received through meetings with the Charlestown Neighborhood Council, the Council's Design and Development Committee, the Charlestown Preservation Society, the Boston Landmarks Commission, the National Park Service and the Charlestown Waterfront Coalition.
- Proponent meets with Department of Neighborhood Development ("DND") on financing/affordability options as well as housing mix. DND sets goal of 20% affordable housing units for redevelopment plan.

As the preceding summary confirms, the Proponent is committed to a full community participation process to insure the proposed project addresses any concerns of the reviewing agencies, the immediate abutters and the Charlestown Neighborhood at large. With the completion of the Article 80 process, the Proponent is on track to receive final designation from the BRA directly and to begin construction by the Fall of 2014.

1.2.4 Public Benefits

The Project provides a number of public benefits to the City of Boston. Working with the BRA, the Proponent's redevelopment of an abandoned historic landmark will create a use that will strengthen the residential presence in the Navy Yard. The reuse of this vacant, deteriorating structure will result in the removal of blight. It will also preserve and

revive a historically important building by including museum space dedicated to telling of its historic significance and design features that will highlight its amazing ¼ mile length.

In addition, the Project will contribute to the continued rejuvenation of the Navy Yard including creating affordable housing opportunities in accordance with the BRA's Master Plan for the Navy Yard. Consistent with the planning objectives included in Article 42, the housing use will further energize and enliven an area of the Yard that has been abandoned and neglected.

1.2.4.1 Sustainable Design/ Green Building

The Project will be certifiable under the U.S. Green Council's Leadership in Energy and Environmental Design (LEED) system.

1.2.4.2 New Property Tax Revenue

The Project will generate as much as \$350,000 in annual property taxes.

1.2.4.3 Affordable Housing

In accordance with Section 42F-5.4, of the Boston Zoning Code, approximately twenty percent of the units will meet the City's affordable housing guidelines.

1.2.4.4 Linkage

The Project is over the 100,000 square foot threshold, however it does not include a "Development Impact Use" as defined under Section 80B-7.2c of the Code. As a result no contributions to the Jobs and Housing Linkage programs will be required.

1.2.4.5 Additional Benefits

- The community benefits by having a once-proud building and its grounds restored.
- The Project will create approximately 150 construction jobs and will comply with the City of Boston standards for Boston resident and minority hiring.
- The Project will restore existing buildings and grounds in accordance with the design guidelines set forth by the GSA.
- Site landscaping is being designed with the specific input of the BRA and National Park Service, to create a setting that will allow the public to experience the building's unique features and sense of what life was like in the Navy Yard including the recreation of the Flirtation Walk.
- A range of housing types will be created including approximately seventeen (17) affordable units.
- Museum/Exhibit space will be provided to attest to the former use of the building.

1.3 Consistency with Zoning

The subject property has a street address of Fifth Street, Charlestown Navy Yard, Charlestown, and is comprised of a lot size of approximately 367,843 square feet. The City of Boston Assessor's Office identifies it as Parcel 0203510000. The parcel will be

subdivided with the final lot area of approximately 160,091 square feet dedicated to the Project.

The zoning for the property is included in Article 42F of the Boston Zoning Code (the "Zoning Code"), within the Charlestown Navy Yard Subdistrict ("Subdistrict") of the Harborpark: Charlestown Waterfront District ("District") of the City of Boston. According to the map entitled "2B/2C Harborpark District: Charlestown Waterfront", the Property is also located in the following Overlay Districts: Urban Renewal, Navy Yard and Special Study (Historic Monument Area); (B-1U).

As set forth in Article 42F, residential uses are generally allowed uses and encouraged in the Charlestown Navy Yard Master Plan. The use regulations applicable to properties located in the Subdistrict are found in Article 42F, Section 14 of the Zoning Code. As previously indicated, the proposed use for the Project is multi-family dwelling units. According to Article 42F-14(4)(d), "Residential Uses: Building or group of buildings for occupancy by three (3) or more families in separate dwelling units" is allowed. With respect to the space dedicated to interpreting the rope making process, pursuant to Article 42F-14(c), "Community Uses and Cultural Facilities: Library, museum, gallery, concert hall, legitimate theater, auditorium, performance space, aquarium, or historical exhibit open to the public generally" is allowed. Therefore, the proposed use of the Project is allowed as of right and therefore does not require relief from the Zoning Code.

The dimensional regulations applicable to the Property located in the Subdistrict are found in Article 42F-13 of the Zoning Code. Specifically, Article 42F-13(4) (Historic Monument Area: Prohibition on Creation of Passageways through Building 58 (Ropewalk)) and Article 42F-13(5) Historic Monument Area and National Historical Park (Special Study Areas 1 and 2) apply.

As the footprint and exterior dimensions of the existing buildings will not be affected by the Project, the conversion of the Property into residential units will not trigger violations of the dimensional requirements of the Zoning Code (i.e. minimum lot size, minimum lot area per dwelling unit, minimum lot width, minimum usable open space per dwelling unit, minimum front yard, minimum side yard, minimum rear yard setback).

Furthermore, due to the Urban Renewal District designation pursuant to Section 3-1A, the regulations for the base code applicable to the area apply except when in conflict with the special regulations. Specifically, Section 3-1D of the Code provides that the "provisions of this code establishing use, dimensional, parking and loading requirements for the Harborpark District shall not apply to urban renewal areas established under section 3-1A.b."

The required off-street parking for the Project is governed by Article 42F-10. Parking for the Project will be fully accommodated in one or more of the existing Navy Yard parking garages. Although the Building 199 Ground Lease requires that at least 500 garage parking spaces are to be dedicated to buildings in the Historic Monument Area, there are several parking structures proximate to the Project that future tenants could utilize (see Transportation Component for parking inventory).

Thus, as the parcel is zoned B-1U, the residential and museum uses are permitted and the dimensional and other zoning controls will be determined through the Article 80 Review Process and supplied pursuant to a Ground Lease between the BRA and the Proponent.

The Proponent is subject to and will seek approval of the Project through the Article 80 Development Review Process - Large Project Review, based on its substantial rehabilitation of over 100,000 square feet of gross floor area. If approved, the Project will proceed through the BRA's design review process and receive approval of plans submitted to ISD for building permits. The Proponent is expecting to file documents with ISD in the coming weeks to initiate the zoning review process but anticipate that no Zoning Board of Appeal action will be required related to variances from the Zoning Code.

1.4 Legal Information

1.4.1 Legal Judgments Adverse to the Proposed Project

Frontier Enterprises, LLC knows of no judgments, which are adverse to the proposed project.

Frontier Enterprises, LLC is aware of the probability there are contaminated soils around the adjacent Building 108 that may require abatement. However this abatement process should not interfere with the proposed redevelopment/use of the Ropewalk/Tar House Property.

1.4.2 History of Tax Arrears on Property

The Ropewalk/Tar House Property has been under public ownership its entire history. There would be no tax arrearages with respect to the Property as the same has been owned either by the Federal Government or the BRA/City of Boston.

1.4.3 Evidence of Site Control (BRA)/Nature of Public Easements

The BRA has granted tentative designation to Frontier Enterprises, Inc. as the redeveloper of the Ropewalk/Tar House Property, which expires on May 16, 2014, unless extended by the BRA.

In connection with tentative designation, the BRA has entered into a temporary license agreement with Frontier Enterprises, Inc. for the purpose of providing it access onto the Project Site, including building exploration, soil condition investigation, survey and geotechnical investigation, site preparation and all related pre-development activities associated with the analysis and feasibility for redevelopment of the Project Site.

The BRA will grant final designation for Frontier Enterprises, Inc. and the Project subject to availability of necessary equity funds, as needed, firm financial commitments from banks or other lending institutions, submission of final working drawings, resolution of parking issues, and subject to a 65 year ground lease from the BRA, as landlord, to Frontier

Enterprises, Inc. or its designee, as tenant. Upon closing of Project financing, the developer will begin construction of the Project.

1.5 Public Agencies

Table 1-2 below presents a list of state and local agencies from which permits or other actions are expected to be required:

Table 1-2 Anticipated Permits and Approvals

Agency Name	Permit / Approval
FEDERAL	
Advisory Council on Historic Preservation	Section 106 (to Mass Historic Commission)
STATE	
Massachusetts Water Resources Authority	Sewer Use Discharge Permit
Massachusetts Historic Commission	Review and Approval of Preservation Plan
LOCAL	
City of Boston Department of Neighborhood Development	Public Financing/Affordability Guidelines
Boston Civic Design Commission	Determination to Review/Recommendation
Boston Redevelopment Authority	80B Large Project Review Zoning Variance Recommendations Cooperation Agreements Certification of Compliance to Design Guidelines Long Term Lease
Boston Water and Sewer Commission	Sewer Use Discharge Permit; Site Plan Approval; Sewer Extension/ Connection Permit; Stormwater Connection
City of Boston Inspectional Services Department	Building and Occupancy Permits
Boston Public Improvement Commission	Street and Sidewalk Occupation Permits; Specific Repair Plan
City of Boston Zoning Board of Appeals	Variance Approvals
Boston Transportation Department	Transportation Access Plan Agreement; Construction Management Plan

1.6 Schedule

Construction is expected to begin in October 2014 and will be completed for occupancy in approximately 14 months (December 2015).

1.7 Project Design

1.7.1 Design Objectives

The Ropewalk and Tar House are extremely significant historic structures of the former Boston Naval Shipyard. The Ropewalk is the only building of its type in the nation that has not been significantly altered or moved from its original site and The Tar House is one of the least changed buildings in the Navy Yard. Their preservation was stipulated in the transfer documents between the GSA and the BRA. Until now, the problem has been finding a suitable reuse for the buildings that would support the Buildings' renovations in keeping with the preservation and development guidelines.

The proposed conversion to residential use will finally allow that renovation to happen. The Development Team proposes to revitalize these aging structures with a sensitive program of historic restoration and innovative interior design to restore them to their former status.

The primary objective of the Project is to create a new housing resource for the Navy Yard community as a first step toward reinvigorating the Historic Monument Area. The renovation plan will preserve the exterior massing and details in conformance with the *Federal Design and Restoration Guidelines for the Ropewalk*. The interior will be retained, including the structural system, to create residential apartments. The museum and gallery will allow the historic uses of the building to be experienced well into the future.

1.7.2 Design Exhibits

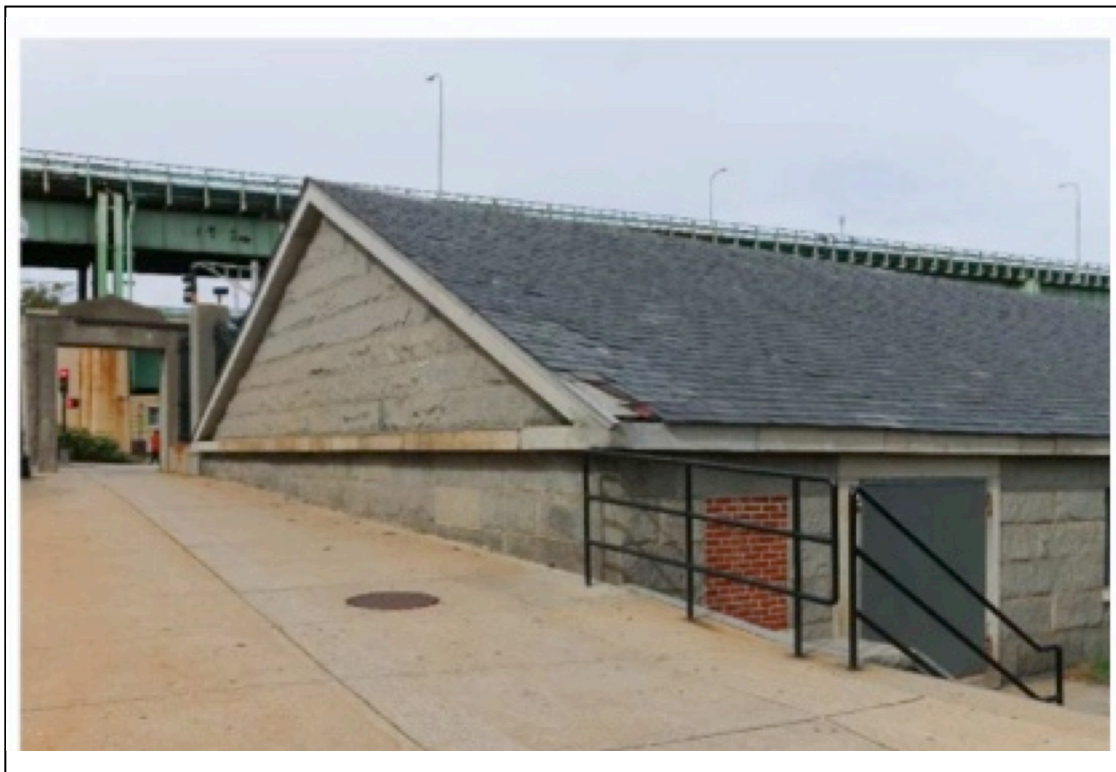
The Proponent retained Neshamkin French Architects (NFA) to design a residential project that would conform to the Proponent's design objectives and to the BRA's Development Review Process as well as the goals established in the Charlestown Navy Yard Master Plan. These objectives are described further in the Urban Design Component.

NFA has prepared the following graphic materials including context photos and architectural plans, elevations and illustrations to further describe the proposed scope of improvements.

Existing Condition - View of West
Elevation from Chelsea Street



Existing Condition - View from Fifth
Street looking toward Chelsea



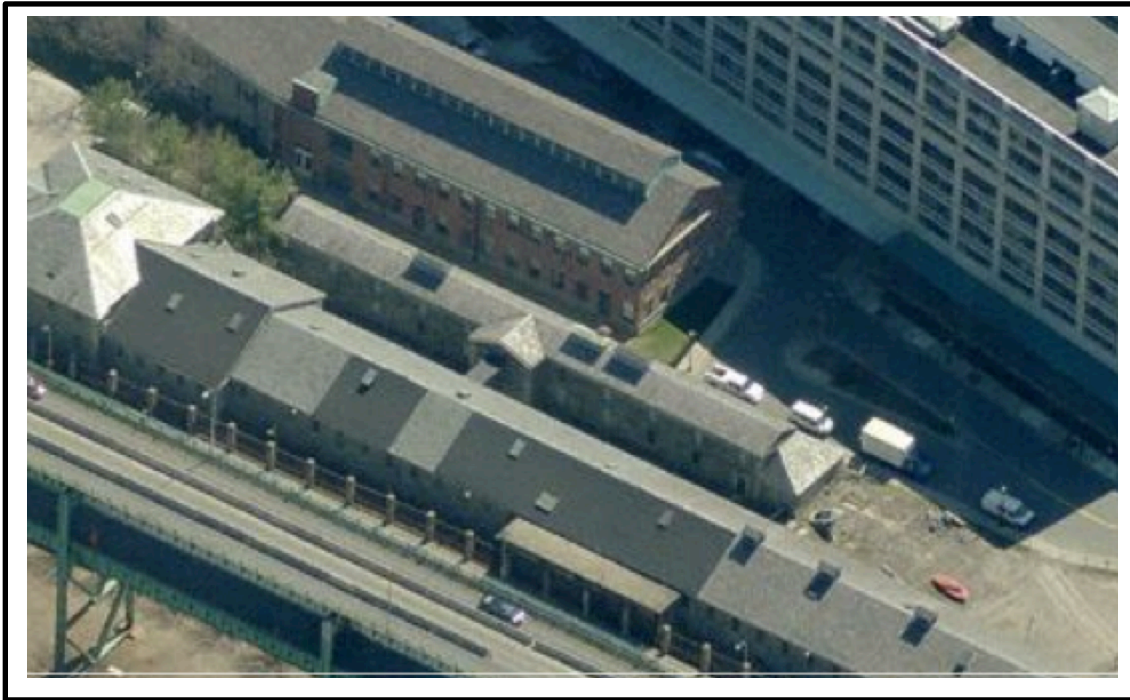
Existing Context - View of One Story
Ropewalk looking Southwest



Existing Context - View of Ropewalk Head
House

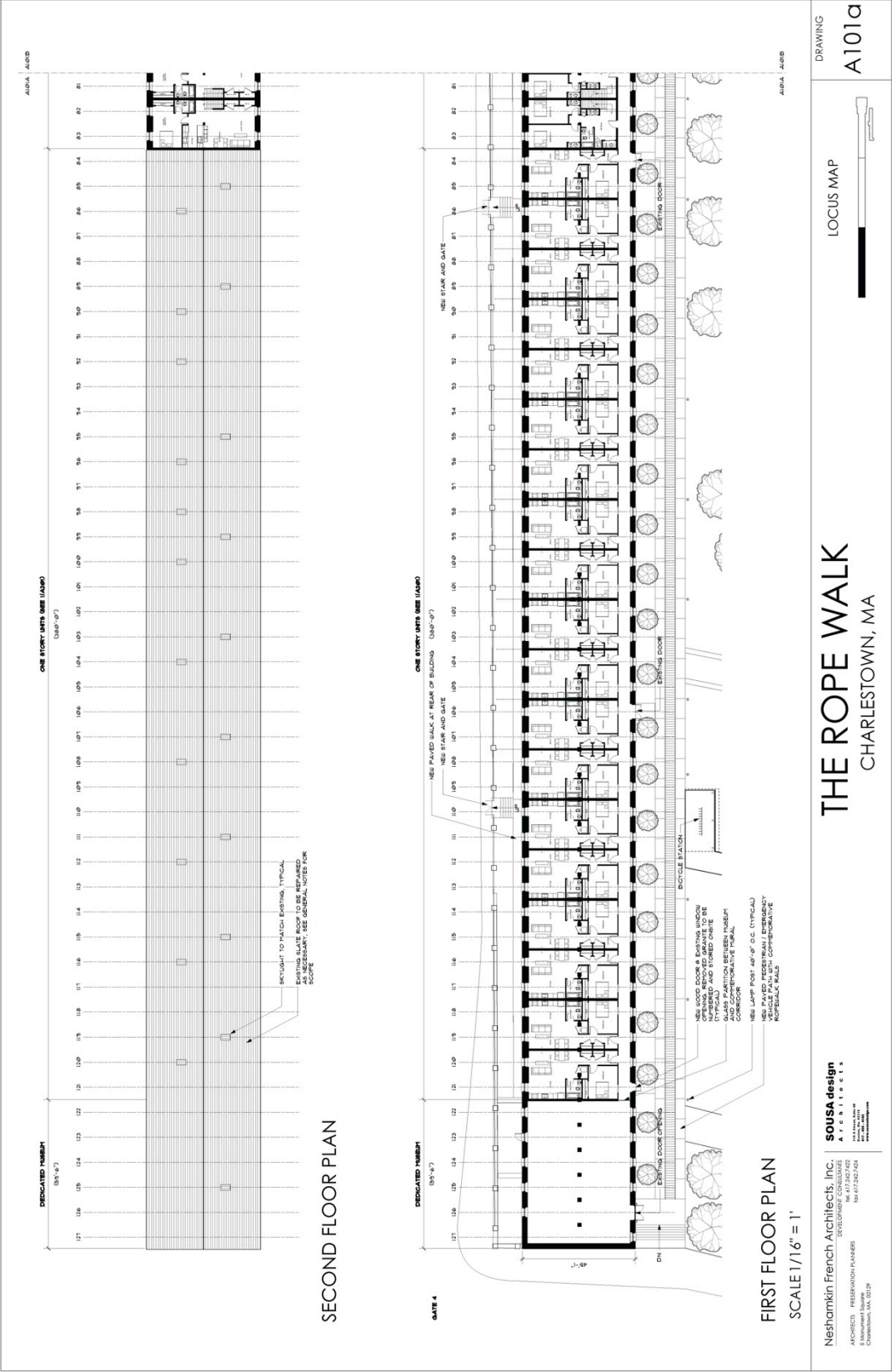


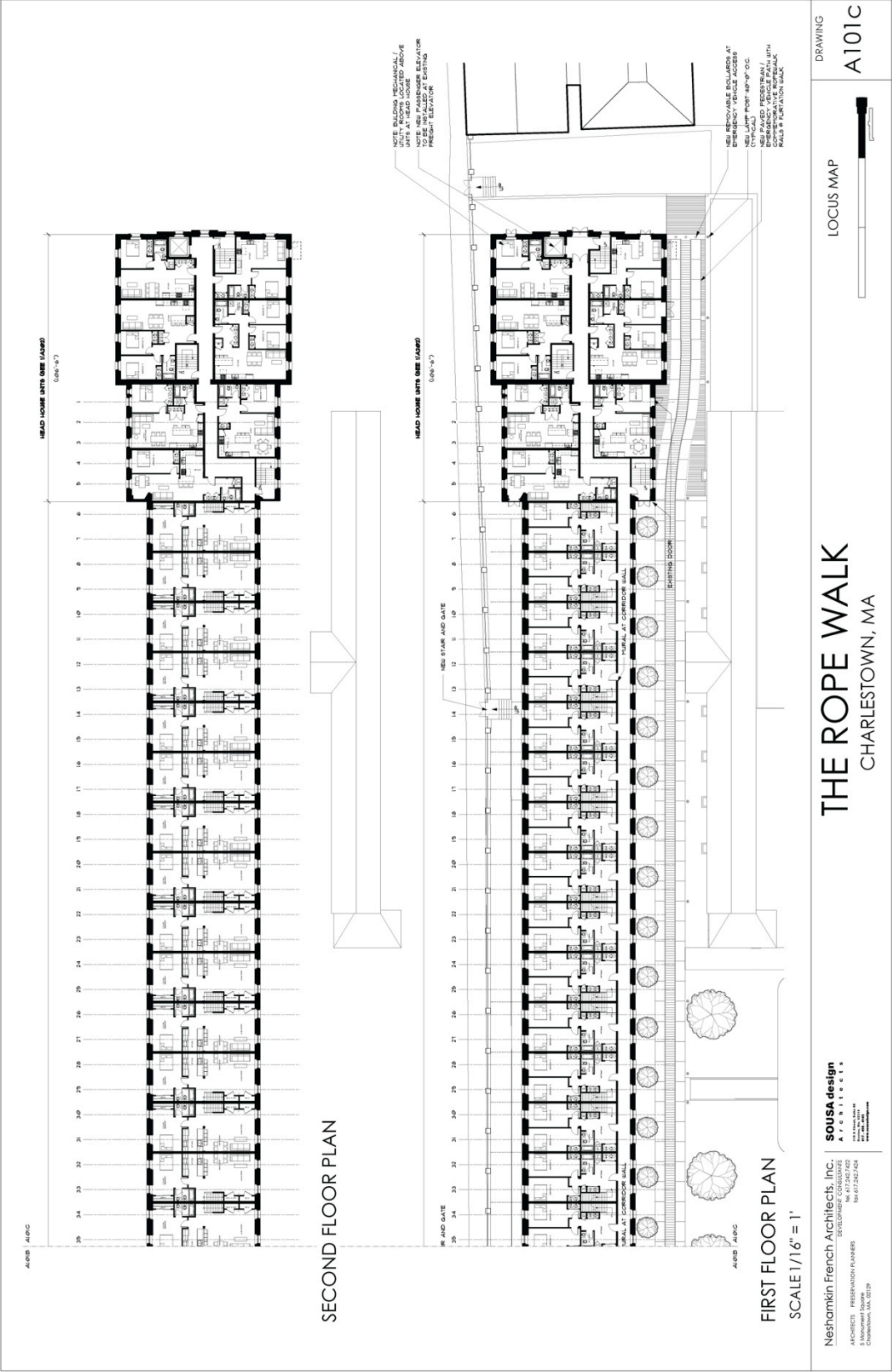
Existing Context - Bird's eye of Tar House

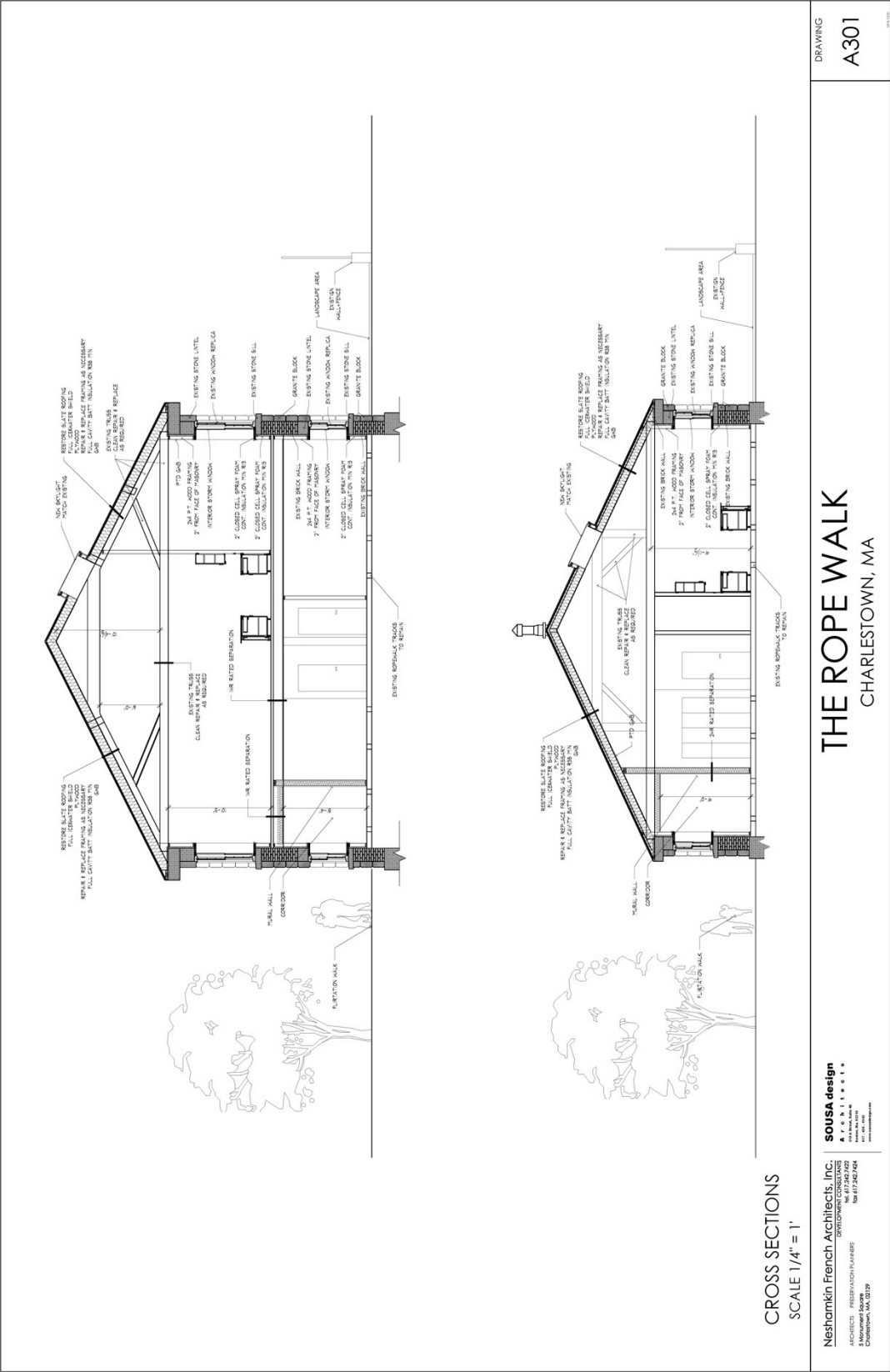


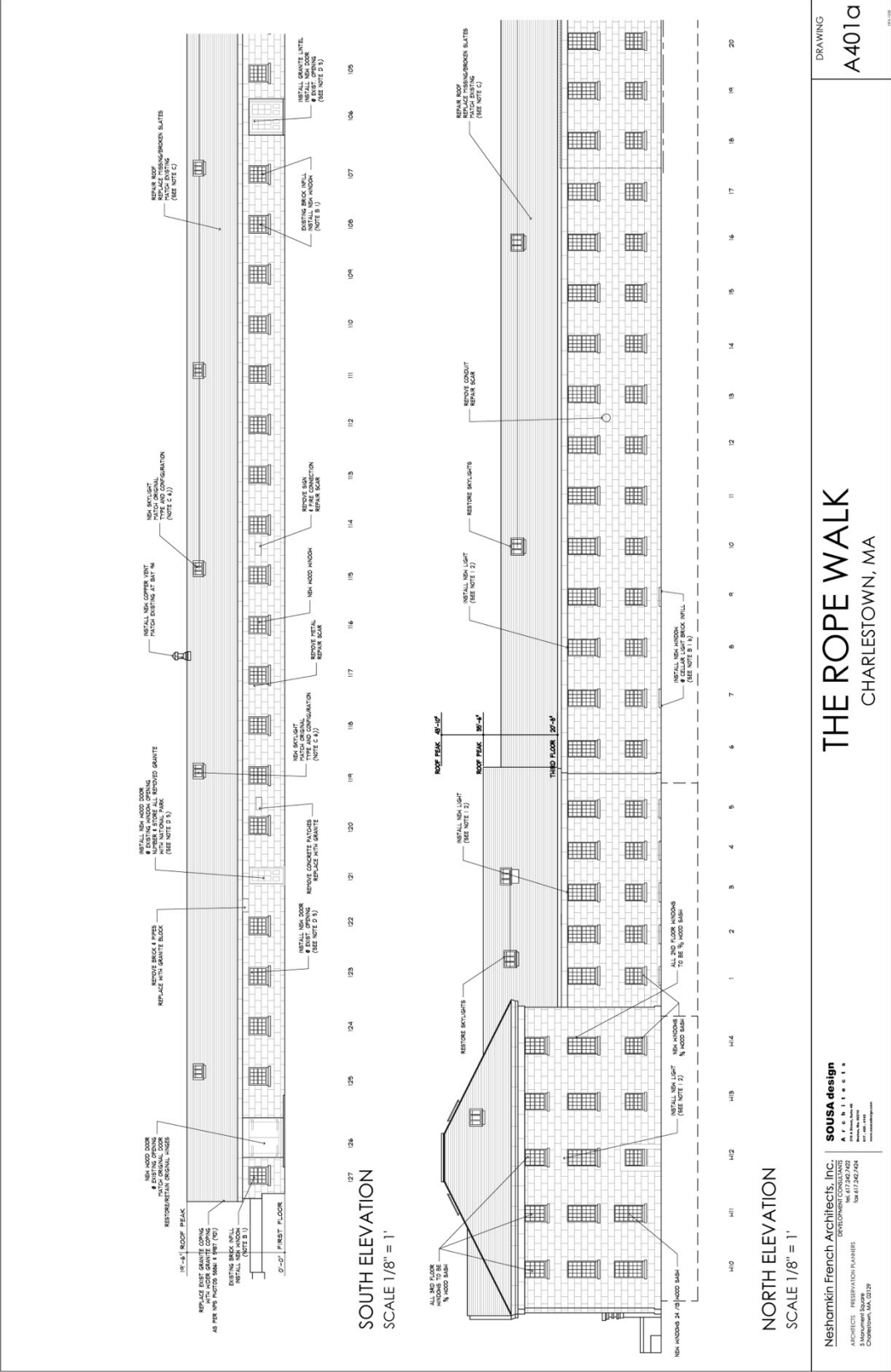
Existing Context - View of Tar House looking Southwest

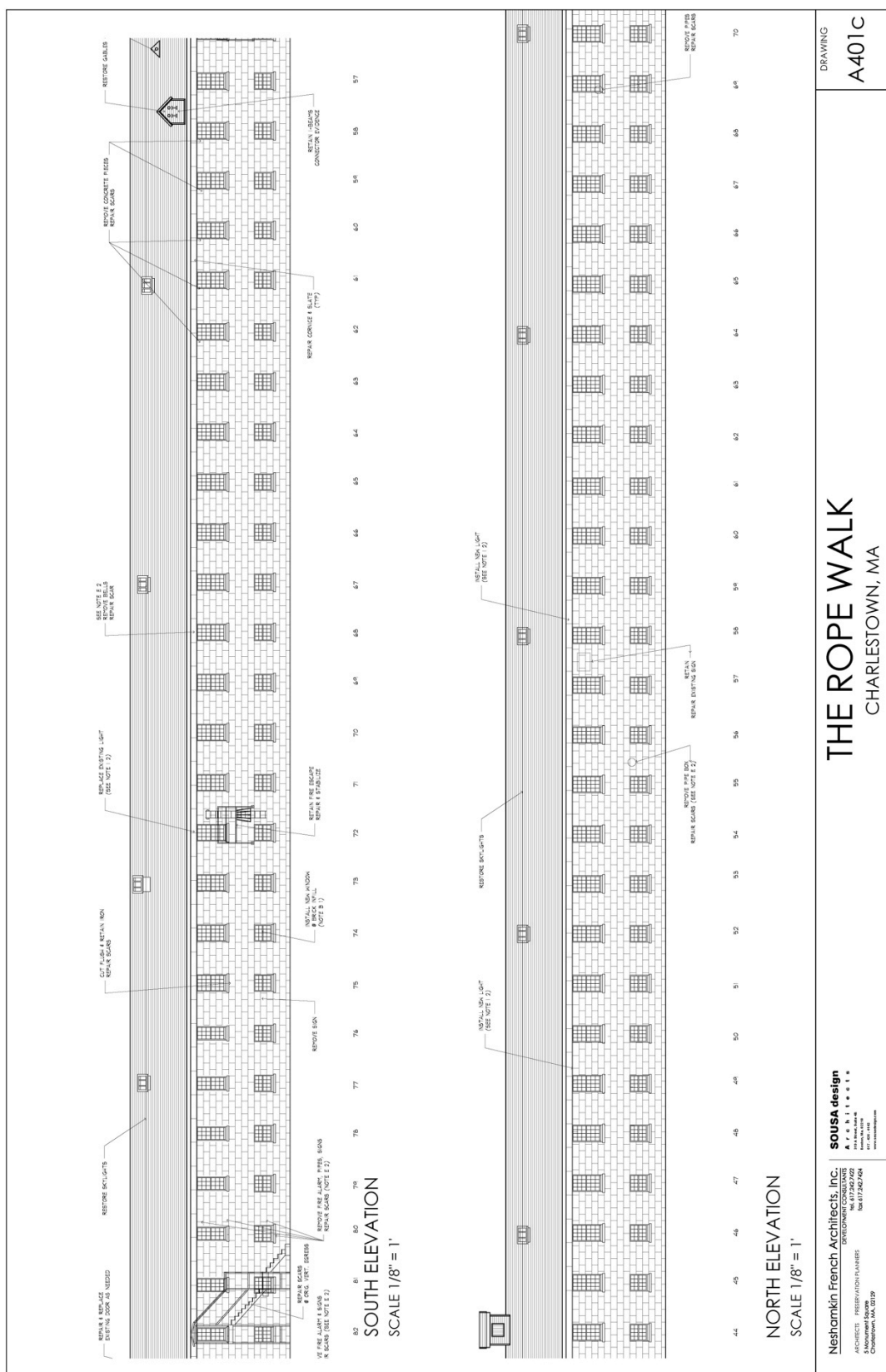


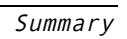




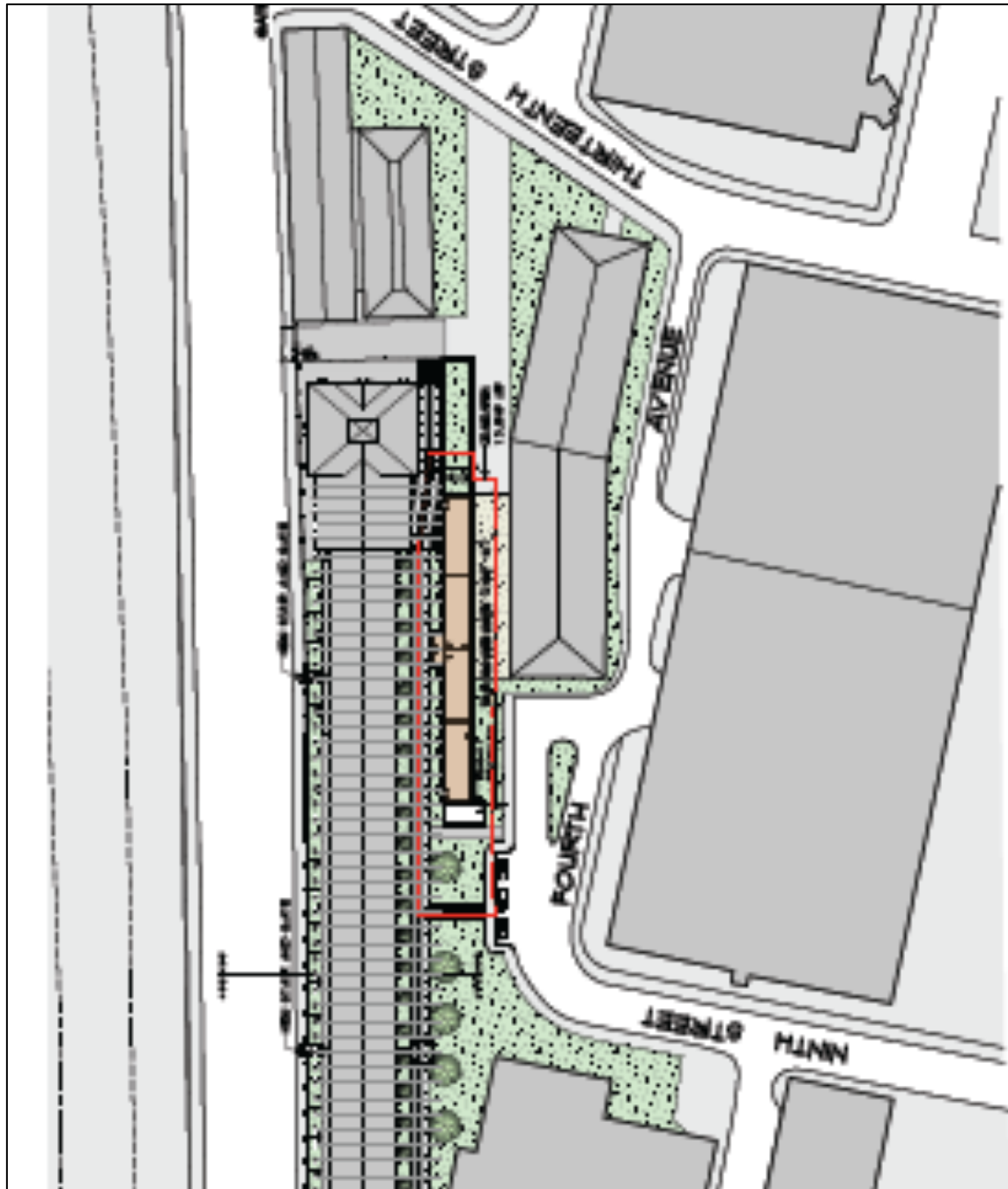








Partial Site Plan - Tar House





A402

THE TAR HOUSE
CHARLESTOWN, MA

Neshamkin French Architects, Inc.
DEVELOPMENT CONSULTANTS
Tel: 617.247.7422
Fax: 617.247.7424

ARCHITECTS PREPARATION PLANNERS
5 Monument Square
Charlestown, MA 02129

SOUSA design
A r c h i t e c t s
104 S. Main, Suite 208
Roxbury, MA 02119
Tel: 617. 481-1180
www.sousadesign.com



EAST ELEVATION
SCALE 1/8" = 1'

A403

THE TAR HOUSE
CHARLESTOWN, MA

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2.0 ASSESSMENT OF DEVELOPMENT REVIEW COMPONENTS

Article 80 of the Code specifies that the BRA may require a Scoping Determination that defines studies to be prepared by the Proponent to determine the direct or indirect impact to the environment reasonably attributable to a proposed project. The development review components include transportation, environmental protection, urban design, historic resources, and infrastructure systems. Where potential for direct or indirect impacts exist, design measures are required to mitigate the impacts, to the extent economically feasible. The following is an assessment of the potential impacts that could be attributed to the Project and proposed mitigation measures.

2.1 Transportation

McClurg Traffic has conducted an evaluation of the transportation impacts of the proposed residential development to be located at Fifth Street in the Charlestown Navy Yard, Charlestown. This transportation study adheres to the Boston Transportation Department (BTD) Transportation Access Plan Guidelines and the Boston Redevelopment Authority's (BRA) Article 80 development review process. This study includes an evaluation of existing conditions, future conditions with and without the Project, projected parking demand, loading operations, transit services, and pedestrian activity.

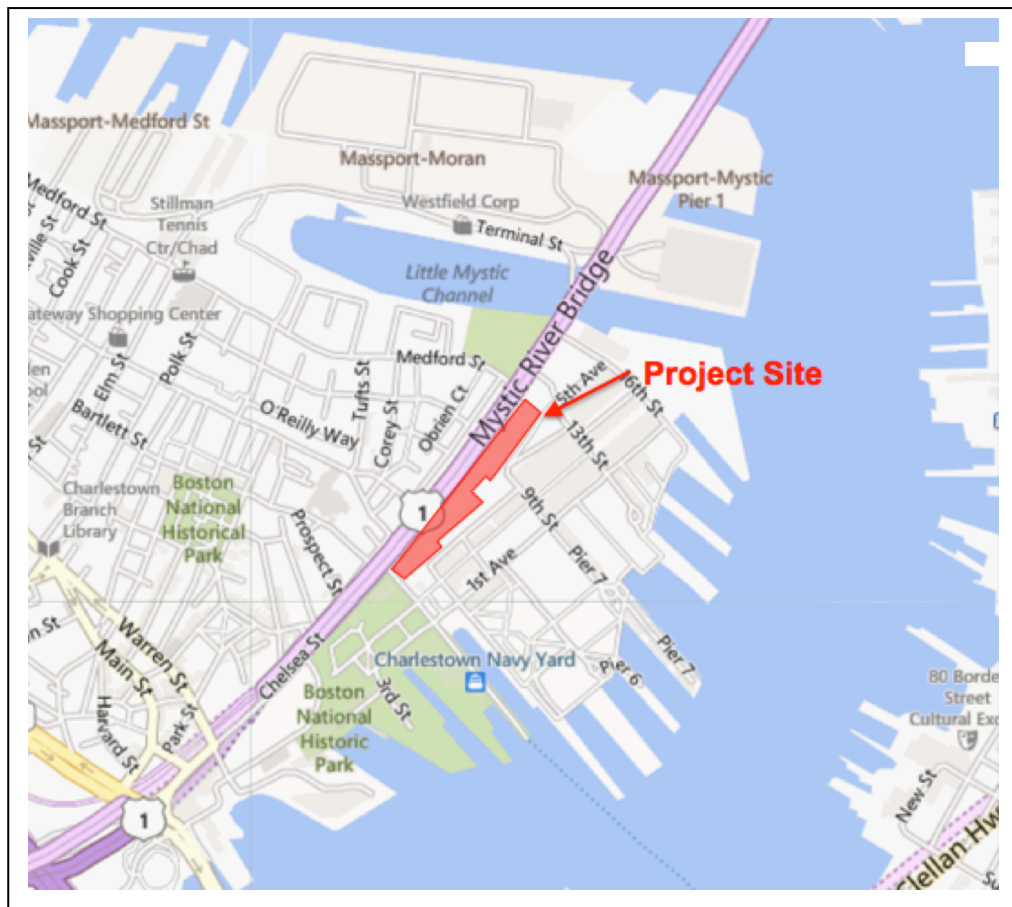
2.1.1 Project Description

The Project site is located in the Charlestown Navy Yard and is bounded by Chelsea Street to the north, Fifth Street to the east and existing properties to the west, and south as shown in Figure 2-1.

The site contains two vacant buildings that were previously used for the manufacture of rope for the US Navy. The site has no parking and limited direct street access. The Project will renovate the existing building and will include approximately 90 residential units. Eighty-eight (88) parking spaces will be provided in the nearby garages. Secure storage for bicycles will be provided either on site or in a nearby garage on a one space per unit basis.

Vehicular access to the site is limited to a curbside drop-off zone along Ninth Street. Primary pedestrian access to the site will be provided by a main entrance at Fifth Street, along Ninth Street near the center of the building, and at the northern end of the site off Thirteenth Street. Loading, deliveries, and trash pick-up will take place in front of the building along Ninth Street.

Figure 2-1 Project Context



2.1.2 Transportation System

2.1.2.1 Study Area

The study area for the traffic operations analysis, as determined by the Boston Transportation Department, contains the intersections of Chelsea St. with Fifth St., Vine St., Medford St., Thirteenth St. and Sixteenth St. Figure 2-2 shows the study intersections.

Figure 2-2 Study Intersections



2.1.2.2 Streets

Chelsea St. is a two-way arterial street running between City Square and Terminal St. Its width is approximately 46', with two lanes in each direction between City Square and 13th Street. Between 13th and 16th Streets it narrows to one lane in each direction, south of the bridge to Terminal Street.

The cross streets of the five study intersections are configured as follows.

- 5th St.: Signalized. 5th St. approaches from the southeast, with one lane in each direction.
- Vine St.: Stop-controlled. Vine St. approaches from the northwest, with one lane in each direction.
- Medford St.: Stop-controlled. Medford St. approaches from the northwest, with one lane in each direction.
- 13th St.: Signalized. 13th St. approaches from the northwest, with one lane in each direction.
- 16th St.: Signalized. 16th St. approaches from the northwest, with one lane in each direction. At this intersection, Chelsea St. has one approach lane in each direction.

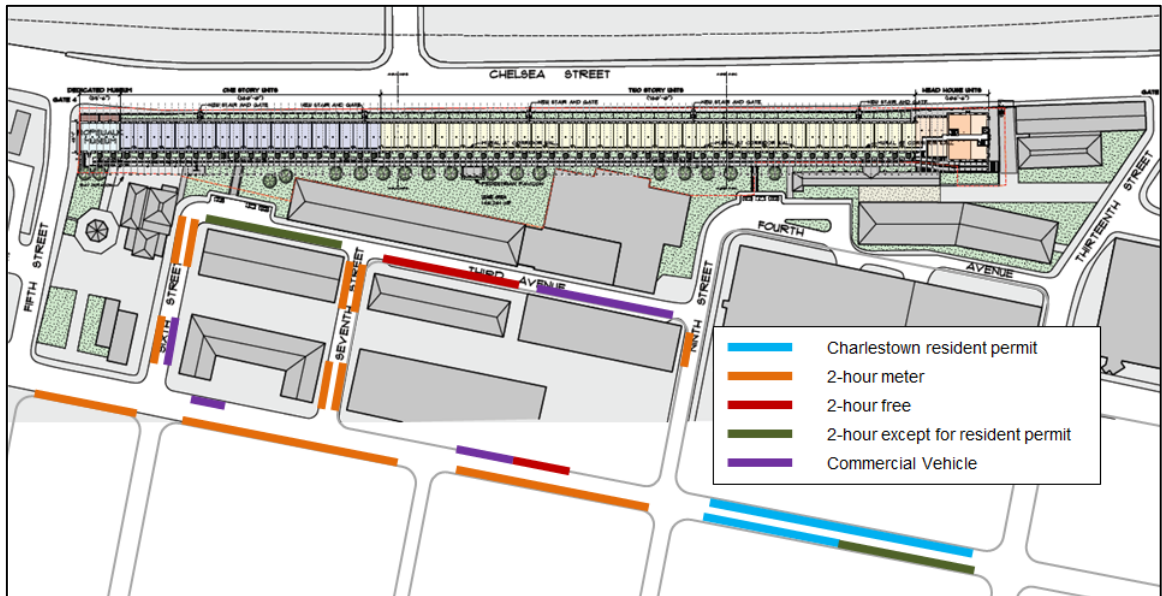
2.1.2.3 On-Street Parking

On-street parking is in place along most of the streets in the northern end of the Navy Yard. There are three main types of on-street parking space on the blocks between First St. and Chelsea St.:

- Charlestown resident permit
- Metered, with a 2-hour limit
- Unmetered, with a 2-hour limit
- Unmetered, with a 2-hour limit except for Charlestown resident parking permit
- Commercial vehicle

Figure 2-3 shows on-street parking regulations in the area around the Ropewalk. Handicap spaces, MBTA stops, and various restrictions are not shown.

Figure 2-3 On-Street Parking

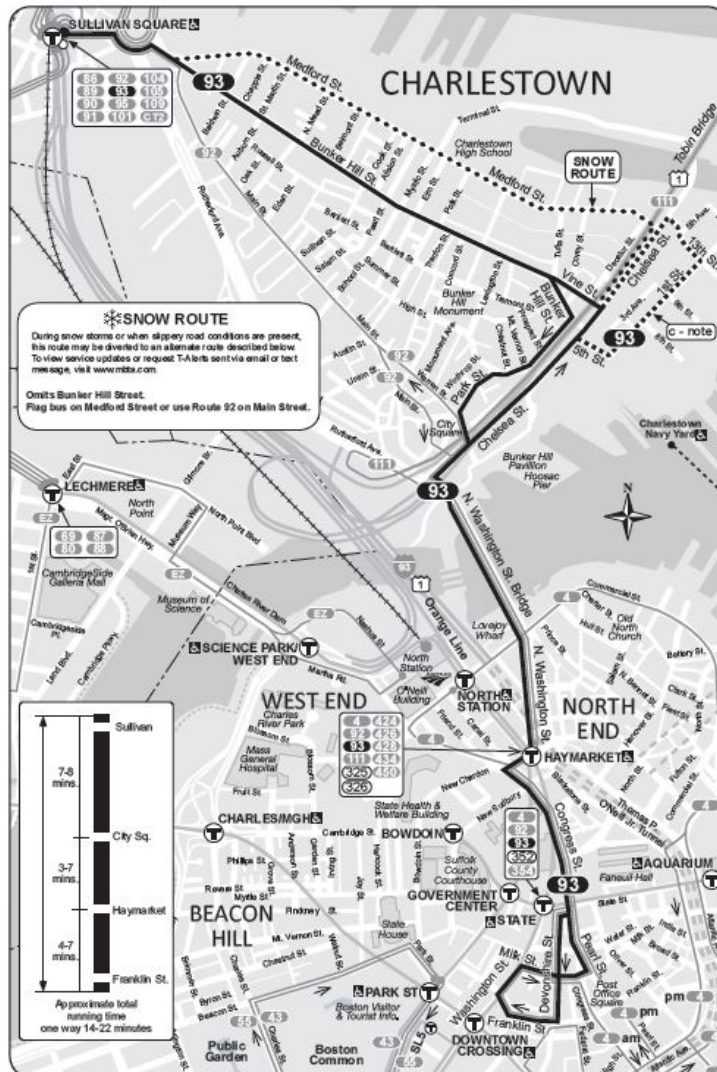


2.1.2.4 Transit

The site is immediately served by the MBTA's bus route #93, which runs between Sullivan Square and Franklin Street downtown, via Chelsea Street on the outbound run and Park/Warren Streets. Inbound. Headways are six to twelve minutes between 7:30 and 10:00 AM, twenty minutes until 2:00 PM, eight to fifteen minutes until 7:00, and progressively longer intervals until 12:30 AM. Figure 2-4 shows the bus route.

Water Transportation. The Charlestown Navy Yard is served by the MBTA Inner Harbor Ferry, operated by Boston Harbor Cruises. The ferry goes between Pier 3 and Long Wharf, on 15-minute headways 6:30 AM to 8:15 PM weekdays and 30-minute headways 10:00 AM to 6:15 PM on weekends.

Figure 2-4 MBTA Route 93



A significant supplement to MBTA service is the buses run by Partners Health. The Partners Shuttle connects the Navy Yard to the following destinations:

- Longwood Medical Area
- Massachusetts General Hospital
- North Station
- Partners HealthCare Prudential Center
- Bunker Hill Health Center
- North End Health Centers
- Chelsea Health Center
- East Boston Health Center
- Winthrop Senior Center
- Everett Health Center
- Revere Health Center

- Massachusetts Institute of Technology (MIT)
- Somerville and Sullivan Square MBTA

All employees of the Partners system can ride the Partners shuttle for free, providing a major transit opportunity for Partners employees living in the Navy Yard.

2.1.2.5 Bicycle Conditions & Facilities

There are no bicycle lanes, or other facilities specifically for bicycles, in the area. However, on the City of Boston's Bike Routes of Boston map, First Ave. is shown as "Suitable for all types of bicyclists."

2.1.2.6 Car Sharing

Car sharing refers to vehicles that are rented on an hourly or daily basis. A car sharing pickup site is located in the Nautica garage at Constitution Plaza, a block down First Ave. from the Ropewalk.

2.1.3 Traffic Analysis

2.1.3.1 Study Methodology

To accurately assess the transportation and parking impacts of the proposed project, the following aspects were analyzed.

- Vehicular traffic operations
- Project parking needs and policies
- Transit service availability (above)
- Bicycle usage

This Access Plan follows a standard method to assess the transportation impacts of the proposed project. Existing conditions are compared to two alternative future scenarios: a No-Build scenario, which takes into account traffic that will be generated by future development; and a Build scenario, in which the proposed project is also considered. The impacts of future development are projected through a four-step process:

- Trip Generation
- Mode Split
- Trip Distribution
- Route Assignment

Trip Generation. The volume of vehicular trips that a land use will generate is projected on the basis of rates provided in the Institute of Transportation Engineers' (ITE) Trip

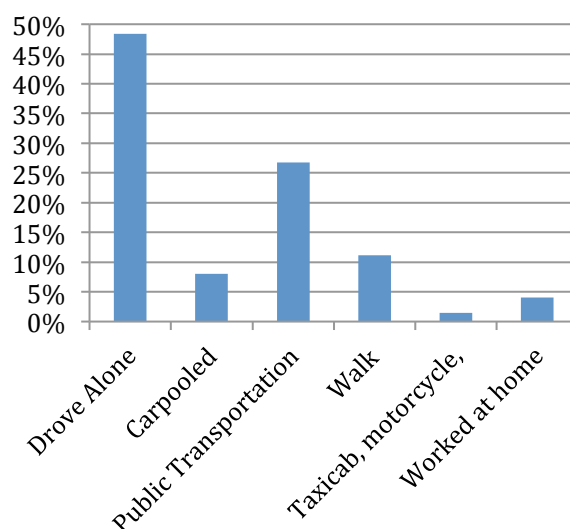
Generation manual³. For Ropewalk, the applicable land use categories and trip generation rates are as follows.

Table 2-1 ITE Trip Generation Rates

Description/ITE Code	Units	Weekday	AM	AM In	AM Out	PM	PM In	PM Out
Condo/Townhouse 230	DU	5.81	0.44	17%	83%	0.52	67%	33%

Mode Split. ITE trip generation rates are based on observations of land uses all over the United States, where transit is largely unavailable and the vast majority of trips are made by private automobile. In contrast, Boston is a walkable and transit-rich city with a significantly lower level of auto-dependence. To illustrate, Figure 2-5 shows mode splits in 02129 Charlestown Zip Code, from US Census data.⁴ In the study area, combined drive-alone and carpool shares are 56%.

Figure 2-5 Census Mode Split Data, Charlestown Work Trips



Boston Transportation Department (BTD) Development Review Guidelines give the following mode shares for the area. BTD's mode split shares are generally consistent with those indicated by Census data. In this study, the BTD's mode split assumptions are applied to the ITE trip generation rates as a way to take non-auto trip-making into account.

³ Institute of Transportation Engineers, Trip Generation, 9th Edition, 2012.

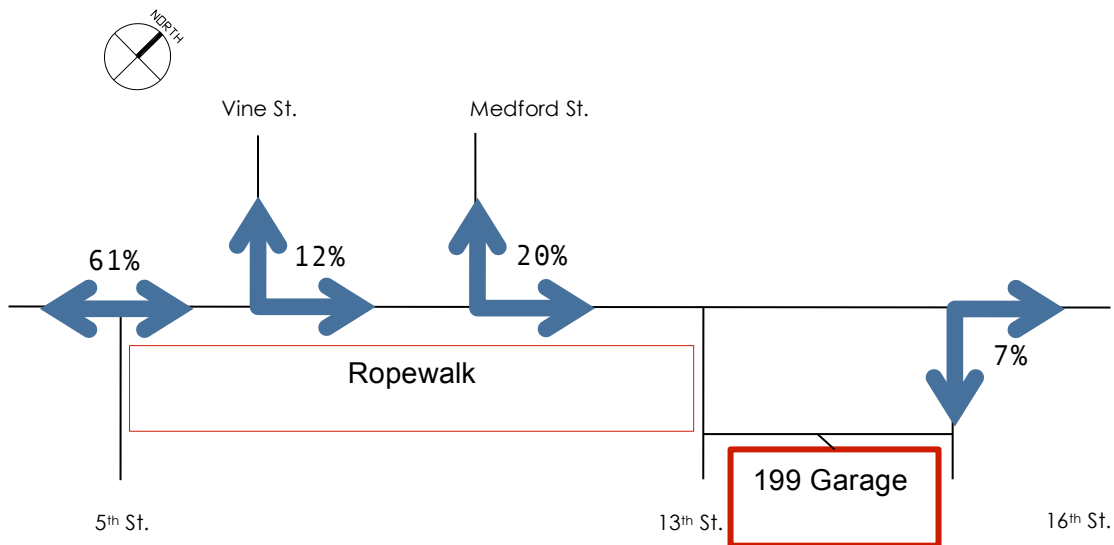
⁴ B08101: MEANS OF TRANSPORTATION TO WORK BY AGE - Universe: Workers 16 years and over.

Table 2-2 Mode Split from BTD Development Review Guidelines

Mode	All Trip Purposes	Home	Work	Other
Auto	56%	57%	59%	53%
Transit	17%	17%	24%	12%
Walk	27%	26%	17%	35%

Trip Distribution. Parking for Ropewalk will be in a number of Navy Yard garages. For the purposes of this analysis vehicular trips will be distributed from and to Building 199. Trip distribution assumptions, shown in Figure 2-6 below, are based on the existing traffic patterns.

Figure 2-6 Local Vehicular Trip Distribution



Route Assignment. The Building 199 garage is on 5th Ave. between 13th and 16th Sts. Accordingly, it is assumed here that the vehicular trips oriented toward the south will use 13th St. to access Chelsea St., and those oriented toward the north will use 16th St.

2.1.3.2 Existing Traffic

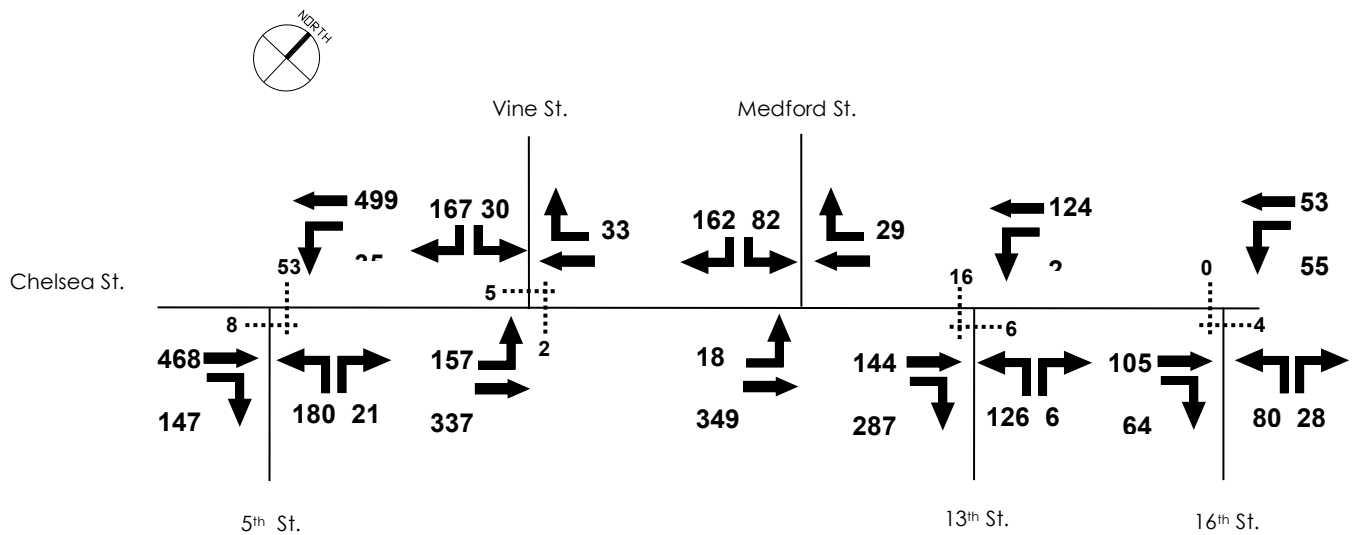
Vehicular & Pedestrian Traffic Volumes. Turning movement traffic counts were taken at the study intersections on Tuesday, April 15 between 7:00-9:00 AM and 4:00-6:00 PM, 2014 and Saturday, April 19 2014 between 12:00-2:00 PM:

- AM – 7:00-8:00

- PM – 4:00-5:00
- Saturday – 12:00-1:00

Figures 2-7, 2-8, 2-9 show the vehicular and pedestrian traffic volumes for the peak hours within each of those periods. Detailed counts are shown in the Appendix.

**Figure 2-7 Existing AM Peak-hour
Vehicular and Pedestrian
Traffic Volumes**



**Figure 2-8 Existing PM Peak-hour Vehicular and
Pedestrian Traffic Volumes**

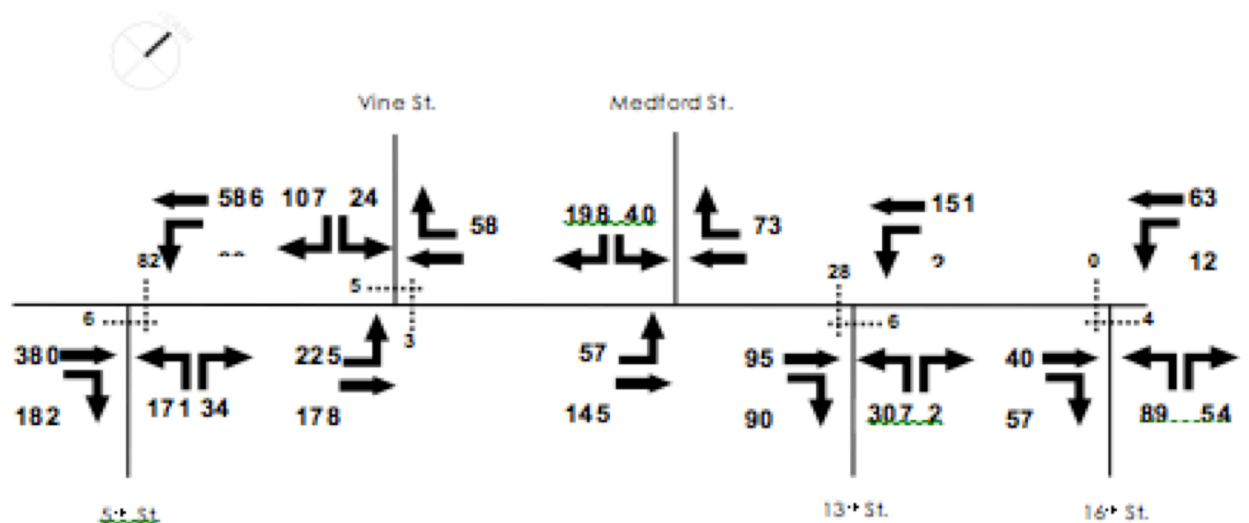
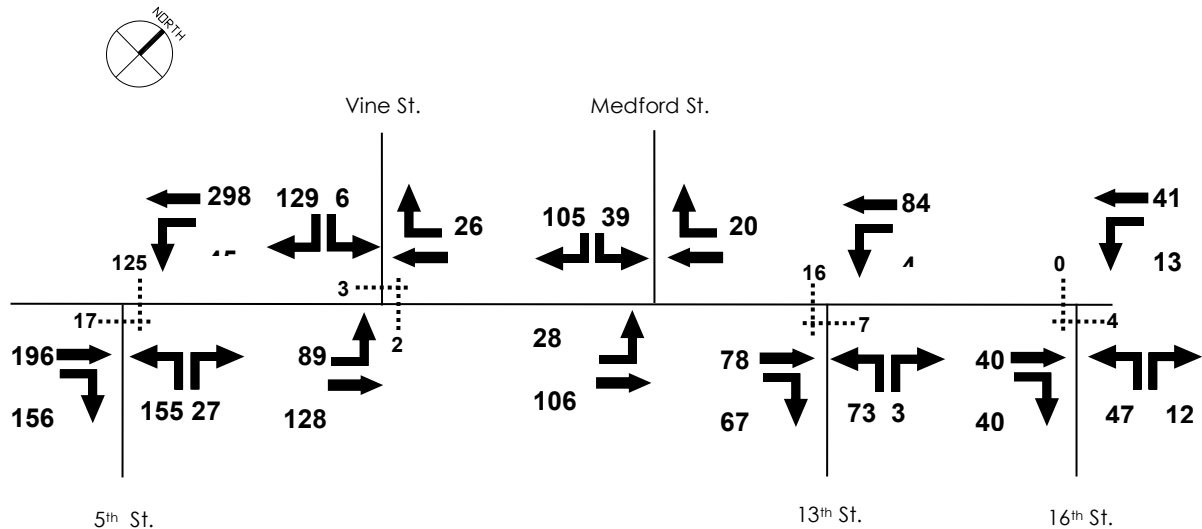


Figure 2-9 Existing Saturday Peak-hour Vehicular and Pedestrian Traffic Volumes



Bicycle Traffic Volumes. Bicycle traffic volumes in the study area are low. Table 2-3 shows the total numbers of bicycles passing through the Chelsea St/5th St. intersection in each of the peak hours.

Table 2-3 Bicycles at Chelsea St/5th St. Intersection

	AM	PM	Sat				
Bicycles	5	5	4				

2.1.3.3 Capacity Analysis

Level of service (LOS) is measured in terms of letter grades from A to F, representing the following average delays.

Table 2-4 Level of Service Criteria, Delay in Seconds

LOS	Signalized Intersection	Unsignalized Intersection
A	≤10	≤10
B	>10 and ≤20	>10 and ≤15
C	>20 and ≤35	>15 and ≤25
D	>35 and ≤55	>25 and ≤35
E	>55 and ≤80	>35 and ≤50
F	>80	>50

Existing Condition. Table 2-5 shows the results of capacity analysis at the study intersections under existing conditions.

Table 2-5 Existing AM, PM and Saturday Peak-hour Delay and Level of Service

	Intersection	AM Peak Hour		PM Peak Hour		Saturday Peak Hour	
		Delay	LOS	Delay	LOS	Delay	LOS
Sig.	Chelsea St./5th St.	B	13.1	B	12.9	B	10.8
	Northbound	A	8.3	A	5.9	A	6.1
	Southbound	C	20.3	C	20.0	B	17.4
	Westbound	A	8.7	B	10.8	A	7.6
Unsig.	Chelsea St./Vine St.						
	Eastbound	C	18.1	D	27.2	B	11.4
	Northbound left	A	1.4	A	2.9	A	1.9
Unsig.	Chelsea St./Medford St.						
	Eastbound	C	16.2	C	18.2	B	10.5
	Northbound left	A	0.1	A	1.6	A	1.2
Sig.	Chelsea St./13th St.	A	5.2	A	7.7	A	9.2
	Northbound	A	2.6	A	7.6	A	8.9
	Southbound	B	14.3	B	12.4	B	14.5
	Westbound	A	4.8	A	5.5	A	3.6
Sig.	Chelsea St./16th St.	B	10.0	A	7.6	B	10.4
	Northbound	B	10.0	A	9.1	B	12.7
	Southbound	B	16.4	B	15.4	B	15.2
	Westbound	A	3.7	A	2.6	A	2.8

Detailed Highway Capacity Analysis worksheets are provided in the Appendix.

No-Build Scenario. The methodology to account for future traffic growth that may occur, independent of the project, between now and the analysis horizon, consists of two elements: changes in general traffic volumes and background development.

The first element accounts for general traffic growth that may result from changes in population, automobile usage, and automobile ownership. In recent years, traffic volumes have been seen to decrease in some locations in Boston. Nonetheless, to account for any potential unforeseen traffic growth in the Chelsea St. corridor, a one-percent per year annual traffic growth rate was used to develop the future conditions traffic volumes. The one-percent per year annual growth rate, extended to an analysis horizon of five years, was applied to the 2014 Existing Conditions traffic volumes to develop 2019 No-Build conditions traffic volumes.

Background development identifies any specific planned developments that are expected to affect traffic patterns throughout the study area within the future analysis time horizon. According to the Boston Redevelopment Authority⁵, the only pending significant project in the Navy Yard is the Starboard Place residential development on Parcel 39A, currently under construction, comprising 54 dwelling units. The trip generation, distribution and mode split factors of the Starboard Place project will be similar to those of the Ropewalk project. On the basis of those factors, the vehicular trips generated by Starboard Place in the AM, PM and Saturday peak hours will be as shown in figure 2-10.

Figure 2-10 Starboard Place-Generated Peak-hour Trips, AM/PM/Saturday Peak Hours

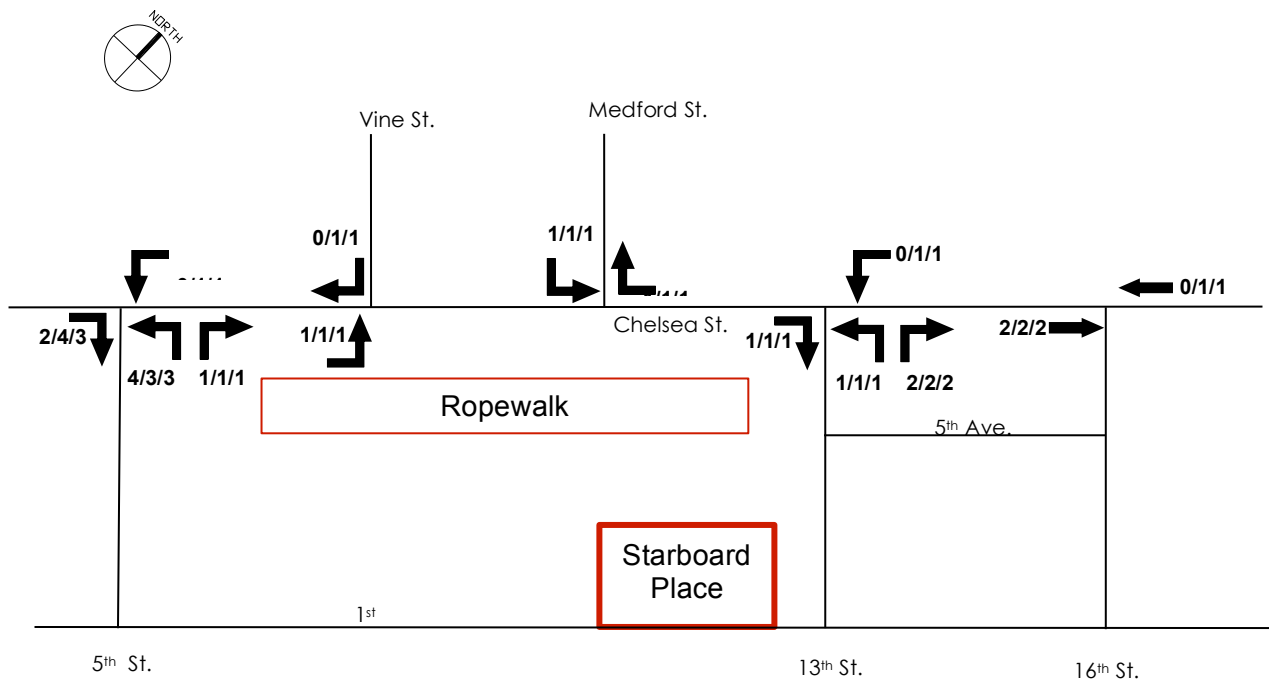


Table 2-6 shows the results of capacity analysis at the study intersections under the No-Build Scenario.

⁵ Phone conversation with Tyler Norod, April 22, 2014.

**Table 2-6 AM, PM and Saturday Peak-hour
Delay and Level of Service:
No-Build Scenario**

		AM Peak Hour		PM Peak Hour		Saturday Peak Hour	
Intersection		Delay	LOS	Delay	LOS	Delay	LOS
Sig.	Chelsea St./5th St.	B	13.9	B	13.9	B	10.0
	Northbound	A	8.3	A	5.9	A	5.9
	Southbound	C	22.1	C	22.0	B	17.1
	Westbound	A	9.0	B	11.1	A	6.9
Unsig.	Chelsea St./Vine St.						
	Eastbound	C	19.7	D	31.7	B	11.7
	Northbound left	A	1.9	A	3.1	A	1.9
Unsig.	Chelsea St./Medford St.						
	Eastbound	C	17.2	C	19.9	B	10.6
	Northbound left	A	0.4	A	1.7	A	2.0
Sig.	Chelsea St./13th St.	A	5.2	A	7.8	A	9.1
	Northbound	A	2.6	A	7.5	A	8.7
	Southbound	B	14.5	B	12.4	B	14.4
	Westbound	A	4.9	A	5.7	A	3.6
Sig.	Chelsea St./16th St.	B	10.0	A	7.5	B	9.9
	Northbound	B	9.7	A	8.5	B	11.6
	Southbound	B	16.5	B	15.4	B	15.2
	Westbound	A	3.7	A	2.6	A	2.9

Build Scenario: Project Impacts. Figure 2-11 shows the projected trips generated by Ropewalk in the am and pm peak hours, based on the trip generation, mode split, trip distribution and trip assignment analysis shown in the methodology section above.

Figure 2-11 Ropewalk-Generated Peak-hour Trips, AM/PM/Saturday Peak Hours

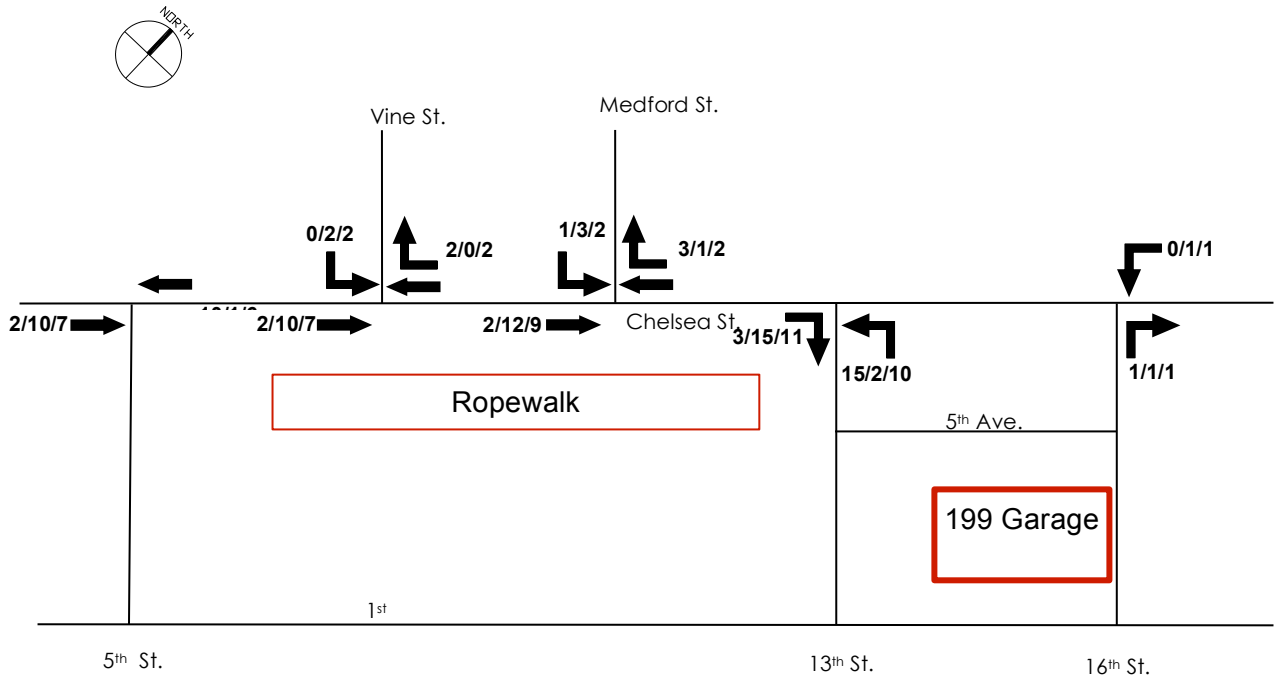


Table 2-7 shows the results of capacity analysis at the study intersections under the No-Build Scenario.

Table 2-7 AM, PM & Saturday Peak-hour Delay & Level of Service: Build Scenario

	Intersection	AM Peak Hour		PM Peak Hour		Saturday Peak Hour	
		Delay	LOS	Delay	LOS	Delay	LOS
Sig.	Chelsea St./5th St.	B	14.2	B	14.1	B	10.0
	Northbound	A	8.3	A	5.9	A	5.9
	Southbound	C	22.9	C	22.5	B	17.1
	Westbound	A	9.1	B	11.2	A	6.9
Unsig.	Chelsea St./Vine St.						
	Eastbound	C	20.3	D	34.9	B	11.7
	Northbound left	A	2.0	A	3.2	A	1.9
Unsig.	Chelsea St./Medford St.						
	Eastbound	C	18.0	C	21.3	B	10.6
	Northbound left	A	0.5	A	1.6	A	2.0
Sig.	Chelsea St./13th St.	A	5.2	A	7.7	A	9.1
	Northbound	A	2.6	A	7.1	A	8.7
	Southbound	B	14.5	B	12.4	B	14.4
	Westbound	A	5.0	A	5.7	A	3.6
Sig.	Chelsea St./16th St.	B	9.9	A	7.2	B	9.9
	Northbound	B	9.7	A	7.5	B	11.6
	Southbound	B	16.5	B	15.5	B	15.2
	Westbound	A	3.7	A	2.6	A	2.9

2.1.4 Evaluation of Traffic Impacts

Table 2-8 shows levels of service at each intersection, in each peak hour and each scenario. The comparison shows that the Ropewalk will not have any effect on traffic operations at any of the study intersections.

**Table 2-8 Level-of-Service Comparison:
Existing, No-Build and Build
Scenarios**

		AM			PM			Saturday		
		Ex	NB	B	Ex	NB	B	Ex	NB	B
Intersection										
Sig.	Chelsea St./5th St.	B	B	B	B	B	B	B	B	B
	Northbound	A	A	A	A	A	A	A	A	A
	Southbound	C	C	C	C	C	C	B	B	B
	Westbound	A	A	A	B	B	B	A	A	A
Unsig.	Chelsea St./Vine St.									
	Eastbound	C	C	C	D	D	D	B	B	B
	Northbound left	A	A	A	A	A	A	A	A	A
Unsig.	Chelsea St./Medford St.									
	Eastbound	C	C	C	C	C	C	B	B	B
	Northbound left	A	A	A	A	A	A	A	A	A
Sig.	Chelsea St./13th St.	A	A	A	A	A	A	A	A	A
	Northbound	A	A	A	A	A	A	A	A	A
	Southbound	B	B	B	B	B	B	B	B	B
	Westbound	A	A	A	A	A	A	A	A	A
Sig.	Chelsea St./16th St.	B	B	B	A	A	A	B	B	B
	Northbound	B	B	B	A	A	A	B	B	B
	Southbound	B	B	B	B	B	B	B	B	B
	Westbound	A	A	A	A	A	A	A	A	A

2.1.5 Parking

The maximum program for the Ropewalk project will be 90 dwelling units. Of these, twenty percent will be designated as affordable. The resulting parking need will be as follows.

Table 2-9 Parking Need Calculation

Type	# Units	Parking Spaces / Unit	Parking Spaces
Market	72	1	72
Affordable	18	.75	14

TOTAL 86

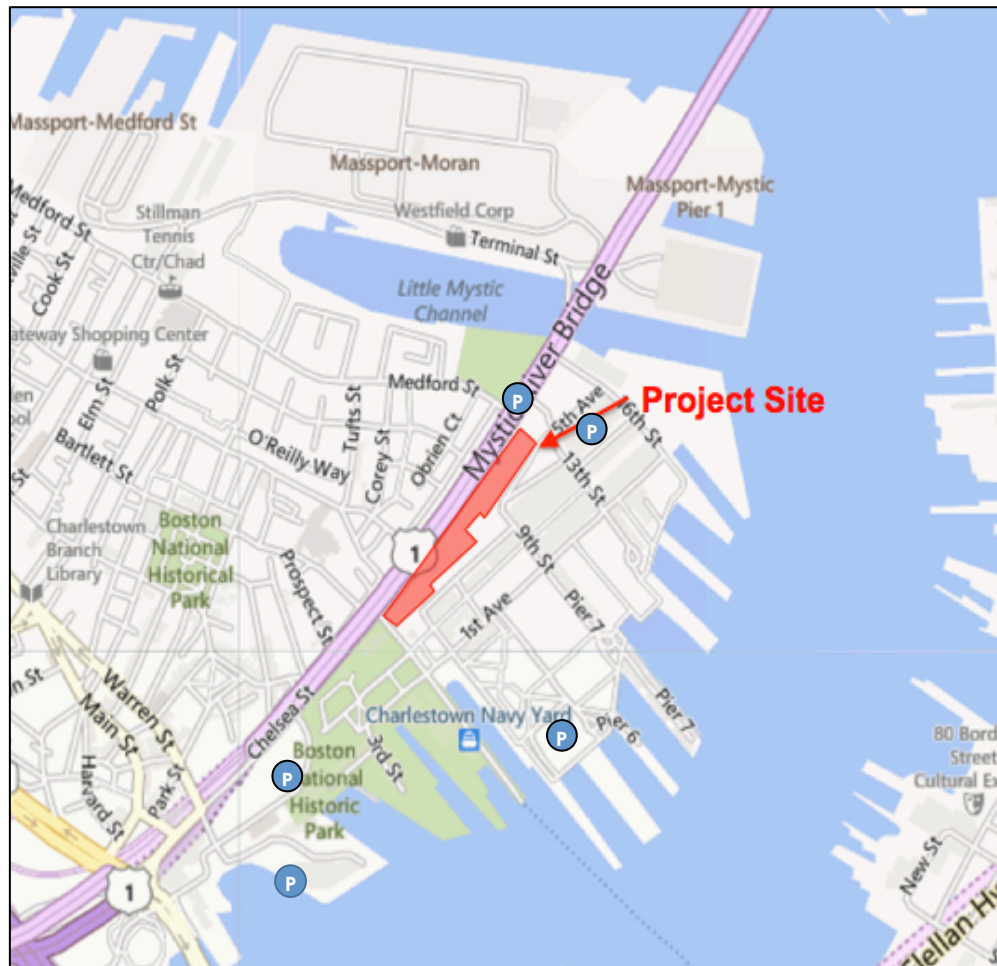
The Proponent is in the process of identifying parking that will satisfy the City's requirements and ensure adequate parking for Ropewalk residents without impact on the availability of parking in the Navy Yard. Supplemental information will be provided prior to final designation, to identify every space needed.

Figure 2-12 shows the location of garages or lots in the Navy Yard that currently advertise with signage the availability of parking to the public. The facilities shown are:

- Constitution Center
- Nautica Garage
- Flagship Wharf
- 22 Medford St.
- Bldg. 199 Garage

The Proponent also proposes to include in the apartment leases the requirement that each Project tenant who owns a vehicle maintain a parking space for such vehicle at one of these parking facilities. The Proponent will negotiate with the operators of these facilities to secure passes for Project residents.

**Figure 2-12 Public Parking in the
Charlestown Navy Yard**



2.1.6 Service & Deliveries

The level of delivery and service activity at the site is expected to be minimal and will have little impact on the public roadway, sidewalks or parking activity. The Project is expected to generate approximately 1 to 2 deliveries per day. It is anticipated that the majority of these deliveries will occur between 7:00 a.m. and 1:00 p.m. These numbers do not include trash truck trips.

2.1.7 Transportation & Parking Demand Management

2.1.7.1 Bicycle Accommodation

BTB has established guidelines requiring projects subject to Transportation Access Plan Agreements to provide secure covered bicycle parking for residents and employees, and short-term bicycle racks for visitors. On-site, secure storage will be provided for approximately 90 bicycles – the final location for the storage is still being negotiated.

2.1.7.2 Access Plan Agreement

Frontier Enterprises, Inc. takes responsibility for preparation of the Transportation Access Plan Agreement (TAPA), a formal legal agreement between the Proponent and the BTB. The TAPA will formalize the findings of the transportation study, mitigation commitments, elements of access and physical design, travel demand management measures, and any other responsibilities that are agreed to by both the Proponent and the BTB. Because the TAPA must incorporate the results of the technical analysis, it must be executed after these other processes have been completed. The proposed measures listed above and any additional transportation improvements to be undertaken as part of this Project will be defined and documented in the TAPA.

Transportation Demand Management. The above analysis demonstrates that the Project will not generate significant amounts of vehicular traffic, and will not materially affect the operations of study area streets or intersections. However, to ensure this outcome, and to play a positive role in the City's efforts to minimize traffic impacts of development and to support sustainable transportation practices, the Proponent will adopt a Transportation Demand Management program. The program will consist of operational commitments regarding parking policies, mobility, alternative modes and pedestrian amenities, and will include:

- TDM will be facilitated by the nature of the Project (which does not generate significant peak hour trips) and its proximity to public transit alternatives.
- On-site management will keep a supply of transit information (schedules, maps, and fare information) to be made available to the residents and patrons of the site. The Proponent will work with the City to develop a TDM program appropriate to the Project and consistent with its level of impact.
- The Proponent is prepared to take advantage of transit access in marketing the site to future residents by working with them to implement the following TDM measures to encourage the use of non-vehicular modes of travel.
- The TDM measures for the Project may include but are not limited to the following:

- Orientation Packets: The Proponent will provide orientation packets to new residents containing information on available transportation choices, including transit routes/schedules and nearby vehicle sharing and bicycle sharing locations, if applicable. On-site management will work with residents as they move in to help facilitate transportation for new arrivals.
- Transportation Coordinator: The Proponent will designate a transportation coordinator to oversee transportation issues, including parking, service and loading, and deliveries, and will work with residents as they move in to raise awareness of public transportation, bicycling, and walking opportunities.
- Project Web Site: The web site will include transportation-related information for residents, workers, and visitors.

2.1.8 Construction Management Plan

A Construction Management Plan (CMP) will address construction-period issues and will be submitted by the general contractor to BTM in support of the building permit application. The CMP will be filed with BTM in accordance with the City's transportation maintenance plan requirements. The CMP will cover issues including truck routes, occupancy of public ways, noise and dust attenuation and hours of construction activity. The CMP will detail the schedule, staging, parking, delivery, and other associated impacts of the construction of the Project. Details of the overall construction schedule, working hours, number of construction workers, worker transportation and parking, number of construction vehicles, and routes will be addressed in detail in. The CMP will also address the need for pedestrian detours, lane closures, and/or parking restrictions, if necessary to accommodate a safe and secure work zone. To minimize transportation impacts during the construction period, the following measures will be considered for the CMP:

- Construction workers will be encouraged to use public transportation and/or carpool;
- A subsidy for MBTA passes will be considered for full-time employees; and
- Secure spaces will be provided on-site for workers' supplies and tools so they do not need to be brought to the site each day.

The CMP will be executed with the City prior to commencement of construction and will document all committed measures.

2.2 Environmental Protection

2.2.1 Wind

The objective of a Wind Assessment is to determine the effect a proposed development would have on the pedestrian level winds in the vicinity of the Project. The primary criteria used to determine impacts are the surrounding terrain and the height and façade treatment of a proposed building.

The Project will be retaining the existing building massing and as a result will not be altering existing pedestrian level winds. As a result, quantitative and qualitative wind studies would not be required.

2.2.2 Shadow

The Project will be retaining the existing building massing and as a result will not be altering existing shadows on the adjacent sidewalks and public ways. As a result, shadow studies should not be required.

2.2.3 Daylight

The purpose of the daylight study is to estimate the extent to which the Proposed Project restricts the amount of light reaching the streets or pedestrian ways in the immediate vicinity of the Project Site. The Project will be retaining the existing building massing and as a result will not be altering existing daylight obstruction and will have no new impact on the sky dome. As a result, a BRADA study should not be required.

2.2.4 Solar Glare

The Solar Glare Analysis is intended to measure potential glare from buildings onto streets, public spaces and sidewalks in order to determine the potential visual impact or discomfort due to reflective spot glare as well as heat build-up on adjacent buildings. This analysis is required if a proposed project incorporates substantial glass facades as a part of the design.

The Project is not expected to have adverse solar impacts for several reasons. The Project will not alter the percentage of glazing on the exterior façade. Also, the Project will not be using reflective glass or other reflective materials.

With regard to solar gain impacts, the adjacent buildings are similar in height to existing structure so any reflectance from the windows is unlikely to reach those structures. Since the existing materials must be retained, it would not be possible for the redevelopment to alter the existing solar impact so those created would be identical to the existing condition.

Since the Project will not use reflective glass or other reflective materials on the building facades, there should not be any adverse impacts from reflected solar glare on adjacent buildings, streets and sidewalks.

2.2.5 Air Quality

Potential long-term air quality impacts are generally attributed to emissions from project-related mechanical equipment and pollutant emissions from vehicular traffic attributed to the proposed development.

HVAC Equipment will be gas-fired boilers that would not create elevated carbon monoxide levels and would not trigger microscale air quality analysis.

Regarding potential vehicle related impacts, the traffic analysis (Section 2.1) shows that none of the studied intersections have a failing level of service. With no failing intersections, the Project not creating a decline in LOS and the Project not resulting in more than a 10% increase of volume at any intersections, the build condition will not meet the DEP/BRA criteria for a microscale analysis to determine potential exceedances of the NAAQS thresholds so a microscale air quality analysis should not be required.

The Project will lease parking spaces in a nearby parking garage(s) or surface lot(s). These facilities are either open and naturally vented or must provide Carbon Monoxide monitors and alarms to insure the safety of abutting residences and businesses.

2.2.6 Water Quality

The proposed Project will not affect the water quality of nearby water bodies. With the installation of the erosion and sedimentation controls, there is expected to be minimal impact to the existing stormwater system during the construction process. The proposed project is primarily a restoration project with excavation limited to utility connections and landscaping utilizing appropriate erosion control devices as required. Erosion and sedimentation controls will be installed before any construction activities commence on site, and controls will be inspected and maintained throughout the construction phase until all areas of disturbance have been stabilized through the placement of pavement or growth of vegetative cover.

In terms of post-construction impacts, the proposed stormwater management system for the Site will not cause any erosion to nearby wetlands or waterways. The water quality volume will be infiltrated on Site, and there will be no increase to flow rate, pollutants, or sediment to the existing stormwater system. There are no parking areas on the site that would potentially produce oils or other related pollutants. As a redevelopment, this project will comply with the MassDEP Stormwater Management Standards to the maximum extent practicable, in accordance with the *BWSC Stormwater Best Management Practices: Guidance Document* (2013). The proposed stormwater management system will improve existing conditions.

2.2.7 Flood Hazard Zones/Wetlands

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM), on panel 18 of 151 for Suffolk County Massachusetts (Map number 250286 and 250827, effective date September 25, 2009) the Site is not located in a designated flood plain. The Site is located in an urban area at an average elevation of less than 6 feet above mean sea level (msl). Topography at the Site is generally flat with a slight slope to the east toward Boston Inner Harbor. It is anticipated that the project will not increase the likelihood of flood or storm damage risk. No Areas of Critical Environmental Concern (ACECs) exist within the project Site. No private or public water supply wells exist within 500 feet of the Site. There are no surface water bodies on the Site. There is no mapped estimated habitat of rare wildlife on or near the Site. There are no certified vernal pools or high priority site of rare species habitats and exemplary natural communities on the Site.

2.2.8 Geotechnical/Groundwater

This section addresses the below-grade construction activities anticipated for the Project. It discusses existing soil and groundwater conditions, anticipated foundation construction methods and excavation work anticipated for the Project based on available subsurface information and a conceptual foundation design study.

Subsurface conditions at the Site were evaluated based on a review of readily available information, specifically Massachusetts Contingency Plan (MCP; 310 CMR 40.0000) reports existing for the abutting property to the south/southeast (Building 108; Former Powerplant). Information on soil types and depth to groundwater is provided below. Prior to construction, Site-specific subsurface investigations will be completed on the Site to characterize soil and groundwater quality.

2.2.8.1 Soil Types

Based on information contained in various MCP reports (M&E and Stone and Webster, 1997), surficial deposits in the vicinity of the Site consist of man-made fill (urban fill), organic silts and peat, glaciofluvial sands, marine clays and glacial till. All these surficial deposits are believed to be of Pleistocene age (Fessenden et al., 1975). Bedrock in the vicinity of the Site is the Cambridge argillite, an interlayered tuffaceous sediment and argillite, quartzite and sandstone (Zen, 1983). No structural features or bedrock outcrops are observed (ESS, 2014) on or in the immediate vicinity of the Site. Depth to bedrock at the Site is estimated to be between 80 and 100 feet below grade (Kaye, 1970).

Any soil/urban fill determined to contain oil and/or hazardous materials (OHM), based on the findings of the pending Site-specific subsurface investigations, will be properly handled and managed in accordance with the MCP and other applicable provisions.

2.2.8.2 Groundwater Conditions

Depth to groundwater beneath the near the Site is expected to be between 6 and 10 feet below grade. Ground elevations, based on the City of Boston baseline datum, were between approximately 11.35 to 11.69 feet on the abutting Former Powerplant property

(M&E, 1997). Based on these measurements, the groundwater flow direction beneath the Site and abutting southeastern property is expected to be to the northwest. It is expected that localized groundwater flow directions and depth to groundwater may be seasonally influenced by tidal fluctuations, drought/recharge conditions, heterogeneous geologic deposits, and the presence and variations in urban fill.

Initial geotechnical analysis indicates The Project Site is not located within area monitored by the Boston Ground Water Trust so review and permitting by this organization is not required. The Proponent will secure all necessary construction dewatering and related permits from the City (BWSC) and State (MWRA) as required.

2.2.8.3 Foundations and Below-Grade Construction

The Site redevelopment project involves interior and exterior renovations and will not involve the installation of any new, or modification of existing, structural foundations. Below-grade construction activities will primarily consist of exterior excavations to install new utility connections and stormwater infiltration system (if necessary). Based on the anticipated excavation depths for new utilities, shoring of excavation is not anticipated.

2.2.8.4 Dewatering

Based on the expected depth to groundwater and limited excavation work on the exterior of the Site, it is not expected that dewatering of excavations will be necessary. However, if the Site-specific subsurface investigation program shows that excavations may encounter groundwater (for utility installations) then appropriate construction dewatering measures will be implemented. Evacuation of water in excavations would be used as needed to allow for construction in-the-dry. Effluent generated during temporary construction dewatering would be analyzed for OHM content and discharged (treated or non-treated) in compliance with applicable regulations and discharge permits (BWSC). Dewatering discharge effluent quality would also be monitored during construction as part of the discharge permit requirements.

2.2.9 Solid and Hazardous Wastes

2.2.9.1 Existing Hazardous Waste Conditions

Building materials determined to contain hazardous and other regulated wastes, including asbestos, lead-based paint, polychlorinated biphenyls (PCBs), chlorofluorocarbons (CFCs), and mercury, will be abated as part of the redevelopment project in accordance with applicable MassDEP, OSHA, and USEAP guidelines and policies. A comprehensive testing program for suspected hazardous building materials will be performed prior to renovation activities. Other types of wastes known and expected to exist in the current buildings within various containments include petroleum-based compounds (i.e., tar residue, lubricating and gear oils, and fuel oil). These types of waste will be sampled for chemical content and subsequently handled and managed in accordance with applicable regulations. Abatement of hazardous wastes and other regulated wastes will be performed by licensed contractors.

Based on the Site setting, soil (urban fill) existing on the exterior grounds of the Site is expected to contain measureable levels of certain OHM. A Site-specific subsurface investigation will be completed prior to construction to determine the presence or absence of OHM in soil and groundwater. If OHM is identified in soil at concentrations above applicable MCP Reportable Concentrations (RCs), then OHM-impacted soil (Remediation Waste) generated from the redevelopment project will be handled and managed in accordance with applicable provisions of the MCP.

2.2.9.2 Solid Waste Generated During Construction

Solid waste (non-hazardous construction debris) will be generated from the interior and exterior renovations activities and could include, but not limited to, concrete, wood, various metals, wiring, cardboard, glass, and plastics. Demolition/construction debris will be disposed of into dumpsters and trailer dumps, which will be located at various locations throughout the Project Site. Demolition will be conducted so that materials that may be recycled are segregated from those materials not recyclable. Non-recyclable solid waste will be transported to an approved solid waste facility, pursuant to MassDEP's Regulations for Solid Waste Facilities (310 CMR 16.00).

2.2.9.3 Operational Solid and Hazardous Wastes

The Project will generate solid waste typical of a residential development. Solid waste is expected to include wastepaper, cardboard, glass, bottles, food waste, and other waste typical of residential uses. General trash collection and recycling will be implemented on a regular schedule to manage solid wastes and recyclables. The buildings will include designated areas for trash collection and recycling collection (Tar Building). With the exception of "household hazardous wastes" typical of these uses (e.g., cleaning fluids), hazardous wastes will not be generated. Potential household hazardous wastes (i.e., paints, cleaning fluids, batteries, paint thinners, etc.) if generated would need to be properly disposed of at the correct landfill or designated collection station(s).

Solid waste generated by the Project will be approximately 125.2 tons per year (See Table 2-10). Non-recyclable waste and compacted material will be removed by a waste hauler contracted by the Project.

Table 2-10 Solid Waste Generation

Unit Type	Program	Number of Beds	Generation Rate	Solid Waste (tons per year)
One, Two & Three Bedroom Units	172 Bedrooms	172	4 lbs/bedroom/day	125.2
Total Solid Waste Generation				125.2

The Proponent will coordinate with the City's recycling coordinator to develop and implement a recycling program to minimize solid waste.

2.2.10 Noise/Vibration

The noise analysis would be required to determine if the project generated noise, principally from the roof mounted HVAC equipment, which would exceed the City of Boston Noise Zoning District Noise Standards for nighttime and residential zones, which are the most stringent of the applicable standards. The primary source of sound exterior to the Project would be the cooling towers that would be mounted on the roof, however roof-top units will not be permitted based on restoration guidelines.

The Project is too early in the design and permitting process to determine what the equipment requirements and the associated sound generation would be and, as a result, noise analysis is not available at this time. However, since the Project intends to use individual gas furnaces and heat pumps to heat and cool the units, the need for any large exterior HVAC units would be limited and those that are required would be pad mounted and screened with sound attenuation devices. As a result, the Project's mechanical equipment is not expected to result in a perceptible change in background noise levels. If required, a supplemental noise analysis can be prepared to insure the Project's compliance with the City of Boston Noise Ordinance.

2.2.11 Construction Impacts

A Construction Management Plan (CMP) will be submitted to BTB for review and approval prior to issuance of a building permit. The CMP will include:

- A Construction Activity Schedule
- Defined Construction Staging Areas
- Parameters for the Demolition Phase
- Guidelines for Perimeter Protection/Public Safety
- Material Handling and Construction Waste Plan
- Construction Traffic Management including Worker Parking and Truck Routes
- Construction Air Quality and Noise management and mitigation

The Proponent will comply with all applicable state and local regulations governing construction of the Proposed Project. The Proponent will require that the general contractor comply with the Construction Management Plan, ("CMP") developed in consultation with and approved by the Boston Transportation Department ("BTB"), prior to the commencement of construction. The construction manager will be bound by the CMP, which will establish the guidelines for the duration of the Project and will include specific mitigation measures and staging plans to minimize impacts on abutters.

Construction methodologies that ensure public safety and protect nearby businesses will be employed. Techniques such as barricades, walkways, painted lines, and signage will be used as necessary. Construction management and scheduling – including plans for

construction worker commuting and parking, routing plans and scheduling for trucking and deliveries, protection of existing utilities, maintenance of fire access, and control of noise and dust - will minimize impacts on the surrounding environment.

Throughout Project construction, a secure perimeter will be maintained to protect the public from construction activities.

2.2.12 Rodent Control

The City of Boston has declared that the infestation of rodents in the City is a serious problem. In order to control this infestation, the City enforces the requirements established under the Massachusetts State Sanitary Code, Chapter 11, 105 CMR 410.550 and the State Building Code, Section 108.6. Policy Number 87-4 (City of Boston) established that extermination of rodents shall be required for issuance of permits of demolition, excavation, foundation, and basement rehabilitation.

A rodent extermination certificate will be filed with the building permit application to the City. Rodent inspection monitoring and treatment will be carried out before, during, and at the completion of all construction work for the proposed Project, in compliance with the City's requirements. Rodent extermination prior to work start-up will consist of treatment of areas throughout the Site. During the construction process, regular service visits will be made by a certified rodent control firm to monitor the situation.

2.2.13 Wildlife Habitat

The Site is within a fully developed urban area and, as such, the proposed Project will not impact wildlife habitats as shown on the National Heritage and Endangered Species Priority Habitats of Rare Species and Estimated Habitats of Rare Wildlife.

2.3 Urban Design

The Charlestown Waterfront was once alive with the hustle and bustle of human commerce. There was daily interaction between the residents of Charlestown and the Navy Yard. This is no longer true at Chelsea Street and the area of the Ropewalk at Bunker Hill and Medford Streets.

The combination of the Tobin Bridge and the derelict Ropewalk make for an unsurveilled, unpopulated, sometimes dangerous, place. It is the Urban Design goal of the Team to radically change this by restoring the Ropewalk and Tar House in their entirety, and through their new residential use, put eyes on the street and people on the sidewalk. Similarly in the surrounding area of Ropewalk in the Yard itself, the abutting areas at the Third Ave and 9th Street side of the Ropewalk/ Tar House are empty and desolate, uninviting to resident and visitor alike.

The successful restoration will change this. The buildings themselves will become attractions. The site improvements will bring people through this area by reinstituting the famous Flirtation Walk on the entire east side of the buildings, creating a small museum within the Ropewalk and using the new corridors and exterior pathways as enhanced exhibit space. With the improved complex and walkways, one could imagine a very pleasant stroll from the Spaulding Rehab at the Northern End of the Yard to Gate 5 along the new pedestrian path.

Currently the Historic Monuments area as a whole is moribund except for the 24 hour presence of the YMCA. The effect of appropriate restoration, innovative Housing design and well thought-out pedestrian and vehicular planning will return life to the Ropewalk, Tar House and their environs.

2.3.1 Design Goals

The stated mission of the Boston Historical Park is "to interpret the Art and History of Naval Ship Building." The Design Team intends to use the Ropewalk and Tar House as vehicles towards this goal. The restoration of the buildings will form one part of the design intent. creating attractive pedestrian ways and public spaces that reinforce the interpretive aspect of the buildings will be another. We will create a museum space within the structure, and in the interior of the building use new walls and murals to interpret the ancient art of rope making and display its artifacts. The proposed building will raise awareness of their historic uses as an everyday event. The development will fit well with the overall Navy Yard Masterplan in bringing a more vibrant 24 hour presence to the building and the Navy Yard as a whole.

2.3.2 Urban Design Benefits

Maintenance of an existing historic structure – The original Ropewalk will be restored preserving this unique building type. The existing façade will be restored including repointing of masonry, repairing of cast masonry details, maintaining of existing

fenestration patterns with new historically sensitive window systems and reproduction of the existing slate roof.

Expanded Residential Use – The adaptation of the Ropewalk to residential use will bring a range of families in terms of size and income to the Navy Yard, thus helping to both jump start the long stagnant redevelopment of the Historic Monuments Area and to help bring the critical mass of population required to support the level of retail stores envisioned in the Masterplan.

Museum/Wall Mural – This Project will include creating space for interpretive exhibits that portray the original Ropewalk/ Tar House functions and technique. There will also be an access corridor that will extend the entire length of the Ropewalk to give a sense of the remarkable aspect of this quarter mile long structure. These spaces will be accessible to the public and including Navy Yard Residents and National Park visitors to keep alive this unique aspect of the Navy Yard.

Open Space Network – The project will create new roads and pathways to fully open the Navy Yard to pedestrians. The recreation of “Flirtation Walk” will improve access to the Historic Monuments area and create a proper setting for experiencing these unique buildings. This will open up alternative travel paths within the Navy Yard context. In addition, the presence of the new residents on Chelsea Street will greatly contribute to its future safety and viability.

Improved Landscaping – The proposed site landscaping will remove the current blight and add to the Neighborhood's open space resources. It will virtually reclaim the rear yards which abut the Ropewalk for a quarter of a mile along Chelsea Street.

Off Street Parking – The BRA has forbidden any on-parcel full time parking. This project will make use of the Navy Yard set-asides for parking for Monument Area buildings. All residential parking will be contained in the existing Navy Yard subject to BRA allocation.

Convenience Parking and Drop off – At assigned areas on Third Ave on 9th Street, short term parking and designated drop off areas will be built. These will serve the short term needs of the new residents in terms of elderly, child and grocery drop off.

Accessibility – The renovated buildings will be fully accessible at grade, including pathways to parking facilities and to each unit entry door. Full access will be afforded to the museum lobby and first floor hallways.

2.3.3 Conclusion

The restoration and adaptive use of the Ropewalk and Tar House Buildings should significantly improve the public realm of both the traditional Charlestown community and that of the newer emerging Navy Yard residents by forming a physical and visual link between the two. The restored buildings and their interpretive exhibits will reinforce and continue the art and history of Naval Ship Building in the Navy Yard while creating much need housing in the area.

2.4 Historic and Archaeological Resources

This Component addresses the potential impact of the proposed development on the City's historic resources located on or within a half mile of the site.

2.4.1 Historic Resources on the Project Site

2.4.1.1 The Ropewalk (Building 58) and the Tar House (Building 60)

The Ropewalk and the Tar House were two of three principal structures in the Charlestown Navy Yard's rope manufacturing complex. From 1838 to 1970 most of the cordage for the United States Navy's ships was produced in these buildings. The Ropewalk and Tar House are two of several buildings and dry docks designated contributing resources to the former Boston Naval Shipyard,

The Ropewalk is the only building of its type in the nation, which has not been significantly altered or moved from its original site. The Tar House is one of the least changed buildings in the Navy Yard. The granite faced brick buildings were constructed from the plans of Alexander Parris, between 1834 and 1838. Parris, a leading architect of that era, is best known for his design of the Quincy Marketplace, and for his role as Chief Architect of the Navy Yard (from 1825 to the 1840s). Rope, up to a quarter of a mile long, could be manufactured inside the Ropewalk. (HABS Significance Statement)

The decision to build the Ropewalk was based on the concern that the production and availability of high quality rope was essential to the safety and security of the nation, and on the conviction that production of rope by the Navy could be more economical than purchasing it from private sources. The Navy achieved these goals by introducing state-of-the-art industrial machinery at the building's inception. Constructed between 1834 and 1838 at a cost of \$163,000 for building and machinery, the Ropewalk is 1360 feet long and 45 feet wide. Two additions to the building in 1856 and 1908 increased the length of the second story by an additional 848 feet. (*The Rope Walk in the Charlestown Navy Yard*, Boston Redevelopment Authority, 1974)

As the Navy's only Ropewalk and the only intact Ropewalk remaining in the United States, the building is considered one of the Navy Yard's most significant structures and clearly is of national significance as an individual building. While many of the Navy Yard's buildings have been redeveloped or are under the management of the National Park Service, the Ropewalk has remained vacant for almost 40 years. Reuse of the building will ensure the existence of the building over the long term and will preserve a structure that is of critical significance to the history and architectural history of the Navy Yard, the US Navy and of the nation.

The Ropewalk is listed on the National Register of Historic Places as a contributing resource to the Boston Naval Shipyard National Historic Site and is also on the Inventory of Historic and Archeological Assets of the Commonwealth.

2.4.1.2 The Boston Naval Shipyard/USS Constitution National Historic Site

The Boston Naval Shipyard was established in 1800 and was designated a National Historic Landmark in 1966. During its operation from 1800 to 1974, over 200 warships were built and thousands of ships and vessels were maintained and repaired at the Navy Yard for the U.S. Navy. When the Navy Yard closed in 1974, it was subdivided into various sections; one 30-acre piece is managed by the National Park Service as part of the Boston National Historical Park. The Site is also the permanent home of the USS Constitution, the Nation's oldest commissioned warship.

Another portion of the Yard was designated for preservation and development under the management and ownership of the Boston Redevelopment Authority. The Ropewalk and Tar House are located within this latter section of the Charlestown Navy Yard. Ropewalk and Tar House are two of several buildings and dry docks designated contributing resources to the former Boston Naval Shipyard.

2.4.2 Historic Resources within a Half Mile of the Site

The Proposed Project is located in the Charlestown Navy Yard in the Charlestown Neighborhood of Boston. Properties and Areas proximate to the Site that are listed on the National Register of Historic Places and/or are designated Boston Landmarks are listed in **Table 2-11** and located on **Figure 2-13**.

Table 2-11 Designated Historic Resources

Key	Name
National Register of Historic Places listings	
A:	Francis B Austin House – 58 High Street
B:	Boston Naval Shipyards – East of Chelsea Street
C:	Bunker Hill Monument
D:	Hoosic Stores 1&2/Hoosic Stores 3 - 25 and 115 Water Street
E:	Roughan Hall – 15-18 City Square
F:	Terminal Warehouse District - 40 & 50 Terminal St
G:	Town Hill District – Rutherford Avenue, Main Street and Warren St.
H:	USS Cassin Young – Charlestown Navy Yard
I:	USS Constitution – Boston Naval Shipyard
Boston Landmarks/Massachusetts Historic Districts and Structures	
J:	Charlestown Savings Bank – 1-4 Thompson Square
K:	Great House Archeological Site – City Square
L:	Edward Everett House – 16 Harvard Street
M:	Charlestown Mystic River Industrial Area
N:	George B. Neil House – One Monument Square
O:	Historic Monument Area – Charlestown Navy Yard

Figure 2-13 Historic Resources Plan



2.4.3 Archaeological Resources

The Site consists of a developed urban parcel. Due to the nature of the Project, excavation that might un-cover items of historic or archeological significance is not anticipated and being a previously developed site, it is not expected that the Site contains significant archaeological resources.

2.4.4 Impacts to Historic Resources

The Proposed Project will retain and restore two historically significant buildings in the Charlestown Navy Yard. The buildings will undergo a historically sensitive restoration of the exterior shell in full conformance with guidelines established by the General Services Administration's program for Preservation and Utilization as well as the BRA's subsequent master plan. In general, the intent of the guidelines is "to preserve the stylistic integrity and the historic character of the unique building...to allow no change to the elements which are essential to the style and historic character and to encourage or control change to other elements to enhance the appearance of the building"

Furthermore, restoration will be consistent with the basic Guidelines for Historic Property as prepared by the office of Archaeology and Historic Preservation of the National Park Service. The restoration of these key properties in the Historic Monument Area of the Navy Yard will not create new shadow, wind or visual impacts on the area's other historic resources. The redevelopment will allow the former Ropewalk and Tar House to continue to be a contributing resource to the Boston Naval Shipyard Historic Park and strengthen the Charlestown Navy Yard's diverse character.

2.5 Infrastructure Systems

The following sections describe the existing water, sewer, and drainage systems surrounding the Site and explain how these systems will service the Project.

2.5.1 Sewage System

2.5.1.1 Existing Conditions

The existing site is connected to water and sanitary sewer lines in Chelsea Street. These services lines will be abandoned and replaced with new connections to meet the capacity requirements of the proposed use.

2.5.1.2 Proposed Sewage Generation

The Project's sewage generation rates were estimated using Massachusetts State Environmental Code (Title 5) at 310 CMR 15.203. This reference lists typical values for the source listed in Table 2-12. Other wastewater generation includes the cooling system. As shown in Table 2-12, the Project will have average daily flows of approximately 18,920 gpd of sanitary sewage.

Table 2-12 Project Sewage Generation

Use	Number	Sewage Generation Rate	Total gpd
One, Two and Three Bedroom Units	172 bedrooms	110 GPD/BRM	18,920
Total			18,920

The net change in sewage generation is presented below in Table 2-13.

Table 2-13 Net Change in Sewage Generation

	Existing	Future	Net New Flow
Est. Sewage Flow - GPD	0	18,920	18,920

2.5.1.3 System Connections

The Project will utilize existing public sanitary sewer lines to meet new program requirements minimizing required permits and approvals. All sewage flows will be kept separate from all storm drain service connections. All appropriate permits and approvals will be obtained prior to construction.

2.5.1.4 Sewer System Mitigation

Existing connections will be inspected and upgraded as required to comply with the BWSC Sewer Uses Regulations. Plumbing fixtures, including grease traps, deep sump catch basins and area drains and backflow valves will be installed as required to remove contaminants and sediments from the sewage before discharge into the BWSC sewer system. Storm Drain lines will not be connected to separated BWSC sanitary sewer systems.

2.5.2 Water Supply System

2.5.2.1 Existing Conditions

Chelsea Street contains a high water service main that is owned and operated by the BWSC. While it has not been confirmed that the site is currently served from this location the project's civil engineers assume future service will connect to this main.

2.5.2.2 Proposed Water System

The Project's water demand estimates for domestic sources are based on the Project's estimated sewage generation. A conservative factor of 1.1 is applied to the average daily wastewater flows to estimate the average water use on a daily basis. This factor accounts for consumption and other miscellaneous losses. Therefore, it is estimated that the Project will consume approximately 20,812 gpd of domestic water. The water will be supplied by the BWSC.

Water capacity and pressure are not anticipated to be an issue for the Project based on the projected domestic and fire protection water demands. BWSC record flow data and hydrant flow test will be used to confirm that there is enough pressure in the existing water system to support the Project's needs.

2.5.3 Stormwater System

2.5.3.1 Existing Stormwater Management Conditions

The existing streets adjacent to the Project contain storm drains owned and maintained by the BWSC. Chelsea Street contains separated storm and sanitary sewer lines that are believed to be of sufficient capacity to meet projected demands.

Stormwater runoff from the Site currently either naturally infiltrates into the ground or drains to catch basins located at various locations near the buildings. Runoff from the roof of the single-story section of the Ropewalk falls directly below to the ground where it infiltrates into the grass or drains overland to one of the catch basins. One catch basin is located near Fifth Street and two catch basins are located near Third Avenue that connect to a 46 feet x 64 feet Boston Water and Sewer Commission (BWSC) stormwater line that is piped underneath Sixth Street.

The majority of roof runoff from the multi-story buildings also falls directly to the ground where it either naturally infiltrates or drains overland to catch basins located at various locations near the building. A small portion of the northern end of the Ropewalk has a gutter system; however, the gutters have been disconnected from the underground piping. Catch basins located near the building collect sheet flow and most likely connect into the BWSC stormwater system down Fourth Ave and Ninth Street.

2.5.3.2 Proposed Stormwater Management System

The proposed stormwater system will maximize the use of presently vegetated areas to infiltrate roof runoff. Where appropriate, stormwater Best Management Practices (BMPs) such as rain gardens will be placed in these presently vegetated areas to enhance stormwater treatment. Runoff from the limited impervious ground areas around the buildings will be directed to the existing BWSC stormwater system. If new drainage structures are necessary in these areas as part of the project, the structures will be deep sump catch basins with hoods.

The proposed stormwater management system will not produce significant changes in the stormwater patterns currently existing on site. The peak flow rates during storm events will be maintained to existing conditions and the water quality volume will be infiltrated on site. Stormwater best management practices promoting infiltration will be utilized for the design to meet these conditions. The proposed stormwater management system will not increase peak flow rate, pollutants, or sediment to the existing stormwater piping system(s) currently collecting runoff from the site.

As a redevelopment, this project will comply with the MassDEP Stormwater Management Standards to the maximum extent practicable, in accordance with the BWSC *Stormwater Best Management Practices: Guidance Document* (2013)⁷. The proposed stormwater management system will improve existing conditions.

⁷ http://www.bwsc.org/ABOUT_BWSC/systems/stormwater_mgt/Stormwater%20BMP%20Guidance_2013.pdf

2.5.4 BWSC Stormwater Management Compliance

In January 2008, the DEP revised the Stormwater Management Policy. The Policy prescribes specific stormwater management standards for development projects, including urban pollutant removal criteria for projects that may impact environmental resource areas. Compliance is achieved through the implementation of Best Management Practices (BMP's) in the stormwater management design. The Policy is administered locally pursuant to M.G.L. Ch. 131, s. 40.

In 2013 BWSC adopted a stormwater management policy that employs EPA BMPs for sites exceeding one acre. Typically this standard applies to development sites that will disturb that one acre in the construction process. This being a re-development project, the regulation is unclear. The Proponents are coordinating with the BWSC official in charge of enforcement for a determination of applicability. That determination was not made at the time of this writing. In any event we are prepared to meet any filing requirements with EPA.

A brief explanation of each Policy Standard and the system compliance is provided below:

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 will comply with this Standard. No new untreated stormwater will 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.

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 design should not increase the impervious area compared to the pre-development condition. The Proponent will review all mitigation options with the BWSC, including the use of a detention system, to manage the peak rate of runoff from the 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 Project should not increase the impervious area compared to the pre-development condition. However, the plans will include a groundwater recharge system based on BWSC standards (One inch of water over the entire impervious area on the site.) Soil types to assess perk rates will be determined by test pits and standard field-testing procedures.

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:

- (a) Suitable nonstructural practices for source control and pollution prevention are implemented;*
- (b) Stormwater management best management practices (BMPs) are sized to capture the prescribed runoff volume; and*
- (c) Stormwater management BMPs are maintained as designed.*

Compliance: Within the Project's limit of work, there will be mostly roof and balcony area. There will be no paved areas that would contribute unwanted sediments or pollutants to the existing storm drain system. Therefore, no measures will need to be taken for water quality.

Standard #5: Stormwater discharges from areas with higher potential pollutant loads require the use of specific stormwater management BMPs (see chart on page 1-8). The use of infiltration practices without pretreatment is prohibited.

Compliance: The Project is not associated with Higher Potential Pollutant Loads (per the Policy, Volume I, page 1-8). This Project complies with this standard.

Standard #6: Stormwater discharge to critical areas must utilize certain stormwater management BMPs approved for critical areas (see list on page 1-8). Critical areas are Outstanding Resource Waters (ORWs), shellfish beds, swimming beaches, cold-water fisheries and recharge areas for public water supplies.

Compliance: The Project will not discharge untreated stormwater to a sensitive area or any other area.

Standard #7: Redevelopment of previously developed sites must meet the Stormwater Management Standards to the maximum extent practicable. However, if it is not practicable to meet all the Standards, new (retrofitted or expanded) stormwater management systems must be designed to improve existing conditions.

Compliance: The Project will meet or exceed all standards.

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

Compliance: The Project will comply with this standard. Sedimentation and erosion controls will be incorporated as part of the design of this Project and employed during Site construction.

Standard #9: A long-term operation and maintenance plan shall be developed and implemented to ensure that stormwater management systems function as designed.

Compliance: The project will comply with this standard. A long term maintenance plan will be submitted to the Boston Water & sewer Commission for review and approval during the Site Plan Approval process.

Standard #10: All illicit discharges to the stormwater management system are prohibited.

Compliance: The project will comply with this standard.

2.5.5 Mitigation Measures

The peak rate of runoff will not exceed the existing rate as the amount of impervious surface on site will not be increased by this Project. However, several measures will be implemented to reduce storm water discharge in accordance with BWSC and DEP regulations. These measures would include use of porous paving on exterior paved surfaces and a groundwater recharge system.

Project will comply with the Boston Water and Sewer Commission's regulations and standards regarding the design of the storm drainage system including methods to reduce the peak rates of runoff and improve the quality of the stormwater. Since the Project calls for the redevelopment of the existing buildings, the site coverage in the proposed build condition will not increase the amount of impervious area. The existing impervious areas will be reduced by utilizing porous paving.

2.5.6 Coordination with BWSC

Proposed connections to the Commission's water, sanitary sewer, and storm drain system will be designed in conformance with the Commission's design standards, Sewer Use and Water Distribution System Regulations, and Requirements for Site Plans. The Utility Contractor will submit a General Service Application and a site plan for review and approval prior to construction. The site plan will indicate the existing and proposed water mains, sanitary sewers, storm sewers, telephone, gas, electric, steam, and cable television. The plan will include the disconnections of the existing services as well as the proposed connections.

2.5.7 Energy Needs

2.5.7.1 Heating and Cooling

The Project's heating and cooling will be provided by individual furnaces and individual exterior condensing units. The total electric consumption for cooling is estimated at 280,000 kWh per year. Energy requirements for heating will be approximately 20,000 therms per year. Specific load demands are noted under the individual utility requirements.

2.5.7.2 Electrical Requirements

Existing Electric Power

Electric service to the project site is provided by NSTAR. NSTAR confirmed via telephone that existing electric service to the site is 1-phase. There is an NSTAR account for the site, but it was unknown if the account is active.

Proposed Electric Power

The electric load for the entire project site (including approximately 90 apartment units and 6,300 square feet of museum display and community area) is estimated to be 740 kW. The project site will need 2,055A/ 3 phase – 4 wire / 120-208 volt service consisting of:

- (1) 1600 A / 3phs-4wire/120-208 v service for the Ropewalk building
- (1) 800 A / 3 Phs-4 Wire/120-208V service for the Tar Shed / House

NSTAR should confirm the estimated electric load can be accommodated in the existing network.

2.5.7.3 Gas Requirements

Existing Gas Service

Gas service to the project site is provided by Keyspan which is part of National Grid. Confirmation of existing capacity has not been confirmed.

Proposed Gas Service

Heating demands for the project site include HVAC heating and water heating, both of which will come from a tankless water heater in each unit. Stoves and laundry dryers will be electric-powered. Each apartment water heater will need 225 MBH, the House system boiler will need 500 MBH, and the museum display and community area space will need 1,000 MBH. The entire project site has an estimated gas demand of 19,500 MBH for the total connected load. National Grid maintains the gas service to the Navy Yard and will be consulted to insure the capacity needs of the Project can be met.

2.6 Sustainable Design

Our team is committed to incorporating environmentally sensitive, sustainable design elements into the Ropewalk Residential Development. These elements will improve the quality of life for the residents of this project as well as the neighborhood, while helping to protect the global environment. Ultimately they will also reduce operating costs while increasing value for the project, improving its business viability.

We are committed to identifying opportunities presented by the redevelopment by setting proactive goals and ensuring an undertaking that is LEED Silver certifiable as a minimum and satisfies the requirements of the City of Boston Environment Department.

2.6.2 Sustainable Sites

The reintegration of the Ropewalk Building into the urban fabric and the reuse of the building for housing reinforces the design goals of LEED. Reclamation of the physical building marshals sustainable resources, while reclamation of the Ropewalk for housing marshals the economic and social engine of urban redevelopment to transform an endangered building into an essential part of the neighborhood.

This is further strengthened by the siting of the Ropewalk along a major bus line, within close proximity to two T stops. The parking is designed to meet less than the minimum parking requirements of the Neighborhood Zoning District and will also accommodate bicycle storage areas as required by the City.

Our proposed reuse will reduce site disturbance and will improve storm water management by introducing a recharge system. The design will reduce light pollution by introducing low cut off lights that concentrate lighting to increase safety of the site and abutting public areas while enhancing architecture, landscape and streetscape.

2.6.3 Water Efficiency

Landscape materials will be selected that enhance sustainability and conservation of resources by virtue of suitability to site conditions. No irrigation system will be utilized and the team will design the building systems to reduce water consumption by 20%, using technologies such as dual-flush toilets and reduced flow sinks and lavatories.

2.6.4 Energy and Atmosphere

Energy efficiency is a key part of the overall design strategy. With rapidly increasing energy costs, attention to energy use will provide economic as well as environmental benefits to the project. The team will use an integrated design approach with life cycle costing of various system options, in order to ensure that this project meets the goals of LEED in this category in a cost effective manner.

Specific strategies to be incorporated include:

- Systems will be fully commissioned by a third party commissioning agent, meeting all requirements of both the LEED prerequisite for commissioning as well as EA Credit 3,

- for Additional Commissioning. This extra effort serves the dual purpose of increasing the safeguards and assurances often sought by a multifamily residential Developer.
- Various HVAC systems will be explored in the design phase of the project, including water source heat pumps, which provide high efficiency, while allowing individual unit control. The possibilities of ground water utilization will be explored in connection with this scheme.
 - All equipment will be CFC free
 - The Developer will pursue third party funding of energy efficiency and renewable energy strategies through local utilities and the Massachusetts Renewable Energy Trust Fund.
 - Measurement and verification of energy usage will be provided by the utilization of individual utility metering at each unit.

2.6.5 Materials and Resources

As well as compliance with the storage and collection of recyclables, our project will exemplify the fulfillment of LEED goals in a number of aspects. With the building's adaptive renovation one hundred percent of the shell will be reused and thirty percent of the existing non-shell. The existing masonry structure, including its wood trussed pitched roof volume, will be reused "whole cloth". Cuts for skylights maintain the slope of the existing slate roof while providing light, air and view. Projections above the roof level for circulation or mechanical spaces are strategically placed to minimize visibility.

The construction will divert seventy five percent of waste through construction waste management, a minimum of five percent of materials incorporated into the project will be recycled content and twenty percent of materials will be committed to be locally manufactured. The project will qualify for the LEED credit for Rapidly Renewable Materials by committing to meeting or exceeding five percent of the building value, excluding labor and MEP components, in rapidly renewable materials including Bamboo floors at living spaces and Marmoleum or other linseed/resin based flooring materials at utility spaces. We will explore the potential use of strawboard for appropriate surfaces and will investigate the possibilities of utilizing FSC (Forest Stewardship Council) Certified woods for at least half of the woods used on the project.

2.6.6 Indoor Environmental Quality

The Ropewalk reuse will meet the required Minimum Indoor Air Quality Performance and Environmental Tobacco Smoke Control criteria. Additionally, in its selection of materials incorporated into the building it will provide for a high level of emissions reduction by the use of certified Low-Emitting Materials for Adhesives and Sealants, Paints, Carpet and Composite Wood. Indoor chemical and Pollutant Sources will be controlled by the utilization of separate exhausts for Janitors closets, and walk off mats at entries.

Perimeter systems will be controllable by virtue of the selection of operable windows and small lighting zones, and non perimeter systems will be controllable by the incorporation of local controls and zones. Mechanical design will comply with Thermal Comfort requirements by complying with current ASHRAE 55 standards. The building design will provide for daylight to seventy five percent of the spaces in the building, excluding

enclosed parking. Ninety percent of the spaces designed for human occupancy will enjoy views.

2.6.7 Innovation and Design Process

There are three ways in which the team plans to initiate innovation in the design process: via the incorporation of environmental education into the process of the building construction and operation, the setting of a goal program in concert with the contractor for exemplary performance in handling construction waste, and through the continued involvement of LEED accredited professionals.

2.6.8 Climate Change Preparedness and Resiliency Checklist

As stated on the BRA's web site, "In November 2013, in conformance with the Mayor's 2011 Climate Action Leadership Committee's recommendations, all development projects subject to Boston Zoning Code Project Review, including all Institutional Master Plan modifications and updates, are to complete a Climate Change Preparedness & Resiliency Checklist and to mitigate any identified adverse impacts that might arise under future climate conditions."

The checklist raises important development considerations not only for projects in coastal areas that may be susceptible to flooding but also how the renovation of an important historic structure balances the addressing of potential climate change impacts like flooding with preservation objectives. The Project is in the process of refining the design concept and looks forward to discussing mitigation opportunities with the BRA staff during the ongoing design review process. We are compiling the preliminary information needed to complete the checklist and will submit it as part of the Final Design Approval Package.



LEED 2009 for New Construction and Major Renovations Project Checklist

Ropewalk Building, Charlestown Navy Yard

22	2	Sustainable Sites	Possible Points: 26
Y	N		
1		Construction Activity Pollution Prevention	
1		Site Selection	1
5		Development Density and Community Connectivity	5
3		Brownfield Redevelopment	3
6		Alternative Transportation—Public Transportation Access	6
1		Alternative Transportation—Bicycle Storage and Changing Rooms	1
3		Alternative Transportation—Low-Emitting and Fuel-Efficient Vehicles	3
1		Alternative Transportation—Parking Capacity	1
1		Site Development—Protect or Restore Habitat	1
1		Site Development—Maximize Open Space	1
1		Stormwater Design—Quantity Control	1
1		Stormwater Design—Quality Control	1
1		Heat Island Effect—Non-roof	1
1		Heat Island Effect—Roof	1
1		Light Pollution Reduction	1
7	1	Water Efficiency	Possible Points: 10
4		Water Use Reduction—20% Reduction	2 to 4
1		Water Efficient Landscaping	2
3		Innovative Wastewater Technologies	2 to 4
3		Water Use Reduction	3
19	3	Energy and Atmosphere	Possible Points: 35
12		Fundamental Commissioning of Building Energy Systems	
1		Minimum Energy Performance	1
1		Fundamental Refrigerant Management	1 to 19
1		Optimize Energy Performance	1 to 7
2		On-Site Renewable Energy	2
2		Enhanced Commissioning	2
3		Enhanced Refrigerant Management	3
2		Measurement and Verification	2
2		Green Power	2
11	1	Materials and Resources	Possible Points: 14
3		Storage and Collection of Recyclables	
1		Building Reuse—Maintain Existing Walls, Floors, and Roof	1 to 3
1		Building Reuse—Maintain 50% of Interior Non-Structural Elements	1
2		Construction Waste Management	1 to 2
2		Materials Reuse	1 to 2
14		Indoor Environmental Quality	Possible Points: 15
1		Minimum Indoor Air Quality Performance	
1		Environmental Tobacco Smoke (ETS) Control	1
1		Outdoor Air Delivery Monitoring	1
1		Increased Ventilation	1
1		Construction IAQ Management Plan—During Construction	1
1		Construction IAQ Management Plan—Before Occupancy	1
1		Low-Emitting Materials—Adhesives and Sealants	1
1		Low-Emitting Materials—Paints and Coatings	1
1		Low-Emitting Materials—Flooring Systems	1
1		Low-Emitting Materials—Composite Wood and Agrifiber Products	1
1		Indoor Chemical and Pollutant Source Control	1
1		Controllability of Systems—Lighting	1
1		Controllability of Systems—Thermal Comfort	1
1		Thermal Comfort—Design	1
1		Thermal Comfort—Verification	1
1		Daylight and Views—Daylight	1
1		Daylight and Views—Views	1
3		Innovation and Design Process	Possible Points: 6
1		Innovation in Design: Specific Title	1
1		Innovation in Design: Specific Title	1
1		Innovation in Design: Specific Title	1
1		Innovation in Design: Specific Title	1
1		Innovation in Design: Specific Title	1
1		LEED Accredited Professional	1
7	7	Total	Possible Points: 110
76		Regional Priority Credits	Possible Points: 4
1		Regional Priority: Specific Credit	1
1		Regional Priority: Specific Credit	1
1		Regional Priority: Specific Credit	1
1		Regional Priority: Specific Credit	1

Certified 40 to 49 points Silver 50 to 59 points Gold 60 to 79 points Platinum 80 to 110

3.0 COORDINATION WITH OTHER GOVERNMENTAL AGENCIES

3.1 Massachusetts Environmental Policy Act

The Project does not meet the thresholds for review under the Massachusetts Environmental Policy Act (MEPA) so an Environmental Notification Form (ENF) will not be filed.

3.2 Massachusetts Historical Commission

The Project does require a Section 106 finding and is therefore subject to review by the Massachusetts Historical Commission (MHC).

3.3 Boston Landmarks Commission

The Project is not a designated landmark but it is in a designated historic district therefore review by the Boston Landmark Commission is required.

3.4 Architectural Access Board Requirements

The Project will comply with the requirements of the Architectural Access Board and the standards of the Americans with Disabilities Act.

3.5 Boston Civic Design Commission

Article 28 of the Boston Zoning Code stipulates that projects over 100,000 square feet shall be subject to review by the Boston Civic Design Commission. Preliminary determination by the BRA is that this project does meet that threshold and therefore BCDC review is required.

3.6 Other Permits and Approvals

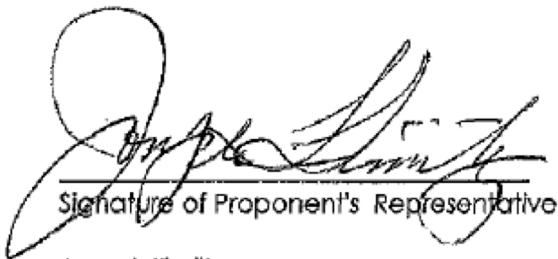
Section 1.5 of this PNF lists agencies from which permits and approvals for the Project will be sought.

3.7 Community Outreach

The Proponent is committed to effective community outreach and will continue to engage the community to ensure public input on the Project.

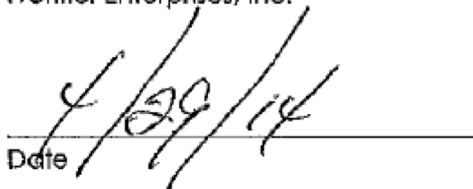
4.0 PROJECT'S CERTIFICATION

This form has been circulated to the Boston Redevelopment Authority as required by the Boston Zoning Code, Article 80.



Signature of Proponent's Representative

Joseph Timilty,
Frontier Enterprises, Inc.

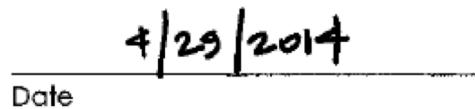


Date



Signature of Preparer

Thomas Maistros, Jr.
Development Consultant



Date