



Parcel H

SUSTAINABILITY

Sustainable Design Narrative

Introduction

The Project team, with strong support from the project developer, is pursuing sustainable design and construction for the project, which will include review and evaluation of the requirements of Article 22 of the Cambridge Zoning ordinance relative to the City’s Green Building policies and procedures. The City is actively promoting measures to encourage buildings to decrease energy and water use and cost, improve the efficiency and useful life of building systems and infrastructure, and reduce the burdens imposed by buildings on city services, the environment, and public health.

The Project architectural/engineering/construction team includes several LEED Accredited Professionals, including the Sustainability Consultants, Robert G. Andrews, Jr., PE, CEA, LEED AP BD+C, and Allison Gaiko, PE, LEED AP BD+C, and Daniel Whittet, LEED AP BD+C, BEAP, along with several other lead architects, engineers and construction personnel. Mr. Andrews’ responsibilities include meeting with the Proponent, Design Team and Construction Manager in a sustainable design charrette early in the Project, to identify the environmental design goals, motivations and issues, discuss the LEED program impact on the design, build consensus and included gaining LEED program buy-in from team members.

A LEED checklist for Cambridge Crossing Parcel H is provided at the end of this section to identify sustainability design objectives for this Project, highlights of which are included below. The project building has been registered with USGBC/GBCI to certify under the LEED for Core and Shell v4 program. Several of the site credits can be documented and applied to the building. System design solutions have been developed in an effort to achieve the targeted LEED credits. The final design and construction of the Project will create sustainable buildings to promote the internal building environmental quality for the occupants, enhance the surrounding neighborhood locally, and reduce environmental impacts globally.

LEED for Core and Shell v4 checklist summary:

| | | |
|-------------------------------|-----------------|--------------------------|
| Integrative Process | 1 Point | 0 Possible Point |
| Location and Transportation | 19 Points | 0 Possible Points |
| Sustainable Site | 5 Points | 0 Possible Points |
| Water Efficiency | 7 Points | 0 Possible Points |
| Energy and Atmosphere | 12 Points | 4 Possible Points |
| Materials and Resources | 3 Points | 2 Possible Points |
| Indoor Environmental Quality | 4 Points | 1 Possible Points |
| Innovation and Design Process | 3 Points | 0 Possible Points |
| <u>Regional Priority</u> | <u>2 Points</u> | <u>1 Possible Points</u> |

Total Points **56 Points Expected** **8 Possible Points**

Parcel H Path to Net Zero

DIVCO West is committed to developing sites and constructing and operating buildings that apply current sustainability strategies and that are adaptable to future technologies to be Net-zero ready. Net zero ready is understood to be a building that has a low site energy consumption and uses no fossil fuels.

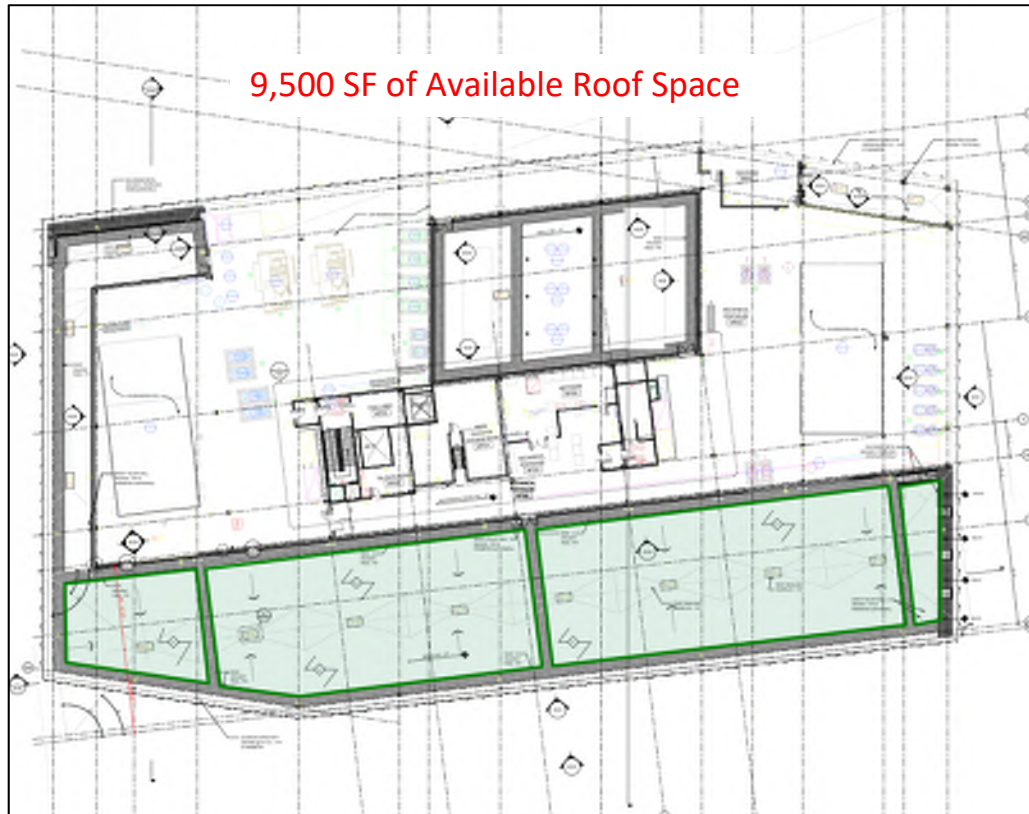
Although the Parcel H project will not be a net zero building when first completed, it is currently designed with the goal of dramatically reducing energy consumption by incorporating a high-performance envelope, high-efficiency condensing gas-fired boilers, high-efficiency chillers, low-flow hot water fixtures, LED lighting, and low-e windows. The project team has also performed energy analyses to evaluate the possibility of using advanced energy saving technologies, such as triple-pane windows, chilled beam cooling, and a dedicated outdoor air system utilizing a desiccant energy recovery wheel. Chilled Beams are presently in the project design as an expected tenant HVAC system approach. In addition, allowance for future technologies has been taken into consideration in the design of the building systems such that later conversions are more easily facilitated.

Finally, the current building systems are set up to be upgradable to net zero in the future by making changes to the system at the end of the systems’ useful life, over the next 20 to 30 years. A path to achieving net-zero would include removal of the current natural gas burning equipment at the end of its useful life, to be replaced with an all-electric system. This would not require significant distribution changes and thus the costs would be comparable to normal equipment replacement costs. In addition, the building would reevaluate renewable generation technologies, and district utilities potential implementation at that time, which would further the goal of eliminating greenhouse gas emissions.

Solar-Ready Roof

An estimated 9,500 ft² of roof space is available for the future installation of solar photovoltaic panels for renewable energy generation. Based on this, an analysis has been conducted using NREL’s PVWatts online tool to evaluate the potential solar energy generating capability of the project roof.

Based on an estimated EUI of 70 to 80 kBtu/ft²/year for similar office buildings in the Boston Cambridge area, and a conditioned square footage of 360,000 ft² at Parcel H, the building is estimated to be capable of producing between 2.5% and 3% of total energy use with roof-mounted solar panels. See the results below for more detail.



RESULTS

228,103 kWh/Year*

System output may range from 218,933 to 236,406 kWh per year near this location.

| Month | Solar Radiation (kWh / m ² / day) | AC Energy (kWh) | Value (\$) |
|---------------|---|----------------------|------------------|
| January | 4.05 | 17,037 | 2,556 |
| February | 4.76 | 18,028 | 2,704 |
| March | 5.01 | 20,666 | 3,100 |
| April | 5.33 | 20,304 | 3,046 |
| May | 5.36 | 20,976 | 3,146 |
| June | 5.43 | 20,216 | 3,032 |
| July | 5.81 | 22,057 | 3,309 |
| August | 5.64 | 21,367 | 3,205 |
| September | 5.48 | 20,364 | 3,055 |
| October | 4.63 | 18,315 | 2,747 |
| November | 3.68 | 14,561 | 2,184 |
| December | 3.40 | 14,211 | 2,132 |
| Annual | 4.88 | 228,102 | \$ 34,216 |

Affidavit

As the lead Sustainability Consultant overseeing the planning, design and construction of the Cambridge Crossing Parcel H, I, Allison Gaiko, PE, certify that I am knowledgeable of the project’s green building strategies, designs, plans and details and to the best of my knowledge this project has been planned and designed so as to meet the prerequisites and earn the credits necessary to achieve 56 points (minimum for certification is 40 points) using the LEED for Core and Shell v4 Rating System. The referenced project has been designed to meet the Green Building requirements under the City of Cambridge Zoning Code Article 22.

Allison Beebe Gaiko, PE, LEED AP
 Building Energy Analyst
 AHA Consulting Engineers, Inc.



The following LEED Prerequisites and Credits are targeted for certification:

Integrative Process

1. Integrative Process (Credit)

Beginning in pre-design and continuing throughout the design phases, the design team will identify and use opportunities to achieve synergies across disciplines and building systems. Opportunities for energy and water savings will be assessed at each stage of the design. The design team will also assess site conditions, massing and orientation of the building and develop the owner's project requirements (OPR) and basis of design (BOD) based on assessments of energy and water saving opportunities.

Location and Transportation

1. Sensitive Land Protection (Credit)

The project is located on a previously developed site.

2. High Priority Site (Credit)

The project team expects to follow option 3 – Brownfield Remediation. The site will be assessed for pollutants and by following phases 1 and 2 of ASTM E1527-05 and measures will be taken for remediation, abatement and removal in accordance with regulations, and makes the project comply with the requirements of this credit. This credit is also a Regional priority credit.

3. Surrounding Density and Diverse Uses (Credit)

The project is a new building on a previously developed site; therefore, it meets the "Previously Developed" requirements. The Avalon Cambridge Crossing apartments will satisfy the surrounding density requirement. The project team will identify building sites and buildable land within required radius of the project site, collect information on density, and perform separate residential and non-residential density calculations, if applicable. To fulfill the diverse uses requirements, the development is located within ½ mile of a dense residential area and several amenities including:

- North Point Common - Park
- Tahaza Hummus Kitchen - Restaurant
- Boston Convenience Store – Store
- Little Lingo – Bar
- Bunker Hill Community College – College
- Cambridge Preschool of the Arts – Preschool
- Museum Market – Restaurant
- Cambridge Used Bicycles – Store

It is expected that other amenities will be created through nearby development by the time of substantial completion of the project.

4. Access to quality Transit (Credit)

Public transportation access is included in the project. The project is located within ¼ mile of several MBTA bus lines and two (2) subway lines (Green line and Orange line) at Lechmere and Community College. The project team will identify transit stops within ½ mile, classify transit based on vehicle types, and confirm the walkability

5. Bicycle Facilities (Credit)

The project will meet the credit requirements by providing short-term bicycle storage for at least 2.5% of all peak visitors, and long-term bicycle storage for at least 30% of all regular building occupants. The project team will identify bicycle network and eligible destinations, select bike-friendly project location, and gather occupant count information. This credit is expected to be achieved.

6. Green Vehicles (Credit)

The project will designate 5% of all parking spaces used by the project as preferred parking for green vehicles. These spaces will be clearly identified and enforced for sole use by green vehicles. Preferred parking spaces will be distributed proportionally among various parking sections (e.g. between short-term and long-term spaces). The project team will determine total vehicle parking capacity, calculate number of preferred parking spaces and alternative-fuel fueling stations, and incorporate preferred parking into design.

Sustainable Sites

1. Construction Activity Pollution Prevention (Prerequisite)

A management plan will enforce measures to protect adjacent areas from pollution from wind and water-borne soil and sedimentation. The civil design team prepared an erosion and sedimentation plan that meets the local codes and the EPA Construction General Permit of the National Pollution Discharge Elimination System (NPDES) program. The construction team will implement the erosion and sedimentation measures and will follow the requirements of stormwater pollution prevention plan during the construction.

2. Open Space

The project will provide outdoor space greater than or equal to 30% of the total site area (including building footprint). A minimum of 25% of that outdoor space will be vegetated.

3. Heat Island Reduction (Credit)

The project will meet option 1 by using a white roof membrane over the entire roof surface. The project will meet option 2 by placing 100% of parking area under a green-roof.

4. Tenant Design and Construction Guidelines (Credit)

The proponent and the design team are in the process of developing a Tenant Design and Construction Guidelines for this C&S development. The document explains the sustainable aspects of the Core and Shell building design and construction, and also explains what steps are needed for tenants to achieve LEED CI Certification for their space fit-out design and construction.

LEED-CI is a decision for individual tenants in the building. Tenants are encouraged to have their interior space constructed in an environmentally friendly manner. The rating system is designed to help guide and measure green strategies under the control of the tenants. These strategies can range from the selection of non-toxic paint to Energy Star Computers and office equipment. It is important to understand that the tenant is encouraged to play an active role in the fitting out of their new space.

Water Efficiency

1. Outdoor Water Use Reduction (Prerequisite)
The project will reduce the project's landscape water requirement by at least 30% from the calculated baseline for the site's peak watering month. Reductions will be achieved through plant species selection and irrigation system efficiency, as calculated by the Environmental Protection Agency (EPA) WaterSense Water Budget Tool.
2. Indoor Water Use Reduction (Prerequisite)
Low Flush (1.28 GPF) toilets, 0.125 GPF Urinals, 0.35 GPM Metering lavatory faucets, 1.5 GPM tenant kitchenette faucets, and 1.5 GPM showerheads are specified and are calculated to achieve a reduction in water usage of at least 35% over the baseline.
3. Building-Level Water Metering (Prerequisite)
The project will install permanent water meters that measure the total potable water use for the building and associated grounds. Meter data must be compiled into monthly summaries.
4. Outdoor Water Use Reduction (Credit)
The project will reduce the project's landscape water requirement by at least 50% from the calculated baseline for the site's peak watering month. Reductions will be achieved through plant species selection and irrigation system efficiency, as calculated by the Environmental Protection Agency (EPA) WaterSense Water Budget Tool.
5. Indoor Water Use Reduction (Credit)
Low Flush (1.1 GPF) toilets, 0.125 GPF Urinals, 0.35 GPM Metering lavatory faucets, 1.5 GPM tenant kitchenette faucets, and 1.5 GPM showerheads are specified and are calculated to achieve a reduction in water usage of at least 39% over the baseline. In addition, the project will capture stormwater and pump it to flush the toilets in the core/shell toilet rooms. Overall, the potable water savings from these approaches is expected to exceed 40%. This is also a Regional Priority Credit.
6. Cooling Tower Water Use (Credit)
The project will conduct a one-time potable water analysis, measuring Ca (as CaCO₃), total alkalinity, SiO₂, Cl-, and Conductivity. The project will achieve a minimum 10 cycles by increasing the level of treatment in condenser or make-up water, and will study the potential for using a minimum 20% recycled nonpotable water through rainwater capture and reuse.
7. Water Metering (Credit)
The project will install permanent water meters to monitor water use for at least two water subsystems, including irrigation, domestic hot water, and cooling tower water use. The project team will prepare a narrative describing the subsystems metered, including the location and model of each installed submeter.

Energy and Atmosphere

1. Fundamental Commissioning (Prerequisite 1)
Commissioning of the Mechanical and Electric building systems is under contract and will be performed.
2. Minimum Energy Performance (Prerequisite 2)
The energy code utilized for the Project will be the Massachusetts Energy Stretch Code at a minimum, and ASHRAE Standard 90.1-2010 for LEED purposes. The energy model is developed by the energy consultants at AHA Consulting Engineers.

Energy Conservation measures will include: Low-E glazing, reduced lighting power density in the core areas, a Dedicated outdoor-air handling unit with enthalpy heat recovery, chilled beam cooling, high-efficiency water-cooled centrifugal chillers with VFD, variable volume (VFD) based condenser and chilled water pumping, cooling towers with variable volume fans instead of two-speed fans, high-efficiency gas-fired condensing boilers supplying low temperature hot water to AHUs and reheat coils, variable volume hot water pumping, and reduced-flow hot water fixtures (lavatory, and shower) to reduce hot water demand.
3. Building-Level Energy Metering (Prerequisite)
All energy provided to the building will be supplied by utility meters. Energy consumption will be tracked and shared with the USGBC for a five-year period.
4. Fundamental Refrigerant Management (Prerequisite)
No CFC-based refrigerants will be utilized for the Project.
5. Enhanced Commissioning (Credit)
An independent commissioning authority has been contracted to perform on-board design reviews and will commission the building systems after installation in accordance with ASHRAE Guideline 0-2005 and ASHRAE Guideline 1.1-2007 for HVAC&R systems. This credit is expected to be achieved.
6. Optimize Energy Performance (Credit)
This development is planning to achieve at least 6 points, and potentially up to 8 points depending on the LEED review, under the Optimize Energy Performance credit. The Energy modeling team is performing the energy analysis in accordance with the ASHRAE 90.1-2010, Appendix G, protocols using eQuest v3.65 software. This is also a Regional Priority Credit.
7. Advanced Energy Metering (Credit)
The project will install meters for future tenant spaces so that tenants will be capable of independently metering energy consumption (electricity, chilled water, etc.) for all systems dedicated to their space. A sufficient number of meters will be provided to capture total tenant energy use with a minimum of one meter per energy source per floor.
8. Enhanced Refrigerant Management (Credit)
The project team will conduct a refrigerant impact calculation to examine the global warming potential and ozone depletion potential of refrigerants used within the project scope. The refrigeration devices and cooling equipment installed within this building will have total impact per ton of less than 100.

9. Green Power (Credit 6)

The project will investigate the cost of purchasing renewable energy credits in the amount of at least 50% of the electricity used in the building, based on the results of the energy model, and may purchase 100% to achieve an innovation point for Exemplary Performance.

Materials and Resources

1. Storage and Collection of Recyclables (Prerequisite)

There will be a dedicated recyclable storage within the building. This area will be accessible to local recycling handlers for the collection of paper, corrugated cardboard, glass, plastics and metals. This will also include space for the storage and disposal of two of the following: batteries, mercury-containing lamps, and electronic waste.

2. Construction and Demolition Waste Management Planning (Prerequisite)

The project team will develop and implement a construction and demolition waste management plan establishing waste diversion goals and identify at least five materials targeted for diversion. The plan will specify materials that will be separated onsite, as well as comingled waste. A final report detailing all major waste streams generated, including disposal and diversion rates, will be provided.

3. Building Product Disclosure and Optimization— Environmental Product Declarations (Credit)

The project will specify at least 20 different products sourced from at least 5 manufacturers that either have industry-wide EPD's available or products that comply with 3rd party certifications for global warming potential for 50% by cost for the project.

4. Building Product Disclosure and Optimization—Sourcing of Raw Materials (Credit)

The project will use at least 20 different permanently installed products from at least five different manufacturers that have publicly released a report from their raw material suppliers which include raw material supplier extraction locations, a commitment to long-term ecologically responsible land use, a commitment to reducing environmental harms from extraction and/or manufacturing processes, and a commitment to meeting applicable standards or programs voluntarily that address responsible sourcing criteria.

5. Building Product Disclosure and Optimization— Material Ingredients (Credit)

The project will use at least 20 different permanently installed products from at least five different manufacturers that have either a manufacturer inventory, a health product declaration, cradle to cradle certification, or a USGC approved program.

6. Construction and Demolition Waste Management (Credit)

The project team will develop and implement a construction and demolition waste management plan to maximize diversion and reuse of material and identify at least five materials targeted for diversion. The project will divert at least 75% of the total construction and demolition material; diverted materials must include at least four material streams.

Indoor Environmental Quality

1. Minimum IAQ Performance (Prerequisite)

The ventilation code utilized for the Project will be ASHRAE Standard 62.1-2010, as required by the present Massachusetts Building Code. The mechanical systems are designed to provide superior ventilation throughout the building; therefore, the project will meet the minimum requirements of ASHRAE 62.01-2010, Minimum Ventilation Rate Procedure.

2. Environmental Tobacco Smoke Control (Prerequisite)

The entire building has a no-smoking policy to comply with the Massachusetts Workplace Smoking law and is a Smoke-Free building; smoking is prohibited anywhere in the building, and within 25' of main entries, operable windows and air intakes.

3. Enhanced Indoor Air Quality Strategies (Credit)

Permanent entryway systems will be provided at least 10 feet long in the primary direction of travel at all regularly used exterior entrances. Spaces where hazardous gases or chemicals may be present will be exhausted at a minimum of 0.50 cfm per square foot, to create negative pressure with respect to adjacent spaces when the doors to the room are closed. For each of these spaces, provide self-closing doors and deck-to-deck partitions or a hard-lid ceiling. All ventilation systems will be provided with MERV 13 filters or higher.

Carbon dioxide will be monitored in all densely occupied spaces. CO2 monitors will have an audible or visual indicator or alert the building automation system if the sensed CO2 concentration exceeds the setpoint by more than 10%. CO2 setpoints will be calculated using methods in ASHRAE 62.1–2010, Appendix C.

4. Low-Emitting Materials (Credit)

All categories of materials will be in compliance with emissions and contents standards, and will be specified with low-VOC content limits as prescribed by the respective applicable standards.

5. Construction IAQ Management Plan (Credit)

An Indoor Air Quality Management plans will be implemented during the construction phase in accordance with the SMACNA Indoor Air Quality for Buildings under Construction Guideline. This document defines procedures for maintaining good indoor air quality inside the building during construction and also addresses construction practices to allow the best possible indoor environment after occupancy. These practices include cleaning during construction, interrupting paths of odor and dust travel within the building, segregating odor and dust producing activities from absorbent materials, and scheduling similar odor or duct producing activities to occur at the same time. This will be done in accordance with Sheet Metal and Air Conditioning National Contractors Association (SMACNA) IAQ Guidelines for Occupied Buildings under Construction, 2nd edition, 2007, ANSI/SMACNA 008–2008, Chapter 3.

Innovation and Design Process

Only two Innovation and Design Credits may be achieved by the Exemplary Performance path. These exemplary performance credits are expected to be Indoor Water Use Reduction and Access to Quality Transit. Additional Innovation credits expected to be sought are the Social Equity Pilot Credit and the LEED Accredited Professional credit. The project team will identify innovative strategies, develop innovation point strategy, confirm credit eligibility, and develop documentation for each credit. Other Innovation credits may also be sought as the project continues through construction.

Regional Priority

The project team intends to achieve Regional Priority credits for High Priority Site and Indoor Water Use Reduction, and possibly Optimize Energy Performance, for a total of two (2), or possibly three (3) points.

END OF SUSTAINABLE DESIGN NARRATIVE

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LEED v4 for BD+C: Core and Shell
Project Checklist

Project Name: Cambridge Crossing Parcel H
Date: 11/5/2018

Y ? N

| | | | | |
|---|--|--------|---------------------|---|
| 1 | | Credit | Integrative Process | 1 |
|---|--|--------|---------------------|---|

| 19 | 0 | 1 | Location and Transportation | 20 |
|----|---|---|---|----|
| | | | Credit LEED for Neighborhood Development Location | 20 |
| 2 | | | Credit Sensitive Land Protection | 2 |
| 3 | | | Credit High Priority Site | 3 |
| 6 | | | Credit Surrounding Density and Diverse Uses | 6 |
| 6 | | | Credit Access to Quality Transit | 6 |
| 1 | | | Credit Bicycle Facilities | 1 |
| | | 1 | Credit Reduced Parking Footprint | 1 |
| 1 | | | Credit Green Vehicles | 1 |

| 5 | 0 | 6 | Sustainable Sites | 11 |
|---|---|---|--|----------|
| Y | | | Prereq Construction Activity Pollution Prevention | Required |
| 1 | | | Credit Site Assessment | 1 |
| | | 2 | Credit Site Development - Protect or Restore Habitat | 2 |
| 1 | | | Credit Open Space | 1 |
| | | 3 | Credit Rainwater Management | 3 |
| 2 | | | Credit Heat Island Reduction | 2 |
| | | 1 | Credit Light Pollution Reduction | 1 |
| 1 | | | Credit Tenant Design and Construction Guidelines | 1 |

| 7 | 0 | 4 | Water Efficiency | 11 |
|---|---|---|--------------------------------------|----------|
| Y | | | Prereq Outdoor Water Use Reduction | Required |
| Y | | | Prereq Indoor Water Use Reduction | Required |
| Y | | | Prereq Building-Level Water Metering | Required |
| 1 | | 1 | Credit Outdoor Water Use Reduction | 2 |
| 4 | | 2 | Credit Indoor Water Use Reduction | 6 |
| 1 | | 1 | Credit Cooling Tower Water Use | 2 |
| 1 | | | Credit Water Metering | 1 |

| 12 | 4 | 17 | Energy and Atmosphere | 33 |
|----|---|----|---|----------|
| Y | | | Prereq Fundamental Commissioning and Verification | Required |
| Y | | | Prereq Minimum Energy Performance | Required |
| Y | | | Prereq Building-Level Energy Metering | Required |
| Y | | | Prereq Fundamental Refrigerant Management | Required |
| 5 | | 1 | Credit Enhanced Commissioning | 6 |
| 6 | 2 | 10 | Credit Optimize Energy Performance | 18 |
| | | 1 | Credit Advanced Energy Metering | 1 |
| | | 2 | Credit Demand Response | 2 |
| | | 3 | Credit Renewable Energy Production | 3 |
| 1 | | | Credit Enhanced Refrigerant Management | 1 |
| | | 2 | Credit Green Power and Carbon Offsets | 2 |

| 3 | 2 | 9 | Materials and Resources | 14 |
|---|---|---|--|----------|
| Y | | | Prereq Storage and Collection of Recyclables | Required |
| Y | | | Prereq Construction and Demolition Waste Management Planning | Required |
| | | 6 | Credit Building Life-Cycle Impact Reduction | 6 |
| 1 | | 1 | Credit Building Product Disclosure and Optimization - Environmental Product Declarations | 2 |
| | | 1 | Credit Building Product Disclosure and Optimization - Sourcing of Raw Materials | 2 |
| 1 | | 1 | Credit Building Product Disclosure and Optimization - Material Ingredients | 2 |
| 1 | 1 | | Credit Construction and Demolition Waste Management | 2 |

| 4 | 1 | 5 | Indoor Environmental Quality | 10 |
|---|---|---|--|----------|
| Y | | | Prereq Minimum Indoor Air Quality Performance | Required |
| Y | | | Prereq Environmental Tobacco Smoke Control | Required |
| 1 | | 1 | Credit Enhanced Indoor Air Quality Strategies | 2 |
| 1 | 1 | 1 | Credit Low-Emitting Materials | 3 |
| 1 | | | Credit Construction Indoor Air Quality Management Plan | 1 |
| | | 3 | Credit Daylight | 3 |
| 1 | | | Credit Quality Views | 1 |

| 3 | 0 | 3 | Innovation | 6 |
|---|---|---|---|---|
| 1 | | | Credit Innovation in Design: Social Equity pilot credit | 1 |
| 1 | | | Credit Exemplary Performance: Access to Quality Transit | 1 |
| | | 1 | Credit Exemplary Performance: Indoor Water Use Reduction | 1 |
| | | 1 | Credit Innovation in Design: Purchasing - Lamps | 1 |
| | | 1 | Credit Pilot Credit: Integrative Analysis of Building Materials | 1 |
| 1 | | | Credit LEED Accredited Professional | 1 |

| 2 | 1 | 1 | Regional Priority | 4 |
|---|---|---|------------------------------------|---|
| | 1 | | Credit Optimize energy performance | 1 |
| 1 | | | Credit High Priority site | 1 |
| | | 1 | Credit Rainwater management | 1 |
| 1 | | | Credit Indoor water use reduction | 1 |

| | | | | |
|-----------|----------|-----------|---------------|-----------------------------|
| 56 | 8 | 46 | TOTALS | Possible Points: 110 |
|-----------|----------|-----------|---------------|-----------------------------|

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



Performance Projections

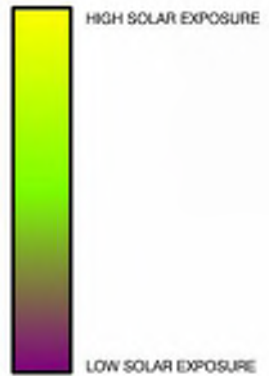
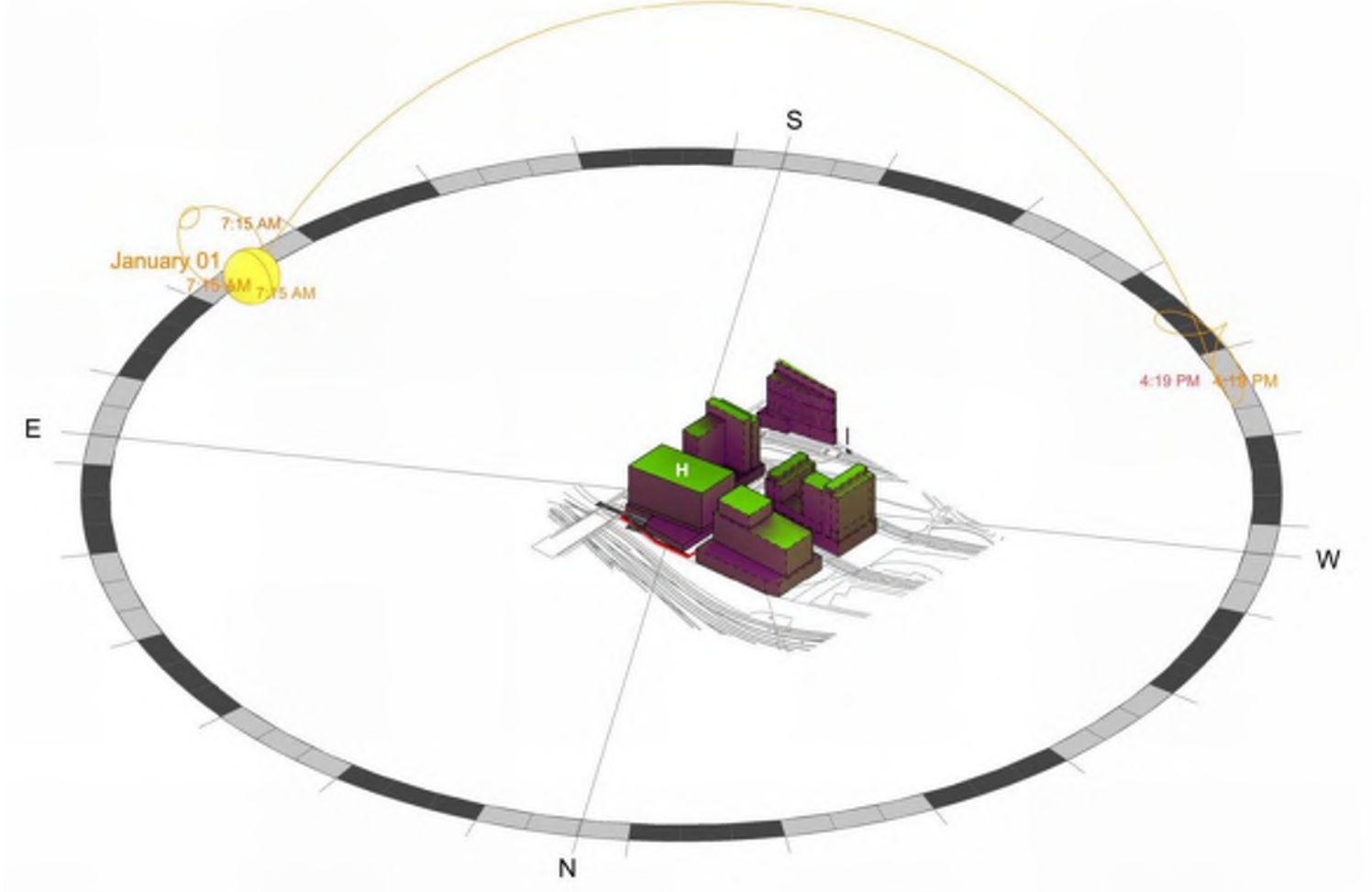
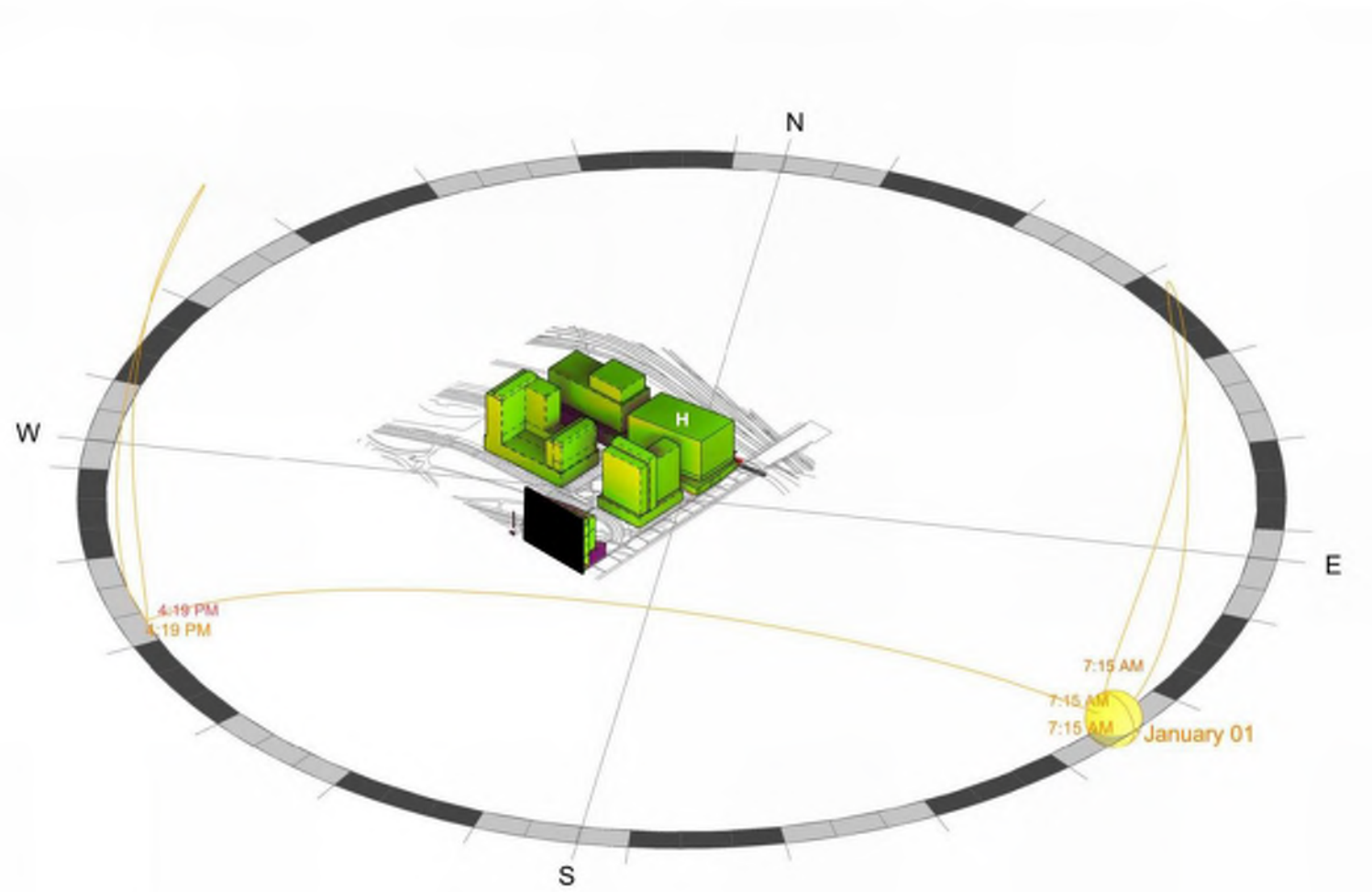
| ENERGY | kBtu/ sf/ yr |
|---------------------|--------------|
| Baseline | 72.3 |
| Target | 45.7 |
| Total EUI Reduction | 36% |

| LIGHTING POWER DENSITY | W/ sf |
|------------------------|-------|
| Baseline (LPD) | .69 |
| Designed (LPD) | 0.63 |
| Total LPD Reduction | 8.5% |

| POTABLE WATER USE | kgal / yr |
|------------------------------------|-----------|
| Baseline Flush | 1180.3 |
| Baseline Flow | 713.0 |
| Total Potable Water Use Reduction | 33.2% |
| Design Flush | |
| Design Flow | 510.3 |
| Annual Potable Water Use Reduction | 73% |

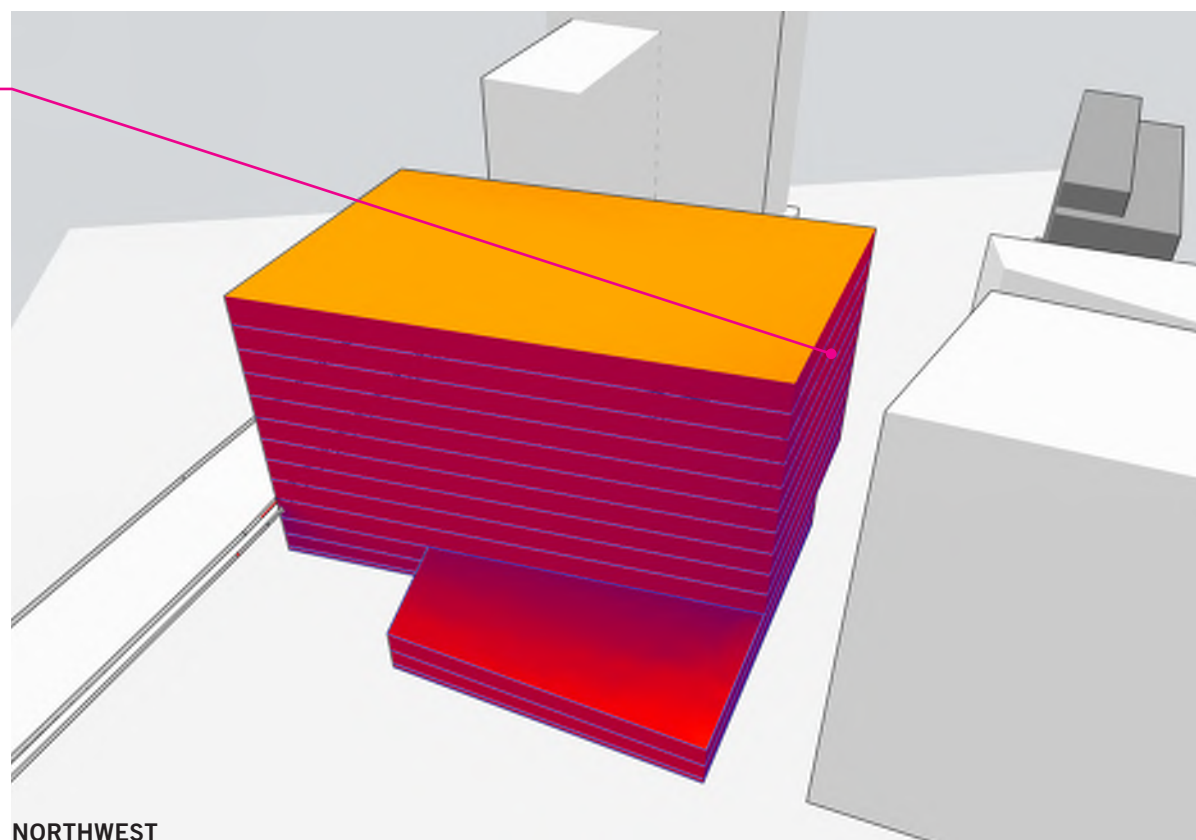
- WALKABILITY 
- BIKE STORAGE 
- LOW VOC MATERIALS 
- EFFICIENT GLAZING 
- HIGH PERFORMANCE ENERGY RECOVERY 
- PVC READY ROOF 
- LED LIGHTING 
- NATIVE LANDSCAPE 



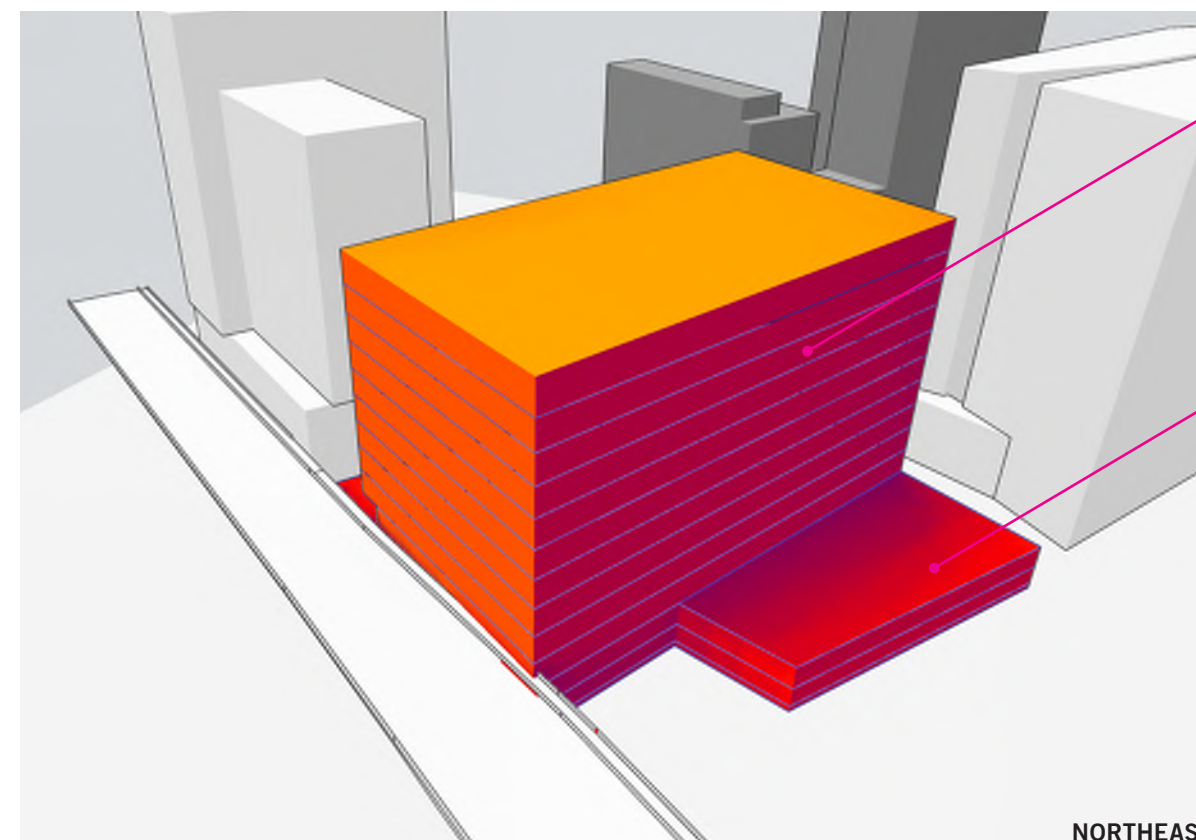


Low heat gain  High heat gain

Western facade much cooler due to shading from adjacent buildings

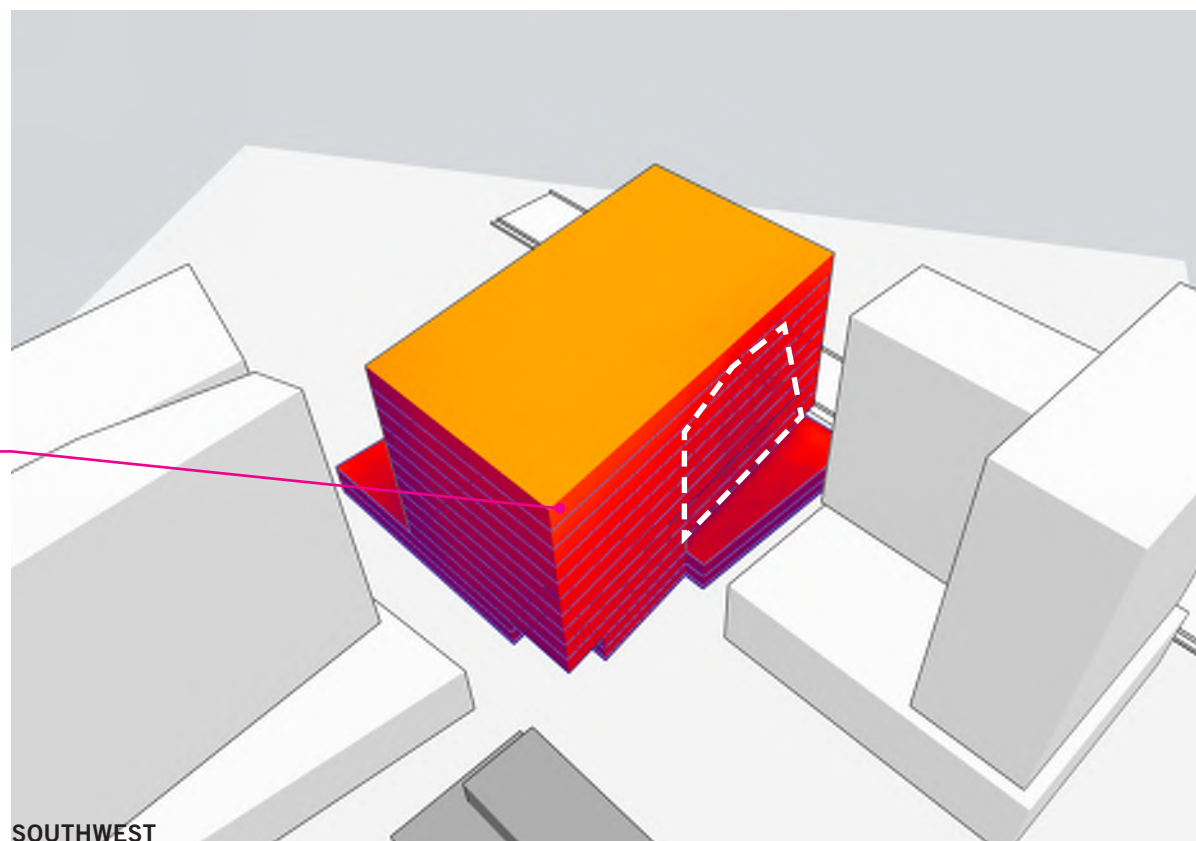


Northern facade much cooler than other facades

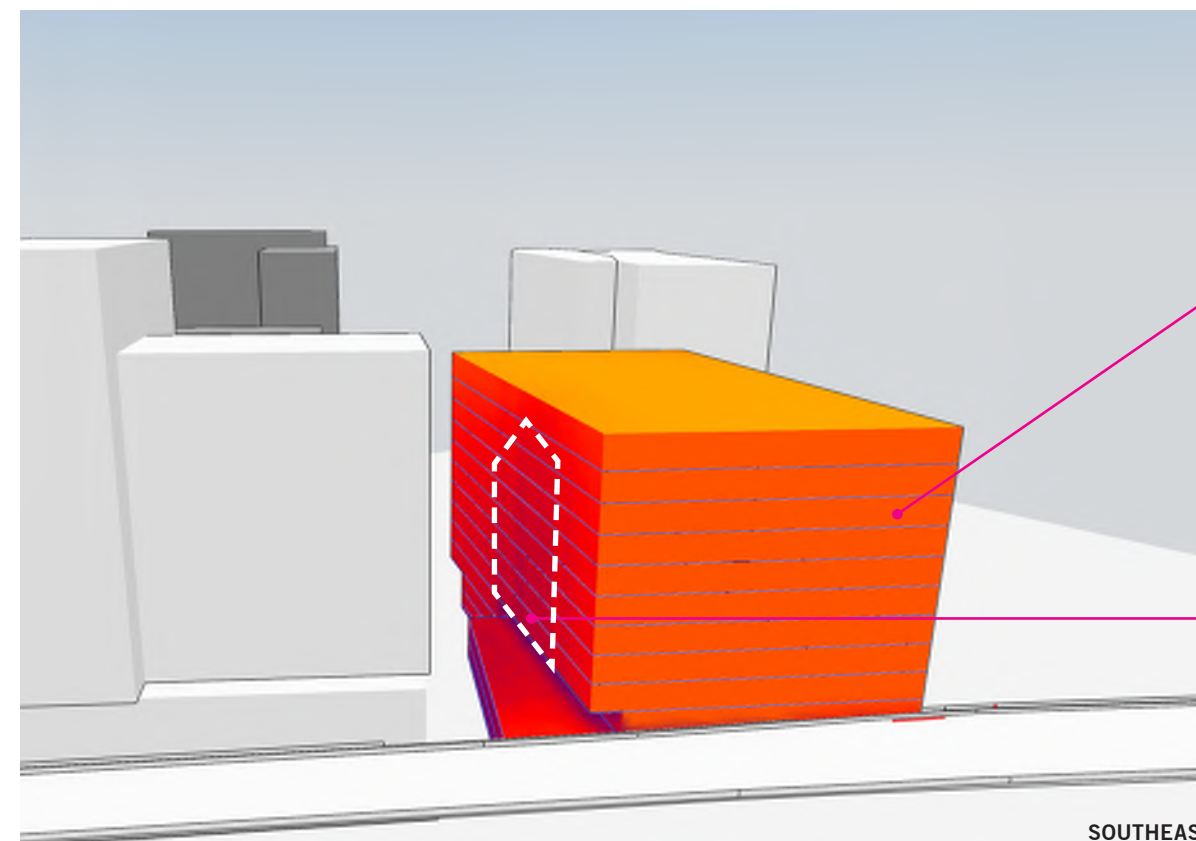


Although on the north, the terrace receives a good amount of sunlight throughout the year

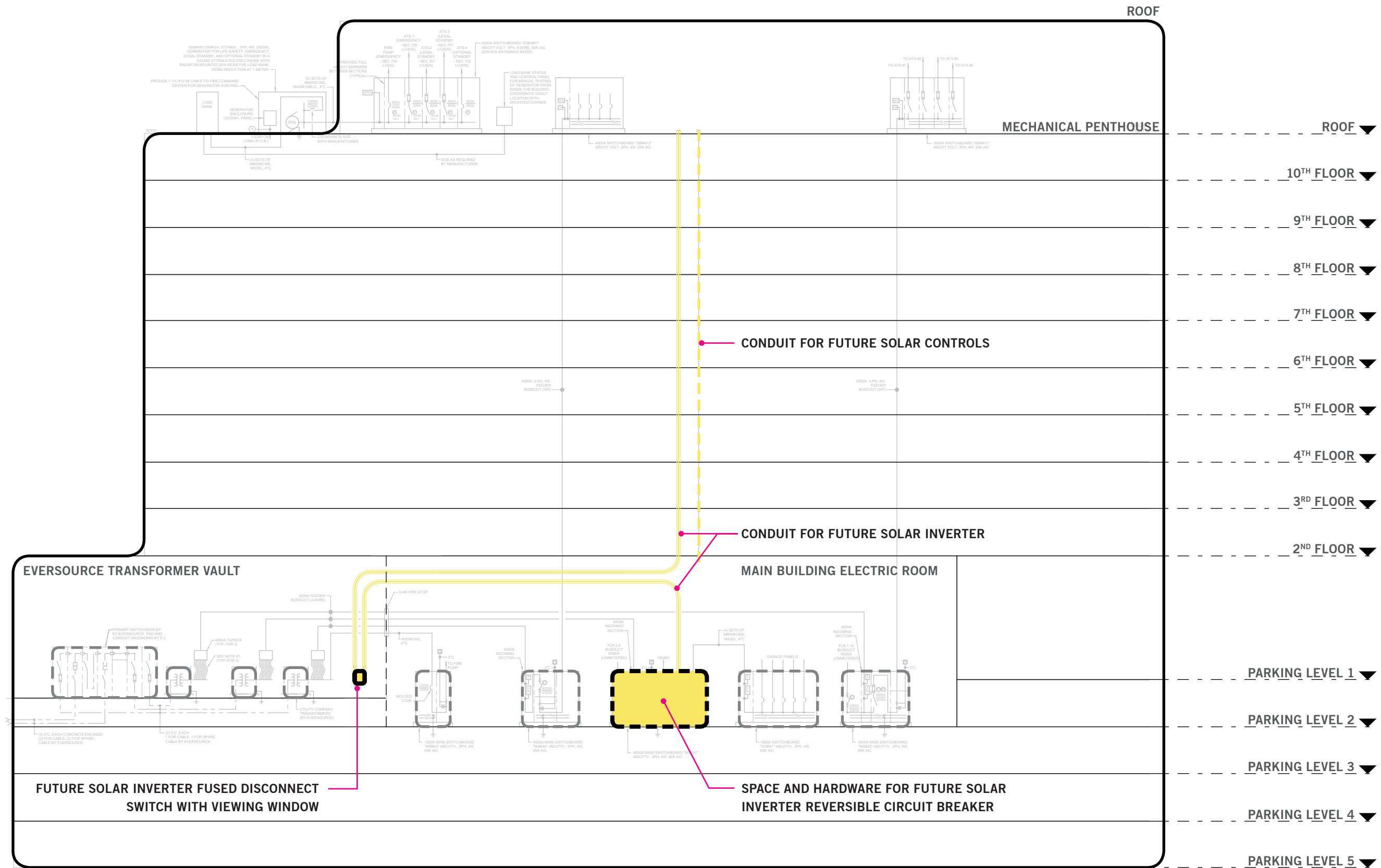
Southwestern top corner is one of the warmest portions of the building



Eastern facade is completely unprotected and receives the most direct sunlight throughout the year



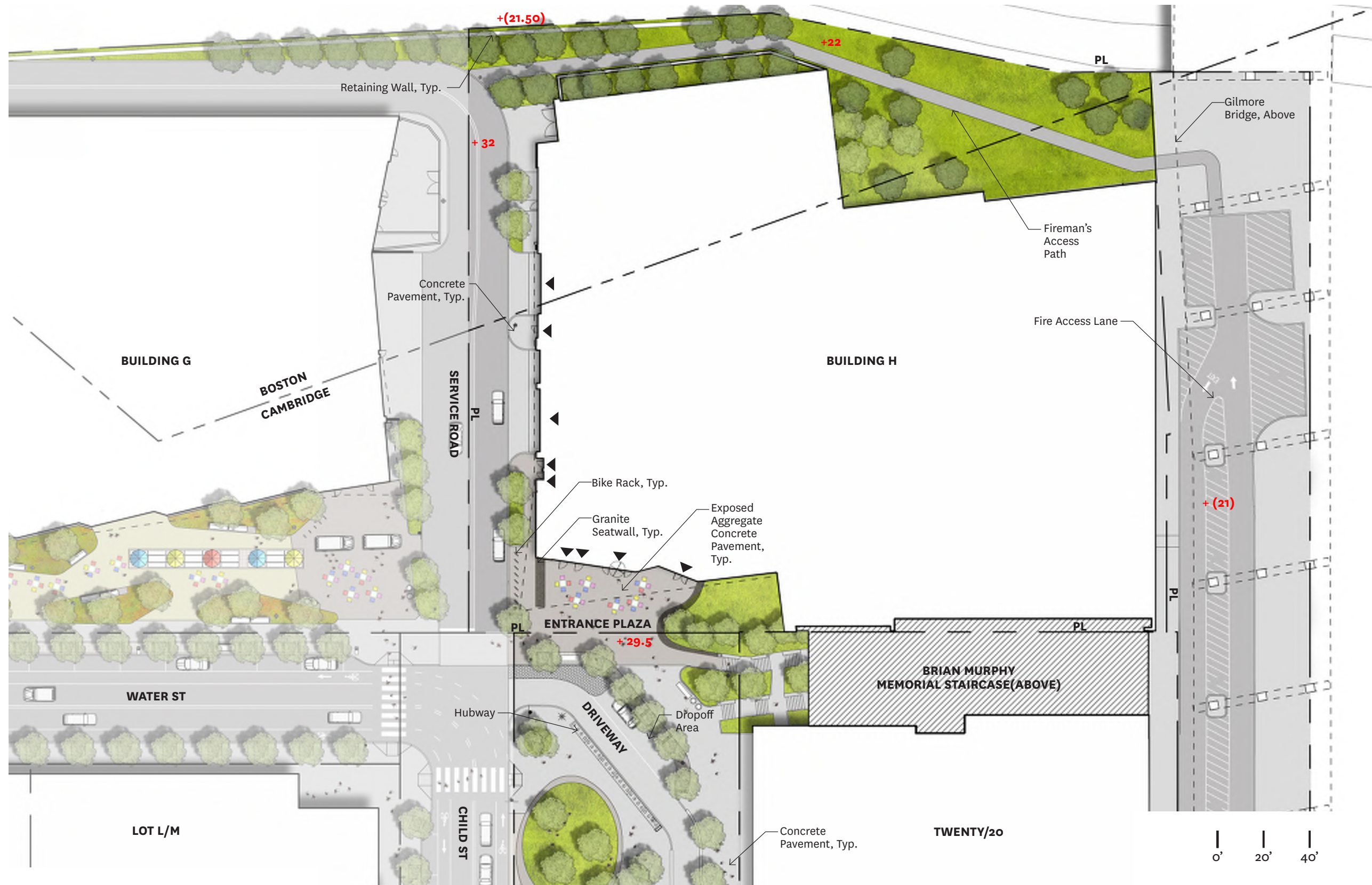
20 Twenty provides some shade during the year on the southern facade

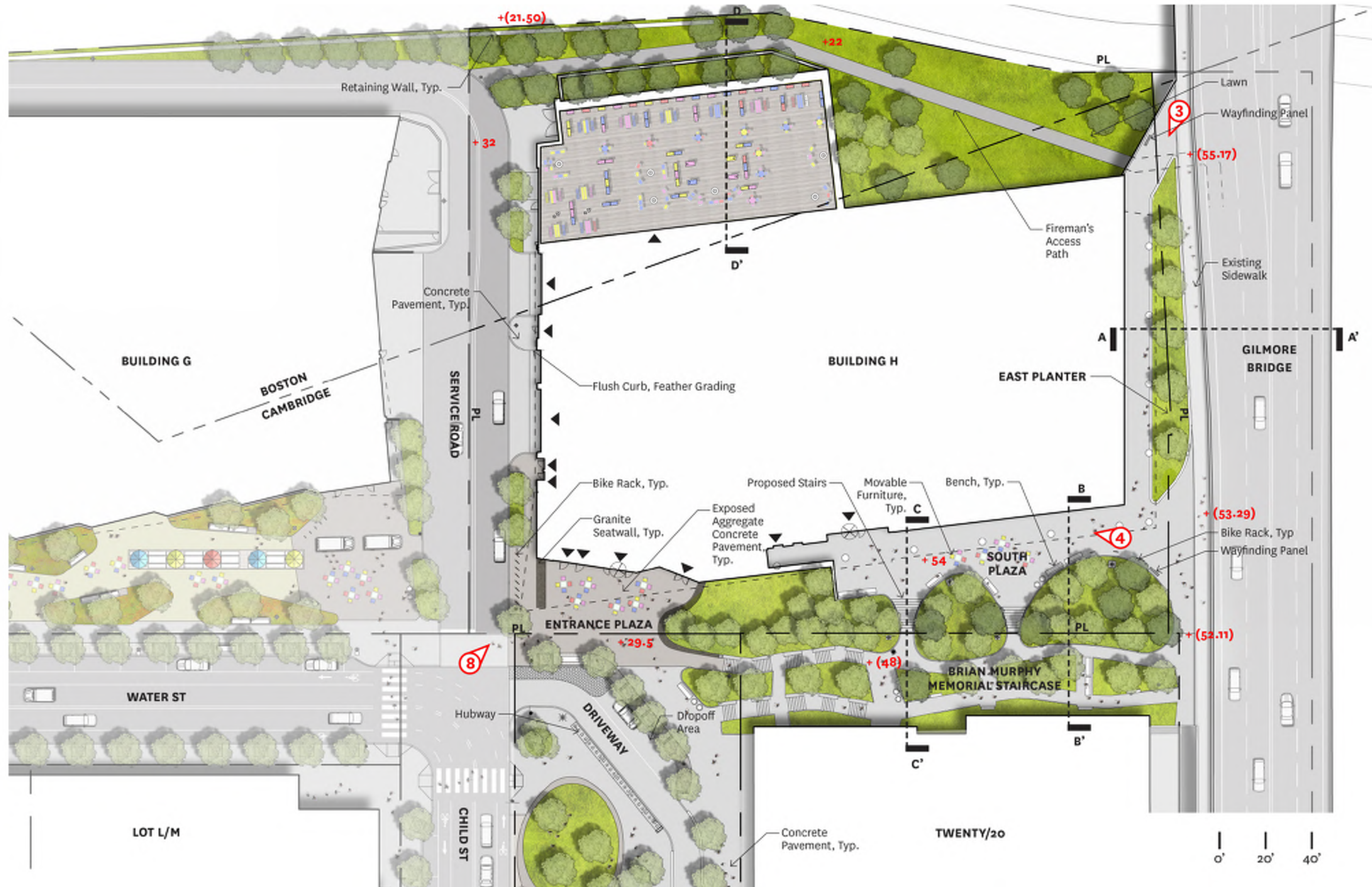


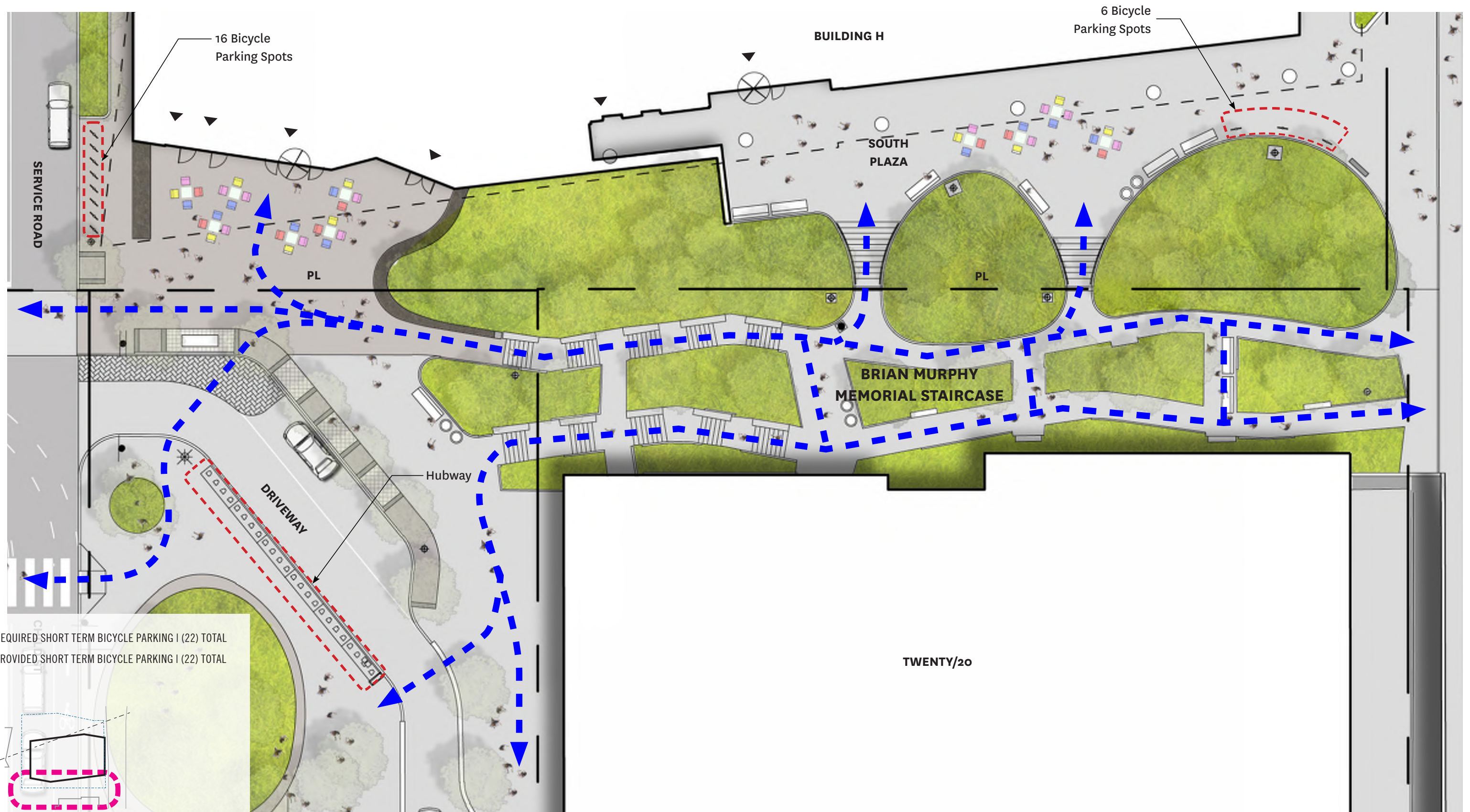


Parcel H

LANDSCAPE

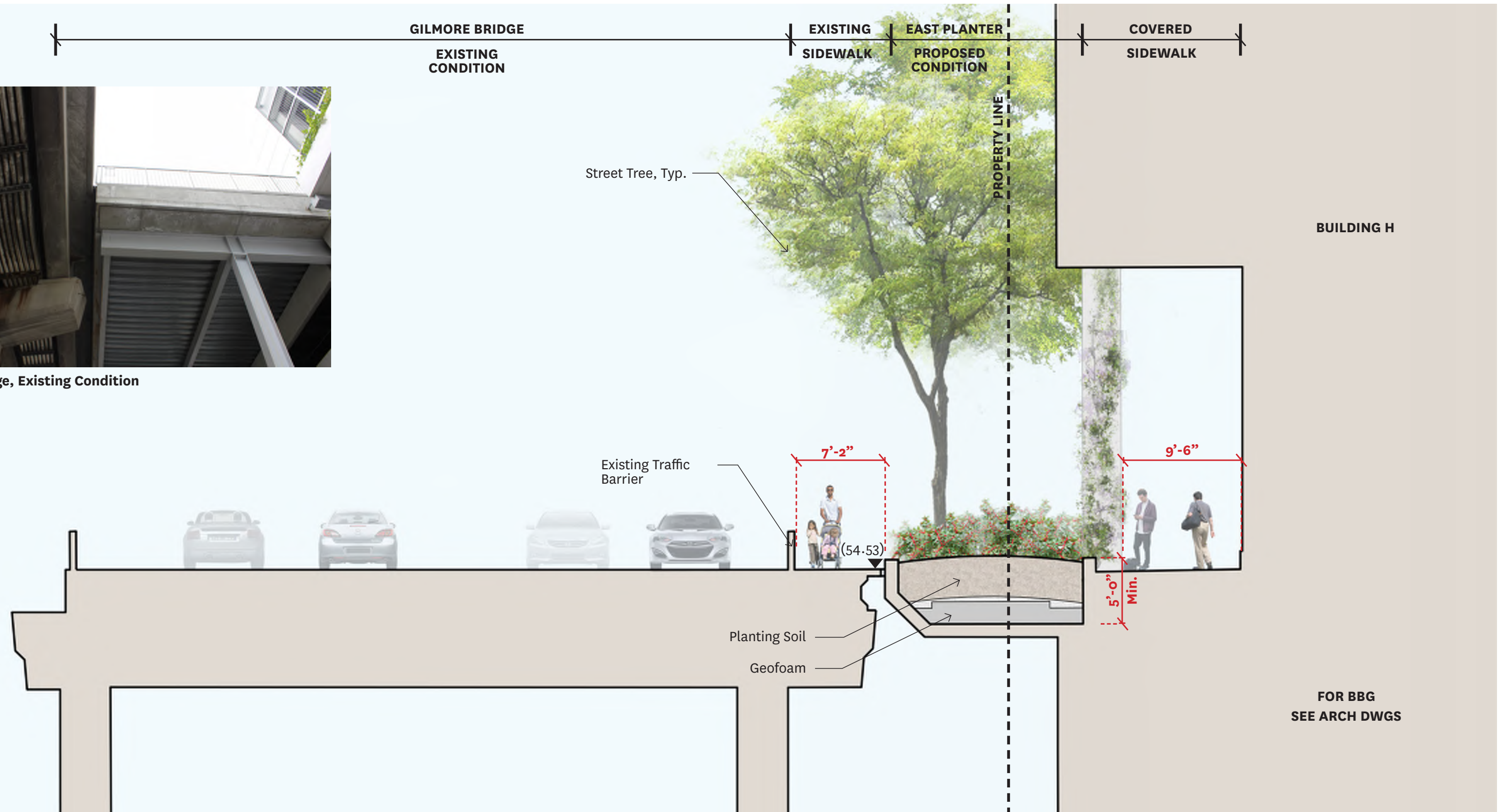


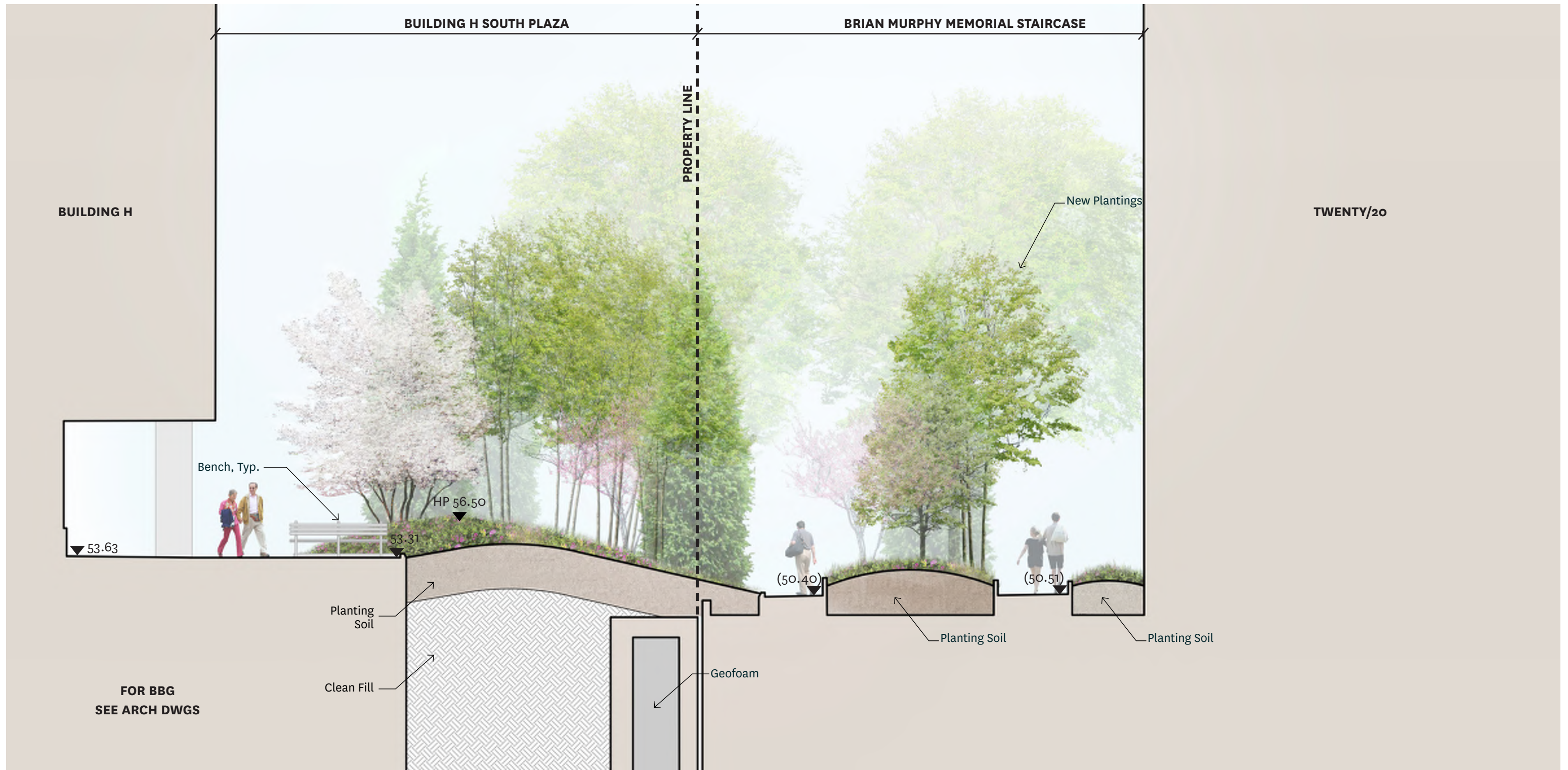


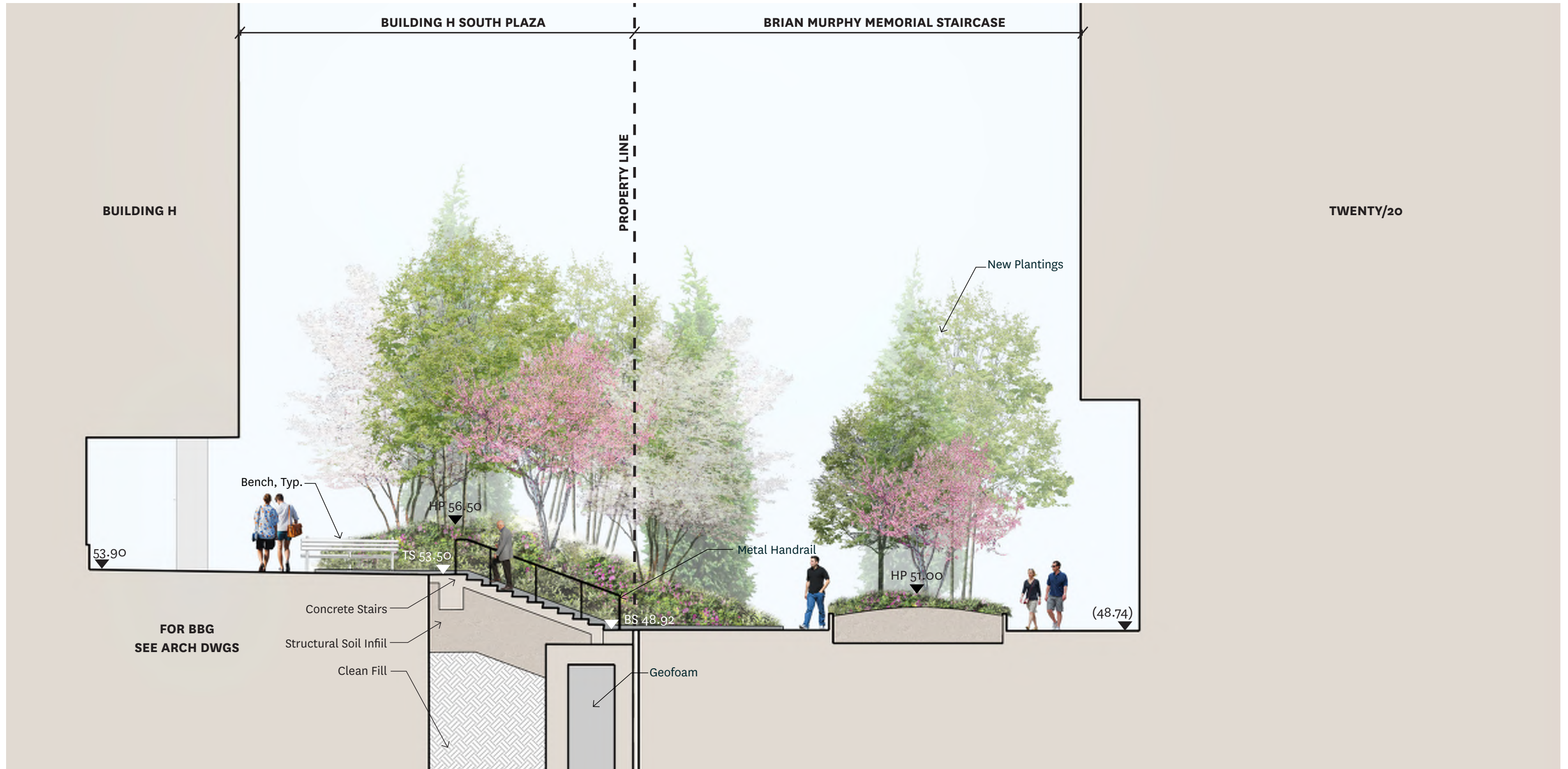


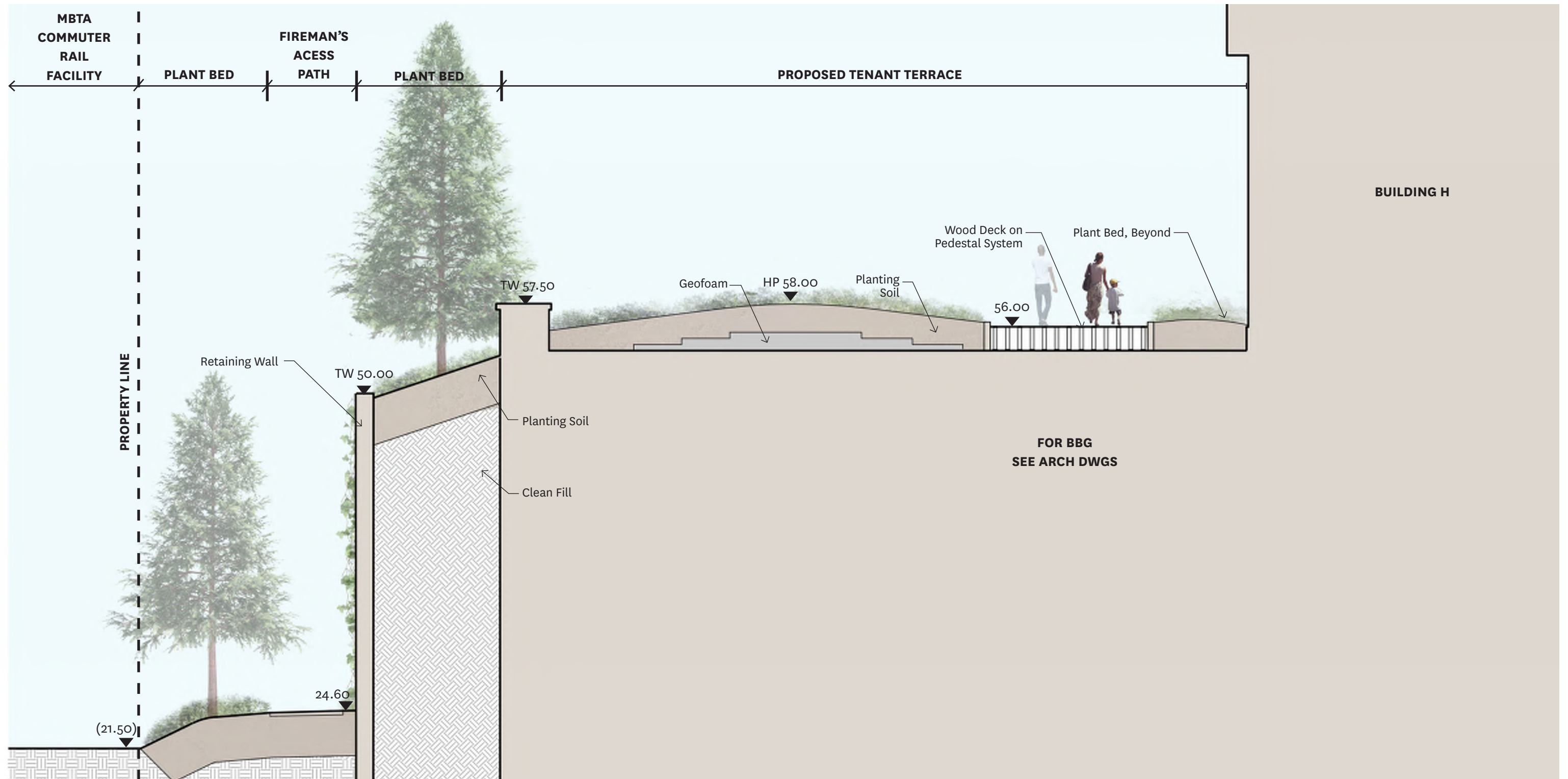


Gilmore Bridge, Existing Condition



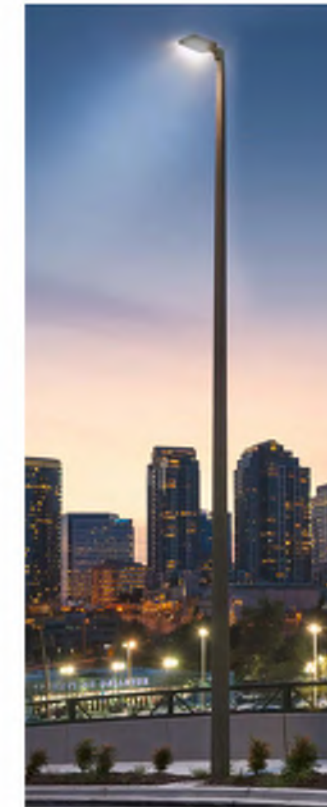








1 LP-P: Pedestrian Scale Light Pole



2 LP-S: Cambridge Crossing Street Light



3 Existing Murphy Staircase Handrail Lighting Fixtures



4 Existing Catenary Lighting at Murphy Staircase



5 Step Lighting in Curb



Stone Setts Pavement



Exposed Aggregate Concrete Pavement



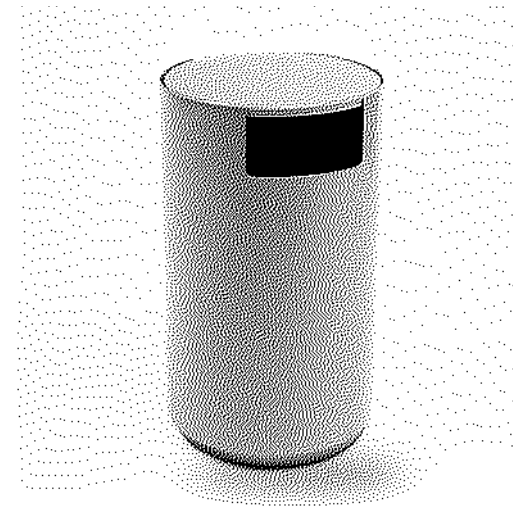
Decomposed Granite Pavement



Concrete Pavement



Bike Rack



Trash Receptacle



Planter, Clustered



Planter, Linear





Celtis occidentalis
Common Hackberry



Styphnolobium japonicum
Japanese Pagoda Tree



Gleditsia triacanthos var. inermis
Skyline Honeylocust

All trees are included in the City of Cambridge recommended species list.



Magnolia x soulangeana
Saucer Magnolia



Cercis canadensis
Eastern Redbud



Abies concolor
White Fir



Picea glauca
White Spruce



Thuja plicata
Western Red Cedar



Amelanchier arborea
Serviceberry



Juniperus virginiana
Red Cedar



Ceanothus americanus
New Jersey Tea



Comptonia peregrina
Sweet Fern



Hydrangea arborescens
Smooth Hydrangea



Neviusia alabamensis
Alabama Snow Wreath



Pieris floribunda
Mountain Fetterbush



Spirea latifolia
Broadleaf Meadowsweet



Rosa rugosa
Rugosa Rose (Pink)



Rosa rugosa
Rugosa Rose (White)



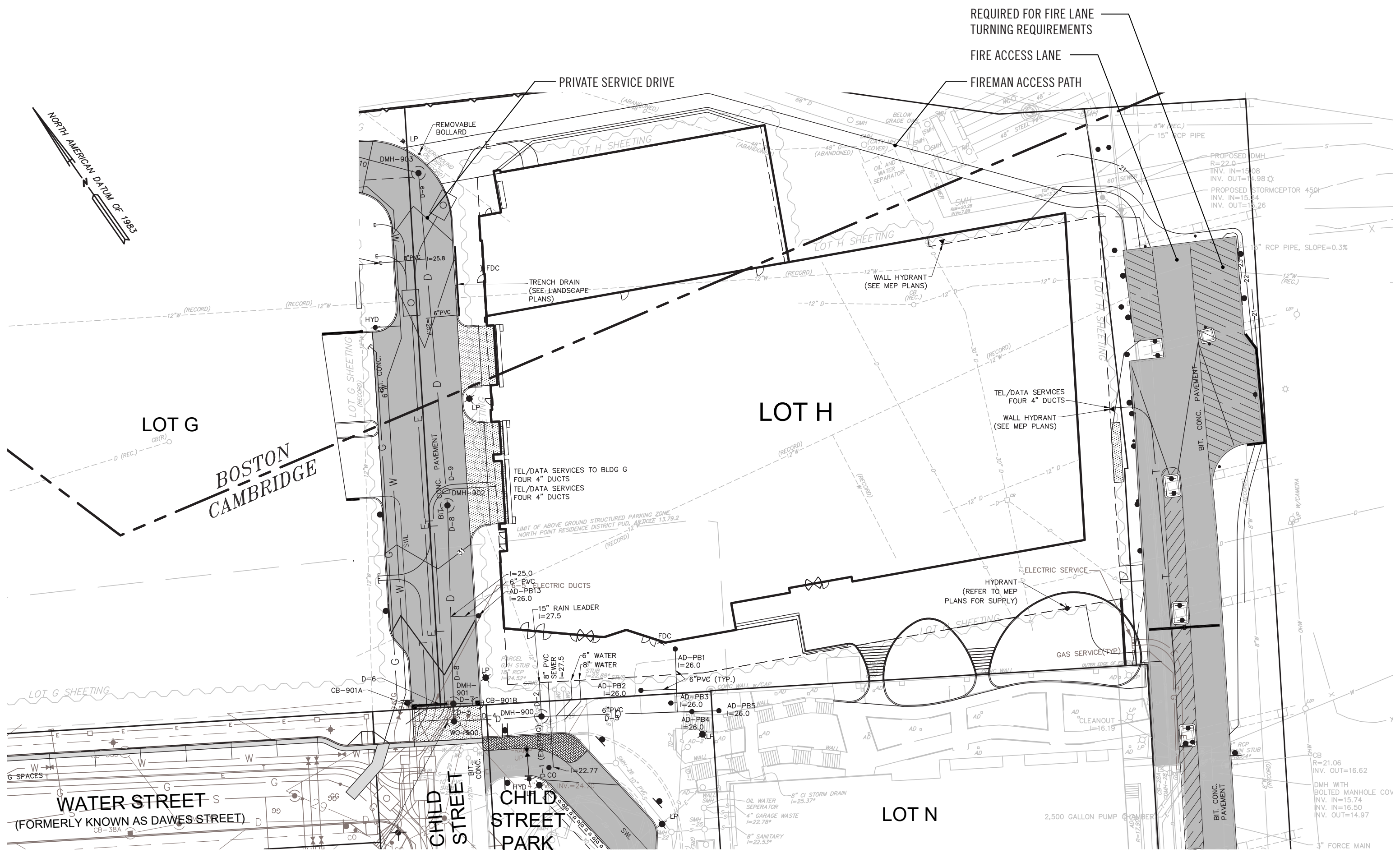
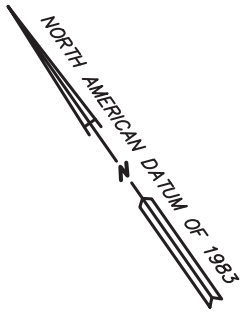
Fothergilla gardenii
Dwarf Fothergilla

| Page | Section | Guideline Description | Compliance | Check |
|------|--------------------|--|---|-------|
| 47 | 3.2A Character | Use streetscape elements such as trees, benches, signage, and lighting to support active pedestrian uses and to reinforce the character and identity of each area. | The aim of the streetscape at Parcel H is to create a contiguous pedestrian experience on the Gilmore Bridge, down the Murphy Staircase, and connecting to Dawes Street. At the upper level on the Gilmore Bridge sidewalk high canopy trees are introduced along with a plant bed, providing a sense of welcome and a buffer between the building and the vehicular traffic. The landscape at the Murphy Staircase is expanded with signage, benches and pedestrian scale lighting. At the bottom of the Murphy Staircase, trees, street furniture and bicycle parking create a welcoming Entrance Plaza to the building and a threshold to the Cambridge Crossing neighborhood. | ✓ |
| 47 | 3.2A Character | Where appropriate, establish, preserve and highlight views from public streets and spaces to important civic landmarks such as the Zakim Bridge and NorthPoint Common. | The widening of the Murphy Staircase allows for views towards the Zakim Bridge and the Boston skyline. | ✓ |
| 50 | 3.2.2 Dawes Street | Dawes Street is an important east-west connector running between Water Street and the Brian Murphy Staircase. Street trees will be planted on both sides of the street, and an additional landscape area will be provided on the north side of Dawes, between First Street and the Murphy Staircase, to improve the pedestrian experience on this sunnier side of the street. The widened sidewalk area provides opportunities for seating, play, art. LID swales etc. to be incorporated into the public realm. | The widened Murphy Staircase enhances the eastern terminus of Dawes Street, particularly the richly planted landscape areas that run along the north side of Dawes. The enhanced planting on the stairs creates an attractive transition to the Gilmore Bridge. Seating, lighting and other street furniture consistent with the rest of Cambridge Crossing improves the pedestrian experience. | ✓ |



Parcel H

CIVIL



REQUIRED FOR FIRE LANE TURNING REQUIREMENTS
FIRE ACCESS LANE
FIREMAN ACCESS PATH

LOT G

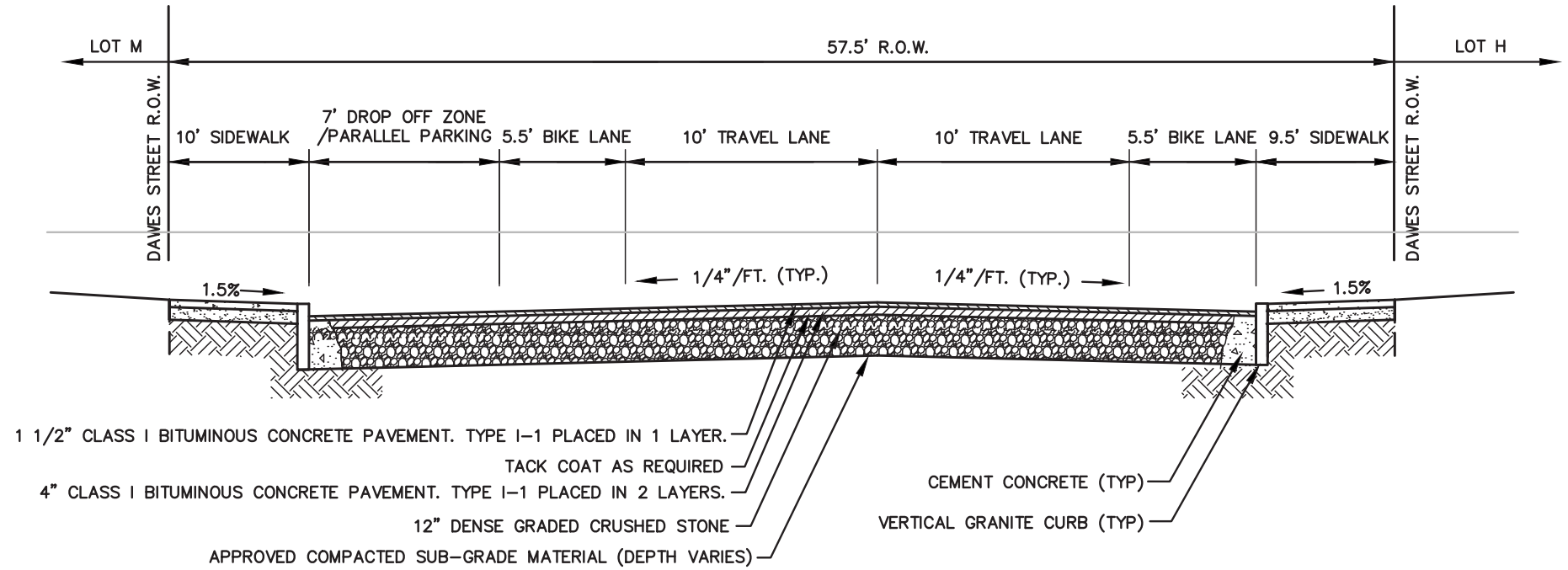
LOT H

LOT N

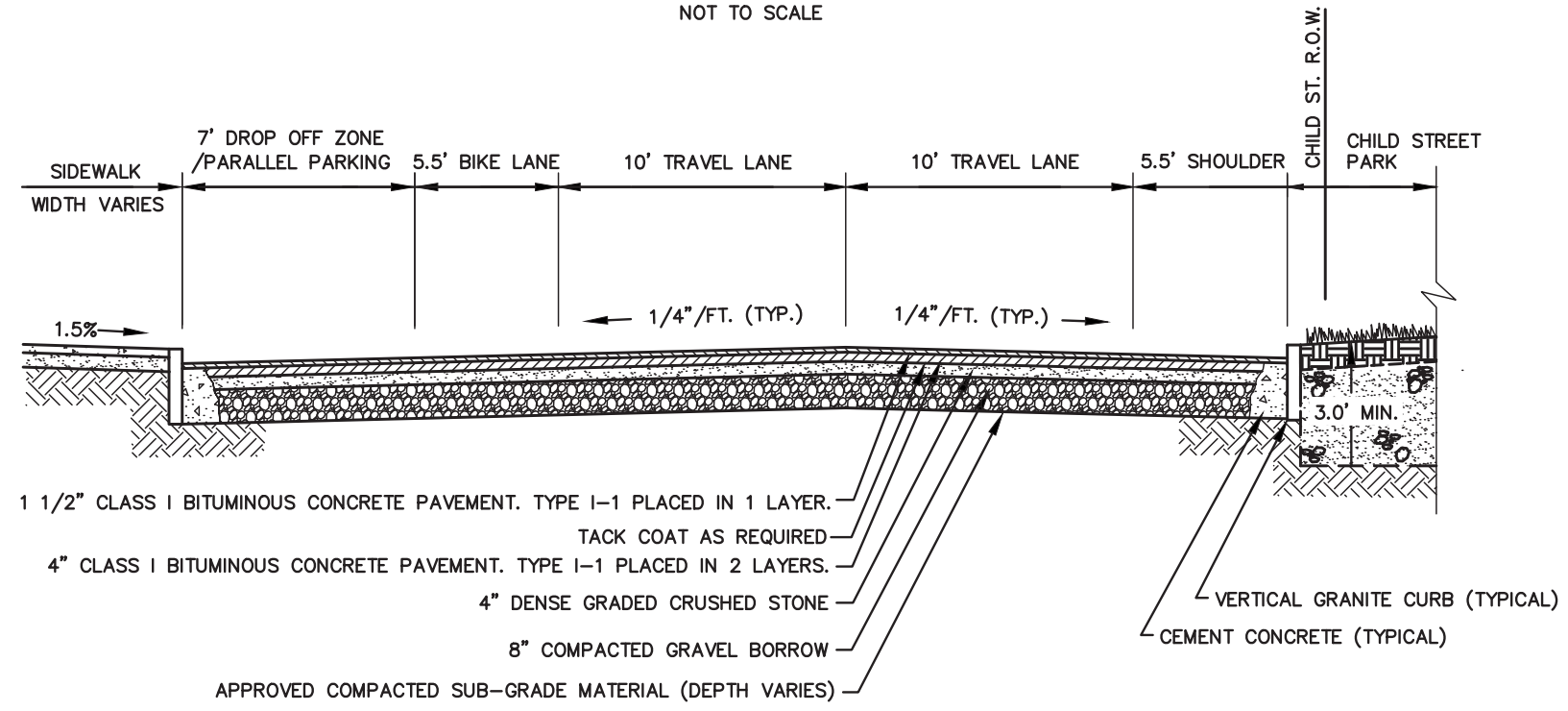
WATER STREET
(FORMERLY KNOWN AS DAWES STREET)

CHILD STREET
CHILD STREET PARK

BOSTON
CAMBRIDGE



WATER STREET CROSS SECTION
 (FORMERLY KNOWN AS DAWES STREET)
 NOT TO SCALE



CHILD STREET CROSS SECTION
 NOT TO SCALE

ADJACENT STREET CROSS SECTIONS

LEGEND

- CR STONE BOUND
- CB CONCRETE BOUND
- DH DRILL HOLE
- IP IRON PIN/IRON PIPE
- IR IRON ROD
- FND FOUND
- EPLP ESCUTCHEON PIN, LEAD PLUG
- CTR. CENTER

N/F MBTA
(SUFFOLK REGISTRY)
8823/22
17577/179
19013/001

CITY OF SOMERVILLE
CITY OF SOMERVILLE
PLANNING BOARD

NO DETERMINATION AS TO COMPLIANCE WITH ZONING ORDINANCE HAS BEEN MADE OR INTENDED BY PLANNING BOARD ENDORSEMENT. NO DETERMINATION OF WETLANDS HAS BEEN MADE OR INTENDED BY PLANNING BOARD ENDORSEMENT.

LOT EF
CAMBRIDGE = 1,321± S.F. or 0.030± AC.
SOMERVILLE = 85,902± S.F. or 1.972± AC.
TOTAL = 87,223± S.F. 2.002± AC.

LOT G
SOMERVILLE = 5,608± S.F. or 0.129± AC.
CAMBRIDGE = 58,562± S.F. or 1.344± AC.
BOSTON = 37,440± S.F. or 0.860± AC.
TOTAL = 101,610± S.F. or 2.333± AC.

LOT H
CAMBRIDGE = 56,805± S.F. or 1.304± AC.
BOSTON = 22,608± S.F. or 0.519± AC.
TOTAL = 79,413± S.F. or 1.823± AC.

PARCEL 1-C
CAMBRIDGE = 36,567± S.F. or 0.839± AC.
BOSTON = 70± S.F. or 0.002± AC.
TOTAL = 36,637± S.F. or 0.841± AC.

LOT L
30,475± S.F. or 0.700± AC.

LOT M
30,475± S.F. or 0.700± AC.

LOT JK
CAMBRIDGE = 42,461± S.F. or 0.975± AC.
SOMERVILLE = 20,041± S.F. or 0.460± AC.
TOTAL = 62,502± S.F. or 1.435± AC.

NORTH POINT COMMON
177,454± S.F. or 4.074± AC.

LOT W
20,743± S.F. or 0.476± AC.

LOT U
45,969± S.F. or 1.055± AC.

LEIGHTON STREET
(VARIABLE WIDTH)
6,130± S.F. or 0.141± AC.

PREPARED FOR:
DW NP PROPERTY, LLC
c/o DIVCO WEST REAL ESTATE SERVICES, LLC
575 MARKET STREET
35th FLOOR
SAN FRANCISCO, CA 94105

RECORD OWNERS:
DW NP PROPERTY, LLC
65949/156
PARCEL 1
PARCEL 2
"CENTRAL PARK" PARCEL
(PLAN No. 597 OF 2010)
(MIDDLESEX COUNTY)

54949/293
PARCEL 1
PARCEL 2
(PLAN BOOK 2010 PAGES 270, 271)
(SUFFOLK COUNTY)

| | | | |
|-----|------------|---------------|-------|
| 5 | | | |
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| 1 | | | |
| 0 | 12/08/2016 | INITIAL ISSUE | |
| | ISSUE DATE | DESCRIPTION | |
| ATL | MEB | MEB | RJB |
| FLD | CALC | DWN | CHK'D |

PLAN OF LAND
NORTHPOINT
IN CAMBRIDGE AND
SOMERVILLE, MA
(MIDDLESEX COUNTY)
AND BOSTON, MA
(SUFFOLK COUNTY)

PREPARED BY:
BEALS + THOMAS
Civil Engineers + Landscape Architects +
Landscape Surveyors + Planners +
Environmental Specialists

BEALS AND THOMAS, Inc.
Reservoir Corporate Center
144 Turnpike Road
Southborough, Massachusetts 01772-2104
T 508.366.0560 | www.bealsandthomas.com

DATE: DECEMBER 8, 2016 METERS
SCALE: 1" = 50' FEET

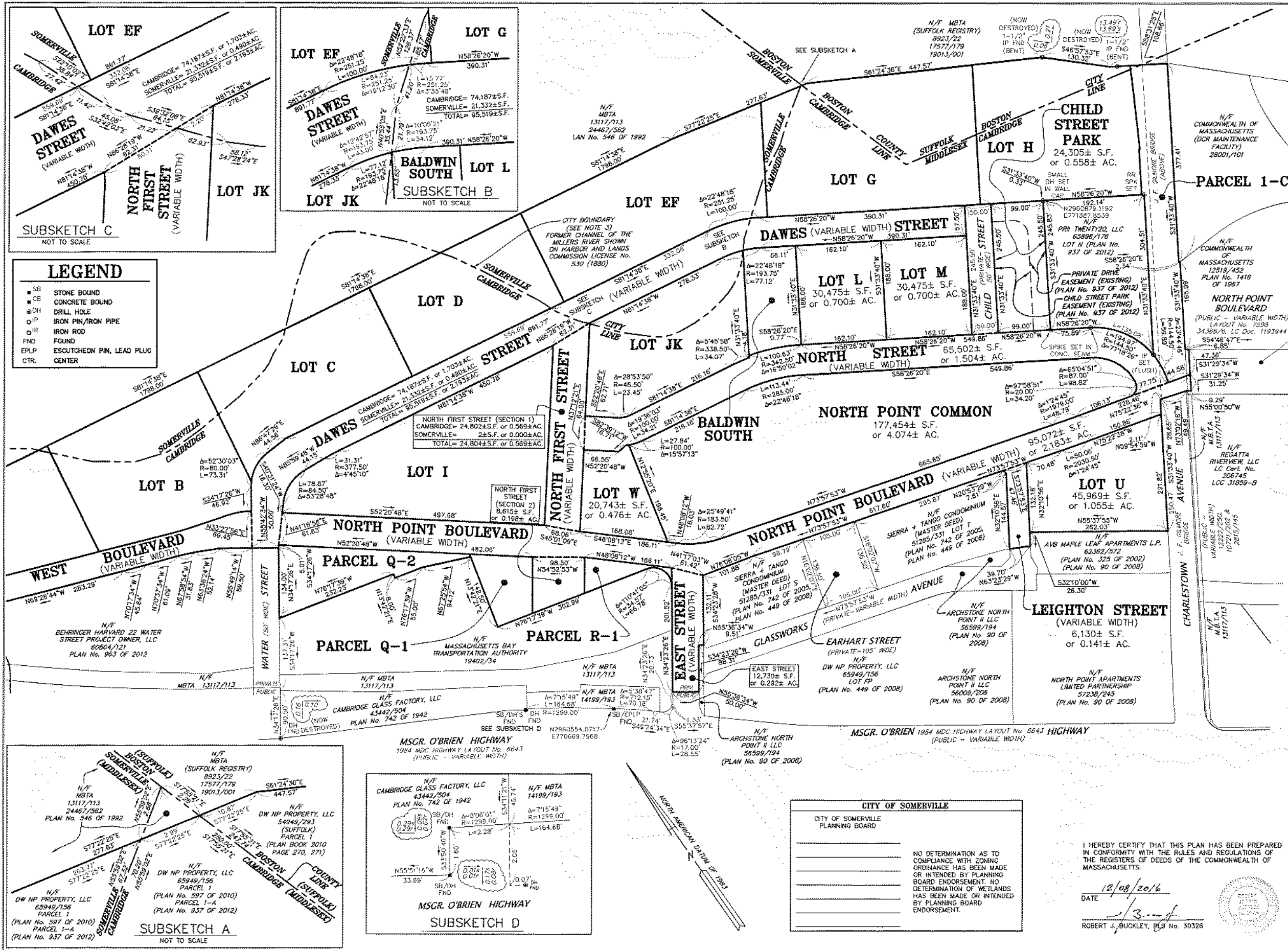
BTT JOB NO. 2084-02
BTT PLAN NO. 208402P244B-005
SHEET 5 OF 5

PL-5

I HEREBY CERTIFY THAT THIS PLAN HAS BEEN PREPARED IN CONFORMITY WITH THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS OF THE COMMONWEALTH OF MASSACHUSETTS.

12/08/2016
DATE
ROBERT J. BUCKLEY, PLS No. 30326





PREPARED FOR:
DW NP PROPERTY, LLC
 c/o DIVCO WEST REAL ESTATE SERVICES, LLC
 575 MARKET STREET
 35th FLOOR
 SAN FRANCISCO, CA 94105

RECORD OWNERS:
DW NP PROPERTY, LLC
 65949/156
 PARCEL 1
 PARCEL 2
 "CENTRAL PARK" PARCEL
 (PLAN NO. 597 OF 2010)
 (MIDDLESEX COUNTY)

54949/293
 PARCEL 1
 PARCEL 2
 (PLAN BOOK 2010 PAGES
 270, 271)
 (SUFFOLK COUNTY)

| DATE | DESCRIPTION | ATL | MEB | MEB | RJB |
|------------|---------------|-----|------|-----|-------|
| 12/08/2016 | INITIAL ISSUE | | | | |
| | | FLD | CALC | DWN | CHK'D |

PLAN OF LAND
 NORTHPOINT
 IN CAMBRIDGE AND
 SOMERVILLE, MA
 (MIDDLESEX COUNTY)
 AND BOSTON, MA
 (SUFFOLK COUNTY)

PREPARED BY:
BEALS + THOMAS
 Civil Engineers + Landscape Architects +
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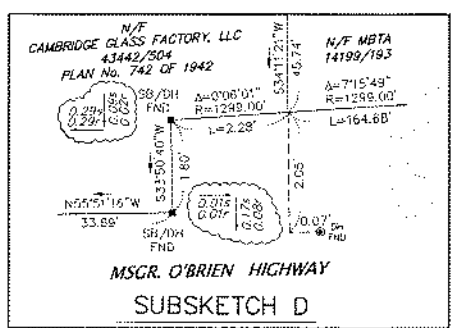
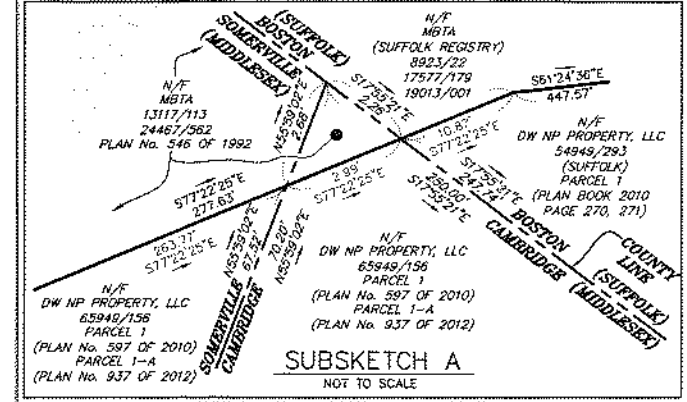
DATE: DECEMBER 8, 2016
 SCALE: 1"=80'
 SHEET 2 OF 5

CITY OF SOMERVILLE
 CITY OF SOMERVILLE
 PLANNING BOARD

NO DETERMINATION AS TO COMPLIANCE WITH ZONING ORDINANCE HAS BEEN MADE OR INTENDED BY PLANNING BOARD ENDORSEMENT. NO DETERMINATION OF WETLANDS HAS BEEN MADE OR INTENDED BY PLANNING BOARD ENDORSEMENT.

I HEREBY CERTIFY THAT THIS PLAN HAS BEEN PREPARED IN CONFORMITY WITH THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS OF THE COMMONWEALTH OF MASSACHUSETTS.

DATE: 12/08/2016
 ROBERT J. BUCKLEY, PLS No. 30326



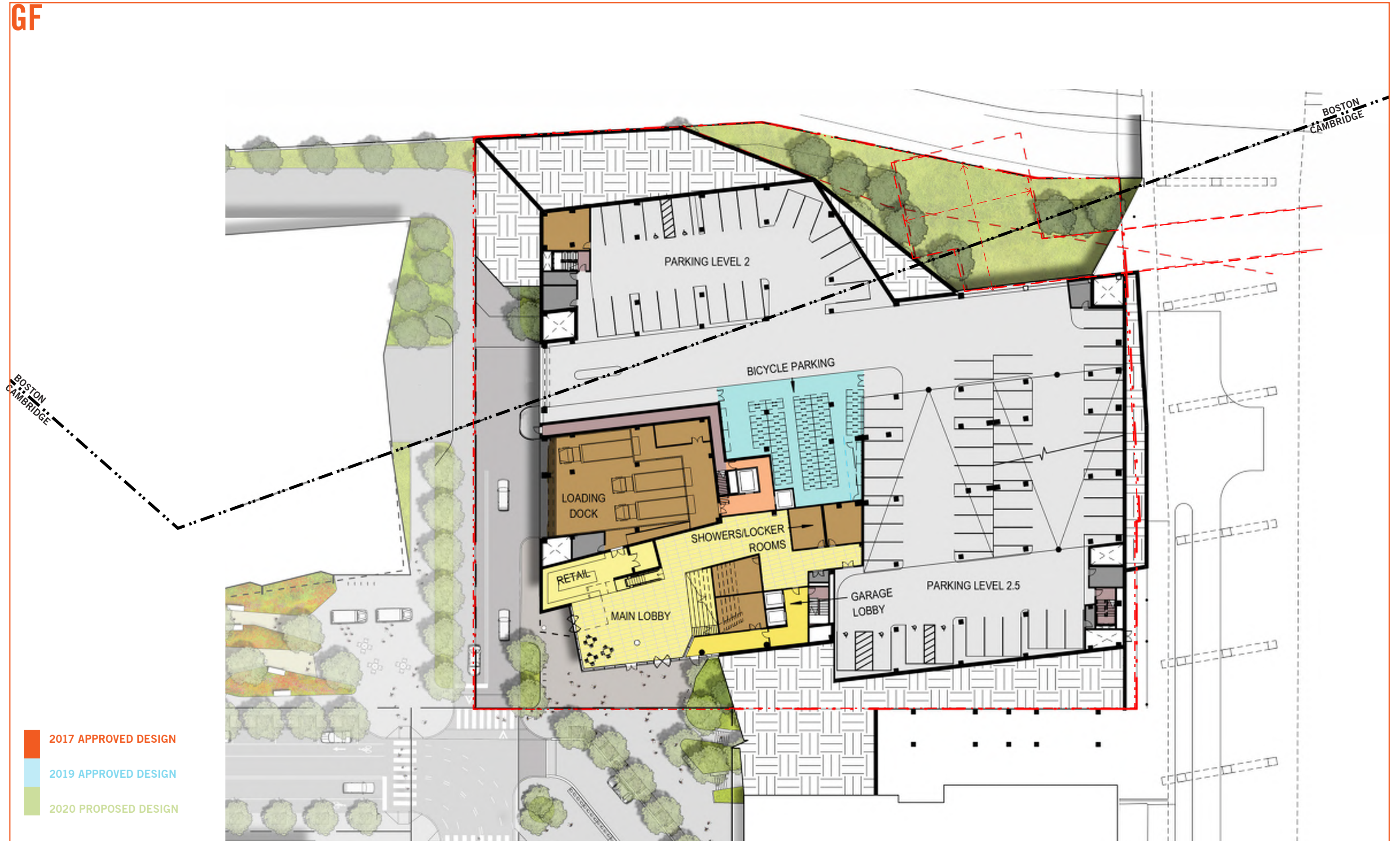


**Cambridge
Crossing**

| Parcel H

APPENDIX B - DESIGN EVOLUTION

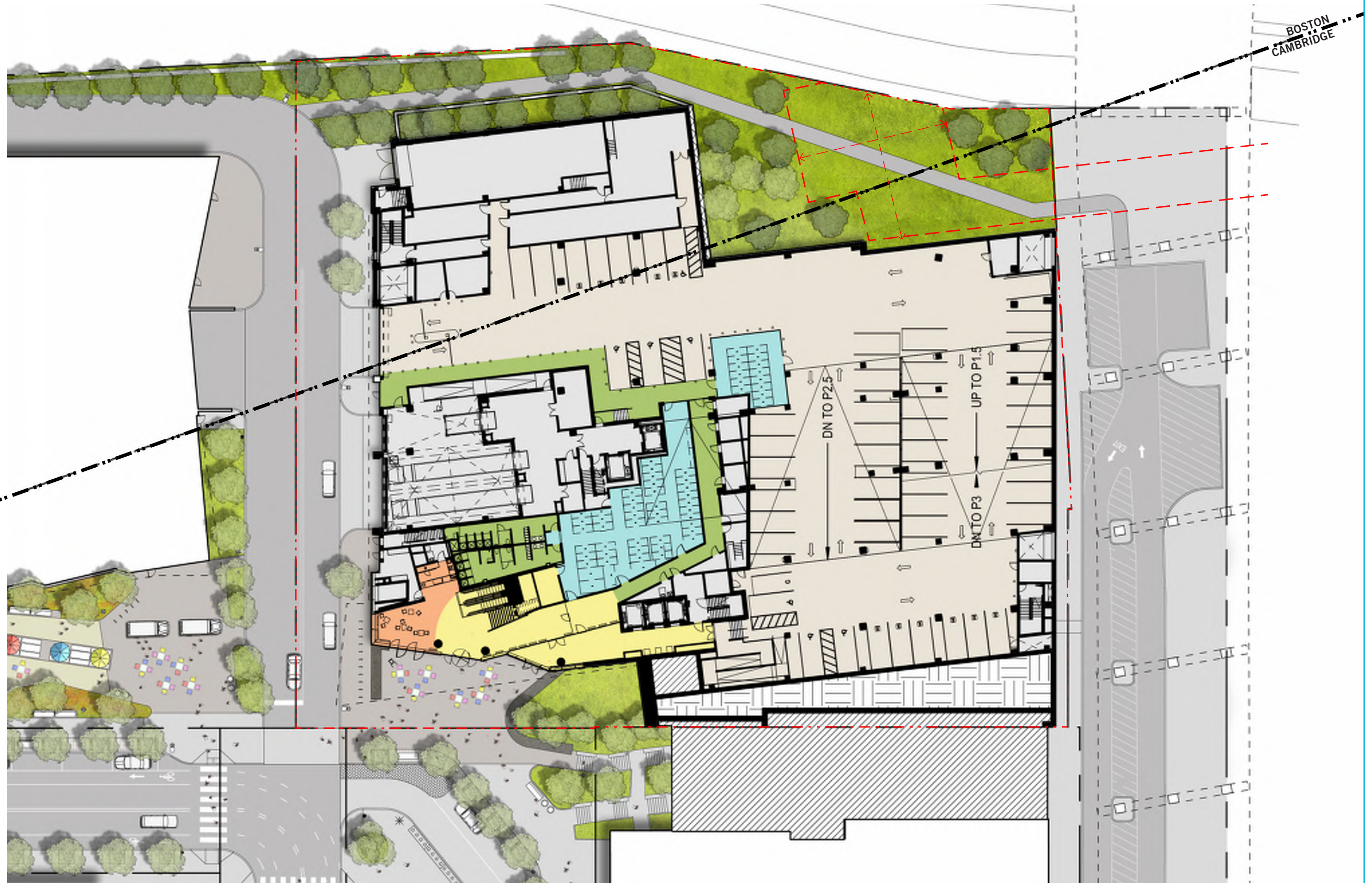
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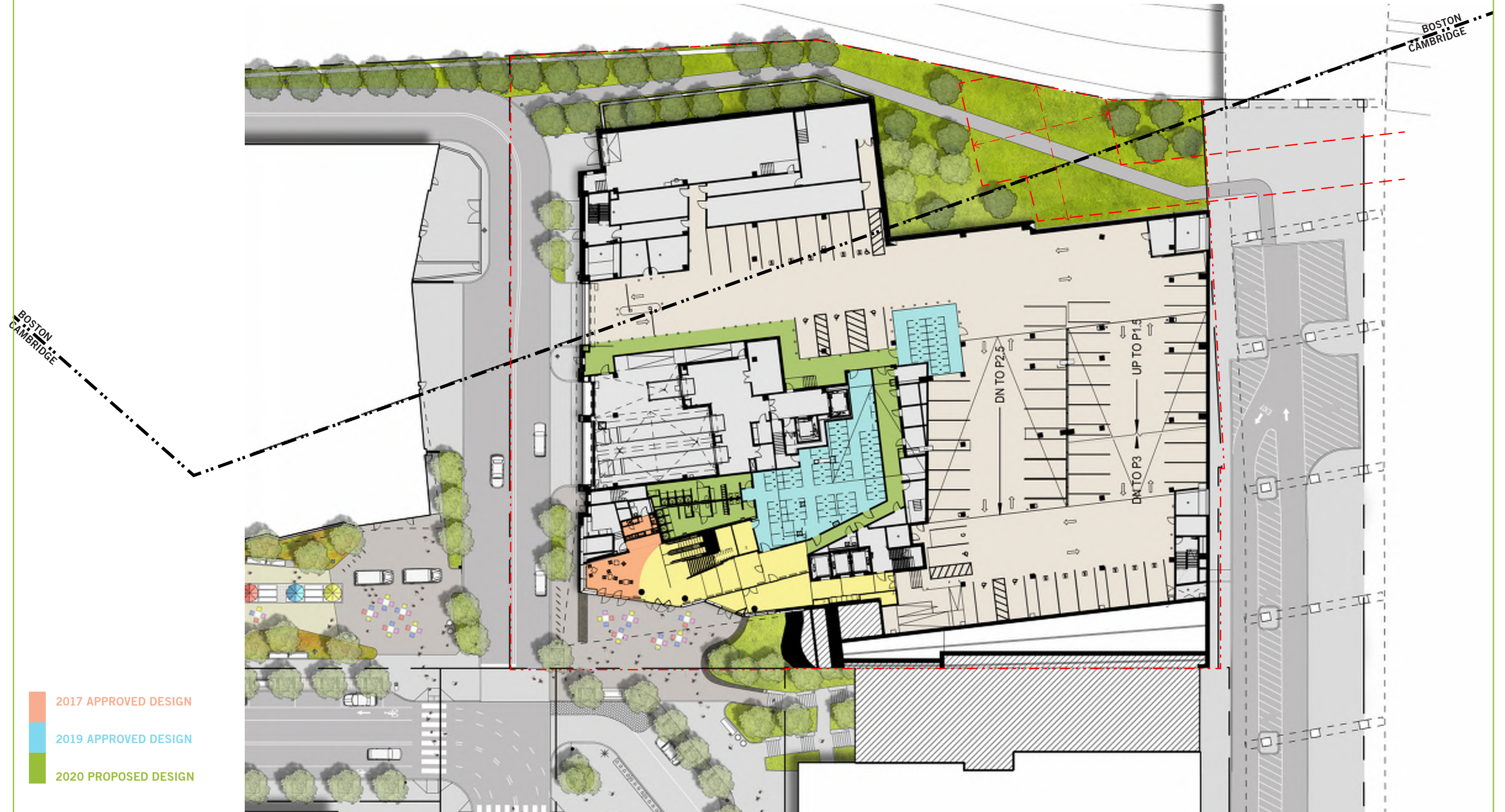
BOSTON
CAMBRIDGE

BOSTON
CAMBRIDGE

- 2017 APPROVED DESIGN
- 2019 APPROVED DESIGN
- 2020 PROPOSED DESIGN

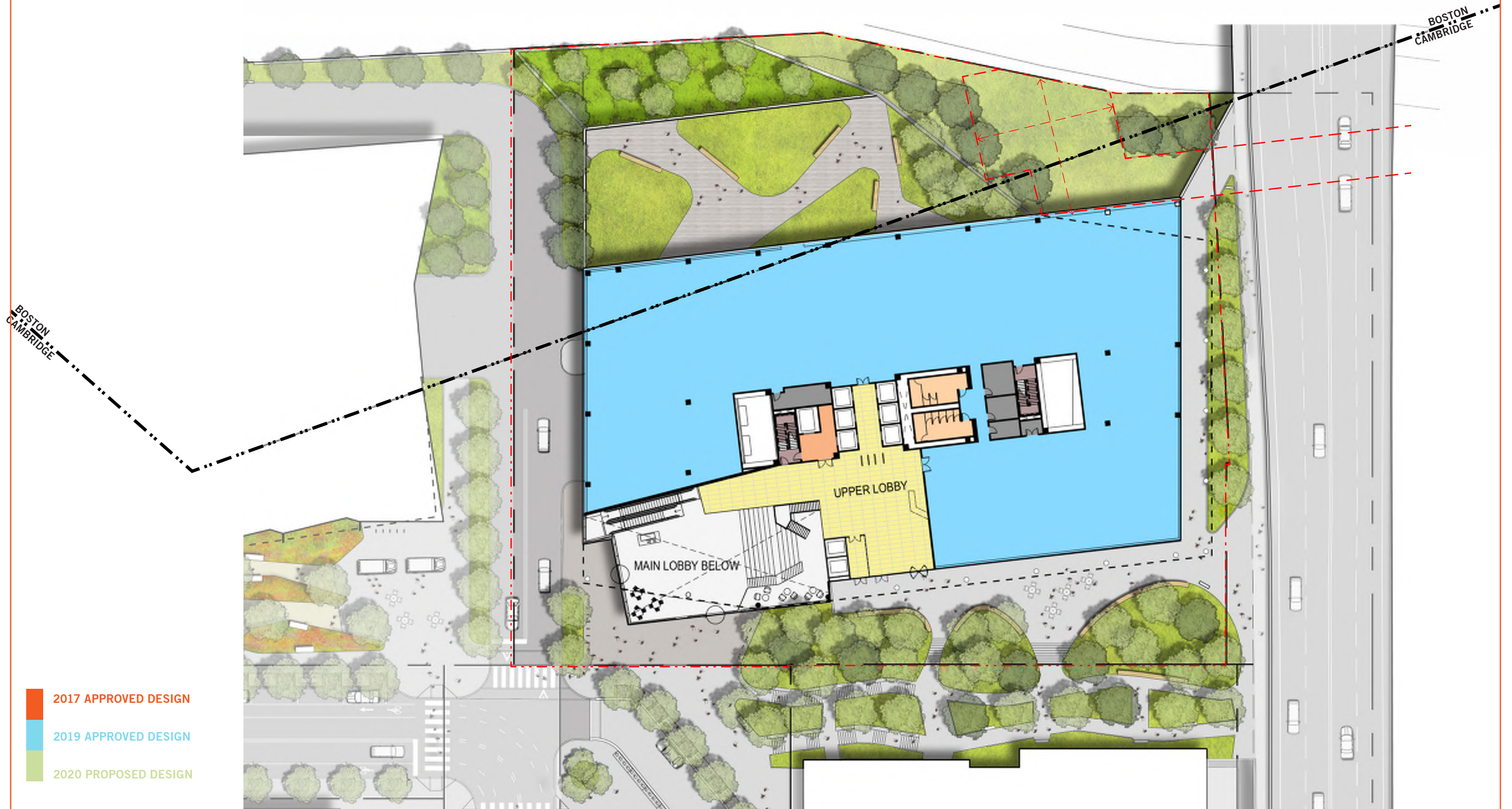


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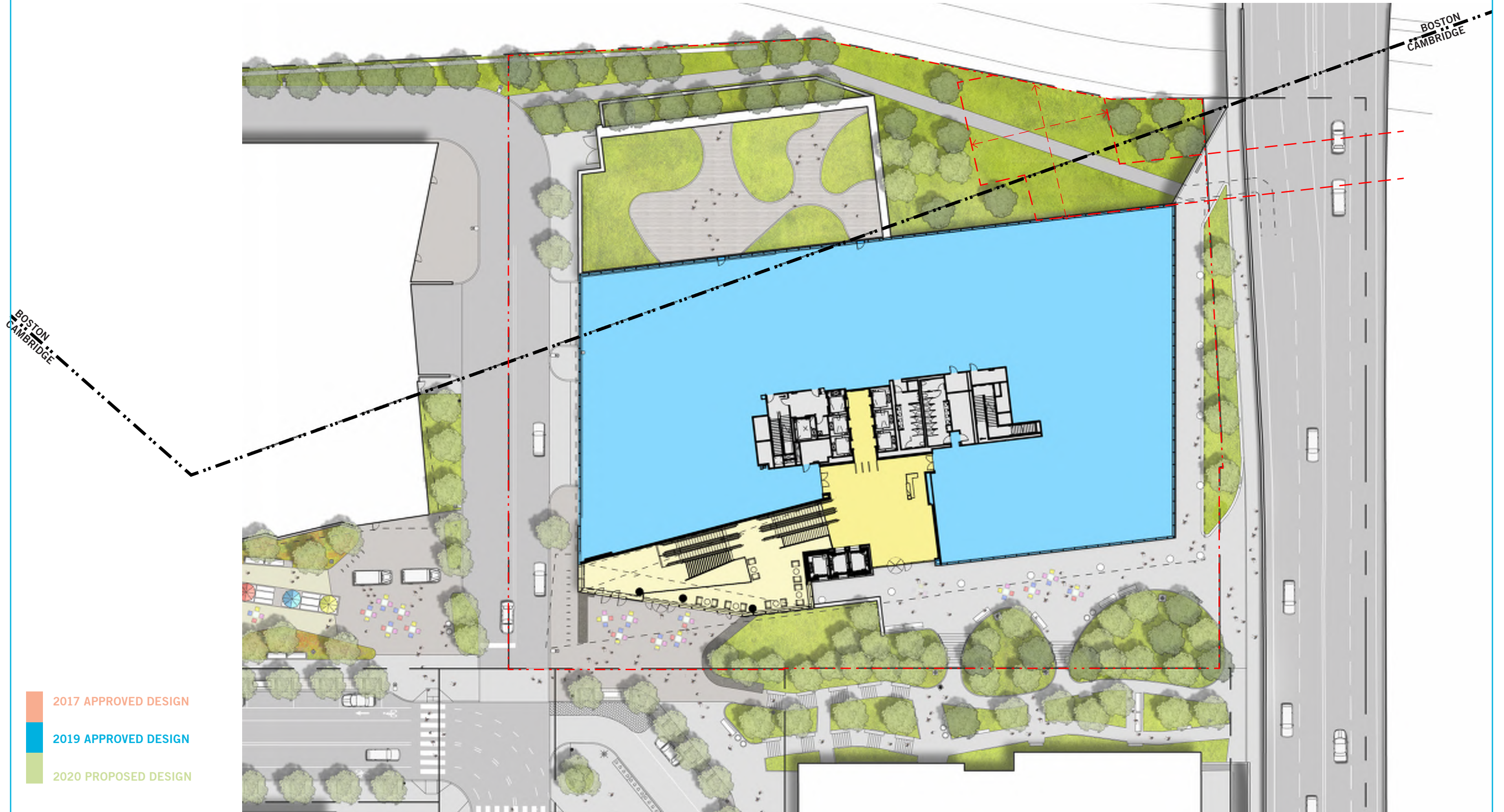


- 2017 APPROVED DESIGN
- 2019 APPROVED DESIGN
- 2020 PROPOSED DESIGN

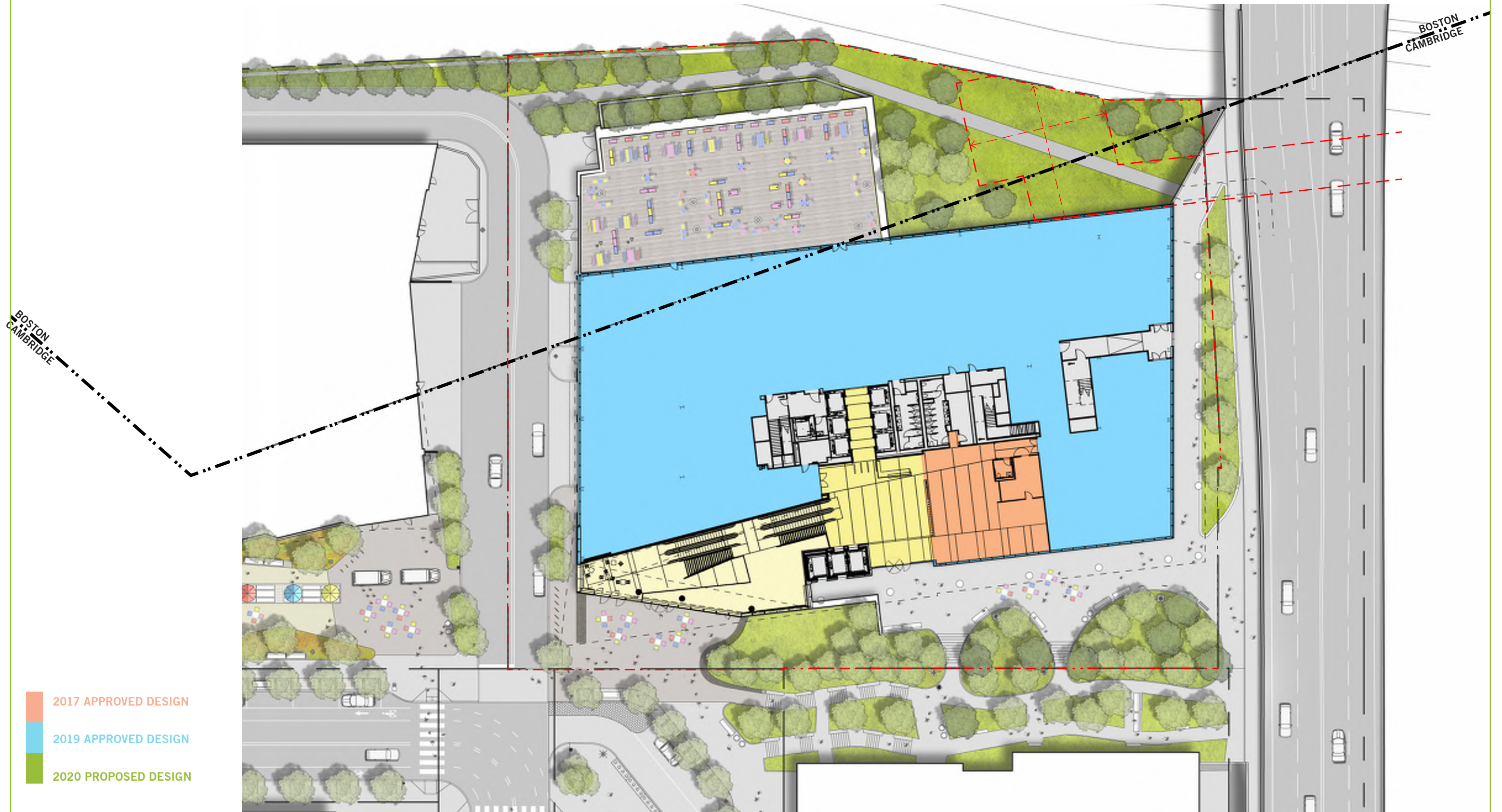
2ND



- 2017 APPROVED DESIGN
- 2019 APPROVED DESIGN
- 2020 PROPOSED DESIGN

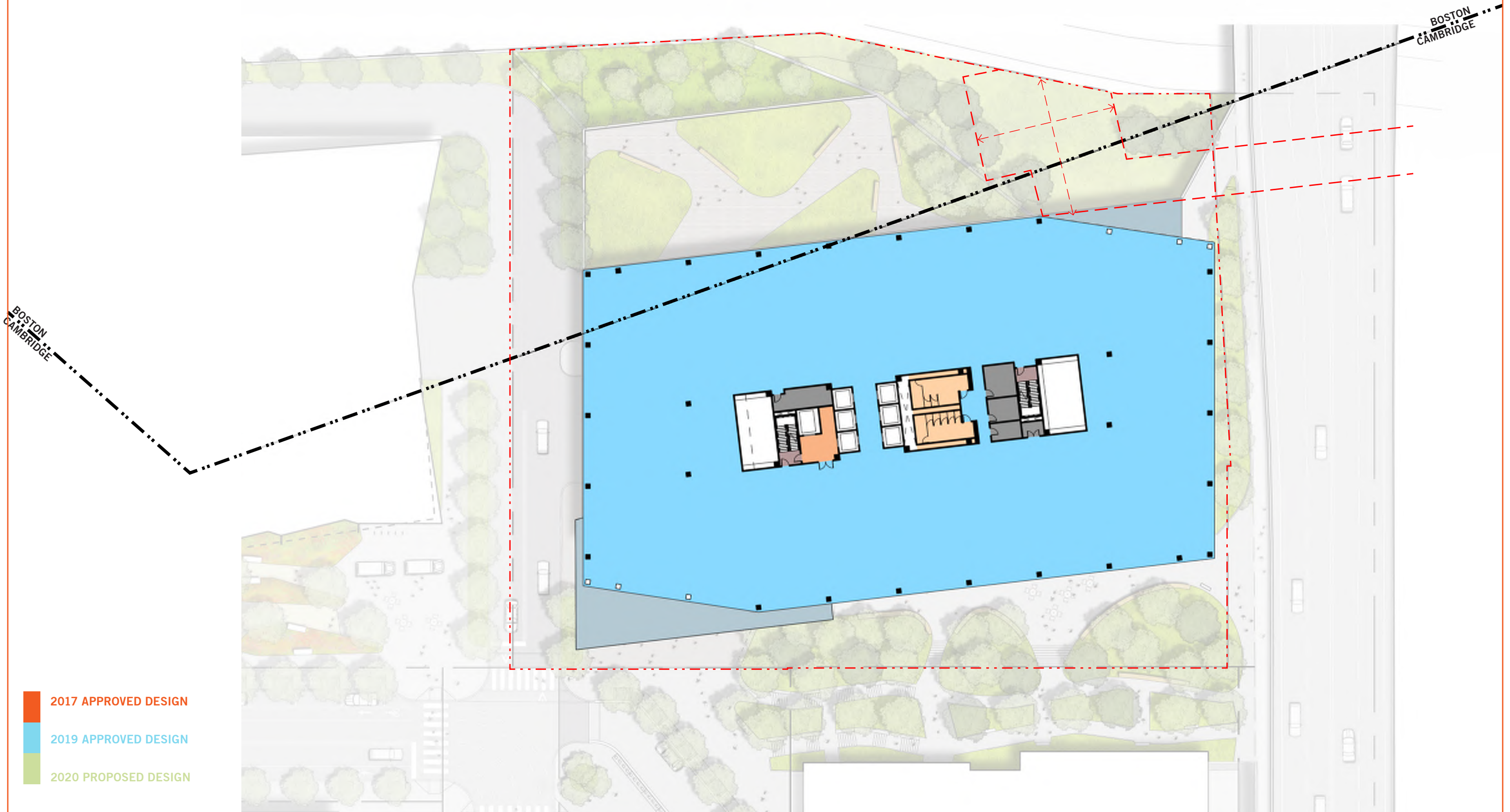


2ND



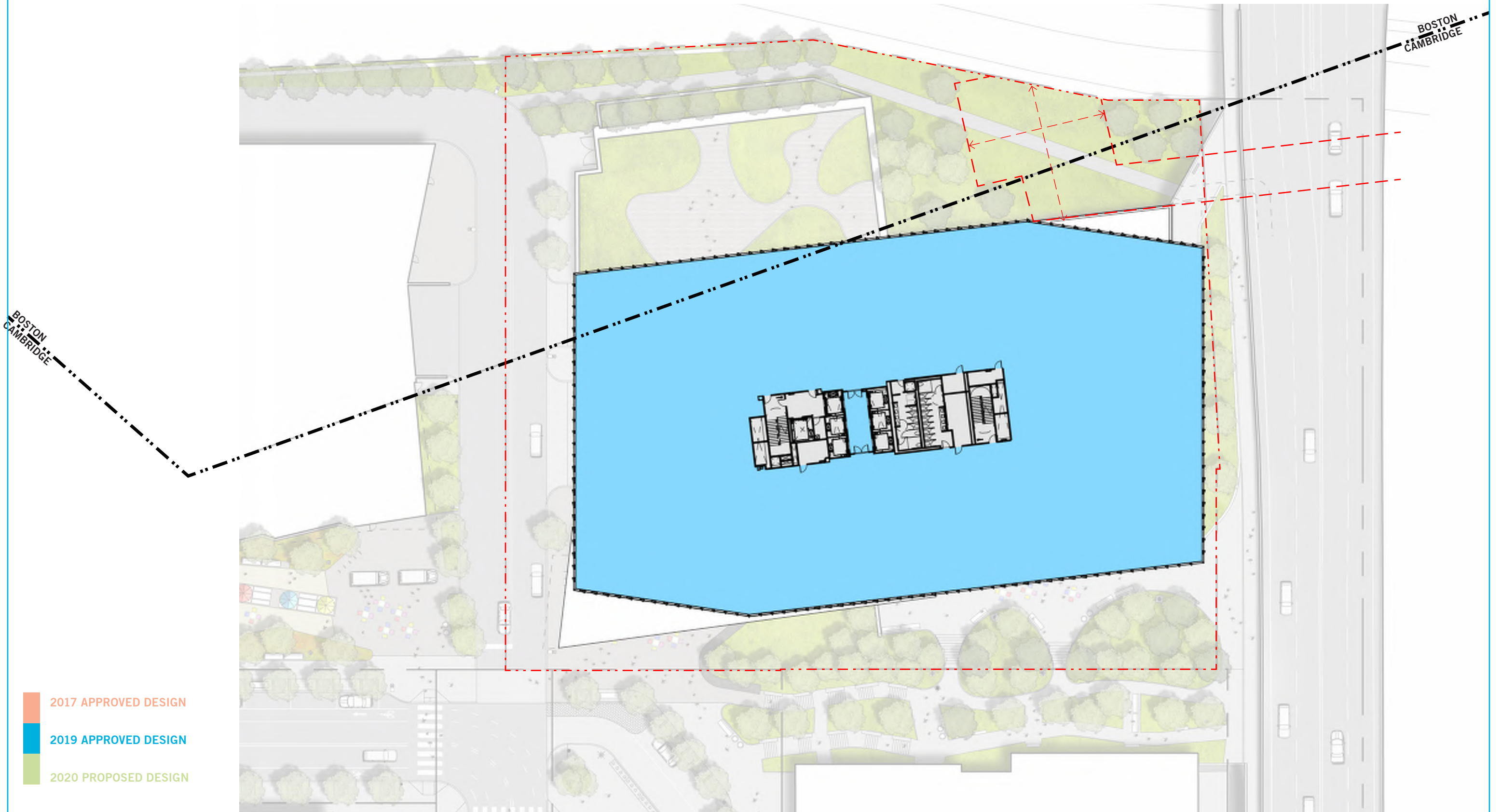
- 2017 APPROVED DESIGN
- 2019 APPROVED DESIGN
- 2020 PROPOSED DESIGN

TYPICAL



- 2017 APPROVED DESIGN
- 2019 APPROVED DESIGN
- 2020 PROPOSED DESIGN

TYPICAL



- 2017 APPROVED DESIGN
- 2019 APPROVED DESIGN
- 2020 PROPOSED DESIGN

TYPICAL

