December 23, 2020

Ms. Catherine Preston Connolly,
Chair Cambridge Planning Board
344 Broadway
Cambridge, MA 02139

Re: Design Change Amendment to PB #17 PUD special permit

Premises: Thomas Graves Landing Condominiums 4-6 Canal Park

Zoning District: Business A/PUD-4

Dear Chairwoman Connolly and Members of the Board,

Symbio Design on behalf of Thomas Graves Condominiums, respectively submits the enclosed documentation in support of a design change amendment to PB-17 PUD special permit.

The following exhibits are enclosed:

Drawing List

L-0	Key Plan	L-6	Proposed Signage
L-1A	Existing Site Plan	L-7	Existing Materials
L-1B	Existing Site Plan	L-8	Proposed Materials
L-2A	Proposed Site Plan	L-9A	Existing Tree Planting
L-2B	Proposed Site Plan	L-9B	Existing Tree Planting
L-3	Existing Main Entry	L-10A	Proposed Tree Planting
L-4	Proposed Main Entry	L-10B	Proposed Tree Planting
L-5	Existing Signage	L-11	Tree Images

Conditions Assessment Report dated August 29, 2019 prepared by Simpson Gumpertz & Heger.

INTRODUCTION:

Background

Thomas Graves Landing Condominium located at 4 - 6 Canal Park was constructed between 1989-1991. The development includes one building with an expansion joint near the middle of the building and an at grade entrance plaza that sits over an underground parking structure. The entrance plaza consists of vehicular drive lanes, parking spaces, pedestrian walkways, raised planters and landscaped areas. The entrance plaza resides over the underground parking structure. **Images of the existing plaza can be found on drawing L-7.**

Conditions Assessment

In the spring of 2019, Thomas Graves Landing Condominium retained the services of Simpson Gumpertz & Heger (SGH) to perform a condition assessment for the entrance plaza and underground parking structure. The assessment was requested due to the presence of on-going leakage through the plaza decks into the parking structure below. The objective of the assessment was to evaluate the condition of the entrance plaza and underground structure and identify rehabilitation measures to extend the safe and useful life of the structure.

The assessment revealed that the existing plaza waterproofing membrane, which sits below the surface of the entrance plaza and is applied to top of the underground concrete parking structure roof between 1989 – 1991, was beyond its useful life and had failed in many locations. **See page #10 – page #21 with images of the existing structure leakage in the attached conditions assessment report by SGH.**

Per the condition assessment report, SGH concluded that this failure, if not addressed, will continue to allow water to leak through the entrance plaza overburden and into the underground structure. The assessment noted that without a proper waterproofing membrane installed on the topside of the structure, concrete deterioration and leakage will continue to increase. Images of the existing plaza for reference can be found on drawing L-7.

SGH provided three rehabilitation options to Thomas Graves to address the on-going leakage through the plaza decks. Thomas Graves preferred option involves removing the existing overburden, repairing deteriorated concrete elements, and providing a new waterproofing membrane and restored plaza overburden. This option was preferred as it ensured the greatest potential for long term success, reduced the ongoing leakage and concrete deterioration and extending the useful life of the structure.

Project Description

To successfully repair the underground structure and associated waterproofing membrane the full extent of the entrance plaza's overburden will need to be removed. The existing overburden consists of asphalt and concrete paving, concrete curbing, raised brick planters with associated landscaping and site furnishings.

The scope of work proposed in this submittal includes concrete repair to the underground structure, application of a new waterproof membrane and installation of new overburden and landscape finishes. In addition, the scope of work includes improved pedestrian and vehicular circulation, durable precast concrete pavers at the drive lanes and pedestrian walks, raised granite planters, signage, site furnishings and landscaping.

This scope of work use does not propose an expansion or change in use.

Thomas Graves Condominiums seeks to extend the useful life of their parking structure by repairing the waterproofing membrane and restoration of their entrance plaza to provide improvements in pedestrian and

vehicular circulation as well as incorporate improved materials for increased durability and functionality of their entrance plaza.

SCOPE OF WORK:
Below is a description of project specific items which detail the scope of work noted in this proposal.

Tree Protection Plan
A. The tree protection plan provides for a net gain of 41 caliper inches
B. Tree save areas are noted on the plan
C. Tree protection measures as required by the City of Cambridge Department of Works are noted on the plan

Parking and Vehicular Circulation
A. This proposal restores the development wide parking space count of 220 spaces
B. The below grade parking garage contains 199 spaces, no changes are proposed to the spaces within the garage
C. Currently 30 spaces exist at the entrance plaza, 8 of which are not legal spaces, these spaces will be removed
D. Currently no accessible spaces exist at the entrance plaza
E. This proposal restores the 21 deeded spaces per the 1988 minor amendment and adds one (1) accessible space
F. No change is proposed to the existing curb cut at Monsignor O'Brien Highway
G. Proposed parking spaces are 9’ wide x 18 feet in length
H. Vehicle drive lanes are 22’ wide

Drainage and Impervious/Pervious Surfaces
A. This proposal increases the pervious surface value by 112 square feet
B. Through slab drains exist at the portions of the plaza which reside over the underground parking structure
C. All existing though slab drains will be re-set to accommodate the new layout
D. Four concrete catch basin structures exist at the on-grade portions of the plaza, these drains connect to the City’s storm drainage system
E. The four existing catch basin structures will be re-set to accommodate the new plaza layout
F. The site plan proposes adding two (2) concrete catch basin structures adjacent to building #4, one (1) structure would be at the circle and the other at parking space #12. These structures are added to facilitate improved cross pitch of the pavement and reduce ponding and ice buildup in the winter months

Flood Resiliency
A. We have reviewed the Cambridge FlodViewer database and confirmed that the 2070 10-year event flooding impacts on the parcel are limited to the canal side of the structure only. This proposal includes work at the front side of the building only.

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B. The entrance plaza and building resides at elevation 25+/- which is three feet above the Cambridge City Base elevation for flooding of 22.

Lighting

A. All proposed lighting will comply with the City of Cambridge Draft Lighting Ordnance requirements

B. This proposal includes replacing the existing pole lights, wall sconce lights at egress doors, light bollards and uplights at the raised planters and main entry sign

C. The pole light, wall sconce light and lighted bollard are shielded fixtures

Signage

A. One (1) vertical entry sign is proposed at the granite wall at the main entry (i.e. existing curb cut)

B. One (1) directional sign reading 'ENTRY' is proposed at the main entry center island

C. One (1) wayfinding sign with directional arrows reading '6 Canal Park 4' is proposed at the raised planter within the entrance plaza

D. See drawing L-6 for additional info

Thank you for considering our proposal, we look forward to and welcome the boards comments

Very truly yours;

Michael White, Principal, RLA LEED AP ND

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29 August 2019

Mr. Michael Refat
Regional Director – Massachusetts
First Service Residential
3000 Davenport Avenue, Suite 20
Canton, MA 02021

Project 190734 – Plaza Condition Assessment, Thomas Graves Landing Condominiums, 4 and 6 Canal Park, Cambridge, MA

Dear Mr. Refat:

In accordance with our proposal dated 8 April 2019, we performed a condition assessment of the plaza level and parking garage at Thomas Graves Landing Condominiums. This letter report summarizes our findings and conclusions.

1. INTRODUCTION

1.1 Background and Objective

Thomas Graves Landing consists of two mid-rise buildings constructed in phases between 1989 and 1991. The plaza structure consists of an elevated cast-in-place concrete slab supported on cast-in-place columns and walls. The plaza consists of drive lanes, parking spaces, walkways, planters, and landscaped areas with below-grade parking that extends beneath the plaza and buildings. Mr. Ed Mallon informed us that there is ongoing leakage through the plaza structure.

Our objective is to evaluate the current condition of the plaza, and to identify rehabilitation work to extend the useful life of the structure.

1.2 Scope

Our findings are based on the following scope of work:

- Review construction documents for the original plaza construction and for any plaza repairs.
- Visually survey the topside of the readily visible plaza structure, hardscape, and landscape areas to document the general condition of the various components.
- Survey the underside of the readily visible plaza structure, including visual observations and sounding of suspect areas of concrete to document the approximate location and extent of leakage, deterioration, and distress.
- Survey the condition of the columns and walls directly supporting the elevated plaza deck, including visual observations and sounding of suspect areas of concrete to document the approximate location and extent of deterioration and distress.

- Observations of ten exploratory openings in the plaza overburden to review the configuration and condition of the overburden and waterproofing, and to observe and sound the topside of the plaza deck to document distress and deterioration.

2. DOCUMENT REVIEW

2.1 Original Construction Drawings

We reviewed the design drawings for the original construction of the plaza dated 14 September 1982 prepared by Souza & True (Structural) and Moriece & Gary (Landscape). The information presented in this section was obtained from these drawings and has been verified only to the extent explicitly identified in the Field Investigation section of this report.

2.1.1 Structural Drawings

- The elevated plaza deck is a two-way cast-in-place concrete slab varying in thickness from 6 in. to 10 in. supported on cast-in-place concrete beams and columns.

- The minimum compressive strength specified for the concrete used for the plaza construction is 4000 psi.

- The concrete cover over the steel reinforcement in the elevated plaza deck is specified as 1 inch for the top and bottom reinforcement.

- There is a building expansion joint running project north-south between the two phases of construction near the middle of the plaza.

2.1.2 Landscape Drawings

- Membrane waterproofing with protection board is shown installed on top of the structural slab.

- Drains are shown installed at the membrane level within planters.

- The membrane waterproofing and protection board is shown turning up the vertical face of the granite or concrete planter walls.

- 1-1/2 in. rigid insulation is shown between the soil and vertical face of the concrete or granite planter walls.

- Paver areas consist of brick pavers installed on a 1 in. minimum thickness mortar bed.

- Asphalt pavement consists of a 1-1/2 in. top course above a 2-1/2 in. bottom course of Class I, Type I-1 bituminous concrete.

3. FIELD INVESTIGATION

In June and July 2019, Matthew J. Oostdyk (Project Consultant) and Jennifer A. Flanders (Consulting Engineer) with Simpson Gumpertz & Heger, Inc. (SGH) visited the site to perform the various condition surveys noted above. Our observations are summarized below.

3.1.1 Plaza Level Topside

We made visual observations of the topside of the plaza to document the existing conditions and the approximate location and extent of deterioration and distress. Our observations are summarized below:

- Approximately 150 linear feet of concrete curb around the perimeter of the asphalt pavement is severely deteriorated (Photo 1).
- There are widespread raveled edges along the concrete sidewalk joints (Photo 2) and isolated areas of spalling (Photo 3) and scaling (Photo 4).
- There are several changes in elevation greater than 1/4 in. between differentially settled sidewalk panels (Photo 5) and at sidewalk spalls that create trip hazards.
- There is widespread cracking in the asphalt pavement on the west portion of the plaza (Photo 6). An asphalt sealer is installed at some of the crack locations (Photo 7).
- There are isolated spalled brick (Photo 8) and deteriorated mortar joints (Photo 9) at the brick veneer on the planter walls and ramp wall.
- There is severe staining and efflorescence at weeps in the brick masonry wall at the southwest entrance to the building (Photo 10)
- The sealant and mortar head joints at the planter coping stones are failed at several locations (Photo 11).
- The metal expansion joint cover plate anchors in the asphalt pavement are sheared off (Photo 12).
- The metal guards and handrails along the stairs at the south entrances to the building are not code-compliant.

3.1.2 Plaza Underside

We made visual observations of the readily accessible portions of the underside of the plaza structure to document the approximate location and extent of leakage, deterioration, and distress. Our observations are summarized below:

- There is evidence of leakage at the north and south ends of the expansion joint and a drip pan installed at the south end of the joint (Photo 13).

- There are isolated cracks throughout the underside of the plaza slab with efflorescence and evidence of leakage (Photo 14). Drip pans are installed at several areas below cracks in the slab (Photo 15).

- There is evidence of leakage at utility penetrations through the slab.

- There are minor, isolated areas of spalled concrete at the underside of the plaza slab (Photo 16). We observed four locations totaling approximately 15 sq ft.

3.1.3 Columns and Walls

We made visual observations of the readily accessible portions of the columns and walls within the garage structure to document the approximate location and extent of leakage, deterioration, and distress. Our observations are summarized below:

- There are isolated areas of spalled and cracked concrete with evidence of leakage at two of the columns located along the expansion joint totaling approximately 10 sq ft (Photo 17).

- There are isolated areas of cracked concrete with evidence of leakage at the garage walls (Photo 18).

- There is delaminated and spalled concrete totaling approximately 32 sq ft along the wall at the entrance to the garage (Photo 19).

3.1.4 Exploratory Openings

We made ten exploratory openings on the Plaza Level above the garage to expose and make observations of the overburden and waterproofing and to document the condition of the topside of the elevated concrete deck. We sounded the concrete at each opening with hammers to identify hollow-sounding areas that indicate delaminated concrete. The exploratory opening locations are shown in Figure 1. Our significant observations are summarized below.

3.1.4.1 Existing Construction

- Brick paver areas (Photos 20 to 21) generally consist of (from top to bottom):

    - Brick Pavers
    - Cast-in-place concrete topping slab ranging from 1-1/2 in. to 2 in. thick
    - Protection board
    - Hot rubberized asphalt waterproofing

- Planters (Photos 22 to 23) generally consist of (from top to bottom):

    - Landscaping (plants and soil varying in depth)
    - Filter fabric
    - 3 in. to 6 in. of crushed gravel
    - 1-1/2 in. rigid insulation board
    - Protection board

- Hot rubberized asphalt waterproofing

- Asphalt pavement areas (Photo 24) generally consists of (from top to bottom):

  - Asphalt pavement ranging from 3 in. to 5 in.
  - Protection board
  - Hot rubberized asphalt waterproofing

- The expansion joint in the asphalt drive lane (Photo 25) generally consists of (from top to bottom):

  - 1/4 in. thick by 8 in. wide metal cover plate
  - 4 in. thick concrete topping slab on each side of expansion joint
  - Expansion joint filler
  - Protection board
  - Hot rubberized asphalt waterproofing that drapes down into expansion joint approximately 1 in.

- The expansion joint in the planter (Photo 26) generally consists of (from top to bottom):

  - Landscaping (plants and soil varying in depth)
  - Filter fabric
  - 3 in. to 6 in. of crushed gravel
  - 1-1/2 in. rigid insulation board
  - Grace Perm-a-barrier self-adhered membrane at the horizontal expansion joint in the slab and the vertical expansion joint in the planter wall
  - Protection board
  - Hot rubberized asphalt waterproofing

3.1.4.2 General Condition of Components

- The waterproofing is generally very thin (as little as 1/32 in.), poorly adhered, and in some locations debonded.

- We observed moisture below the waterproofing membrane at several locations.

- We observed standing water in several of the exploratory openings (Photo 23) and in the draped waterproofing at the expansion joint in the drive lane. When we removed the standing water, the openings immediately started to fill with water again.

- All concrete is sound at each exploratory opening.

4. DISCUSSION

4.1 General Condition of the Plaza and Garage

4.1.1 Waterproofing Membrane

The waterproofing membrane exposed within exploratory openings is typically debonded and very thin. Moisture is present below the waterproofing at several locations, indicating that the waterproofing is at the end of its useful life and is not performing as originally designed. We observed evidence of leakage, efflorescence, and drip pans throughout the underside of the plaza deck and at the south portion of the expansion joint. We understand that this leakage has been ongoing for many years. The leakage is typically located at cracks in the concrete slab, the expansion joint, and pipe penetrations. These areas are the most susceptible to leakage and are the first indicators that the membrane has failed. Leakage will become more widespread and corrosion damage will become more severe until the waterproofing is replaced.

When we made our exploratory openings, water immediately filled several of the openings. When we removed this water, the openings immediately filled with water again. This indicates that there is standing water on the membrane and that the deck does not drain adequately. The original drawings show drains installed at the membrane level within the planters. However, these drains were not uncovered during the exploratory work and the pitch of the slab is unknown. Based on the amount of water present in the openings, water is not reaching the drains, or the drains are clogged. The result is that water collects on the membrane and finds openings, such as breaches in the waterproofing and subsequently leaks into the garage below.

4.1.2 Plaza – Hardscape

The plaza hardscape is generally in fair condition and in poor condition in some areas. The concrete curbs, concrete sidewalks and expansion joint cover plate are all in need of various repairs. There are also several trip hazards at displaced and spalled sidewalk panels that should be addressed immediately. Other elements require typical maintenance, such as failed sealant and mortar at planter and ramp walls and coping stones, spalled brick, cracked asphalt and general cleaning. These items should be addressed as part of a continued maintenance program and are not discussed further in this report.

4.1.3 Plaza Level Structure

We did not find delaminated concrete on the topside of the plaza deck at the exploratory openings. However, the area inspected represents only a very small percentage of the entire slab area and may not be representative of the entire topside.

The underside of the structure is in fair condition. We observed very isolated, minor corrosion damage and isolated cracks with evidence of leakage. Cracks in the concrete slab allow moisture to more easily penetrate the slab and leak into the garage. The cracks are not a structural concern at this time, but they will continue to allow salt-laden water to leak into the garage until the waterproofing is repaired.

Overall, the plaza level structure appears to be in good to fair condition for its age. However, as the slab continues to be exposed to moisture and chlorides from deicing salts, deterioration will

continue at an ever-increasing rate until corrosion mitigation measures are implemented, and leakage is controlled.

4.1.4 Columns and Walls

The columns and walls are generally in good condition with isolated areas of deterioration. There is active leakage at isolated cracks and pipe penetrations through the walls.

4.2 Plaza and Garage Repairs

4.2.1 Plaza Rehabilitation

The intent of plaza rehabilitation is to repair damaged structural elements and to improve the long-term durability of the rehabilitated decks by implementing moisture mitigation measures. At Thomas Graves Landing, the failed waterproofing has resulted in widespread leakage and minor corrosion damage of the elevated concrete deck. Currently, the corrosion damage is minor and not widespread. However, the waterproofing is failed in many locations and is at or beyond its useful life and planning for waterproofing replacement should begin in the near term. There also appears to be inadequate drainage on the deck, based on the amount of ponding water we observed at our exploratory openings. Improving drainage will help extend the useful life of the structure, waterproofing, and overburden.

The planning and budgeting for a complete waterproofing replacement project usually takes months to sometimes years. In the meantime, localized waterproofing repairs are possible, but will have a limited useful life and will not address all the leakage. Localized waterproofing repairs often have tie-in problems at the existing waterproofing to remain and fail prematurely, allowing leaks to return.

Another option, if complete waterproofing repairs are not possible, is to separate the plaza into a two-phase repair project broken into the north portion (front of the building) and south portion (rear of the building) of the plaza. Most of the leakage observed at the underside of the slab is contained to the north portion of the plaza. This area is a higher priority over the south portion of the plaza. However, deferred widespread waterproofing replacement will allow salt-laden water to continue to penetrate the plaza slab at failed areas of waterproofing, which will lead to higher future concrete repair costs.

Until the plaza rehabilitation project begins, the concrete sidewalks, curbs, and expansion joint cover plate should be repaired immediately to remove potential trip hazards.

When the waterproofing is replaced, we anticipate the following general scope of work:

- Removal and disposal of all overburden, including asphalt paving, brick paver, sidewalks, landscaping, guards, planter walls, curbs, lighting, irrigation systems, existing waterproofing, expansion joints, and other various site elements.

- Repair of concrete at the following locations:

    - Topside of plaza-level structural deck
    - Underside of plaza-level structural deck

  - Garage columns and walls

- Installation of a new waterproofing system (such as a hot-applied reinforced asphalt system) with protection board and drainage layer over the existing structural concrete deck.

- Installation of new expansion joints.

- Installation of new drains at low points in the deck as needed and new piping. Replacement of existing deteriorated drains and corroded piping.

- The design of the plaza will be developed through working sessions with Thomas Graves Landing to identify the preferred reconstruction options. The following elements are a general description of the hardscape and landscape features that will be incorporated in the design:

  - Bituminous asphalt drive lanes and parking areas
  - Planters, backfill, and plating soils
  - Landscaping
  - Walkways and sidewalks
  - Guards and handrails
  - Irrigation systems
  - Signage
  - Pavement markings at all drive lanes and parking areas

- New exterior lights, fixtures, light poles, and wiring/conduit.

- Miscellaneous mechanical, electrical, and plumbing work that needs to be performed to perform the plaza reconstruction.

5. COST ESTIMATE AND PHASING

We prepared initial order-of-magnitude construction cost budget estimates for the repairs identified above. Our cost estimate is summarized below, and a breakdown is attached in Appendix A.

- Plaza Rehabilitation $6,300,000

Our estimate is based on conceptual repairs and will likely vary, up or down, depending on the final repair details, landscaping design, repair quantities, phasing of the work, working hours, and business climate at the time of bidding. The estimate includes general conditions / general requirements (including but not limited to project management, site supervision, scheduling, temporary facilities, dust/fume control, safety, etc.), hard cost of the work, overhead and profit, and a construction contingency. This estimate should be considered an order-of-magnitude cost and should be revised during the design process.

6. CONCLUSIONS

The plaza structure is in relatively good to fair condition for its age; however, the waterproofing is at or beyond its useful life. The waterproofing is very thin, debonded, and failed at many locations and is allowing water to leak into the garage through cracks, expansion joints, and utility penetrations in the plaza slab. Without waterproofing protection, concrete deterioration will increase and can lead to expensive future concrete repairs. Planning to replace the waterproofing membrane should start in the near term to extend the useful life of the plaza structure and reduce future repair costs.

Depending on available budgets and Thomas Graves Board of Directors' desire to undertake a project of this magnitude, the work can be phased with the north (front) side of the building being a higher priority. Isolated repairs are an option to reduce leakage, but these types of repairs should be considered a short-term solution. Until the plaza rehabilitation project begins, trip hazards and general maintenance should be addressed.

Sincerely yours,

John M. Porter, P.E.
Principal
MA License No. 45684

Matthew J. Oostdyk
Project Consultant

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Encls.

Photo 1

Deteriorated concrete curb.

Photo 2

Raveled edges at concrete sidewalk joints.

Photo 3

Spalled sidewalk concrete.

Photo 4

Scaled sidewalk concrete.

Photo 5

Differential displacement between adjacent sidewalk panels.

Photo 6

Cracking in asphalt pavement.

Photo 7

Sealer installed at cracks in asphalt pavement.

Photo 8

Spalled brick at planter.

Photo 9

Deteriorated and cracked brick mortar joints.

Photo 10

Staining and efflorescence at weeps at southwest entrance.

Photo 11

Failed sealant at coping stone head joints.

Photo 12

Sheared anchors at expansion joint cover plate.

Photo 13

Drip pan installed below expansion joint.

Photo 14

Crack at underside of plaza slab with efflorescence.

Photo 15

Drip pan installed below crack with evidence of leakage and efflorescence.

Photo 16

Spalled concrete at underside of plaza slab.

Photo 17

Cracked concrete column with evidence of leakage.

Photo 18

Cracks at concrete wall with evidence of leakage.

Photo 19

Delaminated concrete at wall at entrance to garage.

Photo 20

Exploratory Opening 2 located in the brick paver hardscape.

Photo 21

Exploratory Opening 4 located in the brick paver hardscape.

Photo 22

Exploratory Opening 3 located in a planter.

Photo 23

Exploratory Opening 5 located in a planter.

Photo 24

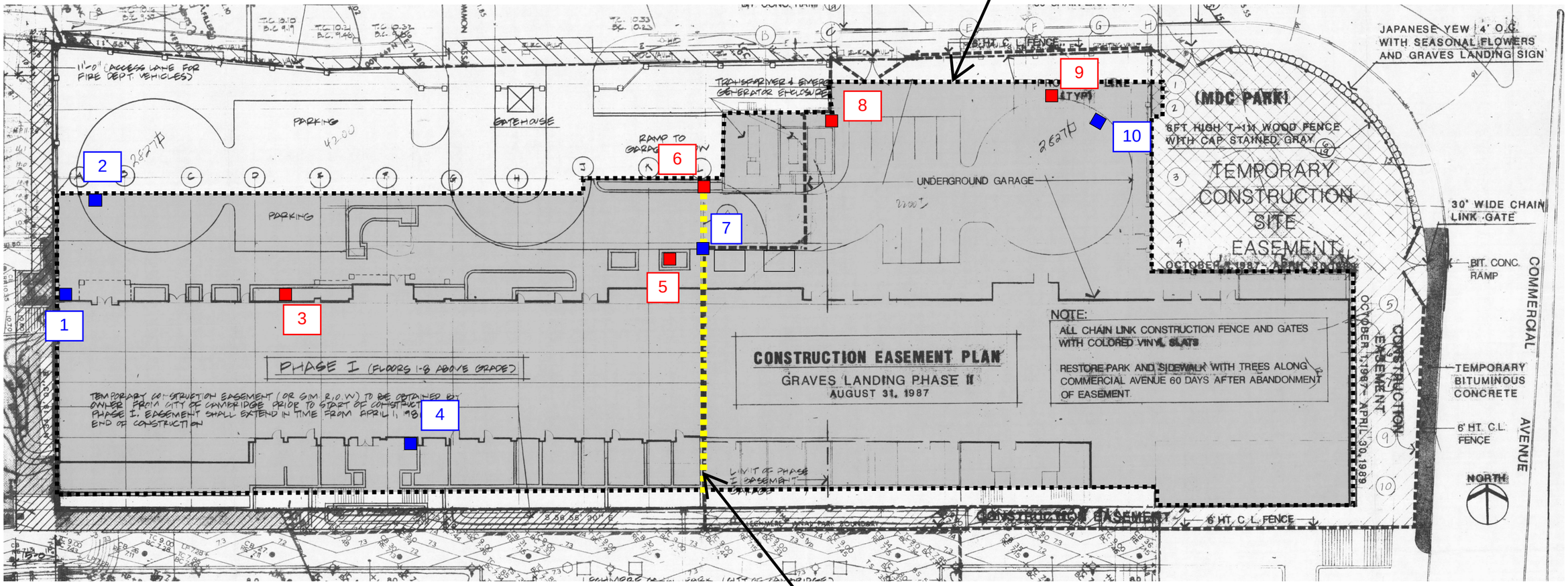
Exploratory Opening 1 located in the asphalt drive lane.

Photo 25

Exploratory Opening 7 located at the expansion joint in the drive lane.

Photo 26

Exploratory Opening 6 located at the expansion joint in the planter.



NOTE: DRAWING BACKGROUND FROM THOMAS GRAVES LANDING PLANS, SHEET L1, DATED 31 AUGUST 1987

LEGEND

#	■	4' x 4' PLANTER OPENING, APPROX. LOCATION
#	■	4' x 4' HARDSCAPE OPENING, APPROX. LOCATION

SIMPSON GUMPERTZ & HEGER
Engineering of Structures and Building Enclosures
Simpson Gumpertz & Heger Inc.
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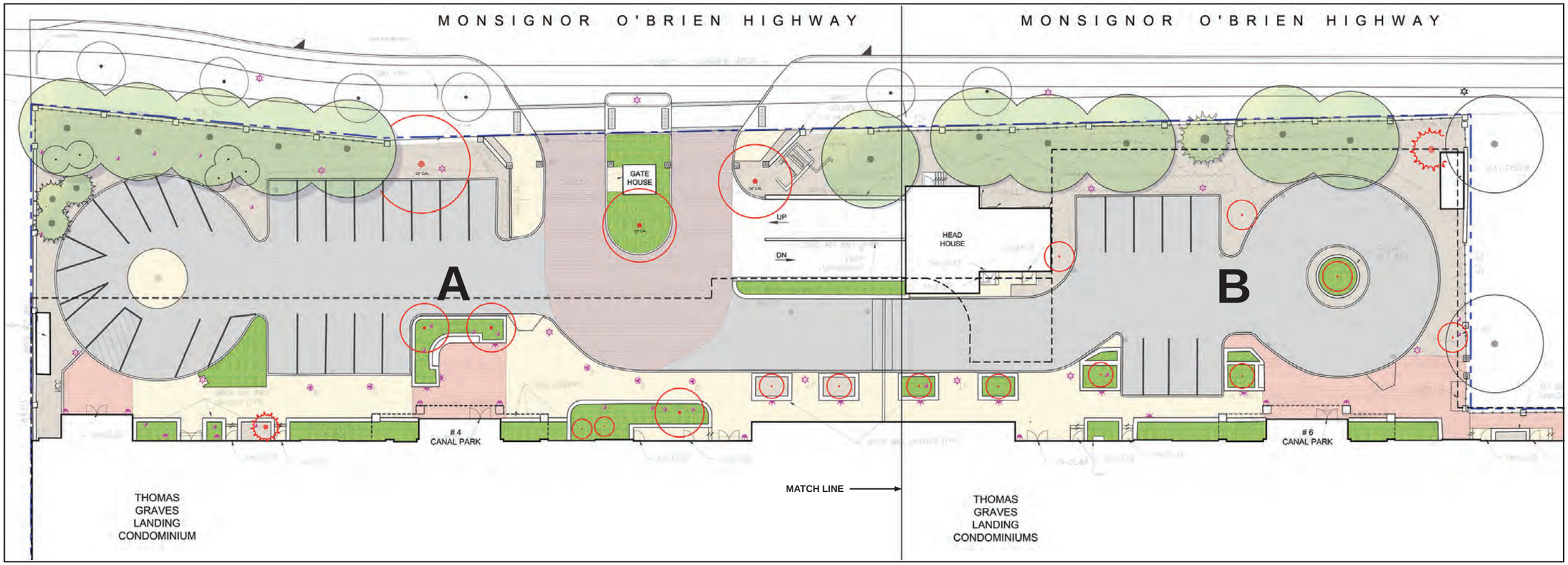
Project:	PLAZA CONDITION ASSESSMENT THOMAS GRAVES LANDING CONDOMINIUMS
Title:	EXPLORATORY OPENING LOCATIONS
Drawn:	MJO
Checked:	JMP
Approved:	JMP
Project No.:	190734.00
Drawing No.:	FIG. 1
Scale:	N.T.S.
Date:	8/23/2019



TREE LEGEND

TREES TO REMAIN

TREES TO BE REMOVED

DRAWING LIST

LANDSCAPE ARCHITECT

symbio

1035 Cambridge Street, Suite #1
Cambridge, MA 02141
Web. www.symbio-design.com
Tel. 617-921-4254

PROJECT NAME

Thomas Graves Landing Condominiums

4 Canal Park,
Cambridge, MA 02141

PROJECT TEAM

SIMPSON GUMPERTZ & HEGER
Engineering of Structures and Building Enclosures

SIMPSON GUMPERTZ & HEGER

480 Totten Pond Road
Waltham, MA 02451

REVISIONS

1
2
3
4
5
DATE

DRAWING TITLE

Key Plan

DRAWING INFORMATION

NORTH

December 23, 2020
DATE OF ISSUE

DESCRIPTION

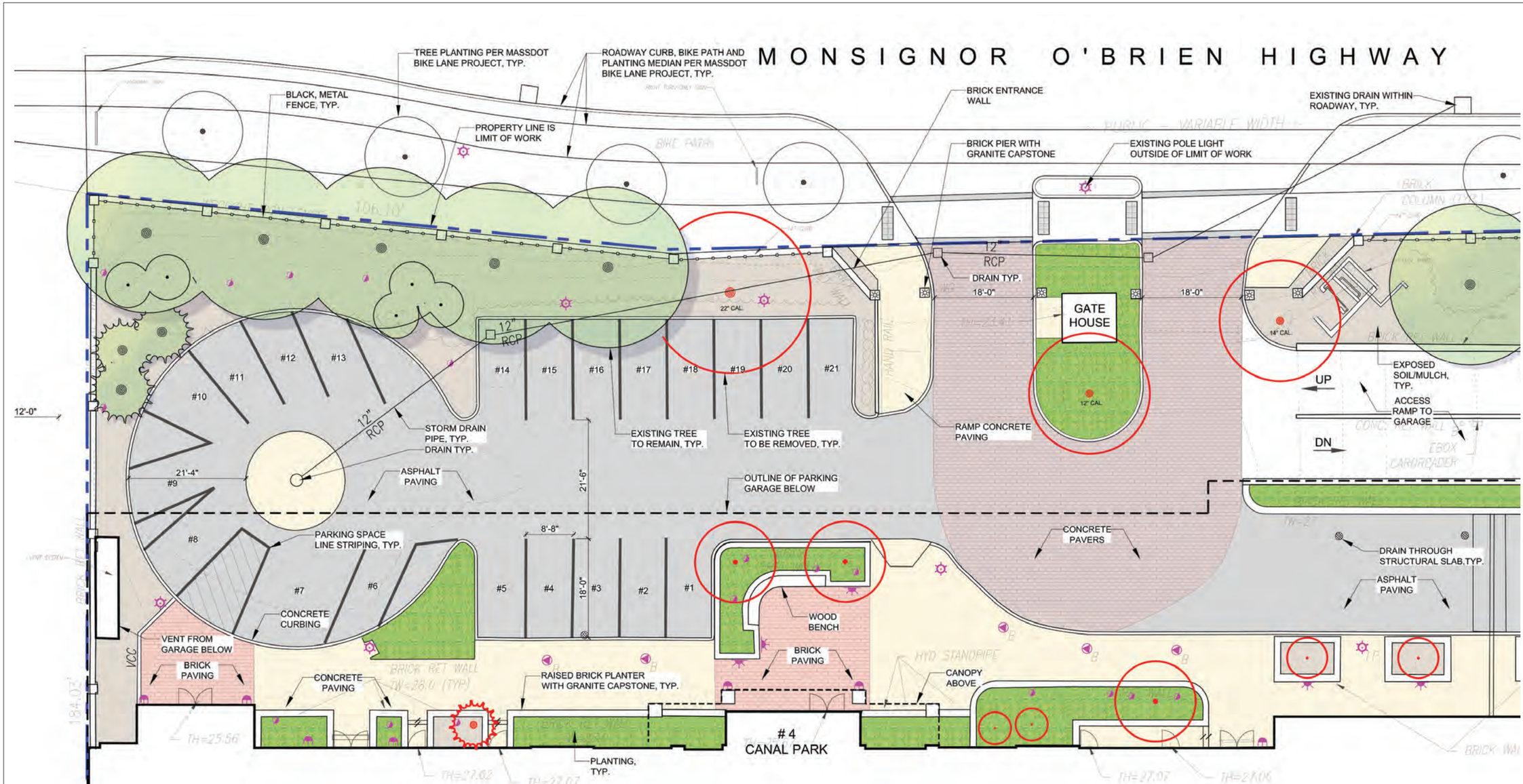
As Noted
SCALE

DRAWN BY

18053
PROJECT #

DRAWING NUMBER

L-0



THOMAS GRAVES LANDING CONDOMINIUM

TREE LEGEND

TREES TO REMAIN

TREES TO BE REMOVED

EXISTING LIGHT FIXTURE SCHEDULE

SYM.	NAME
	EXISTING POLE LIGHT
	EXISTING UPLIGHT
	EXISTING WALL LIGHT
	EXISTING BOLLARD

MATERIALS LEGEND

ITEM	EXISTING	PROPOSED	NET CHANGE
IMPERVIOUS SURFACE	33,408 SF	33,296 SF	MINUS 112 SF
PERVIOUS SURFACE	6,136 SF	6,248 SF	PLUS 112 SF
PARKING SPACES	30	22	MINUS 8
ACCESSIBLE PARKING SPACES	0	1	PLUS 1
BOLLARDS	5	32	PLUS 27
POLE LIGHTS	10	18	PLUS 8
WALL SCONCE	6	6	0

NOTE

1. EXISTING PLANT BEDS OVER STRUCTURE HAVE BEEN COUNTED TOWARDS THE EXISTING IMPERVIOUS SURFACE SQUARE FOOTAGE.
2. ACCESS RAMP TO GARAGE IS OUTSIDE OF LIMIT OF WORK. AS A RESULT, IT IS NOT COUNTED TOWARD THE IMPERVIOUS SURFACE SQUARE FOOTAGE.
3. MATERIAL LEGEND QUANTITIES REFLECT PROJECT WIDE QUANTITIES.

DRAWING LIST

LANDSCAPE ARCHITECT

symbio

1035 Cambridge Street, Suite #1
Cambridge, MA 02141
Web. www.symbio-design.com
Tel. 617-921-4254

PROJECT NAME

Thomas Graves Landing Condominiums

4 Canal Park,
Cambridge, MA 02141

PROJECT TEAM

SIMPSON GUMPERTZ & HEGER
Engineering of Structures and Building Enclosures

SIMPSON GUMPERTZ & HEGER

480 Totten Pond Road
Waltham, MA 02451

REVISIONS

1
2
3
4
5
DATE

DRAWING TITLE

Existing Site Plan

DRAWING INFORMATION

NORTH

December 23, 2020
DATE OF ISSUE

DESCRIPTION

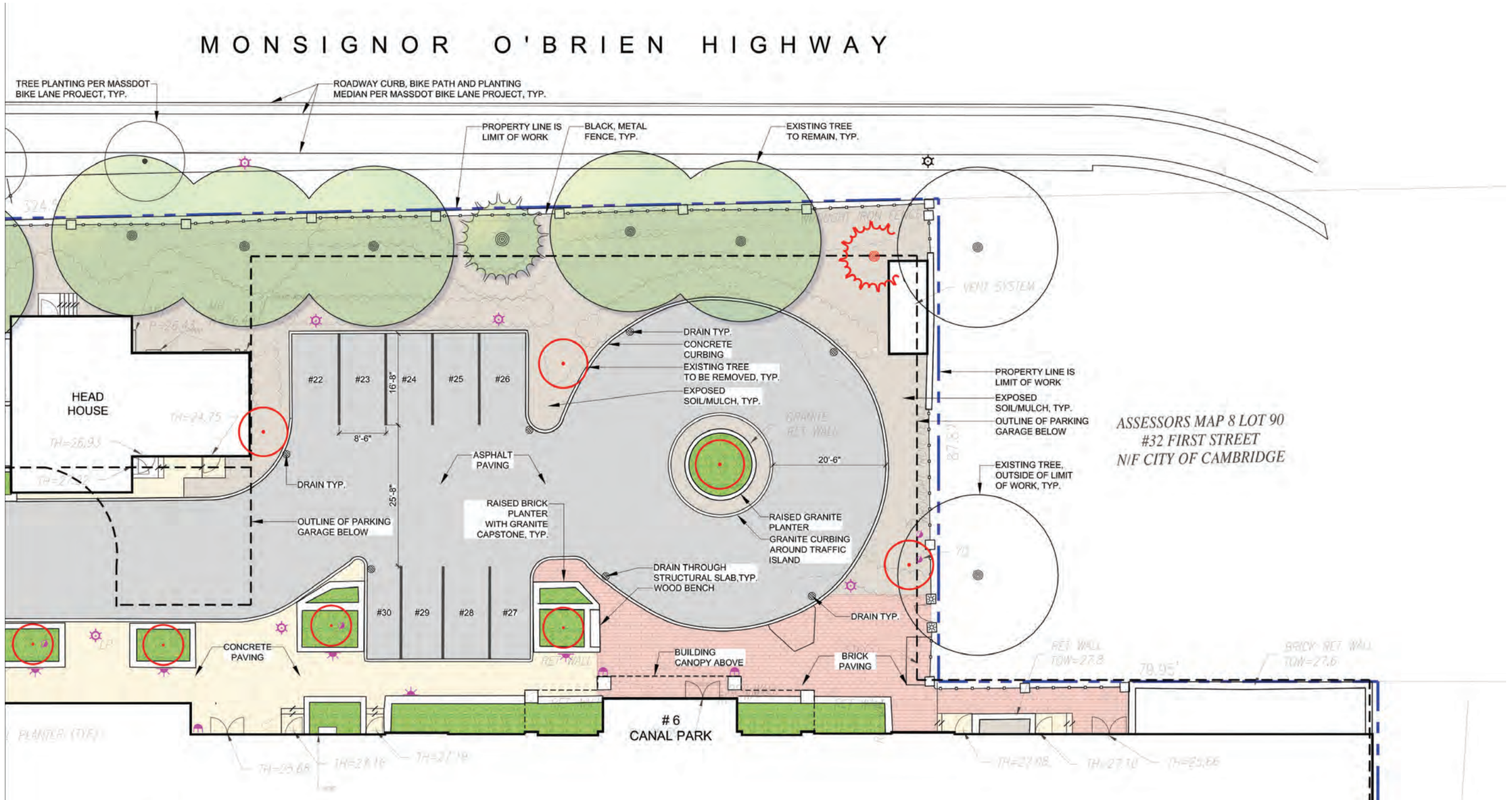
As Noted
SCALE

DRAWN BY

18053
PROJECT #

DRAWING NUMBER

L-1A



THOMAS GRAVES LANDING CONDOMINIUMS

TREE LEGEND

TREES TO REMAIN

TREES TO BE REMOVED

EXISTING LIGHT FIXTURE SCHEDULE

SYM.	NAME
	EXISTING POLE LIGHT
	EXISTING UPLIGHT
	EXISTING WALL LIGHT
	EXISTING BOLLARD

MATERIALS LEGEND

ITEM	EXISTING	PROPOSED	NET CHANGE
IMPERVIOUS SURFACE	33,408 SF	33,296 SF	MINUS 112 SF
PERVIOUS SURFACE	6,136 SF	6,248 SF	PLUS 112 SF
PARKING SPACES	30	22	MINUS 8
ACCESSIBLE PARKING SPACES	0	1	PLUS 1
BOLLARDS	5	32	PLUS 27
POLE LIGHTS	10	18	PLUS 8
WALL SCONCE	6	6	0

NOTE

1. EXISTING PLANT BEDS OVER STRUCTURE HAVE BEEN COUNTED TOWARDS THE EXISTING IMPERVIOUS SURFACE SQUARE FOOTAGE.
2. ACCESS RAMP TO GARAGE IS OUTSIDE OF LIMIT OF WORK. AS A RESULT, IT IS NOT COUNTED TOWARD THE IMPERVIOUS SURFACE SQUARE FOOTAGE.
3. MATERIAL LEGEND QUANTITIES REFLECT PROJECT WIDE QUANTITIES.

DRAWING LIST

LANDSCAPE ARCHITECT

symbio

1035 Cambridge Street, Suite #1
Cambridge, MA 02141
Web. www.symbio-design.com
Tel. 617-921-4254

PROJECT NAME

Thomas Graves Landing Condominiums

4 Canal Park,
Cambridge, MA 02141

PROJECT TEAM

SIMPSON GUMPERTZ & HEGER
Engineering of Structures and Building Enclosures

SIMPSON GUMPERTZ & HEGER

480 Totten Pond Road
Waltham, MA 02451

REVISIONS

1
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DRAWING TITLE

Existing Site Plan

DRAWING INFORMATION

December 23, 2020
DATE OF ISSUE

DESCRIPTION

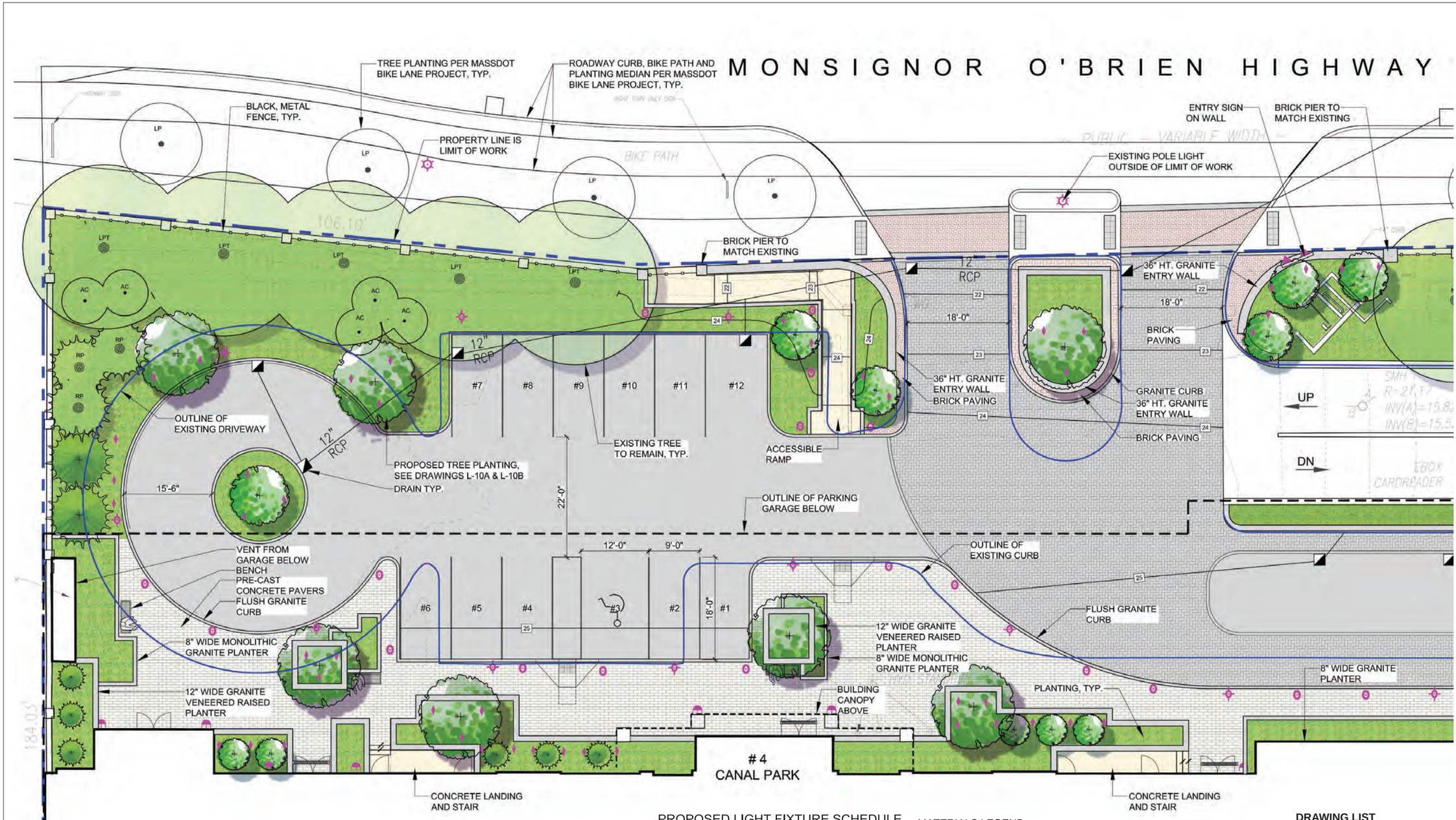
As Noted
SCALE

DRAWN BY

18053
PROJECT #

DRAWING NUMBER

L-1B



THOMAS GRAVES LANDING CONDOMINIUM

PROPOSED LIGHT FIXTURE SCHEDULE

SYM.	NAME
	PROPOSED POLE LIGHT
	PROPOSED BOLLARD
	PROPOSED WALL SCONCE
	PROPOSED UPLIGHT AT ENTRY SIGN
	PROPOSED UPLIGHT

MATERIALS LEGEND

ITEM	EXISTING	PROPOSED	NET CHANGE
IMPERVIOUS SURFACE	33,408 SF	33,296 SF	MINUS 112 SF
PERVIOUS SURFACE	6,136 SF	6,248 SF	PLUS 112 SF
PARKING SPACES	30	22	MINUS 8
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POLE LIGHTS	10	18	PLUS 8
WALL SCONCE	6	6	0

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18053
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L-2A

THOMAS
GRAVES
LANDING
CONDOMINIUMS

PROPOSED LIGHT FIXTURE SCHEDULE

SYM.	NAME
	PROPOSED POLE LIGHT
	PROPOSED BOLLARD
	PROPOSED WALL SCONCE
	PROPOSED UPLIGHT AT ENTRY SIGN
	PROPOSED UPLIGHT

MATERIALS LEGEND

ITEM	EXISTING	PROPOSED	NET CHANGE
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DRAWING TITLE

Existing Main Entry

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L-3

Key:

- A Main entry sign
- B 36" height granite entry wall
- C Brick paving
- D Precast concrete pavers
- E Entry directional sign
- F Wayfinding sign option
- G 36" height granite veneered raised planters
- H Uplight set flush with top of granite wall to light main entry sign'
- I Brick pier to match existing brick piers
- J Flush granite curbing

LANDSCAPE ARCHITECT

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Proposed Main Entry

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L-4

A Entry sign at guard house

B Entry sign on wall at curb cut

C Building address at entry door

LANDSCAPE ARCHITECT

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DRAWING TITLE

Existing Signage

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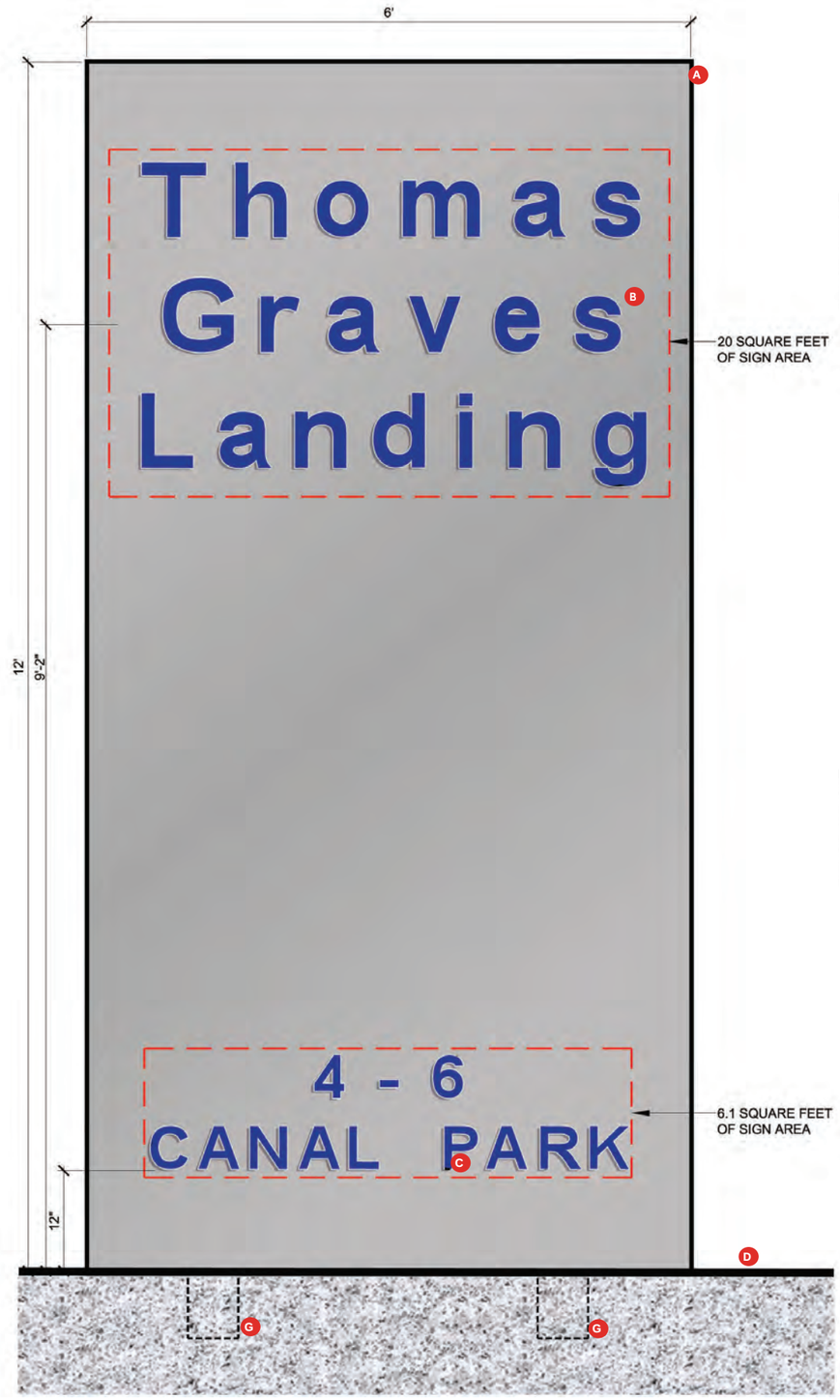
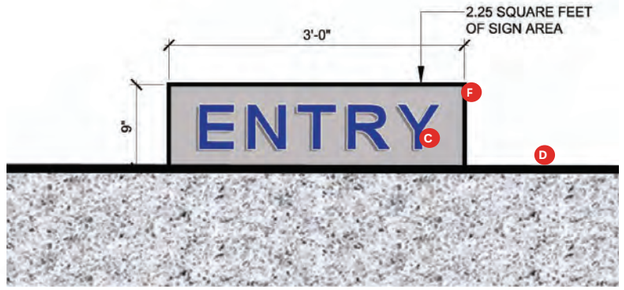
L-5



C Main Entry Sign



A Directional Sign

B Wayfinding Sign Option A

Key:

- A 12' ht. x 6' length x 6" width painted aluminum sign cabinet
- B 9'' height push through acrylic letters at 9'-8" mounting ht.
- C 5'' height push through acrylic letters
- D Top of granite wall
- E 9" ht. x 3' length x 6" width aluminium sign cabinet
- F 9" ht. x 8'-6" length x 6" width aluminium sign cabinet
- G Uplight set flush with top of granite wall to light main entry

LANDSCAPE ARCHITECT

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L-6

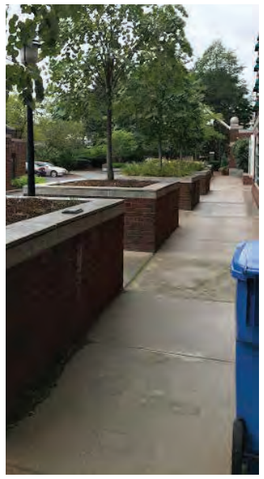
Uplight

Guard House

Concrete curb with brick paving at building entrences

Raised brick planters with granite capstone

Wall Sconce Light



Concrete paving at pedestrian walks

Granite curb with concrete pavers at entrance drive

Concrete curb with asphalt paving at parking areas

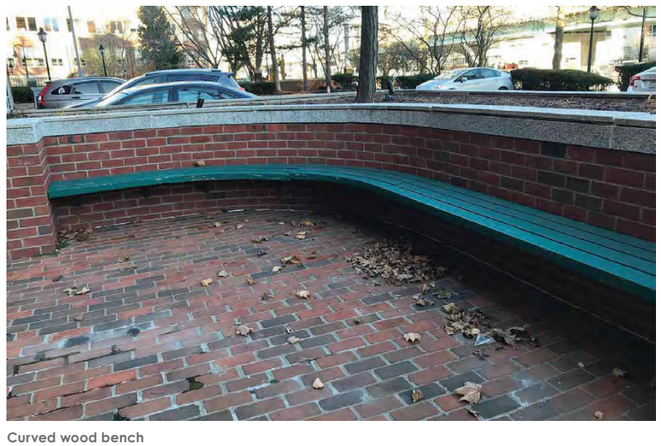
Raised brick planters with granite capstone

12' ht. Pole light

42" Ht. bollard

42" Ht. bollard

Straight wood bench



Curved wood bench

LANDSCAPE ARCHITECT

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L-7

42" Ht. bollard by Forms and Surfaces

Wall sconce light by Hess, model 'Avalon'

12' Pole light by Hess, model 'Avalon'

D Granite curb along entrance drive

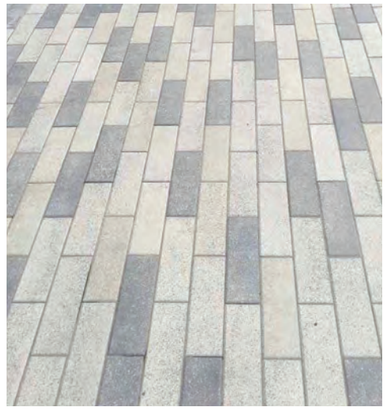
Wire-cut brick paving

C 24" Wide monolithic granite entry wall

B 8" Wide granite planter curb

Uplight - main entry sign

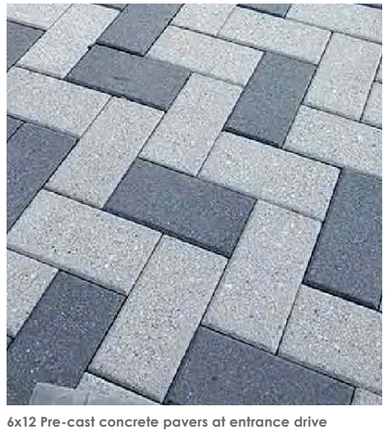
Uplight



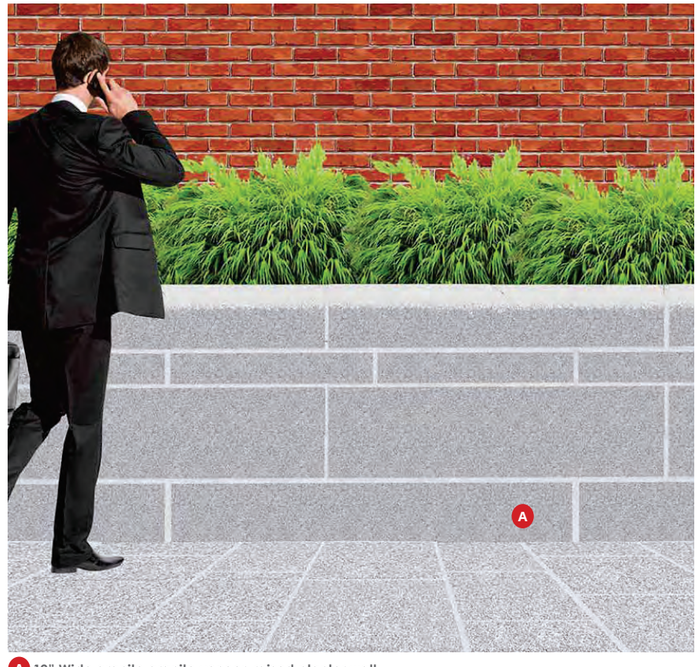
6x18 Pre-cast concrete pavers at pedestrian walkways

Trash recepticle by
Landscape Forms Plainwell Litter

Wood and metal bench by Landscape Forms



6x12 Pre-cast concrete pavers at entrance drive



A 12" Wide granite granite veneer, raised planter wall

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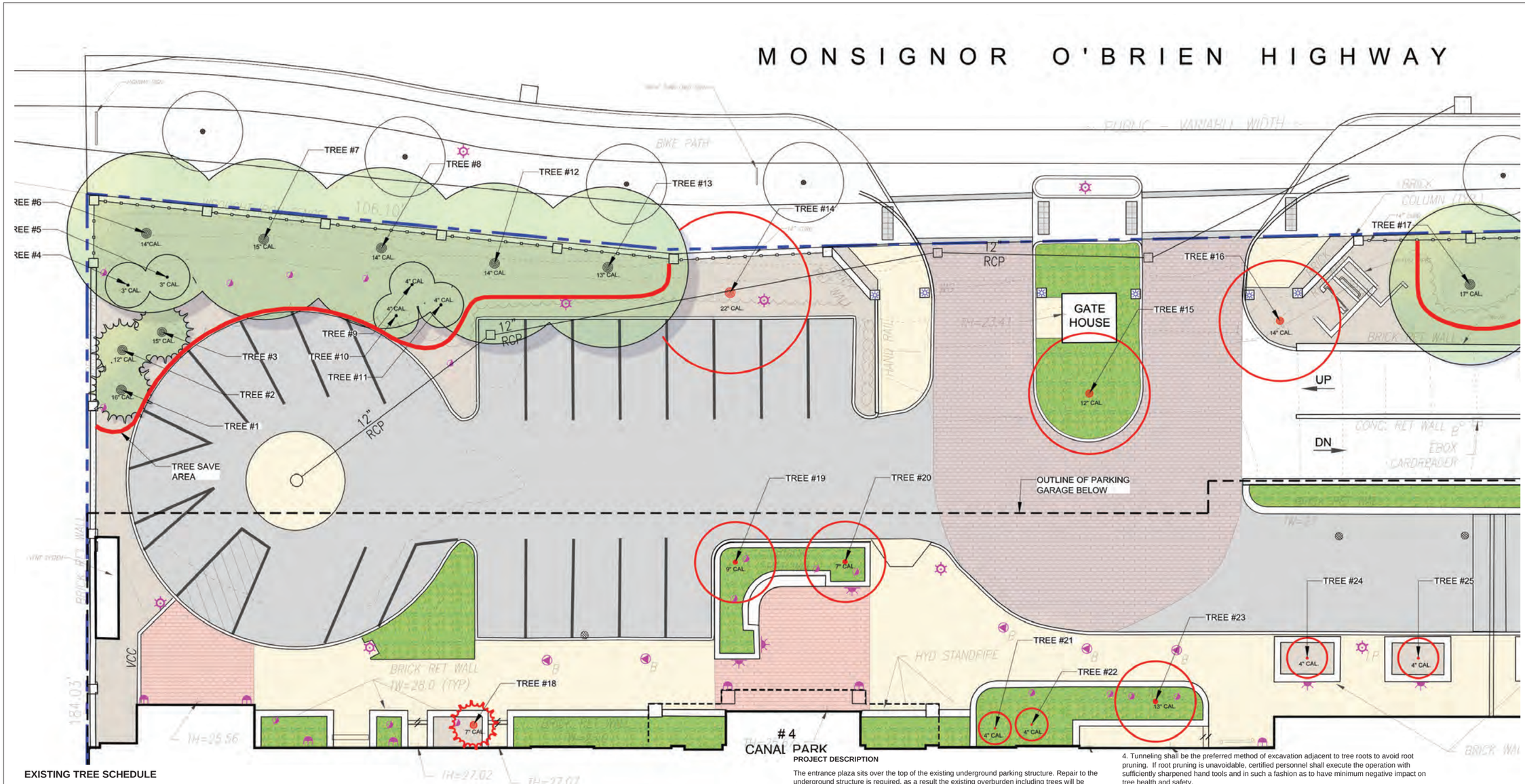


EXISTING TREE SCHEDULE

Trees to Remain

TREE #	SCIENTIFIC NAME	COMMON NAME	Caliper	Height
1	Pinus resinosa	Red Pine	16.00	15' plus
2	Pinus resinosa	Red Pine	12.00	15' plus
3	Pinus resinosa	Red Pine	15.00	15' plus
4	Amelanchier canandensis	Shadblow Serviceberry	3.00	15' plus
5	Amelanchier canandensis	Shadblow Serviceberry	3.00	15' plus
6	Platunus x acerifolia	London Planetree	14.00	30' plus
7	Platunus x acerifolia	London Planetree	15.00	30' plus
8	Platunus x acerifolia	London Planetree	14.00	30' plus
9	Amelanchier canandensis	Shadblow Serviceberry	4.00	15' plus
10	Amelanchier canandensis	Shadblow Serviceberry	4.00	15' plus
11	Amelanchier canandensis	Shadblow Serviceberry	4.00	15' plus
12	Platunus x acerifolia	London Planetree	14.00	30' plus
13	Platunus x acerifolia	London Planetree	13.00	30' plus
17	Acer platanoides	Norway Maple	17.00	30' plus
34	Acer platanoides	Norway Maple	20.00	36 plus
35	Platunus x acerifolia	London Planetree	18.00	36 plus
36	Picea pungens	Blue Spruce	16.00	36 plus
37	Platunus x acerifolia	London Planetree	14.00	36 plus
38	Acer platanoides	Norway Maple	16.00	36 plus
39	Platunus x acerifolia	London Planetree	17.00	36 plus
	Total caliper inches existing		**249.00**	
	Total significant caliper inches existing		**231.00**	

Trees to be Removed

TREE #	SCIENTIFIC NAME	COMMON NAME	Caliper	Height
14	Acer platanoides	Norway Maple	22.00	36' plus
15	Acer platanoides	Norway Maple	12.00	25' plus
16	Acer platanoides	Norway Maple	14.00	25' plus
18	Juniperus	Cedar	7.00	15' plus
19	Gleditsia triacanthos var. inermis	Common Thornless Honeylocust	9.00	15' plus
20	Gleditsia triacanthos var. inermis	Common Thornless Honeylocust	7.00	15' plus
21	Juniperus	Cedar	4.00	15' plus
22	Juniperus	Cedar	4.00	15' plus
23	Tilia cordata	Little Leaf Linden	13.00	15' plus
24	Tilia americana	American Linden	4.00	12' plus
25	Tilia americana	American Linden	4.00	12' plus
26	Tilia americana	American Linden	4.00	12' plus
27	Tilia americana	American Linden	4.00	12' plus
28	Tilia americana	American Linden	4.00	12' plus
29	Tilia americana	American Linden	6.00	12' plus
30	Crataegus monogyna	Common Hawthorn	8.00	12' plus
31	Cornus florida	Flowering Dogwood	4.00	12' plus
32	Malus	Crab Apple	8.00	12' plus
33	Juniperus	Cedar	6.00	36 plus
40	Malus	Crab Apple	6.00	12' plus
	Total caliper inches removed		**150.00**	
	Total significant caliper inches removed		**86.00**	

= Significant trees, 8" DBH or greater, as defined by the City of Cambridge tree ordinance, chapter 8.66 Tree Protection

PROJECT DESCRIPTION

The entrance plaza sits over the top of the existing underground parking structure. Repair to the underground structure is required, as a result the existing overburden including trees will be removed to access the structure.

NOTES

1. The following trees reside over the underground structure and will be removed to access and repair the structure, this would be tree #18, tree #19, tree #20, tree #21, tree #22, tree #23, tree #24, tree #25, tree #26, tree #27, tree #28, tree #29, tree #30, tree #31, tree #32, tree #33 and tree #40.

2. Tree #14 is noted as being removed to accommodate the new accessible ADA compliant ramp.

3. Tree #15 is noted as being removed to allow for improved vehicular circulation and access to the existing parking structure ramp.

4. Tree #16 is noted as being removed to accommodate the new granite entrance wall

5. Tree save areas are noted on the drawings

6. Tree #34, tree #35, tree #36, tree #37 and tree #38 are within the tree save area and are noted to remain. These trees exist at the edge of the underground structure. Disturbance in this area is limited to removal of the existing overburden at the underground structure only.

7. All trees within the tree save area will be protected as required by Cambridge Department of Public Works.

TREE PROTECTION NOTES

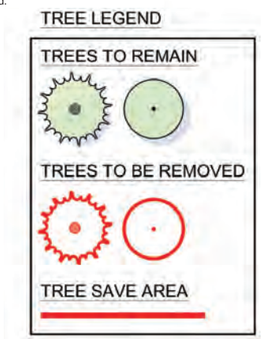
1. Wrapping the trunks of trees with a diameter at breast height (DBH) of 6" or greater with a durable material such as two by four lumber sufficient to protect tree trunks from mechanical damage. Removal of protective wrapping shall be done by the contractor after construction in complete.

2. The proper pruning (raise pruning) of low branches to a height no greater than fourteen feet (14") above the roadway and eight feet (8") above the sidewalk. This includes trees endangered by traffic re-routing as the result of construction operations.

3. Traffic control plans shall be designed in such a way as to direct traffic away from tree trunks and branches.

4. Tunneling shall be the preferred method of excavation adjacent to tree roots to avoid root pruning. If root pruning is unavoidable, certified personnel shall execute the operation with sufficiently sharpened hand tools and in such a fashion as to have minimum negative impact on tree health and safety.

5. Trucks and heavy equipment shall not pass over or park on roots of public shade trees. A protection zone shall be established by erecting a rigid fence outside the perimeter of the dripline of the tree. For occasional or one-time access over roots, ½' plywood overlapped may be used. Permeable materials such as gravel or wood chips shall be placed over root systems of trees which are not covered by hardscape and over which trucks and heavy equipment must travel during construction operations, when such travel is unavoidable, to prevent soil compaction and root damage. Material shall be replaced as needed.



LANDSCAPE ARCHITECT

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Existing Tree Planting

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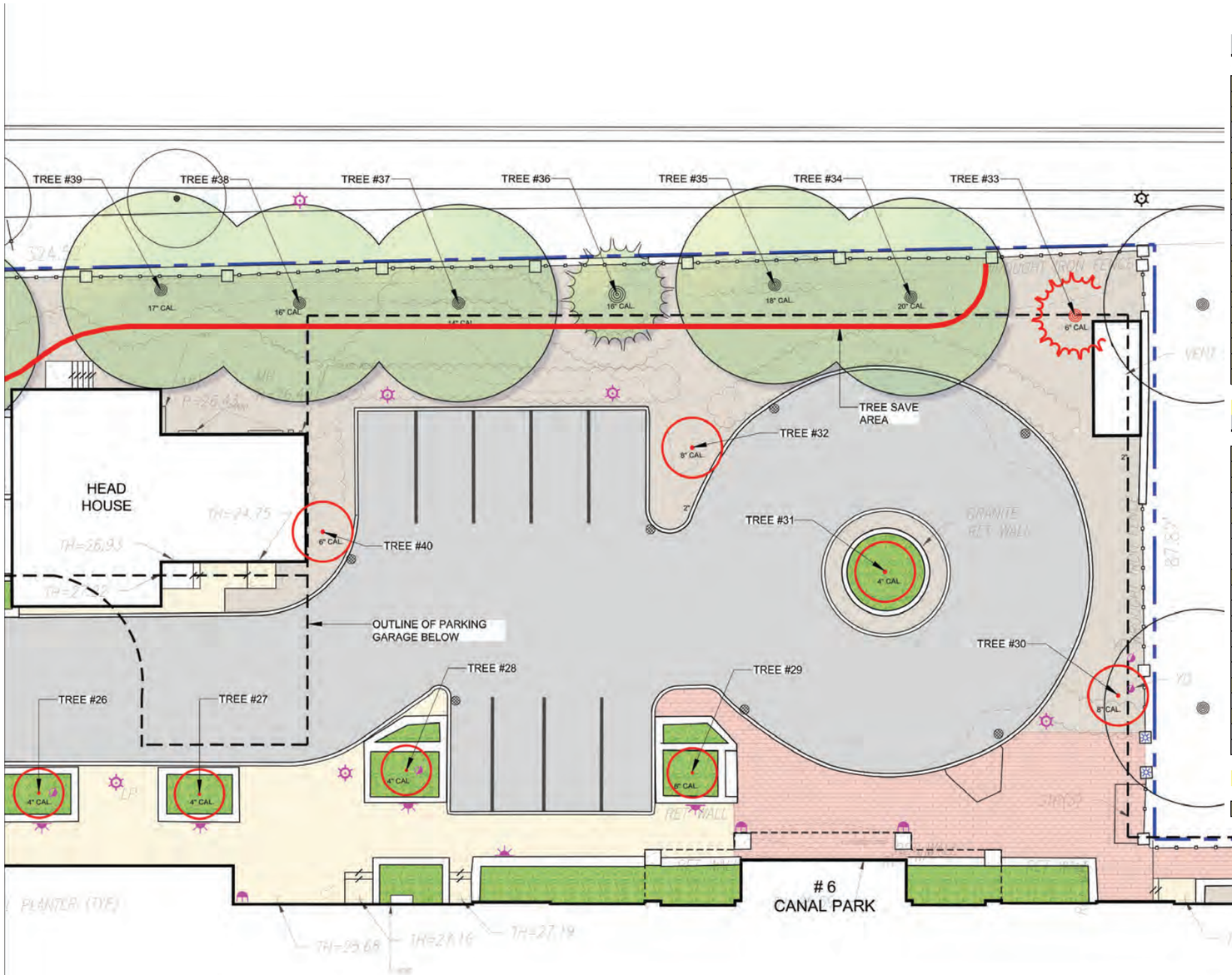

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Trees to be Removed

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27	Tilia americana	American Linden	4.00	12' plus
28	Tilia americana	American Linden	4.00	12' plus
29	Tilia americana	American Linden	6.00	12' plus
30	Crataegus monogyna	Common Hawthorn	8.00	12' plus
31	Cornus florida	Flowering Dogwood	4.00	12' plus
32	Malus	Crab Apple	8.00	12' plus
33	Juniperus	Cedar	6.00	36 plus
40	Malus	Crab Apple	6.00	12' plus
	Total caliper inches removed		**150.00**	
	Total significant caliper inches removed		**86.00**	

= Significant trees, 8" DBH or greater, as defined by the City of Cambridge tree ordinance, chapter 8.66 Tree Protection

THOMAS GRAVES LANDING CONDOMINIUMS

PROJECT DESCRIPTION

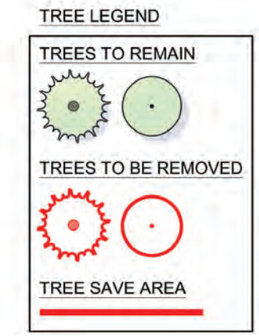
The entrance plaza sits over the top of the existing underground parking structure. Repair to the underground structure is required, as a result the existing overburden including trees will be removed to access the structure.

NOTES

1. The following trees reside over the underground structure and will be removed to access and repair the structure, this would be tree #18, tree #19, tree #20, tree #21, tree #22, tree #23, tree #24, tree #25, tree #26, tree #27, tree #28, tree #29, tree #30, tree #31, tree #32, tree #33 and tree #40.
2. Tree #14 is noted as being removed to accommodate the new accessible ADA compliant ramp.
3. Tree #15 is noted as being removed to allow for improved vehicular circulation and access to the existing parking structure ramp.
4. Tree #16 is noted as being removed to accommodate the new granite entrance wall
5. Tree save areas are noted on the drawings
6. Tree #34, tree #35, tree #36, tree #37 and tree #38 are within the tree save area and are noted to remain. These trees exist at the edge of the underground structure. Disturbance in this area is limited to removal of the existing overburden at the underground structure only.
7. All trees within the tree save area will be protected as required by Cambridge Department of Public Works.

TREE PROTECTION NOTES

1. Wrapping the trunks of trees with a diameter at breast height (DBH) of 6" or greater with a durable material such as two by four lumber sufficient to protect tree trunks from mechanical damage. Removal of protective wrapping shall be done by the contractor after construction in complete.
2. The proper pruning (raise pruning) of low branches to a height no greater than fourteen feet (14") above the roadway and eight feet (8") above the sidewalk. This includes trees endangered by traffic re-routing as the result of construction operations.
3. Traffic control plans shall be designed in such a way as to direct traffic away from tree trunks and branches.
4. Tunneling shall be the preferred method of excavation adjacent to tree roots to avoid root pruning. If root pruning is unavoidable, certified personnel shall execute the operation with sufficiently sharpened hand tools and in such a fashion as to have minimum negative impact on tree health and safety.
5. Trucks and heavy equipment shall not pass over or park on roots of public shade trees. A protection zone shall be established by erecting a rigid fence outside the perimeter of the dripline of the tree. For occasional or one-time access over roots, ½' plywood overlapped may be used. Permeable materials such as gravel or wood chips shall be placed over root systems of trees which are not covered by hardscape and over which trucks and heavy equipment must travel during construction operations, when such travel is unavoidable, to prevent soil compaction and root damage. Material shall be replaced as needed.



LANDSCAPE ARCHITECT

symbio

1035 Cambridge Street, Suite #1
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Tel. 617-921-4254

PROJECT NAME

Thomas Graves Landing Condominiums

4 Canal Park,
Cambridge, MA 02141

PROJECT TEAM

SIMPSON GUMPERTZ & HEGER
Engineering of Structures and Building Enclosures

SIMPSON GUMPERTZ & HEGER

480 Totten Pond Road
Waltham, MA 02451

REVISIONS

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DATE

DRAWING TITLE

Existing Tree Planting

DRAWING INFORMATION

December 23, 2020
DATE OF ISSUE

DESCRIPTION

As Noted
SCALE

DRAWN BY

18053
PROJECT #

DRAWING NUMBER

L-9B

THOMAS GRAVES LANDING CONDOMINIUM

PLANT SCHEDULE

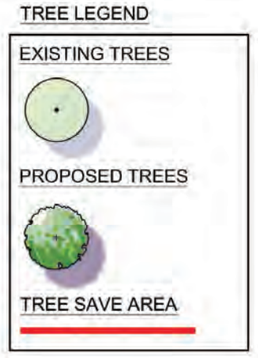
DECIDUOUS TREES

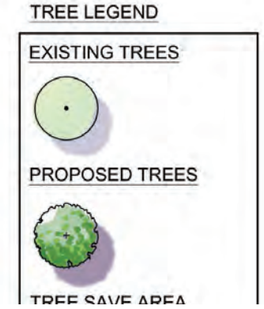
SYM.	QTY	SCIENTIFIC NAME	COMMON NAME	CAL. EACH	CAL. TOTAL	SPEC.	HT.
AR	1	Acer rubrum freemanii 'Armstrong'	Columnar red maple	5	5	B&B	15' plus
CK	4	Cornus kousa	Kousa Dogwood	5	20	B&B	12' plus
CF	5	Carpinus betulus 'Frans Fontaine'	Carpinus betulus 'Frans Fontaine'	5	25	B&B	15' plus
CC	8	Carpinus caroliniana	American hornbeam	5	40	B&B	15' plus
TC1	5	Tilia cordata	Littleleaf Linden	5	25	B&B	15' plus
CD	1	Cercidiphyllum japonicum	Katsura Tree	5	5	B&B	15' plus
TC2	1	Tilia cordata	Littleleaf Linden	7	7	B&B	15' plus
				Total caliper inch	**127**		

EVERGREEN TREES

SYM.	QTY	SCIENTIFIC NAME	COMMON NAME	CAL. EACH	CAL. TOTAL	SPEC.	HT.
IO	7	Ilex opaca	American holly	N/A	N/A	B&B	14'-16' ht.
PO	3	Picea omorika	Serbian Spruce	N/A	N/A	B&B	12'-14' ht.
TS	8	Thuja standishii x plicata 'Green Giant'	Green Giant Arborvitae	N/A	N/A	B&B	12'-14' ht.

Proposed tree planting provides a net gain of 41 caliper inches. (127 cal. inches proposed - 86 cal. inches removed = 41 cal. inches)





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Proposed Tree Planting

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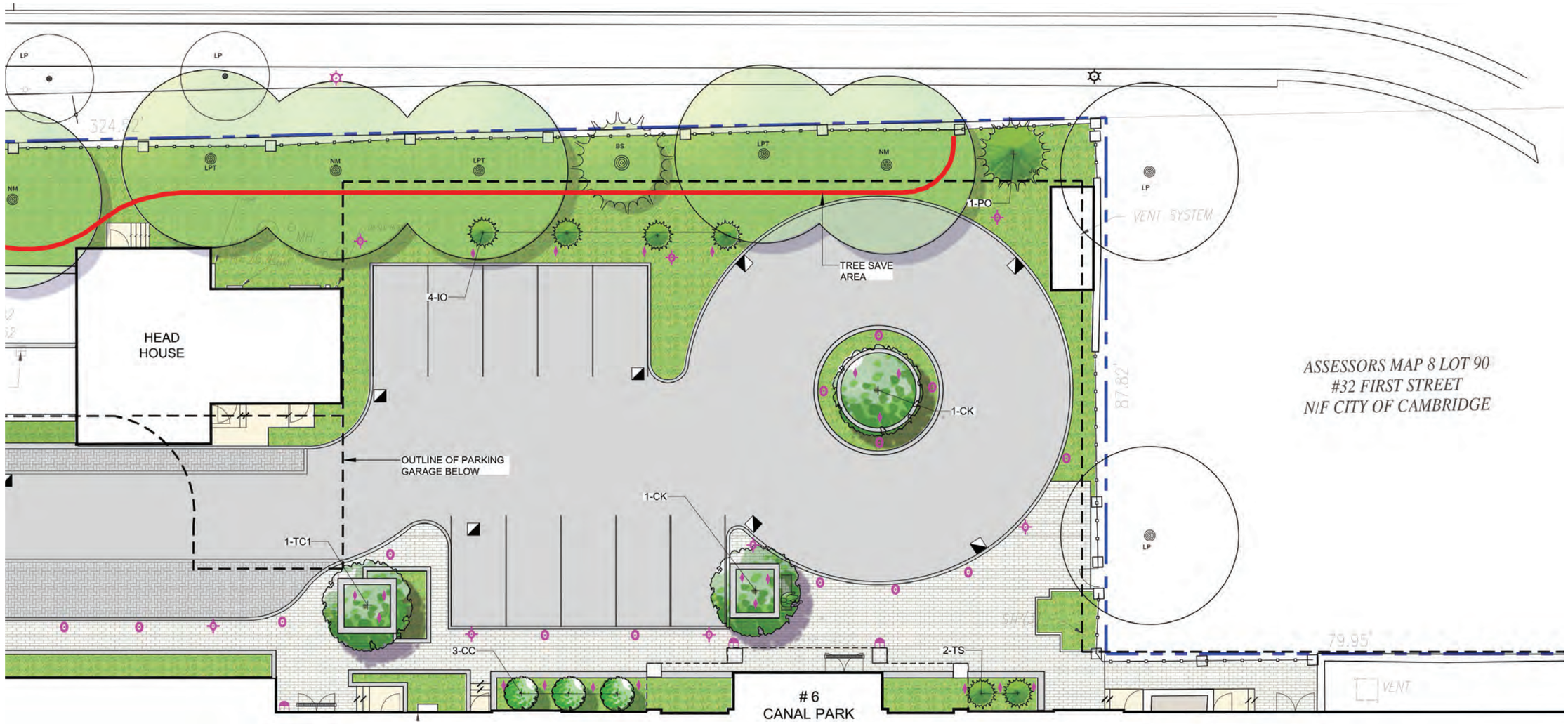
L-10A



THOMAS GRAVES LANDING CONDOMINIUMS

PLANT SCHEDULE

DECIDUOUS TREES

SYM.	QTY	SCIENTIFIC NAME	COMMON NAME	CAL. EACH	CAL. TOTAL	SPEC.	HT.
AR	1	Acer rubrum freemanii 'Armstrong'	Columnar red maple	5	5	B&B	15' plus
CK	4	Cornus kousa	Kousa Dogwood	5	20	B&B	12' plus
CF	5	Carpinus betulus 'Frans Fontaine'	Carpinus betulus 'Frans Fontaine'	5	25	B&B	15' plus
CC	8	Carpinus caroliniana	American hornbeam	5	40	B&B	15' plus
TC1	5	Tilia cordata	Littleleaf Linden	5	25	B&B	15' plus
CD	1	Cercidiphyllum japonicum	Katsura Tree	5	5	B&B	15' plus
TC2	1	Tilia cordata	Littleleaf Linden	7	7	B&B	15' plus
			Total caliper inch		**127**		

EVERGREEN TREES

SYM.	QTY	SCIENTIFIC NAME	COMMON NAME	CAL. EACH	CAL. TOTAL	SPEC.	HT.
IO	7	Ilex opaca	American holly	N/A	N/A	B&B	14'-16' ht.
PO	3	Picea omorika	Serbian Spruce	N/A	N/A	B&B	12'-14' ht.
TS	8	Thuja standishii x plicata 'Green Giant'	Green Giant Arborvitae	N/A	N/A	B&B	12'-14' ht.

Proposed tree planting provides a net gain of 41 caliper inches. (127 cal. inches proposed - 86 cal. inches removed = 41 cal. inches)

TREE LEGEND

EXISTING TREES

PROPOSED TREES

TREE SAVE AREA

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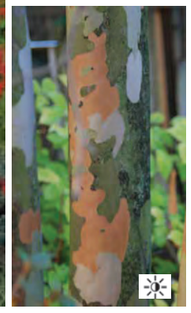
IP Ilex opaca
American holly
Height: 15'-30' Spread: 10'-20'

CC Carpinus caroliniana
American Hornbeam
20'-35' sp. Height: 20'-35'

TS Thuja standishii x plicata 'Green Giant'
Green Giant Arborvitae
Height: 30'-40' Spread: 10'-18'

PO Picea omorika
Serbian Spruce
Height: 40'-60' Spread: 15'-20'

CP Carpinus betulas 'Frans Fontaine
Frans Fontaine Hornbeam
Height: 30'-40' Spread 15'-20'



SP Stewartia pseudocamellia
Japanese Stewartia
Height: 12'-40' Spread: 8'-25'

AR Acer rubrum x freemanii 'Armstrong'
Columnar red maple
Height: 40'-50' Spread:15'-20'

CD Cercidiphyllum japonicum
Katsura Tree
Height: 40'-60'
Bloom: March to April

TC Tilia cordata
Little-leaf linden
Height: 50'-60' Spread:30'-40'

CK Cornus kousa
Kousa Dogwood
Height: 15'-30' Spread: 15'-30'
Bloom: May to June

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Tree Images

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18053
PROJECT #

DRAWING NUMBER

L-11