

KS PARTNERS

SPECIAL PERMIT SUBMISSION

815 Somerville Ave

CAMBRIDGE MA

PROPOSED CONVERSION

VOLUME III - APPENDICES

EMBARC



VOLUME II - GRAPHICS

DECEMBER 22, 2023

Table of Contents

815 Somerville Avenue

Volume III - Appendices

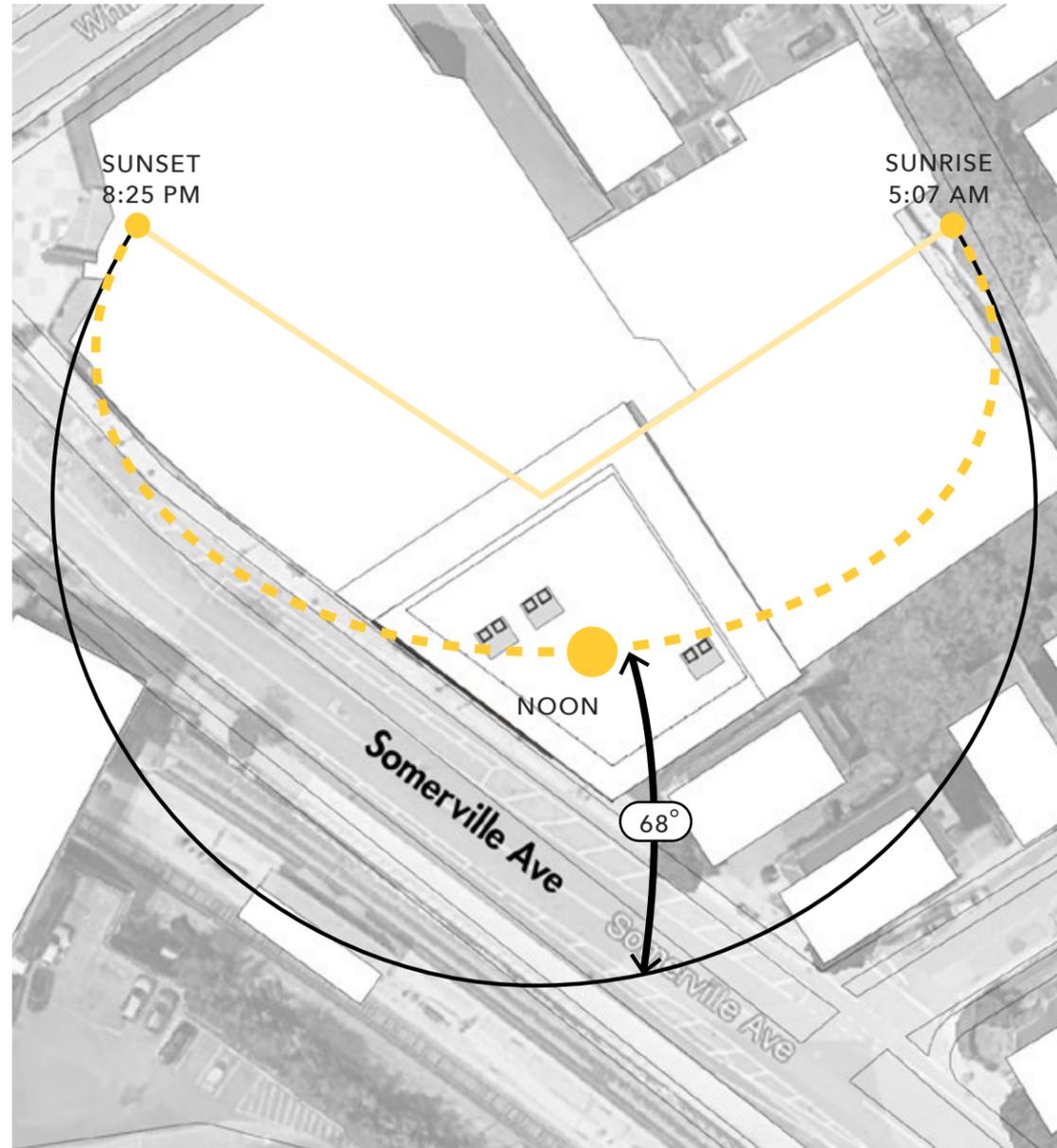
CONTENTS

APPENDICES MATERIAL

TABLE OF CONTENTS	2
SHADOW STUDIES (3)	3
EXISTING SURVEY PLAN	6
EXISTING UTILITIES PLAN	7
GREEN BUILDING REPORT CERTIFICATION.....	8
LEED CHECKLIST	11
TRANSPORTATION DIAGRAMS (4)	
• DIAGRAMS (4)	12
• TRANSPORTATION DEMAND MANAGEMENT MEASURES	16
NOISE CONTROL RECOMMENDATIONS	17
EXHAUST DISPERSION AND DESIGN	29

SHADOW STUDIES

SUMMER SOLSTICE - JUNE 21



SUN PATH DIAGRAM



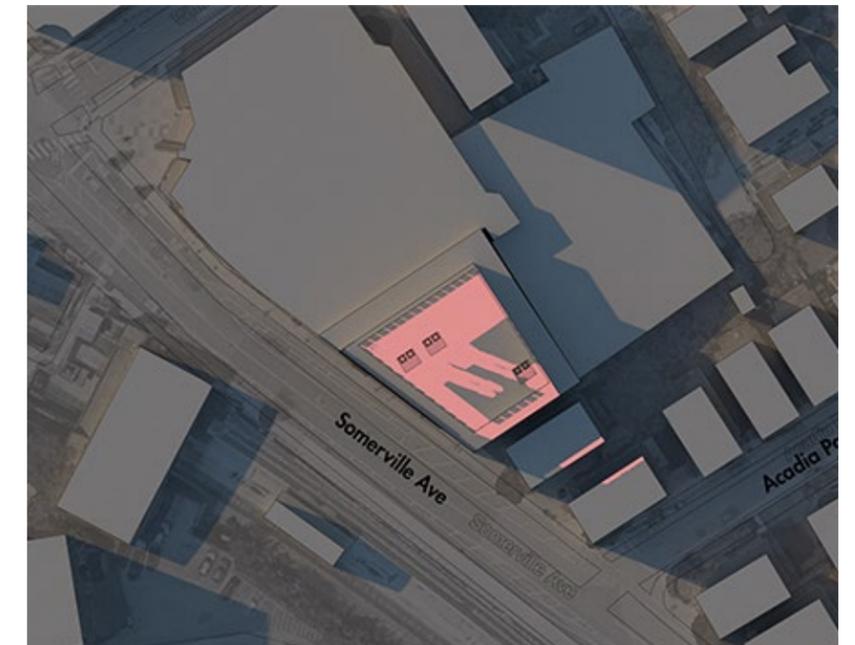
9am



12pm



3pm

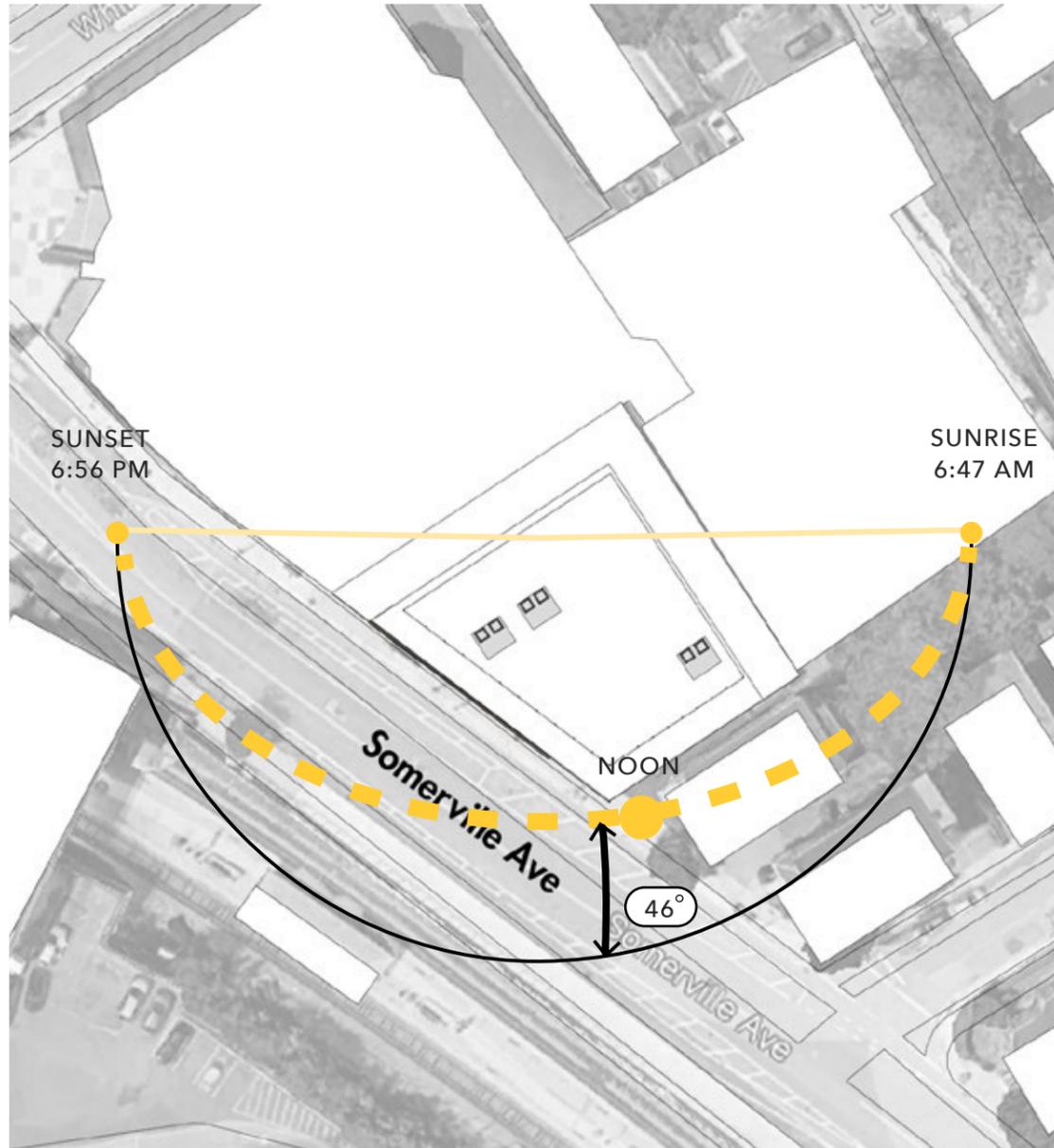


6pm

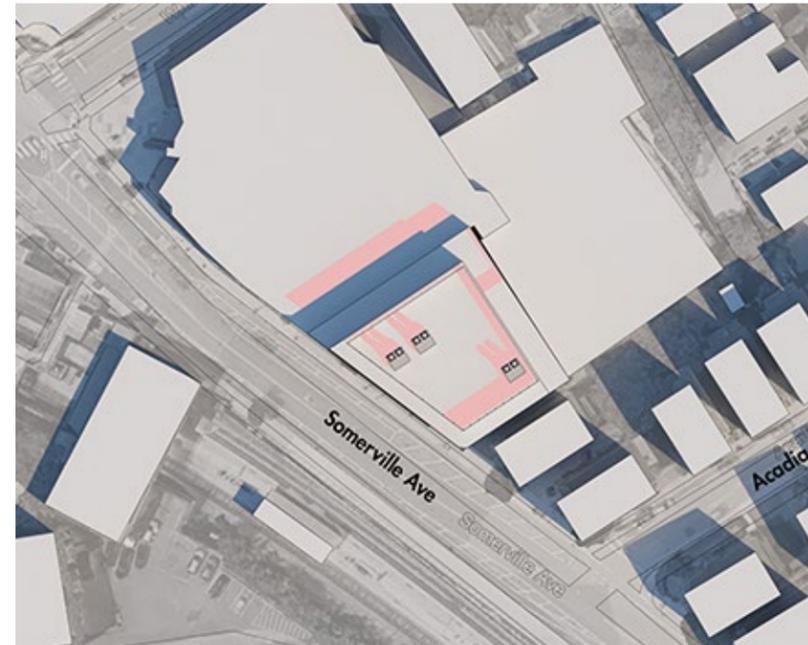


SHADOW STUDIES

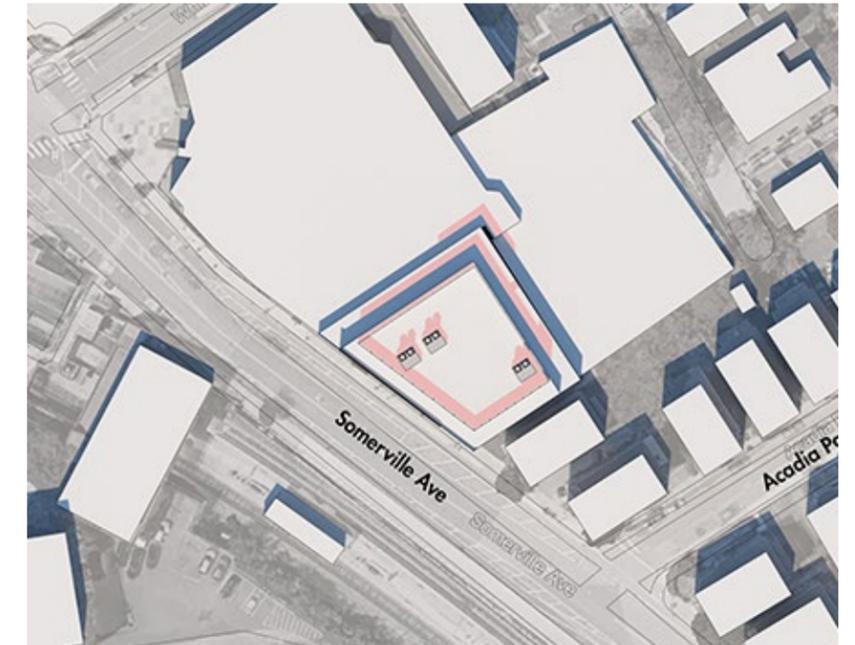
SPRING/FALL EQUINOX
JUNE 21



SUN PATH DIAGRAM



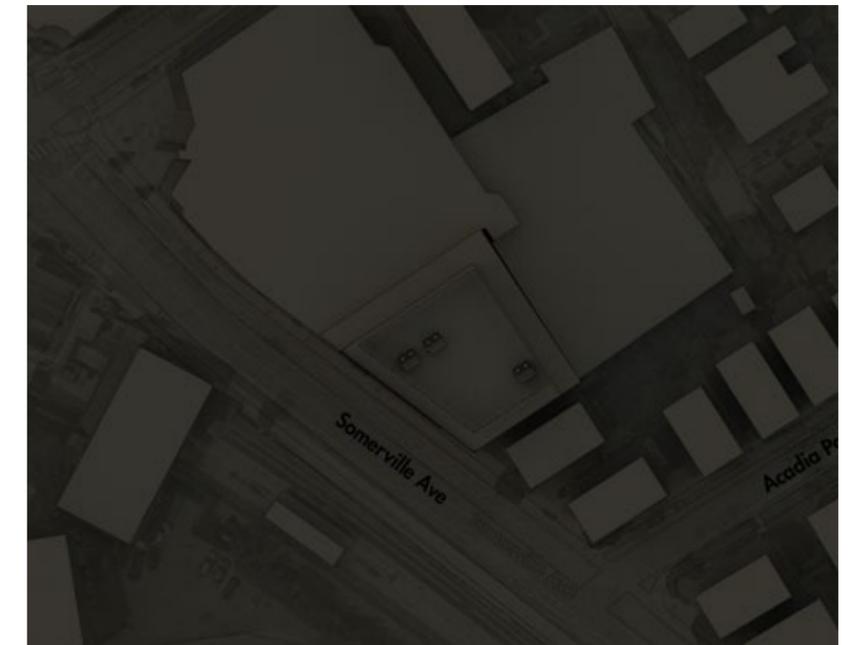
9am



12pm



3pm

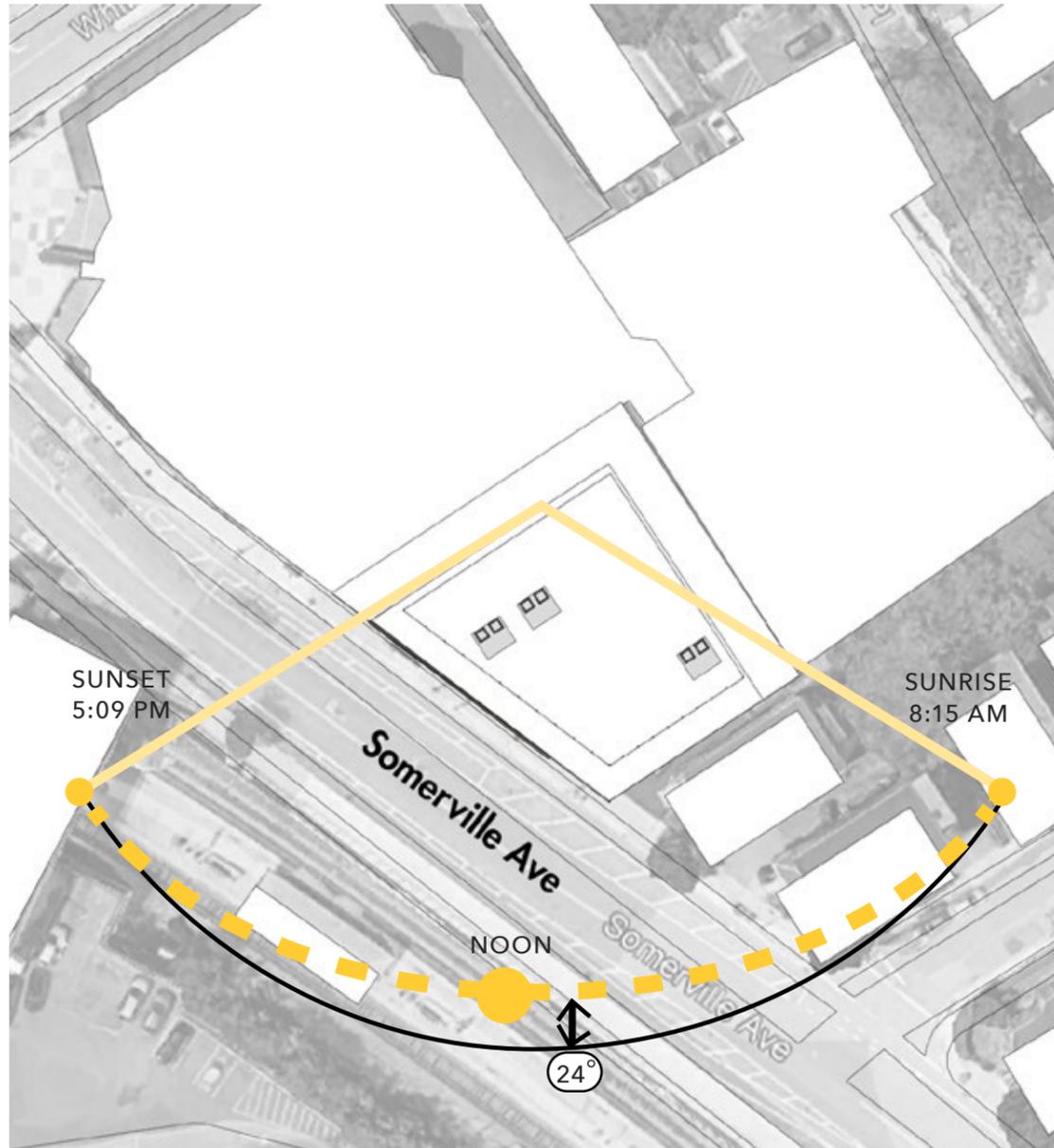


6pm



SHADOW STUDIES

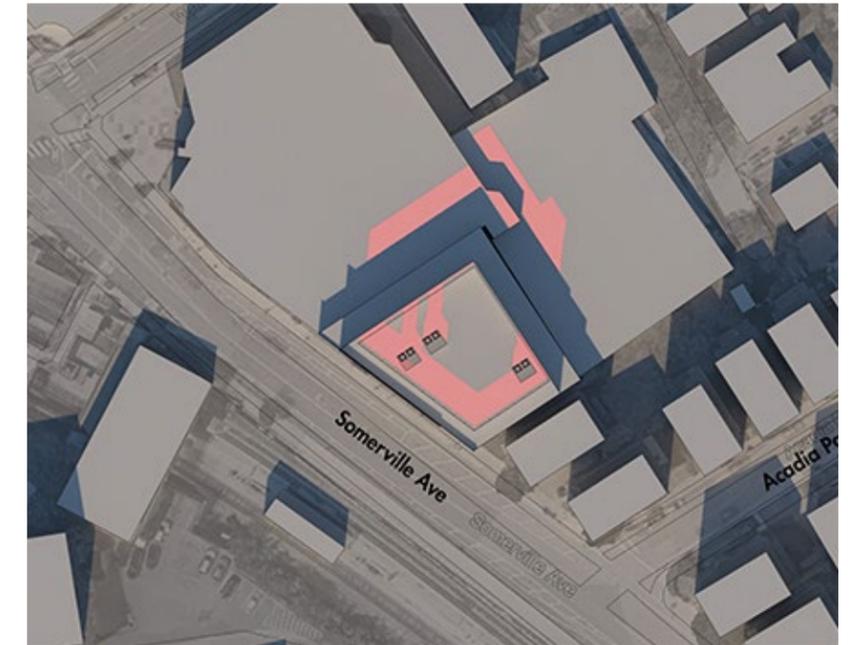
WINTER SOLSTICE - DEC 21



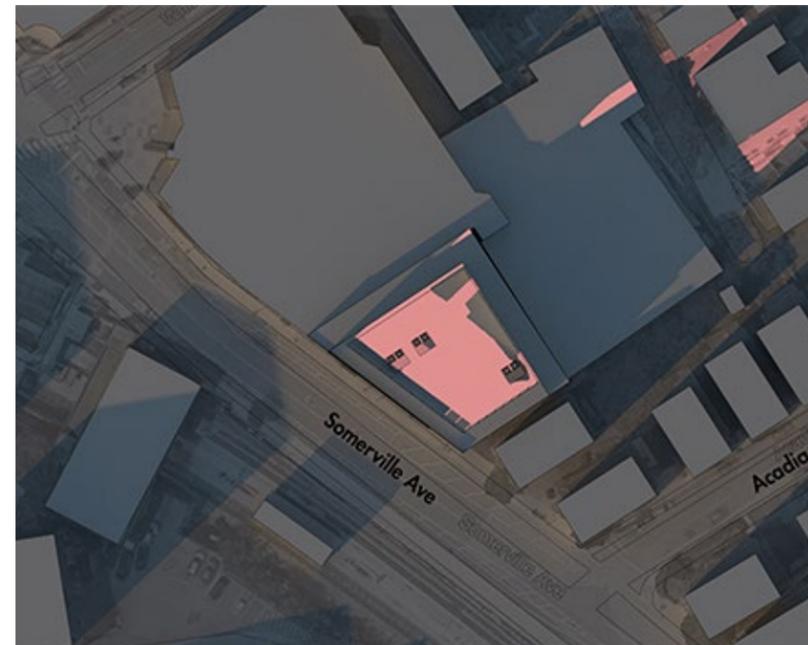
SUN PATH DIAGRAM



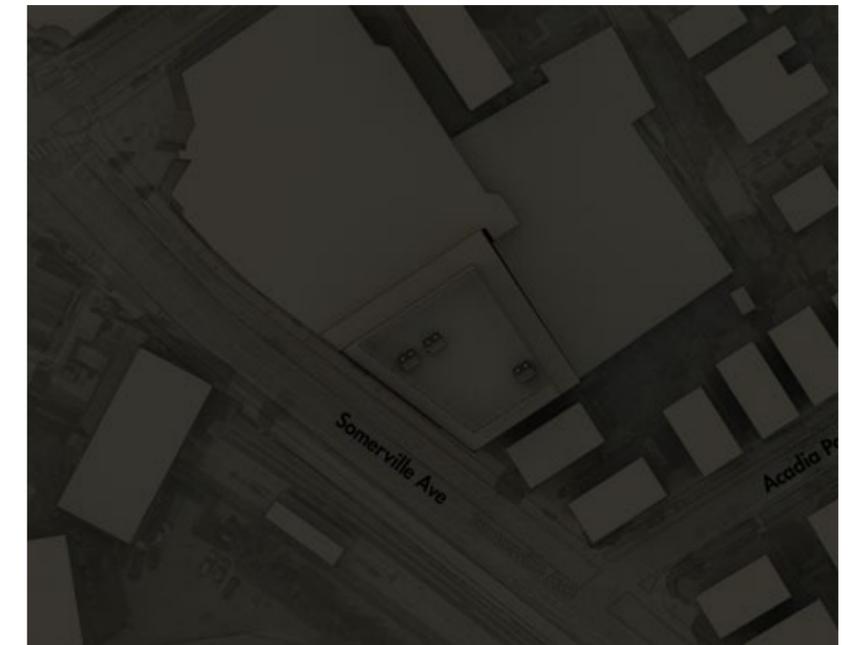
9am



12pm



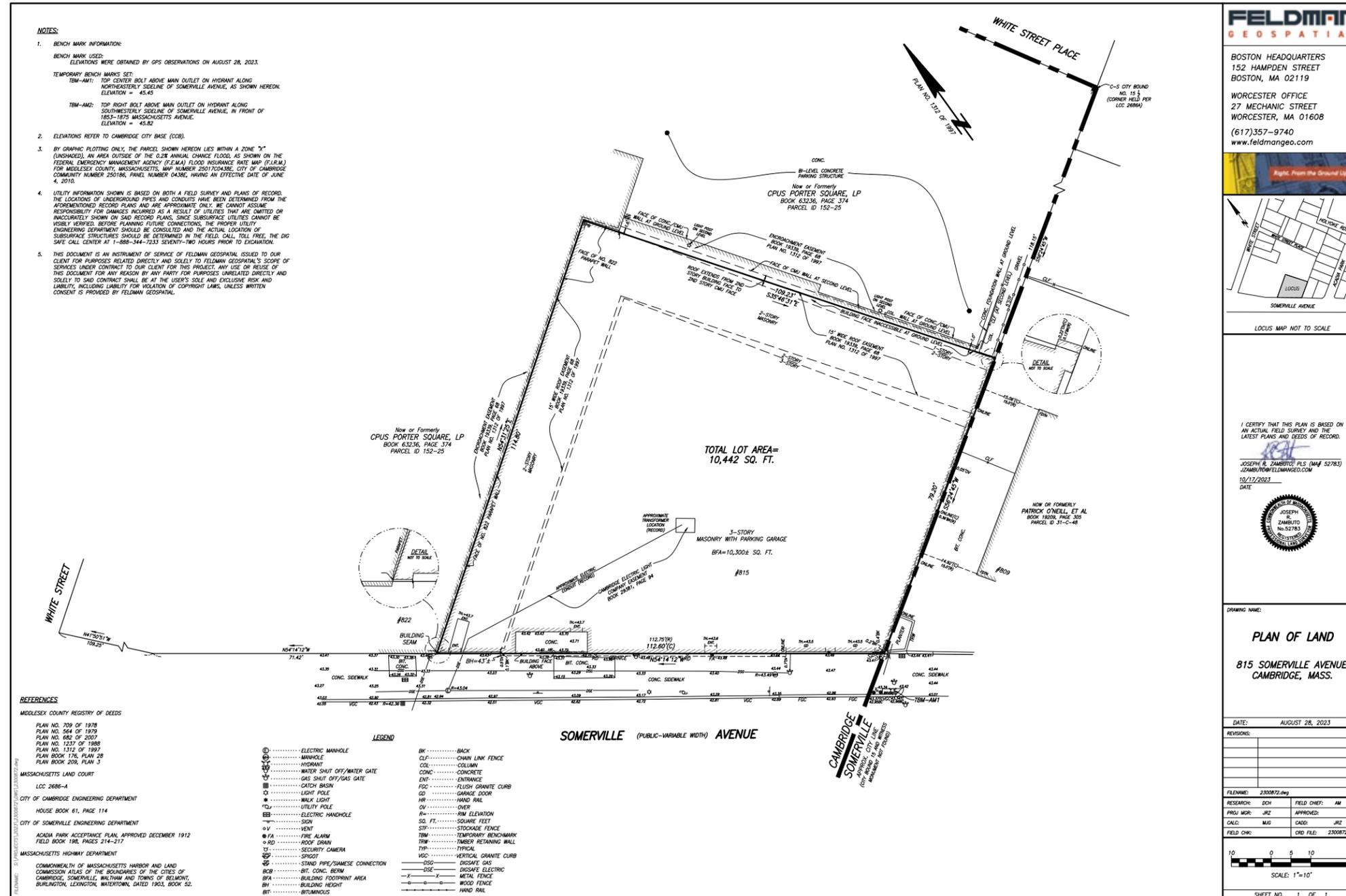
3pm



6pm



Existing Survey Plan



CDD Determination and/or comments for Special Permit submission

The Community Development Department (CDD) received the Green Factor (GF) documentation for the Special Permit stage. Pursuant to Section 22.96 of the Zoning Ordinance, CDD staff have reviewed the project's GF documentation and provide the following Determination and Summary of Compliance.

CDD Determination: The documentation provided by the Applicant is adequate and demonstrates compliance with the Green Factor Standard applicable to the Special Permit stage.

Summary of Compliance:

- Solar Reflectance Index of Roof – N/A (existing roof)
- Cool Score – 0 (existing cool score is 0 – not new construction or increased building footprint)

Green Building Requirements - Article 22.20, Section 22.24 of Cambridge Zoning Ordinance
Certification for Green Building Report - Special Permit Stage (Design Review)

Project: 815 Somerville Avenue

Date: July 14, 2023

CDD Determination and/or comments for Project Special Permit submission – Design Review

Project summary: 815 Somerville Avenue is a renovation of an existing 3-story office building in Porter Square into 28,000 SF of laboratory and office.

Green Building Report: 815 Somerville Avenue is expected to achieve LEED Gold certifiability with 61 credit points. The applicant has not confirmed that they are seeking formal LEED certification with USGBC.

Status: The Community Development Department (CDD) received the Green Building Report (GBR) for the Special Permit (Design Review) stage. Pursuant to Section 22.25.1 of the Zoning Ordinance, CDD staff have reviewed the project’s GBR and provide the following Determination, Summary of Compliance and Comments.

CDD Determination: The documentation provided by the Applicant is adequate and demonstrates compliance with the Green Building Requirements applicable to the Special Permit stage. A revised submission, with additional documentation specifications, EPDs and LCA narrative will be required at the Building Permit and Certificate of Occupancy stages.

Summary of Compliance:

Green Building Professional Affidavit Certification

Sarah Michelman, LEED AP BD+C of The Green Engineer, Inc., has been identified as the Green Building Professional for the project. The affidavit states that this professional has reviewed all relevant documents for this project and confirm to the best of their knowledge that those documents indicate that the project is being designed to meet the LEED v.4/v.4.1 requirements per Section 22.24 under Article 22.20 of the Cambridge Zoning Ordinance.

LEED Rating System Checklist, LEED and Net Zero Narrative

- Rating System: LEED v4 BD+C Core & Shell with v4.1 substitutions.
 - ASHRAE editions used = ASHRAE 90.1-2010 for LEED and ASHRAE 90.1-2013 for code compliance.
 - Energy use savings = 2% reduction compared to ASHRAE 90.1-2010 baseline.
 - Site EUI = 101 kBtu/SF-yr. & Source EUI (Stretch Code standards) = 283 kBtu/SF-yr.
 - GHG emissions reduction = 13%; and GHG intensity = 8.2 kgCO₂/SF.
 - Indoor water use reduction = 20%; and outdoor water use reduction = 100% for below LEED baseline.
 - Window-to-wall ratio = 40%; and U value for window = .57
 - LEED categories and their credit points:
 - Integrative Process – 1 point
 - Location and Transportation – 18 points
 - Sustainable Sites – 3 points
 - Water Efficiency – 5 points
 - Energy and Atmosphere – 13 points
 - Materials and Resources – 8 points
 - Indoor Environmental Quality – 5 points
 - Innovation – 5 points
 - Regional Priority – 3 points
- Total credit points = 61 points**

Comments:

As part of the Planning Board's continued design review and conditions, CDD staff expects the Applicant's design team to address the following comments and provide staff with additional requested information related to Net Zero Narrative and the latest energy modeling/analysis for the project and any preliminary embodied carbon assessment:

1. As part of the project's outreach, staff would like the design team to conduct additional outreach to Somerville neighbors, especially the adjacent neighbors and the City of Somerville.
2. Staff would like the Applicant to maximize the screening of roof top equipment and duct work to the maximum extent possible. In addition to the noise concerns that might result from the high velocity lab stacks, staff are concerned about the visual impact of mechanical equipment on the roof. There is extensive duct work that is spilling over on the roof and sides of the visible roof. The vertical ducts on the north and south side of the building are especially concerning.
3. As part of continuing design review, staff would like to see an update on the Net Zero Narrative. This should include schematic stage or design development stage building energy analysis to estimate/ confirm metrics e.g., site energy use intensity expected/annual site energy savings etc.
4. Since 815 Somerville is an existing building and based on the submittal/GBR's LEED credit points highlighted in MRc-1 credit (4), it is staff's understanding that only 60% of the existing building structural elements are being saved/reused. Please confirm. Staff also wonder if it is possible to achieve 75% reuse of existing building structural elements per LEED credit guidance.
5. Staff would like the design team to confirm the Massachusetts energy code compliance pathway and ASHRAE edition used for the project code compliance for the energy modeling moving forward.
6. Staff would like to see the Applicant pursue a formal LEED certification and confirm the number of LEED credit points and certification level. Staff believe that a third-party certification process such as LEED would reduce the amount of requested documentation for verification when staff has to ensure that a project is 'LEED certifiable'.

LEED Checklist

Y	?	N	INTEGRATIVE PROCESS		1
1	0	0	IPc1	Integrative Process	1

19	0	1	LOCATION & TRANSPORTATION		20
		N	LTc1	LEED for Neighborhood Development Location	20
2			LTc2	Sensitive Land Protection	2
2		1	LTc3	High Priority Site	2-3
6			LTc4	Surrounding Density and Diverse Uses	1-6
6			LTc5	Access to Quality Transit	1-5
1			LTc6	Bicycle Facilities	1
1			LTc7	Reduced Parking Footprint	1
1			LTc8	Electric Vehicles	1

3	1	7	SUSTAINABLE SITES		11
Y			SSpr1	Construction Activity Pollution Prevention	Required
1			SSc1	Site Assessment	1
		2	SSc2	Site Development - Protect or Restore Habitat	1-2
		1	SSc3	Open Space	1
		3	SSc4	Rainwater Management	2-3
1		1	SSc5	Heat Island Reduction	1-2
	1		SSc6	Light Pollution Reduction	1
1			SSc7	Tenant Design and Construction Guidelines	1

5	0	6	WATER EFFICIENCY		11
Y			WEpr1	Outdoor Water Use Reduction	Required
Y			WEpr2	Indoor Water Use Reduction	Required
Y			WEpr3	Building-Level Water Metering	Required
3			WEc1	Outdoor Water Use Reduction	1-2
2		3	WEc2	Indoor Water Use Reduction	1-6
		2	WEc3	Cooling Tower Water Use	2
		1	WEc4	Water Metering	1

13	3	17	ENERGY & ATMOSPHERE		33
Y			EApr1	Fundamental Commissioning and Verification	Required
Y			EApr2	Minimum Energy Performance	Required
Y			EApr3	Building-Level Energy Metering	Required
Y			EApr4	Fundamental Refrigerant Management	Required
3		3	EAc1	Enhanced Commissioning	2-6
10	2	6	EAc2	Optimize Energy Performance	1-18
		1	EAc3	Advanced Energy Metering	1
		2	EAc4	Demand Response	1-2
		3	EAc5	Renewable Energy Production	1-3
	1		EAc6	Enhanced Refrigerant Management	1
		2	EAc7	Green Power and Carbon Offsets	1-2

7	3	4	MATERIALS & RESOURCES		14
Y			MRpr1	Storage and Collection of Recyclables	Required
Y			MRpr2	Construction and Demolition Waste Management Planning	Required
3	1	2	MRC1	Building Life-Cycle Impact Reduction	2-6
1	1		MRC2	Building Product Disclosure and Optimization - EPD	1-2
		2	MRC3	Building Product Disclosure and Optimization - Sourcing of Raw Materials	1-2
1	1		MRC4	Building Product Disclosure and Optimization - Material Ingredients	1-2
2			MRC5	Construction and Demolition Waste Management	1-2

5	2	3	INDOOR ENVIRONMENTAL QUALITY		10
Y			IEQpr1	Minimum Indoor Air Quality Performance	Required
Y			IEQpr2	Environmental Tobacco Smoke Control	Required
Y			IEQpr3	Minimum Acoustic Performance	Required
1	1		IEQc1	Enhanced Indoor Air Quality Strategies	2
3			IEQc2	Low-Emitting Materials	3
1			IEQc3	Construction Indoor Air Quality Management Plan	1
		3	IEQc7	Daylight	3
	1		IEQc8	Quality Views	1

5	0	1	INNOVATION		6
1			INc1.1	Innovation: Purchasing - Lamps	1
1			INc1.2	EP: EPDs	1
1			INc1.3	EP: Reduced Parking Footprint	1
		1	INc1.4	TBD	1
1			INc1.5	Pilot: Integrative Analysis of Building Materials	1
1			INc2	LEED Accredited Professional	1

3	0	1	REGIONAL PRIORITY (underlined)		4
		1	RPc1	Regional: Rainwater Management (2 pts)	1
1			RPc2	Regional: Optimize Energy Performance (8 pts)	1
1			RPc3	Regional: Building Life-Cycle Reduction (2 pts)	1
1			RPc4	Regional: High Priority Site (2 pts)	1
			RPcX	Regional Priority Credit: Indoor Water Use Reduction (4 pts)	
			RPcX	Regional Priority Credit: Renewable Energy Production (2 pts)	

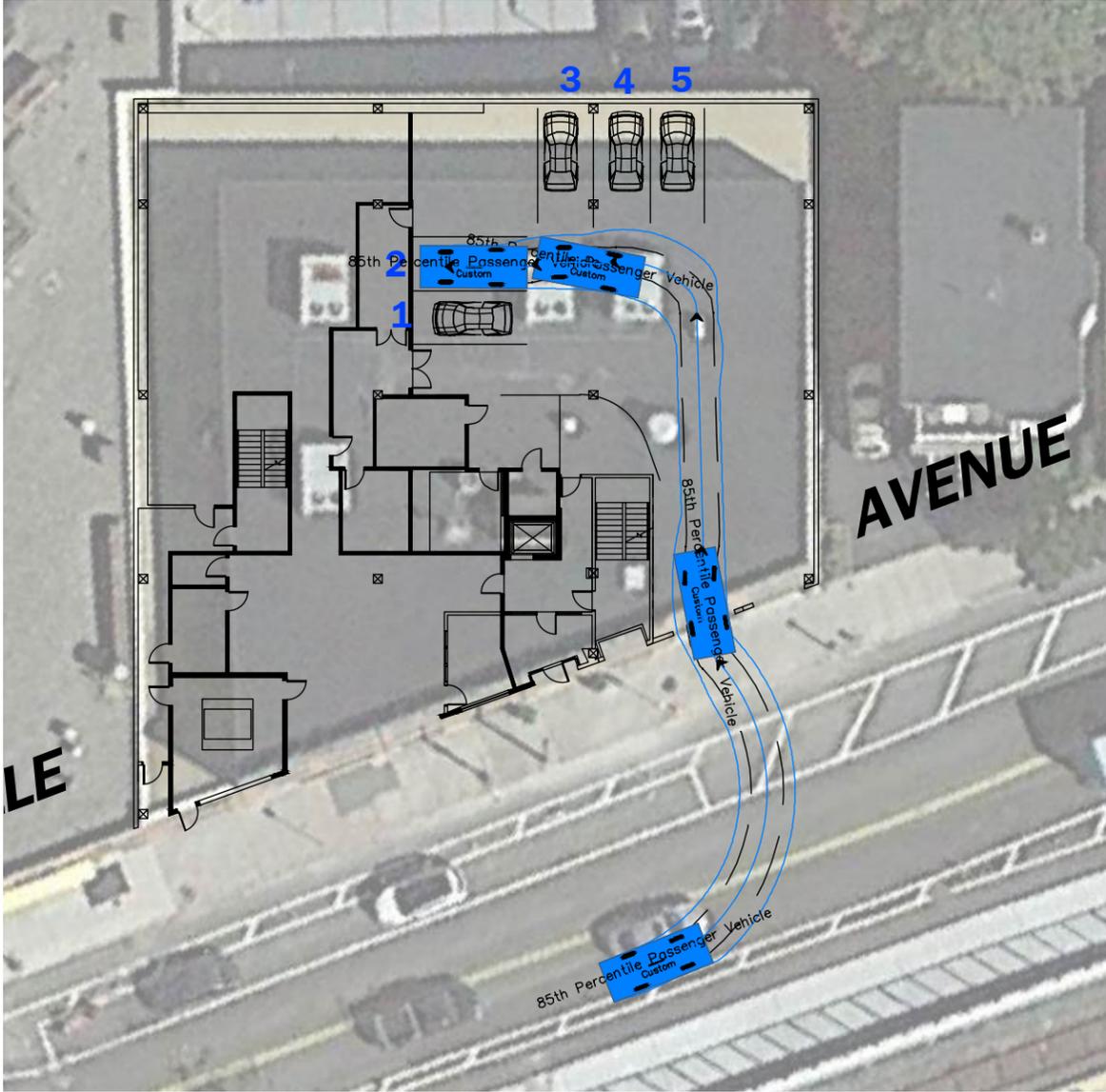
61	9	40	PROJECT TOTALS (Certification Estimates)		110
----	---	----	--	--	-----

Certified: 40-49 points Silver: 50-59 points Gold: 60-79 points Platinum: 80+ points

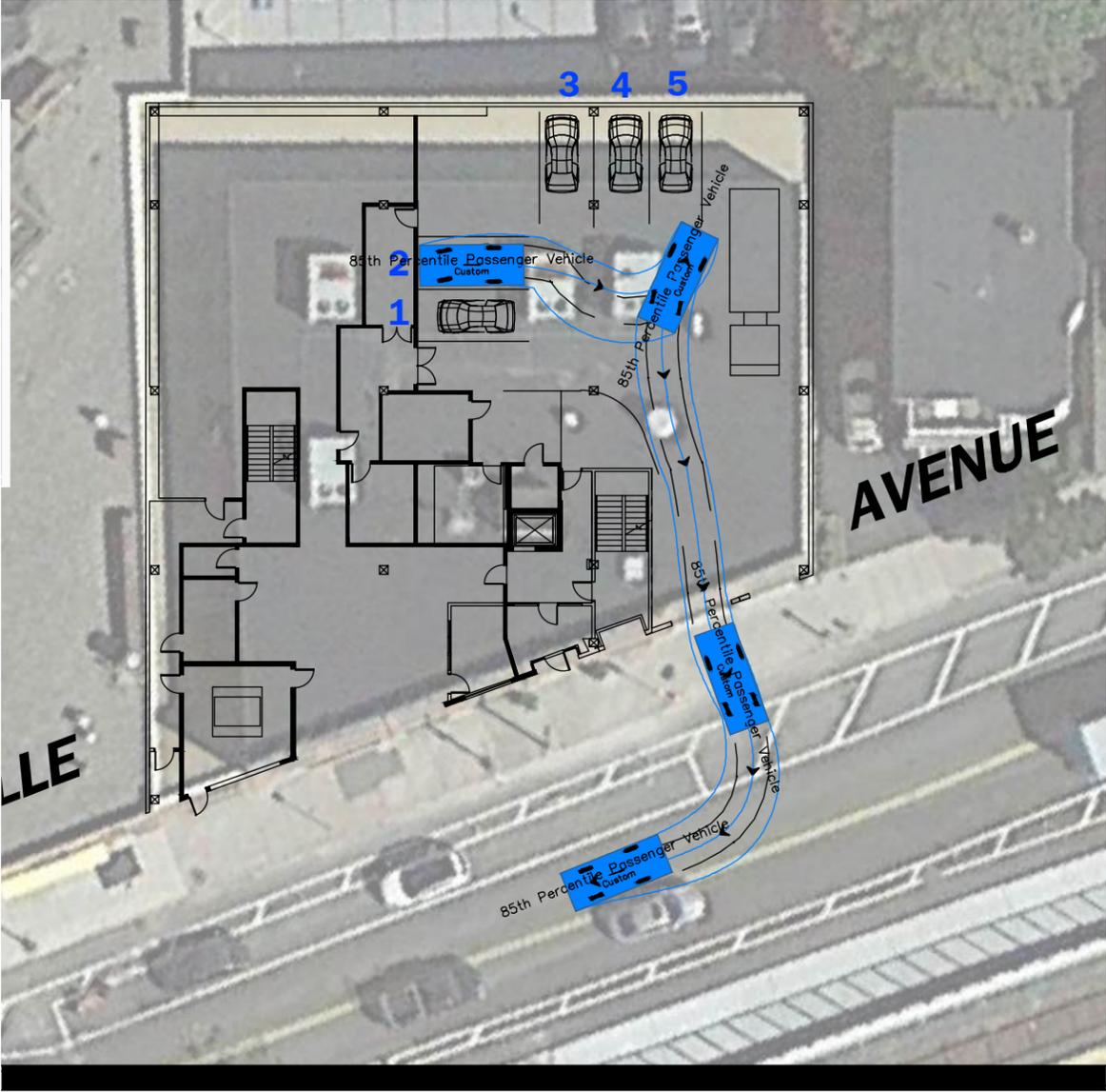


REFER TO ARTICLE 22 | GREEN BUILDING REPORT
FOR COMPLETE INFORMATION

Transportation Diagrams

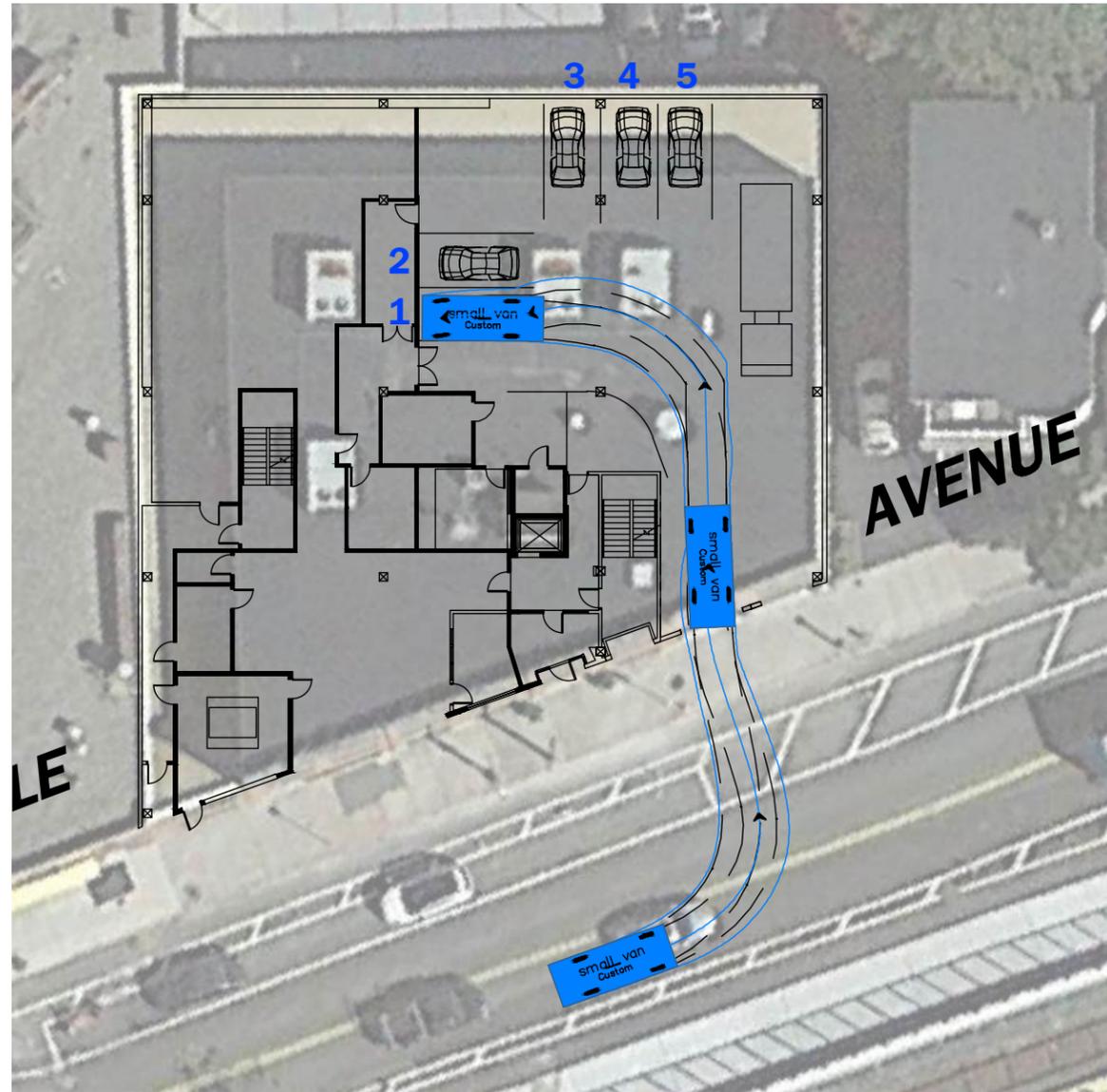


PASSENGER CAR ACCESS

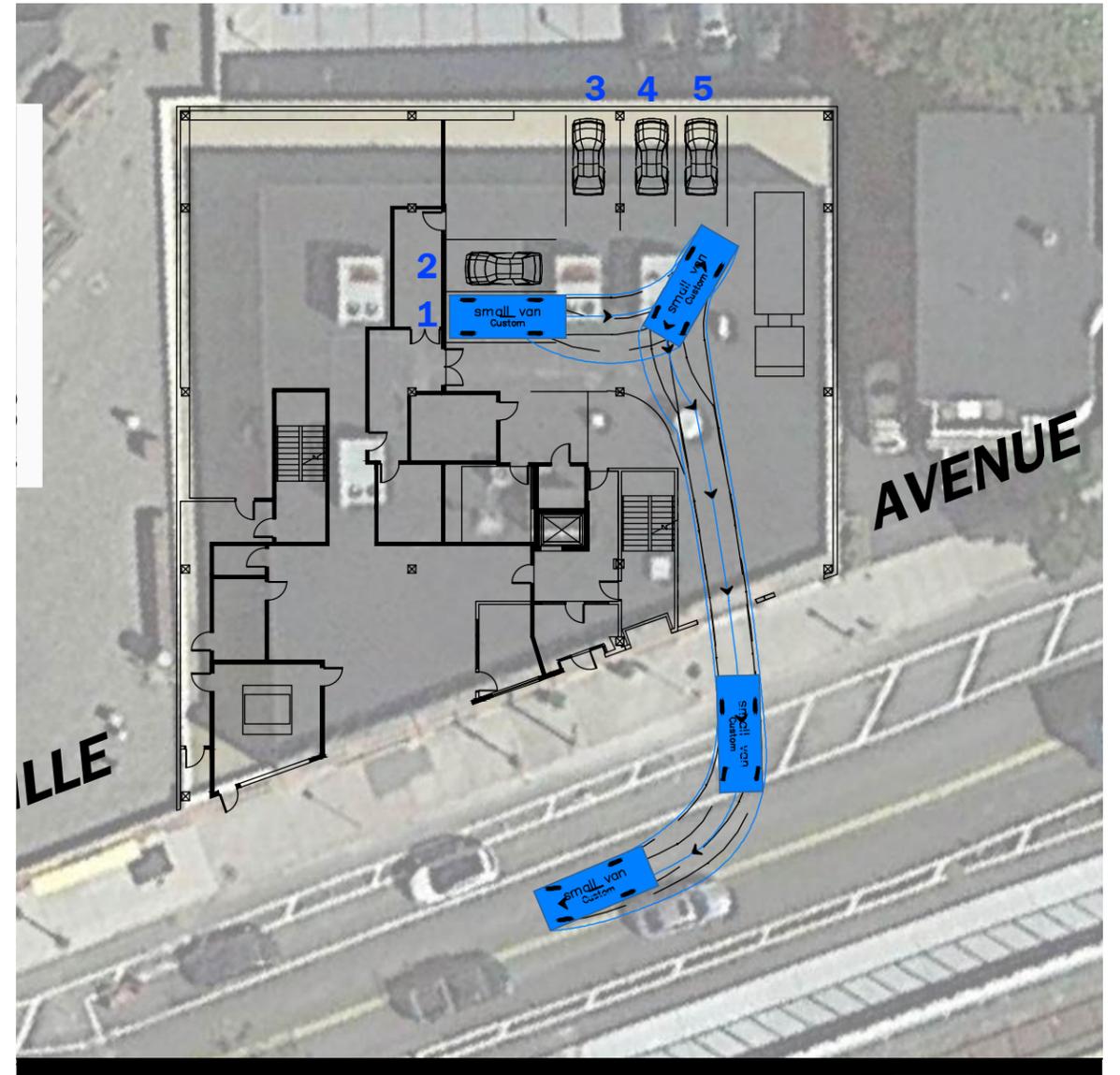


PASSENGER CAR EGRESS

Transportation Diagrams

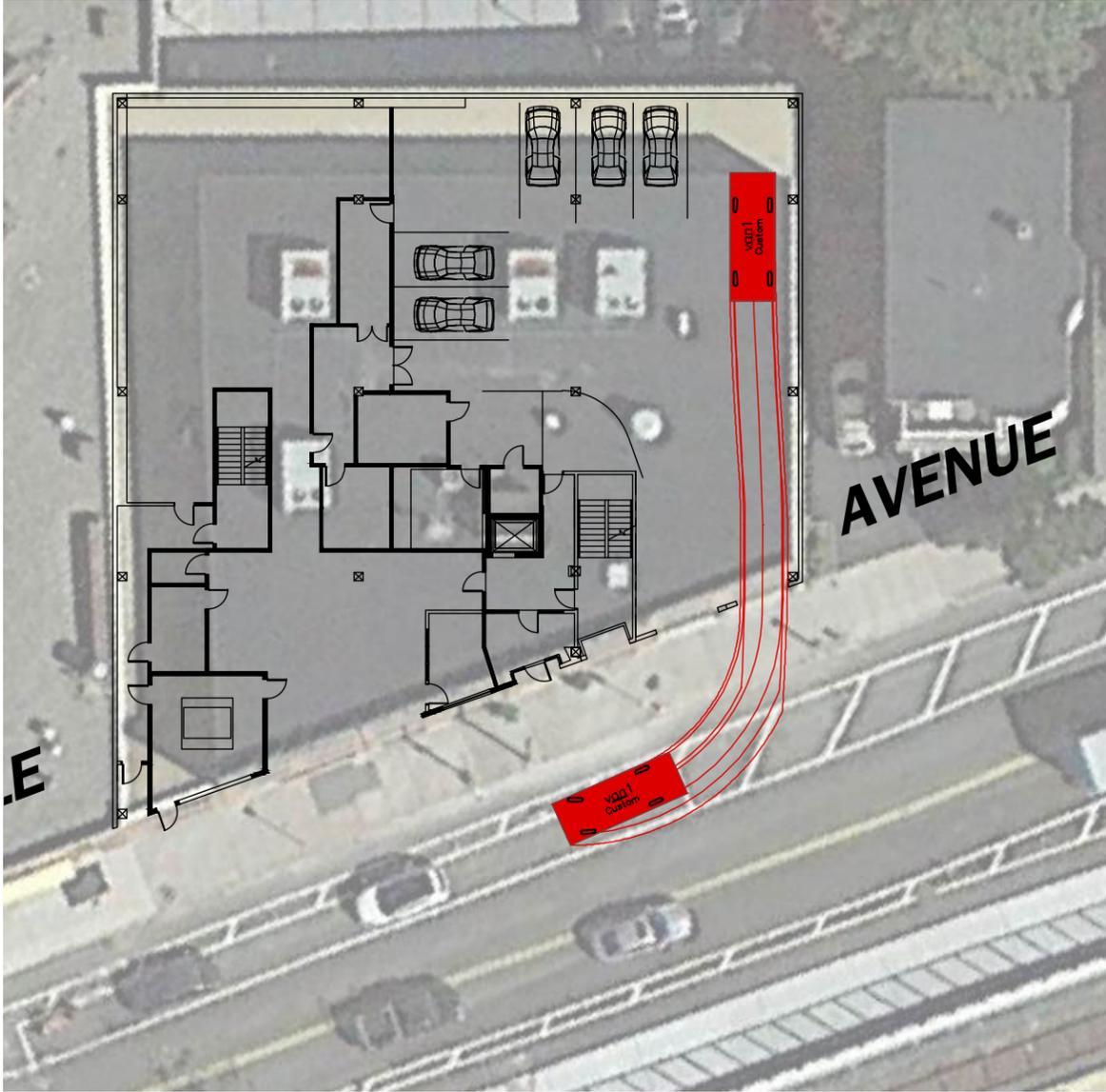


ACCESSIBLE VAN ACCESS

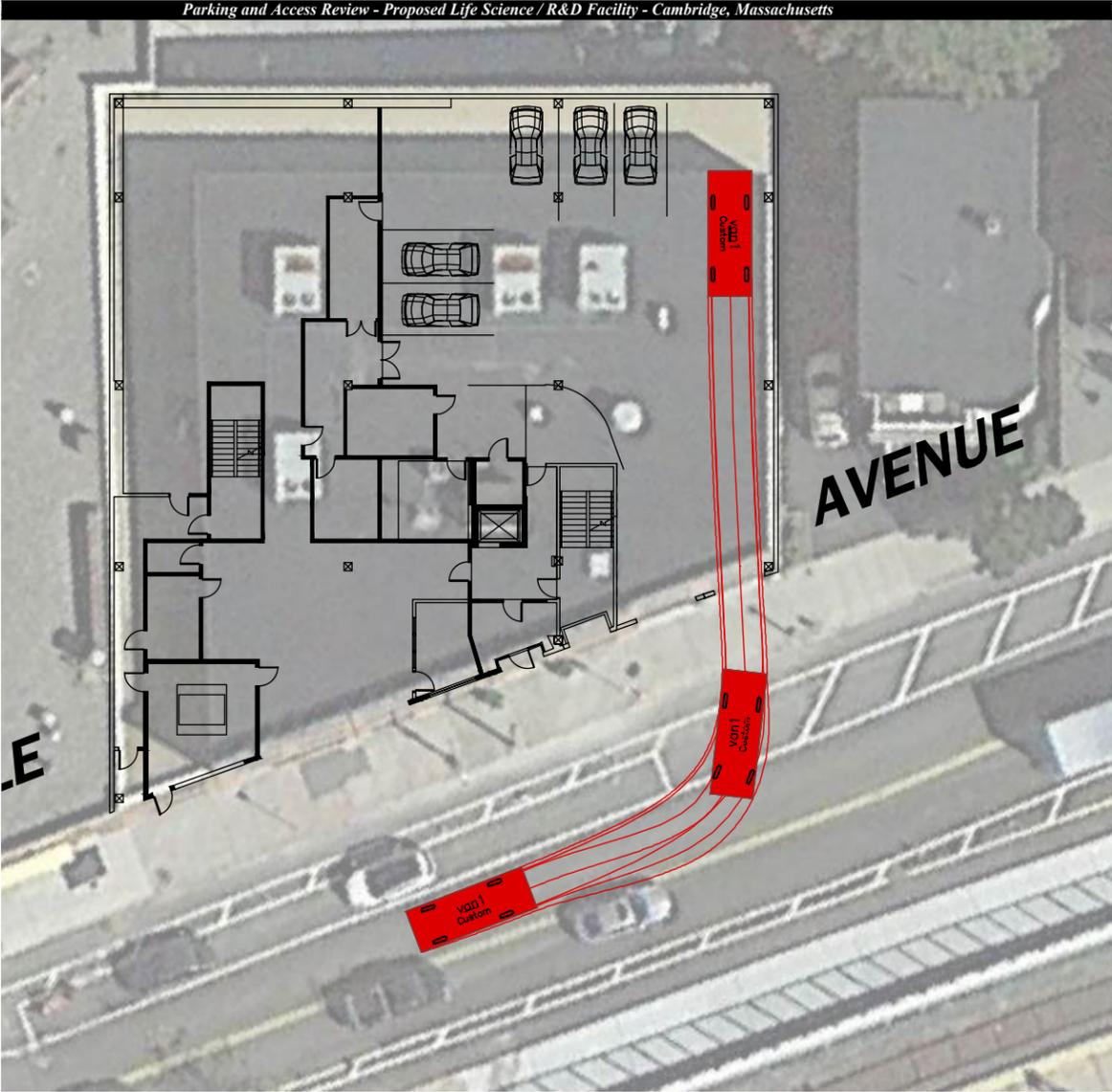


ACCESSIBLE VAN EGRESS

Transportation Diagrams

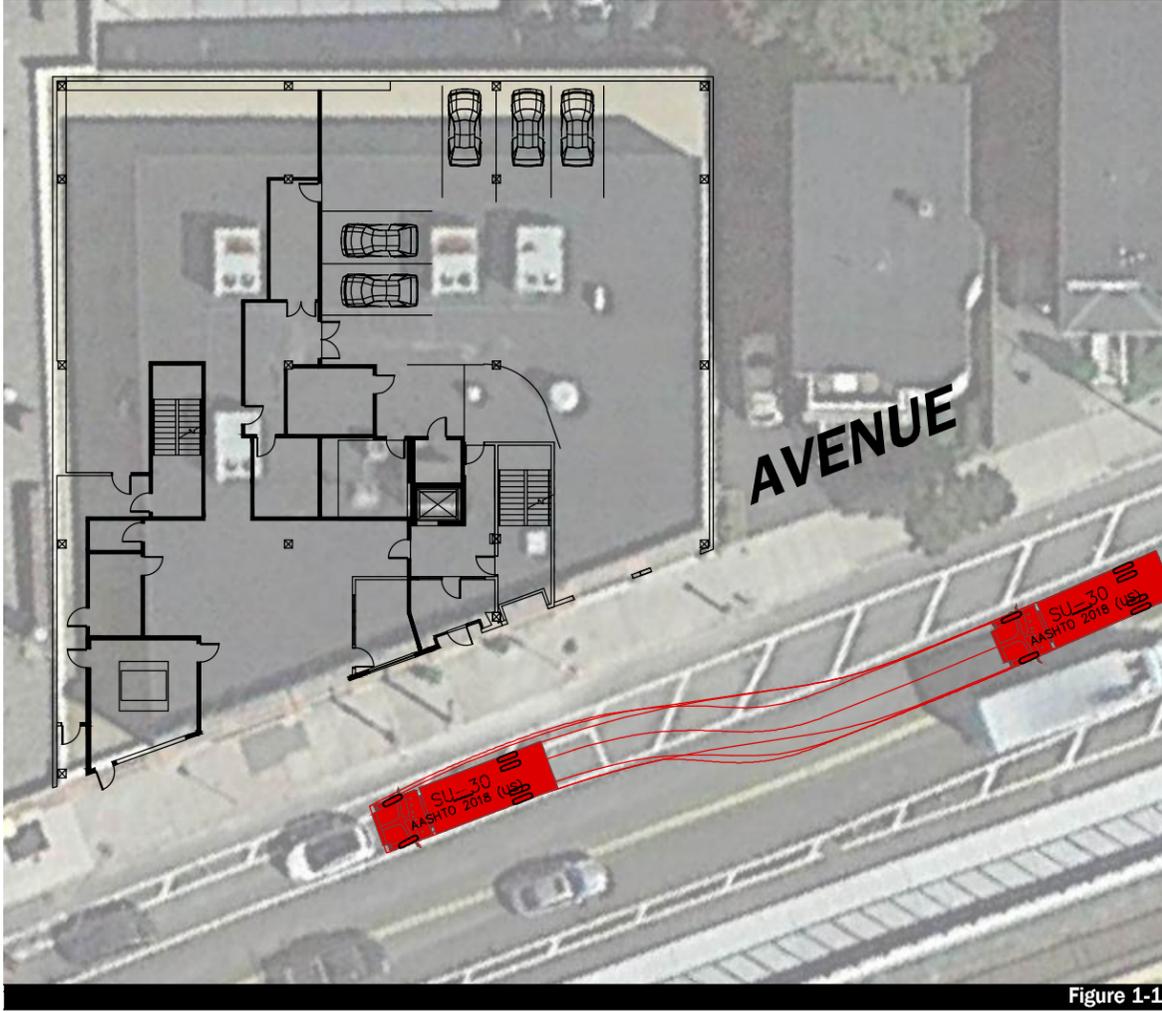


PANEL VAN ACCESS

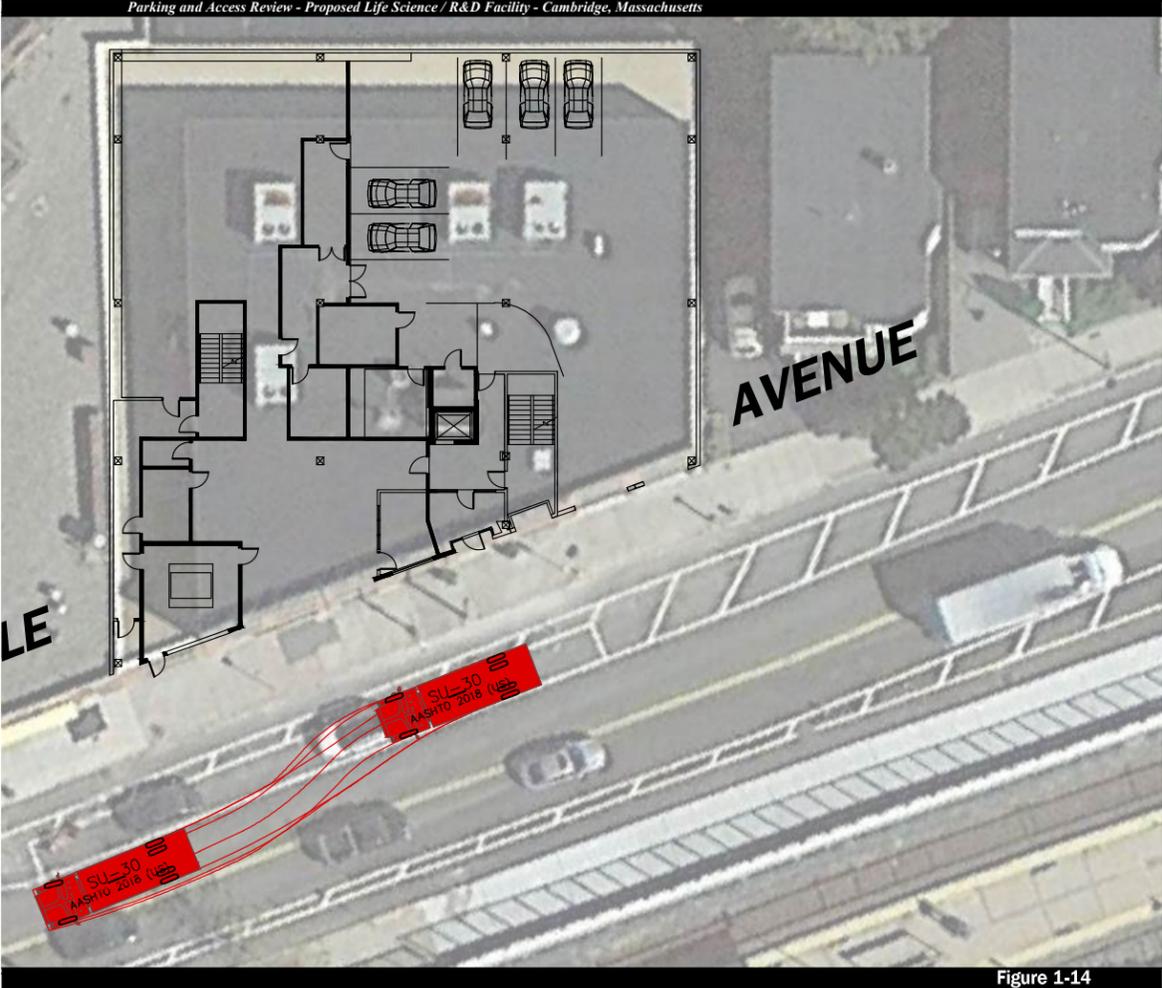


PANEL VAN EGRESS

Transportation Diagrams



TRUCK ACCESS



TRUCK EGRESS

MEMORANDUM

TO: Ms. Brooke McKenna,
Transportation Commissioner *and*
Mr. Adam Shulman, AICP,
Transportation Planner
Department of Traffic, Parking, and
Transportation
City of Cambridge
344 Broadway
Cambridge, MA 02139

FROM: Scott W. Thornton, P.E.
Vanasse & Associates, Inc.
35 New England Business Center Drive
Suite 140
Andover, MA 01810
(978) 474-8800

DATE: December 18, 2023

RE: 9377

SUBJECT: Transportation Demand Management Measures – 815 Somerville Avenue
Cambridge, Massachusetts

Vanasse & Associates, Inc. (VAI) has reviewed transportation conditions associated with the proposed conversion of the existing office building located at 815 Somerville Avenue to a Life Science/R&D facility. The following identifies Transportation Demand Management (TDM) measures for the site, intended to minimize vehicle trip generation and encourage the use of sustainable transportation for visitors and employees of the site. It should be noted that the Project will provide 5 vehicle parking spaces on site. With an aggressive Transportation Demand Management (TDM) program, it is anticipated that the supply will address any parking shortfall. These measures are identified below:

- Charge market rates for parking, separate from building area lease costs;
- Require that tenants charge employees directly for parking;
- Require that employees will be charged by the day rather than by the month to promote flexibility in mode choice
- Provide paper information about transit routes and schedules and other sustainable modes of transportation including pedestrian and bicycle paths will be provided on-site in a central location.
- Require that tenants provide a 100 percent subsidy towards an MBTA pass via a pre-tax deduction program. The pass will cover bus, subway, and commuter rail services.
- Require tenants to provide a Gold-Level Bluebikes membership to employees to encourage commuting by bicycle. Employees can use any of the Bluebikes stations located nearby, such as the Porter Square Station, the Lesley University Station, or the Wilson Square Station.
- Require tenants to provide flexible work schedules to encourage employees to access the site during off-peak times and work from home when possible.

It is anticipated that the site's location within 250 feet of the Porter MBTA station and within 600 feet of 3 Bluebikes stations coupled with implementation of an aggressive TDM program will address any parking shortfall.

cc: File





October 11, 2023

Todd Greenfield
SVP – Director of Development
KS Partners LLC
296 Concord Road, Suite 100
Billerica, MA

Via Email: tgreenfield@kspartnersllc.com

Subject: Measurement Results and Noise Control Recommendations
815 Somerville Ave. Lab Core and Shell
Cambridge, MA
Project Number J636911

Dear Todd:

We have evaluated the community noise impact of the proposed renovation to 815 Somerville Ave in Cambridge, MA (the facility). This report summarizes our findings and recommendations.

SUMMARY

Noise controls are required in order that facility sound achieve the regulatory criteria. This report details a noise control strategy that represents Best Available Control Technology (BACT), including quiet equipment selection, sound attenuators, and extensive rooftop screens. With the controls as recommended, we expect that facility sound will generally be less than the quietest ambient levels we measured during our one week existing conditions survey.

CRITERIA

We understand that noise emissions from the project are subject to the local noise ordinances of the cities of Somerville and Cambridge, as well as the state noise policy. The following section summarizes the project's regulatory requirements with respect to noise.

SOMERVILLE NOISE ORDINANCE

Division 2 of Article VII of the Somerville Code of Ordinances contains the City's Noise Control Ordinance, with the measurable limits established in Section 9-117 given in the excerpt below. We understand that facility mechanical equipment will operate continuously day and night, as described by the "In excess of 2 hours" row of the table below¹. For such sound transmitted into a residential district, the Somerville limit is 40 dBA (red box).

¹ The mechanical engineer should confirm this assumption, as the regulatory limits of Somerville are significantly different as a function of duration.

In the case of the emergency generator, we understand that routine maintenance testing will occur during weekday hours and last for about ½ hour. The sound level limit for this type of operation is 70 dBA (orange box), significantly greater than the nighttime residential limit for continuously operating equipment.

Duration of Sound	I	II	III
	7 AM 6 PM (all districts)	6 PM 10 PM (residential districts) 6PM 7AM (all other districts)	10 PM 7 AM (residential districts)
Less than 10 minutes	75 db	70 db	60 db
Between 10 minutes and 2 hours	70 db	60 db	50 db
In excess of 2 hours	60 db	50 db	40 db

In addition to the numeric limits, Section 9-117.1 states:

“Any activity, not expressly exempted by this section, which creates or produces sound, regardless of frequency, exceeding the ambient noise levels at the property line of any property....above the ambient noise levels as designated in the following table, at the time and place and for the duration then mentioned, shall be deemed to be a violation of this article, but the following enumeration shall not be deemed to be exclusive.”

We interpret the provisions of Section 9-117.1 to mean that sound which does not exceed the ambient level is not subject to the limits of the table, though we find the language to be somewhat ambiguous.

CAMBRIDGE NOISE ORDINANCE

Chapter 8.16 of the Cambridge municipal code contains a noise ordinance that establishes numeric limits on facility noise imissions². These limits are summarized in the table below.

TABLE 8.16.060E

TABLE OF ZONING DISTRICT NOISE STANDARDS

Maximum Allowable Octave Band Sound Pressure Levels

Octave Band Center (Hz)	Residential Area		Residential in Industrial		Commercial Area	Industry Area
	Daytime	Other Times	Daytime	Other Times	Anytime	Anytime
31.5	76	68	79	72	79	83
63	75	67	78	71	78	82
125	69	61	73	65	73	77
250	62	52	68	57	68	73
500	56	46	62	51	62	67
1,000	50	40	56	45	56	61
2,000	45	33	51	39	51	57
4,000	40	28	47	34	47	53
8,000	38	26	44	32	44	50
LA	60	50	65	55	65	70

² https://library.municode.com/ma/cambridge/codes/code_of_ordinances?nodetd=TIT8HESA_CH8.16NOCO

MASSDEP NOISE POLICY

310 CMR 7.10³ establishes state-wide noise standards that are predicated on maximum incremental increases to ambient sound levels. The Massachusetts Department of Environmental Protection (MassDEP) Division of Air Quality Control (DAQC) is responsible for enforcing these standards, and do so in accordance with their policy document DAQC-90-001⁴.

A source of sound will be considered to be violating the MassDEP noise policy if it increases the broadband sound level by more than 10 dBA above ambient, or produces a “pure tone” condition⁵. The ambient level is defined as the background A-weighted sound level that is exceeded 90% of the time, corresponding to the acoustic descriptor L_{A90} .

EXISTING CONDITIONS

FIGURE 1 presents the location where we measured existing ambient sound levels for a one-week period, with the measured data presented in FIGURE 2. We have the following observations of these data:

- The lowest ambient background sound level $L_{A90, 1hr}$ was 46 dBA.
- The associated MassDEP regulatory limit for facility sound would be 56 dBA during the quietest hours of the night. This is significantly in-excess of the regulatory limits established by the Somerville and Cambridge ordinances.
- We expect that project imissions that are 2 – 3 dBA below this ambient level would generally be perceived as inaudible, assuming the imissions are broadband (i.e., not tonal) in character.

COMPUTER MODELING

MODELING METHODS

A computer model of facility sound has been developed using CadnaA (DataKustic GmbH, 2023 MR1, build 197.5343). This model implements the methods and equations of ISO 9613-2 “Attenuation of sound during propagation outdoors – Part 2: General method of calculation”. In order to estimate sound levels at community locations, the following inputs have been included in the CadnaA model:

- Source sound power level in octave bands, L_w (see Appendix A)
- Slant distance from source to receiver, A_{div}
- Screening by earthen terrain (based on USGS digital terrain model) and by solid objects, A_{bar}
- Absorption of sound by the atmosphere, A_{atm} (10 °C, 70% humidity)
- Absorption of sound by porous ground, A_{gr} ($G=0.1$ for paved surfaces, $G=0.5$ for all other surfaces)
- Source and receiver height above grade (based on equipment height and maximum number of floors at each residence)

We have assumed that the ACCUs would operate at maximum 80% speed during nighttime hours. Two orders of reflection have been included in the computer model in order to ensure that secondary sound paths (i.e., reflections from buildings, barriers, et cetera) are properly controlled.

³ <https://www.mass.gov/doc/310-cmr-700-air-pollution-control-regulations/download>

⁴ <https://www.mass.gov/doc/massdep-noise-policy/download>

⁵ When the sound level in any octave band exceeds the level in both adjacent bands by 3 dB or more.

FACILITY SOURCES

The CadnaA model includes the following mechanical equipment items:

- (3) Strobic exhaust fans (EF1, EF2 and EF3)
- (12) ACCUs
- (3) DOAS units
- (3) RTUs
- (1) Generator

In addition, we have reviewed the emissions of the proposed natural gas emergency backup generator. The generator is available with either a “Weather” enclosure (79 dBA at 7 m) and a “Weather and Sound” enclosure (70 dBA at 7 m). We have assumed the “Weather” enclosure in our computer modeling. The generator will be tested for about ½ hour during weekday hours. We have not reviewed the impact of generator emissions during late-night power outages, and assume that such emissions would not generally be detrimental to the community during infrequent emergencies.

MODEL RESULTS

V1 – Mechanical Equipment, No Controls

FIGURE 3 presents estimated sound levels with facility equipment as designed. As shown, the model predicts noise levels as high as 56 dB at the façade of buildings to the south and southeast of the project location without noise control. These buildings are located in Somerville, which limits noise sources that operate in excess of 2 hours to 40 dBA during night time.

V2 – Mechanical Equipment, With Controls

FIGURE 4 presents estimated sound levels with noise controls provided for facility equipment as described in the following section. Levels at the nearest residential location in Somerville are about 42 dBA with controls. This is slightly in excess of the Somerville Noise Ordinance.

However, the site and environs are currently impacted by ambient noise, such that the lowest level that might be observed in the existing environment is on the order of 46 dBA (see FIGURE 2). From this perspective, we expect that facility sound as predicted would be generally inaudible.

V3 – Mechanical Equipment and Emergency Generator, With Controls

FIGURE 5 presents estimated sound levels typical of V2, but including the emissions of the emergency generator during daytime hours. As shown, sound levels produced by operation of the generator as specified above are consistent with the regulatory criteria.

NOISE CONTROL RECOMMENDATIONS

SOUND ATTENUATORS

We recommend that you include the 4’ Strobic discharge attenuators proposed by the mechanical engineer for all the lab exhaust fans, with the recommended minimum dynamic insertion loss as shown in TABLE I.

TABLE I: Attenuator recommended minimum dynamic insertion loss, DIL [dB]

Frequency [Hz]	63	125	250	500	1000	2000	4000	8000
DIL [dB]	0	5	11	14	15	15	10	6

ROOFTOP BARRIER WALLS

High Roof Screen

Our model assumes that the currently proposed 10’ tall screen wall on the high roof will remain, as shown in FIGURE 6. There is no benefit to a sound-absorptive face for this barrier.

EF-3

We do not expect that the 4’ Strobic discharge attenuator alone will be sufficient to reduce EF-3 sound to project design goals. In this case, we recommend that you increase the height of the screen wall around EF-3 to 15’, as shown in FIGURE 6. Note also the recommended barrier leg running north-south, which decreases community sound levels directly to the south by about 1 – 2 dBA. There is no benefit to a sound-absorptive face for this barrier.

Condensing Units

We have evaluated the impact of two vendor OEM noise control packages, as provided by BRD/Hushcore and identified as “Unitary” and “Summit”. These controls are expected to provide about 5 and 10 dBA of noise reduction, respectively. Both systems are insufficient to meet the project goals.

Rather, we recommend that you construct a system of 12’ tall sound barrier walls around the ACCUs, also detailed in FIGURE 6. The side facing the equipment should have a sound-absorptive treatment.

Barrier Requirements

In the cases described above, we understand that a solid, non-louvered wall can achieve the equipment airflow requirements. In this case, barrier systems should be selected with panels achieving about STC-30 or 4 lbs/sq ft surface weight. An undercut at the bottom of the barrier up to 12” is acceptable to facilitate the clearing of accumulated snow.

DOAS UNIT SOURCE CONTROLS

Sound produced by EF-3 and the ACCUs controls community sound levels, and further mitigating these noise sources beyond the BACT described above is impractical. Were you to pursue additional noise controls, we expect a 2 dBA reduction to community sound levels would be observed were you to provide Kinetics KCAL acoustic louvers for the outside air inlet and exhaust air discharge, and a BRD Unitary system atop the DOAS condenser section. We have not included such measures in the results of our computer modeling, but would be pleased to explore them further with your team.

VIBRATION ISOLATION RECOMMENDATIONS

We recommend that you provide steel spring vibration isolators for the DOAS, RTU, and ACCU units. These isolators should be sized to achieve 0.75” static deflection under load. In the case of the ACCU units, we expect that you will be able to insert the isolator between the bottom of unit and top of the Sling Stands that are proposed for this equipment. Acentech should review the shop drawings for these isolators.

* * * * *

Please contact me directly if you have any questions or comments regarding this information at acarballeira@acentech.com or 617-499-8025.

Sincerely,

A handwritten signature in black ink, appearing to read "Andy C.", with a stylized flourish at the end.

Andy Carballeira, INCE Bd Cert
Principal | Acoustics

Cc: Esmail Memarzadeh , Rose Mary Su (Acentech)

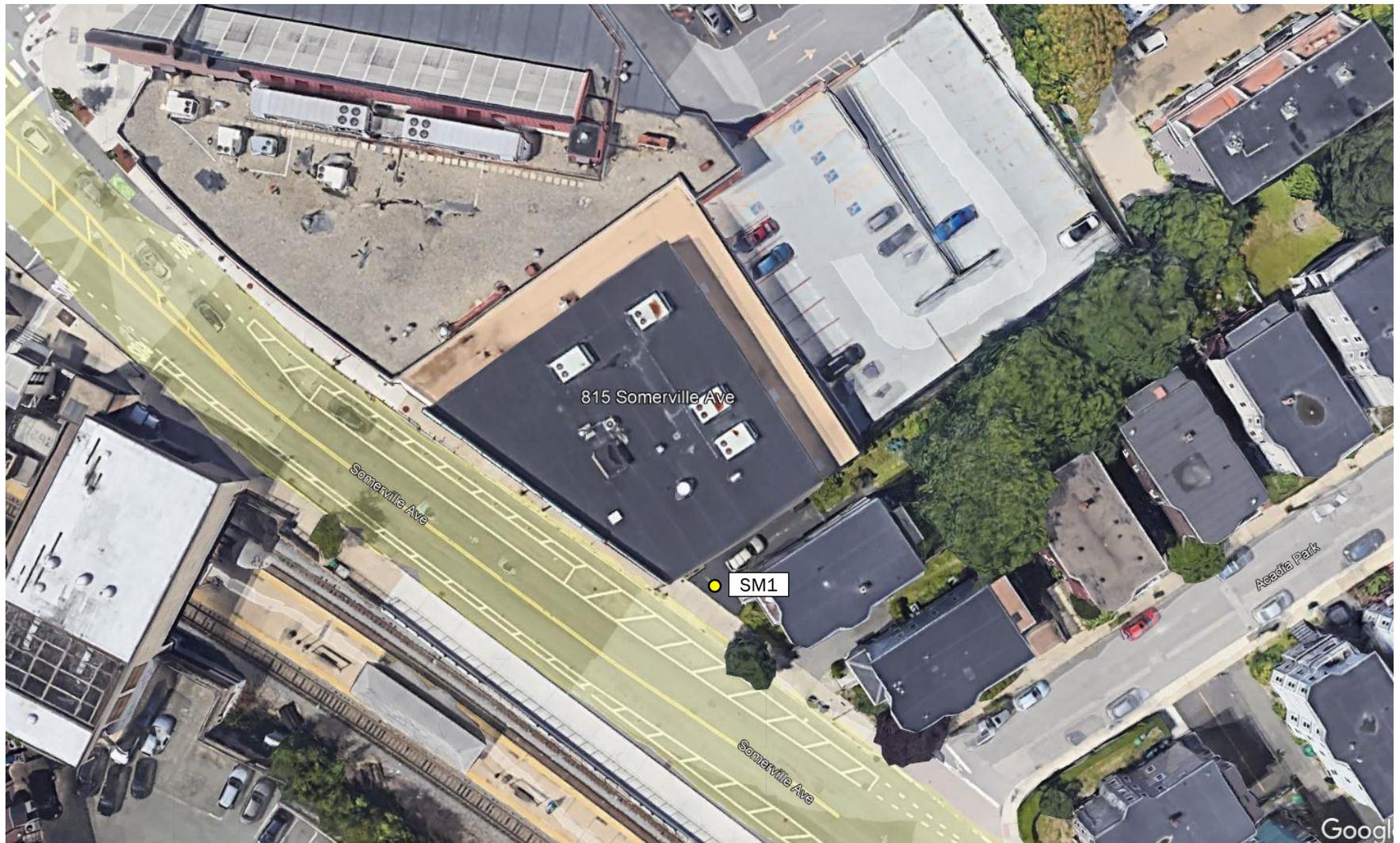


FIGURE 1. Ambient sound measurement location (SM1)

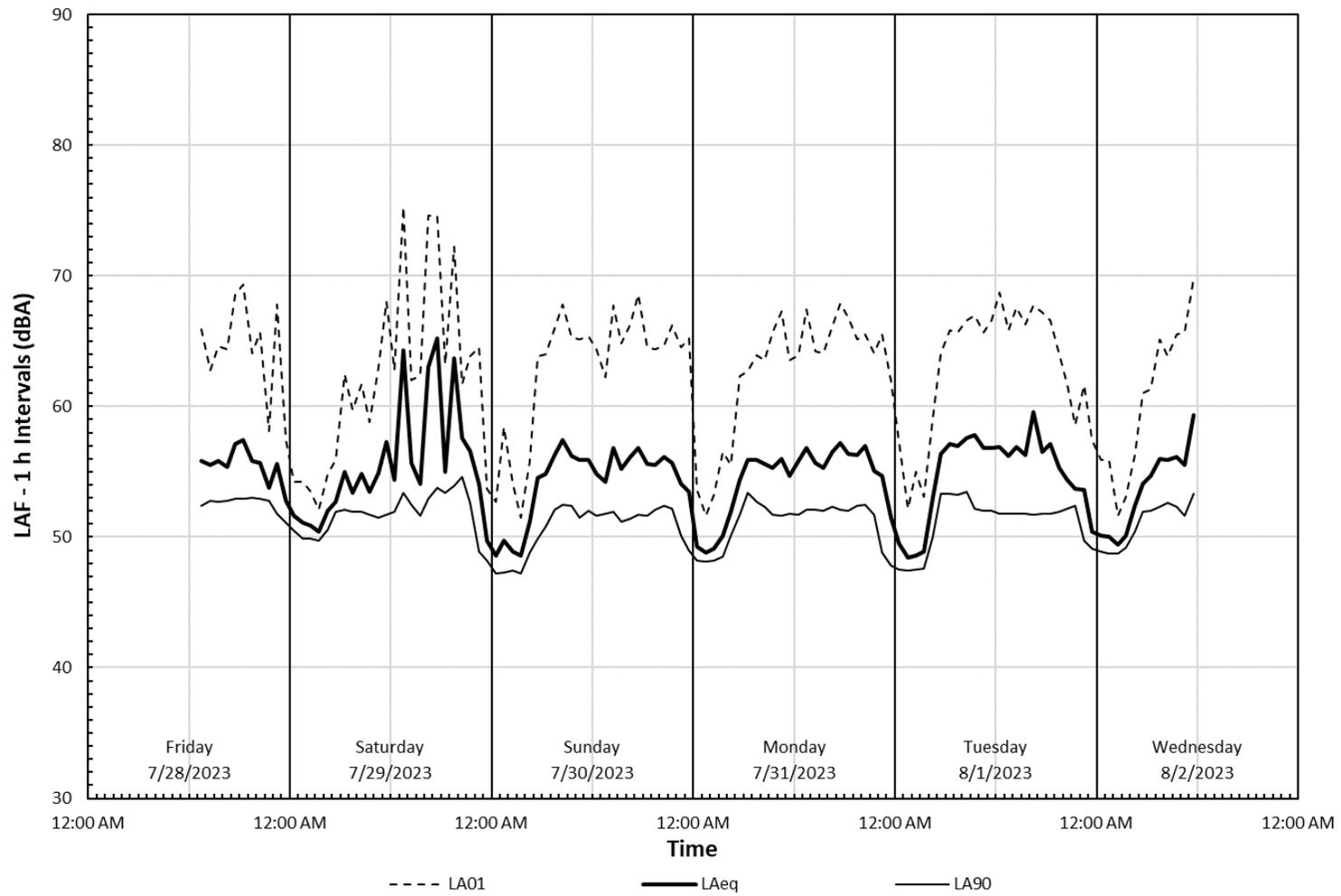


FIGURE 2. Measured A-weighted sound levels at SM1

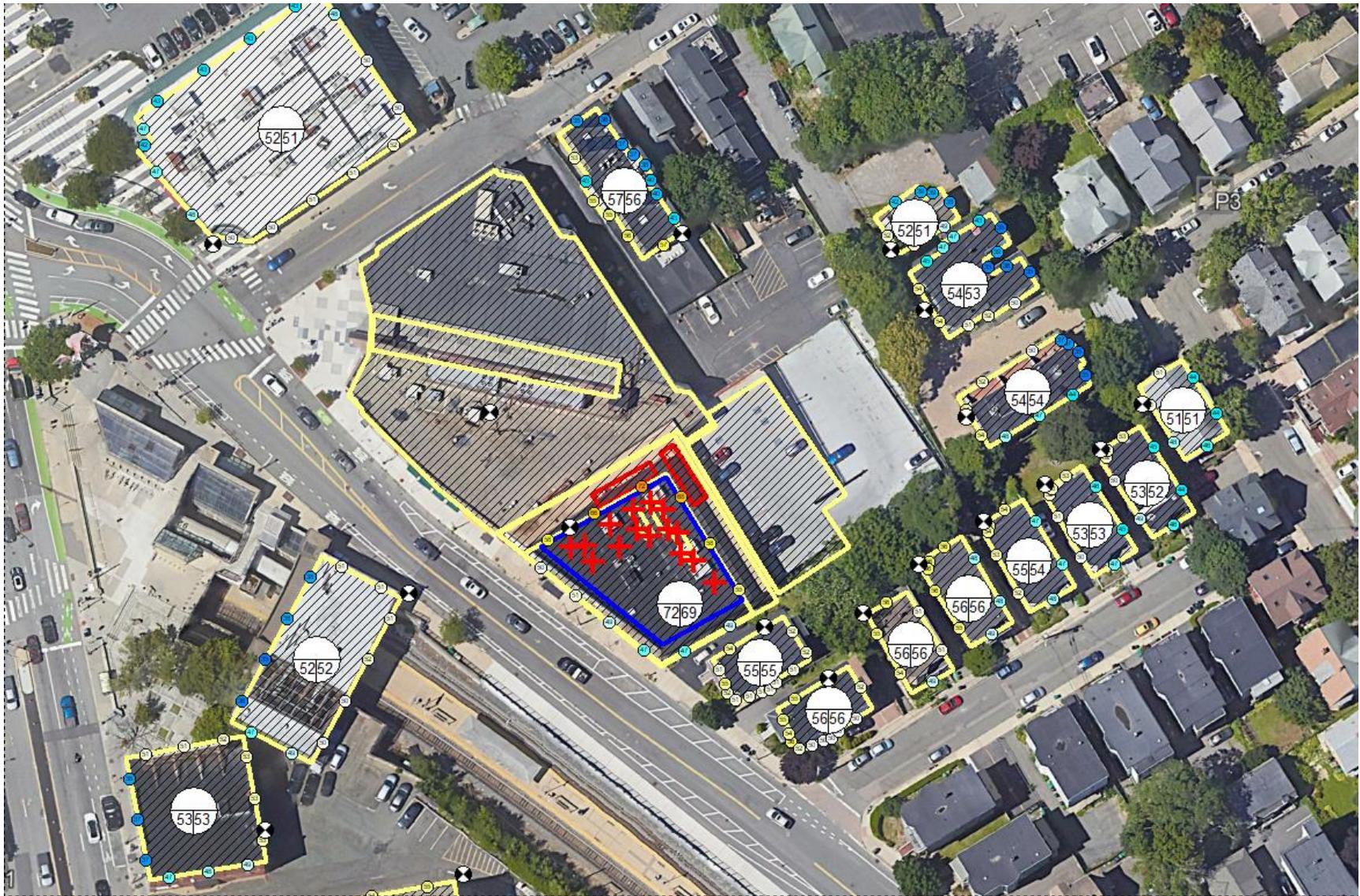


FIGURE 3. Estimated HVAC equipment A-weighted sound levels: no noise controls (V1)

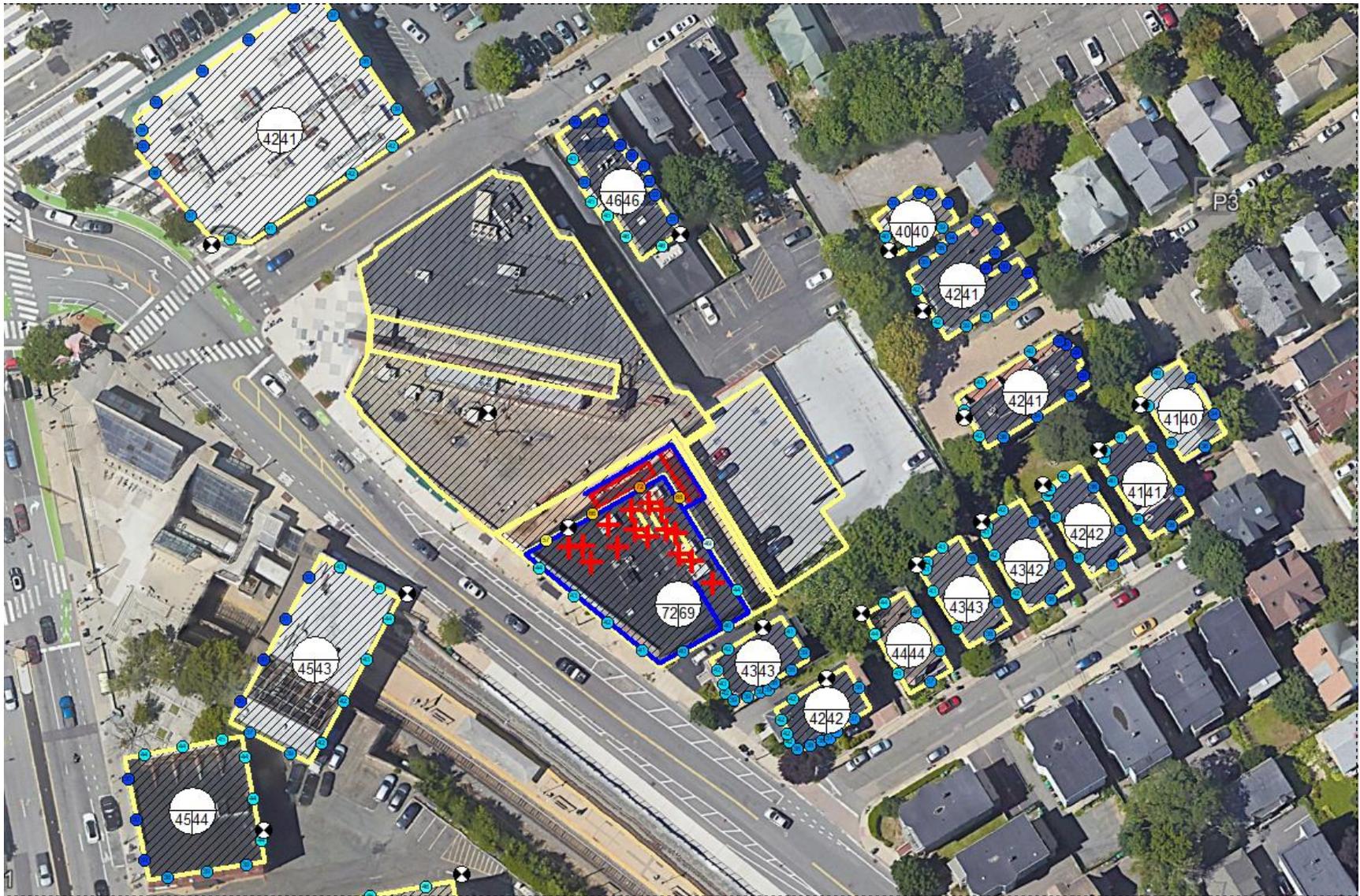


FIGURE 4. Estimated HVAC equipment A-weighted sound levels: noise controls as recommended (V2)

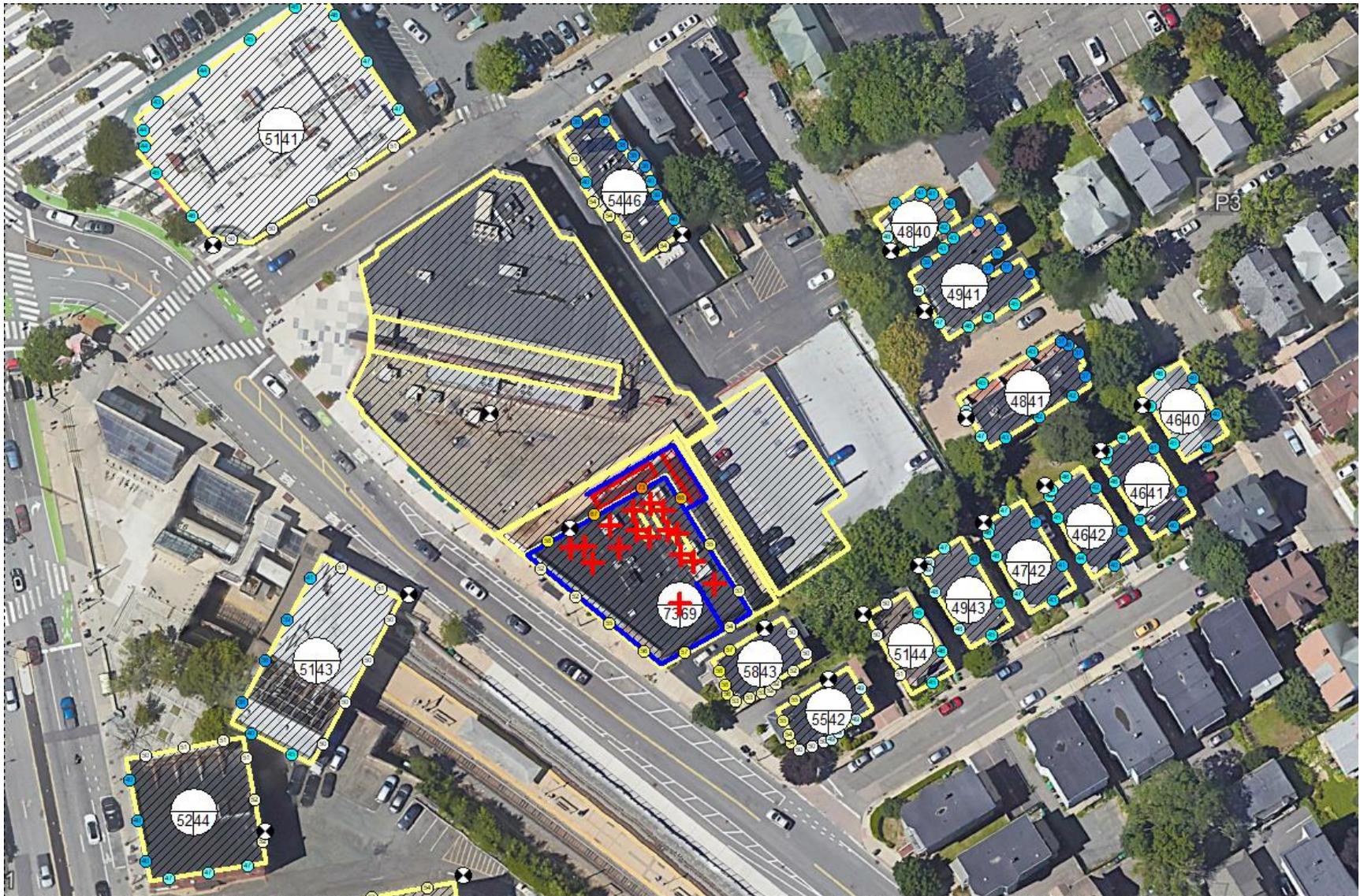


FIGURE 5. Estimated HVAC equipment and emergency generator A-weighted sound levels: noise controls as recommended, Weather enclosure specified for generator (V3)

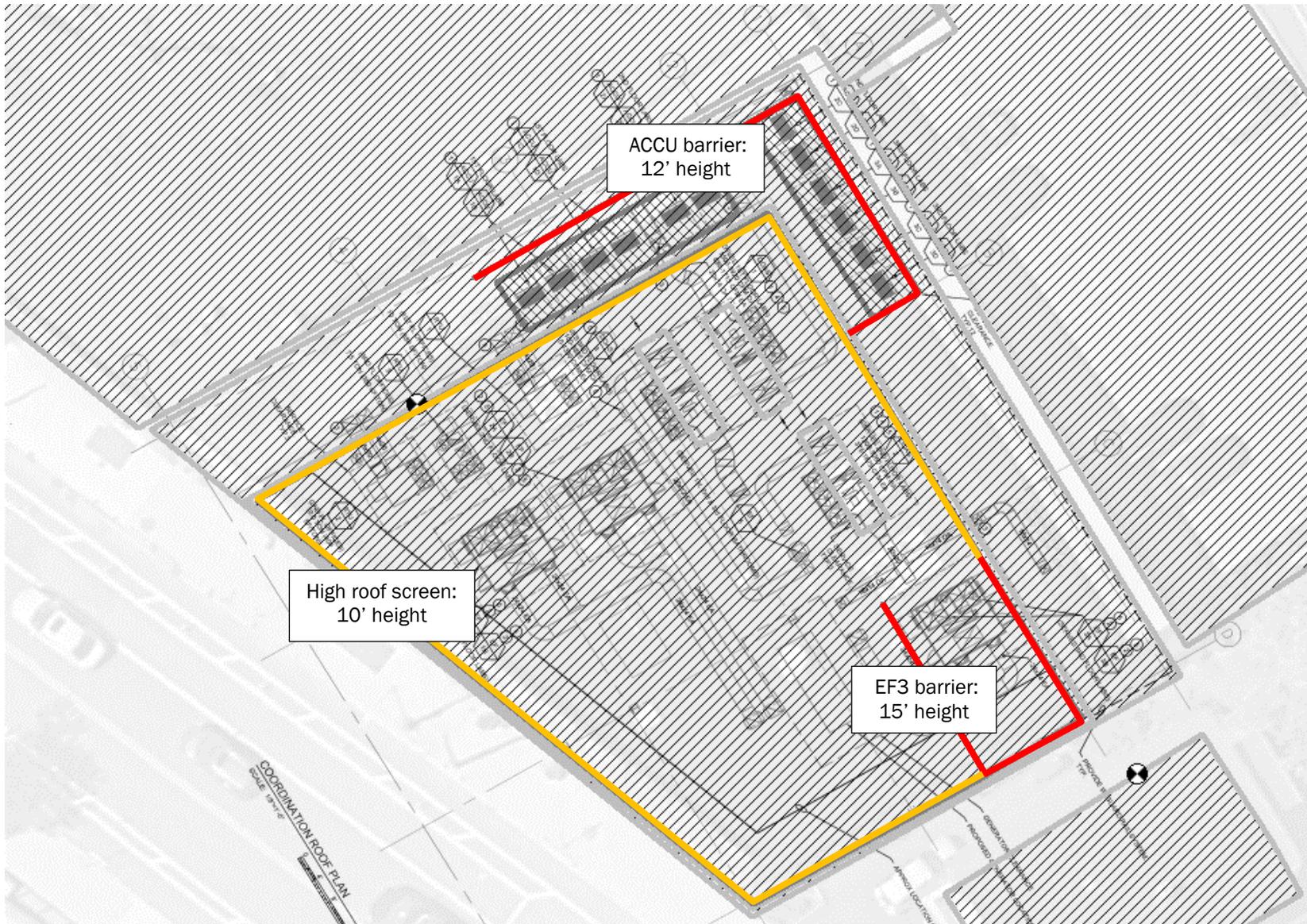


FIGURE 6. Rooftop barrier configuration (proposed acoustic walls shown in red, architectural roof screen shown in orange)



1608 Walnut Street, STE 1603
Philadelphia, PA, USA
19103

Tel: +1.267.773.8375
Fax: +1.888.686.1869

July 31, 2023

Todd Greenfield
SVP – Director of Development
KS Partners LLC
296 Concord Rd, Suite 100
Billerica, MA, USA 01821
T: 1.646.532.7723

**Re: Exhaust Dispersion & Design: Letter of Opinion
815 Somerville Ave
RWDI Reference No. 2305034**

Dear Todd,

RWDI USA LLC. (RWDI) was retained by KS Partners LLC to provide an initial high-level opinion concerning potential air quality impacts associated with the redevelopment of 815 Somerville Ave in Cambridge, MA. It is RWDI's understanding that the project involves conversion of the existing 3-story facility for laboratory use, necessitating the addition of several new exhaust fans at roof level to provide ventilation for laboratory spaces and equipment (Images 1 and 2).

This report summarizes our review of the development, with consideration given to air-sensitive receptors on existing neighboring residential and commercial buildings. These findings are based on a qualitative review of the proposed design along with our experience in dispersion modeling and exhaust re-entrainment issues.

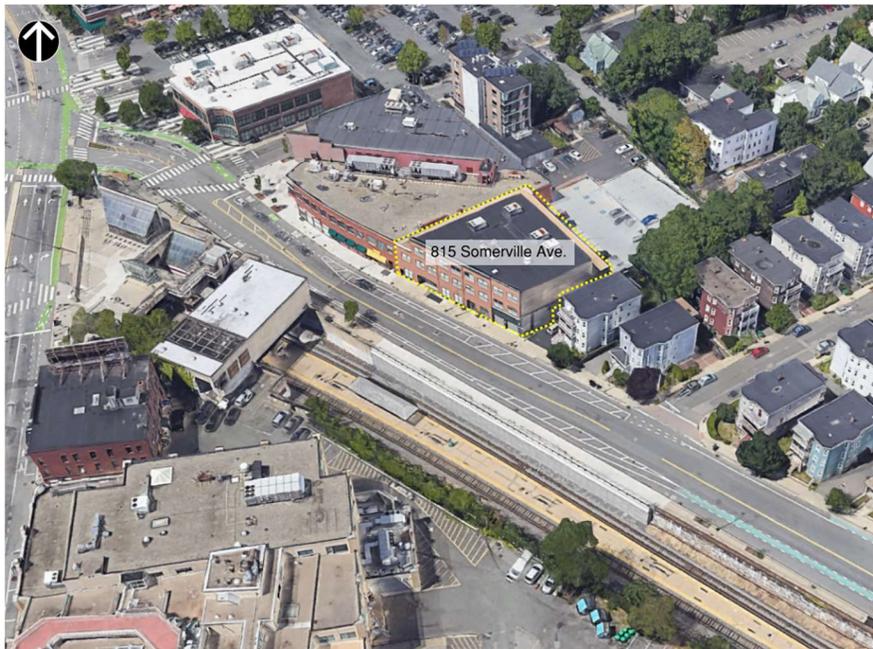


Image 1: 815 Somerville Avenue and surrounding area (image courtesy of Google Earth™)

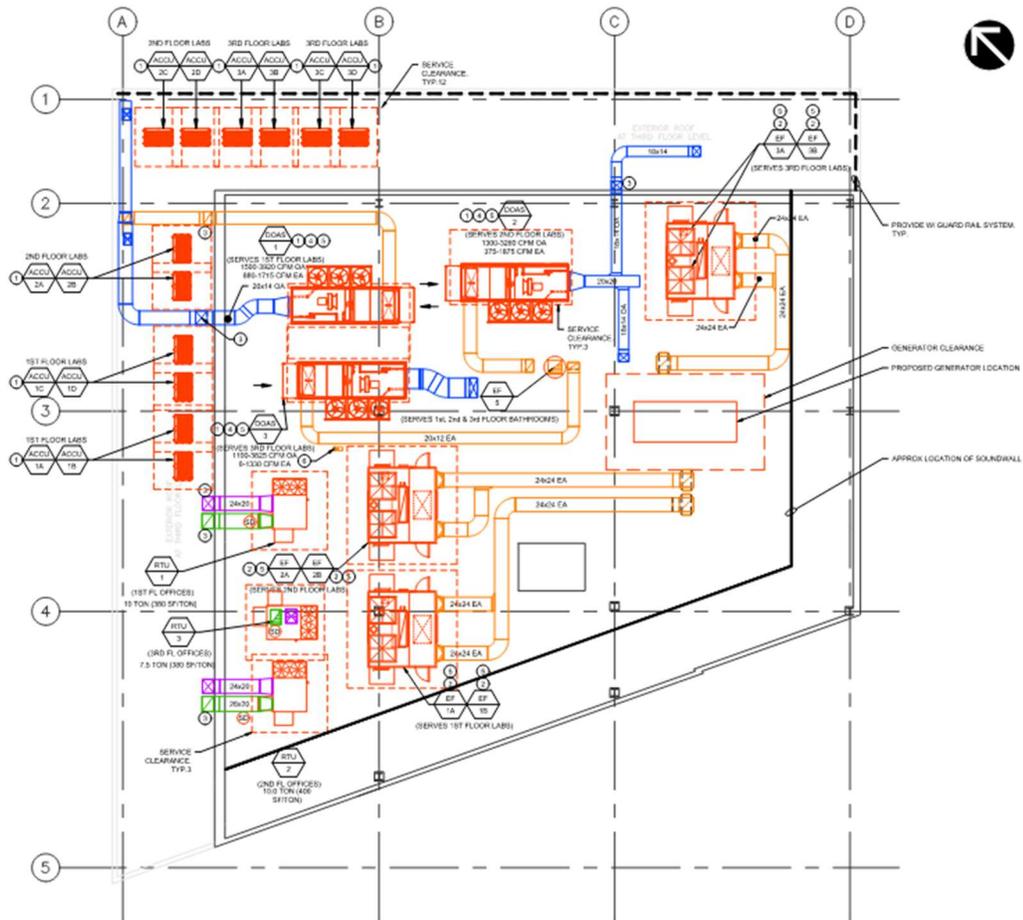


Image 2: Proposed Mechanical Roof Plan (image courtesy of KS Partners LLC)

Laboratory Exhaust Sources

The proposed project includes up to three new exhaust fans to provide ventilation for laboratories, discharging approximately 4,500 cfm of air each. It is understood that the laboratory facilities will include Biosafety Level (BSL) 1 or 2 use only. Typically, for laboratories of this small size and BSL rating, chemical use is less intensive compared to a large research facility.

Based on a review of the mechanical plans for the project, RWDI anticipates that the project can be designed to meet recommended exhaust dilution thresholds, through a combination of commonly utilized strategies including stack design and/or chemical handling protocols within the laboratory spaces. The acceptance thresholds to be applied will be based on a multi-factor analysis drawing from industry standards (such as ASHRAE and ANSI/ASSP Z9.5) as well as health- and odor-based exposure thresholds for commonly used laboratory chemicals. This is the same approach that RWDI has



Todd Greenfield
KS Partners LLC
RWDI# 2305034
7/31/2023

successfully applied on numerous laboratories in the greater Boston area, including facilities in Kendall Square, Binney Street, Brookline Avenue Medical Area, MIT, and Harvard. These areas include residential and public spaces, often in close proximity to laboratory buildings.

Lease agreements with future building tenants can be used to address usage of specific chemicals if necessary and equipment can be adapted to those requirements.

Other Exhaust Sources

One additional rooftop exhaust fan, EF-5, will provide ventilation for bathroom spaces. Emissions from this exhaust are expected to be benign (i.e., relevant ambient air quality thresholds are expected to be met).

A 150 kW, gas-fired generator will also be added to the building roof as part of the redevelopment. Gas-fired generators typically have lower pollutant emissions compared to diesel engines of comparable capacity, and are not a significant source of nuisance odors, provided that the equipment is appropriately maintained and operated.

Closing

We hope the enclosed meets your present requirements. Please contact us if you have any questions regarding this assessment.

Sincerely,

RWDI USA LLC.

Handwritten signature of Stephen A. Owens in blue ink.

Stephen Owens
Project Manager

Handwritten signature of Ruth McMath in blue ink.

Ruth McMath, M.Sc
Exhaust Dispersion Consultant



Todd Greenfield
KS Partners LLC
RWDI# 2305034
7/31/2023

Statement of Limitations

This report entitled 815 Somerville Ave Exhaust Dispersion & Design: Design Review dated July 31, 2023 was prepared by RWDI USA LLC. ("RWDI") for KS Partners LLC ("Client"). The findings and conclusions presented in this report have been prepared for the Client and are specific to the project described herein ("Project"). The conclusions and recommendations contained in this report are based on the information available to RWDI when this report was prepared. Because the contents of this report may not reflect the final design of the Project or subsequent changes made after the date of this report, RWDI recommends that it be retained by Client during the final stages of the project to verify that the results and recommendations provided in this report have been correctly interpreted in the final design of the Project.

The conclusions and recommendations contained in this report have also been made for the specific purpose(s) set out herein. Should the Client or any other third party utilize the report and/or implement the conclusions and recommendations contained therein for any other purpose or project without the involvement of RWDI, the Client or such third party assumes any and all risk of any and all consequences arising from such use and RWDI accepts no responsibility for any liability, loss, or damage of any kind suffered by Client or any other third party arising therefrom.

Finally, it is imperative that the Client and/or any party relying on the conclusions and recommendations in this report carefully review the stated assumptions contained herein and to understand the different factors which may impact the conclusions and recommendations provided.