LAW OFFICES OF JERRY C. EFFREN

Jerry C. Effren

Neal J. Bingham

Paralegals

Margaret L. Burchard

25 West Union Street
Ashland, Massachusetts 01721
(508) 881-4950 – Telephone
(508) 881-7563 – Telecopier
E-Mail Address: info@effren.net

Of Counsel
Jessica Parenti

May 29, 2019

Via Hand-Delivery
Beth Klein, Town Clerk
Town of Sudbury, Town Clerk's Office
322 Concord Road
Sudbury, MA01776

Re: NOTICE OF CONSTRUCTIVE APPROVAL (554 Boston Post Road, Sudbury)
(1) Case No. 19-3 (Use Variance under Section 2230 of the Bylaw to allow for the construction of a self-storage facility in a Residential A-1 District), and
(2) Case No. 19-4 (Variance under the provisions of Section 2210 of the Zoning Bylaw to allow for more than one principal structure)

Dear Ms. Klein:

Enclosed please find the following documents:

1. Notice of Constructive Approval; and
2. Certificate of Service and Mailing.

Thank you for your assistance in this matter. Should you have any questions, please do not hesitate to contact me.

TOWN CLERK
SUDBURY, MASS
2019 MAY 29 PM 12:40

Very truly yours,

LAW OFFICES OF JERRY C. EFFREN

Jerry C. Effren

cc: Client
Sudbury Planning Board (via hand-delivery and First-Class Mail)

Date: May 29, 2019

To: Beth Klein, Town Clerk
Town of Sudbury, Town Clerk's Office
322 Concord Road
Sudbury, MA01776

From: Anne Stone
554 Boston Post Road
Sudbury, MA 01776

TOWN CLERK
SUDBURY, MASS
2019 MAY 29 PM 12:40

RE: NOTICE OF CONSTRUCTIVE APPROVAL (554 BOSTON POST ROAD, SUDBURY)
(1) Case No. 19-3 (Use Variance under Section 2230 of the Bylaw to allow for the construction of a self-storage facility in a Residential A-1 District), and
(2) Case No. 19-4 (Variance under the provisions of Section 2210 of the Zoning Bylaw to allow for more than one principal structure)

Dear Ms. Klein,

I am the applicant in the above-referenced variance applications (the "Variance Applications"). The Variance Applications were filed with the Sudbury Town Clerk on February 5, 2019 and assigned Case Nos. 19-3 and 19-4. In accordance with Massachusetts General Laws Chapter 40A, § 15, the Sudbury Zoning Board of Appeals therefore had one hundred (100) days, or until May 16, 2019, to act on the Variance Applications.

By this Notice, I am notifying the Sudbury Town Clerk, in accordance with Chapter 40A, § 15, that the Zoning Board failed to act within the prescribed time and I am by this written Notice seeking a constructive approval of the Variance Applications. A copy of the Variance Applications is attached as Exhibit A.

Also, be advised that I have sent notice by mail of the constructive approval of the Variance Applications to all "parties in interest." In accordance with Chapter 40A, § 15, all notices to the parties in interest specify that appeals, if any, shall be made pursuant to Massachusetts General Laws Chapter 40A, § 17 and shall be filed within twenty (20) days after the date the Town Clerk received this written notice from me advising that the Zoning Board failed to act within the prescribed time.

In addition, demand is hereby made that, after the expiration of twenty (20) days without notice of appeal pursuant to section G.L. c. 40A, § 17, or, if appeal has been taken, after receipt of certified records of the court in which such appeal is adjudicated, indicating that such approval has become final, the Town Clerk issue a certificate stating the date of approval, the fact that the board failed to take final action and that the approval resulting from such failure has become final, and forward said certificate to me.

Regards,

Anne Stone

LAW OFFICES OF JERRY C. EFFREN

Jerry C. Effren

Neal J. Bingham

Paralegals

Margaret L. Burchard

25 West Union Street
Ashland, Massachusetts 01721
(508) 881-4950 – Telephone
(508) 881-7563 – Telecopier
E-Mail Address: info@effren.net

Of Counsel
Jessica Parenti

February 5, 2019

Via Hand-Delivery
Town of Sudbury Zoning Board of Appeals
Flynn Building
278 Old Sudbury Road
Sudbury, MA 01776
Attn: Beth Suedmeyer and Lillian Vert

Re: Applications for Variances
Project: Self-Storage Facility; 554 Boston Post Road, Sudbury
Applicant: Anne Stone

Dear Ms. Suedmeyer and Ms. Vert:

Enclosed please find the original and Twelve (12) copies of the following documents:

1. Application for Variance (2210);
2. Application for Use Variance (2230, App. A: D-3);
3. Consolidated Memorandum in Support of Variances; and
4. Traffic Study.

Along with this package, the Applicant has filed a letter dated February 5, 2019 requesting a fee waiver. In accordance with my conversations with Lillian Vert, I am enclosing two (2) checks in the amounts of $200.00 (for the filing fees) and $50.00 (for the advertising fee). I understand that you will be immediately depositing the $50.00 check but will hold the $200.00 check until the Board has made a determination about the requested waiver.

Kindly place this matter on the Agenda for the **March 4, 2019** meeting of the Board of Appeals.

Thank you for your assistance in this matter. Should you have any questions, please do not hesitate to contact me

Very truly yours,

LAW OFFICES OF JERRY C. EFFREN

Jerry C. Effren

cc: Client

LAW OFFICES OF JERRY C. EFFREN

Jerry C. Effren

Neal J. Bingham

Paralegals

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E-Mail Address: info@effren.net

Of Counsel
Jessica Parenti

February 5, 2019

Via Hand-Delivery
Town of Sudbury Zoning Board of Appeals
Flynn Building
278 Old Sudbury Road
Sudbury, MA 01776
Attn: Beth Suedmeyer and Lillian Vert

Re: Request for Fee Waiver
Project: Self-Storage Facility; 554 Boston Post Road, Sudbury
Applicant: Anne Stone

Dear Ms. Suedmeyer and Ms. Vert:

As you know, the Applicant withdrew four variance applications on October 29, 2018 concerning the above-referenced self-storage project with the intention of re-filing after making extensive changes and modifications. On February 5, 2019, the Applicant refiled two (2) of her variance applications with the Town.

In accordance with the Board's rules and regulations, the Applicant hereby requests that application fees for the re-filing be waived, except of course any costs necessary for advertising the hearings and for review of the revised project plans and documentation by the Town and consultants.

Very truly yours,

LAW OFFICES OF JERRY C. EFFREN

Jerry C. Effren

cc: Client

ZONING BOARD OF APPEALS
SUDBURY, MASSACHUSETTS

TOWN CLERK
SUDBURY, MASS
2019 FEB -5 PM 2:23

APPLICATION FOR USE VARIANCE

PART I APPLICANT INFORMATION

Name(s): Ann Stone

Address: 554 Boston Post Road, Sudbury, MA 01776

Telephone #: (978) 443-5798

PART II OWNER INFORMATION

Name(s): Ann Stone

Address: 554 Boston Post Road, Sudbury, MA 01776

Telephone #: (978) 443-5798

PART III PROPERTY INFORMATION

Address or lot # of property for which use variance is requested: 554 Boston Post Road, Sudbury, MA 01776

Area: 3 +/- Acres Frontage: 260 feet +/- Zoning District: Residential A-1

Is the deed for this property recorded: YES X NO

If YES, Date: 01/31/2008 Book #: 50662 Page #: 74

Present use of property: Residential and commercial dog kennel

PART IV DESCRIPTION OF REQUEST

a) Section of the Zoning Bylaw under which a use variance is requested:

Article: IX Section #: 2230, App. A: D-3

b) Why is a variance needed?

See Ann Stone's Consolidated Memorandum in Support of Applications for Use and Other Variances for Premises Located at 554 Boston Post Road, Sudbury, MA ("Supporting Memorandum")

ZONING BOARD OF APPEALS
SUDBURY, MASSACHUSETTS

APPLICATION FOR USE VARIANCE

PART IV DESCRIPTION OF REQUEST (continued)

c) Why does the applicant believe that the proposed use or building would be in harmony with the general purpose and intent of the Bylaw?

See Supporting Memorandum

d) Why does the applicant believe that the proposed use would be located in an appropriate location, would not be detrimental to the neighborhood, and would not significantly alter the character of the zoning district?

See Supporting Memorandum

e) why does the applicant believe that adequate and appropriate facilities will be provided for the proper operation of the proposed use?

See Supporting Memorandum

ZONING BOARD OF APPEALS
SUDBURY, MASSACHUSETTS

APPLICATION FOR USE VARIANCE

PART IV DESCRIPTION OF REQUEST (continued)

f) Why does the applicant believe that the proposed use would not be detrimental or offensive to the adjoining zoning districts and neighboring properties due to the effects of lighting, odors, smoke, noise, sewage, refuse materials, or visual nuisances?

See Supporting Memorandum

g) Why does the applicant believe that the proposed use would not cause undue traffic congestion in the immediate area?

See Supporting Memorandum

h) What are the special conditions relating to the soil condition, shape or topography of the land or structures for which the variance is requested, which especially affect the land or structures but do not affect generally the zoning district in which it is located?

See Supporting Memorandum

i) Why does the applicant believe that the use variance requested may be granted without substantial detriment to the public good and without nullifying or substantially derogating from the intent or purpose of the Zoning Bylaw?

See Supporting Memorandum

ZONING BOARD OF APPEALS
SUDBURY, MASSACHUSETTS

APPLICATION FOR USE VARIANCE

PART IV DESCRIPTION OF REQUEST (continued)

j) What is the substantial hardship, financial or otherwise, to you, which would result from a literal enforcement of the provisions of the Zoning Bylaw?

See Supporting Memorandum

k) Has the time limit of a previously granted use variance expired? YES ☐ NO ☒

l) Before January 1, 1978, did a use of the same general classification as that requested exist on lots adjoining the lot in question on both sides, or, if the lot in question is a corner, on both sides and the rear? YES ☒ NO ☐

description: See Supporting Memorandum

m) Does a lawful use of such nuisance characteristics as to render unreasonable any conforming use of the lot in question exist on an adjoining lot? YES ☒ NO ☐

description: See Supporting Memorandum

n) Does the lot in question have a lawful structure or structures in good repair and of appearance compatible with its vicinity which can reasonably be maintained as a visual and taxable asset only if some nonconformity of use is permitted? YES ☒ NO ☐

description: See Supporting Memorandum

ZONING BOARD OF APPEALS
SUDBURY, MASSACHUSETTS

APPLICATION FOR USE VARIANCE

PART IV DESCRIPTION OF REQUEST (continued)

o) If you answered YES to questions l) or m),

Is the use nonconformity on the lot in question no farther from such prior adjoining conditions as the width of the lot or 100 feet, whichever is less? YES X NO ☐

Will the use nonconformity be terminated within one year of the time when the adjoining conditions have been terminated? YES X NO ☐

p) Is the extent of the use nonconformity with respect to floor space, bulk, number of occupants or other relevant measure no greater than the minimum necessary to provide relief from the statutory hardship? YES X NO ☐

Reason: See Supporting Memorandum

q) Is the operation of the use nonconformity with regard to hours, noise, level of activity or other relevant ways so restricted as to assure compatibility with conforming uses in the vicinity?
YES X NO ☐

Reason: See Supporting Memorandum

r) Have any Variances and/or Special permits previously been requested? YES X NO ☐

If YES, Case Number(s) Applicant Approved X Denied ☐

15-30 Ann Stone, Sharon Sutherland, Jamie Denn

PART V REQUIRED ATTACHMENTS

- a plot plan showing the location, size, and position of the property, building(s) and parking area(s), including all dimensions and setback distances from property lines, public ways and structures on adjoining property.
- $100.00 Filing Fee (payable to the Town of Sudbury)
- $25.00 Advertising fee (payable to the Town of Sudbury)

ZONING BOARD OF APPEALS
SUDBURY, MASSACHUSETTS

APPLICATION FOR USE VARIANCE

PART VI SIGNATURE

I certify that all of the above are true to the best of my knowledge.

Anne Stone Date 2/5/19

Date

ZONING BOARD OF APPEALS
SUDBURY, MASSACHUSETTS

TOWN CLERK
SUDBURY, MASS

APPLICATION FOR VARIANCE

2019 FEB -5 PM 2:24

PART I APPLICANT INFORMATION

Name(s): Ann Stone

Address: 554 Boston Post Road, Sudbury, MA 01776

Telephone #: (978) 443-5798

PART II OWNER INFORMATION

Name(s): Ann Stone

Address: 554 Boston Post Road, Sudbury, MA01776

Telephone #: (978) 443-5798

PART III PROPERTY INFORMATION

Address or lot # of property for which variance is requested 554 Boston Post Road, Sudbury, MA 01776

Area: 3 +/- Acres Frontage: 260 feet +/- Zoning District Residential A-1

Is the deed for this property recorded? YES X NO

If YES, Date: 01/31/2008 Book #: 50662 Page #: 74

Present use of property: Residential and commercial dog kennel

PART IV DESCRIPTION OF REQUEST

a) Under what provision of the Bylaw is a variance requested?

Article: IX Section #: 2210

b) Why is a variance needed?

See Ann Stone's Consolidated Memorandum in Support of Applications for Use and Other Variances for Premises Located at 554 Boston Post Road, Sudbury, MA ("Supporting Memorandum")

ZONING BOARD OF APPEALS
SUDBURY, MASSACHUSETTS

APPLICATION FOR VARIANCE

PART IV DESCRIPTION OF REQUEST (continued)

c) What are the special conditions relating to the soil condition, shape or topography of the land or structures for which the variance is requested, which especially affect the land or structures but do not affect generally the zoning district in which it is located?

See Supporting Memorandum

d) Why does the applicant believe that the variance requested may be granted without substantial detriment to the public good and without nullifying or substantially derogating from the intent or purpose of the Zoning Bylaw?

See Supporting Memorandum

e) What is the substantial hardship, financial or otherwise, to you, which would result from a literal enforcement of the provisions of the Zoning Bylaw?

See Supporting Memorandum

ZONING BOARD OF APPEALS
SUDBURY, MASSACHUSETTS

APPLICATION FOR VARIANCE

PART IV DESCRIPTION OF REQUEST (continued)

f) Why does the applicant believe that there will be no substantial detriment to the public good if the variance is granted?

See Supporting Memorandum

g) Have any Variances and/or Special Permits previously been requested? YES X NO ☐

If YES, Case Number(s) 15-30 Applicant Ann Stone, Sharon Sutherland, Jamie Denn Approved X Denied ☐

PART V REQUIRED ATTACHMENTS

- $100.00 – filing fee payable to the Town of Sudbury
- $25.00 – advertising fee payable to the Town of Sudbury
- a plot plan showing the location, size, and position of the property, building(s) and parking area(s), including all dimensions and setback distances from property lines, public ways and structures on adjoining property.

PART VI SIGNATURE

I certify that all of the above answers are true to the best of my knowledge.

Anne Stone Date 1/5/19

Date

ZONING BOARD OF APPEALS
SUDBURY, MASSACHUSETTS

ANNE STONE'S CONSOLIDATED MEMORANDUM IN SUPPORT OF APPLICATIONS FOR VARIANCES FOR PREMISES LOCATED AT 554 BOSTON POST ROAD, SUDBURY, MA

INTRODUCTION

Anne Stone ("Anne" or the "Applicant") submits this Memorandum and attachments in support of and supplement to her Applications for two (2) Variances (the "Applications") concerning the premises located at 554 Boston Post Road, Sudbury, Massachusetts (the "Property" or the "Premises"). The project contemplated by the Applicant is a self-storage facility comprised of approximately 672 climate-controlled units with driveway access to interior units (the "Project"). Anne has entered into a purchase and sales agreement with Quentin Nowland and Michael Lynch (the "Developer"), who will construct and operate the Project if these Applications are granted. The Lynch family has ties to the Sudbury community and has worked closely with Anne and the community in developing the Project. The details of the Project are the result of feedback received after significant outreach by Anne and the Developer to Anne's neighbors and others in the Town. By the Applications, Anne requests that the Board grant a use variance to allow this Project to be constructed in a Residential District and an additional variance to allow two (2) principal structures in the Residential District for the sole purpose of preserving the historic Stone Tavern located on the Property.

Anne had previously filed applications for variances and site plan approval in August 2018 but withdrew those applications without prejudice after her first Zoning Board hearing on September 17, 2018 where she learned that her project had not been as well-received as she had anticipated. Specifically, the original proposed project received criticism from residents and others, for among other reasons, because (a) the project contemplated the demolition of an older barn on the Property (the "Stone Farm Barn"), (b) the historic Stone Tavern was not being renovated and/or repurposed as part of the project; and (c) the design for the self-storage structure contemplated for the project lacked the look and feel of a "New England barn" or barns native to Sudbury.

Anne is the eighth generation of her family to reside in Sudbury at the Stone Farm on Boston Post Road. Because of the Stone family's historic connection to the Town, Anne has been driven to make this Project one that will be a source of pride and reflecting the surrounding community. After reflecting seriously on comments and criticism, Anne and the Developer have directly engaged residential and commercial neighbors, and numerous Sudbury officials, all with the goal of understanding what changes would be necessary to overcome the opposition to the Project. After receiving a great deal of input, including at three (3) informational meetings organized by the Developer, Anne and the Developer have taken significant additional steps and made significant modifications to the Project that they believe address the core issues that previously existed.

With the aid of a new engineering team member, William Dickinson of Dickinson Architects, LLC, who is also the Chair of the Acton Historical Commission, the Developer and Anne have developed a plan to preserve and renovate the historical elements of the Stone Tavern as part of an active use of the structure for the Project. (*See Stone Tavern Plans, attached as Exhibit A.*) The development team has also significantly redesigned the main self-storage structure to beautifully replicate the Stone Farm Barn itself, retaining the farming look and feel that has existed on the Property for years. (*See Exterior and Floor Plan renderings of the proposed facility, attached as Exhibit B.*) This redesign has the added benefit of creating a smaller project that remains fiscally feasible while reducing the Project square footage and reducing the number of variances required from 4 to 2.[1] (*See proposed Site Plan, attached as Exhibit C.*) Anne and the Developer have also found a home in Sudbury for the Stone Farm Barn, which will allow it to be preserved for its historical value to the Town.

Anne and the Developer's neighborhood outreach efforts have also identified many misconceptions about the Project that must be address at the outset. First, by the present Project, Anne seeks to develop only the 3 +/- acres of land that abut Boston Post Road but does not intend to do anything with the 56 +\- acres of land behind the Premises that has come to known as the Stone Farm, which is and remains subject to a 61A Agricultural Restriction. (*See Exhibit C.*) Second, none of the trees screening Horse Pond Road from the Project will be touched by the Project and the Self-Storage building will not be visible from Horse Pond Road. (*See*

[1] The first variance application is for a Use Variance allowing a self-storage facility (Industrial D-3) in a Residential A-1 District. The second application seeks allowance of more than one (1) principal structure in a Residential A-1 District, which is necessitated only by Anne's efforts to preserve the Stone Tavern.

Photographs taken from various perspectives, including Horse Pond Road toward the Project site, attached as Exhibit D.) Third, Anne's current financial condition is a practical reality; if the Project is denied, she lacks the resources to maintain either the Stone Farm Barn or the Stone Tavern and will be forced to find other alternative transactions that may necessitate potential Dover uses for the front Project site and a disposition of the Stone Farm for less than desirable uses of the Stone Farm that may be undertaken as of right, despite the agricultural restriction. Finally, the three (3) acres that compromise the Project site are bound to the South by Boston Post Road, a major commercial corridor in the Town of Sudbury, to the East by a Limited Industrial District, which includes its abutting neighbor Whole Foods on the former Raytheon site, to the West by J.P. Bartlett, a large scale commercial greenhouse operation, and to the North by an extension of the Limited Industrial District and the Stone Farm, which will remain preserved. Travel in either direction on Boston Post Road and you will run into more and significant commercial uses and a vibrant commercial district with more than 100 businesses operating daily. And while some have suggested that it would be better for the Town if Anne sought to have the abutting limited industrial district extend to her Property via a zoning change at Town Meeting, it should be noted that such a zoning change would open the Property to any number of as-of-right industrial uses and leave the Town with less, not more ability to control what ends on the Property and how it is used. The proposed Project is in harmony and character with the surrounding uses. (*See Zoning Map, attached as Exhibit E; Google Map, attached as Exhibit F.*)

Anne and the Developer are very open to working out conditions of approval that will provide comfort to the Board and the community. The changes to the current Project demonstrate Anne's responsiveness her neighbors and the Sudbury community as a whole. One suggestion has been to limit the hours of operation due to concerns of noise that may emanate from the doors to the internal loading area. Anne and the Developer are willing to work with the Board to establish acceptable hours of operation for the operation of the Project but notes that the doors contemplated for the Project (the most likely source of noise) offer remarkably quite operation that is possible because the rollup design features no metal-to-metal contact. The design is similar in design to the doors utilized by the BMW dealer in Sudbury. In addition to other modification, Anne revised the lighting plan for the Project to accommodate specific concerns raised by neighbors at the informational meetings. Additionally, it is Anne's desire to

see the Stone Farm Barn relocated and would welcome appropriate conditions to ensure that the relocation actually occurs. Lastly, the Applicant understands and agrees that any conditions imposed by the Planning Board will be incorporated by reference into the grant of variances.

SUMMARY OF REQUESTS FOR RELIEF

The Applicant has submitted herewith applications under the provisions of Article 6000 of the Bylaw for variances necessary for her to construct and operate a self-storage facility on the Premises (*Bylaw, Appendix A, Industrial D-3*) in a Residential District. To that end, the Applicant submits herewith the following two (2) variance applications:

Application	Bylaw	Description
Use Variance Application	2230, App. A: D-3	Allowing self-storage facility (Industrial D-3) in a Residential A-1 District.
Variance Application	2210	Allowing more than one (1) principal structure in a Residential A-1 District.[2]

DISCUSSION OF APPLICATIONS

Use Variances. In order to obtain a Use Variance, the Applicant must establish that the Premises conform to one or more of the conditions set forth in Bylaw Section 6140 (Use Variances) and that the requirements enumerated in Bylaw Section 6130 (Variances) are met. Additionally, the Board of Appeals must make all of the findings required under Bylaw Section 6220 (Special Permit Criteria).

Both Variances. For purposes of the requested use variance and principal structure variance, the Applicant must meet all of the requirements of Bylaw Section 6130, including establishing that the land or structures on the Property suffer from special conditions that meet the requirements of Section 6131.

Special Permit Criteria. For purposes of the requested use variance, the Applicant must also establish that her Applications meet all of the criteria set forth in Bylaw Section 6220.

As is set forth in detail below, Anne contends that she has met all of the statutory criteria necessary for the Board to grant her Variance Applications.

---

[2] The second structure is the historic Stone Tavern, which Anne hopes to preserve, as do the Historical Commission and others who voiced concern at the September hearing.

DISCUSSION OF APPLICATIONS

A. APPLICATION FOR USE VARIANCE

The Applicant contends that she meets of the requirements for the granting of a Use Variance. In order to obtain a Use Variance under Bylaw Section 6140, an applicant must establish that the subject lot conforms to one or more of the conditions set forth in Sections 6141 through 6144. Section 6140 further provides and requires as follow: "The use variance shall be granted only if the Board of Appeals makes all of the findings required by the Special Permit Criteria in Section 6220, in addition to the findings required by statute for a variance in Section 6130, and subject to all of the [limitations set forth in Bylaw Sections 6145 through 6147]." The Applicant contends she has satisfied all of these requirements.

1. More Than One Condition under Sections 6141 through 6144 are Satisfied.

The Applicant contends that one or more of the conditions set forth in Sections 6141 through 6144 of the Zoning Bylaw exists with respect to the subject Premises. Although she only need establish that she meets one of these conditions, she contends that she meets Sections 6142, 6144 and 6143.

> **6142:** "Existence prior to January 1, 1978 of uses of the same general classification as the use variance applied for, on lots adjoining the lot in question on both sides, or, if the lot in question is a corner lot, on both sides and the rear."

The Applicant believes she has met the condition under Section 6142. The current uses on both side of the Premises are most accurately classified as commercial. (*See Exhibits E and Exhibit F.*) The Premises is abutted on its easterly boundary by a Whole Foods Market and the Sudbury Fire Department, Station 2, both of which are located in the abutting Limited Industrial District, which was the site of Raytheon for nearly 56 years. To the north is the Stone Farm, owned by Anne. Notably, the Limited Industrial District extends westerly to the north of Stone Farm and is in close proximity to the Premises' northern boundary. The proposed self-storage facility would be allowed as of right in that abutting district. (*See Bylaws, Appendix A - Industrial D-3.*) The Premises is also abutted on its westerly boundary by J.P. Bartlett, which, although within the Residential District, is a large scale commercial greenhouse operation exempted as an agricultural use and used as such since 1911.

The Applicant contends that she has satisfied the condition under Section 6142. The Premises and the abutting uses have frontage to the south on Boston Post Road and the abutting uses have been in existence along this commercial corridor since long before January 1, 1978.

> **6144:** "Existence on the lot in question of a lawful structure or structures in good repair and of appearance compatible with its vicinity which can reasonably be maintained as a visual and taxable asset only if some nonconformity of use is permitted."

The Applicant contends that she meets the condition set forth in Section 6144. Presently the taxable structures on the Premises include the historic Stone Tavern and the Stone Farm Barn. (*See Exhibits A and C; Landscaping Rendering, attached as Exhibit G.*)

The building referred to as the "Stone Tavern" includes both its historic footprint plus several non-historic additions that have been constructed over the years. While the original footprint of the Stone Tavern remains in good repair, the non-historic additions are not. (*See Photographs of the Stone Tavern, attached as Exhibit H.*) Due to the age of the structure, including the additions, it has been and will continue to be burdensome to maintain the Stone Tavern as a residence. With input from Town officials and numerous neighbors, the proposed self-storage use now contemplates the renovating and utilizing the Stone Tavern as as office space for the self-storage Project. The Stone Tavern is presently a residence in good repair and of appearance compatible with its vicinity. However, the Applicant does not believe she will be able to continue to endure the costs and burden associated with maintaining the aging historic Stone Tavern as a taxable asset unless she is granted the requested variances to allow the Developer to purchase and construct the Project. As a life-long resident of Sudbury and mindful of comments from residents, the Historical Commission and members of the Zoning Board during the hearing in September 2018, Anne contemplates a beautifully renovated, active use of the Stone Tavern that is consistent with the Town of Sudbury's commitment to historical preservation. (*See Exhibit A.*)

Additionally, the Stone Farm Barn will remain a visual and taxable asset for the benefit of the Town of Sudbury only if the requested variances are granted. As appears in the attached photographs, portions of the Stone Farm Barn, including structural portions, have fallen into a state of decay and disrepair. (*See Stone Farm Barn Photographs, attached as Exhibit I.*) However, the overall structure of the Stone Farm Barn is in good repair. The Project team has worked tirelessly to find a home for the barn, including failed efforts to donate the barn to the

Wayside Inn. While those and other efforts fell short, Anne is excited to advise the Board that she has found a home for the Stone Farm Barn that will allow it to remain in Sudbury for its continued visual and taxable benefit for the Town. She is in advanced stages of discussion with an individual in Sudbury who wishes to reconstruct the Stone Farm Barn on his property. She will provide further details at the hearing on these Variances. Without the Variances, however, the structure will not survive and will be lost to history. (*See Exhibit I.)*

6143: "Existence on the lot in question of a lawful use of such nuisance characteristics as to render unreasonable any conforming use of the lot in question."

The Applicant believes she has established a nuisance characteristic because her Property has become surrounded and enveloped by commercial uses which are incompatible with the continuation or upgrade of a stand-alone single-family use on the Property. The Premises is located on Boston Post Road, a major commercial corridor in the Town of Sudbury and all adjoining uses, Whole Foods Market, Sudbury Fire Department, Station 2 and Bartlett are commercial uses.

The historic nature of the Stone Tavern has itself resulted in nuisance characteristics that render any conforming use of the Property as a single-family residence unreasonable. As set forth above, while the historic portions of the Stone Tavern are in sufficient repair but the additions are not. It is beyond unlikely that Anne will find a buyer who is willing to buy the building for purposes of raising their family in this structure at this location. Even if buyers were to consider such a purchase for residential purposes, they would have to work into the equation that any addition or modification to the structure would require resort to the Planning Board and Historical Commission for permits and approvals that are not guaranteed and may involve a long and expensive process.

Finally, any use of the Property as a single-family residence will require the owner to deal with the Stone Farm Barn. The costs associated with renovating or demolishing that lawful use and creating a conforming use on the Property are prohibitive for Anne but will be a non-starter and unreasonable for potential buyers. (*See Exhibit I.)* It would be unreasonable to believe that a conforming use of the Property exists that salvages the Stone Farm Barn and saves the Stone Tavern. Without the granting of the variances, 554 Boston Post Road will become a notable eyesore for residents of Sudbury and an utter disappointment for a Town committed to historic preservation, as it watches both of these structures deteriorate over the coming years. In

addition, without the proposed variances, there is a significant potential for development of the rear 56 acres known as the Stone Farm into less than desirable, but allowed, agricultural uses.

2. 6220 – Special Permit Criteria

The Applicant also contends that she is entitled to a use variance because she satisfies the requirements under the Special Permit Criteria – Section 6220.

(a) The use is in harmony with the general purpose and intent of the bylaw.

The Applicant contends that the proposed self-storage use is in harmony with the general purpose and intent of the Bylaw to a greater extent than its current residential use. The Premises has frontage on Boston Post Road, a main commercial corridor of the Town of Sudbury, and is abutted on each side along Boston Post Road by business-related uses. The Premises abuts a Limited Industrial District on its easterly boundary, on which there is a Whole Foods Market and the Sudbury Fire Department Station 2. The proposed self-storage facility would be allowed as of right in the abutting Limited Industrial District. (*See Bylaw, Appendix A, Industrial D-3.*) It is also abutted on its westerly boundary by J.P. Bartlett, a commercial greenhouse operation exempted as an agricultural use and in part on its southerly boundary by a Limited Industrial District. (*See Exhibits D and E.*) The Premises itself has been used historically as a farm and has received special permits for its commercial use as a dog kennel. Additionally, the Applicant has gone to great expense to design the Self Storage building to have the look and feel of a "Sudbury" barn in response to Historic Commission's comments. (*See Exhibit B.*)

This Board has correctly found that development of a commercial business in a residential zone under very similar circumstances established that such development was in harmony with the purpose and intent of the Bylaw. For example, in Case No. 11-7 and 11-8, the applicant sought to construct the TD Bank on property also located on Boston Post Road. There, "the Board found that the proposed [commercial use] was harmonious with the bylaw, and that the location on Route 20 was surrounded by other commercial uses and therefore not detrimental to the neighborhood." This has been an approach utilized by the Town of Sudbury for many years in dealing with residential properties that found themselves surrounded by commercial activity, which is also illustrated in Case No. 79-17 where the same property's proximity to Route 20 and increasing commercial activity in the area was a basis for granting a use variance. (*Copies of decisions for Case Nos. 11-7, 11-8 and 79-17 are attached hereto as Exhibit H.*)

This approach has been acknowledged as appropriate by our highest court. *See Johnson v. Board of Appeals of Wareham*, 360 Mass. 872 (1972) (granting variance where old structure in a residential zone could not reasonably be used residentially because the property had become enveloped by commercial activity and heavy traffic). These cases are similar to the present Application in that they involve residentially zoned properties that have been enveloped by commercial development along this main commercial corridor of the Town of Sudbury.

Additionally, the Premises includes the historic Stone Tavern, which could be preserved in place by the Applicant with the allowance of the Variances in accordance with her purchase and sales agreement with the Developer, but whose future is otherwise bleak given her current financial circumstance. In designing the proposed self-storage use, the Applicant wishes to preserve the historic elements of the Stone Tavern for its aesthetic and historic qualities and taxable benefit to the Town of Sudbury as part of an active use of the self-storage Project. As such, preserving the Stone Tavern in this proposed use is in harmony with the general purpose and intent of the Bylaw and the loss of this historic structure would be out of accord with the Bylaws. See Bylaw Article 1000 (*"These regulations are enacted..... to preserve the cultural, historical and agricultural heritage of this community"*).

(b) The proposed use is in an appropriate location, is not detrimental to the neighborhood, and does not significantly alter the character of the zoning district.

The Applicant contends that the self-storage use is not detrimental and does not alter the zoning district. Although located in a Residential District, the area surrounding the Premises is not of a residential character. The Premises has frontage on Boston Post Road, a main commercial corridor of the Town of Sudbury, and is abutted on each side along Boston Post Road by commercial-related uses. The Premises abuts a Limited Industrial District on its easterly boundary, on which there is a Whole Foods Market and the Sudbury Fire Department Station 2, and a portion of its northerly boundary. The proposed self-storage facility would be allowed as of right in the abutting Limited Industrial District. (*See Bylaw, Appendix A, Industrial D-3.*) It is also abutted on its westerly boundary by J.P. Bartlett, a commercial greenhouse operation exempted as an agricultural use, making the continued residential use undesirable and impractical. The Board has found no detriment to the neighborhood under the Special Permit Criteria under applications filed by other applicants under very similar

circumstances. (*See e.g. Case 11-17.*) The court in *Johnson* similarly found that circumstances such as Anne's that "the variance could 'be granted without substantial detriment to the public good' or substantial derogation from the purpose of the bylaw." *Johnson*, 360 Mass. at 872.

It should also be noted that the Premises itself has been used historically as a farm and has received special permits for its commercial use as a dog kennel. As such, the proposed use is appropriately located, would not be detrimental to the neighborhood, and would not significantly alter the character of the zoning district. It is also notable that the only buildings of a historic nature on the Premises are the Stone Tavern, which the Applicant seeks to preserve in place, and the Stone Farm Barn, which the Applicant seeks to relocate, both for the taxable and historic value they provide to the Town of Sudbury. These extraordinary efforts by Anne and the Developer cannot be characterized as detrimental.

(c) Adequate and appropriate facilities will be provided for the proper operation of the proposed use.

The proposed self-storage structure will be a modern, energy efficient structure that has been designed to efficiently accommodate the small number of employees needed to operate the business, and the relatively small number of customers that are reasonably expected to access their storage units on a day-to-day or week-to-week basis. The renovations contemplated for the Stone Tavern will not only restore the structure to its beautiful historic glory, it will result in an updating of its facilities to allow its effective use for the limited office space necessary to operate the business.

(d) That the proposed use would not be detrimental or offensive to the adjoining zoning districts and neighboring properties due to the effects of lighting, odors, smoke, noise, sewage, refuse materials or other visual nuisances.

The Applicant contends that nothing about the proposed project is detrimental or offensive to the adjoining zoning districts. As described above, the proposed use is completely compatible and consistent with the nearby uses, as well as other uses along this main commercial corridor of the Town of Sudbury. (*See Exhibits D and E.*) Anne has listened to her neighbors and made revisions to the lighting plan for the Project to accommodate and address their concerns. Also, because the use is self-storage, the number of employees at the site will be few in number, and employee and customer generation of noise, sewage and refuse material will be

similarly unimpactful. (*See Standards for Self-Service Storage Facilities, attached as Exhibit J, pp. 2-4.)*

(e) That the proposed use would not cause undue traffic congestion in the immediate area.

The Applicant contends that the proposed self-storage use will not cause undue traffic congestions. The Boston Post Road corridor is already moderately congested. The small number of employees traveling to and from the proposed use will have no impact on traffic. Typically, a large percentage of the customers of any self-storage facility utilize such facilities as part of their regular commuting pattern and therefore will have little or no impact on traffic. (*See Standards for Self-Service Storage Facilities, attached as Exhibit J, pp. 2-4; Common Trip Generation Rates, Institute of Transportation Engineer's Trip Generation Manual, 9th Edition, attached as Exhibit K and Traffic Study, which is separately filed.*) The use contemplated by the Applicant will not have a material impact along this section of Boston Post Road.

As a matter of fact, the allowance of the Project will result in a net reduction in the amount of traffic utilizing Route 20 and historically entering the Project site. Anne previously operated a doggie daycare on the Property that had a greater impact on traffic than the Project. She currently utilizes the property for a similar but scaled down purpose. The doggie daycare business will cease operation with the allowance of the Project.

3. The Applicant contends that she is entitled to a Use Variance because she satisfies the statutory Variance requirements under Section 6130.

6131: "There must be special conditions relating to the soil condition, shape, or topography of the land or structures thereon and especially affecting the land or structures, but not affecting generally the zoning district in which the land is located."

The Applicant contends that she meets this element for two separate and independent reasons. The first is because there is a special condition relating to the soil condition, shape, or topography of the land. The second is because there is a special condition relating to structures on the Property, i.e. the Stone Tavern and the Stone Farm Barn.

Special conditions relating to the shape and topography of the land arise from the Premises' unique proximity to significant non-residential development along Boston Post Road over the years. To the east and north of the Premises is a Limited Industrial District, which

includes two adjacent neighbors – Whole Food Markets and the Sudbury Fire Department. The area beyond Whole Foods is entirely commercial in character and includes the Avalon apartment development, Pure Encapsulations, a manufacture of dietary supplements, the Sudbury Plaza, including Shaws and a Starbucks, Sullivan Tire, a gas station, and significant ongoing construction of commercial buildings that are in character with a Limited Industrial District. (*See Exhibit E and Exhibit F.*) To the immediate west of the Premises, the Applicant finds herself sandwiched by another large commercial enterprise, J.P. Bartlett. Despite its location in the same Residential District, J.P. Bartlett is a large-scale commercial greenhouse operation authorized to operate in a Residential District because of zoning exemptions. This Board has found on more than one occasion that unique factors such as those described above constitute a special condition contemplated by this Section 6131. (*See Case Nos. 79-17, 11-7 and 18-7.*) Our highest court has also recognized that such envelopment by commercial activity is a factor in granting a variance. *See Johnson v. Board of Appeals of Wareham*, 360 Mass. 872 (1972) (granting a variance where traffic congestion and development of commercial uses in the area were among the reasons for filing a variance application). As a result of these factors relating to the shape and topography of the land, the Premises is affected in manner unique to others in the zoning district – these conditions affect the Applicant and no other residential zoned property along this section of the Boston Post Road commercial corridor.

The *Johnson* court also made it clear that special conditions relating to a "structure" located are a separate and independent basis for establishing provisions such as Section 6130. In that case, a developer sought to convert an existing church in a residential zone to office space because the area was less conducive to residential use due to nearby commercial development and increases in traffic congestion, as well as unreasonable costs associated with maintaining a residential use. The court found that these conditions affected the older church structure. Similar to the case of *Johnson*, there are special conditions relating to both the Stone Tavern and Stone Farm Barn that especially affect those structures but not the zoning district at all. *Johnson*, 360 Mass. at 872. Although the Property is not identified as being within one of Sudbury's "Historic Districts," it contains historic structures, unlike most properties in the zoning district. The Town of Sudbury has put great and appropriate emphasis on the preservation of the historical and agricultural heritage of the community. (*See Bylaw, Article 1000.*)

Sudbury's history will suffer significantly if Anne is not allowed to make decisions that will allow the preservation of the Stone Farm Barn and the Stone Tavern, neither of which can survive without relief from the Zoning Bylaws. If left to the requirements of a residential zoning district, both of these structures will be lost to Anne, the Town of Sudbury and history.

6132: "There must be a substantial hardship to the owner, financial or otherwise, if the provisions of the ordinance or Bylaw were to be literally enforced."

The current residential use of the Premises is unsuitable because of the manner in which the Premises has become an isolated residential property surrounded by continuing development along Boston Post Road, including congestion and large and busy commercial uses. Future complaints and disagreements concerning noise, odors and other nuisances that the Board might expect from a residential property owner enveloped by commercial development would likely be avoided if the use was to change to that requested by the Applicant. As this Board recognized in a similar application for use permit (Case Nos. 11-7 and 11-8), the Premises is unsuitable for anything other than commercial use due to its location on Boston Post Road, a major commercial corridor for the Town of Sudbury, and due to the fact that it is surrounded by commercial activity. (*See Exhibits B and C.*) The *Johnson* court supports the fact that Boards approach in these cases has been appropriately within the Board's discretion.

It should also be noted that the allowance of the Applicant's requested use variance would not simply shift discomfort of abutting the Limited Industrial District to the next property owner along Boston Post Road. The next property to the west of the Premises is already a commercial operation, not a residence.

6133: "There must be no substantial detriment to the public good if the variance is granted.

There will be no detriment to the public good if the self-storage use is allowed. The use is of consistent character with the commercial uses abutting the Premises along Boston Post Road and the abutting Limited Industrial District. Moreover, the contemplated use would be beneficial to the Town of Sudbury and its residents because there are currently no self-storage facilities in the Town of Sudbury and the taxable benefits of a Sudbury resident's utilization of such facilities currently belong to other neighboring municipalities. Finally, the allowance of the requested Applications is also in the best interest of preserving the historic Stone Tavern as a

historic and taxable benefit to the Town of Sudbury and of relocating and preserving the Stone Farm Barn before its condition deteriorates to the point of hazardousness, which may result in a Town-ordered razing of the structure in the relative near future.

The real detriment will only come from the denial of the variances. Anne is in a situation that requires her to make a financial decision for her family. If this Project is denied, she will have to find a use, other than a residential use for the Property, which will likely mean one of many Dover uses that this Board will have little discretion in tailoring and the ultimate demolition of both the Stone Tavern and the Stone Farm Barn. And because none of the potential Dover uses has the ability to provide Anne with the compensation that she will derive from this Project, it is likely that she will also have to consider selling the Stone Farm acreage. The agricultural restriction on that property only goes so far. The potential buyers would be those who have a financial interest in developing plastic-lined growing fields and or constructing large greenhouses, like those on the Cavicchio and Bartlett properties. Anne does not want that for the Stone Farm but could be forced into such a situation if this Project is denied.

6134: "Granting the variance must not nullify or substantially derogate from the intent of purpose of the ordinance or Bylaw."

As is set forth above, the proposed use is in harmony and character with all of the adjoining uses along Boston Post Road, which are commercial uses.

4. The Applicant contends that she satisfies all of the limitations for a Use Variance set forth in Sections 6145 through 6147.

6145: The extent of the use nonconformity as to floor space, bulk, number of occupants or other relevant measure shall be no greater than the minimum necessary to provide relief from the statutory hardship.

The Applicant contends that the use nonconformity proposed for this self-storage project is the minimum necessary to provide relief. The square footage of the structure and layout of the individual storage units is the minimum for which the Applicant can effectively conduct its self-storage business. The number of employees necessary to manage and operate the business will be very small and will not exceed the minimum necessary to allow the Applicant to reasonably manage its business. The only others that will have regular access to the self-storage facility will be customers, whose use of the facility is necessary and typically staggered and who will only be present at the facility on an as-needed basis. Furthermore, the Applicant has reduced the

footprint of the building and the number of storage units for purposes of retaining the structure known as Stone Tavern for the benefit of the Town and have further reduced the footprint and storage capacity of the main structure in response to comments by residents and Town officials.

6146: "The operation of the use nonconformity as to hours, noise, level of activity or other relevant way shall be so restricted as to assure compatibility with conforming uses in the vicinity.

The Applicant contends that the project is compatible with conforming uses in the vicinity. The proposed self-storage use will produce little noise in excess of the noise presently created by the abutting commercial activity and existing traffic noise along Boston Post Road. The customer activity is staggered, and most customers access their storage units only a small number of times over the course of a month or a year. (*See Exhibits I, J and K.*) The hours of proposed use are consistent with the hours of the nearby commercial operations located east of the Premises, including the abutting Whole Foods Market. Additionally, the Applicant wishes to work with the Board to ensure that the hours of operation do not adversely impact the community. Moreover, the number of trips contemplated for this self-storage use will have little impact on this commercial corridor. (*See Exhibit I.*)

6147: "If the use is authorized under Sections 6142 or 6143 above by the prior existence of adjoining nonconformities or incompatibilities:

(a) the use nonconformity on the lot in question shall be permitted no further from such prior adjoining conditions as the width of the lot or 100 feet, whichever is less; and

(b) the use nonconformity shall be terminated within one year of the time when such adjoining conditions have been terminated, except that the Board of Appeals may grant a special permit for a further delay of not more than five years.

Because the Premises conforms to Bylaw Section 6144, the Board may grant the requested Use Variance without applying this Section 6147. However, to the extent such a grant is based on 6142 or 6143, the proposed use complies in all respects with this Section 6147.

B. APPLICATIONS FOR VARIANCE UNDER ARTICLE 2200, SECTION 2210

Section 2210 provides in pertinent part that "[n]ot more than one principal structure shall be placed on a lot, except in accordance with Sections 2300, 5300 and 5400." The Applicant seeks a variance from the limitations of this Section 2210 to allow two (2) structures on the Premises.

The reason the Applicant must request this Section 2210 variance is to accomplish the objective of retaining the Stone Tavern for its historic, aesthetic and taxable benefits. The Applicant could very easily develop a plan for the construction of the proposed self-storage facility that complied with the single structure limitation of the Bylaw. After comments from residents, the Historical Commission, and members of the Zoning Board during the September 2018 hearing on Anne's withdrawn applications, however, Anne fully recognizes that incorporating an active use of the Stone Tavern in a manner that ensures its future upkeep is a priority for the Town. The only problem with retaining Stone Tavern for its historic, aesthetic and taxable benefits is that doing so is the reason the Applicant must request this Section 2210 variance.

The analysis set forth above for the Section 6130 requirements for the Use Variance applies equally to the request for a variance from the limitations under Section 2210 of the Bylaw. For the reasons set forth above, the granting of this Variance is appropriate because the Applicant has met all of the conditions set forth under Section 6130 by establishing that special conditions exist on the Premises (6131), The Applicant (and Town of Sudbury) will suffer substantial hardship if the Bylaw is literally enforced (6132), there will be no substantial detriment to the public good (6133), and the variance will not nullify or derogate from the intent of the Bylaw.

CONCLUSION

For the foregoing reasons, the Applicant respectfully requests that the Board grant the Variances subject to conditions it deems necessary and appropriate. The Applicant also notes that she will be filing for Site Plan Approval with the Town of Sudbury Planning Board and acknowledges and requests that the allowance of these Applications be subject to any conditions imposed by the Planning Board in the Site Plan Approval.

APPLICANT
By her counsel

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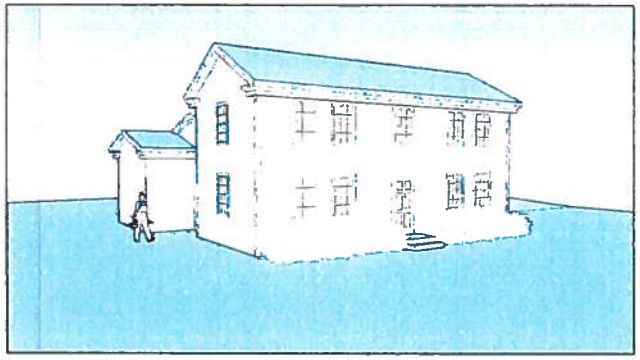
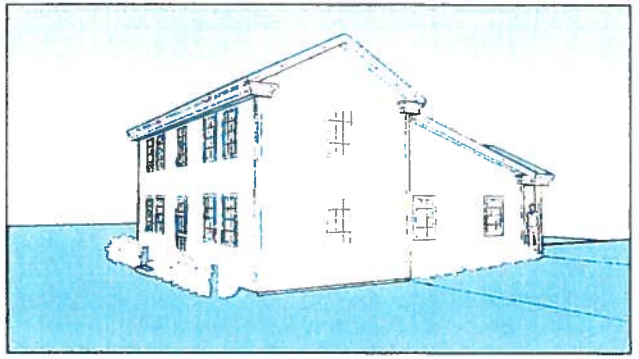
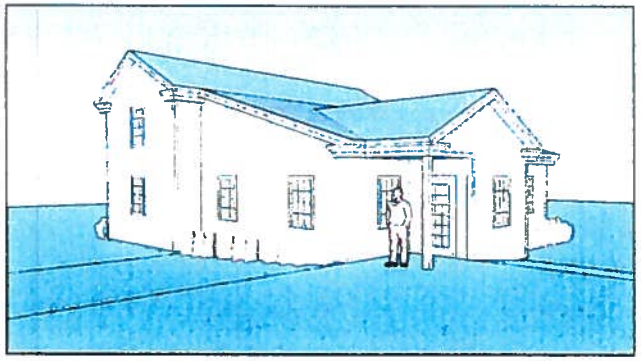
Neal J. Bingham
Law Office of Jerry C. Effren
25 West Union Street
Ashland, MA 01721
(508) 881-4950

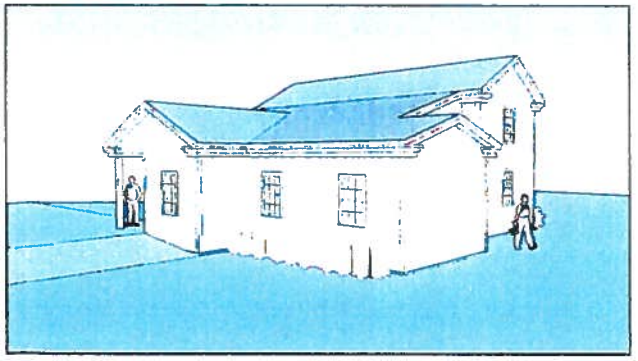
Dated: February 5, 2019

EXHIBIT A









STONE TAVERN
554 BOSTON POST RD.
SUDBURY, MASSACHUSETTS

revisions
A XX/XX/XX
A XX/XX/XX
1 XX/XX/XX

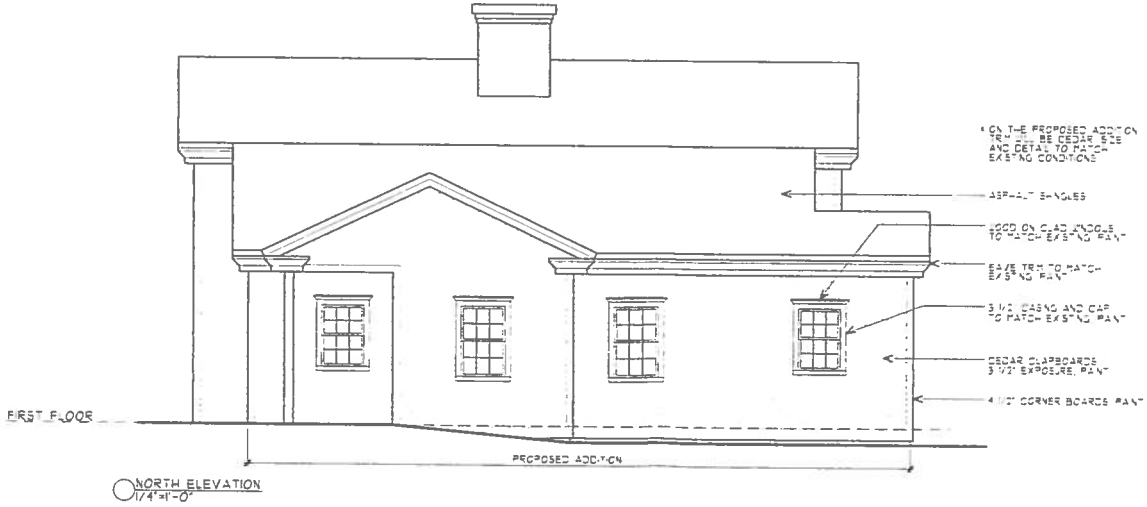
DICKINSON ARCHITECTS, LLC
P.O. BOX 704
91 MAIN STREET
CONCORD, MA 01742
(978) 341-8259

3D VIEWS

scale NONE
date 12/11/18

drawn by MD
checked by BD

A 5



STONE TAVERN
554 BOSTON POST RD.
SUDBURY, MASSACHUSETTS

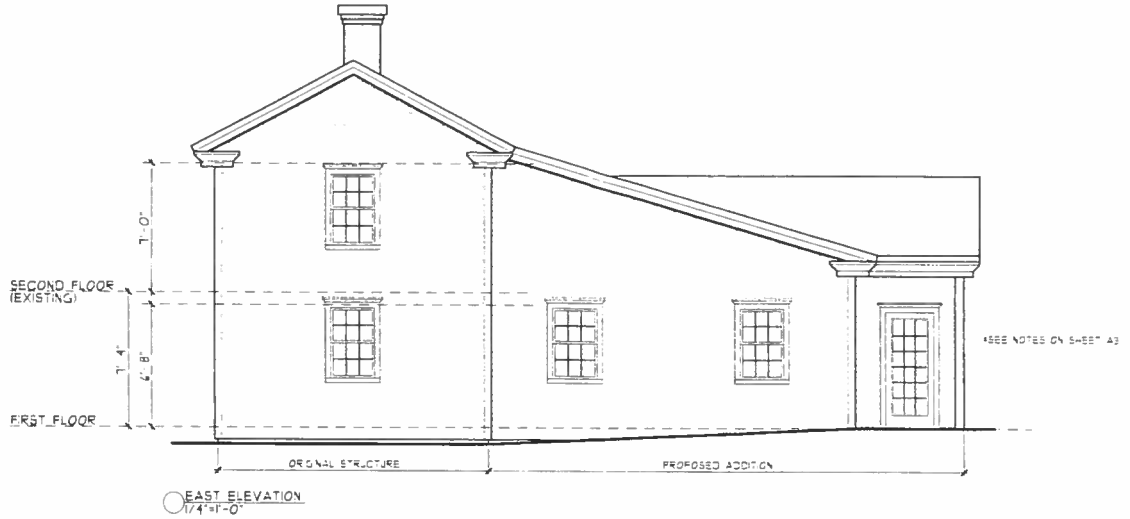
revisions
3 XX/XX/XX
2 XX/XX/XX
1 XX/XX/XX

DICKINSON ARCHITECTS, LLC
P O BOX 704
91 MAIN STREET
CONCORD, MA 01742
(978) 341-8267

NORTH AND SOUTH ELEVATIONS

scale 1/4"=1'-0"
date 12/6/18
drawn by MD
checked by BD

A 3



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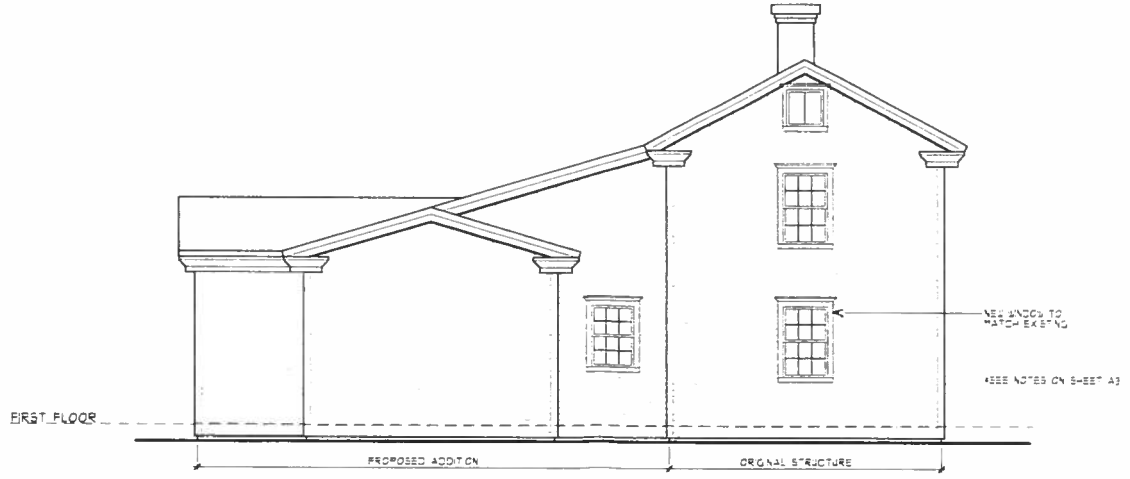

WEST ELEVATION
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STONE TAVERN
554 BOSTON POST RD.
SUDBURY, MASSACHUSETTS

revisions
3 XX/XX/XX
2 XX/XX/XX
1 XX/XX/XX

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EAST AND
WEST
ELEVATIONS

scale 1/4"=1'-0"
date 12/11/18

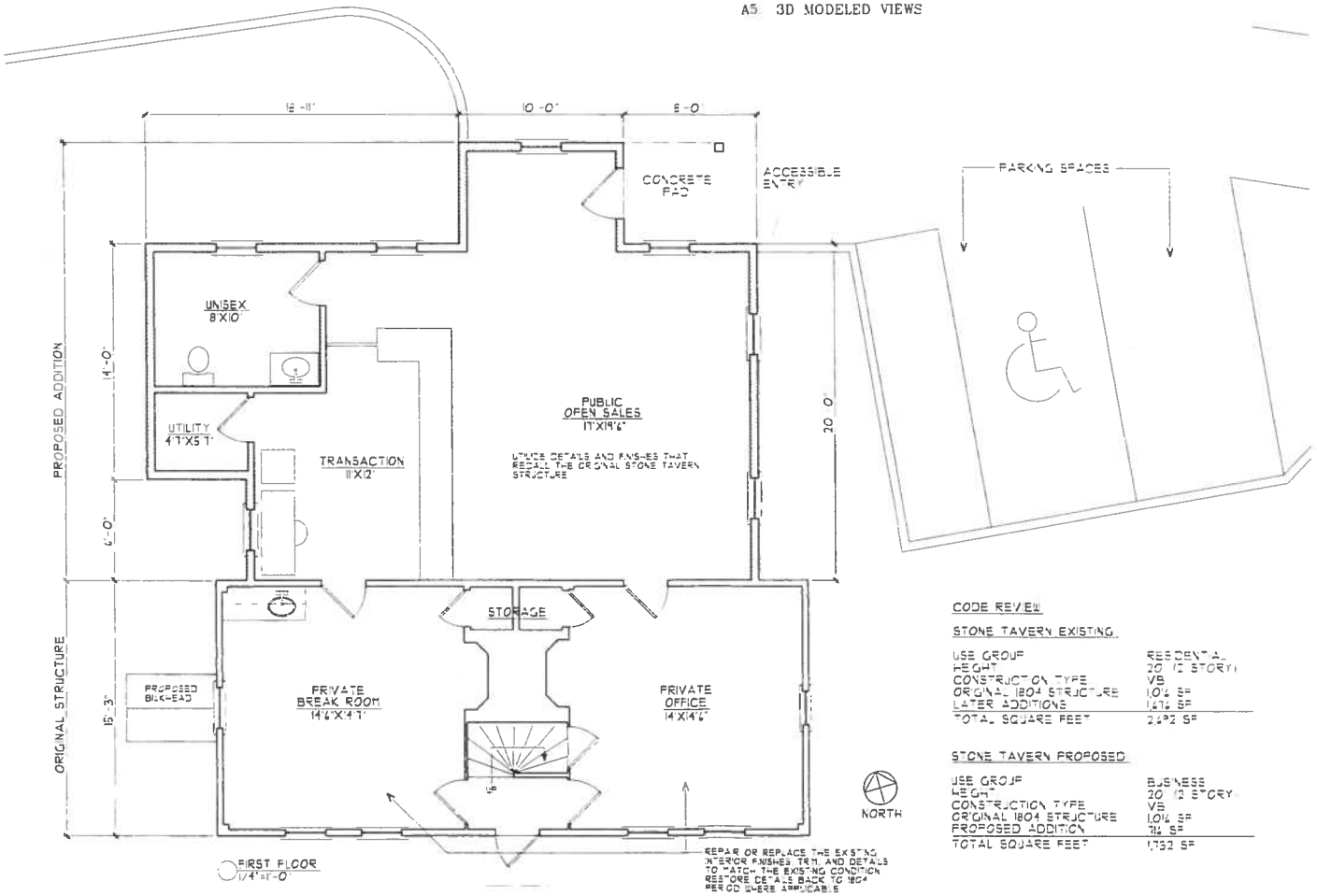
drawn by MD
checked by BD

A4

PAVED DRIVEWAY

DRAWING SCHEDULE

A1 FIRST FLOOR PLAN WITH CONTEXT AND CODE REVIEW
A2 DEMOLITION PLAN AND SECOND FLOOR PLAN
A3 NORTH AND SOUTH ELEVATIONS
A4 EAST AND WEST ELEVATIONS
A5 3D MODELED VIEWS



CODE REVIEW

STONE TAVERN EXISTING

USE GROUP	RESIDENTIAL
HEIGHT	20' (2 STORY)
CONSTRUCTION TYPE	VB
ORIGINAL 1804 STRUCTURE	1,014 SF
LATER ADDITIONS	1,478 SF
TOTAL SQUARE FEET	2,492 SF

STONE TAVERN PROPOSED

USE GROUP	BUSINESS
HEIGHT	20' (2 STORY)
CONSTRUCTION TYPE	VB
ORIGINAL 1804 STRUCTURE	1,014 SF
PROPOSED ADDITION	718 SF
TOTAL SQUARE FEET	1,732 SF

STONE TAVERN
554 BOSTON POST RD.
SUDBURY, MASSACHUSETTS

revisions
A XX/XX/XX
A XX/XX/XX
1 XX/XX/XX

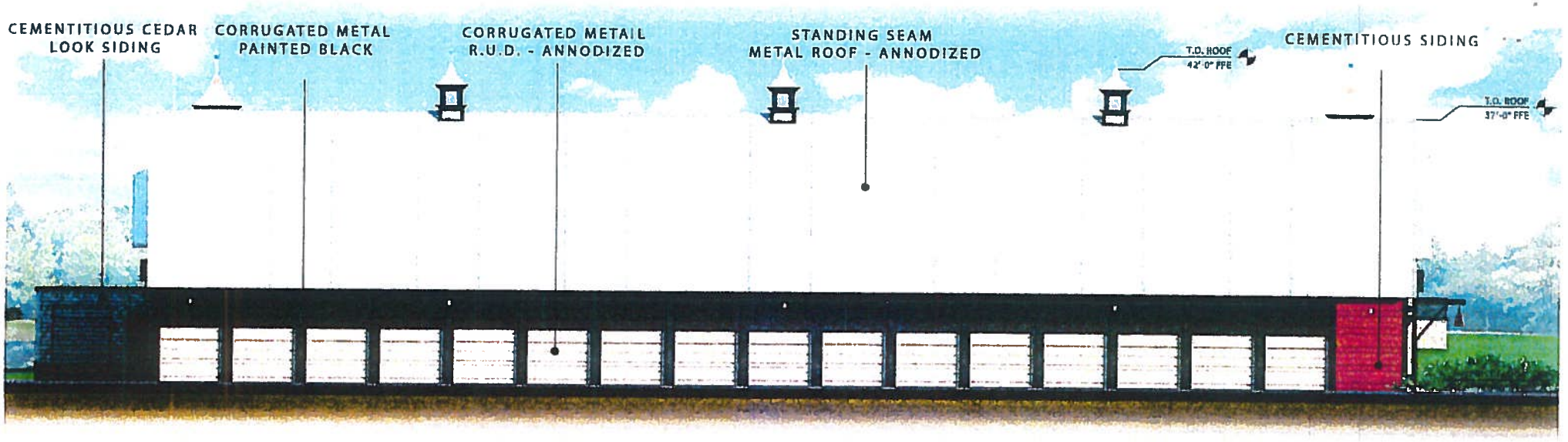
DICKINSON ARCHITECTS LLC
P.O. BOX 704
91 MAIN STREET
CONCORD MA 01742
(978) 341-8267

FIRST FLOOR PLAN

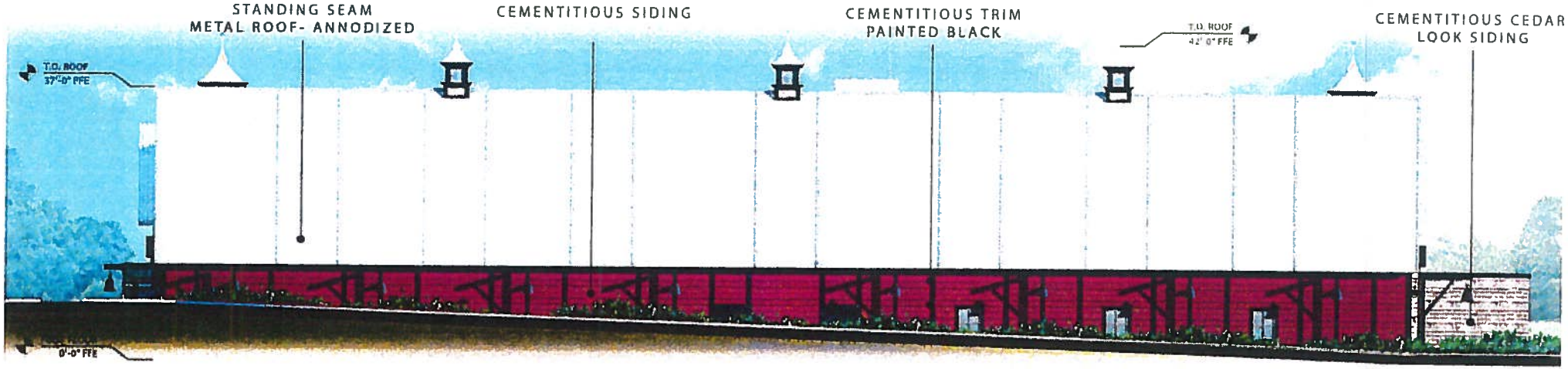
scale 1/4"=1'-0"
date 12/11/18
drawn by MD
checked by BD

A1

EXHIBIT B



NORTH ELEVATION



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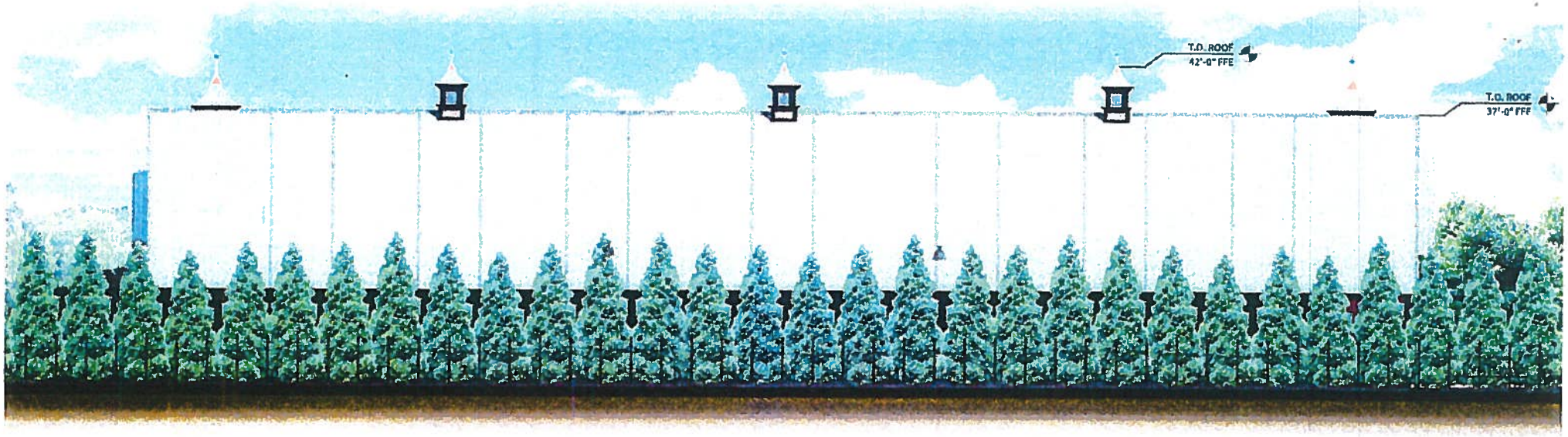

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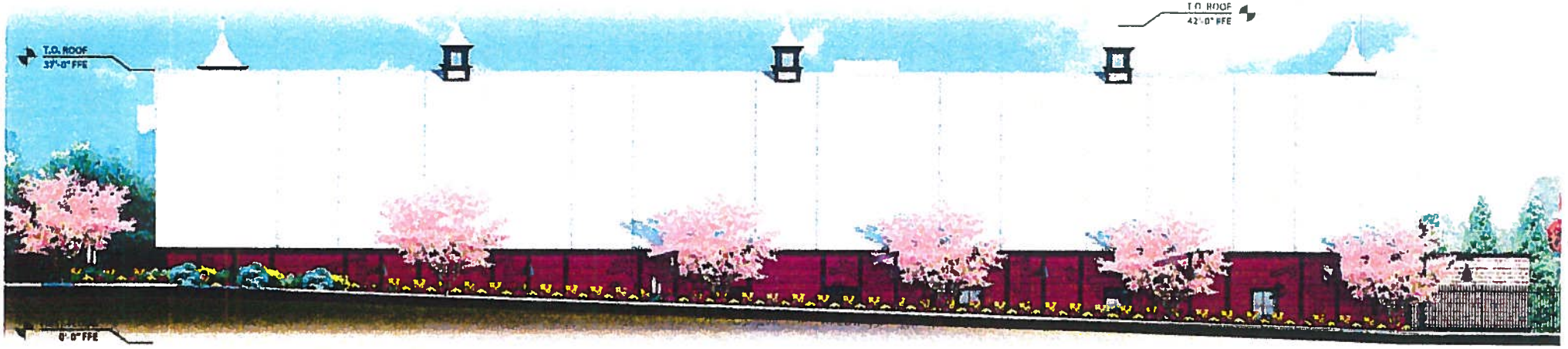

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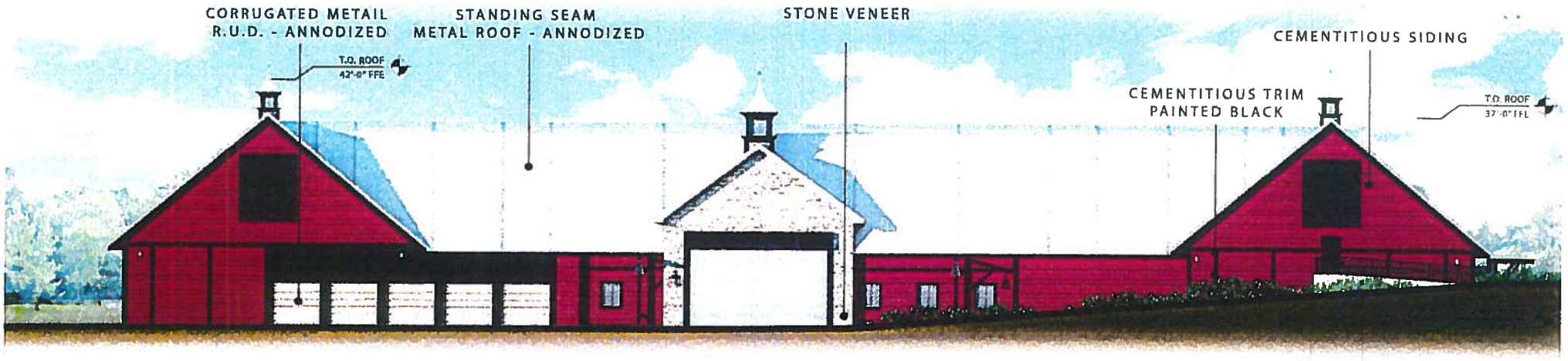

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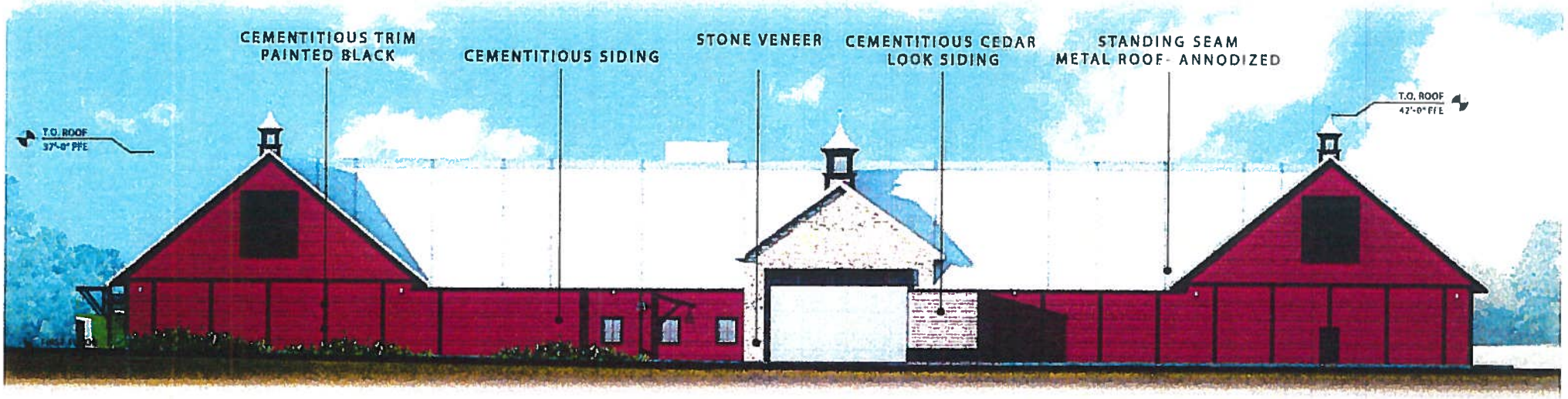

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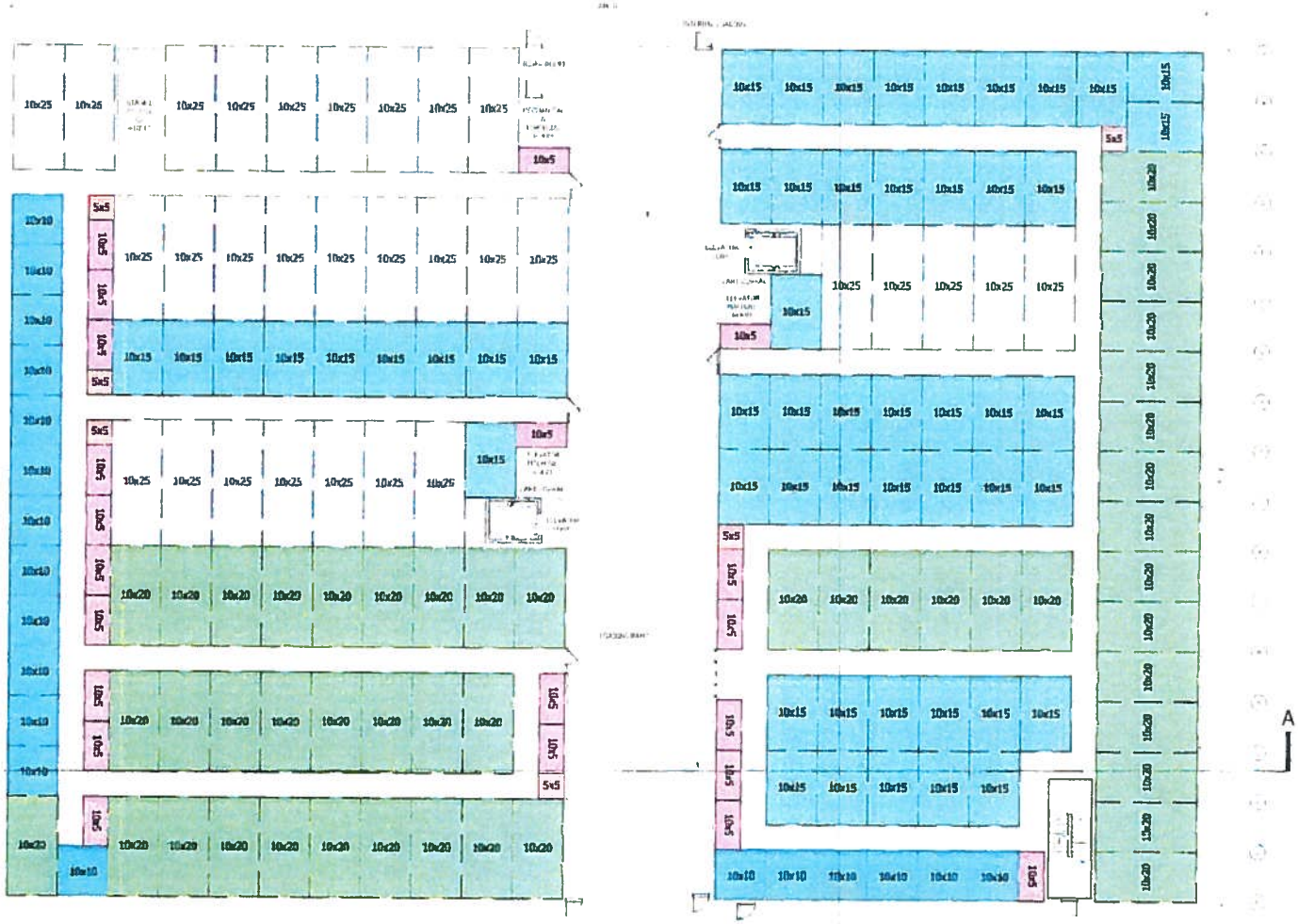
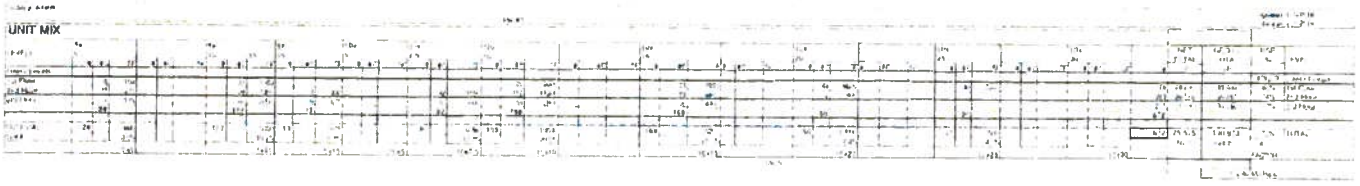
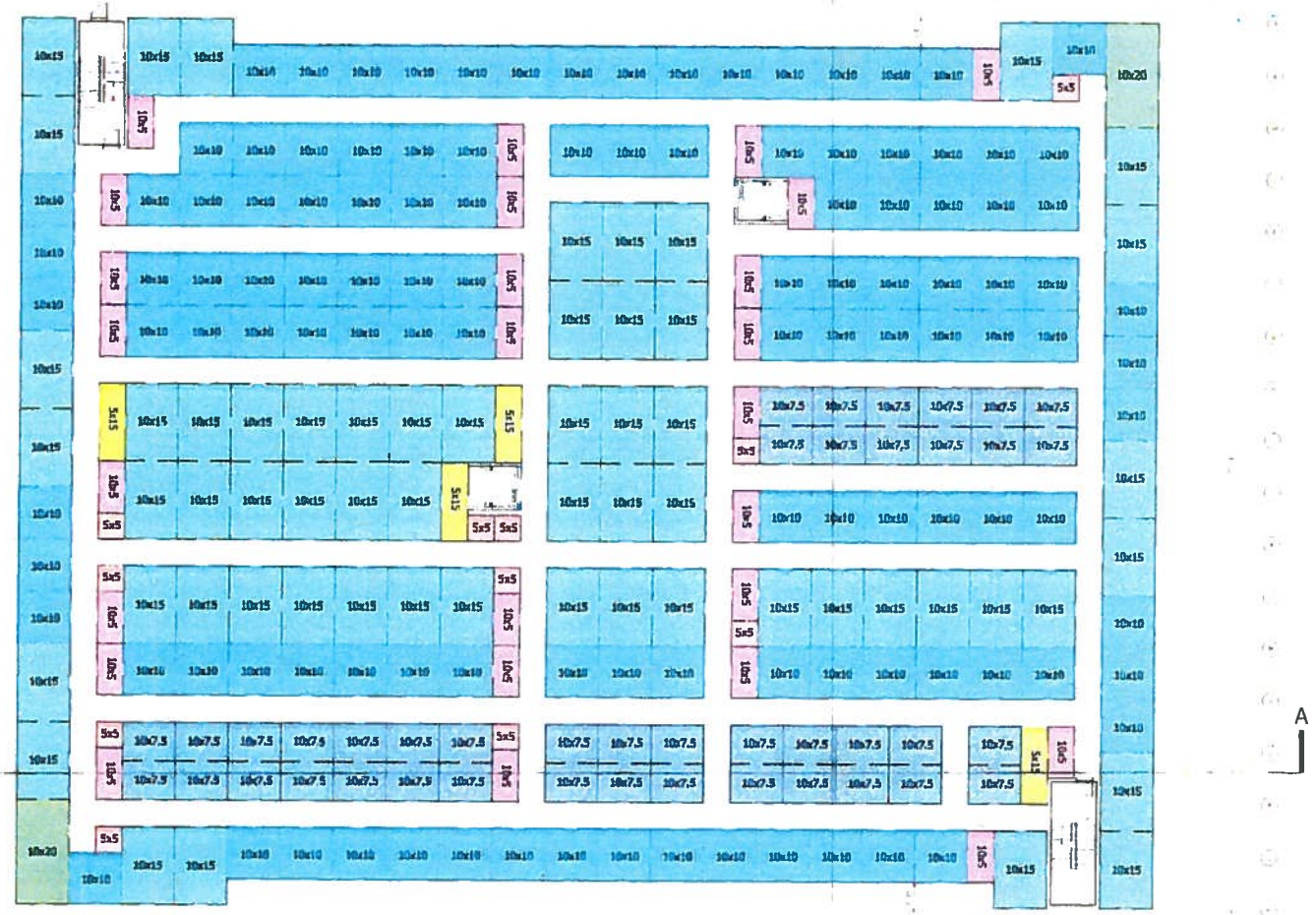




SUDBURY UNIT MIX LOWER LEVEL - V2

Boardwalk Storage Solutions



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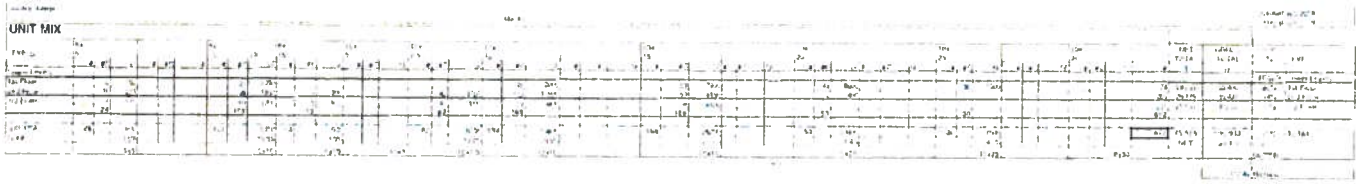
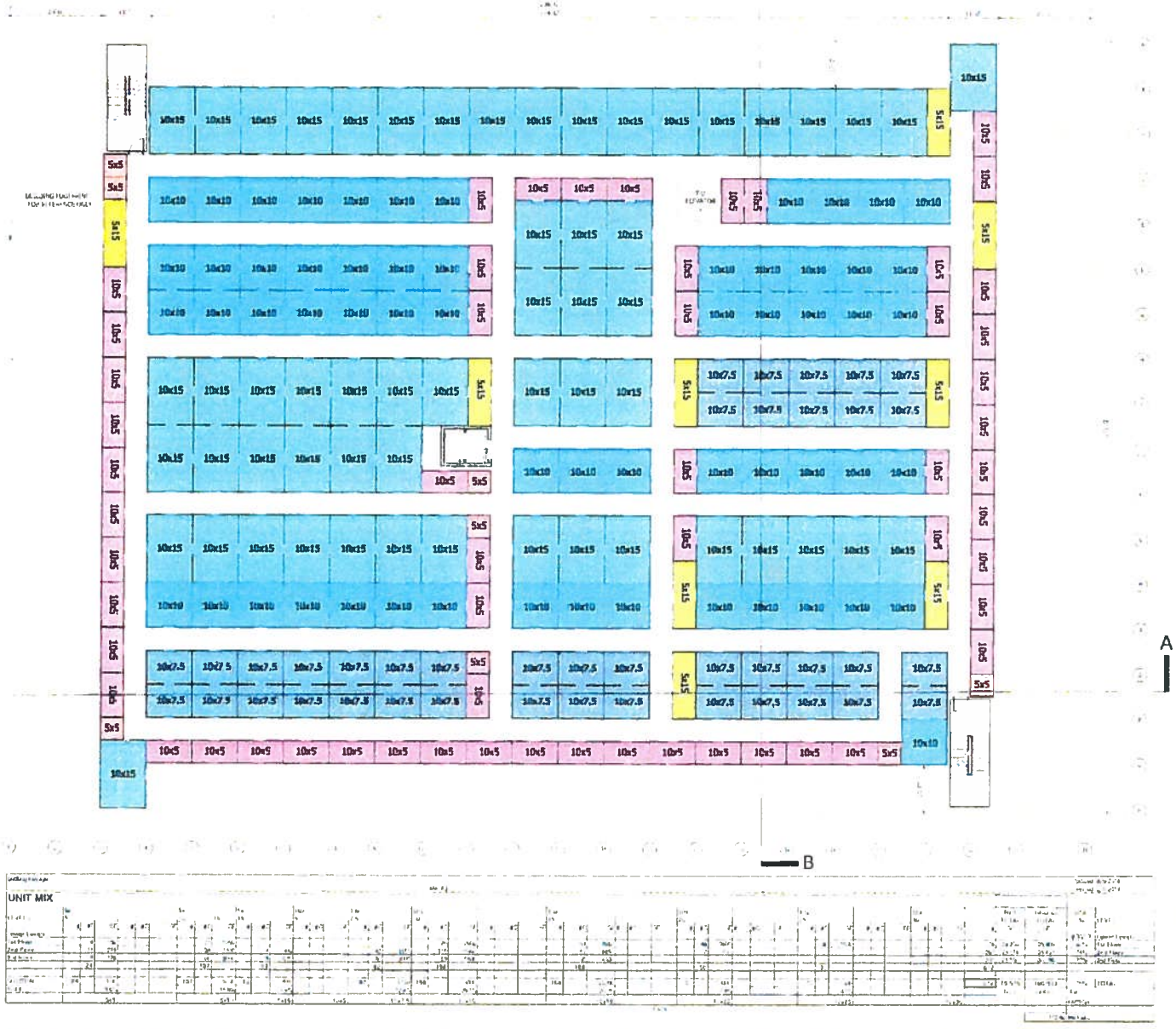


SUDBURY UNIT MIX SECOND FLOOR - V2

Boardwalk Storage Solutions

ODA



SUDBURY UNIT MIX THIRD FLOOR - V2

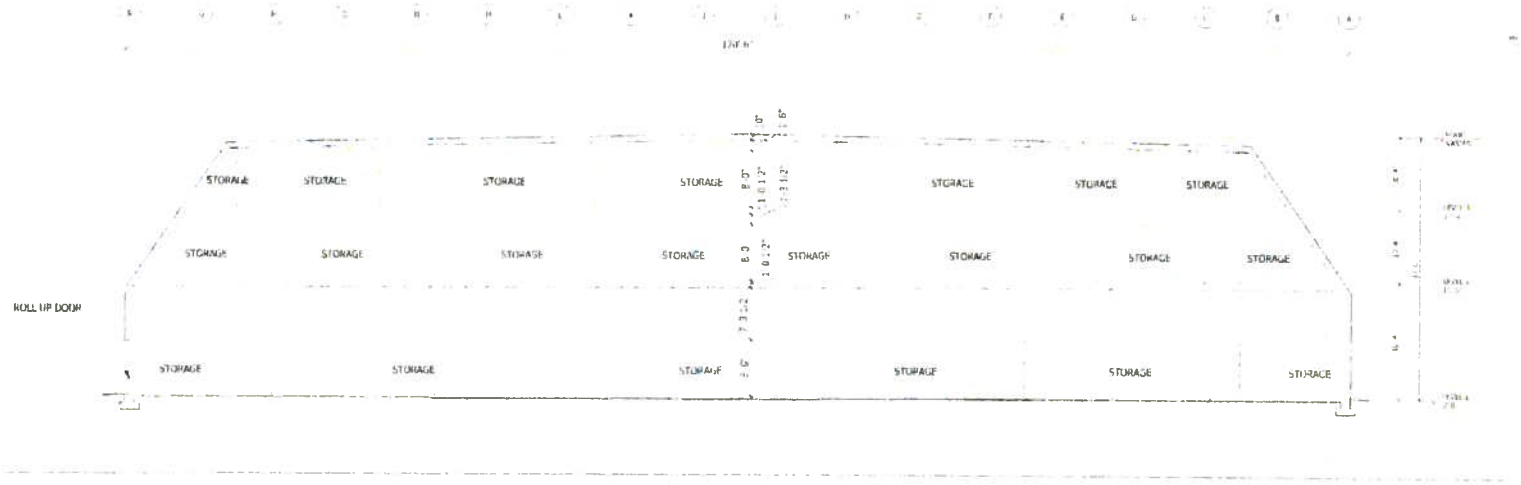
Boardwalk Storage Solutions

ODA

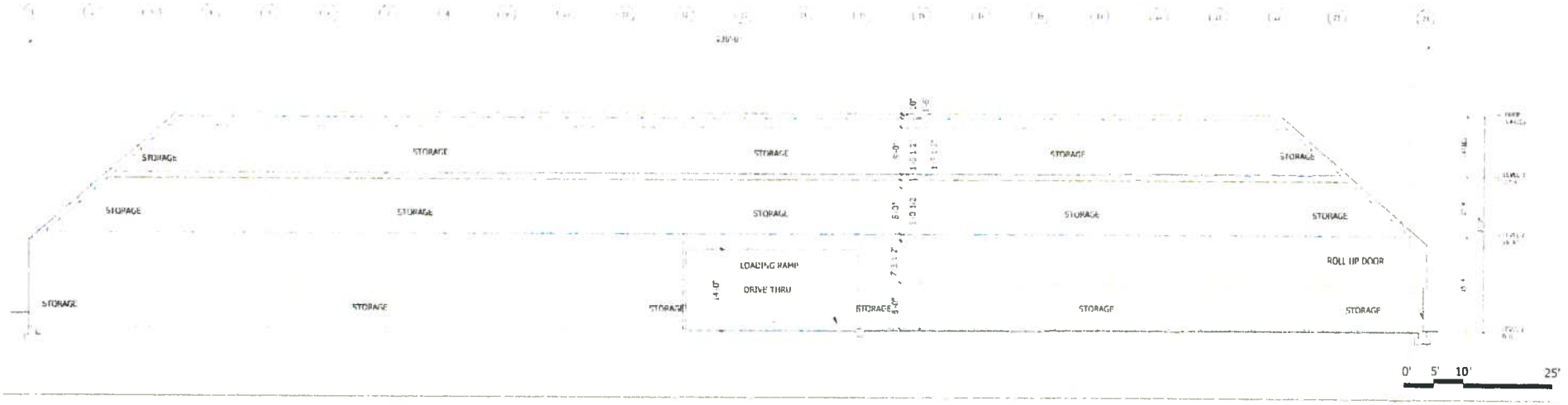
SUBAURA STORAGE ROOF PLAN - V2

Boardwalk Storage Solutions

SIDEWAY CIRCULAR STAIR SHAFT - DIAGRAMS
ODA
37'-0"
16'-4"
10'-4"
10'-4"
5'-0"
CUPOLA
STAIR SHAFT CONTINUATION
EXTERIOR WALL AND ROOF ASSEMBLY
6'-8"
0'-1"
4'-7 1/4"
9'-0 1/32"
37'-0"
16'-4"
10'-4"
10'-4"
STAIR SHAFT WALL
STAIR EGRESS

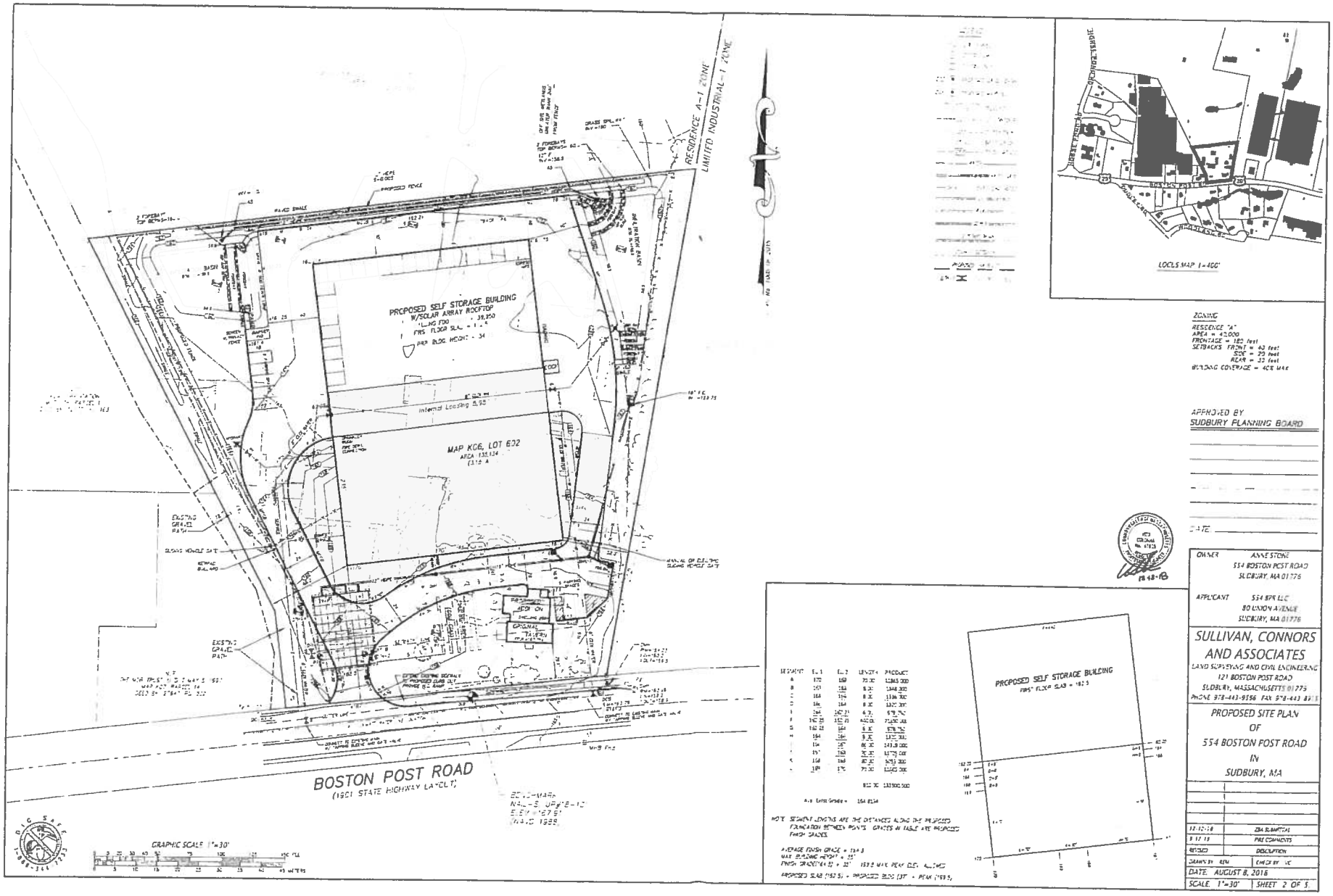


SECTION B



SECTION A

EXHIBIT C



ZONING
RESIDENCE "A"
AREA = 40,000
FRONTAGE = 180 feet
SETBACKS FRONT = 40 feet
SIDE = 20 feet
REAR = 30 feet
BUILDING COVERAGE = 40% MAX

APPROVED BY
SUDBURY PLANNING BOARD

DATE: _____

OWNER	ANNE STONE 554 BOSTON POST ROAD SUDBURY, MA 01776
APPLICANT	554 BPR LLC 80 UNION AVENUE SUDBURY, MA 01776

SULLIVAN, CONNORS AND ASSOCIATES
LAND SURVEYING AND CIVIL ENGINEERING
121 BOSTON POST ROAD
SUDBURY, MASSACHUSETTS 01776
PHONE 978-443-9356 FAX 978-443-8891

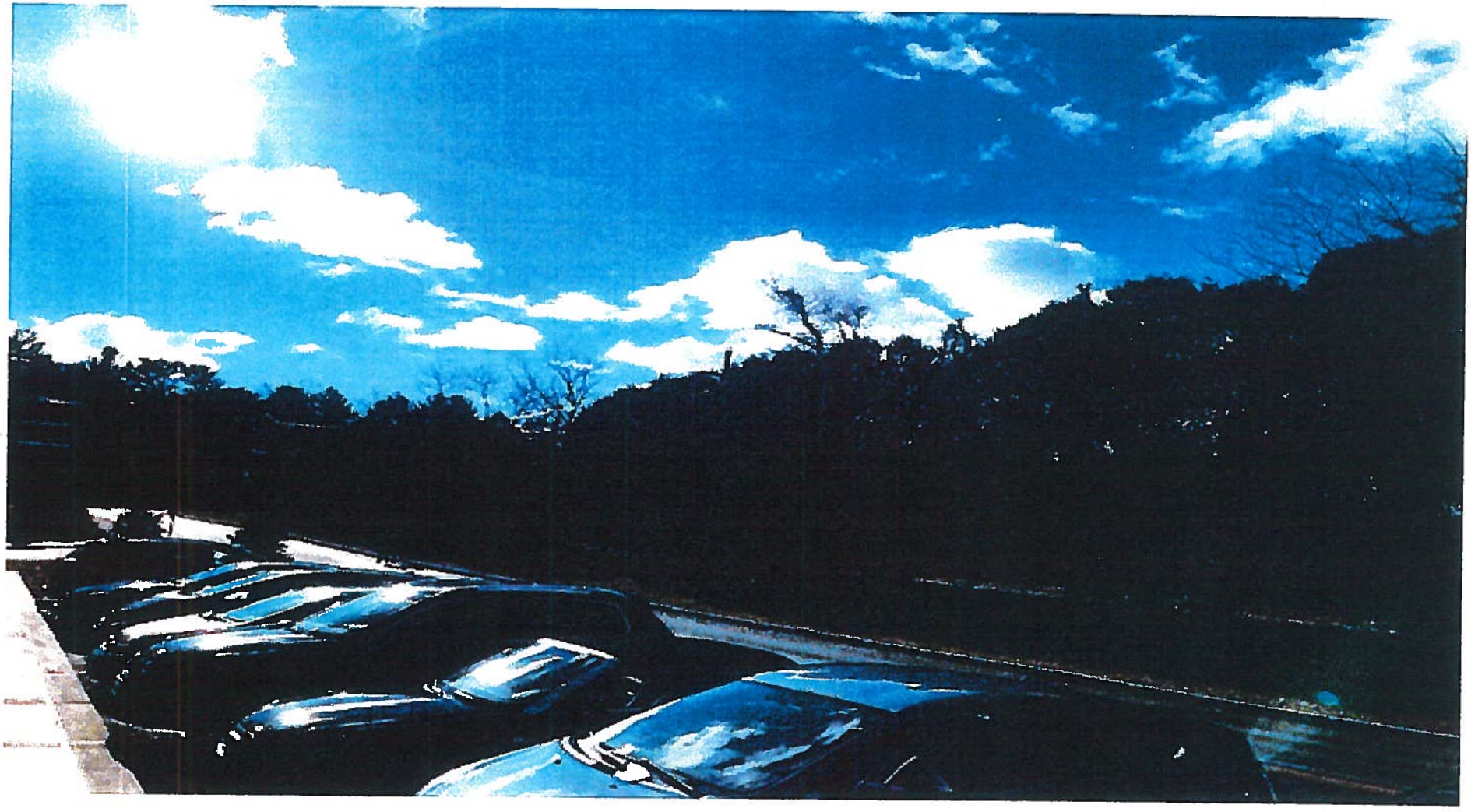
PROPOSED SITE PLAN OF 554 BOSTON POST ROAD IN SUDBURY, MA

11-12-18	ZBA SUBMITTAL
9-17-18	PRE COMMENTS
REVISED	DESCRIPTION
DRAWN BY: REM	CHECK BY: MC
DATE: AUGUST 8, 2018	
SCALE: 1"=30'	SHEET 2 OF 5

EXHIBIT D

VIEW FROM WHOLE FOODS

VIEW FROM WHOLE FOODS



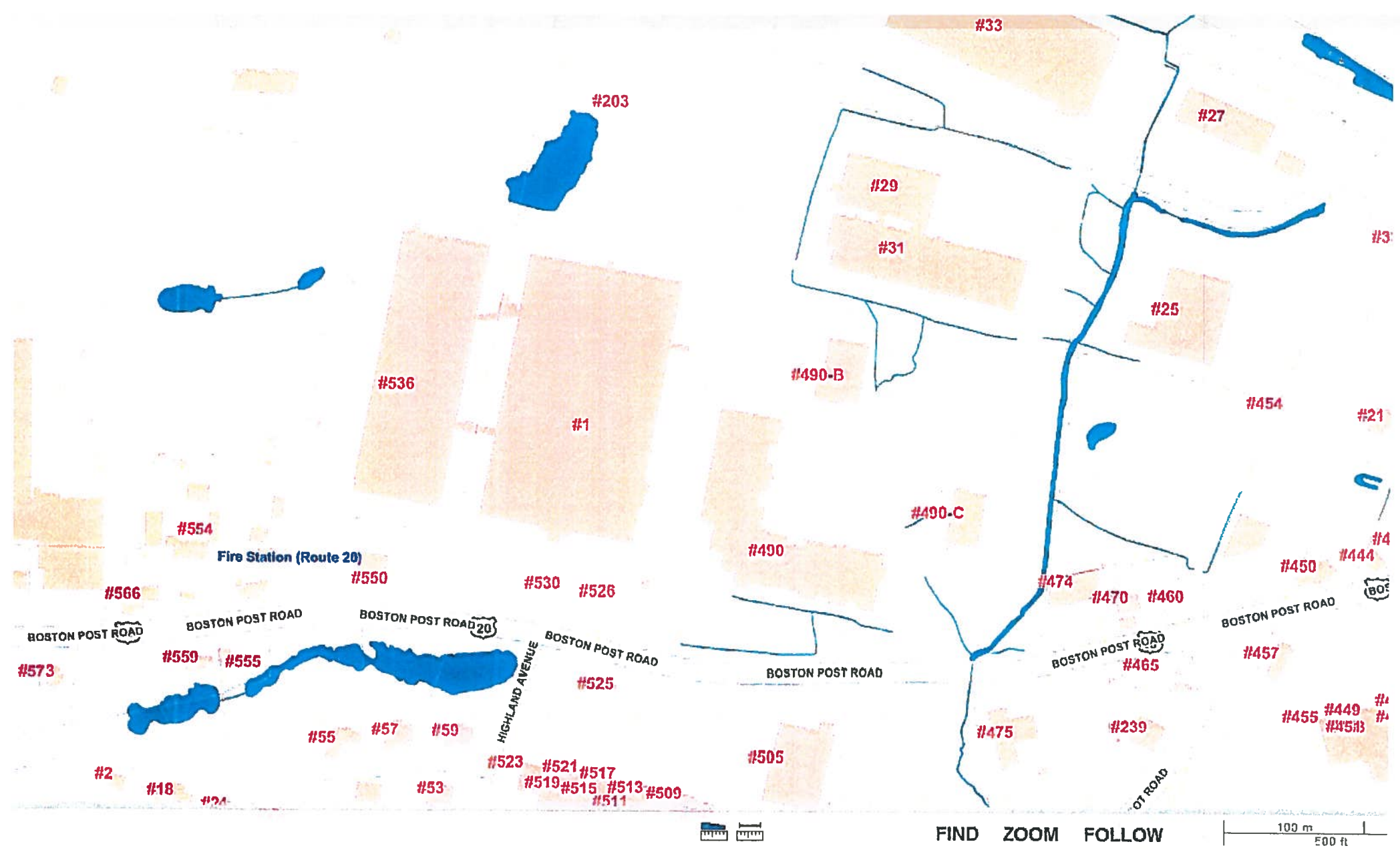
VIEW FROM WHOLE FOODS STREET

VIEW FROM HORSE POND RD.

VIEW FROM HORSE POND RD.

VIEW FROM HORSE POND RD.

EXHIBIT E


#33
#203
#27
#29
#31
#25
#490-B
#536
#1
#454
#21
#490-C
#554
Fire Station (Route 20)
#490
#444
#450
#566
#550
#530
#526
#474
#470
#460
BOSTON POST ROAD
BOSTON POST ROAD
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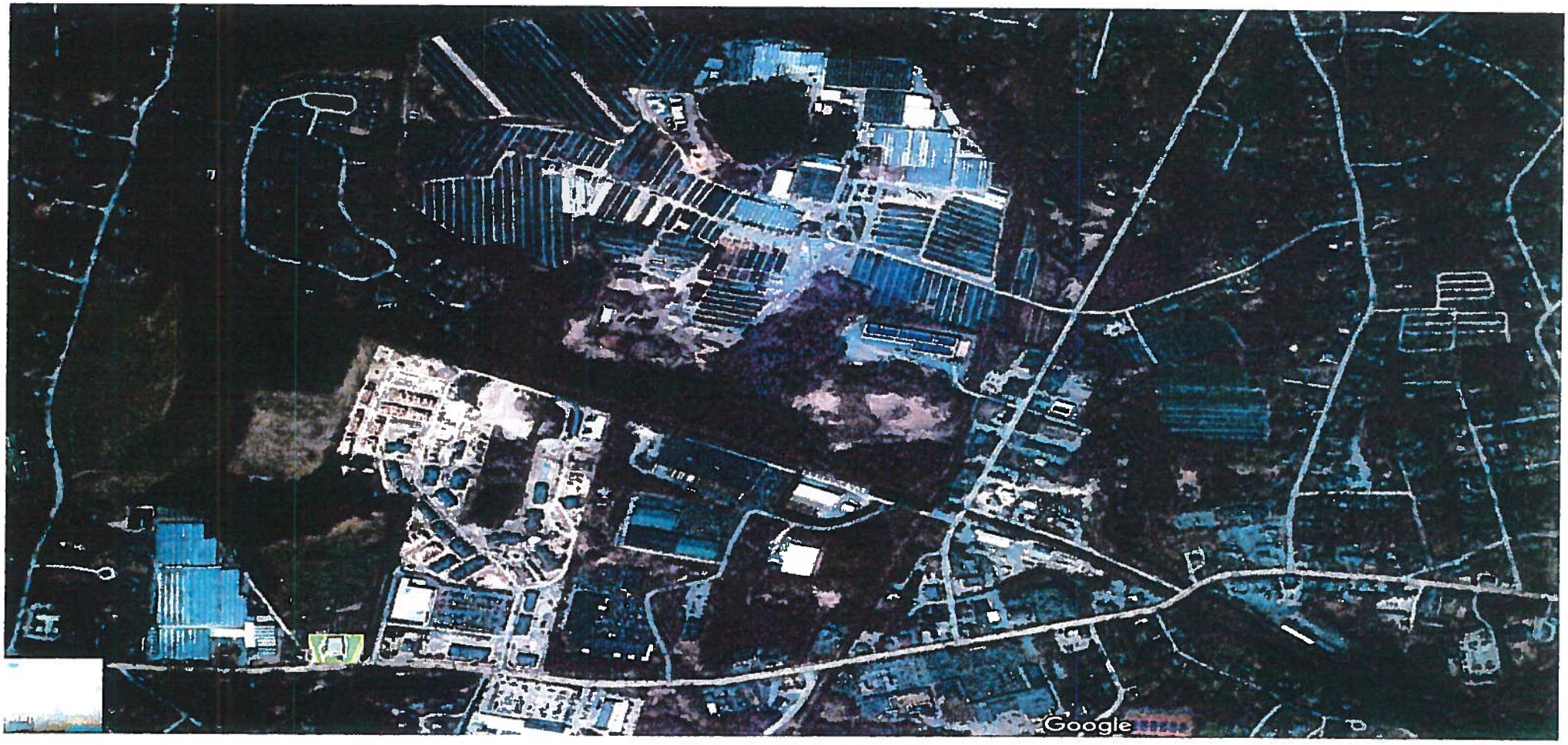
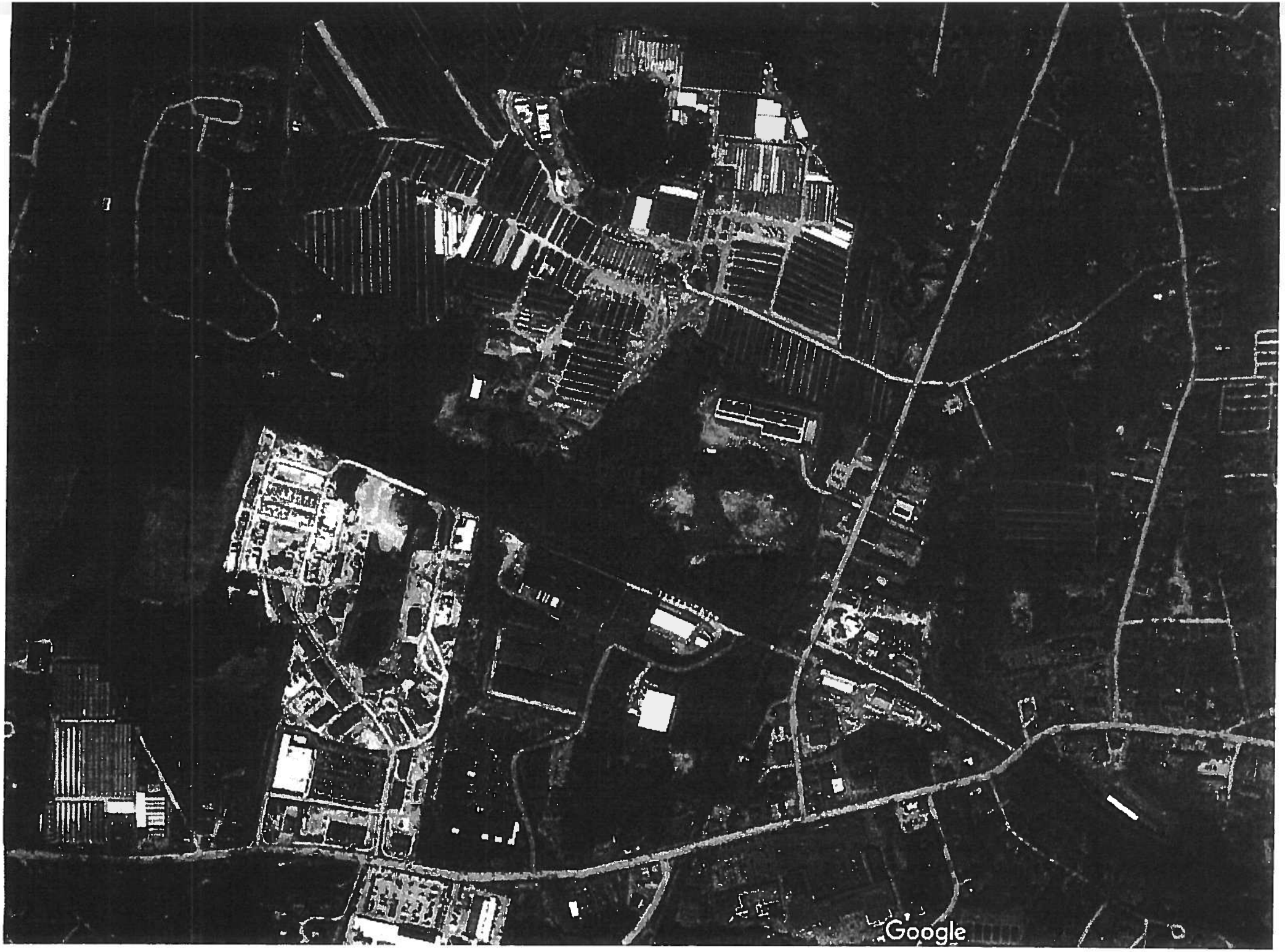
#57
#59
#505
#523
#521
#517
#519
#515
#513
#509
#511
#2
#18
#53
HIGHLAND AVENUE
FIND
ZOOM
FOLLOW
100 m
500 ft

EXHIBIT F

554 BOSTON POST RD – AERIAL




Google

WHY THIS LOCATION?

WHY THIS LOCATION?

STONE FARM – BIRD'S EYE VIEW

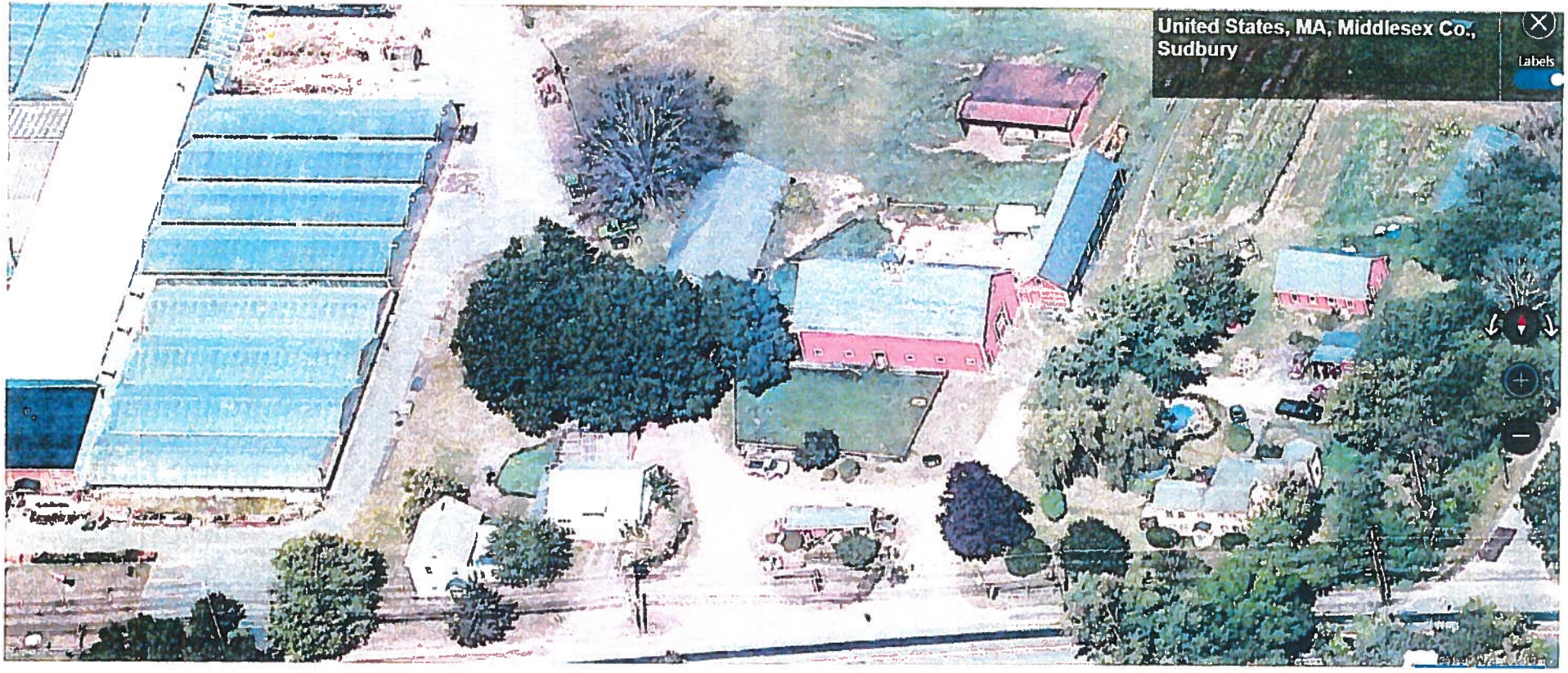


EXHIBIT G

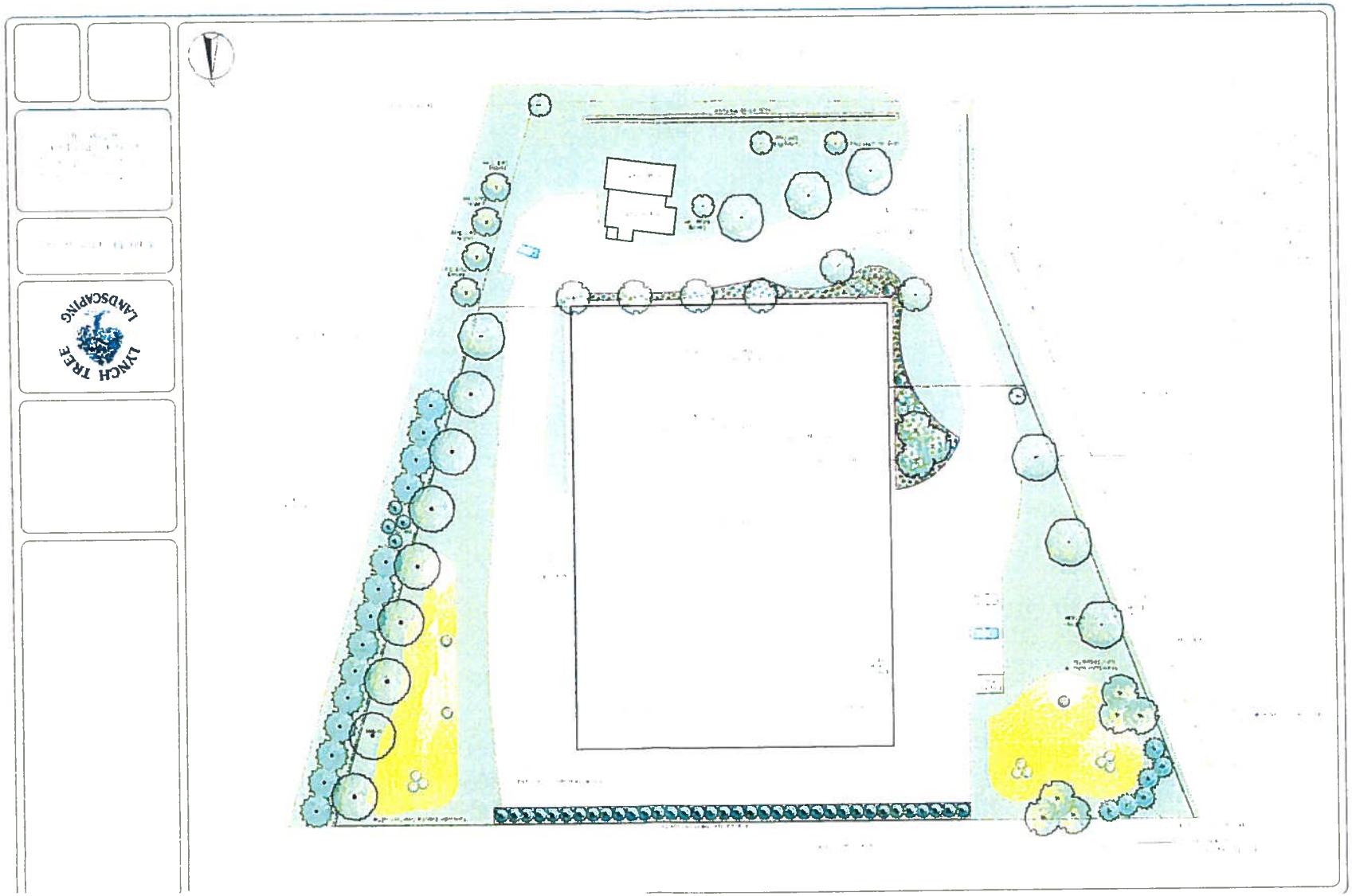

LYNCH TREE
LANDSCAPING

EXHIBIT H

STONE TAVERN – CURRENT

STONE TAVERN – MACRIS LISTING

Massachusetts Cultural Resource Information System

MACRIS

MHC Home | MACRIS Home

For more information about this page and how to use it, click here.

Inventory No:	SUD.9 INV
Historic Name:	Stone, William Tavern
Common Name:	Stone Tavern Farm
Address:	554 Boston Post Rd
City/Town:	Sudbury
Village/Neighborhood:	South Sudbury
Local No:	KC6-600
Year Constructed:	C 1804
Architect(s):	Stone, William
Architectural Style(s):	Federal
Use(s):	Agricultural; Post Office; Single Family Dwelling House; Tavern
Significance:	Agriculture; Architecture; Commerce; Politics Government; Transportation
Area(s):	
Designation(s):	
Building Material(s):	Roof: Asphalt Shingle Wall: Wood; Wood Clapboard Foundation: Stone, Uncut

STONE TAVERN – MACRIS LISTING

FORM B - BUILDING

Massachusetts Historical Commission
80 Boylston Street
Boston, Massachusetts 02116

Assessor's number | USGS Quad | Area(s) | Form Number

Circle and number the inventoried building. Indicate north

Town

Place *(neighborhood or village)*

Address

Historic Name

Uses Present

Original

Date of Construction

Source

Style/Form

Architect/Builder

Exterior Material

Foundation

Wall/Trim

Roof

Outbuildings/Secondary Structures

Major Alterations *(with dates)*

Condition

Moved no yes Date

Acreage

Setting

Recorded by

Organization

Date *(month/year)*

RECEIVED

OCT 25 [illegible] Mass. Historical Commission [illegible]

BARTLETT'S – MACRIS LISTING

Massachusetts Cultural Resource Information System

MACRIS

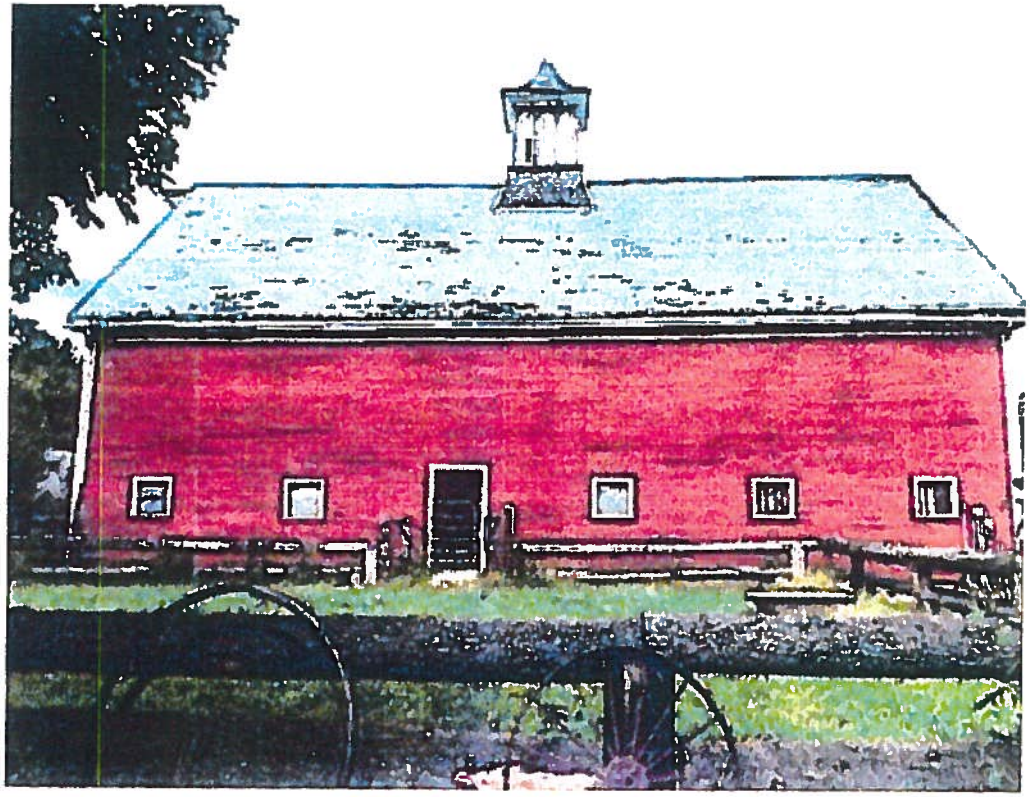
MHC Home | MACRIS Home

For more information about this page and how to use it, click here.

Inventory No:	SUD 322 INV
Historic Name:	Stone, William L. House
Common Name:	
Address:	566 Boston Post Rd
City/Town:	Sudbury
Village/Neighborhood:	South Sudbury
Local No:	K07-0014
Year Constructed:	C 1699
Architect(s):	
Architectural Style(s):	No style
Use(s):	Agricultural: Single Family Dwelling House
Significance:	Agriculture, Architecture
Area(s):	
Designation(s):	
Building Material(s):	Roof: Asphalt Shingle Wall: Concrete Cinderblock; Wood; Wood Shingle Foundation: Brick; Concrete Unspecified; Stone, Cut

EXHIBIT I

BARN – EXISTING FRONT



BARN – EXISTING REAR

BARN – EXISTING REAR

BARN – EXISTING SIDE

BARN – EXISTING INTERIOR

EXHIBIT J

Standards for Self-Service Storage Facilities

By Teresa deGroh and Rachel German

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Definitions 7
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Appearance 10
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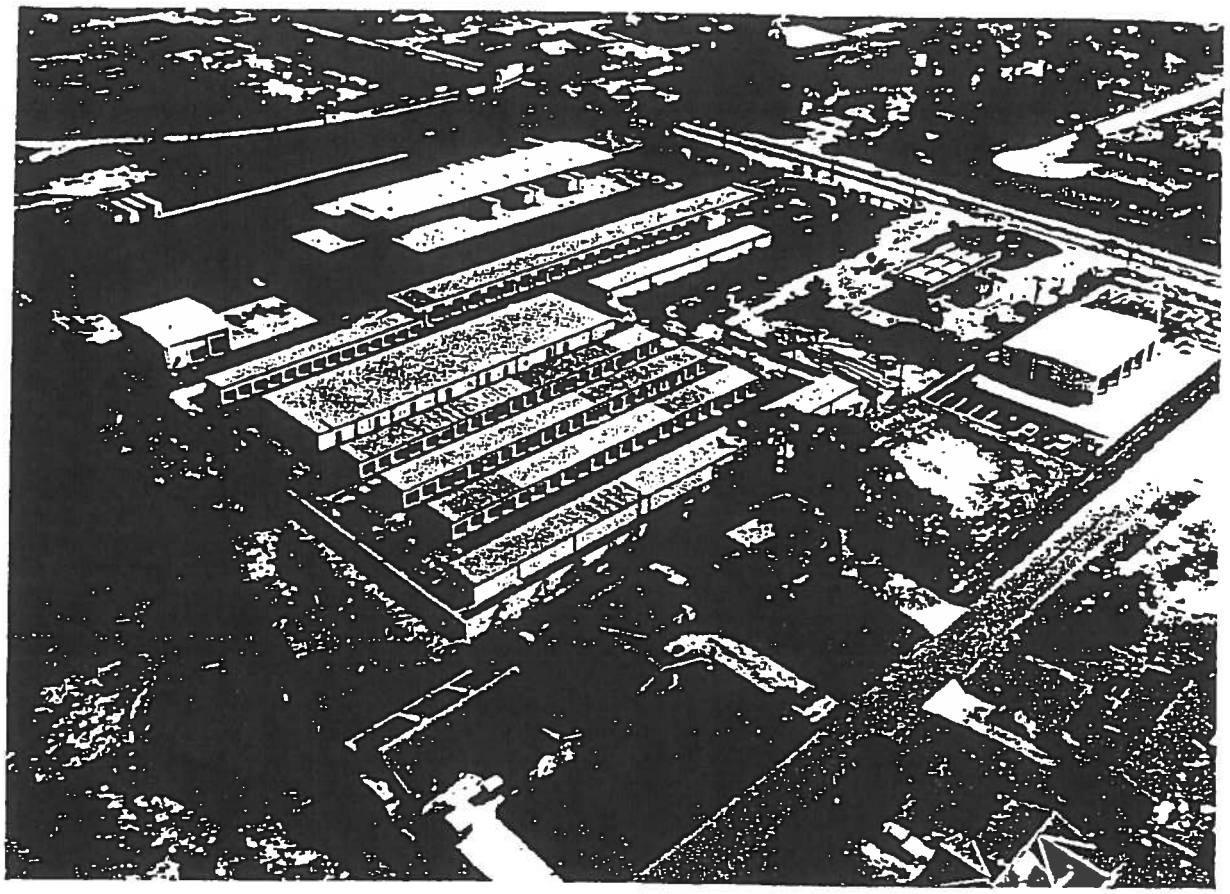


SSSA

As the need for storage space grows, so will the number of SSSFs. The size of this SSSF indicates a great demand for storage space in the area.

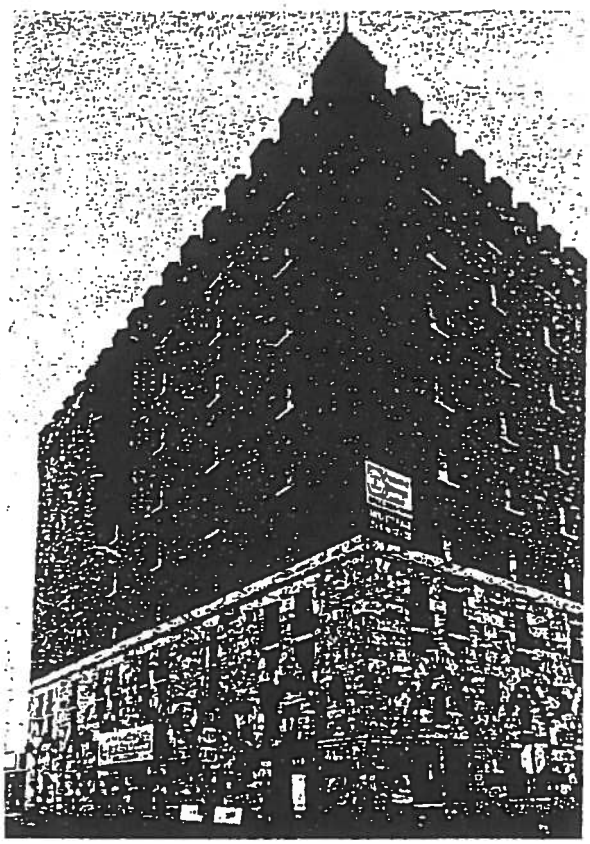
Part 1. Past and Current Zoning Practices

When homeowners, renters, or business people are faced with inadequate storage space for household effects or business supplies, they often find the extra space they need in self-service storage facilities (SSSFs). These facilities are designed to meet the need for easily accessible, small-scale storage space. A typical SSSF covers two to three acres and consists of five to six buildings, each containing approximately 10,000 square feet of storage space. The size of the storage units can range from 25 square feet to 600 square feet. Internal driveways provide access and parking to individual storage units.

The most common type of SSSF consists of a low, flat set of buildings and is usually found in lower-density suburban areas. Currently, innovative two- and three-story developments are also being built. These facilities have units on the first floor that are accessible by car and smaller walk-in units on the upper floors. Another form of these developments is found primarily in denser areas of older cities. Industrial buildings or conventional warehouses are sometimes converted into multistory SSSFs. These buildings are three to four stories high with freight elevators for carrying goods to upper floors.

SSSFs originated in the 1960s to provide storage space for apartment dwellers and itinerant oil workers in Texas. The concept spread throughout the Sun Belt in the 1970s and, by 1979, reached the northeastern United States; by 1983 there were over 4,500 of these facilities.[1] Many factors have influenced the rapid increase of SSSF development. People move more often and, therefore, require short-term storage space. Increasing construction costs have resulted in smaller housing units that do not have traditional garages, basements, or attics, particularly in the Sun Belt states. Affordable new single-family houses, apartments, and mobile homes are unlikely to have much storage space. Some businesses have found that constructing and providing for on-site storage has become prohibitively expensive at the same time that the number of records, files, and equipment they keep has risen. Off-site storage space is an excellent idea and sometimes the only way to solve the problem.

1. Richard E. Cornwell with Buzz Victor, *Self-Service Storage: The Handbook for Investors and Managers* (Chicago: National Association of Realtors, Institute of Real Estate Management, 1983), 1.



SSSA

In built-up urban areas, some multistory buildings are being converted into SSSFs.

The rapid growth of the SSSF industry in the last decade is expected to continue. In a survey APA conducted in October 1985, approximately 80 percent of the 396 communities that responded reported a growing number of SSSFs in their jurisdictions; none reported a decline. Given the likelihood of continued growth, planners will need to consider how their community can accommodate the needs of SSSF users and regulate SSSFs fairly.

This report will examine some of the issues communities must consider when they regulate SSSFs and will present the views of a number of communities surveyed by APA as well as examples of local ordinances that are currently in use.

TRENDS IN THE REGULATION OF SSSFs

Twenty years ago, when the SSSF industry was new on the scene, communities viewed SSSFs as small conventional warehouses, hence the common name "mini-warehouse." This name has been problematic from the industry's point of view. The label has in some cases prevented zoning officials and the public from seeing that these developments differ considerably from warehouses. Warehouses have employees—SSSFs have customers; and warehouses are usually used by manufacturers, whereas families and small businesses use SSSFs. Because the differences between the two uses were not usually perceived, zoning ordinances did not distinguish between them, and many communities restricted SSSFs to the same districts as warehouses.

With the growth of the SSSF industry, however, zoning regulations governing these facilities are changing. As the number of SSSFs increases and people become aware of differences between these facilities and conventional warehouses, many communities are adding regulations specifically referring to SSSFs in their zoning ordinances. Many communities have also begun to allow SSSFs in commercial and even residential districts.

A closer look at two of the major differences between SSSFs and warehouses—traffic generation and the types of users—indicates the need for regulations that take into account the characteristics of each use.

TRAFFIC

The frequency and type of traffic generated by a use are major factors to consider when deciding how it should be regulated. When SSSFs are thought of and treated as warehouses, they are limited to industrial and heavy com-

TABLE 1. TRAFFIC COUNT, WHEELING LOCK-UP, JULY 14, 1985, TO JULY 20, 1985

Hour	Mon	Tues	Wed	Thur	Fri	Sat	Sun	Total per hr.
6-7 a.m	4	4	10	2	3	0	1	24
7-8	4	4	7	7	4	2	1	29
8-9	2	3	5	4	4	4	1	23
9-10	4	6	1	5	2	1	3	22
10-11	7	4	3	8	3	1	5	31
11-12	1	5	6	2	2	6	3	25
12-1 p.m.	0	0	4	4	6	4	3	21
1-2	2	4	7	2	6	10	2	33
2-3	5	2	11	6	9	1	4	38
3-4	10	3	7	2	1	2	4	29
4-5	6	7	5	5	5	3	4	35
5-6	5	5	2	5	5	1	4	27
6-7	4	10	4	5	3	2	7	35
7-8	2	3	3	3	2	3	2	18
Daily Total	56	60	75	60	55	40	44	390

Wheeling Lock-Up, 211 N. Elmhurst Rd., Wheeling, IL 60090, 55,000 square feet of rentable space, 579 units, 95+ percent occupied.

mercial districts. Warehouses are usually limited to such districts to accommodate heavy use by large delivery trucks. Studies and history have shown, however, that SSSFs do not generate this kind of traffic. Traffic studies have shown that SSSFs generally receive only two-axle vehicles, not semi-trucks, and that they generate only a small amount of traffic spread over a long period of time.[2]

A traffic sample provided by the Lock-Up Self-Storage Centers of Northfield, Illinois, shows the weekly traffic volume generated by an SSSF. Tables 1 and 2 give the results of two data collection periods for a facility in Wheeling, Illinois. This facility has 55,000 square feet of rentable space. This is slightly larger than the average SSSF, which contains about 46,863 square feet of rentable space, according to a 1982 survey conducted by the industry. Each period of traffic study was a week long—one in July 1985 and the other in October 1985. The most revealing statistics are average number of cars per day and average number of cars per hour. These numbers can be related to the square footage of the facility or the number of storage units, resulting in traffic generation formulas that can be useful to planners when reviewing development proposals.

These data and results from other traffic studies indicate that, for every 100 units in a facility, there is a rough average of one car per hour;[3] in other words, the number of cars entering and leaving an SSSF during an hour is generated by fewer than one percent of the total units. For example, the Wheeling facility's overall traffic count average for July is four cars per hour (390/7=55.7 cars/day; divide this number by the 14 operating hours per day; the result is approximately four cars per hour). It may be possible to estimate the traffic generated by a particular facility by multiplying the number of units by one percent. The result for this facility is a liberal estimate of six cars/hour (579 x .01 = 5.79). Until better traffic studies are available, however, it will be very difficult to devise a formula that can give a more accurate estimate of the amount of traffic that a proposed SSSF will generate. But case studies do show that traffic impacts of this use are obviously not as great as has been feared by many communities.

Two studies that indicate a much higher rate of traffic generation by SSSFs are *Trip Generation* by the Institute of Transportation Engineers and the *15th Progress Report on Trip Ends Generation Research Counts* by the California Department of Transportation, District 4. These publications do not make clear, however, whether there were

T. deGroh

SSSF users can usually drive right up to their storage unit. The size of a unit is limited to ensure that a two-axle truck is the largest vehicle needed to move stored items.

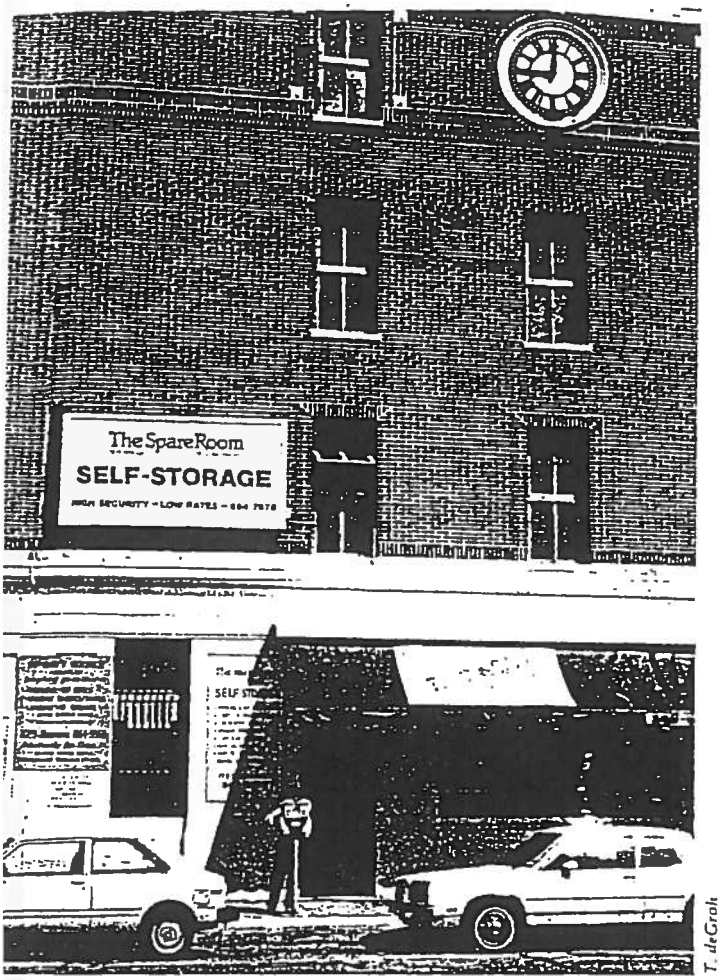
2. William Toner, *Mini-Warehouses*, Planning Advisory Service Report No. 324 (Chicago: American Planning Association, 1977), 3.

3. Ibid.

TABLE 2. TRAFFIC COUNT, WHEELING LOCK-UP, OCTOBER 13, 1985, TO OCTOBER 19, 1985

Hour	Mon	Tues	Wed	Thur	Fri	Sat	Sun	Total per hr.
6-7 a.m	1	2	2	4	0	3	0	12
7-8	7	9	6	9	5	4	1	41
8-9	2	4	5	4	6	6	2	29
9-10	3	3	4	2	1	9	2	24
10-11	5	7	1	5	5	12	4	39
11-12	6	2	4	3	6	4	4	29
12-1 p.m.	1	3	3	7	4	4	4	26
1-2	8	5	4	3	10	6	4	40
2-3	5	2	1	4	5	6	7	30
3-4	5	8	7	2	0	3	8	33
4-5	3	3	4	3	2	4	5	24
5-6	3	4	5	6	2	4	3	27
6-7	3	6	5	3	1	2	0	20
7-8	0	0	0	4	2	1	2	9
Daily Total	52	58	51	59	49	68	46	383

Wheeling Lock-Up, 211 N. Elmhurst Rd., Wheeling, IL 60090, 55,000 square feet of rentable space, 579 units, 95+ percent occupied.



T. deGroh

Only the sign gives any indication that this is an SSSF. Loading and unloading are done in the alley.

other activities existing in conjunction with the self-service storage business, such as the rental of small equipment, that might account for the high traffic rates.

USERS

Just as SSSFs must be distinguished from conventional warehouses by the type and amount of traffic they generate, they also must be distinguished by who uses them and what they are used for. An estimated 65 to 70 percent of SSSF space is rented by people who need more space for storing personal possessions. About half of these users are apartment, condominium, cooperative apartment, or mobile home dwellers.[4] The other half is made up of single-family homeowners and other users such as students. The majority of users are without traditional garages, attics, or basements and find the facilities convenient for storage of seasonal clothing, sports equipment, patio furniture, and the like. Students make use of the facilities for storage of personal items and books during school breaks.

The number of commercial users of SSSFs has grown quickly since the facilities were first introduced. One source says that commercial users make up 30 to 35 percent of the total market, up from 10 percent initially.[5] Sales people with excess stock, businesses that find on-site storage too expensive, and firms with a large number of inactive records and files find the facilities an important part of their operations.

As more communities realize that SSSFs are a service for residential and small commercial users, they have begun to create separate regulations for them. APA's 1985 survey reflects the trend toward preparation of specific regulations for SSSFs. In a short questionnaire, we asked about the zoning of SSSFs, the districts in which they were allowed, specific standards for the facilities, and the effectiveness of those standards. The survey was mailed to 1,061 city and county planning department directors whose jurisdictions are Planning Advisory Service subscribers. There were 396 usable responses, a 37 percent response rate. One hundred twenty-seven communities (32 percent of the respondents) reported that they have specific regulations for SSSFs in their zoning ordinance; 269 respondents (68 percent) grouped SSSFs and warehouses together. These results point out a change in SSSF zoning since 1977. In APA's 1977 PAS Report (*Mini-Warehouses*, PAS Report No. 324), only eight percent of the ordinances examined in an informal survey had separate standards for SSSFs.

Since few of the communities that treat SSSFs as warehouses would consider allowing a "warehouse" in a residential district (and frequently even in a commercial district), the dispersion of these SSSFs for the greater convenience of their users thus will depend in large part on the presence of regulations specific to SSSFs.

CONDITIONAL USE VS. PERMITTED USE

Although some communities appear to be moving toward allowing SSSFs in some of their more restrictive districts, a number of surveyed communities indicated continued resistance to the developments. Often, the hesistancy to accept the facilities is due to a variety of factors (such as appearance) that residents or officials think make the SSSFs inappropriate in a certain area.

One method of dispelling these fears is the conditional use permit (CUP). The CUP allows a community to review the proposal on the basis of the entire range of development issues (e.g., size, appearance, parking). It also allows the local government the opportunity to determine whether a particular location is appropriate for the public convenience and welfare.

In reviewing ordinances, we found an interesting pattern in the use of CUPs. Among communities that allowed SSSFs in industrial districts only, the facilities were frequently allowed only as conditional uses. Among communities that permitted SSSFs in commercial and industrial zones, the SSSFs were allowed by right in industrial zones (and sometimes less restrictive commercial zones), but, in more restrictive commercial zones, the facilities needed a CUP. Finally, in communities that allowed SSSFs

4. Cornwell, *Self-Service Storage*, 12-13.

5. Ibid., 12.

in residential zones through the CUP process, they were often permitted as of right in commercial and industrial districts, or at least in less restrictive commercial districts and industrial districts.

This pattern indicates a certain evolution in SSSF regulations. As the facilities become more widely understood and accepted, they are allowed in more restrictive zones. As specific requirements for the facilities are developed, the necessity for the CUP process, in many cases, is eliminated. Conversely, in communities allowing SSSFs only in industrial areas, the developments might be relatively recent phenomena without direct ordinance language to regulate them; hence the CUP is necessary in order to review the new development.

INAPPROPRIATE REGULATIONS MEAN PROBLEMS

Of the 269 communities that continue to zone SSSFs as if they were warehouses, 72 reported problems with their regulations. Most of these problems stem from the lack of specific standards for SSSFs.

A few planners, like the community development coordinator for Plymouth, Minnesota, said that the city receives an inordinate number of variance requests from SSSF developers due to requirements in the city's ordinance that just didn't make sense when applied to SSSFs. Many more comments were received about how badly suited warehouse regulations are for SSSF developments. Problems range from requirements for loading facilities applied to single-story SSSFs to a parking requirement of

T. deCroh

Above right, *visibility from the road and a good sign are important parts of SSSF advertising. Effective landscaping and the decorative block wall add to the facility's appeal.* Below, *if regulated the same as warehouses, SSSFs can end up looking like industrial uses. It is highly unlikely that an SSSF that looks like this could be accepted in a commercial or residential district.*

T. deCroh

one space per employee—a common requirement for warehouses—which for an SSSF would mean, in most cases, provision of only one space.

In these cases SSSF owners and developers shoulder the burden of complying with regulations that are inappropriate for the use of their property. In addition, their business is labeled a "warehouse" with its connotation of "industrial type use." Whenever zoning regulations do not fit the use to which they are applied, such problems will occur. These comments reflect the need for specific SSSF standards that take into account their particular characteristics. Such regulations would also help make these developments more compatible with nonindustrial uses and facilitate their movement into light commercial and even residential districts where they would be closer to their users.

Several respondents indicated that, in fact, their communities were beginning to realize the benefit of separate SSSF standards:

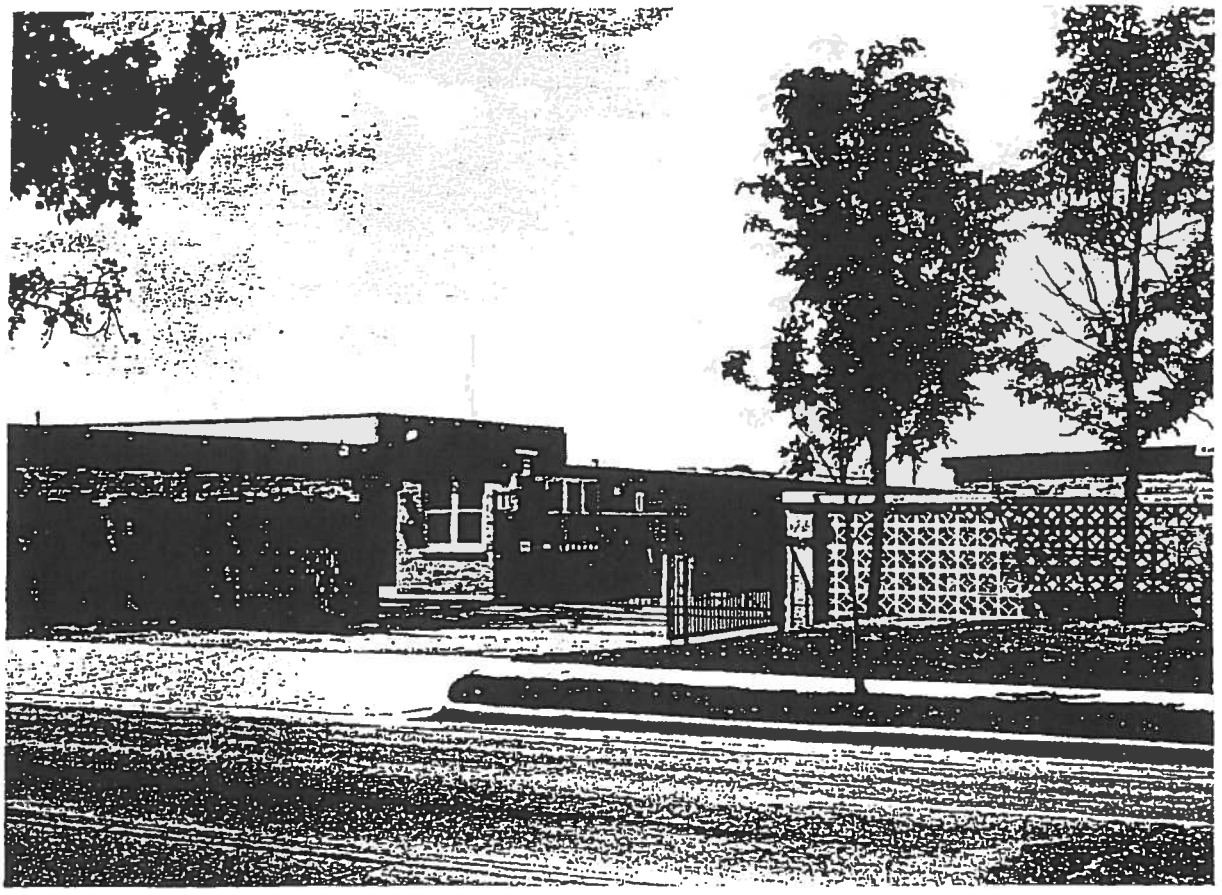
> We recognize the need for these uses near multiple-family districts. [Because of] this, plus the fact that they are low-traffic generators, relatively unobtrusive, etc., we have started the practice of permitting them in non-C-3 districts with PUDs, which regulate [them like a special use]."[6]

Furthermore, if specific development or performance standards were applied, most of the additional problems that communities raise would be solved. "In rezoning hearings where miniwarehouses are the proposed use, there has been expressed concerns of traffic activity, lighting, hours of operation, and aesthetics."[7]

Some of the respondents to APA's survey, like the Lawrenceville, Georgia, Planning, Zoning, and Inspections Director, said they would like to regulate SSSFs separately and more appropriately, but needed some guidelines. Toward that end, Part 2 of this report examines standards used by communities that regulate SSSFs as separate developments from warehouses. It will focus on the most common problems communities must deal with—appearance, location, and parking.

6. Zoning Administrator, Springfield, Missouri.

7. Assistant Zoning Administrator, Spokane County Planning Department.



T. deGroh

With the proper development standards, an SSSF can look as good as or better than its neighbors. Compare this SSSF with the one in the photo on the bottom of page five.

Part 2. Local Standards

We have indicated thus far that communities are finding it beneficial or even necessary to regulate SSSFs separately from warehouses. The main objective is to allow SSSFs to be located nearer to their actual users and in districts where they are compatible with the surrounding land uses. As this trend continues, standards applied to SSSFs will be refined. At the present time, survey results indicate that requirements are still being adjusted.

The fact that a community has separate standards for SSSFs, of course, does not mean that all problems are forever solved. Almost all the problems stem from one of two things; either the community is still adjusting its ordinance, or the ordinance is poorly enforced. Communities with separate standards report that the two major problems they must contend with are parking and appearance.

In the following sections, we deal with the issues raised by our respondents concerning regulation of SSSFs and provide examples from communities that seem to have found the appropriate standards.

DEFINITIONS

Good definitions of SSSFs in ordinances distinguish between these facilities and warehouses. It is important to define an SSSF carefully because, in the past, these developments have been confused with warehouses. Much of this confusion has been caused by the frequent use of the name "mini-warehouse." Without adequate definition, a mini-warehouse may be construed as a small, conventional warehouse.

Although only a few communities referred to these developments as self-service storage facilities in their zoning ordinance, we encourage use of this term. The term makes clear the most important element of SSSFs—self-service storage—that sets them apart from warehouses.

Emphasis on other basic SSSF concepts, such as individual storage units available for rent and restricted to personal, private access, is essential in a good definition.

A simple definition of a self-service storage facility appears in *The Illustrated Book of Development Definitions*— "A structure containing separate storage spaces of varying sizes leased or rented as individual leases."

A number of states that have developed legislation supportive of the industry have similar definitions. For example, "Self-service storage facility means any real property designed and used for the purpose of renting or leasing

individual storage spaces to tenants who are to have access to such space for the purpose of storing and removing personal property." (Florida, 1982.)

Often definitions of local governments include detailed descriptions and specific regulations. A better approach would be to include such requirements in the regulations themselves. Height, dimensions, types of materials that may be stored, and so on, more properly should be specified within the regulations section of the ordinance.

PARKING AND DRIVEWAYS

The design of an SSSF dictates that parking in the complex is needed next to the buildings and near the storage units. The only other parking that needs to be provided is at the leasing office. Parking can be provided by parking lanes adjacent to internal drives plus designated parking spaces near the leasing or manager's office.

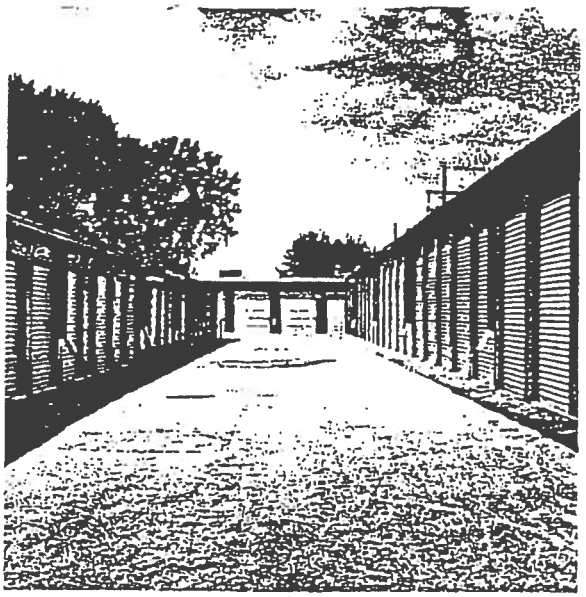
The parking problems cited typically involve carrying over industrial or general commercial use parking requirements. Those communities with problems often apply a formula based on gross floor area—a formula that ends up requiring too many parking spaces because it is not related to the actual maximum number of tenants to whom a facility may rent. A requirement of one parking space for each 1,000 to 1,500 square feet of floor space is not uncommon.

On the other hand, some communities that have specific SSSF standards use the number of employees to determine the number of required parking spaces. This results in too few spaces. For example, a requirement of one parking space per 1.5 employees would result in only one or two spaces for an entire SSSF development. The self-service storage industry is a customer service industry and should be treated as such by requiring not only parking spaces for employees (usually one or two people), but also parking for customers.

Other communities with SSSF regulations base the parking requirement on square footage in the leasing office. This policy assumes that the leasing office size increases proportionally to the number of storage units. In actuality, the size of the leasing office is not related to the number of units. The industry, in fact, has established a maximum size standard—the "total size of the manager's apartment and adjoining office needs to be no more than 1,200 square feet."[8] Thus, the parking standard of a community that requires one parking space per 300 square feet of gross floor area in the leasing office, with a minimum of three parking spaces, is still not directly related to the actual use made of the facility and the need for parking. We suggest that the amount of parking be determined by a formula using the number of storage units and by examination of the design of the facility.

Interior Parking Lanes

In order to estimate how much parking has to be provided in the interior of an SSSF, one needs to know the average length of a visit to the complex and the average number of visits per day. Unfortunately, an average length per visit statistic is not available. As the majority of visits



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Interior drives must be wide enough to accommodate a parked car and the traffic that must pass.

are usually to drop off or pick up a few items, most visits are likely to last less than an hour. Determining the percentage of traffic generated by renters using the complex and by potential customers going to the leasing office is impossible unless a study of traffic patterns is done. It is fairly safe to assume, however, that almost all traffic is generated by tenants since, according to industry estimates, the facilities are generally 90 to 95 percent occupied; there are not many storage units available for people to rent. Thus, most of this traffic will be parked on the interior, near the storage units, rather than at the leasing office.

Many communities require a parking lane adjacent to all interior drives that serve storage units. Although a few surveyed communities said that this requirement is excessive, the requirement is necessary. The interior drives are almost always used by storage-unit renters as a place to park. The loading and unloading of vehicles is generally done right in front of the storage unit. If a parking lane is not provided, the tenant's vehicle may prevent other tenants or emergency vehicles from passing through. When specified, the parking lane is usually required to be 10-feet wide; for one-way traffic, the travel lane is usually 15- to 20-feet wide; and for the two-way traffic, two 12-foot lanes are typically required.

Leasing Office Parking

If the interior drives provide a parking lane for customers to load and unload, the parking spaces at the leasing office would only be needed for prospective customers, customers paying their rent and/or other charges, and the manager. Estimating the demand for parking at the leasing office is difficult for the reasons listed above; there is not a traffic pattern study available that will indicate how many of the vehicles in the daily traffic count go to

8 Cornwell, *Self-Service Storage*, 34.

the leasing office. Parking standards for the leasing office should be based on the number of storage units because the number of people that have business at the leasing office is dependent upon the number of units in a facility.

As noted above, the industry has indicated that the average occupancy rate for all SSSFs is approximately 90 percent. A facility with 400 units at 90 percent occupancy would have 40 units available for rent at that time. It may take days or weeks to rent all the spaces. If 40 prospective customers visit the facility over even one week's time, there will be little impact on the overall traffic generated by the SSSF. There is, however, some amount of turnover in units rented, which generates traffic that is not reflected in monthly unit vacancy totals. If a facility is at 90 percent capacity at the beginning of two consecutive months, it does not mean that no units were vacated and no units were rented. It is reasonable to assume that at least a few units were vacated and subsequently rented before the month was over.

SSSF operators who were interviewed for this report, however, stated that most of their clients are long-term tenants (an average rental period is 10 or 11 months). Facilities that maintain an approximate 90 percent occupancy rate probably do not experience a high turnover rate within any given month. Overall, one may safely assume that the traffic generated by prospective clients is not a significant portion of the traffic generated by the facility on the whole.

It is also unlikely that current renters will travel to the SSSF simply to pay their monthly rent unless they also want access to their storage unit. It is much more likely that people will mail in their payments. Thus, requiring parking space at the leasing office for renters should not be a problem. Until more detailed traffic generation and traffic pattern studies are conducted, it will not be easy to accurately estimate traffic caused by the renting of units. Indicators are that one parking space per 100 storage units is sufficient to fill parking needs next to the leasing office (based on the average of four cars per hour for a 579-unit facility). Experience may later indicate that one space per 200 or 300 units at the leasing office is sufficient for facilities that also provide parking in the interior. These spaces would be in addition to one or two spaces for the manager plus one space each for any other employees (e.g., security guards). There should be a minimum number of parking spaces required; three to five spaces at the leasing office is the common minimum given in response to the survey.

Communities tend to use a combination of parking requirements; that is, they generally require some parking distributed around the facility plus parking specifically at the leasing office. Below are some examples:

> Proposed plans shall indicate. . . [the] location of all parking spaces at a minimum ratio of one (1) parking space per 100 storage units and one (1) space for the facility manager. (Sacramento, Calif.)

> Offstreet parking shall be provided as follows:
>
> (1) *Off-street parking and driveway width.*
>
> (a) Parking shall be provided by parking/driving lanes adjacent to the buildings. These lanes shall be at least twenty-six (26) feet wide when cubicles open onto one side of the lane only and at least thirty (30) feet wide when cubicles open onto both sides of the lane.
>
> (b) Two (2) covered parking spaces shall be provided adjacent to the manager's quarters.
>
> (c) One parking space for every two hundred (200) storage cubicles or fraction thereof shall be located adjacent to the project office. A minimum of two (2) such spaces shall be provided.
>
> (d) Required parking spaces may not be rented as, or used for vehicular storage. However, additional parking area may be provided for recreational vehicle storage, provided that it is adequately screened under the direction of the Development Services Department. (Costa Mesa, Calif.)

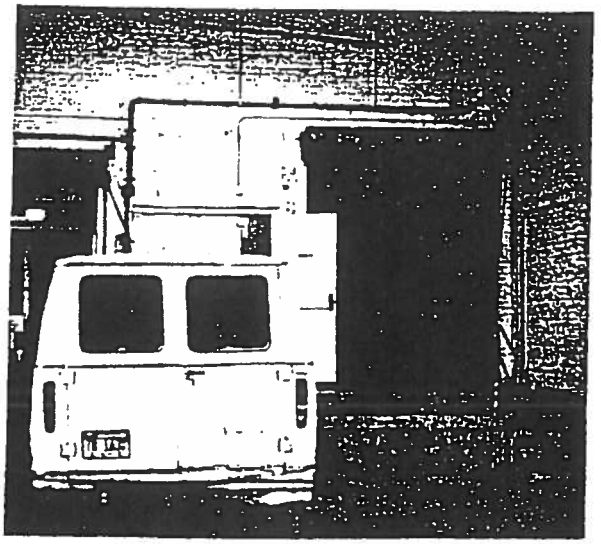
> A driveway aisle for a mini-warehouse or SSSF shall be a minimum width of twenty-four (24) feet. A driveway aisle where access to storage units is only on one side of the aisle may be twenty (20) feet in width. No off-street parking spaces are required for these facilities. Off-street parking as indicated in Section 14-8-103 shall be provided for any accessory use (i.e., office, dwelling) of the mini-warehouse or self-storage facility. (Colorado Springs, Colo.)

> All access routes leading from public streets or alleys to mini-warehouses shall be provided with 10-foot-wide adjacent parking lanes. Said lanes shall extend the full length of the access route. One-way access routes shall have one travel lane not less than fifteen (15) feet in width in addition to the 10-foot-wide parking lane. All two-way access routes serving mini-warehouses shall have two (2) 12-foot-wide travel lanes, each of which shall be provided with an adjacent 10-foot-wide parking lane. (Palatine, Ill.)

Parking for Multistoried Facilities

In more heavily built commercial and industrial areas, SSSFs are generally located in converted multistory buildings. These facilities have some very different characteris-

Since all parking is at ground level for multistory facilities, parking and loading space must be provided at the entrance or near an elevator.



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tics that affect the parking for the facility. Even if there are few problems currently reported with these facilities now, parking may become a problem when multistory SSSFs become more common in crowded commercial areas. Multistory facilities will need specific parking standards.

Multistory facilities do not allow tenants to drive right to their storage locker to load or unload. The tenant instead uses a cart and elevator to reach the storage unit. The tenant must park the vehicle, get a cart, and load or unload items by the elevator, which is used to reach the storage unit. All parking, therefore, needs to be provided at or near the entrance to the SSSF. New multistory buildings are taking the convenience of the customer into account by providing more than one stairwell. But if parking is too far away from the elevator or the stairwells, tenants may drive up to the facility and load or unload in the street.

Requiring a specific number of spaces is also a good idea. The data presented in the traffic section in Part 1 shows that a 579-unit SSSF generates an average of four cars per hour, with a maximum of 12 expected during any given hour. This indicates that fewer than one or two percent of the tenants are at the complex during any given hour of the day. Using these figures, we estimate that the number of parking spaces needed for a multistory facility with 579 units would be six to 12 spaces.

Earlier reports on SSSF developments noted that there was not a need for loading space requirements. These observations were based on SSSF characteristics at that time: a single-story, independent development on a sizeable lot with interior drives. Multistory buildings without internal drives need provisions for loading space. It is suggested that communities, when addressing SSSFs in their zoning ordinance, make a distinction between single-story and multistory facilities and the requirements to be applied to these facilities.

Loading space requirements need to be applied to multistory facilities only. A standard that takes into account the need for an elevator and access by wheeled cart from the parking or loading area should be sufficient.

APPEARANCE

Appearance problems typically cited are a lack of architectural compatibility, landscaping, and fencing. Most problems occur when the SSSF is located near a residential district. Planners citing these problems did not contend that the use itself was incompatible; they simply noted that additional requirements are necessary to improve the appearance of the facility or that better enforcement of existing standards was necessary. In order to rectify the problems, many jurisdictions indicated that a code revision was planned. Like any other business, unless there are requirements for appropriate design elements (i.e., good site planning, landscaping, etc.), developers are not likely to provide amenities on their own. Evidently strict enforcement will also be necessary.

Proper site design of SSSFs is important to ensure that a development is compatible with the surrounding neighborhood and is a properly functioning land use. Poor layout of elements on a site can destroy a development's positive contributions to a neighborhood as much as improper zoning.

For this report, we reviewed current SSSF standards governing lot size, building height, setback, coverage, access, and storage unit size. There were no significant problems cited by survey respondents regarding these requirements. Some respondents indicated that, in industrial and commercial districts, SSSF regulations for site coverage, frontage, and depth need not be more stringent than regulations for other developments in those districts. New SSSF designs have encouraged one community to delete requirements for these elements in favor of additional commercial design standards such as architectural controls.

Lot Size

The minimum lot size that a single-story SSSF can use profitably is approximately two acres. This size takes into account the owner's desire to provide maneuverability within the complex and good security. A smaller lot does not generate enough profit to support the employment of an on-site manager, an element that has become a basic part of self-service storage developments. A smaller lot may also cause circulation problems as developers try to maximize the buildable lot area in order to make a reasonable return on their investment.

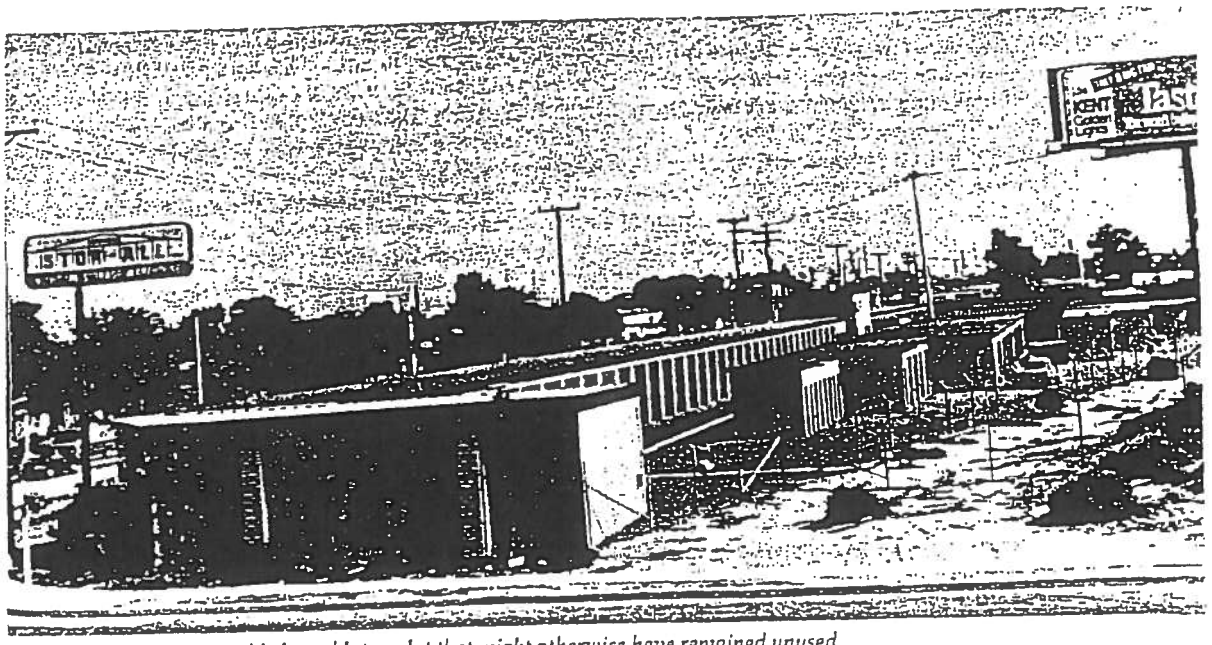
SSSF developments have the advantage of being able to use lots that are less than desirable for many other types of development. For example, SSSFs can use L-shaped lots or rectangular, thin, deep lots that might otherwise be difficult to develop. Furthermore, the recent trend in the industry toward two-story developments will certainly help to maximize land use on odd-shaped parcels.

The ordinances we received from communities differed in their lot size requirements. Some communities require a minimum lot size; others state a maximum lot size. Minimum requirements are generally two acres. Maximum size limits were commonly three acres. A lot size requirement should depend on the district in which the SSSF is to be located. In most circumstances, the minimum lot size requirement set in the general regulations for a particular district should be sufficient. There are, however, particular variations dictated by local circumstances. For example, in multifamily districts, Rock Springs, Wyoming, requires SSSF lots to be between one and three acres. This ensures that a development that is considered disproportionately large does not move into the area. Other communities that allow SSSFs in residential districts, however, did not generally place maximum size limits on the developments. The maximum size of a facility should be of more concern in residential districts. As SSSFs move into more commercial and, perhaps, residential districts, a community should be careful to limit the maximum facility size and, at the same time, keep in mind the minimum size at which the industry is willing to build.

Building Height and Lot Coverage

Building height is a requirement that will vary depending on the intentions of a community. Based on the responses to the survey, the greatest concern of the zoning officials is that an SSSF may exceed one story; height maximums reflect this concern.

Building height maximums range from 12 feet to 35 feet with a few exceptions (an 80-foot maximum was the highest noted). Most communities limit SSSFs to one story



SSSA

This SSSF is built on an odd-shaped lot—a lot that might otherwise have remained unused.

(12-foot to 18-foot maximum). Arlington, Texas, requires that "No building shall exceed twelve feet (12') in height." Other communities lend some flexibility to this requirement; Costa Mesa, California, states that a "conditional use permit is required for buildings over two stories or 30 feet in height." Maximum ceiling height is generally 10 feet—eight feet with an additional two feet to accommodate a garage-type sliding or roll-up door. Developers have discovered that one-story buildings with high ceilings increase the potential of customer accidents because of improperly stacked storage items.

Heights of buildings may cause some appearance problems. A low building may look out of place among more substantial buildings. As SSSF designs improve, communities should allow changes in the building height requirement. If the height maximum is intended to improve appearance, required landscaping and specific building materials might provide better results. A planner in the Colorado Springs Planning Department, Paul Tice, suggests that creative roof designs can make the SSSF relate better to adjacent land uses and may solve some of the low-rise problems. If the intent is to keep the facility to one story for some other reason, that reason should be specified in the ordinance.

Responses to the survey about lot coverage requirements indicated that most communities have similar standards. Forty to 50 percent was cited as the common requirement for maximum coverage. None of the responding communities cited problems with these standards, and SSSF industry publications indicate that 50 percent lot coverage is optimal for development purposes. A greater permitted lot coverage may cause problems with circulation and drainage as building separation decreases and impervious surface area increases. Allowing less lot coverage will inhibit the development of SSSFs and may result in a shortage of storage space.

> Total lot coverage by structures shall be limited to 50 percent of the total lot area. (Arlington, Tex.)
>
> Building coverage shall not exceed 40 percent of the lot area. (New Hope, Minn.)

Setbacks

As expected, setback requirements for SSSFs in residential districts are the most stringent. Generally, these districts have a 20- or 25-foot front yard setback requirement; a 20-foot side yard setback requirement; and a rear yard setback requirement of 20 to 25 feet. One community (Lexington, S.C.), which uses performance standards to govern where a use may locate and how much buffering and screening is needed, responded that SSSFs would be permitted in residential zones if the performance standards were met. There are, however, no SSSFs located in any residential areas in Lexington because meeting the standards, particularly the large setback requirments, is too costly.

An example of strict setback standards in or near residential areas comes from Arlington, Texas:

> Setbacks are a minimum of 20 feet when the development is abutting a public road or a residential zone.
>
> Other zone requirements shall apply if in nonresidential zones.

In commercial and industrial districts, the standards are a little less restrictive. Respondents reported front yard setbacks that varied from a 25-foot minimum to a 10-foot minimum. The side yard setback required is usually 10 feet, and the rear yard setback is usually the same as the side yards or less. In Morro Bay, California, in commercial and industrial zones, the front setback is 10 feet; the side yard setback is 10 feet; and the rear yard setback is five feet.

The Overall Site Design

Individual standards may make sense by themselves, but not necessarily as they relate to other aspects of the SSSF operation. The most important aspect of site design review is to put all the parts together and judge how well they fit and work together. Are community objectives being fulfilled by this particular mix of requirements? Do the requirements unreasonably inhibit the development and operation of SSSFs? What else is needed in a particular site plan? Is it a problem that may be common to all SSSF proposals, or is this a problem particular to this proposal?

For example, most ordinances we surveyed address the issue of interior circulation, but not building separation. This generally results in storage buildings that abut the interior roads. If the interior drive requirement is 15 feet for a one-way internal drive, the buildings are then built approximately 15 feet apart and the separation is completely paved. This internal drive is not only used for circulation, however. It is also used for parking at each individual unit in order to load or unload. Many communities require a 10-foot parking lane on all interior drives that serve the storage units in order to satisfy the need for loading space. In this instance, the roadway width and building separation is increased to 25 feet. Thus, either the building separation should be specified or the combined width of interior drives and parking lanes should amount to a reasonable building separation.

Some communities increase the width of interior drives as buildings or roads become longer. Indio, California requires the width for drives of less than 150 feet to be 24 feet. But if the drive is longer than 150 feet, its width must be increased to 30 feet in order to reduce the visual impact of long, narrow aisleways and the chance that vehicles may become trapped or have to back out over a relatively long distance.

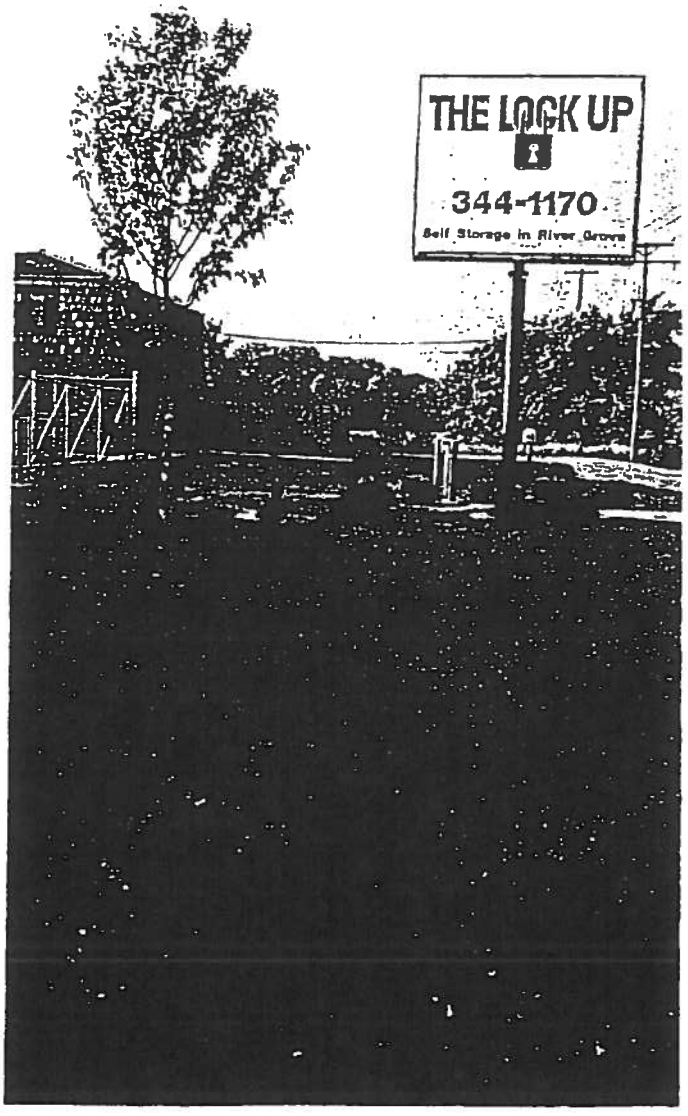
While the above requirements are aimed at increasing ease of circulation and mitigating other negative impacts of longer buildings, the requirements may cause problems elsewhere, such as in drainage. The prevailing practice in SSSF development is to pave the entire space between buildings. Thus, a requirement aimed at mitigating one possible problem (not enough space between buildings) may cause a different problem (increased drainage demand due to increase in impervious surface) if all requirements are not checked to see how they work together.

A change for the better in SSSF development design seems to have been brought about by some of the community design requirements. Requiring solid six-foot- or eight-foot-high fencing and prohibiting barbed-wire, chain-link fencing has changed SSSF design. Developers have responded with a fortress-like design. The back wall of one or more buildings becomes part of the security fence. Thus, security fencing at the very edge of the property is removed to keep the facility from looking like a military compound. This building style should be encouraged where possible.

Communities should be aware of requirements that inhibit this type of improvement. Some communities place a limit on building length, require that a road encircle the entire facility, or establish very restrictive building setback requirements. These requirements leave the developer no choice but to erect fencing around most if not all of the property. The key is flexibility; for instance, we believe that the fortress-like design can be encouraged by incorporating flexible setbacks into the zoning ordinance and dropping fencing requirements if dense, landscaped screening is provided.

It is equally important for the proposed development to be compatible with the uses surrounding it. Density, structure size, and architectural elements are important, as are environmental considerations, such as drainage. The spacing of buildings on the site should be kept in character with surrounding developments. The size of buildings is also a concern. SSSF buildings and lots tend to be longer than other buildings in some neighborhoods. A planning

Good landscaping and the design of the office/living quarters at this SSSF help blend it in with other uses in the area.



SSSA

agency should be aware that the length of buildings in an SSSF may need to be addressed in regulations.

The visual impact of SSSF architectural elements on a neighborhood needs to be considered. The styling of the combination manager's house and leasing office can help blend the development into residential neighborhoods. Since the storage buildings are regularly very simple structures with no windows or back entrances for security reasons, the buildings can be monotonous. Good landscaping and screening, however, can help mitigate the visual impacts created by the blank back and sides of the structures. Communities are starting to accept SSSFs in residential areas when interesting construction materials are used (e.g., decorative concrete block or brick). A planner in Ogden, Utah, suggested that, "Near residential areas, [SSSFs] should have residential design elements, i.e., brick veneer, pitched roofs with shingles, landscaping, and no razor wire on the fencing." Design elements like those discussed above are not needed in all districts where SSSFs may locate. There is little need for many of the design standards if the complex is located in an industrial or heavy commercial district. There are, however, some advantages to instituting design guidelines in order to allow and control SSSFs in residential neighborhoods or as a transitional use near residential areas.

Landscaping, Fencing, and Screening

Landscaping standards specific to SSSFs appeared in the ordinances of about 50 percent of responding communities with separate SSSF requirements. When the facilities are located in a residential area, they are almost always subject to landscaping requirements. In addition, landscaping requirements, like the setback requirements cited earlier, become stricter when a facility is in or abuts a residential area.

The typical requirement in a commercial or industrial area, when landscaping is required, is 20 feet of landscaped frontage.

> The 20-foot front yard setback areas shall be required and fully landscaped, including trees, shrubbery, lawn area, and decorative block wall. (Indio, Calif.)

Some landscaping requirements for SSSFs near residential areas are particularly sensitive to the appearance issue. Landscaped area increases to about 25 feet when the facility is near or adjacent to a residential district. In multifamily residential zones, SSSFs are often permitted as a conditional use, with 25-foot minimum landscaping and a 25-foot minimum setback.

> . . . all landscape setback areas shall be planted with a minimum of 50 percent live plant material. (Colorado Springs, Colo.)

Some ordinances are specific as to types of plant material and their placement.

> Landscaping shall be provided in areas between the property line and the required fencing. Landscaping shall consist of a variety of hardy evergreen planted material consisting of trees, low-, medium-, and high-profile shrubs, together with suitable ground cover such as native grasses, bark, ornamental gravel, or a combination thereof. The landscaping shall be designed, placed, and maintained in such a manner that no wall, fence, sign, . . . or plant growth of a type that would interfere with traffic visibility shall be permitted or maintained higher than three feet above curb level, within 15 feet of the intersection of any street right-of-way line or driveway. (Columbia, Mo.)

Some type of fencing and/or screening is almost always required in zoning regulations for SSSFs. Frequently, the regulations call for fencing and screening around the perimeter of the development, except along the front yard. The front landscaping often acts as a substitute for fencing on this edge of the facility.

The required height of the fence or screen is usually between six and eight feet. If the project is within or abutting a residential district, the height requirement tends to be at the upper end of the range. The fence may be required to be solid or semisolid and pleasingly decorative if facing an arterial street or residential area.

> [There shall be] screen fencing around the perimeter of the project. Said fencing shall be a minimum of eight feet in height, and if bordering an arterial street or residential district shall be constructed of decorative concrete block or alternative materials approved by the zoning administrator. (Salinas, Calif.)

An alternative to a screen in the front yard is the use of the storage buildings as a buffer. In High Point, North Carolina, a "wooded buffer or berm is required along street frontage, unless screened from street by principle-use structure."

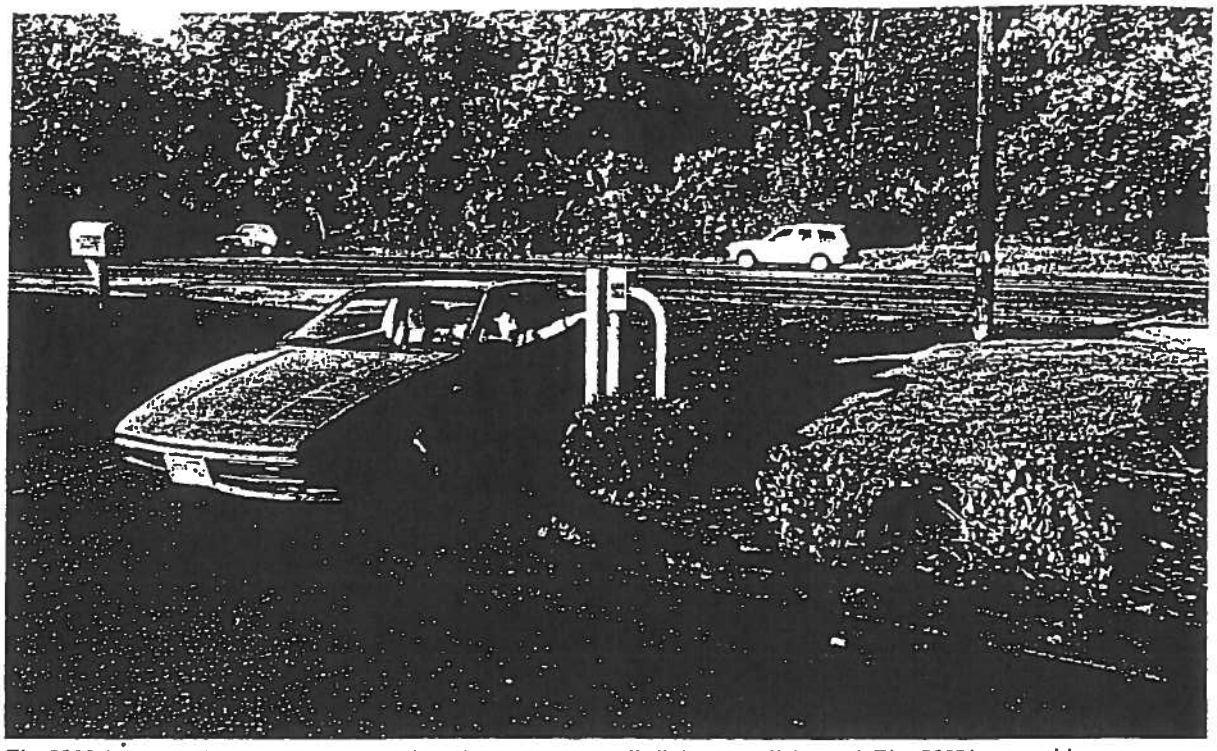
The type of fence may be closely prescribed as in Topeka, Kansas, where the fence "shall be constructed of opaque materials that will prevent the passage of light and debris, such as brick; stone; architectural tile; masonry units; wood; or similar materials; but expressly prohibiting woven wire. Signs or other advertising mediums shall not be placed upon, attached to, or painted on said barrier."

Like landscaping standards, specific screening and fencing standards, if enforced, can make SSSFs more acceptable to the community, particularly in residential areas. When surveyed communities reported problems with respect to SSSFs, in several instances the difficulties were traced to lack of landscaping or screening standards, or noncompliance with regulations by the SSSF operator.

Outside storage at SSSFs presents another problem for screening and buffering. Frequently, a community's ordinance will require a screen obscuring outside storage as does Yakima County, Washington, where "outdoor storage shall be enclosed with a view-obscuring fence."

Other Site Review Guidelines

How SSSFs appear will obviously influence their acceptance within the community's more restrictive commercial and residential zones. A number of surveyed communities believed that the facilities were not compatible with residential and more restrictive commercial uses. However, other communities have tried to deal with this issue through the landscaping and screening standards discussed above, as well as through other parts of their ordinance, with some success. Sandy, Utah, has a set of criteria used in reviewing conditional use requests for SSSFs in multifamily residential, neighborhood commercial, and community commercial districts. These include:



SSSA

The SSSF driveway should be long enough for at least one car to pull all the way off the road. This SSSF has a card-key system so that customers don't have to get out of the car to open the entrance gate.

1. Residential-type facades;
2. Architecturally compatible with existing neighborhood;
3. Wing walls;
4. Varied setbacks; and
5. Height differentials.

Other communities emphasize different aesthetic guidelines. Arlington, Texas, requires that "no door openings for any mini-warehouse storage unit shall be constructed facing any residentially zoned property."

Site plan reviews are an important tool in aesthetics and appearance control. They are frequently required in ordinances allowing SSSFs close to or in residential districts.

ADDITIONAL CONSIDERATIONS

In addition to the standards governing traffic and appearance, good SSSF regulations will need to consider other aspects of SSSF operations. These sections below highlight some of these concerns and the standards that communities use to address them.

Limits on Storage and Use

Almost all the reviewed ordinances include a section allowing only "dead" storage and prohibiting the storage of various hazardous materials such as toxic or explosive substances. This prohibition is universal; i.e., it applies in residential, commercial, and industrial districts.

Other ordinances extend the meaning of dead storage to the restriction of all commercial activity. Prince William County, Virginia, defines dead storage as "goods not in use and not associated with any office, retail, or other business use on premise. Radioactive materials, explosives, and flammable or hazardous chemicals shall be prohibited." The county also requires that the prohibitions on storage materials and use "shall be in any lease to rent storage units."

Arlington, Texas, prohibits:

a. Auctions, commercial, wholesale or retail sales, or miscellaneous or garage sales;

b. The servicing, repair, or fabrication of motor vehicles, boats, trailers, lawn mowers, appliances, or other similar equipment;

c. The operation of power tools, spray painting equipment, table saws, lathes, compressors, welding equipment, kilns, or other similar equipment;

d. The establishment of a transfer and storage business; and

e. Any use that is noxious or offensive because of odors, dust, noise, fumes, or vibrations.

A number of communities cited problems arising from inappropriate use of the storage units as bases for flea markets, hobby shops, or even living quarters. It is important to prohibit these uses because they can cause security, maintenance, and traffic problems. Since it is difficult for operators to enforce these prohibitions unless there is a blatant misuse of space, users of the facilities must be made aware that the restrictions exist and that they will be enforced.

Storage Unit Size

A relatively new requirement that surfaced in responses to the survey governs the maximum size of storage units. This regulation is meant to keep the storage operation limited to residential and small commercial users. The industry also does not recommend large units. The largest units discussed in *Self-Service Storage*, an industry handbook, are 10 feet by 30 feet and 20 feet by 30 feet, 300 square feet and 600 square feet, respectively. These sizes are in the same range as the maximums set by all communities with such requirements. In addition, a survey conducted by the Self-Service Storage Association discovered the average unit size in 1982 was 113.2 square feet.

Communities have instituted a storage unit maximum size to make sure that the items stored are small. This also helps to control the type of vehicle needed to move the storage items. Regular passenger vehicles and two-axle trucks can usually handle the quantity of items kept in these spaces, which is desirable from a neighborhood traffic standpoint. Surprisingly, unit size maximums were found among communities that allowed SSSFs in industrial districts only as well as in those that allow them in residential districts.

Based on our survey, space allowed per unit, however, does not seem contingent on the district where the facility is allowed. Palatine, Illinois, allows SSSFs in industrial districts only. The maximum unit size allowed is 500 square feet. Birmingham, Alabama, requires that, in the commercial and industrial districts in which the facilities are allowed, "the individual storage spaces of a miniwarehouse do not exceed 800 square feet." Fort Myers, Florida, which also allows SSSFs in commercial and industrial districts only, requires that "each space shall contain a maximum of 250 square feet." Albany, Oregon, on the other hand, allows units of up to 500 square feet in residential districts.

A maximum storage unit size helps to ensure that an SSSF does not become a compartmentalized industrial warehouse. Palm Beach Gardens, Florida, added a standard to its unit size requirements; the maximum unit size allowed is 300 square feet, and a single tenant is not allowed to rent more than 4,000 square feet. This extra requirement helps to ensure that renters will never need a large truck to move their stored items. With such a limit on rental space, other design requirements, such as roadway width, can be safely downsized because the interior drives will not have to provide for the movement of large trucks within the lot.

Access

Accessibility is judged not only by ease of approach but also by whether an access road can handle the amount of traffic generated by a particular use. SSSFs are typically located near busy roads, although the amount of traffic they generate is low compared to most other commercial uses.

SSSFs locate on busy streets, partly because high visibility is good advertising. Unfortunately, the tendency for these developments to locate on larger streets may be what caused the impression that they generate a lot of traffic. Very few of the respondents, however, indicated that they require developments to have access to streets with a specified capacity.

Ease of access is always an important factor. SSSFs generally have only one entrance/exit to the lot in order to preserve the security of the facility. A secondary, emergency entrance may be worked into the facility plan, but it is usually opened only for emergency equipment, snow removal, and when other large vehicles need access to the complex. This means that all customer traffic to and from the facility passes through one access point. Consequently, a two-way drive is appropriate. A driveway long enough to provide stack-up room for a couple of cars may be necessary, depending on the size of the facility and the expected traffic generation. This length of driveway must be available between the security gate and the road in order to avoid blocking traffic with a car that cannot pull all the way off the road while awaiting access to the complex. The proper access method will depend on the shape of the lot, the site design of the facility, and the road on which the facility is located.

Live-In Managers

A leader in the field of SSSF development claims that "security is second only to location as the factor most critical to lease-up success."[9] There are various methods used to promote security, such as enclosure of the facility and good lighting. An important security feature stressed by the industry is a full-time resident manager. Only 20 percent of surveyed communities that have separate regulations, however, indicated that they required a live-in manager.

> A resident manager shall be required on site and shall be responsible for maintaining the operation of the facility in conformance with the conditions of approval and all applicable ordinances. (Costa Mesa, Calif.)

> No facility herein provided for shall be used or maintained unless or until an on-site manager shall be provided for such facility. Failure to provide such a manager shall be grounds for revocation of the conditional use. (Columbia, Mo.)

The manager makes the SSSF his or her home, providing additional security and maintenance for the grounds and often spotting prohibited uses that might otherwise go unnoticed.

Lighting

Lighting requirements for SSSFs are usually covered in the district's general regulations. Almost 70 percent of responding communities that have specific regulations for SSSFs did not have specific standards for lighting.

SSSF lighting standards usually have a two-fold purpose: security of the SSSF and shielding of surrounding residential or commercial areas from the glare of those lights. The ordinance in Arlington, Texas, states that:

> All outdoor lights shall be shielded to direct light and glare only onto the miniwarehouse premises and may be of sufficient intensity to discourage vandalism and theft. Said light-

9. Ibid., 7.

ing and glare shall be deflected, shaded, and focused away from all adjoining property.

Signs

Approximately one-half of the responding communities with specific SSSF standards include sign regulations. The requirements usually limit the height of the sign to 10 to 15 feet and the total area to between 40 and 50 square feet. In addition, the regulations generally allow only one sign.

> Signage shall be limited to one sign for each property line abutting or adjoining a street right-of-way. Signs identifying the nature of the residential storage facility shall not exceed 15 feet in height or 40 square feet in area. No additional advertising signs will be permitted on the property. (Topeka, Kan.)

In the absence of specific regulations, signage was governed by the standards applied to signs in the district.

Hours

A few responding communities regulate the hours of the facilities, probably a result of the practice of keeping the facilities open 24 hours when the industry first started. Now, facilities are typically open from 8:00 a.m. to 7:00 p.m. or 8:00 a.m. to 8:00 p.m. and often open only one weekend day. Zoning officials may find it unnecessary to regulate SSSF operating hours.

Appendix. Sample Ordinances

1. Columbia, Missouri
2. Costa Mesa, California
3. Topeka, Kansas
4. Arlington, Texas
5. Colorado Springs, Colorado

Columbia, Missouri

SECTION 19.201 STORAGE WAREHOUSE USE DEVELOPMENT FOR RESIDENTIAL GOODS

A. Purpose

This section is to provide for the development of storage warehouses in commercial districts C-1 and C-3 for use accessory to residential uses in a planned manner in harmony with the neighborhood in which warehouse development is undertaken. Such use shall be a conditional use and not a use of right.

B. Not to Restrict Use by Right

Nothing herein shall be deemed to limit warehouse use within an industrial district as elsewhere permitted or provided for by this Article.

C. Conditional Use—Required

The council may, after the review and recommendation of the commission, approve a plan for a storage warehouse upon any tract zoned C-1 or C-3 when such plan is found to comply with the conditions and requirements hereinafter set forth.

D. Site Plan Submission and Consideration

1. The property owners of any tract zoned C-1 or C-3 may submit a site plan for approval as a storage warehouse to the Planning and Development Department of the city for review, recommendation, and forwarding to the commission and council. Administrative review shall be undertaken by the Planning and Development, Public Works, and Fire Departments to determine whether such site plan complies with the terms and conditions set forth in Subsection E.
2. After administrative review, said plan shall be forwarded to the commission for review and recommendation and then to the council. The council shall then proceed to review said application upon the recommendations of the staff and commission. No plan shall be approved that does not comply with the provisions of Subsection E.
3. Prior to review by the commission and the council, notice shall be published as for a zoning amendment.
4. The application for such a plan shall be subject to the same protest rights provided property owners under the terms and conditions of Section 19.281 of this Article.
5. An approved plan for a storage warehouse shall be and remain valid for a period of 24 months from the date of its approval. Unless construction is begun in conformance with said plan within 24 months of the date of its approval, said plan may be declared void by the council. In the event of a plan for phased development, any portion of the plan upon which construction is not begun within 24 months of approval may be declared void by the council.

E. Contents of Plan; Site Review

1. General Requirements
   a. No lot shall be less than two acres.
   b. The lot shall abut and gain direct access to a local nonresidential, collector, or arterial street as specified in the Major Thoroughfare Plan.
   c. The plan shall show the existing site along with surrounding land within 200 feet of its border. Street rights-of-way and easements shall be included. (The area 200 feet adjacent to the site may be shown by a locator map.)
   d. The plan shall be drawn at a scale of one inch equals 50 feet or larger. Said plan shall include all building locations, drives, parking, fencing, and signage. A landscape plan shall also be incorporated as part of the submittal and may be included as part of the site plan or submitted as a separate sheet. Building elevations shall also be included on the plan along with specification of the colors of buildings and materials to be used.
   e. Stormwater management shall be incorporated into the plan so that stormwater runoff from the site will not increase as a result of the proposed development. The facility shall be designed to control the stormwater runoff from at least a 25-year return frequency storm as certified by a professional engineer.
   f. Construction of buildings shall meet the requirements of Fire District Number One of the Building Code.
   g. All storage shall be kept within an enclosed building, except propane or gasoline engine or

storage tanks or any boat or vehicle incorporating such components, which shall be stored only in designated screened exterior areas. This provision shall not be interpreted to permit the storage of partially dismantled, wrecked, or inoperable vehicles.

h. Lighting shall conform to the provisions of Section 19.250.

i. Building setbacks shall be as follows:

Front yard—Not less than 25 feet on which all parking and internal drives are prohibited.

Side yard—Not less than 12.5 feet on which all parking and internal drives are prohibited.

Rear yard—Not less than 12.5 feet on which all parking and internal drives are prohibited, except that a rear yard is not required adjacent to commercial or industrial zoned land, then no rear yard is required.

j. The storage warehouse facility shall be enclosed by a six-foot-high, sight-proof fence. Said fence shall be solid or semi-solid and constructed to prevent the passage of debris or light and constructed of either brick, stone, masonry units, wood, or similar materials. Chain link fence may be used so long as it has slats installed to prevent the passage of light through the unit. Said fence shall be set back six feet from the side property lines and rear property line. When a rear property line is not required, a lesser setback for a fence can be granted. Fences shall also be set back 25 feet from the front property line.

k. Landscaping shall be provided in the areas between the property line and the required fencing. Landscaping shall consist of a variety of hardy evergreen planted material consisting of trees, low-, medium-, and high-profile shrubs, together with suitable groundcover such as native grasses, bark, ornamental gravel, or a combination thereof. The landscaping shall be designed, placed, and maintained in such a manner that no wall, fence, sign, or other structure or plant growth of a type that would interfere with traffic visibility shall be permitted or maintained higher than three feet above curb level, within 15 feet of the intersection of any street right-of-way line or driveway.

l. Parking shall be provided at a ratio of one space for each 2,000 square feet of gross building area, plus two spaces for the manager. One additional space shall be provided for each additional employee. Internal drives and parking shall comply with Section 19.250 of this Article for paving requirements.

m. Building heights shall be limited to one story (not to exceed 14 feet at the eaves).

n. Signs shall be limited to one ground pole sign at the entrance to the premises. Not more than 32 square feet shall be permitted with a maximum height of 10 feet. This provision shall control any and all contrary or conflicting provisions of the sign ordinance of Chapter 19.

F. On-Site Manager Required
No facility herein provided for shall be used or maintained unless or until an on-site manager shall be provided for such facility. Failure to provide such a manager shall be grounds for revocation of the conditional use under provisions of Subsection I of this section.

G. Commercial Activity Prohibited
The sale of any item from or at a residential storage warehouse is specifically prohibited.

1. It shall be unlawful for any owner, operator, or leasee of any residential storage warehouse or portion thereof to offer for sale, or to sell any item of personal property or to conduct any type of commercial activity of any kind whatsoever other than leasing of the storage units, or to permit same to occur upon any area designated as a residential storage warehouse. Violation of this provision shall be a Class C misdemeanor punishable under the provisions of Chapter 7 of these ordinances.

2. In addition to the criminal penalties herein provided, the city manager or his designee is herein authorized to revoke or suspend any business license, or occupancy permit, or to take any other appropriate legal or administrative action necessary to halt or prohibit any commercial activity from any residential storage warehouse other than the leasing of storage units.

H. Repair of Autos, Boats, Motors, and Furniture Prohibited

1. Because of the danger from fire or explosion caused by the accumulation of vapors from gasoline, diesel fuel, paint, paint remover, and other flammable materials, the repair, construction, or reconstruction of any boat, engine, motor vehicle, or furniture, and the storage of any propane or gasoline engine or propane or gasoline storage tank or any boat or vehicle incorporating such components is prohibited within any structure on a tract of land designated as a residential storage warehouse.

SECTION 13-851 DEFINITIONS
The following words used herein shall have the meanings set forth:

(1) A *mini-warehouse* shall mean a structure or group of structures for the dead storage of customer's goods and wares where individual stalls or lockers are rented out to different tenants for storage and where one or more stalls or lockers has less than five hundred (500) square feet of floor area.

(2) A *public warehouse* shall mean a structure or group of structures for the dead storage of customer's goods and wares where individual stalls or lockers are rented out to different tenants for storage and where no stall or locker has less than five hundred (500) square feet of floor area.

SECTION 13-852 PERMITS REQUIRED
(1) Mini-warehouse projects may be permitted in the MG districts in the city subject to the development standards set forth in this chapter. Where this chapter does not provide specific direction concerning development standards and/or signage, the provisions of other applicable chapters and articles shall apply.

(2) Public warehouse projects may be permitted in the MG and MP districts within the city. Public warehouses shall be subject to all development standards of the zone in which they are located.

SECTION 13-853 MINI-WAREHOUSE DEVELOPMENT STANDARDS
(1) *Off-street parking and driveway width.*

(a) Parking shall be provided by parking/driving lanes adjacent to the buildings. These lanes shall be at least twenty-six (26) feet wide when cubicles open onto one side of the lane only and at least thirty (30) feet wide when cubicles open onto both sides of the lane.

(b) Two (2) covered parking spaces shall be provided adjacent to the manager's quarters.

(c) One parking space for every two hundred (200) storage cubicles or fraction thereof shall be located adjacent to the project office. A minimum of two (2) such spaces shall be provided.

(d) Required parking spaces may not be rented as, or used for, vehicular storage. However, additional parking area may be provided for recreational vehicle storage, provided that it is adequately screened under the direction of the Development Services Department.

(2) *Reserved.*

(3) *Exterior finish.* The exteriors of mini-warehouses shall be of finished quality.

(4) *Landscaping.* A landscaped strip twenty (20) feet in width shall be provided along all street frontages and a landscaped strip five (5) feet in width shall be provided where subject property abuts any residential district. The five-foot landscaped strip abutting residential property shall be designed to provide screening of the warehouse site from residential properties.

(5) *Screening.* The project shall be screened by a six-foot-high decorative block wall to be installed along interior property lines and street setback lines under the direction of the development services director.

(6) *Site design.* Buildings shall be so situated and/or screened that overhead access doors are not visible from off the site.

SECTION 13-854 USE RESTRICTIONS
(1) No person, on premises covered by a conditional use permit for either type warehouse, shall conduct:

(a) Any business activity (other than rental of storage units) including miscellaneous or garage sales, and transfer/storage businesses that utilize vehicles as part of said business.

(b) Servicing or repair of motor vehicles, boats, trailers, lawnmowers, or any similar equipment.

(2) All mini-warehouse rental contracts shall include clauses prohibiting (a) the storage of flammable liquids, highly combustible or explosive materials, or hazardous chemicals, and (b) the use of the property for uses other than dead storage.

SECTION 13-855 LIVE-IN MANAGER FOR MINI-WAREHOUSE PROJECTS
A resident manager shall be required on the site and shall be responsible for maintaining the operation of the facility in conformance with the conditions of approval and all applicable ordinances.

SECTION 13-856 CONVERSION OF MINI-WAREHOUSES TO OTHER USES
A conditional use permit shall be required for the conversion of a mini-warehouse facility to uses other than dead storage to ensure that the property shall be brought into conformance with all applicable provisions of the land use ordinance, Uniform Building Code, titles 24 and 25 of the California Administrative Code, and any other applicable regulations.

SECTION 1. USE REGULATIONS

(a) A building or premises shall be used for only the following purposes:

. . . .

(15) *Residential storage facility,* a facility consisting of a building or group of buildings in a controlled-access compound that contains varying sizes of individual, compartmentalized, and controlled-access stalls or lockers for the dead storage of customers' residential goods and wares.

Provided, that a conditional use permit has been issued to the operator by the code enforcement officer, after receiving a report from the planning commission and approval by the board of commissioners. The residential storage development shall comply with the following established standards:

a. Off-Street Parking

1. The provisions of Section 48-201 concerning parking shall not apply for this use.

2. A minimum of four (4) spaces shall be required to be located at the number's office/quarters for the use of prospective clients.

b. Setbacks and Landscaping

1. All facets of the development proper structures shall be set back a minimum of twenty-five (25) feet from the property line along all street frontages, and ten (10) feet from all interior property lines that abut a more restrictive district, unless the platted building setback line would require a greater distance. In those instances where the lot abuts a G, H, I, or J District, the ten (10) foot setback requirement may be waived at the discretion of the planning commission.

2. All setbacks shall be landscaped to provide appropriate visual screening and/or buffering for adjacent properties. All areas on the site not covered by pavement or structures must be brought to finished grade and planted with turf or other appropriate groundcover(s) and with deciduous and/or coniferous plant materials. A landscaping plan, indicating the type and location of the proposed plantings, shall be included in the site development plan and shall be submitted to the planning staff for review. All plantings shall be maintained in good condition by the property owner.

c. On-Site Circulation and Minimum Driveway Widths

1. All interior drives shall have a minimum width of twenty-eight (28) feet.

2. All drives and parking shall be constructed subject to city standards.

d. Fencing and Screening

1. A barrier must be provided around the perimeter of the development. Said barrier shall be located at the setback line and may consist of either the solid facades of the storage structures or a fence.

2. If the barrier is to be provided by a fence, said fence shall be a minimum of six (6) feet in height and shall be constructed of opaque materials that will prevent the passage of light and debris, such as brick, stone, architectural tile, masonry units, wood, or similar materials, but expressly prohibiting woven wire.

3. Signs or other advertising mediums shall not be placed upon, attached to, or painted on said barrier.

e. Storage Only

1. No business activity other than rental of storage units shall be conducted on the premises.

2. No outside storage will be permitted.

f. Signage

1. Signage shall be limited to one sign for each property line abutting or adjoining a street right-of-way.

2. Signs identifying the nature of the residential storage facility shall not exceed fifteen (15) feet in height, or forty (40) square feet in area.

3. No additional advertising signs will be permitted on the property.

g. Accessibility

1. Vehicular ingress-egress shall be limited to one point for each side of property abutting any street lot line.

h. Height

1. Building height shall not exceed eighteen (18) feet.

i. Fire Protection

1. Fire protection shall be provided to meet existing city codes and Fire Department requirements.

j. All other applicable city code requirements will apply.

The planning commission's report may contain additional specific restrictions for safety and compatibility of this use, and the same be made a part of the conditional use permit at the discretion of the board of commissioners.

An application shall be set for public hearing, after notice is given in the like manner of a zoning amendment. The applicant shall provide:

1. A site development plan, which shall include the landscaping plan;
2. A certificate of ownership of surrounding land;
3. Formal application; and
4. Five-hundred dollar ($500) filing fee.

Following the public hearing, the planning commission shall make a report and recommendation to the board of commissioners. The board of commissioners may approve or deny said application. A change in use to other "by right" allowed uses within the district may be permitted when all applicable provisions of the district classification are complied with.

Arlington, Texas

SECTION 10-600 "MW" MINI-WAREHOUSE DISTRICT

10-601 Use Regulations
A building or premises in this District shall be used only for mini-warehouse subject to the requirements as follows:

1. Mini-warehouses shall be limited to dead storage use only.
2. No activities other than rental of storage units and pick-up and deposit of dead storage shall be allowed on the premises.
3. Examples of activities prohibited in this district include but are not limited to the following:
   a. Auctions, commercial wholesale or retail sales, or miscellaneous or garage sales.
   b. The servicing, repair, or fabrication of motor vehicles, boats, trailers, lawn mowers, appliances, or other similar equipment.
   c. The operation of power tools, spray-painting equipment, table saws, lathes, compressors, welding equipment, kilns, or other similar equipment.
   d. The establishment of a transfer and storage business.
   e. Any use that is noxious or offensive because of odors, dust, noise, fumes, or vibrations.
4. Customarily, incidental manager's quarters, either separate office and living quarter or a combination thereof.

10-602 Height Regulations
No building shall exceed twelve feet (12') in height.

10-603 Area Regulations
1. Mini-warehouse lots shall not exceed three (3) acres.
2. Total lot coverage by structures shall be limited to fifty percent (50%) of the total lot area.
3. No single structure shall exceed five thousand (5,000) square feet.

10-604 Setback Regulations
1. The minimum setback abutting a public street shall be twenty feet (20').
2. The minimum setback adjacent to any residential zoning district shall be twenty feet (20').
3. When the MW district abuts a nonresidential zoning district, side and rear yards on the boundaries of the MW district shall be not less than the immediately adjacent required setback of such abutting property.

10-605 Parking Regulations
Off-street parking shall be provided in accordance with Section 15-200 hereof, subject to the following additional requirements:

1. No parking facility shall occupy that portion of any required setback within ten feet (10') of a lot line.
2. A minimum of two (2) points of ingress and egress shall be provided to a mini-warehouse lot.
3. No drive approach shall exceed twenty-eight feet (28') in width.

10-606 Special Conditions
1. *Storage.* All storage on the property shall be kept within an enclosed building.
2. *Signs.* Outdoor advertising displays that do not identify the nature of the mini-warehouse itself shall not be permitted on the premises. Outdoor mini-warehouse identification advertising displays shall be in accordance with Section 15-100 hereof and shall not in any way exceed the maximum size, height, character, and spacing allowed in the LB district as provided in Section 15-103 hereof.
3. *Outdoor Lighting.* All outdoor lights shall be shielded to direct light and glare only onto the mini-warehouse premises and may be of sufficient intensity to discourage vandalism and theft. Said lighting and glare shall be deflected, shaded, and focused away from all adjoining property.
4. *Screening.* A screening device as defined by Section 9-S-1901 shall be required between any MW zoned district and any existing residential uses and/or any residential zoning districts contained in Article XI hereof.
5. No fencing shall be permitted in the required front yard.
6. No door openings for any mini-warehouse storage unit shall be constructed facing any residentially zoned property.

Colorado Springs, Colorado*

SECTION 14-3-804 CONDITIONAL USES

....

6. Mini-Warehouses

a. *Minimum lot area.* Forty thousand (40,000) square feet.

b. *Minimum yard dimensions:*
Front Yard. Twenty-five feet (25').
Side Yard. Twenty feet (20').
Rear Yard. Twenty-five feet (25').

c. *Maximum height of buildings.* Thirty feet (30').

d. Must provide living quarters for on-site manager.

e. *Internal driveways.* (Minimum.)

A driveway aisle for mini-warehouse or self-storage shall be a minimum width of 24 feet. A driveway aisle where access to storage units is only on one side of the aisle may be 20 feet in width. No off-street parking spaces are required for these facilities. Off-street parking as indicated in Section 14-8-103 shall be provided for any accessory use (i.e., office, dwelling) of the mini-warehouse or self-storage facility.

The parking lanes may be eliminated when the driveway does not serve storage cubicles.

f. Minimum landscaping:
Front Yard. Twenty-five feet (25').
Side Yard. Eight feet (8').
Rear Yard. Ten feet (10').

All landscape setback areas shall be planted with a minimum of fifty percent (50%) live plant material.

g. Either a six-foot (6') solid fence or an appropriate landscape buffer may be required along boundaries of the site adjacent to residential zoning.

* Colorado Springs allows self-service storage facilities in its office, general business, and industrial zones, and in planned business centers. The standards for the multifamily residential district above are the most specific in addressing the characteristics common to self-service storage facilities.

EXHIBIT K

INSTITUTE OF TRANSPORTATION ENGINEERS
COMMON TRIP GENERATION RATES (PM Peak Hour)

(Trip Generation Manual, 9th Edition)

Code	Description	Unit of Measure	Trips Per Unit	
PORT AND TERMINAL				
30	Truck Terminal	Acres	6.55	
90	Park and Ride Lot with Bus Service	Parking Spaces	0.62	
INDUSTRIAL				
110	General Light Industrial	1,000 SF	0.97	
120	General Heavy Industrial	Acres	2.16	
130	Industrial Park	1,000 SF	0.85	
140	Manufacturing	1,000 SF	0.73	
150	Warehousing	1,000 SF	0.32	
151	Mini-Warehouse	1,000 SF	0.26	
152	High-Cube Warehouse	1,000 SF	0.12	
170	Utilities	1,000 SF	0.76	
RESIDENTIAL				
210	Single-Family Detached Housing	Dwelling Units	1.00	
220	Apartment	Dwelling Units	0.62	
221	Low-Rise Apartment	Dwelling Units	0.58	
230	Residential Condominium / Townhouse	Dwelling Units	0.52	
240	Mobile Home Park	Dwelling Units	0.59	
251	Senior Adult Housing - Detached	Dwelling Units	0.27	
252	Senior Adult Housing - Attached	Dwelling Units	0.25	
253	Congregate Care Facility	Dwelling Units	0.17	
254	Assisted Living	Beds	0.22	
255	Continuing Care Retirement Community	Dwelling Units	0.16	
LODGING				
310	Hotel	Rooms	0.60	
320	Motel	Rooms	0.47	
330	Resort Hotel	Rooms	0.42	
RECREATIONAL				*
411	City Park	Acres	0.19	
412	County Park	Acres	0.09	*
413	State Park	Acres	0.07	
415	Beach Park	Acres	1.30	
416	Campground / Recreation Vehicle Park	Camp Sites	0.27	
417	Regional Park	Acres	0.20	
420	Marina	Berths	0.19	
430	Golf Course	Acres	0.30	
431	Miniature Golf Course	Holes	0.33	

Code	Description	Unit of Measure	Trips Per Unit	
432	Golf Driving Range	Tees / Driving Positions	1.25	
433	Batting Cages	Cages	2.22	
435	Multi-Purpose Recreational Facility	Acres	5.77	
437	Bowling Alley	1,000 SF	1.71	
441	Live Theater	Seats	0.02	
443	Movie Theater without Matinee	1,000 SF	6.16	
444	Movie Theater with Matinee	1,000 SF	3.80	
445	Multiplex Movie Theater	1,000 SF	4.91	
452	Horse Race Track	Acres	4.30	*
454	Dog Race Track	Attendance Capacity	0.15	
460	Arena	Acres	3.33	*
473	Casino / Video Lottery Establishment	1,000 SF	13.43	
480	Amusement Park	Acres	3.95	
488	Soccer Complex	Fields	17.70	
490	Tennis Courts	Courts	3.88	
491	Racquet / Tennis Club	Courts	3.35	
492	Health / Fitness Club	1,000 SF	3.53	
493	Athletic Club	1,000 SF	5.96	
495	Recreational Community Center	1,000 SF	1.45	
INSTITUTIONAL				
520	Elementary School	1,000 SF	1.21	
522	Middle School / Junior High School	1,000 SF	1.19	
530	High School	1,000 SF	0.97	
536	Private School (K-12)	Students	0.17	
540	Junior / Community College	1,000 SF	2.54	
560	Church	1,000 SF	0.55	
565	Daycare Center	1,000 SF	12.46	
566	Cemetery	Acres	0.84	
571	Prison	1,000 SF	2.91	
580	Museum	1,000 SF	0.18	
590	Library	1,000 SF	7.30	
591	Lodge / Fraternal Organization	Members	0.03	
MEDICAL				
610	Hospital	1,000 SF	0.93	
620	Nursing Home	1,000 SF	0.74	
630	Clinic	1,000 SF	5.18	
640	Animal Hospital / Veterinary Clinic	1,000 SF	4.72	

Code	Description	Unit of Measure	Trips Per Unit
OFFICE			
710	General Office Building	1,000 SF	1.49
714	Corporate Headquarters Building	1,000 SF	1.41
715	Single Tenant Office Building	1,000 SF	1.74
720	Medical-Dental Office Building	1,000 SF	3.57
730	Government Office Building	1,000 SF	1.21
732	United States Post Office	1,000 SF	1.22
733	Government Office Complex	1,000 SF	2.85
750	Office Park	1,000 SF	1.48
760	Research and Development Center	1,000 SF	1.07
770	Business Park	1,000 SF	1.29
RETAIL			
812	Building Materials and Lumber Store	1,000 SF	4.49
813	Free-Standing Discount Superstore	1,000 SF	4.35
814	Variety Store	1,000 SF	6.82
815	Free Standing Discount Store	1,000 SF	4.98
816	Hardware / Paint Store	1,000 SF	4.84
817	Nursery (Garden Center)	1,000 SF	6.94
818	Nursery (Wholesale)	1,000 SF	5.17
820	Shopping Center	1,000 SF	3.71
823	Factory Outlet Center	1,000 SF	2.29
826	Specialty Retail Center	1,000 SF	2.71
841	New Car Sales	1,000 SF	2.62
842	Recreational Vehicle Sales	1,000 SF	2.54
843	Automobile Parts Sales	1,000 SF	5.98
848	Tire Store	1,000 SF	4.15
850	Supermarket	1,000 SF	9.48
851	Convenience Market (Open 24 Hours)	1,000 SF	52.41
852	Convenience Market (Open 15-16 Hours)	1,000 SF	34.57
853	Convenience Market with Gasoline Pumps	1,000 SF	50.92
854	Discount Supermarket	1,000 SF	8.34
857	Discount Club	1,000 SF	4.18
860	Wholesale Market	1,000 SF	0.88
861	Sporting Goods Superstore	1,000 SF	1.84
862	Home Improvement Superstore	1,000 SF	2.33
863	Electronics Superstore	1,000 SF	4.50
864	Toy / Children's Superstore	1,000 SF	4.99
866	Pet Supply Superstore	1,000 SF	3.38
867	Office Supply Superstore	1,000 SF	3.40
875	Department Store	1,000 SF	1.87

Code	Description	Unit of Measure	Trips Per Unit
876	Apparel Store	1,000 SF	3.83
879	Arts and Craft Store	1,000 SF	6.21
880	Pharmacy / Drugstore without Drive-Through Window	1,000 SF	8.4
881	Pharmacy / Drugstore with Drive-Through Window	1,000 SF	9.91
890	Furniture Store	1,000 SF	0.45
896	DVD/Video Rental Store	1,000 SF	13.60
SERVICES			
911	Walk-In Bank	1,000 SF	12.13
912	Drive-In Bank	1,000 SF	24.30
918	Hair Salon	1,000 SF	1.93
925	Drinking Place	1,000 SF	11.34
931	Quality Restaurant	1,000 SF	7.49
932	High-Turnover (Sit-Down) Restaurant	1,000 SF	11.15
933	Fast Food Restaurant without Drive-Through Window	1,000 SF	26.15
934	Fast Food Restaurant with Drive-Through Window	1,000 SF	33.84
935	Fast Food Restaurant with Drive-Through Window and No Indoor Seating	1,000 SF	153.85
936	Coffee / Donut Shop without Drive-Through Window	1,000 SF	40.75
937	Coffee / Donut Shop with Drive-Through Window	1,000 SF	42.8
938	Coffee / Donut Shop with Drive-Through Window and No Indoor Seating	1,000 SF	75
940	Bread / Donut / Bagel Shop with Drive-Through Window	1,000 SF	18.99
941	Quick Lubrication Vehicle Shop	Service Bays	5.19
942	Automobile Care Center	1,000 SF	3.11
943	Automobile Parts and Service Center	1,000 SF	4.46
944	Gasoline / Service Station	Fueling Positions	13.87
945	Gasoline / Service Station with Convenience Market	Fueling Positions	13.51
946	Gasoline / Service Station with Convenience Market and Car Wash	Fueling Positions	13.94
947	Self Service Car Wash	Stalls	5.54
948	Automated Car Wash	1,000 SF	14.12
950	Truck Stop	1,000 SF	13.63

Note: All land uses in the 800 and 900 series are entitled to a "passby" trip reduction of 60% if less than 50,000 ft^2 or a reduction of 40% if equal to or greater than 50,000 ft^2.

* Approximated by 10% of Weekday average rate.

Memorandum

To: Mr. Quentin Nowland
554 BPR, LLC
80 Union Street
Sudbury, Massachusetts, 01776

Date: February 5, 2019

Project #: 14486.00

From: Patrick Dunford, P.E
Senior Project Manager

Matthew Duranleau,
Transportation Consultant

Re: Traffic Impact Evaluation
Proposed Self-Storage Facility
554 Boston Post Road
Sudbury, Massachusetts

Vanasse Hangen Brustlin, Inc. (VHB) has evaluated the potential traffic impacts associated with a self-storage facility to be located at 554 Boston Post Road (Route 20) in Sudbury, Massachusetts (the "Site"). The redevelopment proposal for the Site involves the construction of a new 100,933 square foot (sf) self-storage facility containing 672 storage units (the "Project") to be constructed on the existing 3.1-acre Site, and is being undertaken by 554 BPR, LLC (the "Proponent").

This memorandum includes an evaluation of the existing traffic operations and safety; an assessment of future conditions with and without the Project; and an estimate of projected traffic volumes for the Project and its potential impact on future traffic operations in the area. As detailed herein, the proposed Project is expected to have minimal impacts on local traffic operations.

Project Description and Site Location

The Project Site is located at 554 Boston Post Road (Route 20) in Sudbury, Massachusetts. The Site of approximately 3.1 acres currently consists of a seasonal farm stand, a private residence located in a former historic tavern, and several old farm buildings. The seasonal farm stand sells produce to the public and is not open during the winter. Under existing conditions, access to the Site is comprised of two full-access driveways located approximately 75 feet apart from each other. Adjacent to the Site to the west is the JP Bartlett Co. Wholesale Greenhouse and adjacent to the Site to the east is the new Meadow Walk development, which consists of a new Whole Foods supermarket, several restaurant and retail parcels, and several residential developments including an assisted living complex, an active-adult condominium complex, and a luxury apartment complex.

The proposed Project will involve the demolition of all buildings on-Site (except for the former historic tavern) and the construction of an approximately 100,933 sf, two and a half-story self-storage building containing 672 storage units. The former historic tavern located at the front of the Site will be renovated and will serve as office space for the self-storage building. Access to the proposed Site will be consolidated from two driveways to one driveway. The one proposed driveway will be located approximately in between the existing two driveways.

A figure showing the Project Site in relation to the surrounding area is included in the Attachments to this Memorandum and the layout of the Project is shown on the site plans[1] accompanying this submittal.

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[1] Proposed Site Plan of 554 Boston Post Road in Sudbury, MA; Sullivan, Connors and Associates; Sudbury, Massachusetts; August 8, 2018

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Existing Conditions

The existing condition analysis consists of an inventory of the traffic control, roadway, driveway, and intersection geometry in the study area, the collection of daily and peak hour traffic volumes, a summary of public transit options in the area, and a review of recent crash history.

Study Area

Based on an understanding of the current traffic operations in the region, a study area comprised of the following intersections and their approach roadways were selected for review:

- Boston Post Road (Route 20) at 554 Boston Post Road West Driveway (Existing)
- Boston Post Road (Route 20) at 554 Boston Post Road East Driveway (Existing)
- Boston Post Road (Route 20) at Meadow Walk West Driveway

A figure showing the intersection lane geometry and traffic control at each study area intersection is included in the Attachments.

Study Area Roadways

Boston Post Road (Route 20)

In this study area, Boston Post Road (Route 20) is a two-lane roadway running in an east-west direction. Boston Post Road (Route 20) is a regional commuter route and connects to Wayland and I-95 in the east and Marlborough and I-495 in the west. A sidewalk is provided along the north side of Boston Post Road (Route 20) and on-street parking is prohibited on both sides of the roadway. Boston Post Road (Route 20) falls under the jurisdiction of the Massachusetts Department of Transportation (MassDOT) and is classified as a principal arterial. There is a posted speed limit of 35 mph and land use along Boston Post Road (Route 20) is primarily residential and commercial.

Study Area Intersections

Boston Post Road (Route 20) at 554 Boston Post Road West Driveway

The west driveway for 554 Boston Post Road intersects Boston Post Road (Route 20) from the north to form a three-legged unsignalized intersection. All approaches consist of one general-purpose lane. The driveway for 554 Boston Post Road operates under STOP control. A sidewalk is provided along the north side of Boston Post Road (Route 20) and no crosswalks are provided at this intersection. Land use around the intersection is mainly commercial and residential.

Boston Post Road (Route 20) at 554 Boston Post Road East Driveway

The east driveway for 554 Boston Post Road intersects Boston Post Road (Route 20) from the north and a residential driveway intersects Boston Post Road (Route 20) from the south to form a four-legged unsignalized intersection. All approaches consist of one general-purpose lane. The driveway for 554 Boston Post Road and the residential driveway operate under STOP control. A sidewalk is provided along the north side of Boston Post Road (Route 20) and no crosswalks are provided at this intersection. Land use around the intersection is mainly commercial and residential.

Boston Post Road (Route 20) at Meadow Walk West Driveway

The west driveway for the Meadow Walk development intersects Boston Post Road (Route 20) from the north to form a three-legged unsignalized intersection. All approaches consist of one general-purpose lane. The driveway for the

Meadow Walk development operates under STOP control. A sidewalk is provided along the north side of Boston Post Road (Route 20) and along the east side of the Meadow Walk driveway and a crosswalk is provided across the southbound Meadow Walk driveway approach. Land use around the intersection is mainly commercial and residential with the Meadow Walk mixed use development to the north and a local fire station to the northeast of the intersection.

Existing Traffic Volumes

To identify current traffic flow characteristics along the primary roadway serving the Project study area, VHB conducted traffic counts next to the Project site in January 2019 while local schools were in session. VHB's traffic data collection involved measuring daily traffic volumes on Boston Post Road (Route 20), as well as turning movement counts at the study area intersections. The weekday daily traffic volumes and Saturday daily traffic volumes along Boston Post Road (Route 20) were collected by VHB using an automated traffic recorder (ATR) on Thursday, January 17, 2019, and Saturday, January 26, 2019. The observed traffic volume data was seasonally adjusted to reflect average month conditions, as described in detail later in this memorandum.

Table 1 displays the observed weekday daily traffic volumes and Saturday daily traffic volumes on Boston Post Road (Route 20) directly east of the Project Site. The existing automated traffic recorder count data is included in the Attachments.

Table 1 Observed Traffic Volumes – Boston Post Road (Route 20)

		Weekday Morning Peak Hour			Weekday Evening Peak Hour				Saturday Midday Peak Hour		
Location	Daily Weekday [a]	Volume [b]	K Factor [c]	Dir. Dist. [d]	Volume	K Factor	Dir. Dist.	Daily Saturday	Volume	K Factor	Dir. Dist.
Eastbound	10,400	1,100	10.7%		650	6.3%		8,300	670	8.1%	
Westbound	11,100	450	4.1%		1,085	9.8%		9,400	885	9.4%	
Total	21,500	1,560	7.3%	71% EB	1,735	8.1%	63% WB	17,700	1,555	8.8%	57% EB

Source: Vanasse Hangen Brustlin, Inc. based on automatic traffic recorder (ATR) counts conducted on January 17, 2019, and January 26, 2019, and adjusted to reflect average month conditions.

a average daily traffic (ADT) volume expressed in vehicles per day
b peak period traffic volumes expressed in vehicles per hour
c percent of daily traffic that occurs during the peak period
d directional distribution of peak period traffic

Note: peak hours do not necessarily coincide with the peak hours of the individual intersection turning movement counts

As shown in Table 1, Boston Post Road (Route 20) carries approximately 21,500 vehicles per day on a typical weekday and 17,700 vehicles on a typical Saturday, with approximately seven-percent of all daily traffic occurring during the weekday morning peak hour, approximately eight-percent occurring during the weekday evening peak hour, and approximately nine-percent occurring during the Saturday midday peak hour. The directionality of peak hour traffic flow on Boston Post Road (Route 20) is representative of the commuter traffic flows in the region (traffic flow during the weekday morning peak hour is heavier in the eastbound direction heading towards Boston and I-95 while traffic flow during the weekday evening peak hour is heavier in the westbound direction heading away from Boston and I-95, and traffic flow during the Saturday midday peak hour is more evenly split). Daily traffic volumes on the roadway are

representative of Route 20 being a main commuter route, with typical Saturday daily traffic volumes approximately 20% lower than typical weekday daily traffic volumes.

In addition to daily traffic volumes, peak hour turning movement counts (TMCs) were conducted at the study area intersections. The TMCs were conducted during the weekday morning peak period from 7:00 AM to 9:00 AM, during the weekday evening peak period from 4:00 PM to 6:00 PM, and during the Saturday midday peak period from 11:00 AM to 2:00 PM. Based on a review of the count data, the weekday morning, weekday evening, and Saturday midday peak hours of vehicular activity were determined to be 7:15 AM to 8:15 AM, 5:00 PM to 6:00 PM, and 11:45 AM to 12:45 PM, respectively. The existing turning movement count data is provided in the Attachments.

Seasonal Variation

The traffic data collected for the study area was obtained during the month of January 2019. To quantify the seasonal variation of traffic volumes in the area, historic traffic data available from MassDOT were reviewed. Specifically, 2017 and 2018 monthly traffic volumes were reviewed at MassDOT permanent counting station AET09 along I-90 in Framingham (the closest MassDOT permanent count station to the Site). Multiple years of counts were reviewed in order to get an accurate representation of seasonal traffic volumes in the region. Based on the review, traffic volumes in January are approximately 12-percent lower than average-month conditions. To present a conservative analysis, the traffic volumes were increased by 12-percent to reflect average month conditions. The seasonal adjustment factors are included in the Attachments.

The 2019 Existing traffic volume networks for the weekday morning, weekday evening, and Saturday midday peak hours are provided in the Attachments.

Public Transportation

Public transportation in Sudbury and the surrounding area is provided by the MetroWest Regional Transit Authority (MWRTA). While Sudbury is a member community of the MWRTA, there are no fixed transit routes that serve Sudbury. The nearest stops along a fixed transit route to the Site are located approximately three miles south of the Site at the Nobscot Shopping Center in Framingham (MWRTA Bus Route #2), and approximately three miles west of the Site at Hager Street and Boston Post Road (Route 20) in Marlborough (MWRTA Bus Route #7C). Regional commuter rail service to Boston and Worcester in the MetroWest region is provided by the Massachusetts Bay Transportation Authority (MBTA). The nearest MBTA commuter rail station is located approximately seven miles south of the Site in Downtown Framingham.

While no fixed transit routes are provided in Sudbury, the MWRTA does provide on-demand transit service in Sudbury for individuals with disabilities.

Crash Summary

A detailed crash analysis was conducted to identify potential vehicle accident trends and/or roadway deficiencies in the traffic study area. The most current vehicle accident data for the traffic study area intersections were obtained from MassDOT for the years 2012 to 2016. The MassDOT database is comprised of crash data from the Massachusetts Registry of Motor Vehicles (RMV) Division primarily for use in traffic studies and safety evaluations. Data files are provided for an entire city or town for an entire year, though it is possible that some crash records may be omitted either due to individual crashes not being reported, or the city crash records not being provided in a compatible format for RMV use.

Crash rates are calculated based on the number of accidents at an intersection and the volume of traffic traveling through that intersection on a daily basis. Rates that exceed MassDOT's average for accidents at intersections in the MassDOT district in which the town or city is located could indicate safety or geometric issues for a particular intersection. For our study area, the calculated crash rates for the study area intersections were compared to MassDOT's District 3 (The MassDOT district for Sudbury) average. The current MassDOT average crash rates for signalized and unsignalized intersections in District 3 are 0.89 crashes per million entering vehicles and 0.61 crashes per million entering vehicles, respectively. In other words, on average, 0.89 crashes occurred per million vehicles entering signalized intersections, and 0.61 crashes occurred per million vehicles entering unsignalized intersections throughout District 3.

A summary of the study area intersections vehicle accident history based on the available RMV data is presented in Table 2 and the detailed crash data is provided in the Attachments.

As shown in Table 2, over the five-year period there were three crashes reported at the 554 Boston Post Road west driveway intersection with Boston Post Road (Route 20), one crash reported at the 554 Boston Post road east driveway intersection with Boston Post Road (Route 20), and two crashes reported at the Meadow Walk west driveway intersection with Boston Post Road (Route 20). None of the study area intersections had calculated crash rates above the MassDOT District 3 average crash rates. The majority of crashes that occurred at the study area intersections were rear-end collisions resulting in property damage only. None of the crashes involved non-motorists (bicyclists, pedestrians) or resulted in fatal injuries.

Highway Safety Improvement Program

In addition to calculating the crash rate, study area intersections should also be reviewed in MassDOT's Highway Safety Improvement Program (HSIP) database. An HSIP-eligible cluster is one in which the total number of "equivalent property damage only"[2] crashes in the area is within the top 5% of all clusters in that region. Being HSIP-eligible makes the location eligible for FHWA and MassDOT funds to address the identified safety issues at these locations. As part of this effort, VHB reviewed this database and found that none of the study area intersections are listed as an HSIP-eligible cluster.

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[2] Equivalent property damage only" is a method of combining the number of crashes with the severity of the crashes based on a weighted scale. Crashes involving property damage only are reported at a minimal level of importance, while collisions involving personal injury (or fatalities) are weighted more heavily.

Table 2 Vehicular Crash Data (2012 - 2016)

	Boston Post Road (Route 20) at 554 Boston Post Road West Driveway	Boston Post Road (Route 20) at 554 Boston Post Road East Driveway	Boston Post Road (Route 20) at Meadow Walk West Driveway
Signalized?	No	No	No
MassDOT Average Crash Rate	0.61	0.61	0.61
Calculated Crash Rate	0.09	0.03	0.06
Exceeds Average?	No	No	No
Year			
2012	1	0	1
2013	2	0	0
2014	0	0	0
2015	0	0	1
2016	0	1	0
Total	**3**	**1**	**2**
Yearly Average	0.6	0.2	0.4
Collision Type			
Angle	0	0	0
Head-on	0	0	0
Rear-end	2	1	1
Sideswipe, opposite direction	0	0	0
Sideswipe, same direction	0	0	0
Single Vehicle Crash	1	0	1
Not reported	0	0	0
Severity			
Fatal Injury	0	0	0
Non-Fatal Injury	1	1	0
Property Damage Only	2	0	2
Not Reported	0	0	0
Time of day			
Weekday, 7:00 AM - 9:00 AM	0	0	0
Weekday, 4:00 – 6:00 PM	0	0	0
Saturday, 11:00 AM – 2:00 PM	0	0	0
Weekday, other time	2	1	2
Weekend, other time	1	0	0
Pavement Conditions			
Dry	2	1	2
Wet	0	0	0
Snow	1	0	0
Not reported	0	0	0
Non-Motorist (Bike, Pedestrian)	0	0	0

Source: Crash data was obtained from MassDOT Crash Portal, Accessed January 2019.

Future Conditions

To determine the impacts of the site-generated traffic volumes in the vicinity of the site, future traffic conditions were evaluated. A seven-year horizon (2026) was used for the evaluation consistent with MassDOT Transportation Impact and Access (TIA) study requirements.

Traffic growth on area roadways is a function of the expected land development, environmental activity, and changes in demographics. A frequently used procedure is to identify estimated traffic generated by planned developments that would be expected to affect the project study area roadways. An alternative procedure is to estimate an annual percentage increase and apply that increase to study area traffic volumes. For this evaluation, *both* procedures were used. The following summarizes this traffic forecasting process.

Historic Growth

Recent traffic studies conducted in the Town of Sudbury[3] and historic count data provided by MassDOT were reviewed to establish a rate at which traffic volumes can be expected to grow. A review of recent studies and count data indicate that a 1.0-percent per year growth rate is appropriate for analysis purposes.

Planned Developments

In addition to accounting for background growth, the traffic associated with other planned and/or approved developments near the Site was considered. Based on discussions with the Town of Sudbury, it was determined that the following planned development projects in the vicinity of the site are likely to influence traffic conditions:

- **Meadow Walk** – Adjacent to the Project Site to the east is the partially-complete Meadow Walk development. Once fully completed, the Meadow Walk development will consist of a retail center with 75,000 sf of retail and restaurant space (including a Whole Foods Market), a 250-unit luxury apartment complex, a 60-unit active-adult use condominium complex, and a 48-unit assisted living complex. As of January 2019, the Meadow Walk development is in the final stages of construction with several portions of the development open and occupied. Specifically, the Whole Foods Market, several smaller restaurant/retail parcels, and some of the residential units are currently occupied and generating traffic. To estimate the amount of additional traffic that the Meadow Walk development is projected to generate by the portions that are not yet open, the proposed trip generation volumes provided in the Meadow Walk Traffic Impact and Access Study[4] have been adjusted to determine the trips specifically associated with the portions of the project yet to open.
- **The Coolidge Phase II** – Located at 189 Boston Post Road (Route 20), Phase II at The Coolidge involves the construction of 57 residential units for ages 55+. Projected traffic volumes expected to be generated by this project were estimated based on ITE projections and added to the study area roadways based on existing travel patterns.
- **Jaguar Dealership** – Located at 83 Boston Post Road (Route 20), this project involves the expansion and remodel of the existing Jaguar car dealership. Since this is the redevelopment of an existing site, it is assumed that

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3 A growth rate of one-percent per year was used in the traffic analysis for the adjacent Meadow Walk development, Traffic Impact and Access Study; Meadow Walk, 526-528 Boston Post Road, Sudbury, Massachusetts; VHB, January 6, 2016

4 Traffic Impact and Access Study; Meadow Walk, 526-528 Boston Post Road, Sudbury, Massachusetts; VHB, January 6, 2016

additional traffic generated by this development will be included in the general background growth rate of 1.0-percent per year and therefore no additional traffic was added to the study area roadways.

- **415 Boston Post Road** – This project involves the conversion of the former police station at 415 Boston Post Road (Route 20) into three or four retail tenants. Since this is the redevelopment of an existing site, it is assumed that additional traffic generated by this development will be included in the general background growth rate of 1.0-percent per year and therefore no additional traffic was added to the study area roadways.

The associated traffic volumes associated with the projects listed above are included in the Attachments.

Background Transportation Projects

In assessing future traffic conditions, proposed roadway improvements within the study area were considered. Based on a review of the MassDOT project information database, there are no transportation projects that would impact the Project study area within the seven-year horizon.

No-Build Traffic Volumes

The 2026 No-Build traffic volumes were generated by consideration of the above described factors. The resulting 2026 No-Build peak hour traffic volume networks for the weekday morning, weekday evening, and Saturday midday peak periods are provided in the Attachments.

It should be noted that while the Site currently supports a seasonal farm stand that was not open during the time of the traffic counts, **no** traffic associated with the seasonal farm stand was added to the study area roadways in order to present a conservative analysis.

Trip Generation

To estimate the number of vehicle trips to be generated by the proposed Project, both standard national data provided in the *Trip Generation Manual*[5], published by ITE, and data previously collected at a nearby existing self-storage site were considered. For comparison purposes, the number of vehicle trips expected to be generated by the self-storage facility has also been compared against how many vehicle trips a different land use could generate if built on the Site instead of the proposed Project.

To estimate the Site-generated traffic using national data, the ITE *Trip Generation Manual* was utilized. The number of vehicle trips expected to be generated by the proposed Project were estimated based on ITE land use code (LUC) 151 (Mini-Warehouse) for a storage facility with 672 storage units.

To estimate the Site-generated traffic using empirical data, actual trip generation rates were determined at a nearby existing self-storage facility. VHB had previously documented the trip generation for a self-storage facility in Woburn, Massachusetts, on a typical Friday and Saturday using an automated traffic recorder across that site's driveway. The data was collected on March 24 and March 25, 2011. The trip generation rates from the Woburn site were calculated based on the total number of storage units and were applied to the current Project to provide an alternative estimate of the number of vehicle trips the Site may generate.

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5 Trip Generation Manual (10th edition), Institute of Transportation Engineers (Washington DC), 2017.

Table 3 provides a summary of the anticipated number of vehicle trips to be generated by the Project based on ITE data and based on empirical data. An ITE trip generation worksheet and the traffic counts from the Woburn site are included in the Attachments.

Table 3 Trip Generation Summary

		Based on ITE	Based on Empirical Counts		
Time Period	**Direction**	**Site-Generated Trips [a]**	**Observed Trip Generation [b]**	**Observed Trip Generation Rate [c]**	**Site-Generated Trips [d]**
Weekday Daily	Total	122	64	6.15	42
Weekday Morning	Enter	5	9	0.86	6
Peak Hour	Exit	5	10	0.96	6
	Total	10	19	1.83	12
Weekday Evening	Enter	6	3	0.29	2
Peak Hour	Exit	6	5	0.48	3
	Total	12	8	0.77	5
Saturday Daily	Total	110	53	5.09	34
Saturday Midday	Enter	12	6	0.58	4
Peak Hour	Exit	10	6	0.58	4
	Total	22	12	1.15	8

a Trip generation estimate based on ITE LUC 151 (Mini-Warehouse) for 672 storage units.
b Based on automatic traffic recorder counts conducted at self-storage building with 1,041 storage-units located at 420 Washington Street, Woburn, Massachusetts on Friday March 24, 2011 and Saturday, March 25, 2011.
c Trip generation rate per number of storage units (100's) based on Woburn empirical data.
b Trip generation estimate for Project Site with 672 storage units using trip generation rates derived from Woburn empirical data.

As shown in Table 3, using ITE methodology the proposed Project is expected to generate approximately 10 vehicle trips (5 entering/5 exiting) during the weekday morning peak hour, approximately 12 vehicle trips (6 entering/ 6 exiting) during the weekday evening peak hour, and approximately 22 vehicle trips (12 entering/10 exiting) during the Saturday midday peak hour.

The observed trip generation rates at the existing Woburn self-storage facility are considerably lower than the ITE rates for a "mini-warehouse" use. Using the empirical trip generation rates from the existing Woburn self-storage facility, the Project Site would be expected to generate approximately one-third the amount of weekday daily trips as the ITE projections (42 projected daily trips versus 122 projected daily trips) and less than one-third of the Saturday daily trips (34 projected daily trips versus 110 projected daily trips). The peak hour trips are also projected to be lower using the empirical data over the ITE projections, with the exception of the weekday morning peak hour. Applying the observed Woburn trip generation rates to the proposed Project Site results in peak-hour trip generation ranging from

5 to 12 trips. By comparison, the ITE data suggest peak-hour traffic generation ranging from 10 to 22 hourly trips during the peak hours.

It should be noted that the ITE database is made up of data from sites across the country and includes data from the 1980's to the 2010's while the empirical data is from one site in Woburn in 2011. While the empirical data may represent a more local source of trip generation for the proposed Site, the ITE trip generation rates have been used for all analyses in this Memorandum in order to present a conservative analysis.

Trip Generation Comparison

To provide context to the number of vehicle trips generated by a self-storage facility, VHB also looked at the number of vehicle trips that are generated by other land uses. Specifically, VHB looked at the how many vehicle trips could be generated if a different land use was proposed on the Site as opposed to a self-storage facility. Trip generation rates for three potential land uses that could theoretically be built on-Site were examined: a day-care facility, and a medical clinic, and a car dealership. The size and nature of the proposed uses considered were determined through consultation with the Project team. Table 4 provides a summary of the number of trips these land uses could generate compared to the proposed self-storage facility and trip generation worksheets are included in the Attachments.

Table 4 Trip Generation Comparison

		Proposed Self-Storage Facility [a]				
Time Period	Direction	Based on ITE	Based on Empirical Data	Day Care Facility [b]	Medical Clinic [c]	Car Dealership [d]
Weekday Daily	Total	122	42	742	726	528
Weekday Morning Peak Hour	Enter	5	6	73	55	26
	Exit	5	6	64	15	10
	Total	10	12	137	70	36
Weekday Evening Peak Hour	Enter	6	2	62	18	18
	Exit	6	3	70	44	28
	Total	12	5	132	62	46
Saturday Daily	Total	110	34	76	N/A	992
Saturday Midday Peak Hour	Enter	12	4	14	N/A	38
	Exit	10	4	8	N/A	38
	Total	22	8	22	N/A	76

a Trip generation estimates as presented in Table 3.
b Trip generation estimate based on ITE LUC 365 (Day Care) for 195 students.
c Trip generation estimate based on ITE LUC 630 (Clinic) for 19,000 square feet, No Saturday data provided for ITE LUC 630 (Clinic).
d Trip generation estimate based on ITE LUC 840 (Automobile Sales (New)) for 19,000 square feet.

As shown in Table 4, the proposed self-storage facility generates significantly less traffic than other uses that could theoretically be built on-Site, such as a day-care facility, a medical clinic, and a car dealership. Based on ITE data, the self-storage facility is expected to generate approximately four-to-six times less weekday daily traffic than other potential land uses on-Site. In addition, the self-storage facility is expected to generate the fewest vehicle trips across all peak hours on average compared to the other three land uses. The proposed Project is expected to generate significantly fewer trips than a day care facility or a medical clinic during the weekday morning and weekday evening peak hours (10-12 vehicle trips versus 132-137 and 62-70 vehicle trips, respectively), and significantly fewer trips than a car dealership during the Saturday midday peak hour (22 vehicle trips versus 76 vehicle trips).

Existing Site Generated Trips

As noted previously, the Site currently consists of a seasonal farm stand, a private residence, and several old farm buildings. The existing traffic counts conducted in January only measured minimal Site-generated traffic due to the private residence, as the farm stand is not open during the winter and the old farm buildings do not generate any traffic. While the farm stand generates traffic on-Site during the non-winter months that could be comparable to the peak hour traffic generated by the proposed self-storage facility, to present a conservative analysis, no credit was taken for trips that may be generated in season by the farm stand.

In addition, the Site was formerly home to a dog day care facility, Pet Nannies at Stone Tavern Farm. As allowed by its permits, the dog day care facility could have up to 50 dogs and 5 employees on-Site at any given time. While traffic counts of the former dog day care on the Site are not available, this type of use is typically active in both the weekday morning and weekday evening peak periods when people are dropping off and picking up their pets. VHB previously had conducted counts of the nearby "Best Friends Pet Hotel" at 150 Boston Post Road in Sudbury in 2006. At that time, that site was observed to generate 42 vehicle trips during the weekday morning peak hour and 28 vehicle trips during the weekday evening peak hour (the traffic counts at this facility are included in the Attachments). Based on information from the Proponent, the Best Friends Pet Hotel usually has approximately 75 dogs on a normal weekend but may have up to twice that amount on a busy weekend. Using this information, it is likely that the Pet Nannies at Stone Tavern Farm generated Site-traffic at a rate slightly less than or similar to that of the Best Friends Pet Hotel, and at a rate similar to or higher than the proposed self-storage facility. However, to present a conservative analysis, no credit was taken for traffic that may have been generated on-Site by the dog day care.

Trip Distribution

The directional distribution of the traffic approaching and departing the Site is a function of population densities, the location of employment opportunities, existing travel patterns, and the efficiency of the roadway system. Trips made to and from the Site during the peak hours are expected to be predominantly customers coming and going to their individual self-storage units. Accordingly, the trip distribution for the proposed Project is expected to approximately mirror the existing traffic patterns along Boston Post Road (Route 20) and of nearby retail uses along the roadway. Therefore, the existing traffic patterns and the estimated retail distribution for the adjacent Meadow Walk development have been used to estimate the directional flow of vehicles entering and exiting the Site. Table 5 summarizes the trip distribution and a figure displaying the trip distribution is provided in the Attachments.

Table 5 Trip Distribution

Travel Route	Direction (from/to)	Percent Site Traffic
Boston Post Road (Route 20)	East	60%
Boston Post Road (Route 20)	West	40%
Total		100%

Build Traffic Volumes

The project-related traffic volumes shown in Table 3 are assigned to the study area roadway network based on the trip distribution patterns shown in Table 5 and added to the 2026 No-Build peak hour traffic volume networks to develop the 2026 Build peak hour traffic volume networks. The 2026 Build peak hour traffic volume networks and the Site-generated traffic volume networks are provided in the Attachments.

Traffic Operations Analysis

To assess quality of flow, intersection capacity analyses were conducted with respect to 2019 Existing, 2026 No-Build, and 2026 Build traffic volume conditions. Capacity analyses provide an indication of how well the roadway facilities serve the traffic demands placed upon them. Roadway operating conditions are classified by calculated levels-of-service.

Level of Service Criteria

Level–of-service (LOS) is the term used to denote the different operating conditions that occur on a given roadway segment under various traffic volume loads. It is a qualitative measure that considers a number of factors including roadway geometry, speed, travel delay, freedom to maneuver, and safety. Level-of-service provides an index to operational qualities of a roadway segment or an intersection. Level-of-service designations range from A to F, with LOS A representing the best operating conditions and LOS F representing the worst operating conditions.

For this study, capacity analyses were completed for the unsignalized intersections within the study area using Synchro traffic analysis software. For unsignalized intersections, the analysis assumes that traffic on the mainline is not affected by traffic on the side streets. The LOS is only determined for left-turns from the main street and all movements from the minor street. The evaluation criteria used to analyze the unsignalized study area intersections is based on the *2010 Highway Capacity Manual* (HCM)[6].

Intersection Capacity Analysis

Levels-of-service analyses were conducted for the 2019 Existing, 2026 No-Build, and 2026 Build conditions for the study area intersections. Table 6 summarizes the capacity analyses for the unsignalized intersections and the capacity analyses worksheets are included in the Attachments.

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[6] Highway Capacity Manual, Transportation Research Board, Washington D.C., 2010

Table 6 Unsignalized Intersection Capacity Analysis

Location / Movement	2019 Existing Conditions					2026 No-Build Conditions					2026 Build Conditions				
	D [a]	v/c [b]	Del [c]	LOS [d]	95 Q [e]	D	v/c	Del	LOS	95 Q	D	v/c	Del	LOS	95 Q
Boston Post Road (Route 20) at 554 Boston Post Road West Driveway															
Weekday Morning															
EB L	neg	-	0	A	0	neg	-	0	A	0					
SB L/R	neg	-	0	A	0	neg	-	0	A	0					
Weekday Evening															
EB L	neg	-	0	A	0	neg	-	0	A	0	*Driveway Does Not Exist Under 2026 Build Conditions*				
SB L/R	neg	0.05	53	F	5	neg	0.02	66	F	3					
Saturday Midday															
EB L	neg	-	0	A	0	neg	-	0	A	0					
SB L/R	neg	-	0	A	0	neg	-	0	A	0					
Boston Post Road (Route 20) at 554 Boston Post Road East Driveway															
Weekday Morning															
EB L	neg	-	0	A	0	neg	-	0	A	0					
SB L/R	neg	-	0	A	0	neg	-	0	A	0					
Weekday Evening															
EB L	neg	-	0	A	0	neg	-	0	A	0	*Driveway Does Not Exist Under 2026 Build Conditions*				
SB L/R	neg	0.05	53	F	5	neg	0.02	66	F	3					
Saturday Midday															
EB L	neg	-	0	A	0	neg	-	0	A	0					
SB L/R	5	0.05	31	D	5	5	0.03	38	E	3					
Boston Post Road (Route 20) at Proposed Site Driveway															
Weekday Morning															
EB L											2	0.00	9	A	0
SB L/R											5	0.05	39	E	5
Weekday Evening	*Driveway Does Not Exist Under 2019 Existing Conditions*					*Driveway Does Not Exist Under 2026 No Build Conditions*									
EB L											2	0.00	12	B	0
SB L/R											6	0.19	56	F	8
Saturday Midday															
EB L											5	0.01	11	B	0
SB L/R											10	0.14	60	F	13
Boston Post Road (Route 20) at Meadow Walk West Driveway															
Weekday Morning															
EB L	20	0.02	8	A	3	20	0.02	9	A	3	20	0.02	9	A	3
SB L/R	20	0.16	24	C	15	45	0.17	21	C	15	45	0.18	21	C	15
Weekday Evening															
EB L	35	0.06	11	B	5	40	0.07	12	B	5	40	0.07	12	B	5
SB L/R	95	0.45	30	D	55	110	0.58	44	E	80	110	0.58	45	E	80
Saturday Midday															
EB L	105	0.16	11	A	15	110	0.18	12	B	15	110	0.18	12	B	15
SB L/R	105	0.41	26	D	48	130	0.63	46	E	95	130	0.65	47	E	98

Note: neg = Negligible

a Demand

b Volume to capacity ratio.

c Average total delay, in seconds per vehicle.

d Level-of-service.

e 95th percentile queue, in feet.

95th percentile volume exceeds capacity, queue may be longer.

As shown in Table 6, the Project is expected to have minimal impacts on traffic operations within the study area. Minimal changes due to the Project are recorded for the level-of-service or queues on the Boston Post Road (Route 20) approaches or the Meadow Walk West driveway approach, and the proposed Site driveway is expected to have 95th percentile queues of less than one vehicle for all time periods. While exiting traffic from the proposed Site driveway is expected to operate at LOS E or F for all time periods, this is due to the high through volumes on Boston Post Road (Route 20), and similar delays are experienced under Existing and No Build conditions at the existing Site driveways with negligible traffic. It is expected that exiting delays at the proposed Site Driveway will be less than reported due to drivers accepting shorter gaps in the real-world than modeled in the analysis software and due to additional gaps in traffic being created by the traffic signal located approximately 900 feet east at the intersection of Boston Post Road (Route 20) and the Meadow Walk Driveway / Sudbury Plaza Driveway. Regardless, the analyses indicates that entering left-turns from Boston Post Road (Route 20) will operate at LOS B or better during the peak hours studied.

Sight Distance

VHB conducted a sight distance analysis, conforming to guidelines of the American Association of State Highway and Transportation Officials (AASHTO)[7], at the proposed Boston Post Road (Route 20) driveway location. Sight distance is generally divided into two categories: Stopping Sight Distance (SSD) and Intersection Sight Distance (ISD).

Stopping Sight Distance (SSD) is the distance required for a vehicle approaching an intersection from either direction to perceive, react and come to a complete stop before colliding with an object in the road, in this case the exiting vehicle from a driveway. In this respect, SSD can be considered as the minimum visibility criterion for the safe operation of an unsignalized intersection.

Intersection Sight Distance (ISD) is based on the time required for perception, reaction and completion of the desired critical exiting maneuver once the driver on a minor street or driveway approach decided to execute the maneuver. Calculation for the critical ISD includes the time to (1) turn left, and to clear the half of the intersection without conflicting with the vehicles approaching from the left; and (2) accelerate to the operating speed of the roadway without causing approaching vehicles to unduly reduce their speed. In this context, ISD can be considered as a desirable visibility criterion for the safe operation of an unsignalized intersection. Essentially, while SSD is the minimum distance needed to avoid collisions, ISD is the minimum distance needed so that mainline motorists will not have to substantially reduce their speed due to turning vehicles. To maintain the safe operation of an unsignalized intersection, ISD only needs to be equal to the stopping sight distance, though it is desirable to meet ISD requirements by themselves.

To calculate the required SSD and ISD at the unsignalized intersection of the site driveway at Boston Post Road (Route 20), the 85th percentile speed along Boston Post Road (Route 20) measured by the ATR count described previously was utilized. The 85th percentile speed along Boston Post Road (Route 20) was observed to be approximately 38 mph eastbound and 37 mph westbound. Table 7 summarizes the sight distance analysis and the sight distance worksheet is included in the Attachments.

A Policy on the Geometric Design of Highways and Streets, American Association of State Highway and Transportation Officials, 2011

Table 7 Sight Distance Analysis Summary

	Stopping Sight Distance (ft) [a]			Intersection Sight Distance (ft) [a]		
Location	**Traveling**	**Required**	**Measured**	**Turning**	**Desired**	**Measured**
Boston Post Road (Route 20) at the Site Driveway	Eastbound	280	> 700	Left	420	> 700
	Westbound	270	> 700	Right	355	> 700

a Based on guidelines established in A Policy on the Geometric Design of Highways and Streets, Sixth Edition, American Association of State Highway and Transportation Officials (AASHTO), 2011 for an 85th percentile speed of 38 mph eastbound and 37 mph westbound.

As shown in Table 7, at the unsignalized intersections of Boston Post Road (Route 20) at the site driveway, the required stopping sight distances and the desired intersection sight distances are exceeded in both directions.

Conclusion

VHB has conducted a traffic impact and access study to assess the potential traffic impacts associated with the proposed development located at 554 Boston Post Road (Route 20) in Sudbury, Massachusetts. The proposed redevelopment project will involve the construction of a 672-unit self-storage facility on an approximately 3.1-acre Site currently occupied by a private residence, a seasonal farm stand, and several old farm buildings.

The proposed Project is expected to generate approximately 10 vehicles trips (5 entering/5 exiting) during the weekday morning peak hour, 12 vehicle trips (6 entering/6 exiting) during the weekday evening peak hour, and 22 vehicle trips (12 entering/10 exiting) during the Saturday midday peak hour. Based on the intersection capacity analyses, it was determined that the Project will have minimal impact upon operations at the study are intersections and along the study area roadway. In addition, the proposed self-storage facility is expected to generate significantly less traffic than other potential uses that could be built on the Site, such as a day care, a medical clinic, or a car dealership.