

October 7, 2020

Mr. Stephen Gagnon, Engineering Department Administrator  
City of Methuen  
Engineering Department  
41 Pleasant Street  
Methuen, MA 01844

SUBJECT: Proposed Accessory Building  
Saisa Realty, LLC  
228-254 Pleasant Street  
Map 812 Block 59 Lot 99



Dear Mr. Gagnon:

Greenman-Pedersen, Inc. (GPI), on behalf of our client, Saisa Realty, LLC, has prepared the following information to summarize the proposed drainage improvements for the above referenced project. Saisa Realty, LLC is proposing to construct a new 2,176 square foot (1-story) building consisting of four garage bays and a break room at the northeast corner of the site as well as a new concrete dumpster pad. The majority of the proposed building is located within the footprint of the existing parking lot and the proposed layout will result in a decrease in impervious coverage on-site of approximately 300 square feet.

Proposed stormwater control measures include a subsurface infiltration system consisting of Stormtech SC-310 chambers encased in crushed stone and a crushed stone drip edge. The infiltration system will be connected to the gutter downspouts to provide groundwater recharge for the southern portion of the proposed building roof. The crushed stone drip edge will promote groundwater recharge for stormwater runoff from the northern portion of the proposed building. Stormwater runoff from the paved parking areas adjacent to the proposed building will continue to flow similar to existing conditions.

Each of the proposed stormwater control measures is designed to store and infiltrate the water quality volume (WQV) of half of the proposed building roof. The water quality volume (VWQ) is the volume of impervious surfaces times the water quality depth (DWQ). For sites with the potential to generate over 1,000 vehicle trips per day, the water quality depth is 1 inch.

$$V_{WQ} = D_{WQ} * A_{impervious}$$
$$V_{WQ} = 1 \text{ in} \left( \frac{1 \text{ in}}{12 \text{ ft}} \right) * 2,176 \text{ sf} = \mathbf{182 \text{ c.f.}}$$

The subsurface infiltration system consists of two SC-310 chambers and crushed stone which provides 96 cubic feet of storage. The crushed stone drip strip is 2 feet wide by 2 feet deep by 68 feet long and provides 109 cubic feet of storage. A total of 205 cubic feet of storage is provided, exceeding the 182 cubic feet required. Refer to the attached volume calculations.

In conclusion, due to the proposed net reduction in impervious area and the construction of the underground infiltration system and crushed stone drip strip, the project will result in a decrease in peak rates of runoff from the site, provide an increase in groundwater recharge, and represent an improvement over existing conditions.

Saisa Realty, LLC  
October 7, 2020  
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If you have any questions or need additional information please feel free to call me at 603-374-7912.

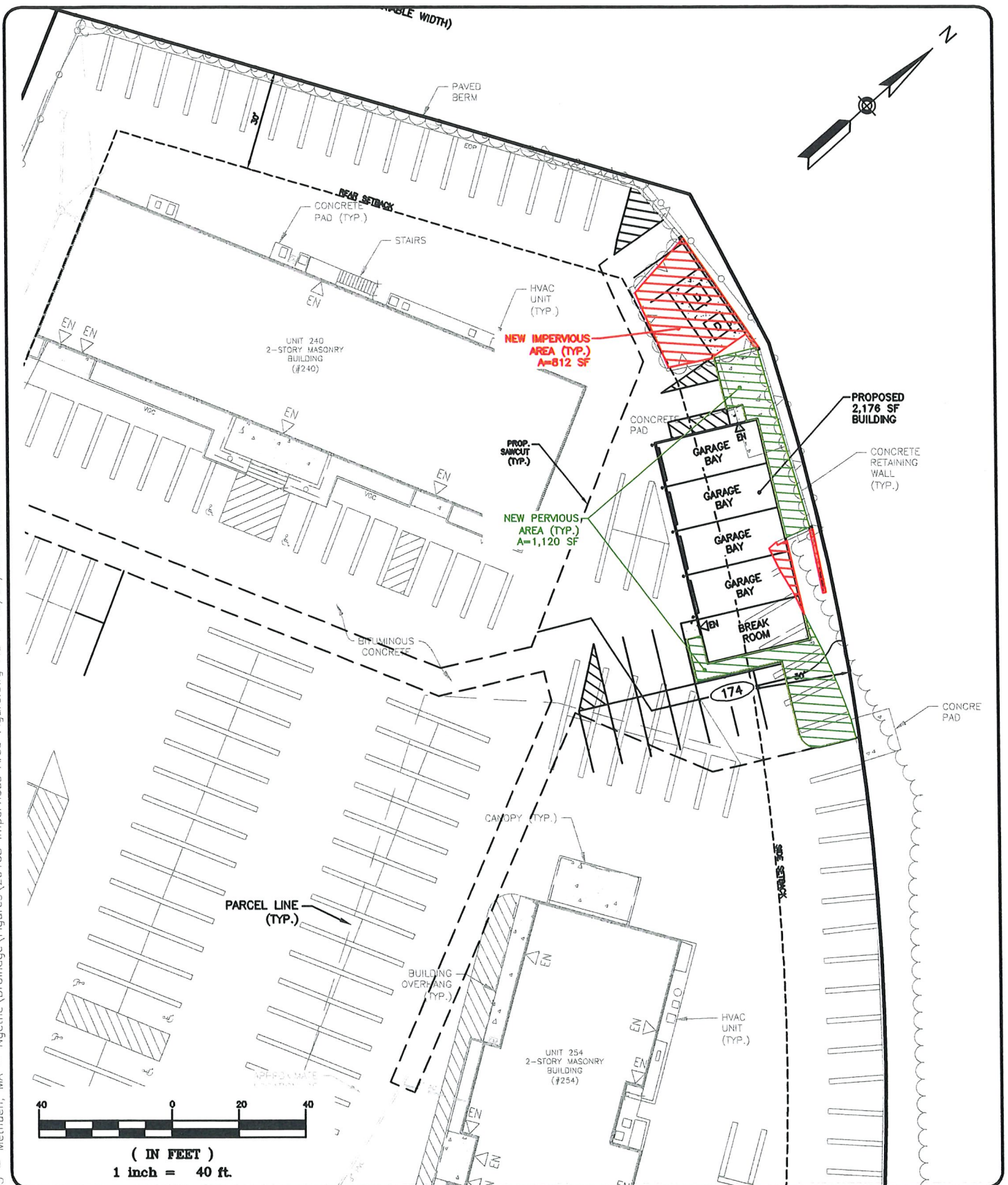
Sincerely,  
**Greenman-Pedersen, Inc.**

A handwritten signature in blue ink, appearing to read 'D. Jordan', is positioned above the printed name.

David R. Jordan, PE, PLS, LEED AP  
Senior Project Manager

Cc: Anthony Ngethe, Saisa Realty, LLC

F:\Projects\NEX-2020165 - Methuen, MA - Ngethe\Drainage\Figures\20165 Impervious Area Figure.dwg FIG-1 10/06/20 10:16am cmoson



# **IMPERVIOUS AREA FIGURE** **228-254 PLEASANT STREET** **METHUEN, MA**



Engineering  
Design  
Planning  
Construction Management

603.893.0720

GPINET.COM

Greenman-Pedersen, Inc.  
44 Stiles Road, Suite One  
Salem, NH 03079

DRAWN BY: CNM  
PROJECT #: 2020165

DATE: 10/7/2020

REV.: -

FIGURE

1

## 2020165 BMP Sizing

Prepared by Greenman-Pedersen, Inc.

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### Summary for Pond 1P: ADS Stormtech

Volume	Invert	Avail.Storage	Storage Description
#1A	170.60'	67 cf	<b>4.83'W x 17.44'L x 2.33'H Field A</b> 197 cf Overall - 29 cf Embedded = 167 cf x 40.0% Voids
#2A	171.10'	29 cf	<b>ADS_StormTech SC-310 +Cap</b> x 2 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12"L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap
		96 cf	Total Available Storage

Storage Group A created with Chamber Wizard



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NRCC 24-hr D 2-Year Rainfall=3.10"

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### Pond 1P: ADS Stormtech - Chamber Wizard Field A

**Chamber Model = ADS\_StormTech SC-310 +Cap (ADS StormTech® SC-310 with cap length)**

Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf

Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap

2 Chambers/Row x 7.12' Long +0.60' Cap Length x 2 = 15.44' Row Length +12.0" End Stone x 2 = 17.44'  
Base Length

1 Rows x 34.0" Wide + 12.0" Side Stone x 2 = 4.83' Base Width

6.0" Stone Base + 16.0" Chamber Height + 6.0" Stone Cover = 2.33' Field Height

2 Chambers x 14.7 cf = 29.5 cf Chamber Storage

196.7 cf Field - 29.5 cf Chambers = 167.2 cf Stone x 40.0% Voids = 66.9 cf Stone Storage

Chamber Storage + Stone Storage = 96.4 cf = 0.002 af

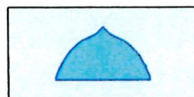
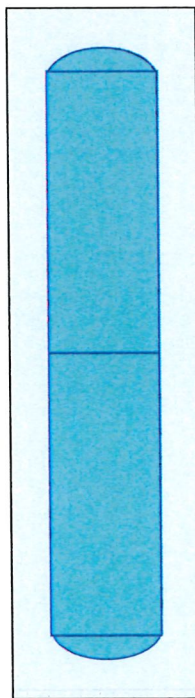
Overall Storage Efficiency = 49.0%

Overall System Size = 17.44' x 4.83' x 2.33'

2 Chambers

7.3 cy Field

6.2 cy Stone



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### Summary for Pond 2P: Drip Strip

Volume	Invert	Avail.Storage	Storage Description
#1	173.00'	109 cf	<b>2.00'W x 68.00'L x 2.00'H Prismatoid</b> 272 cf Overall x 40.0% Voids