



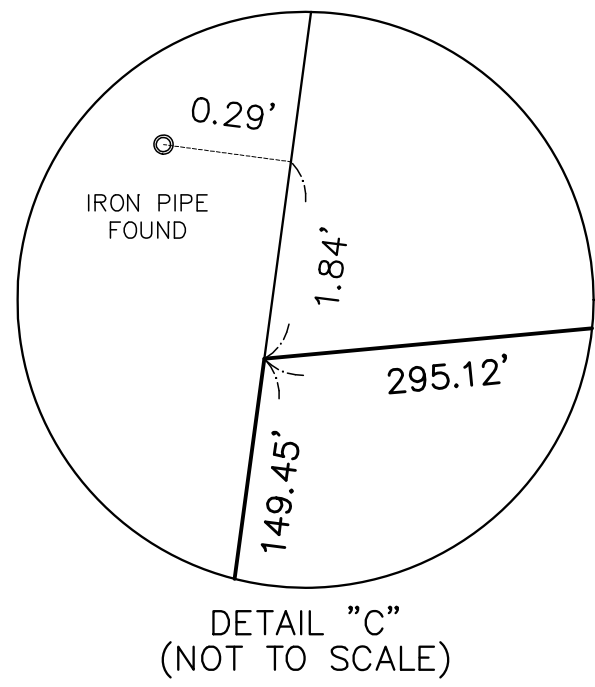
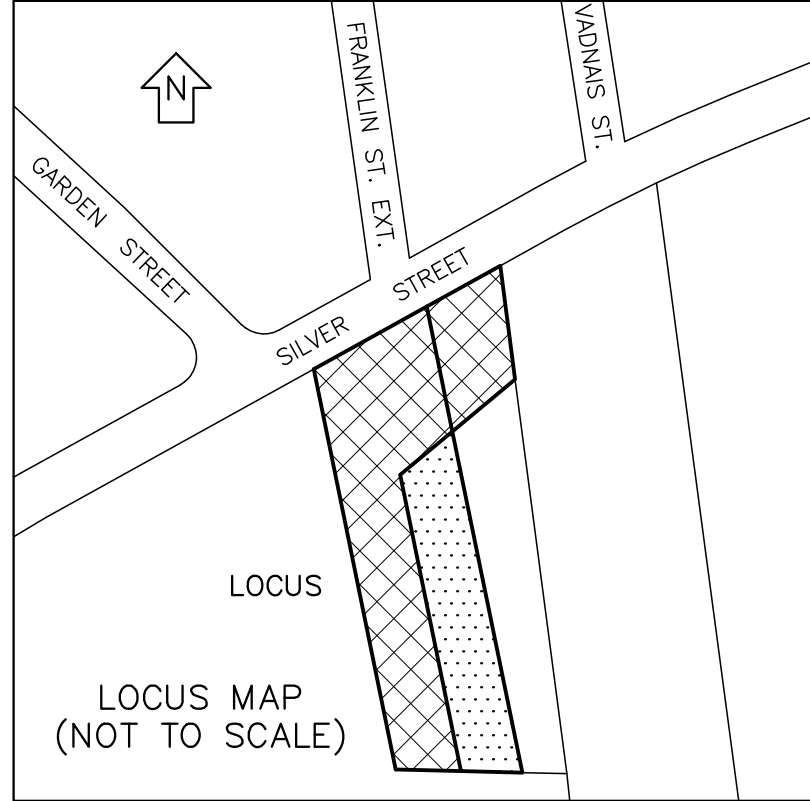
## **Planning Board AGENDA**

Thursday, April 3, 2025 - 6:00 PM

Regular Meeting  
Agawam Senior Center  
954 Main Street  
Agawam, MA 01001

### **A. Planning Board**

- 1) FORM A-485 Silver Street-C&D Damon, LLC
- 2) SITE PLAN-158 Silver Street-J & N Salema Family Limited Partnership
- 3) APPROVAL OF MINUTES-March 6, 2025 & March 20,2025
- 4) Correspondences



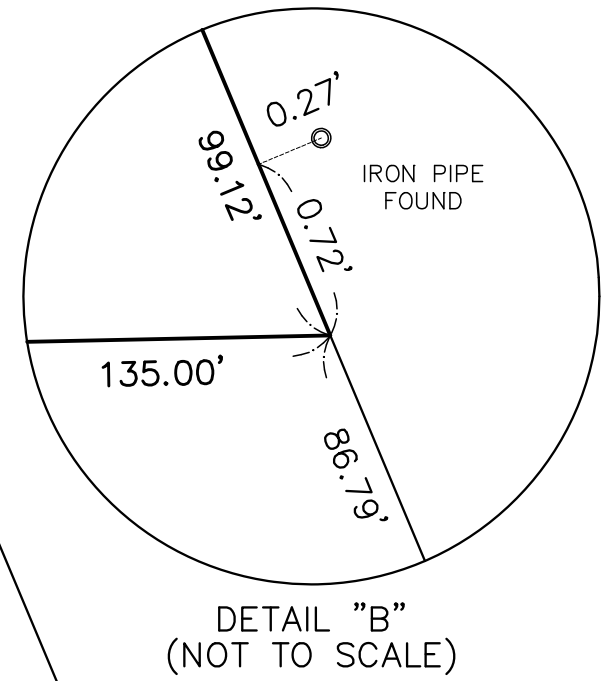
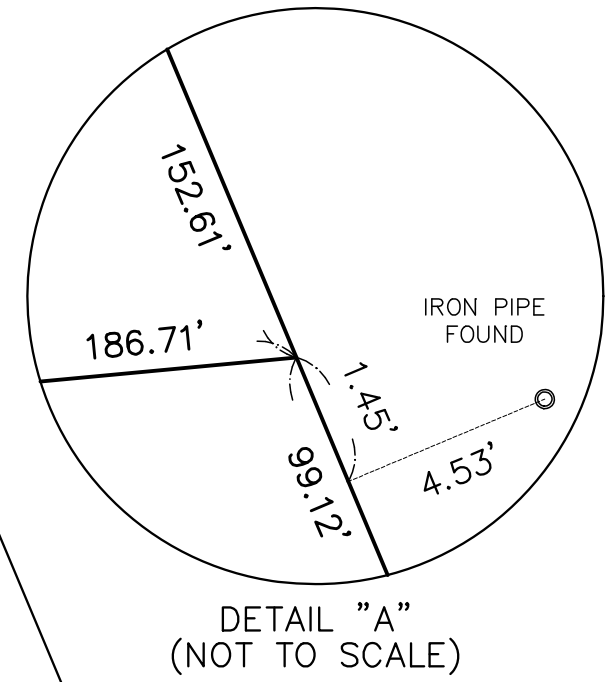
MV HOLDINGS, LLC  
BOOK 19144, PAGE 200  
PLAN BOOK 315, PAGE 127

**PARCEL A-1**  
**AREA = 1.121 ACRES**  
(NOT A BUILDING LOT)  
SEE NOTE 2

**PARCEL A-2**  
**AREA = 27,093 S.F.±**  
(NOT A BUILDING LOT)  
SEE NOTE 3

CAAC, LLC  
BOOK 17095, PAGE 27  
(PARCEL 1)  
PLAN BOOK 23, PAGE 9

**PARCEL B**  
**AREA = 12,607 S.F.±**  
(NOT A BUILDING LOT)  
SEE NOTE 2

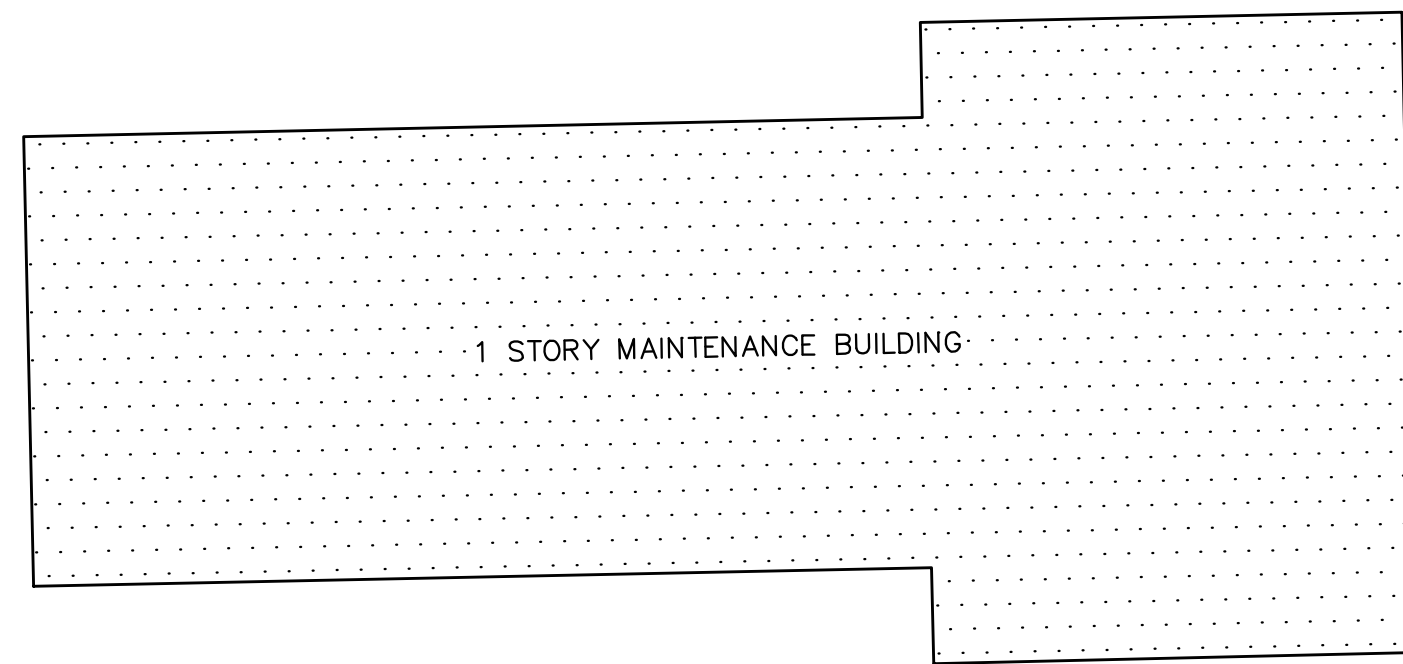


A 1988 ALTERATION ~ 60.00' WIDE  
SEE PLAN BOOK 261, PAGE 37  
338.52'

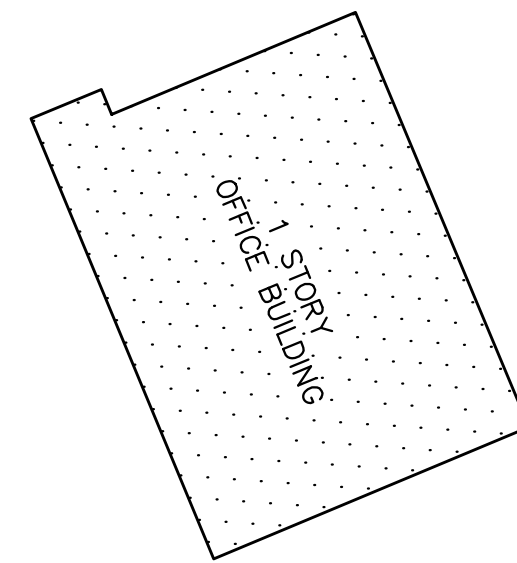
CHORD: N63°36'03"E  
121.51'  
R=1998.00'  
L=121.52'

| LEGEND              |   |
|---------------------|---|
| GRANITE BOUND FOUND | □ |
| IRON PIPE FOUND     | ● |
| IRON PIPE SET       | ○ |
| STOCKADE FENCE      | — |
| ROOF OVERHANG       | — |
| EDGE OF GRAVEL      | — |

REMAINING LAND OF CAAC, LLC  
SUFFICIENT AREA AND FRONTAGE REMAIN  
TO SATISFY ZONING REQUIREMENTS



CAAC, LLC  
BOOK 11447, PAGE 169



#### NOTES:

- FOR REFERENCE TO PARCELS A-1 AND A-2 SEE BOOK 23737, PAGE 262, AND PLAN BOOK 390, PAGE 119. THE OWNER IS C & D DAMON, LLC. FOR REFERENCE TO PARCEL B SEE BOOK 17095, PAGE 27, AND PLAN BOOK 23, PAGE 9. THE OWNER IS CAAC, LLC.
- PARCEL B SHOWN HEREON, BEING A PORTION OF BOOK 17095, PAGE 27 (PARCEL 1), IS TO BE CONVEYED BY CAAC, LLC TO C & D DAMON, LLC, AND COMBINED WITH ADJACENT PARCEL A-1 TO FORM ONE CONTIGUOUS PARCEL OF LAND WITH AN AREA OF 1.411 ACRES.
- PARCEL A-2 SHOWN HEREON, BEING A PORTION OF BOOK 23737, PAGE 262, IS TO BE CONVEYED BY C & D DAMON, LLC TO CAAC, LLC, AND COMBINED WITH ADJACENT LAND.

THIS SURVEY AND PLAN WERE PREPARED IN ACCORDANCE WITH THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS, AND THE PROCEDURAL AND TECHNICAL STANDARDS FOR THE PRACTICE OF LAND SURVEYING IN THE COMMONWEALTH OF MASSACHUSETTS.

03/26/25  
DATE REGISTERED LAND SURVEYOR

LOCATION OF PROPERTY:  
485 SILVER STREET MBLU: H7/1/6 PID: 4715  
481 SILVER STREET MBLU: H7/1/5 PID: 4714

REFERENCE: APPENDIX B  
TABLE OF DIMENSION REGULATIONS

| ZONING REQUIREMENTS |              |
|---------------------|--------------|
| DISTRICT            | INDUSTRIAL B |
| LOT SIZE            | 1 ACRE       |
| FRONTAGE            | 100'         |
| FRONT YARD          | 75'          |
| SIDE YARD           | 25'          |
| REAR YARD           | 25'          |

- NOTES:
- DETACHED GARAGES OR ACCESSORY BUILDINGS SHALL BE PLACED AT LEAST FIVE FEET FROM A SIDE LOT LINE IF LOCATED MORE THAN 65 FEET FROM A STREET LINE.
  - A ONE-STORY ACCESSORY BUILDING SHALL BE PLACED AT LEAST FIVE FEET FROM THE REAR LOT LINE. A ONE-AND-ONE-HALF-STORY ACCESSORY BUILDING SHALL BE PLACED AT LEAST 10 FEET FROM THE REAR LOT LINE.

PLANNING BOARD  
AGAWAM, MASSACHUSETTS

APPROVAL UNDER SUBDIVISION  
CONTROL LAW NOT REQUIRED

DATE \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

REGISTRY OF DEEDS  
HAMPDEN COUNTY

PLAN OF LAND IN  
AGAWAM, MASSACHUSETTS  
SURVEYED FOR  
C & D DAMON, LLC AND CAAC, LLC

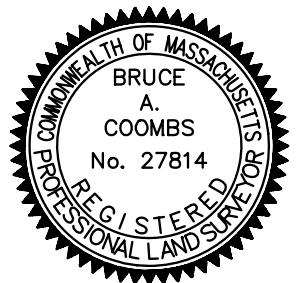
SCALE: 1" = 30'

DATE: FEBRUARY 25, 2025  
REVISED: MARCH 26, 2025

**HERITAGE**  
LAND SURVEYING & ENGINEERING, INC.

241 COLLEGE HIGHWAY & CLARK STREET  
POST OFFICE BOX 90  
SOUTHAMPTON, MASSACHUSETTS 01073-0090  
(413) 527-3600  
INFO@HERITAGESURVEYS.COM

JOB # 7728-250114 DWG # 7728DA02 MAP # 7728-250326





# TOWN OF AGAWAM, MASSACHUSETTS

## FORM A

### Application for Endorsement of Plan Not Believed to Require Approval

FILE ONE COMPLETED FORM WITH THE PLANNING BOARD AND ONE COPY WITH THE TOWN CLERK IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 11-B

\_\_\_\_\_20\_\_\_\_\_

#### TO THE PLANNING BOARD:

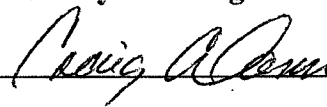
The undersigned, believing that the accompanying plan of his property in the Town of Agawam does not constitute a subdivision within the meaning of the Subdivision Control Law, herewith submits said plan for a determination and endorsement that Planning Board approval under the Subdivision Control Law is not required.

1. Name of Applicant C & D Damon, LLC (c/o Craig Damon)  
Address 467 Silver Street, P.O. Box 673, Agawam, MA 01001-0673  
Phone # 413-563-0858 Fax # \_\_\_\_\_ email cdamon@witchenterprises.com
2. Name of Surveyor Heritage Land Surveying & Engineering, Inc. - Bruce A. Coombs, RLS  
Address 241 College Hwy & Clark St., P.O. Box 90, Southamptn, MA 01073-0090  
Phone # 413-527-3600 Fax # 413-527-8280 email INFO@HERITAGESURVEYS.COM
3. Deed of Property Recorded in Hampden County Registry of Deeds  

|  |      |              |      |            |
|--|------|--------------|------|------------|
|  | Book | <u>23737</u> | Page | <u>262</u> |
|  |      | <u>17095</u> |      | <u>27</u>  |
4. Location of Property 

|  |                          |                     |                  |
|--|--------------------------|---------------------|------------------|
|  | <u>485 Silver Street</u> | <u>Mblu: H7/1/6</u> | <u>PID: 4715</u> |
|  | <u>481 Silver Street</u> | <u>Mblu: H7/1/5</u> | <u>PID: 4714</u> |
5. Describe the proposal in this submission: Combine Parcels A-1 and B to form one contiguous parcel of land with an area of 1.411 Acres, and combine Parcel A-2 with adjacent land of CAAC, LLC as shown on "Plan of Land in Agawam, Massachusetts surveyed for C & D Damon, LLC and CAAC, LLC" by Heritage Land Surveying & Engineering, Inc., dated February 25, 2025.

**ATTACHMENTS - Two originals and three copies of plan by certified land surveyor. Filing Fee - \$50.00 plus \$20.00 per lot.**

Signature of Owner  Address 467 Silver Street, P.O. Box 673  
Agawam, MA 01001-0673



**Town of Agawam**  
***Inspection Services Department***  
1000 Suffield Street, Agawam, Massachusetts 01001  
Telephone - (413) 821-0632

Kevin Duquette  
Inspector of Buildings  
inspections@agawam.ma.us

March 26, 2025

To: Office of Planning and Community Development:

Re: Form-A Review Comments for 485 Silver Street Agawam, MA 01001:

Inspection Services has no zoning issues or concerns for the proposed Form A- ANR plan dated 2/25/2025 for the above referenced address.

Respectfully,

Kevin Duquette  
Kevin Duquette  
Inspector of Buildings  
Town of Agawam

# TOWN OF AGAWAM

Office of Planning & Community Development  
36 Main Street, Agawam, MA 01001

## SITE PLAN REVIEW

**PROJECT:** Site Plan Approval – 158 Silver Street – Dunkin Donuts  
**FILE NUMBER:** 9020  
**MEETING DATE:** April 3, 2025

---

### APPLICANT INFORMATION

1. **Name of Business:** Dunkin Donuts  
**Address:** 158 Silver Street
2. **Owner:** J&N Salema Family Limited Partnership c/o Peter Martins  
**Address:** 4 Harding Avenue, Ludlow, Ma 01056  
**Telephone:** 413-737-5861
3. **Engineer:** R. Levesque Associates, Inc.  
**Address:** 40 School Street, Westfield, MA 01085  
**Telephone:** (413) 568-0985

**Description of Project:** Expansion and reconfiguration of the existing parking lot and drive thru.  
A drive up ATM is also being proposed

**Title Block (Street Addr., Applicant's Name & Addr., Scale, Name of Preparer of Plan):**  
OK

**Scale:** 1" = 20 feet

**Description of Site:** Site is currently developed with an existing Dunkin Donuts. Property is bound by Silver Street to the South, Suffield Street to the West, and residences to the North and East.

**Provision for Traffic Flow:** The curb cut on Suffield Street will be widened to include left and right turn lanes for exits as well as one entrance lane. The curb cut on Silver Street will be utilized as is. Traffic will flow around the property to reach the drive-thru for more queuing spaces. Sheet C-4 depicts the arrows for site circulation.

**Parking:** 31 Parking spaces are proposed – two of which are handicap spaces.

**Drainage:** See Engineering Department comments.

**Public Utilities:** See Engineering Department comments.

**Landscaping/Screening and Buffers:** A detailed landscape plan has been provided showing trees and shrubs on sheet C-7.

**Sign Location:** Location of current pylon sign shown.

**Exterior Lighting:** A Photometric Plan has been provided.

**Rendering or Elevations:** No changes to current building.

**Dumpster Location:** Dumpster location to be fenced in the north-eastern corner of the site.

**Other Comments/Concerns:**

# Site Plan Approval Application

*Under the Town of Agawam Zoning Bylaw Section 180-13 Site Plans*

## Proposed Site Improvements

### Project Location:

158 Silver Street  
Agawam, Massachusetts 01001  
(Parcel ID: J8-2-3)

### Submitted To:

Town of Agawam Planning Board  
36 Main Street  
Agawam, Massachusetts 01001

### Applicant & Property Owner:

J & N Salema Family Limited Partnership  
c/o Mr. Peter Martins  
4 Harding Avenue  
Ludlow, Massachusetts 01056

RLA Project File No. 171123

**March 20, 2025**

**R LEVESQUE ASSOCIATES, INC.**

**A LAND PLANNING SERVICES COMPANY**

40 School Street, Westfield, MA 01085

p 413.568.0985 · f 413.568.0986 · [www.rlaland.com](http://www.rlaland.com)



## **TABLE OF CONTENTS**

### **SECTION**

---

1. COVER LETTER
2. ADMINISTRATIVE FORMS
  - 2.1 ZONING DETERMINATION
  - 2.2 SITE PLAN APPROVAL APPLICATION – FORM D
3. PROJECT NARRATIVE
4. LOCUS MAP
5. DEED REFERENCE(S)

## **LIST OF APPENDICES**

### **APPENDICES**

---

- APPENDIX A: SITE PLAN SET
- APPENDIX B: STORMWATER REPORT



## **I. COVER LETTER**

---

# R LEVESQUE ASSOCIATES, INC.

40 School Street, P.O. BOX 640, Westfield, MA 01085

p 413.568.0985 · f 413.568.0986 · www.rlaland.com



March 20, 2025

Violet Baldwin, Chairperson  
Town of Agawam Planning Board  
36 Main Street  
Agawam, Massachusetts 01001

**RE: Site Plan Approval – Proposed Site Improvements  
158 Silver Street  
Agawam, Massachusetts 01001  
(Parcel ID: J8-2-3)  
RLA Project File No. 171123**

Dear Chairperson Baldwin and Board Members:

On behalf of the applicant and property owner, J & N Salema Family Limited Partnership c/o Mr. Peter Martins, please find the requisite number of copies of a Site Plan Approval application, supporting documentation, and associated site plan set for the above-referenced project. The applicant proposes the expansion and reconfiguration of the existing parking and drive-thru for the existing Dunkin' Donuts located at the above-referenced property in Agawam, Massachusetts.

As required, a copy of this submission package has been provided electronically via email to the Town of Agawam Planning Department.

We are requesting to be placed on the Board's next available agenda for review. Should you have any questions or comments regarding this submission, please do not hesitate to contact our office at your earliest convenience.

Sincerely,  
R LEVESQUE ASSOCIATES, INC.

*Nina Fazio*

Nina Fazio  
Permitting Coordinator

**A LAND PLANNING SERVICES COMPANY**

## **2. ADMINISTRATIVE FORMS**

---

2.1 ZONING DETERMINATION

2.2 SITE PLAN APPROVAL APPLICATION – FORM D



The Commonwealth of Massachusetts  
**Town of Agawam**  
**Inspection Services - Building Department**  
1000 Suffield Street, Agawam MA 01001 – (413) 821-0632

OFFICE ONLY  
Date Filed:  
RECEIVED BY  
INSPECTION SERVICES

NOV 26 2024

**Application for Zoning Determination**

TOWN OF AGAWAM

**FILING INSTRUCTIONS:** Deliver this form (no fee required) to Inspection Services.

For digital submissions, please confirm receipt. A complete application will be processed within 30 days.

The applicant must pick-up, or arrange for the receipt of, this processed form.

|                                                                                                     |                                                              |                                                                                                          |                                                |  |                                                |                           |                                                |                |                                                       |                          |
|-----------------------------------------------------------------------------------------------------|--------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|------------------------------------------------|--|------------------------------------------------|---------------------------|------------------------------------------------|----------------|-------------------------------------------------------|--------------------------|
| <b>1) PROPERTY INFORMATION</b>                                                                      |                                                              |                                                                                                          |                                                |  |                                                |                           |                                                |                |                                                       |                          |
| <b>a. Street Address</b>                                                                            |                                                              | 158 Silver Street                                                                                        |                                                |  |                                                | <b>b. Zoning District</b> |                                                | BA & R A-2     |                                                       |                          |
| <b>c. Assessor's Map</b>                                                                            |                                                              | J8-2                                                                                                     |                                                |  |                                                | <b>d. Lot(s)</b>          |                                                | 3              |                                                       |                          |
| <b>e. Registry of Deeds Book</b>                                                                    |                                                              | 10978 / 24708                                                                                            |                                                |  |                                                | <b>f. Page</b>            |                                                | 203 / 396      |                                                       |                          |
| <b>g. Overlay Districts</b>                                                                         |                                                              | <input type="checkbox"/> Historic Preservation <input type="checkbox"/> Mixed-Use Business C             |                                                |  |                                                |                           |                                                |                |                                                       |                          |
| <b>h. Previous Special Permits, Site Plan Approvals, Findings or Variances Issued for this Site</b> |                                                              |                                                                                                          |                                                |  |                                                |                           |                                                |                |                                                       |                          |
|                                                                                                     |                                                              |                                                                                                          |                                                |  |                                                |                           |                                                |                |                                                       |                          |
| <b>2) APPLICANT &amp; OWNER INFORMATION</b>                                                         |                                                              |                                                                                                          |                                                |  |                                                |                           |                                                |                |                                                       |                          |
| <b>a. Applicant Name</b>                                                                            |                                                              | Salmar Realty, LLC c/o Peter Martins                                                                     |                                                |  |                                                | <b>b. Applicant Phone</b> |                                                | (413) 427-7236 |                                                       |                          |
| <b>c. Applicant Email</b>                                                                           |                                                              | peter.martins@salemamangement.com                                                                        |                                                |  |                                                |                           |                                                |                |                                                       |                          |
| <b>d. Applicant Mailing Address</b>                                                                 |                                                              | 350 Cottage Street, Springfield, MA 01104                                                                |                                                |  |                                                |                           |                                                |                |                                                       |                          |
| <b>e. Applicant Relationship to Property</b>                                                        |                                                              | <input type="checkbox"/> Owner <input type="checkbox"/> Agent <input checked="" type="checkbox"/> Other: |                                                |  |                                                |                           |                                                |                |                                                       |                          |
| <b>f. Representative Name (if any)</b>                                                              |                                                              | R Levesque Associates, Inc.                                                                              |                                                |  |                                                | <b>g. Rep. Phone</b>      |                                                | 413-568-0985   |                                                       |                          |
| <b>h. Rep. Email</b>                                                                                |                                                              | ninaf@rlaland.com                                                                                        |                                                |  |                                                |                           |                                                |                |                                                       |                          |
| <b>i. Owner Mailing Address</b>                                                                     |                                                              | 135 Elizabeth Drive, Ludlow, Massachusetts 01056                                                         |                                                |  |                                                |                           |                                                |                |                                                       |                          |
| <b>j. Owner Name (if different)</b>                                                                 |                                                              | J & N Salema Family Limited Partnership                                                                  |                                                |  |                                                | <b>k. Owner Phone</b>     |                                                | (413) 427-7236 |                                                       |                          |
| <b>l. Owner Email</b>                                                                               |                                                              | peter.martins@salemamangement.com                                                                        |                                                |  |                                                |                           |                                                |                |                                                       |                          |
| <b>m. Owner Mailing Address</b>                                                                     |                                                              | 135 Elizabeth Drive, Ludlow, Massachusetts 01056                                                         |                                                |  |                                                |                           |                                                |                |                                                       |                          |
| <b>3) PROJECT &amp; SITE DETAILS</b>                                                                |                                                              |                                                                                                          |                                                |  |                                                |                           |                                                |                |                                                       |                          |
| <b>NOTE: Any omission of requested information may result in an INCOMPLETE determination</b>        |                                                              |                                                                                                          |                                                |  |                                                |                           |                                                |                |                                                       |                          |
|                                                                                                     | <b>Existing</b>                                              |                                                                                                          |                                                |  | <b>Proposed</b>                                |                           |                                                |                | <b>-FOR BUILDING DEPT. REVIEW-<br/>REQUIRED / NCU</b> |                          |
|                                                                                                     | <input type="checkbox"/> No changes to building, site or lot |                                                                                                          |                                                |  |                                                |                           |                                                |                |                                                       |                          |
| <b>a. Lot Size</b>                                                                                  | 1,964                                                        |                                                                                                          | SF                                             |  | No Change                                      |                           | SF                                             |                | <b>LOT SIZE</b>                                       | <input type="checkbox"/> |
| <b>b. Frontage</b>                                                                                  | 190 +/- / 290 +/-                                            |                                                                                                          | FT                                             |  | No Change                                      |                           | FT                                             |                | <b>FRONTAGE</b>                                       | <input type="checkbox"/> |
| <b>c. Front Lot Line</b>                                                                            | > 35'                                                        |                                                                                                          | FT                                             |  | No Change                                      |                           | FT                                             |                | <b>FRONT SB</b>                                       | <input type="checkbox"/> |
| <b>d. Side Lot Line (Left/Right)</b>                                                                | L: FT N/A                                                    |                                                                                                          | R: N/A                                         |  | L: No Change FT                                |                           | R: No Change FT                                |                | <b>SIDE SB</b>                                        | <input type="checkbox"/> |
| <b>e. Rear Lot Line</b>                                                                             | > 25'                                                        |                                                                                                          | FT                                             |  | No Change                                      |                           | FT                                             |                | <b>REAR SB</b>                                        | <input type="checkbox"/> |
| <b>f. Building Height</b>                                                                           | 1.5 stories                                                  |                                                                                                          | FT                                             |  | No Change                                      |                           | FT                                             |                | <b>BLDG HT</b>                                        | <input type="checkbox"/> |
| <b>g. Total BLDG/Res Area</b>                                                                       | 2,500 +/-                                                    |                                                                                                          | SF 0                                           |  | No Change SF                                   |                           | No Change SF                                   |                | <b>AREA LIM</b>                                       | <input type="checkbox"/> |
| <b>h. BLDG Coverage (Footprint)</b>                                                                 | 2,500 +/-                                                    |                                                                                                          | SF 3 % of lot                                  |  | No Change SF                                   |                           | No Change % of lot                             |                | <b>LOT COVER</b>                                      | <input type="checkbox"/> |
| <b>i. Impervious Coverage</b>                                                                       |                                                              |                                                                                                          | SF % of lot                                    |  | SF                                             |                           | % of lot                                       |                | <b>IMPERVIOUS</b>                                     | <input type="checkbox"/> |
| <b>j. Parking/Loading Spaces</b>                                                                    | P: 40                                                        |                                                                                                          | L:                                             |  | P: 50                                          |                           | L:                                             |                | <b>PARKING</b>                                        | <input type="checkbox"/> |
| <b>k. Bicycle/EV Charge Spaces</b>                                                                  | B: 0                                                         |                                                                                                          | EV: 0                                          |  | B: 0                                           |                           | EV: 0                                          |                | <b>BIKE/EV</b>                                        | <input type="checkbox"/> |
| <b>l. Signs (Size &amp; Type)</b>                                                                   | N/A x                                                        |                                                                                                          | T:                                             |  | N/A x                                          |                           | T:                                             |                | <b>SIGNS</b>                                          | <input type="checkbox"/> |
| <b>m. Fence (Size &amp; Type)</b>                                                                   | N/A LIN FT                                                   |                                                                                                          | T:                                             |  | N/A LIN FT                                     |                           | T:                                             |                |                                                       |                          |
| <b>n. Wetland Area</b>                                                                              | 0                                                            |                                                                                                          | SF 0                                           |  | SF                                             |                           |                                                |                |                                                       |                          |
| <b>o. Utility Services</b>                                                                          | <input checked="" type="checkbox"/> Town Water               |                                                                                                          | <input checked="" type="checkbox"/> Town Sewer |  | <input checked="" type="checkbox"/> Town Water |                           | <input checked="" type="checkbox"/> Town Sewer |                | <b>NON-CONFORMING USE</b>                             | <input type="checkbox"/> |



|                                                                                                                                                                                                                                                                                                                                                 |                                                                                                     |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|
| <b>p. Current Use of Property</b>                                                                                                                                                                                                                                                                                                               | Dunkin Donuts                                                                                       |
| <b>q. Proposed Use of Property</b>                                                                                                                                                                                                                                                                                                              | Dunkin Donuts                                                                                       |
| <b>r. Project Description</b>                                                                                                                                                                                                                                                                                                                   |                                                                                                     |
| The applicant proposes an expansion of the parking lot and revised site circulation                                                                                                                                                                                                                                                             |                                                                                                     |
| <b>s. I have attached additional narrative, plans or supporting materials</b><br>(any oversize plans should also be included in an 8.5 x 11" format)                                                                                                                                                                                            | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                                 |
| <b>t. Work is proposed in or within 100' of a wetland or 200' of a stream/river, or construction will occur within the Floodplain district.</b><br>If so, <u>CONSERVATION COMMISSION</u> review is required.                                                                                                                                    | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unsure |
| <b>u. The following projects shall be required to comply with the requirements of a <u>STORM DRAIN PERMIT</u>:</b><br>[1] Any alteration to sites on parcels of one acre or greater.<br>[2] Any alteration to individual lots less than one acre, but which are contiguous or are deemed part of a common project which is one acre or greater. | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Unsure |
| <b>v. The project will affect at least one of the following; additional gross floor area by 2,000 square feet, any change of use, changes to parking and/ or curb cuts.</b>                                                                                                                                                                     | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                                 |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|
| <b>4) CERTIFICATION</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                |
| <p><i>This determination is based only on the information provided, which I represent as accurate. The issuance of a Zoning Determination does not relieve the Applicant of the responsibility to obtain other zoning or non-zoning permits, as may be required, and this determination is based on the zoning in effect at the issue date and grants no protection from any pending or future zoning changes. Additional information may be requested and required to properly process this form. Any non-zoning related comments provided are cursory in nature; Applicants should follow-up with appropriate Town Departments. Sec. 1-7 of the Town of Agawam's General Ordinances authorizes the denial of a license or permit where an outstanding debt or obligation to the Town exists.</i></p> |                                                                |
| <b>Signature</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <i>Nina Fazio</i>                                              |
| <input type="checkbox"/> Applicant                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <input checked="" type="checkbox"/> Applicant's Representative |
| <b>Date</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 11-26-2024                                                     |

| ZONING DETERMINATION - OFFICE USE ONLY                                           |                                                                                                                                                                                              |                                                                                                                                         |                                                                                                                                          |
|----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| <input type="checkbox"/> Approved <input type="checkbox"/> Denied:               | <input type="checkbox"/> The proposed use is not permitted in the subject zoning district<br><input type="checkbox"/> Only permissible with variance relief from the Zoning Board of Appeals |                                                                                                                                         |                                                                                                                                          |
| <input checked="" type="checkbox"/> Approved <b>Pending additional approval:</b> |                                                                                                                                                                                              |                                                                                                                                         |                                                                                                                                          |
| <u>Per Zoning Ordinance Section(s)</u>                                           | <u>Required Permit(s)</u>                                                                                                                                                                    | <u>Approval Required</u>                                                                                                                | <u>Permitting Authority</u>                                                                                                              |
| <i>#180-13 - Site Plan Review</i>                                                | <input type="checkbox"/> Building Permit(s)<br><input type="checkbox"/> Electrical Permit(s)<br><input type="checkbox"/> Plumbing/Gas Permit(s)                                              | <input type="checkbox"/> Special Permit(s)<br><input checked="" type="checkbox"/> Site Plan Review<br><input type="checkbox"/> Variance | <input checked="" type="checkbox"/> Planning Board<br><input type="checkbox"/> Board of Appeals<br><input type="checkbox"/> City Council |
| <b>Town Building Official</b>                                                    | <i>Kevin D...</i>                                                                                                                                                                            | <b>Issue Date</b>                                                                                                                       | <i>11/27/2024</i>                                                                                                                        |

This determination may be appealable to the Zoning Board of Appeals under the provisions of MGL Ch. 40A Sec. 8.  
Revised 09/08/2022

# TOWN OF AGAWAM, MASSACHUSETTS

## FORM D

### Application for Site Plan Approval

Please complete the following form and electronically submit with site plans, completed Zoning Determination and Storm Water Management Report to: [siteplan@agawam.ma.us](mailto:siteplan@agawam.ma.us) in addition to sending four (4) hard copies of the Site Plan and one (1) hard copy of the Storm Water Management Report and completed Zoning Determination to:

Agawam Planning Department

36 Main Street

Agawam, MA 01001

March 20 20 25

1. Name of Business J & N Salema Family Limited Partnership c/o Mr. Peter Martins

Address 4 Harding Avenue, Ludlow, MA 01056

Phone # (413) 737-5861

email peter.martins@salemamanagement.com

2. Name of Applicant/Owner Same as applicant

Address \_\_\_\_\_

Phone # \_\_\_\_\_

email \_\_\_\_\_

3. Name of Engineer/Architect R Levesque Associates, Inc.

Address 40 School Street, Westfield, MA 01085

Phone # 413-568-0985

email ninaf@rlaland.com

4. Please give a brief description of the proposed project:

The applicant proposes the expansion and reconfiguration of the existing parking lot and drive-thru at the subject property. Please refer to the attached project narrative and associated site plan set for greater detail regarding the proposed project.

### **3. PROJECT NARRATIVE**

---

# PROJECT NARRATIVE

For

PROPOSED SITE IMPROVEMENTS  
158 SILVER STREET  
AGAWAM, MASSACHUSETTS 01001  
(PARCEL ID: J8-2-3)

## INTRODUCTION

On behalf of the applicant, Salmar Realty, LLC c/o Mr. Peter Martins, R Levesque Associates, Inc. is providing this project narrative as a supplement to the Site Plan Approval application for the proposed expansion and reconfiguration of the existing parking lot and drive-thru at the above-referenced site.

In accordance with Section 180-13(B)(1) of the Town of Agawam Zoning Bylaw, the applicant is seeking Site Plan Review approval for the proposed change of a parcel/structure.

## PROPERTY DESCRIPTION

The subject property is located north of Silver Street and east of Suffield Street and consists of approximately 1.094 ± acres as shown on the associated site plan set prepared by R Levesque Associates, Inc. Said property is recorded in the Hampden County Registry of Deeds in Book 10978, Page 203 and Book 24708, Page 396. Copies of the deed reference(s) are included within this application packet under Section 5. According to the Town of Agawam Assessor's Database, the subject property lies primarily within the Business A (BA) zoning district with a small portion located within the Residence A-2 (A2) zoning district. A Locus Map is included within this application packet under Section 4.

## EXISTING CONDITIONS & SURROUNDING LAND USES

The subject property is currently developed with an existing Dunkin Donuts, parking lot/drive-thru area, and associated site improvements. The northern most portion of the subject property is currently maintained lawn area.



The property is bound to the south by Silver Street, to the west by Suffield Street, and to the north / east by residences. The surrounding area consists of a mix of business and residentially utilized properties within the Business A (BA) and Residence A-2 (A2) zoning districts.

Further information regarding the existing conditions of the subject property can be found on Sheet EX-1 within the associated site plan set.

### **DETAILED PROJECT DESCRIPTION**

The proposed project includes the expansion / reconfiguration of the parking lot and drive-thru for the existing Dunkin' Donuts. Associated site improvements include, but are not limited to, access drive aisles, vehicle parking, landscaped areas, and lighting.

The proposed project work will proceed in the following general sequence:

1. Installation of erosion controls along the permitted limit of work;
2. Clearing, grubbing, and excavation of the project site within the permitted limit of work;
3. Reconfiguration and expansion of the parking area;
4. Reconfiguration of the drive-thru / by-pass lane(s);
5. Site paving;
6. Installation of internal pedestrian sidewalks;
7. Final site grading, installation of curbing, landscaping, and lighting, and;
8. Removal of erosion controls at the direction of the Town of Agawam.

### **PARKING & SITE CIRCULATION**

As part of this project, provisions for a total of 31 parking spaces are proposed. The applicant proposes utilizing the existing curb cut along Silver Street, and relocating the curb cut on Suffield Street. The drive-thru lane has been revised to allow for increased space for queuing vehicles. Additionally, the project includes provisions for a bypass lane that loops the building, allowing for increased accessibility and vehicular maneuverability around the project site.

Further information regarding the proposed parking and site circulation can be found on Sheet C-4 within the associated site plan set.

## **UTILITIES**

The existing site utility connections are proposed to remain.

## **LANDSCAPING & LIGHTING**

Additional on-site landscaping will be provided and will be in conformance with municipal regulations. All plantings will be native plants and will be non-invasive. Please refer to the Site Landscaping Plan, which is included as part of the associated site plan set for further information regarding proposed landscaping at the project site.

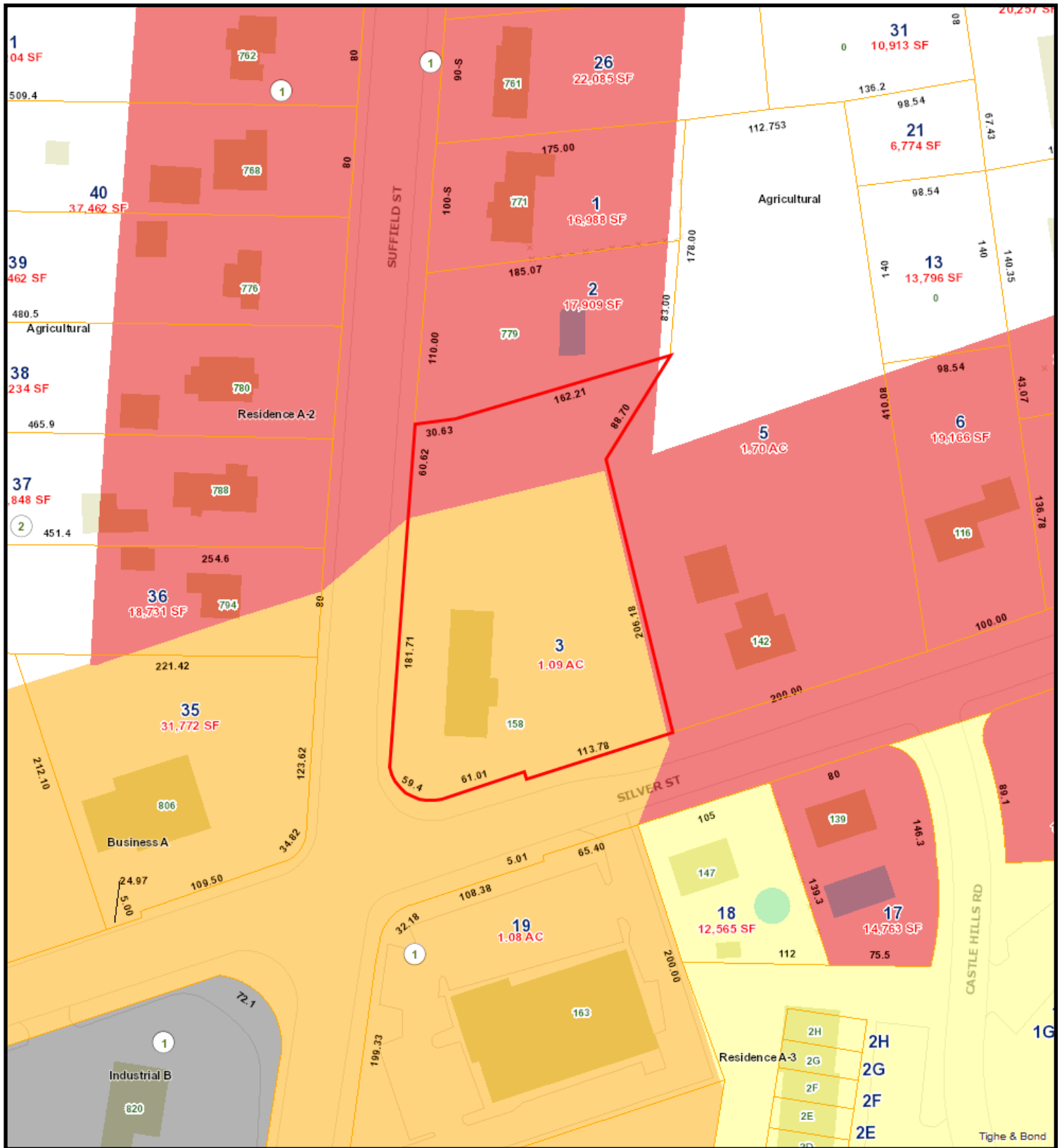
Additional on-site lighting will be provided in the parking area and will be in conformance with municipal regulations and in general conformance with the surrounding areas. Please refer to the associated site plan set, Photometric Plan, for further details regarding proposed lighting at the project site.

**[ END OF PROJECT NARRATIVE ]**

## 4. LOCUS MAP

---

(SOURCE: TOWN OF AGAWAM GIS)



10/23/2024 10:11:44 AM

Scale: 1"=100'

Scale is approximate

The information depicted on this map is for planning purposes only.  
It is not adequate for legal boundary definition, regulatory  
interpretation, or parcel-level analyses.



## **5. DEED REFERENCE(S)**

---

(SOURCE: HAMPDEN COUNTY REGISTRY OF DEEDS)

10-27-1999 12:03:08

## WARRANTY DEED

KNOW ALL MEN BY THESE PRESENTS that we, JOHN B. MAGOVERN and  
GWENDOLYN MAGOVERN, both of 142 Birch Hill Road, Agawam, Hampden County,

Massachusetts, in consideration of **THREE HUNDRED THOUSAND AND NO/100**

**(\$300,000.00) DOLLARS**, grant to **J&N SALEMA FAMILY LIMITED PARTNERSHIP**,  
of 135 Elizabeth Drive, Ludlow, Hampden County, Massachusetts

with **WARRANTY COVENANTS**,

the land in Agawam, Hampden County, Massachusetts, being more particularly bounded  
and described on Exhibit A attached hereto and made a part hereof.

WITNESS our hands and seals this 27th day of Oct., 1999.

WITNESS

David W Young

John B. Magovern  
John B. Magovern

to both

Gwendolyn Magovern  
Gwendolyn Magovern

## COMMONWEALTH OF MASSACHUSETTS

HAMPDEN, ss.

Oct 27, 1999

Then personally appeared before me the above named JOHN B. MAGOVERN and  
GWENDOLYN MAGOVERN and acknowledged the foregoing instrument to be their free act  
and deed.

SPRINGFIELD  
DEEDS REG12  
HAMPDEN

DM  
10/27/99 3:17PM 01  
000000 #7119

FEE \$1368.00

CASH \$1368.00

David W Young  
Notary Public

My commission expires.

DAVID W YOUNG  
NOTARY PUBLIC FOR MASSACHUSETTS  
MY COMMISSION EXPIRES  
MAY 19, 2006

To Assignment of Leases and Rents  
Granted to Fleet National Bank  
By J&N Salema Family Limited Partnership

Two parcels of land in the Town of Agawam, Hampden County, Massachusetts, bounded and described as follows:

Parcel One

Beginning at a point in the northerly line of Silver Street a distance of approximately one hundred forty seven (147) feet from the intersection of the easterly line of Suffield Street with the northerly line of Silver Street; thence N15°-36'-20"W along land of Magovern a distance of two hundred ten and 82/100 (210.82) feet to a point; thence N75°-01'-54"E along land of now or formerly Rhodes a distance of seventy four and 95/100 (74.95) feet to an iron bar found; thence S15°-25'-26"E along land of Greenough a distance of two hundred six and 18/100 (206.18) feet to a point; thence S71°-27'-22"W along the northerly line of Silver Street a distance of seventy four and 39/100 (74.39) feet to the point of beginning.

Said parcel contains an area of fifteen thousand five hundred sixty five (15,565) square feet more or less.

Parcel Two

Beginning at an iron bar found in the easterly line of Suffield Street a distance of approximately two hundred twenty seven and 47/100 (227.47) feet from the intersection of the northerly line of Silver Street with the easterly street line of Suffield Street; thence N75°-01'-54"E along land now or formerly of Rhodes a distance of seventy two and 19/100 (72.19) feet to a point; thence S15°-36'-20"E along land of Magovern a distance of two hundred ten and 82/100 (210.82) feet to a point; thence S71°-27'-22"W along the northerly line of Silver Street a distance of thirty nine and 94/100 (39.94) feet to a point; thence N19°-56'-03"W along the northerly line of Silver Street a distance of seven and 00/100 (7.00) feet to a point; thence S70°-03'-57"W along the northerly line of Silver Street a distance of sixty one and 01/100 (61.01) feet to a point; thence northwesterly along the northerly line of Silver Street by a curve to the right having a radius of thirty and 00/100 (30.00) feet an arc distance of fifty nine and 43/100 (59.43) feet to a concrete bound; thence N03°-33'-56"E along the easterly line of Suffield Street a distance of one hundred eighty one and 71/100 (181.71) feet to the point of beginning.

Said parcel contains an area of twenty two thousand five hundred seven (22,507) square feet more or less.

Both such parcels are shown on a plan of land by Ecotec Environmental Associates, Inc. dated October, 1999, recorded in the Hampden County Registry of Deeds, Plan Book 314, Plan 46, such plan being entitled "Plan of Land #152 & #160 Silver Street, Agawam, Massachusetts for J&N Salema Family Limited Partnership."

BEING the same premises conveyed to Assignor by deed or deeds of John Magovern and Gwendolyn Magovern dated Oct 27, 1999, recorded herewith as Instrument No. 83 925.

For Assignor's title, see deeds recorded in said registry, Book 3034, Page 406 and Book 6991, Page 131.



MASSACHUSETTS STATE EXCISE TAX  
HAMPDEN COUNTY REGISTRY OF DEEDS  
Date: 09-01-2022 @ 11:49am  
Ctl#: 170 Doc#: 53138  
Fee: \$91.20 Cons: \$20,000.00

Affected Premises:  
Parcel A Suffield Street  
Agawam, MA 01001

## **QUITCLAIM DEED**

### **KNOW ALL PERSONS BY THESE PRESENTS**

that, **SALMAR REALTY, LLC** a Massachusetts Limited Liability Company duly organized and existing by virtue of the law of the Commonwealth of Massachusetts, having a principal place of business at 4 Harding Avenue, Ludlow, Hampden County, Massachusetts, for consideration paid and in full consideration of **Twenty Thousand and 00/100 (\$20,000.00)** Dollars,

hereby grant to **J & N Salema Family Limited Partnership**, of 135 Elizabeth Drive, Ludlow, Hampden County, Massachusetts, INDIVIDUALLY

with QUITCLAIM COVENANTS,

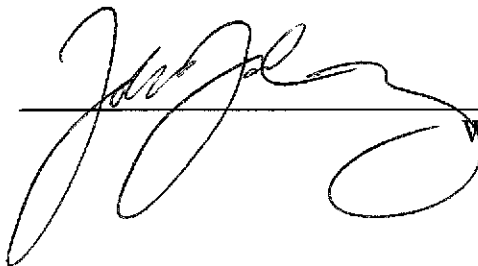
the land in said Agawam, Hampden County, Massachusetts, bounded and described as follows:

PLEASE SEE ATTACHED EXHIBIT "A," WHICH IS MADE PART HEREOF AND INCORPORATED HEREIN BY REFERENCE, FOR A DESCRIPTION TO THE PREMISES LOCATED AT Parcel A, SUFFIELD STREET AGAWAM,, HAMPDEN COUNTY MASSACHUSETTS.

*This Conveyance does not constitute all or substantially all of the assets of said Corporation within the Commonwealth of Massachusetts.*

Executed as a sealed instrument this 26<sup>th</sup> day of August, 2022.

SALMAR REALTY, LLC

  
\_\_\_\_\_  
Witness:

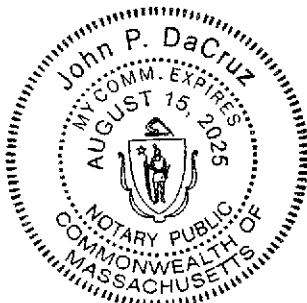
  
\_\_\_\_\_  
by, PETER MARTINS it's Manager

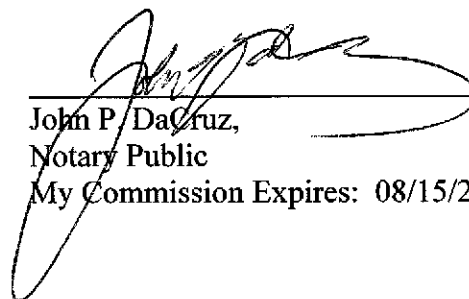
Hampden, ss.

Commonwealth of Massachusetts

August 26, 2022

On this day before me, the undersigned notary public, personally appeared, **Peter Martins** duly authorized Manager of SALMAR REALTY LLC proved to me through satisfactory evidence of identification, which was drivers licenses, to be the person(s) whose name(s) is/are signed on the preceding or attached document in my presence and acknowledged to me as such officer and with full authority, executed the same voluntarily and as the act of said corporation.



  
\_\_\_\_\_  
John P. DaCruz,  
Notary Public  
My Commission Expires: 08/15/2025

**EXHIBIT "A"**

**Property Address: Parcel A, Suffield Street, Agawam, MA**

A certain piece or parcel of land in Agawam, Hampden County, Massachusetts, known as Parcel A, Suffield Street, Agawam, MA, on a Plan entitled "Plan of Land in Agawam, Massachusetts, surveyed and mapped for Salema Realty, LLC", prepared by R. Levesque Associates Inc. dated June 15, 2021 said plan being recorded in the Hampden County Registry of Deeds in Book of Plans 392 Page 126, to which plan and reference a more particular description may be had.

Being a portion of the premises conveyed to the Grantors herein by deed of Kevin J. Czaplicki, dated November 6, 2017 and recorded as aforesaid in Book21956, Page 156.

# **APPENDIX A: SITE PLAN SET**

---

SITE PLAN SET ENTITLED "PROPOSED SITE IMPROVEMENTS"

PREPARED FOR SALMAR REALTY, LLC

PREPARED BY R LEVESQUE ASSOCIATES, INC.

DATED MARCH 20, 2025

## **APPENDIX B: STORMWATER REPORT**

---

PREPARED FOR SALMAR REALTY, LLC

PREPARED BY R LEVESQUE ASSOCIATES, INC.

DATED MARCH 20, 2025

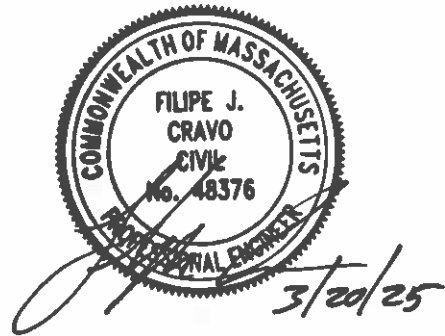
# Stormwater Drainage Report

## Proposed Site Improvements

158 Silver Street  
Agawam, MA  
(Parcel ID: J8-2-3)

### Owner/Applicant:

J & N Salema Limited Family Partnership  
c/o Peter Martins  
4 Harding Avenue  
Ludlow, MA 01056



RLA Project File: 171123

**March 20, 2025**

## R LEVESQUE ASSOCIATES, INC

**A LAND PLANNING SERVICES COMPANY**

40 School Street · Westfield, MA 01085

p 413.568.0985 · f 413.568.0986 · [www.rlaland.com](http://www.rlaland.com)





## TABLE OF CONTENTS

| SECTION                                                                             | PAGE NO.    |
|-------------------------------------------------------------------------------------|-------------|
| <b>I. INTRODUCTION.....</b>                                                         | <b>1-1</b>  |
| <b>2. SITE DESCRIPTION .....</b>                                                    | <b>2-1</b>  |
| 2.1    Predevelopment Conditions .....                                              | 2-1         |
| 2.2    Resource Areas .....                                                         | 2-1         |
| 2.2.1    Floodplain .....                                                           | 2-1         |
| 2.2.2    Natural Heritage and Endangered Species Program .....                      | 2-1         |
| 2.2.3    Aquifer Protection District.....                                           | 2-2         |
| 2.3    Soils.....                                                                   | 2-2         |
| 2.4    Post Development Conditions.....                                             | 2-2         |
| <b>3. STORMWATER MANAGEMENT SYSTEM .....</b>                                        | <b>3-4</b>  |
| 3.1    Drainage Calculations.....                                                   | 3-4         |
| 3.1.1    Design Points.....                                                         | 3-5         |
| 3.1.2    Pre-Development Hydrology.....                                             | 3-5         |
| 3.1.3    Post-Development Hydrology .....                                           | 3-5         |
| 3.1.4    Peak Discharge Rates.....                                                  | 3-6         |
| 3.2    Hydraulic Analysis.....                                                      | 3-6         |
| 3.3    MassDEP Stormwater Management Standards .....                                | 3-7         |
| 3.4    Stormwater Best Management Practices.....                                    | 3-9         |
| 3.4.1    Deep Sump Catch Basins .....                                               | 3-9         |
| 3.4.2    Proprietary Sedimentation Devices.....                                     | 3-10        |
| 3.4.3    Subsurface Infiltration Basin.....                                         | 3-10        |
| 3.5    Protection of Stormwater Best Management Practices during Construction ..... | 3-10        |
| 3.6    Inspection and Maintenance of Stormwater Best Management Practices.....      | 3-10        |
| 3.7    Illicit Discharge Compliance Statement .....                                 | 3-10        |
| 3.8    Low-Impact Development Alternatives Analysis Narrative .....                 | 3-11        |
| <b>4. CONCLUSION .....</b>                                                          | <b>4-12</b> |

## List of Tables

| Table                                                           | Page No. |
|-----------------------------------------------------------------|----------|
| Table 2.4: Hydrologic Soil Group Classification .....           | 2-2      |
| Table 3.1: Design Rainfall Data – Hampden County .....          | 3-4      |
| Table 3.1.4 Pre- and Post-Development Peak Discharge Rates..... | 3-6      |



## List of Figures

---

### Figure

- |           |                                 |
|-----------|---------------------------------|
| Figure 1: | Site Locus – USGS Map           |
| Figure 2: | FEMA Flood Map                  |
| Figure 3: | NHESP Map                       |
| Figure 4: | Pre-Development Watershed Plan  |
| Figure 5: | Post-Development Watershed Plan |
| Figure 6: | Inlet Area Plan                 |

---

## Appendices

- |             |                                                                                    |
|-------------|------------------------------------------------------------------------------------|
| APPENDIX A: | CHECKLIST FOR STORMWATER REPORT                                                    |
| APPENDIX B: | SOILS INFORMATION                                                                  |
| APPENDIX C: | PRE- AND POST- DEVELOPMENT HYDROLOGIC ANALYSIS<br>(2, 10, & 100 YEAR STORM EVENTS) |
| APPENDIX D: | HYDRAULIC ANALYSIS                                                                 |
| APPENDIX E: | MASSDEP CALCULATIONS                                                               |
| APPENDIX F: | CONSTRUCTION PERIOD EROSION CONTROL PLAN                                           |
| APPENDIX G: | LONG-TERM OPERATION AND MAINTENANCE PLAN                                           |
| APPENDIX H: | ILLICIT DISCHARGE COMPLIANCE STATEMENT                                             |
| APPENDIX I: | LOW IMPACT DEVELOPMENT CONSIDERATIONS                                              |

## I. INTRODUCTION

---

The applicant, J & N Salema Limited Family Partnership (c/o Peter Martins), is proposing to expand the existing parking lot for an existing commercial use. The parcel is identified as parcel J8-2-3 by the Town of Agawam assessor's office. The proposed project will include the construction of drive aisles, parking areas, stormwater management system improvements, and other associated site improvements. Under existing conditions, stormwater runoff from the property sheet flows to several existing inlet structures located at low points within the parking area. The existing drainage infrastructure is comprised of leaching chambers interconnected with perforated pipe. The existing drainage system has an overflow connection to the municipal drainage system. The proposed project includes the construction of a new stormwater management system to mitigate for the proposed site improvements. The proposed development will generally maintain the existing drainage patterns of the site and direct treated stormwater towards the same design points as in pre-development conditions.

The proposed project involves the following:

1. Construction of access drives, parking areas, and associated site improvements;
2. Construction of a new stormwater management system including deep sump hooded catch basins, proprietary sedimentation devices, and a subsurface infiltration basin.

The purpose of this report is to present information regarding the technical aspects of the stormwater management system for the proposed project. All work is intended to be in full compliance with the Town of Agawam Stormwater Management requirements as well as the Massachusetts Department of Environmental Protection Stormwater Management Handbook.

## 2. SITE DESCRIPTION

---

### 2.1 Predevelopment Conditions

The property to be developed is located at 158 Silver Street and is listed as Parcel J8-2-3 by the Town of Agawam Assessor's Office. The property is zoned Business A as referenced from Agawam GIS. The property is bounded to the north and east by residential properties zoned Residence A-2, to the south by Silver Street, and to the west by Suffield Street (Route 75). The parcel to be developed is approximately 1.09 acres in size. Figure 1 – USGS Map illustrates the location of the project.

The project site is currently occupied by a commercial building with associated parking areas. The existing topography of the site can be described as relatively flat, with low points located within the parking areas. The low points contain inlet structures that are connected via underground perforated pipe. The underground drainage system connects to the municipal drainage system in Silver Street via an overflow pipe from one of the existing on-site inlet structures. Vegetated portions of the parcel around the perimeter exist outside of the parking areas and slope down to the adjacent parcels. The highest elevation onsite is approximately 127 feet, located in the northerly portion of the parcel. The lowest elevation onsite is approximately 124 feet, located in the southerly portion of the parcel. Runoff follows the existing topography and is either collected in the existing drainage system or sheet flows offsite along the edges of the parcel. Please refer to the existing conditions plan submitted herewith for more detailed topographical information and Figure 4 "Pre-Development Watershed Plan" for sub-catchment area boundaries.

### 2.2 Resource Areas

The existing site consists of developed commercial land. No wetland jurisdictional areas or buffer zones were identified on or adjacent to the site boundaries.

#### 2.2.1 Floodplain

R. Levesque Associates, Inc. performed due diligence research on the property in regard to FEMA flood zone mapping. As demonstrated by the most recent FEMA Flood Insurance Rate Maps, the property is not located within any flood hazard areas, see Figure 2 – FEMA FIRM Map.

#### 2.2.2 Natural Heritage and Endangered Species Program

R. Levesque Associates, Inc. performed due diligence research on the property in regard to Natural Heritage and Endangered Species Program (NHESP) areas. The property is not located within any NHESP estimated or priority habitats of endangered species, see Figure 3 – NHESP Map.

### 2.2.3 Aquifer Protection District

R. Levesque Associates, Inc. performed due diligence research on the property in regard to wellhead protection overlay districts. The property is not located within a Zone II Wellhead Protection Area; see Figure 3 – NHESP & Zone II Map.

### 2.3 Soils

R. Levesque Associates, Inc. researched the soils located on site with information readily available by the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS). Based on a review of the USDA Soil Survey of Hampden County, Massachusetts, Central Part, the site is comprised of the following soil types:

| Table 2.4: Hydrologic Soil Group Classification |                 |                       |
|-------------------------------------------------|-----------------|-----------------------|
| Soil Description                                | Map Unit Symbol | Hydrologic Soil Group |
| Merrimac fine sandy loam                        | 254A            | A                     |
| Merrimac fine sandy loam                        | 254B            | A                     |

A total of five (5) test pits were conducted by Ryan Nelson SE# 14394 to verify the existing site soil characteristics and evaluate the ability of the site to support the proposed stormwater drainage system components. The test pits were spread out across the property in the areas of the proposed subsurface infiltration basin to establish the elevation of the estimated seasonal high groundwater and soil conditions. Ground water was not encountered in any of the test pits. The depth of the test pits ranged from 110 to 120 inches. In general, the soil evaluations confirmed the NRCS mapping. See Appendix B for additional soils information.

### 2.4 Post Development Conditions

The proposed site improvements include a number of stormwater management features to properly meet the requirements set forth by the Town of Agawam Stormwater Management requirements. The proposed stormwater features include:

- Deep-sump hooded catch basins
- Proprietary sedimentation devices
- Subsurface infiltration basin

The applicant is proposing to expand the existing parking lot on the subject property. The proposed development includes the construction of paved access drives with associated parking areas and a stormwater management system.

The proposed stormwater management system will collect runoff from the impervious surfaces via sheet flow and deep sump catch basins strategically located at low points across the site. The inlet structures will be connected via a network of underground infrastructure which will convey runoff towards proprietary sedimentation devices for additional water quality treatment. Runoff will then be conveyed to a subsurface infiltration basin for groundwater recharge and peak discharge rate attenuation. The subsurface infiltration basin was designed to accommodate peak discharge rates for storm events up to and including the 100-year 24-hour storm event.

The proposed stormwater management system will utilize the existing overflow connection to the municipal drainage system in Silver Street. The overflow connection will be upgraded from the existing 6" pipe to a 12" diameter pipe with a backwater valve to prevent surcharge from the municipal system into the proposed site drainage system. The proposed stormwater management system has been designed such that there is no discharge from the overflow connection for the 2-year and 10-year storm events. The overflow will only be necessary for the 100-year storm event for the storm events analyzed. Overall, the proposed site improvements will maintain the general drainage patterns of the site while improving water quality and reducing/maintaining peak discharge rates. See Figure 5 – Post-Development Watershed Plan for delineation of sub-catchment areas.

### 3. STORMWATER MANAGEMENT SYSTEM

R. Levesque Associates, Inc. has prepared the following drainage system calculations for the proposed project site. These calculations were performed to document compliance with the guidelines set forth by the Town of Agawam Stormwater Management requirements and the Massachusetts Department of Environmental Protection Stormwater Management Handbook (MassDEP Handbook). A detailed hydrologic analysis of the system was completed in order to evaluate the performance of the stormwater management system components, see Appendix C – Pre- and Post-Development Hydrologic Analysis. The proposed stormwater management system will collect runoff from on-site impervious areas and utilize stormwater best management practices to provide water quality treatment, groundwater recharge, and peak discharge rate attenuation.

#### 3.1 Drainage Calculations

R. Levesque Associates, Inc. utilized the HydroCAD software program, Version 10.20, developed by HydroCAD Software Solutions LLC, in order to create and analyze the site hydrology. The HydroCAD software is based upon the Soil Conservation Service (SCS) “Technical Release 20 – Urban Hydrology for Small Watersheds” and “Technical Release 55 – Urban Hydrology for small Watersheds” which are generally accepted industry standard methodologies. The analysis was conducted in order to establish the peak discharge rates and estimated run-off volume from the project site. This was accomplished to properly evaluate pre- and post-development conditions during various storm events. Contributing drainage areas were identified and soils, surface cover, watershed slope, and flow paths were evaluated to develop the necessary HydroCAD model input parameters.

Drainage calculations were performed for the Pre- and Post-Development conditions for the 24-hour, 2, 10, and 100-year Type III storm events. The total rainfall for each of the storm events was based upon data provided by the National Oceanic and Atmospheric Administration (NOAA) Atlas 14 point precipitation frequency estimates. The total rainfall values used in the hydrologic modeling for each event are shown in the following table:

| Table 3.1: Design Rainfall Data – Hampden County |                        |                         |
|--------------------------------------------------|------------------------|-------------------------|
| 2-year, 24-hour storm                            | 10-year, 24-hour storm | 100-year, 24-hour storm |
| 3.20 inches                                      | 5.16 inches            | 8.26 inches             |

### 3.1.1 Design Points

In order to compare the difference between pre- and post-development peak flows, existing and proposed watersheds were delineated. Multiple Design Points (DP) were established with flow paths representing the longest time of concentration of run-off in each tributary watershed. For this analysis, the design points were determined as follows:

- DP-1 – Silver Street: This design point represents runoff from the project area which flows off site to the municipal drainage system in Silver Street.
- DP-2 – Offsite to the North: This design point represents runoff from the project area which flows off site to the north.
- DP-3 – Suffield Street: This design point represents runoff from the project area which flows off site to Suffield Street.
- DP-4 – Offsite to the East: This design point represents runoff from the project area which flows off site to the east.

### 3.1.2 Pre-Development Hydrology

The project area under existing conditions contains four (4) sub-catchments tributary to the design points described above. The sub-catchments were delineated based on the existing topography of the parcel and surrounding areas. The existing watershed area is shown on the attached Figure 4 entitled "Pre-Development Watershed Plan". Peak discharge rates for the design points are depicted in Table 3.1.4 on the following page.

### 3.1.3 Post-Development Hydrology

The project area under proposed conditions was broken down into four (4) sub-catchments discharging to the design points as described above. The proposed watershed areas are shown on the attached Figure 5 entitled "Post-Development Watershed Plan". Peak discharge rates for the design points are depicted in Table 3.1.4 on the following page.

### 3.1.4 Peak Discharge Rates

The table below summarizes the Pre- and Post-Development peak discharge rates for each Design Point:

| Table 3.1.4 Pre- and Post-Development Peak Discharge Rates |                    |       |                     |       |                      |       |
|------------------------------------------------------------|--------------------|-------|---------------------|-------|----------------------|-------|
|                                                            | 2-year storm (cfs) |       | 10-year storm (cfs) |       | 100-year storm (cfs) |       |
|                                                            | Pre-               | Post- | Pre-                | Post- | Pre-                 | Post- |
| Design Point 1                                             | 1.5                | 0.0   | 3.1                 | 0.0   | 5.6                  | 2.1   |
| Design Point 2                                             | 0.0                | 0.0   | 0.0                 | 0.0   | 0.1                  | 0.0   |
| Design Point 3                                             | 0.0                | 0.0   | 0.0                 | 0.0   | 0.2                  | 0.0   |
| Design Point 4                                             | 0.0                | 0.0   | 0.0                 | 0.0   | 0.0                  | 0.0   |

As depicted in table 3.1.4, the post-development peak discharge rates do not increase over pre-development peak discharge rates for each of the storm events presented. This is accomplished by providing onsite attenuation through the proposed subsurface infiltration basin.

### 3.2 Hydraulic Analysis

R. Levesque Associates, Inc. utilized the Hydraflow Storm Sewer Extension for AutoCAD Civil 3D 2020 software program, developed by Autodesk, Inc., to analyze the hydraulic capacity of the proposed underground infrastructure. The analysis was conducted to verify that the proposed conveyance piping has sufficient capacity to convey up to and including the 24-hour, 100-year storm event. The data from the analysis was used to properly size the conveyance piping such that there is no or minimal surcharge of stormwater above the rim elevations within the paved areas. As part of the input parameters required for the hydraulic analysis, the tributary inlet areas were delineated based on topography, any additional connected discharges, characteristic land use coverages and flow paths, see Figure 6 – Inlet Area Plan. A minimum Time of Concentration (Tc) of (6) minutes was used in the calculations. Please refer to Appendix D for the hydraulic analysis of the proposed stormwater management system.



### 3.3 MassDEP Stormwater Management Standards

R. Levesque Associates, Inc. has designed the proposed stormwater management system to be in compliance with the MassDEP Stormwater Management Standards. Chapter 1, Volume 3 of the MassDEP Handbook outlines specific calculations, and other information, that must be submitted with each report to document compliance. The following summary highlights elements of the proposed project and how they apply to each standard.

- *Standard #1 - No new stormwater conveyances (e.g., outfalls) may discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth.*

The proposed project provides best management practices designed to the guidelines of the MassDEP Handbook. Therefore, no new untreated stormwater is discharged.

- *Standard #2 – Stormwater management systems shall be designed so that post-development peak discharge rates do not exceed pre-development peak discharge rates. This Standard may be waived for discharges to land subject to coastal storm flowage as defined in 310 CMR 10.04.*

The proposed stormwater management system has been designed such that the post-development peak discharge rates do not exceed the pre-development peak discharge rates for the 2-year, 10-year, and 100-year 24-hour storms. See Appendix C for the Hydrologic Analysis.

- *Standard #3 - Loss of annual recharge to groundwater shall be eliminated or minimized through the use of environmentally sensitive site design, low impact development techniques, stormwater BMPs, and good operation and maintenance. At a minimum, the annual recharge from the post-development site shall approximate the annual recharge from pre-development conditions based on soil type. This Standard is met when the stormwater management system is designed to infiltrate the required volume as determined in accordance with the Massachusetts Stormwater Handbook.*

The proposed subsurface infiltration basin has been designed with the capacity to infiltrate the required recharge volume for the tributary impervious areas. See Appendix E for the Required Recharge Volume Calculations.

- *Standard #4 – Stormwater management systems shall be designed to remove 80% of the average annual post-construction load of TSS. It is presumed that this standard is met when:*
  - a. Suitable practices for source control and pollution prevention are identified in a long term pollution prevention plan, and thereafter are implemented and maintained;*

- b. Structural stormwater BMPs practices are sized to capture the required water quality volume determined in accordance with the Massachusetts Stormwater Handbook; and*
- c. Pretreatment is provided in accordance with the Massachusetts Stormwater Handbook*

The proposed stormwater management system has been designed to provide the required total suspended solids pre-treatment prior to discharge to the subsurface infiltration basin. See Appendix E for the Water Quality and Total Suspended Solids Removal Calculations.

- *Standard #5 - For land uses with higher potential pollutant loads, source control and pollution prevention shall be implemented in accordance with the Massachusetts Stormwater Handbook to eliminate or reduce the discharge of stormwater runoff from such land uses to the maximum extent practicable. If through source control and/or pollution prevention all land uses with higher potential pollutant loads cannot be completely protected from exposure to rain, snow, snow melt, and stormwater runoff, the proponent shall use the specific structural stormwater BMPs determined by MassDEP to be suitable for such uses as provided in the Massachusetts Stormwater Handbook. Stormwater discharges from land uses with higher potential pollutant loads shall also comply with the requirements of the Massachusetts Clean Waters Act, M.G.L. c. 21, §§ 26-53 and the regulations promulgated thereunder at 314 CMR 3.00, 314 CMR 4.00 and 314 CMR 5.00.*

This standard is not applicable.

- *Standard #6 – Stormwater discharges within the Zone II or Interim Wellhead Protection Area of a public water supply, and stormwater discharges near or to any other critical area, require the use of the specific source control and pollution prevention measures and the specific structural stormwater BMPs determined by MassDEP to be suitable for managing discharges to such areas, as provided in the Massachusetts Stormwater Handbook. A discharge is near a critical area if there is a strong likelihood of a significant impact occurring to said area, taking into account site-specific factors. Stormwater discharges to Outstanding Resource Waters and Special Resource Waters shall be removed and set back from the receiving water or wetland and receive the highest and best practical method of treatment. A “storm water discharge” as defined in 314 CMR 3.04(2)(a)1 or (b) to an Outstanding Resource Water or Special Resource Water shall comply with 314 CMR 3.00 and 314 CMR 4.00. Stormwater discharges to a Zone I or Zone A are prohibited unless essential to the operation of a public water supply.*

This standard is not applicable.

- *Standard #7 – A redevelopment project is required to meet the following Stormwater Management Standards only to the maximum extent practicable: Standard 2, Standard 3, and the pretreatment and structural BMPs requirements of Standards 4, 5, and 6. Existing*

*stormwater discharges shall comply with Standard 1 only to the maximum extent practicable. A redevelopment project shall also comply with all other requirements of the Stormwater Management Standards and improve existing conditions.*

This standard is not applicable.

- *Standard #8 – A plan to control construction-related impacts including erosion, sedimentation and other pollutant sources during construction and land disturbance activities (construction period erosion, sedimentation, and pollution prevention) shall be developed and implemented.*

A Construction Period Erosion Control Plan has been provided in Appendix F.

- *Standard #9 – A long-term operation and maintenance plan shall be developed and implemented to ensure that stormwater management systems function as designed.*

A Long-term Operation & Maintenance Plan has been provided in Appendix G.

- *Standard #10 - All illicit discharges to the stormwater management system are prohibited.*

An illicit discharge statement will be provided prior to discharge of stormwater to post-construction BMPs. See Appendix H for a copy of the Illicit Discharge Statement.

### 3.4 Stormwater Best Management Practices

The proposed stormwater management system was designed utilizing stormwater best management practices (BMP) as set forth by the MassDEP Handbook. The BMPs utilized as part of the stormwater management system include deep-sump hooded catch basins, proprietary sedimentation devices, and a subsurface infiltration basin. All the BMPs were designed to meet the requirements of the MassDEP Handbook and will provide water quality treatment, groundwater recharge, and peak rate attenuation in order to mitigate the impacts of the proposed site improvements. See Appendix E – MassDEP Calculations for the calculations required to document compliance. The following section provides a description of the best management practices (BMPs) being utilized on site.

#### 3.4.1 Deep Sump Catch Basins

Deep-sump catch basins equipped with oil/gas hoods are being utilized as structural pretreatment devices within the proposed stormwater management system. The catch basins will be constructed with a 4'-0" deep sump to act as a settling chamber and allow for adequate storage of collected sediments. Catch basins are typically first in the line of water quality treatment.

### 3.4.2 Proprietary Sedimentation Devices

Proprietary sedimentation devices are being utilized on site for the pretreatment of stormwater runoff, in addition to the catch basins, prior to conveyance to the subsurface infiltration basin. Due to the stormwater management system utilizing a subsurface infiltration basin, pretreatment of the stormwater runoff is essential to providing higher water quality prior to infiltration. As much sediment, floatables, and hydrocarbons should be removed from the stormwater runoff as possible to avoid contamination of the infiltration media. Maintenance of the proprietary devices are crucial to the long-term effectiveness of the stormwater management system.

### 3.4.3 Subsurface Infiltration Basin

Subsurface Infiltration Basins are well suited to provide groundwater infiltration from watershed areas such as those associated with this project. An infiltration basin mitigates the impact of the proposed site improvements by attenuating the peak discharge rates and retaining the stormwater volume over a period of time to provide groundwater recharge. The subsurface infiltration basin consists of underground stormwater chambers embedded in stone. Stormwater discharge is conveyed to the subsurface infiltration basin via up-gradient drainage infrastructure.

## 3.5 Protection of Stormwater Best Management Practices during Construction

Protection of the stormwater best management practices during construction will ensure the proper functioning of the stormwater management system and provide protection to the undisturbed areas until the site has been stabilized. Certain specific erosion and sedimentation controls and good practices to be performed by the site contractor have been documented in a Construction Period Erosion Control Plan. See Appendix F – Construction Period Erosion Control Plan.

## 3.6 Inspection and Maintenance of Stormwater Best Management Practices

Frequent maintenance of the stormwater best management practices is essential to ensuring that the stormwater management system will function properly long-term. MassDEP provides guidelines for the regular inspection and maintenance of the proposed stormwater best management practices. A Long-Term Stormwater Operation and Maintenance Plan has been prepared which dictates the inspection frequency and maintenance operations for each BMP. See Appendix G – Long-Term Operation and Maintenance Plan.

## 3.7 Illicit Discharge Compliance Statement

RLA has prepared an Illicit Discharge Compliance Statement to document compliance with the Massachusetts Department of Environmental Protection Stormwater Management Handbook, see Appendix H.

### **3.8 Low-Impact Development Alternatives Analysis Narrative**

RLA has prepared a Low-Impact Development Alternatives Analysis Narrative as part of the Stormwater Drainage Report, see Appendix I.

#### 4. CONCLUSION

---

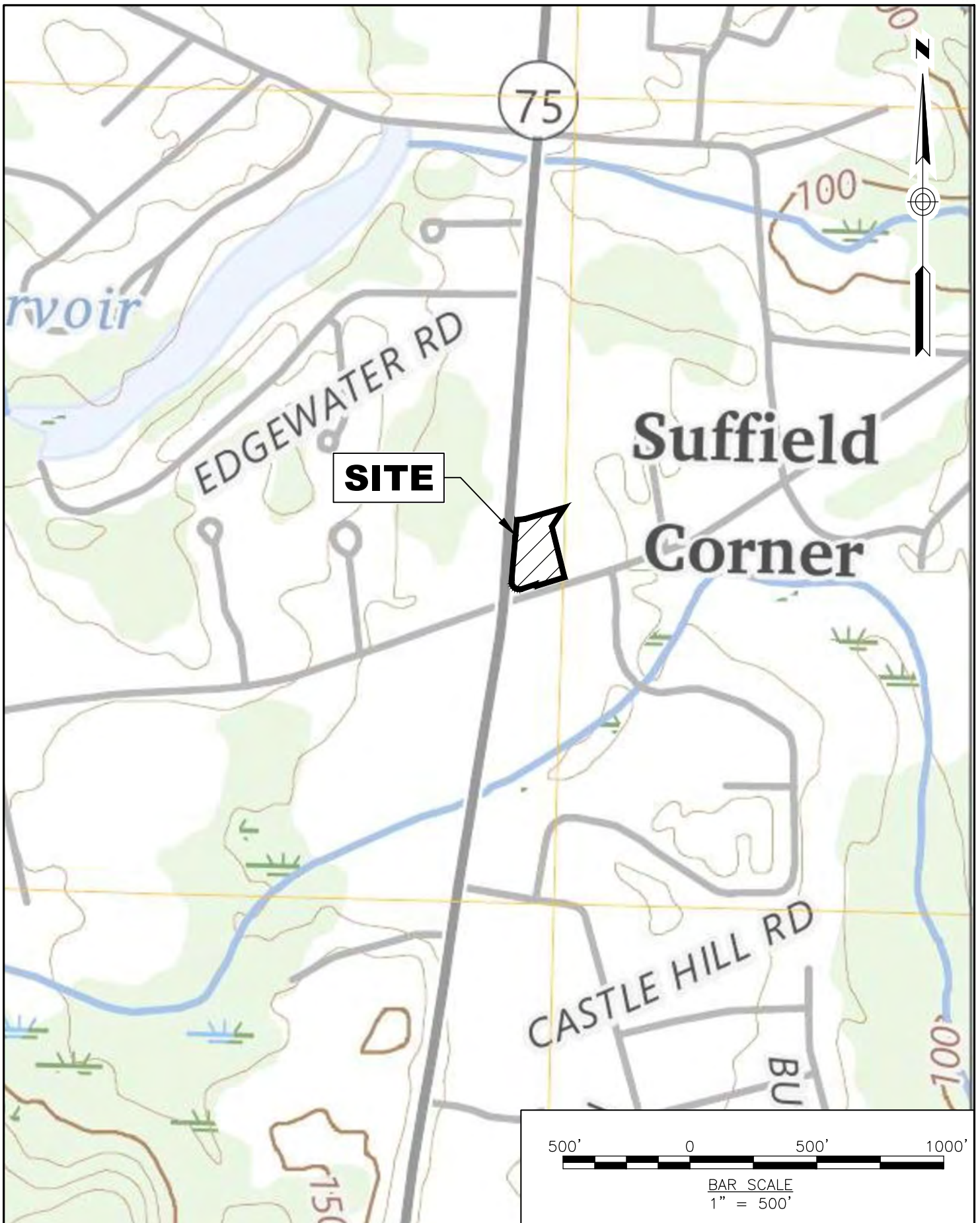
The proposed stormwater management system has been designed to mitigate the impacts of the proposed site improvements by providing a control for runoff water quality and water quantity. Implementation of stormwater best management practices such as deep-sump hooded catch basins, proprietary sedimentation devices, and a subsurface infiltration allow for a stormwater drainage design that is in conformance with the criteria set forth in the Town of Agawam Stormwater Management requirements and the Massachusetts Department of Environmental Protection Stormwater Management Handbook.



## Figure 1: Site Locus – USGS Map









## Figure 2: FEMA Flood Map





|                                                                                    |                                                                                                       |
|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|
|  | <b>R LEVESQUE ASSOCIATES, INC</b>                                                                     |
|                                                                                    | A Land Planning Services Company                                                                      |
|                                                                                    | 40 School Street · P.O. Box 640 · Westfield, MA 01086<br>ph: 413.568.0985 fax: 413.568.0986 rland.com |

FEMA  
FLOOD MAP

|                                                               |
|---------------------------------------------------------------|
| Peter Martins<br>4 Harding Avenue<br>Ludlow, MA 01056         |
| Proposed Site Improvements<br>158 Silver Street<br>Agawam, MA |

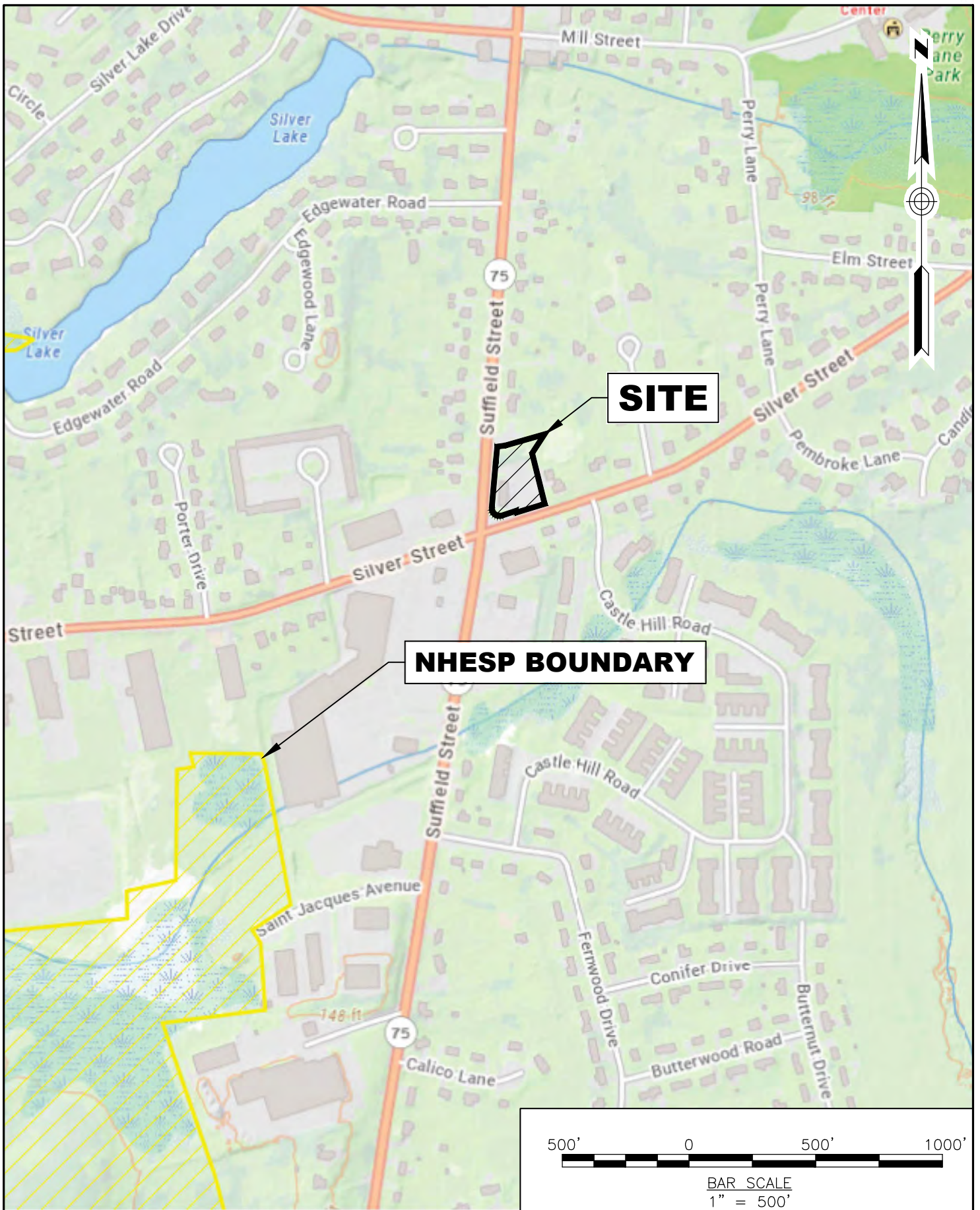
|                 |
|-----------------|
| JOB NO: 171123  |
| DATE: 3/20/2025 |
| SCALE: AS NOTED |
| <b>FIG-2</b>    |



## Figure 3: NHESP Map









**R LEVESQUE ASSOCIATES, INC**  
 A Land Planning Services Company  
 40 School Street · P.O. Box 640 · Westfield, MA 01086  
 ph: 413.568.0985 fax: 413.568.0986 rland.com

NHESP &  
 Zone II Map

Peter Martins  
 4 Harding Avenue  
 Ludlow, MA 01056

Proposed Site Improvements  
 158 Silver Street  
 Agawam, MA

JOB NO: 171123  
 DATE: 3/20/2025  
 SCALE: AS NOTED

**FIG-3**



## Figure 4: Pre-Development Watershed Plan







## Figure 5: Post-Development Watershed Plan









## Figure 6: Inlet Area Plan







## Appendix A: Checklist for Stormwater Report







# Checklist for Stormwater Report

## A. Introduction

**Important:** When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



A Stormwater Report must be submitted with the Notice of Intent permit application to document compliance with the Stormwater Management Standards. The following checklist is NOT a substitute for the Stormwater Report (which should provide more substantive and detailed information) but is offered here as a tool to help the applicant organize their Stormwater Management documentation for their Report and for the reviewer to assess this information in a consistent format. As noted in the Checklist, the Stormwater Report must contain the engineering computations and supporting information set forth in Volume 3 of the [Massachusetts Stormwater Handbook](#). The Stormwater Report must be prepared and certified by a Registered Professional Engineer (RPE) licensed in the Commonwealth.

The Stormwater Report must include:

- The Stormwater Checklist completed and stamped by a Registered Professional Engineer (see page 2) that certifies that the Stormwater Report contains all required submittals.<sup>1</sup> This Checklist is to be used as the cover for the completed Stormwater Report.
- Applicant/Project Name
- Project Address
- Name of Firm and Registered Professional Engineer that prepared the Report
- Long-Term Pollution Prevention Plan required by Standards 4-6
- Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan required by Standard 8<sup>2</sup>
- Operation and Maintenance Plan required by Standard 9

In addition to all plans and supporting information, the Stormwater Report must include a brief narrative describing stormwater management practices, including environmentally sensitive site design and LID techniques, along with a diagram depicting runoff through the proposed BMP treatment train. Plans are required to show existing and proposed conditions, identify all wetland resource areas, NRCS soil types, critical areas, Land Uses with Higher Potential Pollutant Loads (LUHPPL), and any areas on the site where infiltration rate is greater than 2.4 inches per hour. The Plans shall identify the drainage areas for both existing and proposed conditions at a scale that enables verification of supporting calculations.

As noted in the Checklist, the Stormwater Management Report shall document compliance with each of the Stormwater Management Standards as provided in the Massachusetts Stormwater Handbook. The soils evaluation and calculations shall be done using the methodologies set forth in Volume 3 of the Massachusetts Stormwater Handbook.

To ensure that the Stormwater Report is complete, applicants are required to fill in the Stormwater Report Checklist by checking the box to indicate that the specified information has been included in the Stormwater Report. If any of the information specified in the checklist has not been submitted, the applicant must provide an explanation. The completed Stormwater Report Checklist and Certification must be submitted with the Stormwater Report.

<sup>1</sup> The Stormwater Report may also include the Illicit Discharge Compliance Statement required by Standard 10. If not included in the Stormwater Report, the Illicit Discharge Compliance Statement must be submitted prior to the discharge of stormwater runoff to the post-construction best management practices.

<sup>2</sup> For some complex projects, it may not be possible to include the Construction Period Erosion and Sedimentation Control Plan in the Stormwater Report. In that event, the issuing authority has the discretion to issue an Order of Conditions that approves the project and includes a condition requiring the proponent to submit the Construction Period Erosion and Sedimentation Control Plan before commencing any land disturbance activity on the site.



# Checklist for Stormwater Report

## B. Stormwater Checklist and Certification

The following checklist is intended to serve as a guide for applicants as to the elements that ordinarily need to be addressed in a complete Stormwater Report. The checklist is also intended to provide conservation commissions and other reviewing authorities with a summary of the components necessary for a comprehensive Stormwater Report that addresses the ten Stormwater Standards.

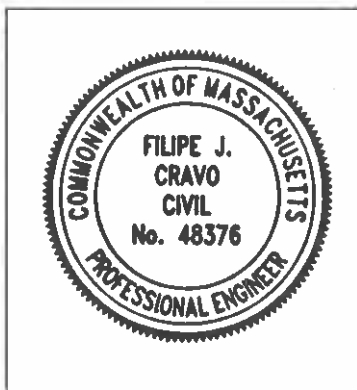
*Note:* Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the item is not applicable (N.A.) and provide the reasons for that determination.

A complete checklist must include the Certification set forth below signed by the Registered Professional Engineer who prepared the Stormwater Report.

### Registered Professional Engineer's Certification

I have reviewed the Stormwater Report, including the soil evaluation, computations, Long-term Pollution Prevention Plan, the Construction Period Erosion and Sedimentation Control Plan (if included), the Long-term Post-Construction Operation and Maintenance Plan, the Illicit Discharge Compliance Statement (if included) and the plans showing the stormwater management system, and have determined that they have been prepared in accordance with the requirements of the Stormwater Management Standards as further elaborated by the Massachusetts Stormwater Handbook. I have also determined that the information presented in the Stormwater Checklist is accurate and that the information presented in the Stormwater Report accurately reflects conditions at the site as of the date of this permit application.

Registered Professional Engineer Block and Signature



Signature and Date

*[Handwritten Signature]* 3/20/25

### Checklist

**Project Type:** Is the application for new development, redevelopment, or a mix of new and redevelopment?

- ☒ New development
- ☐ Redevelopment
- ☐ Mix of New Development and Redevelopment



# Checklist for Stormwater Report

---

## Checklist (continued)

**LID Measures:** Stormwater Standards require LID measures to be considered. Document what environmentally sensitive design and LID Techniques were considered during the planning and design of the project:

- ☒ No disturbance to any Wetland Resource Areas
- ☐ Site Design Practices (e.g. clustered development, reduced frontage setbacks)
- ☐ Reduced Impervious Area (Redevelopment Only)
- ☐ Minimizing disturbance to existing trees and shrubs
- ☐ LID Site Design Credit Requested:
  - ☐ Credit 1
  - ☐ Credit 2
  - ☐ Credit 3
- ☐ Use of “country drainage” versus curb and gutter conveyance and pipe
- ☐ Bioretention Cells (includes Rain Gardens)
- ☐ Constructed Stormwater Wetlands (includes Gravel Wetlands designs)
- ☐ Treebox Filter
- ☐ Water Quality Swale
- ☐ Grass Channel
- ☐ Green Roof
- ☒ Other (describe): Proprietary Sedimentation Device, Deep Sump Catch Basins, Subsurface Infiltration Basin

### Standard 1: No New Untreated Discharges

- ☒ No new untreated discharges
- ☒ Outlets have been designed so there is no erosion or scour to wetlands and waters of the Commonwealth
- ☒ Supporting calculations specified in Volume 3 of the Massachusetts Stormwater Handbook included.



# Checklist for Stormwater Report

---

## Checklist (continued)

### Standard 2: Peak Rate Attenuation

- ☐ Standard 2 waiver requested because the project is located in land subject to coastal storm flowage and stormwater discharge is to a wetland subject to coastal flooding.
- ☒ Evaluation provided to determine whether off-site flooding increases during the 100-year 24-hour storm.
- ☒ Calculations provided to show that post-development peak discharge rates do not exceed pre-development rates for the 2-year and 10-year 24-hour storms. If evaluation shows that off-site flooding increases during the 100-year 24-hour storm, calculations are also provided to show that post-development peak discharge rates do not exceed pre-development rates for the 100-year 24-hour storm.

### Standard 3: Recharge

- ☒ Soil Analysis provided.
- ☒ Required Recharge Volume calculation provided.
- ☐ Required Recharge volume reduced through use of the LID site Design Credits.
- ☒ Sizing the infiltration, BMPs is based on the following method: Check the method used.
  - ☒ Static
  - ☐ Simple Dynamic
  - ☐ Dynamic Field<sup>1</sup>
- ☒ Runoff from all impervious areas at the site discharging to the infiltration BMP.
- ☐ Runoff from all impervious areas at the site is *not* discharging to the infiltration BMP and calculations are provided showing that the drainage area contributing runoff to the infiltration BMPs is sufficient to generate the required recharge volume.
- ☒ Recharge BMPs have been sized to infiltrate the Required Recharge Volume.
- ☐ Recharge BMPs have been sized to infiltrate the Required Recharge Volume *only* to the maximum extent practicable for the following reason:
  - ☐ Site is comprised solely of C and D soils and/or bedrock at the land surface
  - ☐ M.G.L. c. 21E sites pursuant to 310 CMR 40.0000
  - ☐ Solid Waste Landfill pursuant to 310 CMR 19.000
  - ☐ Project is otherwise subject to Stormwater Management Standards only to the maximum extent practicable.
- ☒ Calculations showing that the infiltration BMPs will drain in 72 hours are provided.
- ☐ Property includes a M.G.L. c. 21E site or a solid waste landfill and a mounding analysis is included.

---

<sup>1</sup> 80% TSS removal is required prior to discharge to infiltration BMP if Dynamic Field method is used.



# Checklist for Stormwater Report

---

## Checklist (continued)

### Standard 3: Recharge (continued)

- ☐ The infiltration BMP is used to attenuate peak flows during storms greater than or equal to the 10-year 24-hour storm and separation to seasonal high groundwater is less than 4 feet and a mounding analysis is provided.
- ☒ Documentation is provided showing that infiltration BMPs do not adversely impact nearby wetland resource areas.

### Standard 4: Water Quality

The Long-Term Pollution Prevention Plan typically includes the following:

- Good housekeeping practices;
  - Provisions for storing materials and waste products inside or under cover;
  - Vehicle washing controls;
  - Requirements for routine inspections and maintenance of stormwater BMPs;
  - Spill prevention and response plans;
  - Provisions for maintenance of lawns, gardens, and other landscaped areas;
  - Requirements for storage and use of fertilizers, herbicides, and pesticides;
  - Pet waste management provisions;
  - Provisions for operation and management of septic systems;
  - Provisions for solid waste management;
  - Snow disposal and plowing plans relative to Wetland Resource Areas;
  - Winter Road Salt and/or Sand Use and Storage restrictions;
  - Street sweeping schedules;
  - Provisions for prevention of illicit discharges to the stormwater management system;
  - Documentation that Stormwater BMPs are designed to provide for shutdown and containment in the event of a spill or discharges to or near critical areas or from LUHPPL;
  - Training for staff or personnel involved with implementing Long-Term Pollution Prevention Plan;
  - List of Emergency contacts for implementing Long-Term Pollution Prevention Plan.
- ☒ A Long-Term Pollution Prevention Plan is attached to Stormwater Report and is included as an attachment to the Wetlands Notice of Intent.
  - ☒ Treatment BMPs subject to the 44% TSS removal pretreatment requirement and the one inch rule for calculating the water quality volume are included, and discharge:
    - ☐ is within the Zone II or Interim Wellhead Protection Area
    - ☐ is near or to other critical areas
    - ☒ is within soils with a rapid infiltration rate (greater than 2.4 inches per hour)
    - ☐ involves runoff from land uses with higher potential pollutant loads.
  - ☐ The Required Water Quality Volume is reduced through use of the LID site Design Credits.
  - ☒ Calculations documenting that the treatment train meets the 80% TSS removal requirement and, if applicable, the 44% TSS removal pretreatment requirement, are provided.



# Checklist for Stormwater Report

---

## Checklist (continued)

### Standard 4: Water Quality (continued)

- ☒ The BMP is sized (and calculations provided) based on:
  - ☐ The ½" or 1" Water Quality Volume or
  - ☒ The equivalent flow rate associated with the Water Quality Volume and documentation is provided showing that the BMP treats the required water quality volume.
- ☒ The applicant proposes to use proprietary BMPs, and documentation supporting use of proprietary BMP and proposed TSS removal rate is provided. This documentation may be in the form of the propriety BMP checklist found in Volume 2, Chapter 4 of the Massachusetts Stormwater Handbook and submitting copies of the TARP Report, STEP Report, and/or other third party studies verifying performance of the proprietary BMPs.
- ☐ A TMDL exists that indicates a need to reduce pollutants other than TSS and documentation showing that the BMPs selected are consistent with the TMDL is provided.

### Standard 5: Land Uses With Higher Potential Pollutant Loads (LUHPPLs)

- ☐ The NPDES Multi-Sector General Permit covers the land use and the Stormwater Pollution Prevention Plan (SWPPP) has been included with the Stormwater Report.
- ☐ The NPDES Multi-Sector General Permit covers the land use and the SWPPP will be submitted **prior to** the discharge of stormwater to the post-construction stormwater BMPs.
- ☐ The NPDES Multi-Sector General Permit does **not** cover the land use.
- ☐ LUHPPLs are located at the site and industry specific source control and pollution prevention measures have been proposed to reduce or eliminate the exposure of LUHPPLs to rain, snow, snow melt and runoff, and been included in the long term Pollution Prevention Plan.
- ☐ All exposure has been eliminated.
- ☐ All exposure has **not** been eliminated and all BMPs selected are on MassDEP LUHPPL list.
- ☐ The LUHPPL has the potential to generate runoff with moderate to higher concentrations of oil and grease (e.g. all parking lots with >1000 vehicle trips per day) and the treatment train includes an oil grit separator, a filtering bioretention area, a sand filter or equivalent.

### Standard 6: Critical Areas

- ☐ The discharge is near or to a critical area and the treatment train includes only BMPs that MassDEP has approved for stormwater discharges to or near that particular class of critical area.
- ☐ Critical areas and BMPs are identified in the Stormwater Report.



# Checklist for Stormwater Report

---

## Checklist (continued)

### Standard 7: Redevelopments and Other Projects Subject to the Standards only to the maximum extent practicable

- ☐ The project is subject to the Stormwater Management Standards only to the maximum Extent Practicable as a:
  - ☐ Limited Project
  - ☐ Small Residential Projects: 5-9 single family houses or 5-9 units in a multi-family development provided there is no discharge that may potentially affect a critical area.
  - ☐ Small Residential Projects: 2-4 single family houses or 2-4 units in a multi-family development with a discharge to a critical area
  - ☐ Marina and/or boatyard provided the hull painting, service and maintenance areas are protected from exposure to rain, snow, snow melt and runoff
  - ☐ Bike Path and/or Foot Path
  - ☐ Redevelopment Project
  - ☐ Redevelopment portion of mix of new and redevelopment.
- ☐ Certain standards are not fully met (Standard No. 1, 8, 9, and 10 must always be fully met) and an explanation of why these standards are not met is contained in the Stormwater Report.
- ☐ The project involves redevelopment and a description of all measures that have been taken to improve existing conditions is provided in the Stormwater Report. The redevelopment checklist found in Volume 2 Chapter 3 of the Massachusetts Stormwater Handbook may be used to document that the proposed stormwater management system (a) complies with Standards 2, 3 and the pretreatment and structural BMP requirements of Standards 4-6 to the maximum extent practicable and (b) improves existing conditions.

### Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control

A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan must include the following information:

- Narrative;
  - Construction Period Operation and Maintenance Plan;
  - Names of Persons or Entity Responsible for Plan Compliance;
  - Construction Period Pollution Prevention Measures;
  - Erosion and Sedimentation Control Plan Drawings;
  - Detail drawings and specifications for erosion control BMPs, including sizing calculations;
  - Vegetation Planning;
  - Site Development Plan;
  - Construction Sequencing Plan;
  - Sequencing of Erosion and Sedimentation Controls;
  - Operation and Maintenance of Erosion and Sedimentation Controls;
  - Inspection Schedule;
  - Maintenance Schedule;
  - Inspection and Maintenance Log Form.
- ☒ A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan containing the information set forth above has been included in the Stormwater Report.





# Checklist for Stormwater Report

---

## Checklist (continued)

### Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control (continued)

- ☐ The project is highly complex and information is included in the Stormwater Report that explains why it is not possible to submit the Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan with the application. A Construction Period Pollution Prevention and Erosion and Sedimentation Control has **not** been included in the Stormwater Report but will be submitted **before** land disturbance begins.
- ☐ The project is **not** covered by a NPDES Construction General Permit.
- ☐ The project is covered by a NPDES Construction General Permit and a copy of the SWPPP is in the Stormwater Report.
- ☒ The project is covered by a NPDES Construction General Permit but no SWPPP been submitted. The SWPPP will be submitted BEFORE land disturbance begins.

### Standard 9: Operation and Maintenance Plan

- ☒ The Post Construction Operation and Maintenance Plan is included in the Stormwater Report and includes the following information:
  - ☒ Name of the stormwater management system owners;
  - ☒ Party responsible for operation and maintenance;
  - ☒ Schedule for implementation of routine and non-routine maintenance tasks;
  - ☒ Plan showing the location of all stormwater BMPs maintenance access areas;
  - ☒ Description and delineation of public safety features;
  - ☒ Estimated operation and maintenance budget; and
  - ☒ Operation and Maintenance Log Form.
- ☐ The responsible party is **not** the owner of the parcel where the BMP is located and the Stormwater Report includes the following submissions:
  - ☐ A copy of the legal instrument (deed, homeowner's association, utility trust or other legal entity) that establishes the terms of and legal responsibility for the operation and maintenance of the project site stormwater BMPs;
  - ☐ A plan and easement deed that allows site access for the legal entity to operate and maintain BMP functions.

### Standard 10: Prohibition of Illicit Discharges

- ☐ The Long-Term Pollution Prevention Plan includes measures to prevent illicit discharges;
- ☒ An Illicit Discharge Compliance Statement is attached;
- ☐ NO Illicit Discharge Compliance Statement is attached but will be submitted **prior to** the discharge of any stormwater to post-construction BMPs.

## Appendix B: Soils Information

- NRCS Soils Report
- Soil Evaluation Logs





United States  
Department of  
Agriculture

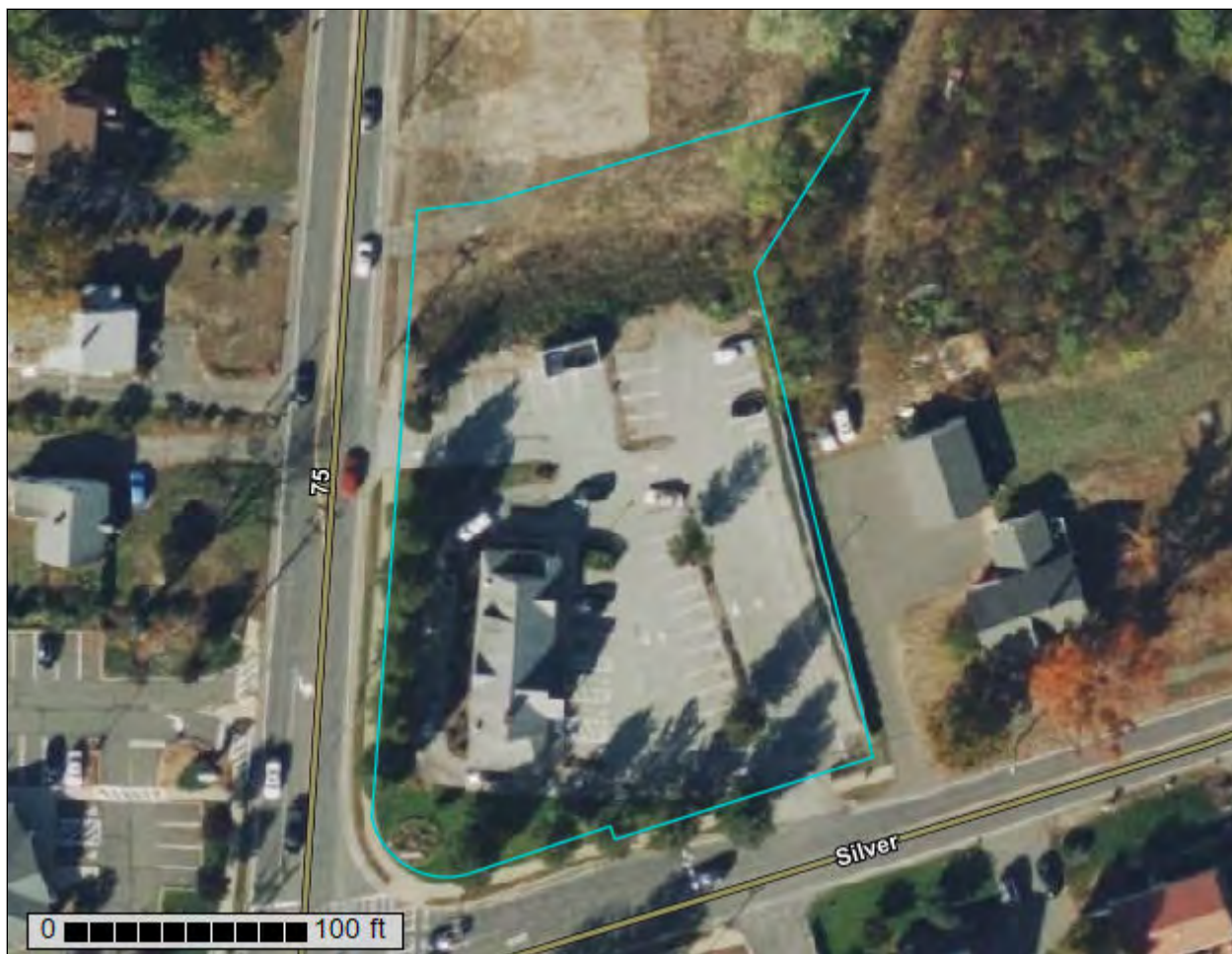
NRCS

Natural  
Resources  
Conservation  
Service

A product of the National  
Cooperative Soil Survey,  
a joint effort of the United  
States Department of  
Agriculture and other  
Federal agencies, State  
agencies including the  
Agricultural Experiment  
Stations, and local  
participants

# Custom Soil Resource Report for Hampden County, Massachusetts, Central Part

158 Silver Street, Agawam MA



# Preface

---

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist ([http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2\\_053951](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951)).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

# Contents

---

|                                                           |    |
|-----------------------------------------------------------|----|
| <b>Preface</b> .....                                      | 2  |
| <b>How Soil Surveys Are Made</b> .....                    | 5  |
| <b>Soil Map</b> .....                                     | 8  |
| Soil Map.....                                             | 9  |
| Legend.....                                               | 10 |
| Map Unit Legend.....                                      | 12 |
| Map Unit Descriptions.....                                | 12 |
| Hampden County, Massachusetts, Central Part.....          | 14 |
| 254A—Merrimac fine sandy loam, 0 to 3 percent slopes..... | 14 |
| 254B—Merrimac fine sandy loam, 3 to 8 percent slopes..... | 15 |
| <b>References</b> .....                                   | 18 |

# How Soil Surveys Are Made

---

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil



scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

## Custom Soil Resource Report

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

# Soil Map

---

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

# Custom Soil Resource Report Soil Map



MAP LEGEND

**Area of Interest (AOI)**

Area of Interest (AOI)

**Soils**

Soil Map Unit Polygons

Soil Map Unit Lines

Soil Map Unit Points

**Special Point Features**

Blowout

Borrow Pit

Clay Spot

Closed Depression

Gravel Pit

Gravelly Spot

Landfill

Lava Flow

Marsh or swamp

Mine or Quarry

Miscellaneous Water

Perennial Water

Rock Outcrop

Saline Spot

Sandy Spot

Severely Eroded Spot

Sinkhole

Slide or Slip

Sodic Spot

Spoil Area

Stony Spot

Very Stony Spot

Wet Spot

Other

Special Line Features

**Water Features**

Streams and Canals

**Transportation**

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

**Background**

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service  
Web Soil Survey URL:  
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Hampden County, Massachusetts, Central Part  
Survey Area Data: Version 18, Aug 27, 2024

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 15, 2020—Oct 31, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

**MAP LEGEND**

**MAP INFORMATION**

imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

## Map Unit Legend

| Map Unit Symbol                    | Map Unit Name                                   | Acres in AOI | Percent of AOI |
|------------------------------------|-------------------------------------------------|--------------|----------------|
| 254A                               | Merrimac fine sandy loam, 0 to 3 percent slopes | 0.4          | 39.7%          |
| 254B                               | Merrimac fine sandy loam, 3 to 8 percent slopes | 0.7          | 60.3%          |
| <b>Totals for Area of Interest</b> |                                                 | <b>1.1</b>   | <b>100.0%</b>  |

## Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however,

onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.



## Hampden County, Massachusetts, Central Part

### 254A—Merrimac fine sandy loam, 0 to 3 percent slopes

#### Map Unit Setting

*National map unit symbol:* 2tyqr  
*Elevation:* 0 to 1,100 feet  
*Mean annual precipitation:* 36 to 71 inches  
*Mean annual air temperature:* 39 to 55 degrees F  
*Frost-free period:* 140 to 240 days  
*Farmland classification:* All areas are prime farmland

#### Map Unit Composition

*Merrimac and similar soils:* 86 percent  
*Minor components:* 14 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Description of Merrimac

##### Setting

*Landform:* Outwash plains, outwash terraces, moraines, eskers, kames  
*Landform position (two-dimensional):* Summit, shoulder, backslope, footslope  
*Landform position (three-dimensional):* Side slope, crest, riser, tread  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Parent material:* Loamy glaciofluvial deposits derived from granite, schist, and gneiss over sandy and gravelly glaciofluvial deposits derived from granite, schist, and gneiss

##### Typical profile

*Ap - 0 to 10 inches:* fine sandy loam  
*Bw1 - 10 to 22 inches:* fine sandy loam  
*Bw2 - 22 to 26 inches:* stratified gravel to gravelly loamy sand  
*2C - 26 to 65 inches:* stratified gravel to very gravelly sand

##### Properties and qualities

*Slope:* 0 to 3 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Somewhat excessively drained  
*Runoff class:* Very low  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to very high (1.42 to 99.90 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 2 percent  
*Maximum salinity:* Nonsaline (0.0 to 1.4 mmhos/cm)  
*Sodium adsorption ratio, maximum:* 1.0  
*Available water supply, 0 to 60 inches:* Low (about 4.6 inches)

##### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 1  
*Hydrologic Soil Group:* A  
*Ecological site:* F145XY008MA - Dry Outwash

*Hydric soil rating:* No

**Minor Components**

**Sudbury**

*Percent of map unit:* 5 percent  
*Landform:* Deltas, terraces, outwash plains  
*Landform position (two-dimensional):* Footslope  
*Landform position (three-dimensional):* Tread, dip  
*Down-slope shape:* Concave  
*Across-slope shape:* Linear  
*Hydric soil rating:* No

**Hinckley**

*Percent of map unit:* 5 percent  
*Landform:* Deltas, kames, eskers, outwash plains  
*Landform position (two-dimensional):* Summit, shoulder, backslope  
*Landform position (three-dimensional):* Head slope, nose slope, side slope, crest, rise  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex, linear  
*Hydric soil rating:* No

**Windsor**

*Percent of map unit:* 3 percent  
*Landform:* Dunes, deltas, outwash terraces, outwash plains  
*Landform position (two-dimensional):* Summit  
*Landform position (three-dimensional):* Tread, riser  
*Down-slope shape:* Convex, linear  
*Across-slope shape:* Convex, linear  
*Hydric soil rating:* No

**Walpole**

*Percent of map unit:* 1 percent  
*Landform:* Depressions  
*Landform position (three-dimensional):* Tread  
*Down-slope shape:* Concave  
*Across-slope shape:* Concave  
*Ecological site:* F144AY028MA - Wet Outwash  
*Hydric soil rating:* Yes

**254B—Merrimac fine sandy loam, 3 to 8 percent slopes**

**Map Unit Setting**

*National map unit symbol:* 2tyqs  
*Elevation:* 0 to 1,290 feet  
*Mean annual precipitation:* 36 to 71 inches  
*Mean annual air temperature:* 39 to 55 degrees F  
*Frost-free period:* 140 to 240 days  
*Farmland classification:* All areas are prime farmland

### Map Unit Composition

*Merrimac and similar soils:* 86 percent

*Minor components:* 14 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Merrimac

#### Setting

*Landform:* Outwash plains, outwash terraces, moraines, eskers, kames

*Landform position (two-dimensional):* Summit, shoulder, backslope, footslope

*Landform position (three-dimensional):* Side slope, crest, riser, tread

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Parent material:* Loamy glaciofluvial deposits derived from granite, schist, and gneiss over sandy and gravelly glaciofluvial deposits derived from granite, schist, and gneiss

#### Typical profile

*Ap - 0 to 10 inches:* fine sandy loam

*Bw1 - 10 to 22 inches:* fine sandy loam

*Bw2 - 22 to 26 inches:* stratified gravel to gravelly loamy sand

*2C - 26 to 65 inches:* stratified gravel to very gravelly sand

#### Properties and qualities

*Slope:* 3 to 8 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Somewhat excessively drained

*Runoff class:* Very low

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to very high (1.42 to 99.90 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 2 percent

*Maximum salinity:* Nonsaline (0.0 to 1.4 mmhos/cm)

*Sodium adsorption ratio, maximum:* 1.0

*Available water supply, 0 to 60 inches:* Low (about 4.6 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 2s

*Hydrologic Soil Group:* A

*Ecological site:* F145XY008MA - Dry Outwash

*Hydric soil rating:* No

### Minor Components

#### Hinckley

*Percent of map unit:* 5 percent

*Landform:* Deltas, kames, eskers, outwash plains

*Landform position (two-dimensional):* Summit, shoulder, backslope

*Landform position (three-dimensional):* Head slope, nose slope, side slope, crest, rise

*Down-slope shape:* Convex

*Across-slope shape:* Convex, linear

*Hydric soil rating:* No

**Sudbury**

*Percent of map unit:* 5 percent  
*Landform:* Deltas, terraces, outwash plains  
*Landform position (two-dimensional):* Footslope  
*Landform position (three-dimensional):* Tread, dip  
*Down-slope shape:* Concave  
*Across-slope shape:* Linear  
*Hydric soil rating:* No

**Windsor**

*Percent of map unit:* 3 percent  
*Landform:* Dunes, deltas, outwash terraces, outwash plains  
*Landform position (two-dimensional):* Summit  
*Landform position (three-dimensional):* Tread, riser  
*Down-slope shape:* Convex, linear  
*Across-slope shape:* Convex, linear  
*Hydric soil rating:* No

**Walpole**

*Percent of map unit:* 1 percent  
*Landform:* Depressions  
*Landform position (three-dimensional):* Tread  
*Down-slope shape:* Concave  
*Across-slope shape:* Concave  
*Ecological site:* F144AY028MA - Wet Outwash  
*Hydric soil rating:* Yes

# References

---

- American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.
- American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.
- Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.
- Federal Register. July 13, 1994. Changes in hydric soils of the United States.
- Federal Register. September 18, 2002. Hydric soils of the United States.
- Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.
- National Research Council. 1995. Wetlands: Characteristics and boundaries.
- Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. [http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2\\_054262](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262)
- Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. [http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2\\_053577](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577)
- Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. [http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2\\_053580](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580)
- Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.
- United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.
- United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. [http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2\\_053374](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374)
- United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. <http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084>

## Custom Soil Resource Report

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. [http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2\\_054242](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242)

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. [http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2\\_053624](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624)

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. [http://www.nrcs.usda.gov/Internet/FSE\\_DOCUMENTS/nrcs142p2\\_052290.pdf](http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf)





Commonwealth of Massachusetts  
City/Town of Agawam

Test Pits - Commercial Stormwater System  
779 Suffield St, Agawam, MA

## Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

### C. On-Site Review (minimum of two holes required at every proposed primary and reserve disposal area)

Deep Observation Hole Number: 17-315 Date: 3/7/2025 Time: 8:30 AM Weather: 28°F clear Latitude: \_\_\_\_\_ Longitude: 2-3

1. Land Use: Vacant lot Vegetation: grass Surface Stones (e.g., cobbles, stones, boulders, etc.): N/A Slope (%): \_\_\_\_\_

Description of Location: Adjacent to Dunkin Donuts parking lot plain

2. Soil Parent Material: \_\_\_\_\_ Landform: \_\_\_\_\_ Position on Landscape (SU, SH, BS, FS, TS, Plain): \_\_\_\_\_

3. Distances from: Open Water Body 200 feet Drainage Way 250 feet Wetlands 200 feet

Property Line 20 feet Drinking Water Well 250 feet Other \_\_\_\_\_ feet

4. Unsuitable Materials Present: ☐ Yes ☒ No If Yes: ☐ Disturbed Soil/Fill Material ☐ Weathered/Fractured Rock ☐ Bedrock

5. Groundwater Observed: ☐ Yes ☒ No If yes: \_\_\_\_\_ Depth to Weeping in Hole \_\_\_\_\_ Depth Standing Water in Hole \_\_\_\_\_

#### Soil Log

| Depth (in) | Soil Horizon / Layer | Soil Texture (USDA) | Soil Matrix: Color-Moist (Munsell) | Redoximorphic Features |               |         | Coarse Fragments % by Volume |                  | Soil Structure | Soil Consistence (Moist) | Other |
|------------|----------------------|---------------------|------------------------------------|------------------------|---------------|---------|------------------------------|------------------|----------------|--------------------------|-------|
|            |                      |                     |                                    | Depth                  | Color         | Percent | Gravel                       | Cobbles & Stones |                |                          |       |
| TP 0-12    | A                    | loamy sand          | 10YR 3/2                           | -                      | Cnc :<br>Dpl: | -       | -                            | -                | G              | very friable             |       |
| 12-20      | Bw                   | "                   | 10YR 5/4                           | -                      | Cnc :<br>Dpl: | -       | -                            | -                | M              | "                        |       |
| 20-110" +  | C                    | med sand            | 10YR 7/2                           | -                      | Cnc :<br>Dpl: | -       | -                            | -                | single grain   | loose                    |       |
| TP 0-12    | A                    | loamy sand          | 10YR 3/2                           | -                      | Cnc :<br>Dpl: | -       | -                            | -                | G              | very friable             |       |
| 12-21      | Bw                   | "                   | 10YR 5/4                           | -                      | Cnc :<br>Dpl: | -       | -                            | -                | M              | "                        |       |
| 21-120" +  | C                    | med sand            | 10YR 7/2                           | -                      | Cnc :<br>Dpl: | -       | -                            | -                | single grain   | loose                    |       |

Additional Notes:





Commonwealth of Massachusetts  
City/Town of

## Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

### F. Certification

I certify that I am currently approved by the Department of Environmental Protection pursuant to 310 CMR 15.017 to conduct soil evaluations and that the above analysis has been performed by me consistent with the required training, expertise and experience described in 310 CMR 15.017. I further certify that the results of my soil evaluation, as indicated in the attached Soil Evaluation Form, are accurate and in accordance with 310 CMR 15.100 through 15.107.

Ryan Nelson

Signature of Soil Evaluator

Ryan Nelson 14394

Typed or Printed Name of Soil Evaluator / License #

N/A

Name of Approving Authority / Witness

Approving Authority

**Note:** In accordance with 310 CMR 15.018(2) this form must be submitted to the approving authority within 60 days of the date of field testing, and to the designer and the property owner with Percolation Test Form 12.

3/7/2025

Date

6/30/2025

Expiration Date of License

N/A

**Field Diagrams:** Use this area for field diagrams:

See attached Site plan markup

## Appendix C: Pre- and Post- Development Hydrologic Analysis (2, 10, 100 Year Storm Events)





**NOAA Atlas 14, Volume 10, Version 3**  
**Location name: Agawam Town, Massachusetts,**  
**USA\***

**Latitude: 42.0624°, Longitude: -72.6317°**

**Elevation: 126 ft\*\***

\* source: ESRI Maps

\*\* source: USGS



**POINT PRECIPITATION FREQUENCY ESTIMATES**

Sanja Perica, Sandra Pavlovic, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Orlan Wilhite

NOAA, National Weather Service, Silver Spring, Maryland

[PF tabular](#) | [PF graphical](#) | [Maps & aerals](#)

**PF tabular**

| <b>PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)<sup>1</sup></b> |                                            |                               |                               |                               |                              |                              |                              |                             |                             |                             |
|----------------------------------------------------------------------------------------------------------------|--------------------------------------------|-------------------------------|-------------------------------|-------------------------------|------------------------------|------------------------------|------------------------------|-----------------------------|-----------------------------|-----------------------------|
| <b>Duration</b>                                                                                                | <b>Average recurrence interval (years)</b> |                               |                               |                               |                              |                              |                              |                             |                             |                             |
|                                                                                                                | <b>1</b>                                   | <b>2</b>                      | <b>5</b>                      | <b>10</b>                     | <b>25</b>                    | <b>50</b>                    | <b>100</b>                   | <b>200</b>                  | <b>500</b>                  | <b>1000</b>                 |
| <b>5-min</b>                                                                                                   | <b>0.340</b><br>(0.262-0.437)              | <b>0.409</b><br>(0.315-0.526) | <b>0.522</b><br>(0.401-0.675) | <b>0.615</b><br>(0.471-0.800) | <b>0.743</b><br>(0.551-1.01) | <b>0.840</b><br>(0.611-1.17) | <b>0.941</b><br>(0.665-1.36) | <b>1.05</b><br>(0.707-1.57) | <b>1.21</b><br>(0.785-1.87) | <b>1.34</b><br>(0.848-2.12) |
| <b>10-min</b>                                                                                                  | <b>0.481</b><br>(0.372-0.619)              | <b>0.579</b><br>(0.446-0.746) | <b>0.738</b><br>(0.568-0.955) | <b>0.870</b><br>(0.664-1.13)  | <b>1.05</b><br>(0.780-1.43)  | <b>1.19</b><br>(0.865-1.66)  | <b>1.33</b><br>(0.942-1.93)  | <b>1.49</b><br>(1.00-2.22)  | <b>1.72</b><br>(1.11-2.65)  | <b>1.90</b><br>(1.20-3.00)  |
| <b>15-min</b>                                                                                                  | <b>0.566</b><br>(0.437-0.729)              | <b>0.681</b><br>(0.525-0.877) | <b>0.869</b><br>(0.668-1.12)  | <b>1.02</b><br>(0.783-1.33)   | <b>1.24</b><br>(0.918-1.69)  | <b>1.40</b><br>(1.02-1.95)   | <b>1.57</b><br>(1.11-2.27)   | <b>1.75</b><br>(1.18-2.61)  | <b>2.02</b><br>(1.31-3.12)  | <b>2.23</b><br>(1.41-3.53)  |
| <b>30-min</b>                                                                                                  | <b>0.765</b><br>(0.590-0.983)              | <b>0.921</b><br>(0.711-1.19)  | <b>1.18</b><br>(0.904-1.52)   | <b>1.39</b><br>(1.06-1.81)    | <b>1.68</b><br>(1.25-2.29)   | <b>1.90</b><br>(1.38-2.65)   | <b>2.13</b><br>(1.51-3.09)   | <b>2.39</b><br>(1.60-3.56)  | <b>2.75</b><br>(1.78-4.25)  | <b>3.04</b><br>(1.92-4.80)  |
| <b>60-min</b>                                                                                                  | <b>0.963</b><br>(0.743-1.24)               | <b>1.16</b><br>(0.896-1.50)   | <b>1.49</b><br>(1.14-1.92)    | <b>1.76</b><br>(1.34-2.28)    | <b>2.13</b><br>(1.58-2.90)   | <b>2.41</b><br>(1.75-3.36)   | <b>2.70</b><br>(1.91-3.91)   | <b>3.02</b><br>(2.03-4.50)  | <b>3.48</b><br>(2.25-5.38)  | <b>3.85</b><br>(2.44-6.08)  |
| <b>2-hr</b>                                                                                                    | <b>1.23</b><br>(0.959-1.58)                | <b>1.48</b><br>(1.15-1.90)    | <b>1.88</b><br>(1.46-2.42)    | <b>2.22</b><br>(1.71-2.87)    | <b>2.68</b><br>(2.00-3.64)   | <b>3.03</b><br>(2.22-4.22)   | <b>3.39</b><br>(2.42-4.93)   | <b>3.82</b><br>(2.58-5.67)  | <b>4.46</b><br>(2.90-6.87)  | <b>5.00</b><br>(3.17-7.86)  |
| <b>3-hr</b>                                                                                                    | <b>1.42</b><br>(1.10-1.80)                 | <b>1.70</b><br>(1.33-2.17)    | <b>2.17</b><br>(1.68-2.78)    | <b>2.56</b><br>(1.98-3.29)    | <b>3.09</b><br>(2.32-4.19)   | <b>3.49</b><br>(2.57-4.85)   | <b>3.92</b><br>(2.82-5.69)   | <b>4.43</b><br>(2.99-6.55)  | <b>5.22</b><br>(3.39-8.00)  | <b>5.89</b><br>(3.74-9.23)  |
| <b>6-hr</b>                                                                                                    | <b>1.77</b><br>(1.39-2.24)                 | <b>2.15</b><br>(1.69-2.72)    | <b>2.77</b><br>(2.17-3.52)    | <b>3.29</b><br>(2.56-4.20)    | <b>4.00</b><br>(3.02-5.40)   | <b>4.52</b><br>(3.36-6.28)   | <b>5.09</b><br>(3.70-7.42)   | <b>5.81</b><br>(3.94-8.55)  | <b>6.94</b><br>(4.52-10.6)  | <b>7.92</b><br>(5.05-12.4)  |
| <b>12-hr</b>                                                                                                   | <b>2.17</b><br>(1.71-2.72)                 | <b>2.68</b><br>(2.12-3.37)    | <b>3.52</b><br>(2.77-4.44)    | <b>4.22</b><br>(3.30-5.36)    | <b>5.17</b><br>(3.94-6.97)   | <b>5.87</b><br>(4.40-8.14)   | <b>6.65</b><br>(4.88-9.69)   | <b>7.64</b><br>(5.20-11.2)  | <b>9.23</b><br>(6.04-14.0)  | <b>10.6</b><br>(6.80-16.5)  |
| <b>24-hr</b>                                                                                                   | <b>2.55</b><br>(2.02-3.18)                 | <b>3.20</b><br>(2.54-4.00)    | <b>4.27</b><br>(3.38-5.35)    | <b>5.16</b><br>(4.06-6.50)    | <b>6.38</b><br>(4.89-8.56)   | <b>7.26</b><br>(5.48-10.0)   | <b>8.26</b><br>(6.11-12.0)   | <b>9.56</b><br>(6.52-13.9)  | <b>11.7</b><br>(7.66-17.7)  | <b>13.5</b><br>(8.69-20.9)  |
| <b>2-day</b>                                                                                                   | <b>2.88</b><br>(2.31-3.57)                 | <b>3.66</b><br>(2.93-4.54)    | <b>4.93</b><br>(3.93-6.14)    | <b>5.98</b><br>(4.74-7.50)    | <b>7.43</b><br>(5.74-9.94)   | <b>8.48</b><br>(6.45-11.7)   | <b>9.67</b><br>(7.21-14.1)   | <b>11.3</b><br>(7.70-16.3)  | <b>13.9</b><br>(9.13-20.9)  | <b>16.2</b><br>(10.4-24.9)  |
| <b>3-day</b>                                                                                                   | <b>3.15</b><br>(2.53-3.89)                 | <b>4.00</b><br>(3.21-4.94)    | <b>5.39</b><br>(4.31-6.68)    | <b>6.54</b><br>(5.20-8.16)    | <b>8.12</b><br>(6.30-10.8)   | <b>9.27</b><br>(7.07-12.7)   | <b>10.6</b><br>(7.92-15.3)   | <b>12.3</b><br>(8.45-17.8)  | <b>15.2</b><br>(10.0-22.9)  | <b>17.8</b><br>(11.5-27.3)  |
| <b>4-day</b>                                                                                                   | <b>3.40</b><br>(2.74-4.18)                 | <b>4.30</b><br>(3.46-5.30)    | <b>5.78</b><br>(4.64-7.14)    | <b>7.00</b><br>(5.58-8.72)    | <b>8.69</b><br>(6.76-11.6)   | <b>9.91</b><br>(7.58-13.6)   | <b>11.3</b><br>(8.48-16.4)   | <b>13.2</b><br>(9.04-19.0)  | <b>16.2</b><br>(10.7-24.3)  | <b>19.0</b><br>(12.3-29.1)  |
| <b>7-day</b>                                                                                                   | <b>4.06</b><br>(3.29-4.97)                 | <b>5.08</b><br>(4.11-6.22)    | <b>6.75</b><br>(5.44-8.30)    | <b>8.13</b><br>(6.52-10.1)    | <b>10.0</b><br>(7.83-13.2)   | <b>11.4</b><br>(8.76-15.5)   | <b>13.0</b><br>(9.74-18.6)   | <b>15.0</b><br>(10.4-21.6)  | <b>18.4</b><br>(12.2-27.5)  | <b>21.4</b><br>(13.9-32.7)  |
| <b>10-day</b>                                                                                                  | <b>4.72</b><br>(3.84-5.76)                 | <b>5.80</b><br>(4.71-7.08)    | <b>7.57</b><br>(6.13-9.28)    | <b>9.04</b><br>(7.27-11.1)    | <b>11.1</b><br>(8.64-14.5)   | <b>12.5</b><br>(9.61-16.9)   | <b>14.2</b><br>(10.6-20.2)   | <b>16.3</b><br>(11.3-23.3)  | <b>19.8</b><br>(13.1-29.4)  | <b>22.8</b><br>(14.8-34.7)  |
| <b>20-day</b>                                                                                                  | <b>6.79</b><br>(5.56-8.22)                 | <b>7.93</b><br>(6.49-9.62)    | <b>9.80</b><br>(7.98-11.9)    | <b>11.4</b><br>(9.19-13.9)    | <b>13.5</b><br>(10.6-17.4)   | <b>15.1</b><br>(11.6-20.0)   | <b>16.8</b><br>(12.5-23.4)   | <b>18.9</b><br>(13.1-26.8)  | <b>22.1</b><br>(14.7-32.7)  | <b>24.9</b><br>(16.2-37.6)  |
| <b>30-day</b>                                                                                                  | <b>8.54</b><br>(7.02-10.3)                 | <b>9.70</b><br>(7.97-11.7)    | <b>11.6</b><br>(9.50-14.1)    | <b>13.2</b><br>(10.7-16.1)    | <b>15.4</b><br>(12.1-19.7)   | <b>17.0</b><br>(13.1-22.4)   | <b>18.7</b><br>(13.9-25.8)   | <b>20.7</b><br>(14.5-29.3)  | <b>23.6</b><br>(15.8-34.8)  | <b>26.1</b><br>(17.0-39.3)  |
| <b>45-day</b>                                                                                                  | <b>10.7</b><br>(8.84-12.9)                 | <b>11.9</b><br>(9.83-14.3)    | <b>13.9</b><br>(11.4-16.8)    | <b>15.5</b><br>(12.7-18.9)    | <b>17.8</b><br>(14.0-22.6)   | <b>19.5</b><br>(15.0-25.4)   | <b>21.3</b><br>(15.7-28.8)   | <b>23.1</b><br>(16.2-32.5)  | <b>25.7</b><br>(17.2-37.6)  | <b>27.6</b><br>(18.0-41.5)  |
| <b>60-day</b>                                                                                                  | <b>12.5</b><br>(10.4-15.0)                 | <b>13.8</b><br>(11.4-16.5)    | <b>15.8</b><br>(13.1-19.1)    | <b>17.6</b><br>(14.4-21.3)    | <b>19.9</b><br>(15.7-25.1)   | <b>21.8</b><br>(16.7-28.1)   | <b>23.5</b><br>(17.3-31.5)   | <b>25.3</b><br>(17.8-35.4)  | <b>27.5</b><br>(18.5-40.1)  | <b>29.1</b><br>(19.0-43.6)  |

<sup>1</sup> Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

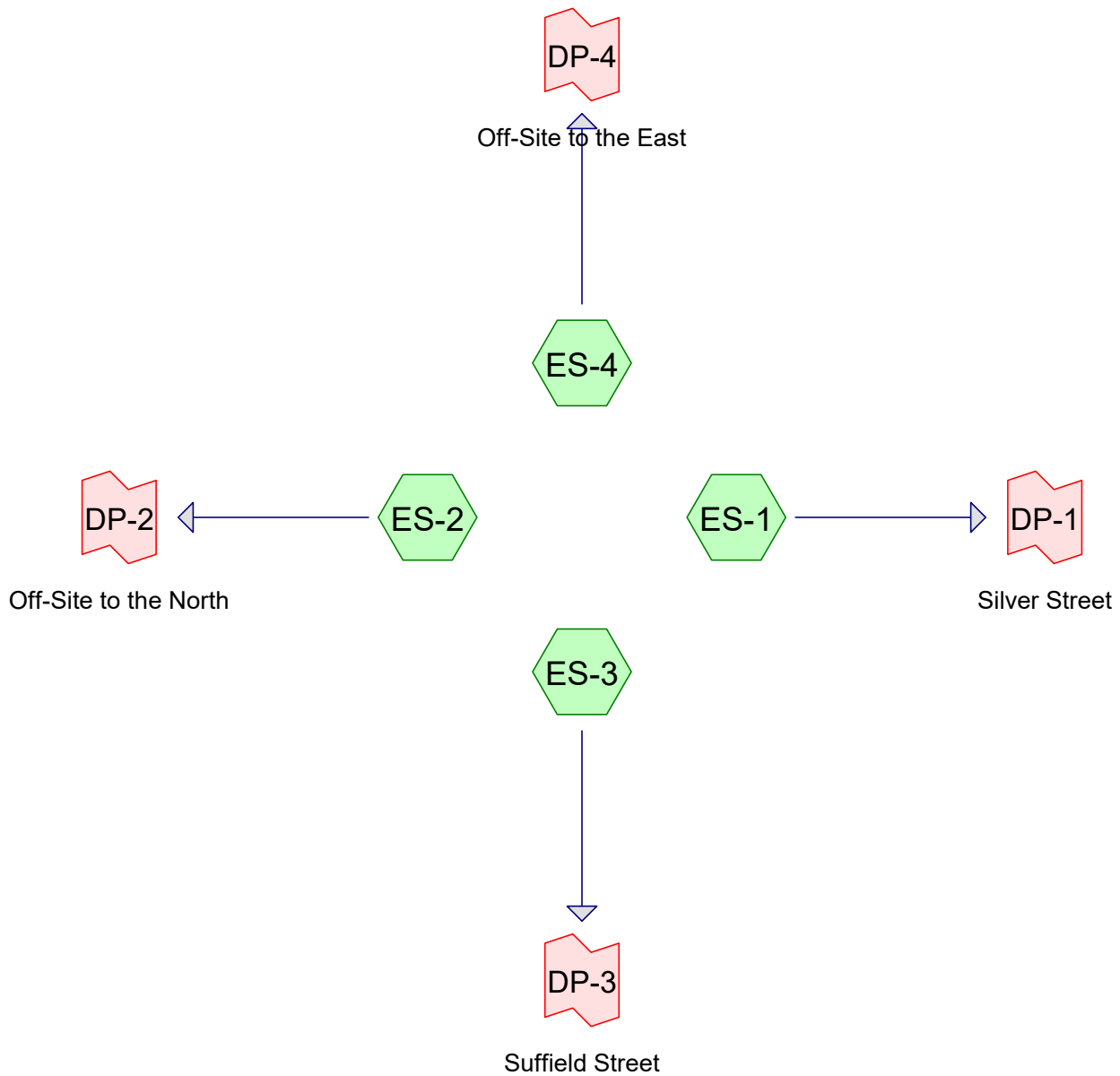
Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

[Back to Top](#)

**PF graphical**





# Routing Diagram for 171123 - PRE

Prepared by R. Levesque Assoc.

HydroCAD® 10.10-7c s/n 02175 © 2022 HydroCAD Software Solutions LLC

**171123 - PRE**

Prepared by R. Levesque Assoc.

HydroCAD® 10.10-7c s/n 02175 © 2022 HydroCAD Software Solutions LLC

Page 2

**Rainfall Events Listing**

| Event# | Event<br>Name | Storm Type     | Curve | Mode    | Duration<br>(hours) | B/B | Depth<br>(inches) | AMC |
|--------|---------------|----------------|-------|---------|---------------------|-----|-------------------|-----|
| 1      | 2-Year        | Type III 24-hr |       | Default | 24.00               | 1   | 3.20              | 2   |
| 2      | 10-Year       | Type III 24-hr |       | Default | 24.00               | 1   | 5.16              | 2   |
| 3      | 100-Year      | Type III 24-hr |       | Default | 24.00               | 1   | 8.26              | 2   |

**171123 - PRE**

Prepared by R. Levesque Assoc.

HydroCAD® 10.10-7c s/n 02175 © 2022 HydroCAD Software Solutions LLC

Proposed Site Improvements  
Type III 24-hr 2-Year Rainfall=3.20"

Page 3

Time span=0.00-48.00 hrs, dt=0.03 hrs, 1601 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment ES-1:** Runoff Area=34,045 sf 76.23% Impervious Runoff Depth=2.27"  
Flow Length=178' Slope=0.0200 '/' Tc=6.0 min CN=WQ Runoff=1.8 cfs 6,432 cf

**Subcatchment ES-2:** Runoff Area=10,449 sf 4.14% Impervious Runoff Depth=0.12"  
Flow Length=98' Slope=0.0300 '/' Tc=18.6 min CN=WQ Runoff=0.0 cfs 107 cf

**Subcatchment ES-3:** Runoff Area=2,873 sf 17.50% Impervious Runoff Depth=0.52"  
Tc=6.0 min CN=WQ Runoff=0.0 cfs 124 cf

**Subcatchment ES-4:** Runoff Area=1,011 sf 0.00% Impervious Runoff Depth=0.00"  
Tc=6.0 min CN=WQ Runoff=0.0 cfs 0 cf

**Link DP-1: Silver Street** Inflow=1.8 cfs 6,432 cf  
Primary=1.8 cfs 6,432 cf

**Link DP-2: Off-Site to the North** Inflow=0.0 cfs 107 cf  
Primary=0.0 cfs 107 cf

**Link DP-3: Suffield Street** Inflow=0.0 cfs 124 cf  
Primary=0.0 cfs 124 cf

**Link DP-4: Off-Site to the East** Inflow=0.0 cfs 0 cf  
Primary=0.0 cfs 0 cf

**Total Runoff Area = 48,378 sf Runoff Volume = 6,663 cf Average Runoff Depth = 1.65"**  
**44.42% Pervious = 21,489 sf 55.58% Impervious = 26,889 sf**



**171123 - PRE**

Prepared by R. Levesque Assoc.

HydroCAD® 10.10-7c s/n 02175 © 2022 HydroCAD Software Solutions LLC

Proposed Site Improvements  
Type III 24-hr 2-Year Rainfall=3.20"

Page 4

**Summary for Subcatchment ES-1:**

Runoff = 1.8 cfs @ 12.08 hrs, Volume= 6,432 cf, Depth= 2.27"  
 Routed to Link DP-1 : Silver Street

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs  
 Type III 24-hr 2-Year Rainfall=3.20"

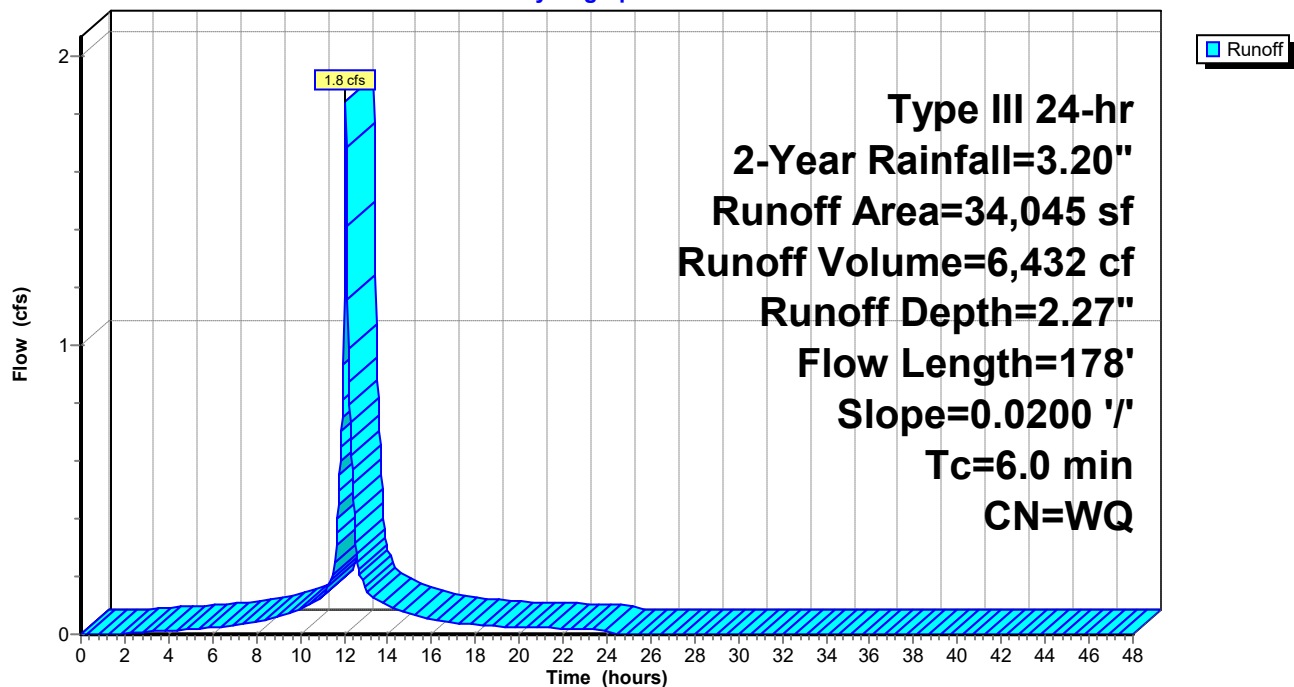
| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 7,932     | 39 | >75% Grass cover, Good, HSG A |
| 60        | 96 | Gravel surface, HSG A         |
| 23,310    | 98 | Paved parking, HSG A          |
| 2,644     | 98 | Roofs, HSG A                  |
| 99        | 30 | Woods, Good, HSG A            |
| 34,045    |    | Weighted Average              |
| 8,091     | 39 | 23.77% Pervious Area          |
| 25,954    | 98 | 76.23% Impervious Area        |

| Tc (min) | Length (feet) | Slope (ft/ft)                            | Velocity (ft/sec) | Capacity (cfs) | Description                                              |
|----------|---------------|------------------------------------------|-------------------|----------------|----------------------------------------------------------|
| 1.3      | 100           | 0.0200                                   | 1.33              |                | <b>Sheet Flow,</b><br>Smooth surfaces n= 0.011 P2= 3.00" |
| 0.5      | 78            | 0.0200                                   | 2.87              |                | <b>Shallow Concentrated Flow,</b><br>Paved Kv= 20.3 fps  |
| 1.8      | 178           | Total, Increased to minimum Tc = 6.0 min |                   |                |                                                          |

**Subcatchment ES-1:**

Hydrograph



**171123 - PRE**

Prepared by R. Levesque Assoc.

HydroCAD® 10.10-7c s/n 02175 © 2022 HydroCAD Software Solutions LLC

Proposed Site Improvements  
Type III 24-hr 2-Year Rainfall=3.20"

Page 5

**Summary for Subcatchment ES-2:**

Runoff = 0.0 cfs @ 12.24 hrs, Volume= 107 cf, Depth= 0.12"  
 Routed to Link DP-2 : Off-Site to the North

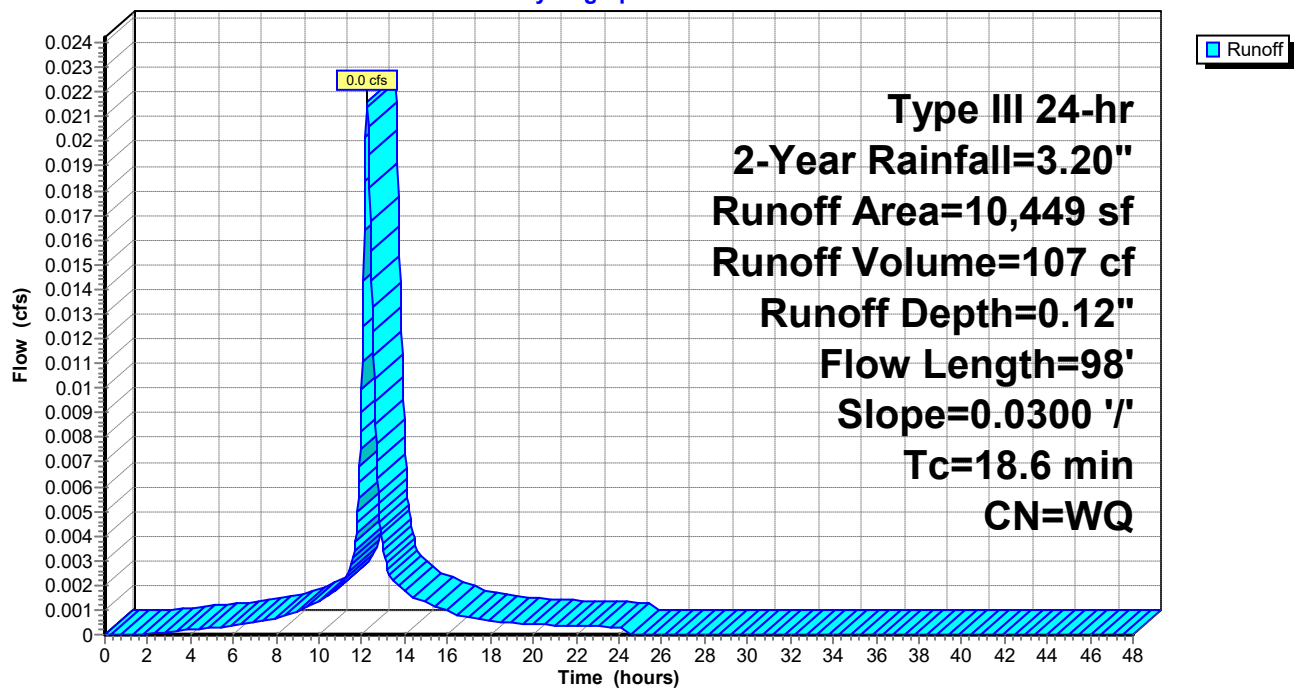
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs  
 Type III 24-hr 2-Year Rainfall=3.20"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 4,742     | 39 | >75% Grass cover, Good, HSG A |
| 432       | 98 | Paved parking, HSG A          |
| 5,275     | 30 | Woods, Good, HSG A            |
| 10,449    |    | Weighted Average              |
| 10,017    | 34 | 95.86% Pervious Area          |
| 432       | 98 | 4.14% Impervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                      |
|----------|---------------|---------------|-------------------|----------------|------------------------------------------------------------------|
| 18.6     | 98            | 0.0300        | 0.09              |                | <b>Sheet Flow,</b><br>Woods: Light underbrush n= 0.400 P2= 3.00" |

**Subcatchment ES-2:**

Hydrograph



**171123 - PRE**

Prepared by R. Levesque Assoc.

HydroCAD® 10.10-7c s/n 02175 © 2022 HydroCAD Software Solutions LLC

Proposed Site Improvements  
Type III 24-hr 2-Year Rainfall=3.20"

Page 6

**Summary for Subcatchment ES-3:**

Runoff = 0.0 cfs @ 12.08 hrs, Volume= 124 cf, Depth= 0.52"  
Routed to Link DP-3 : Suffield Street

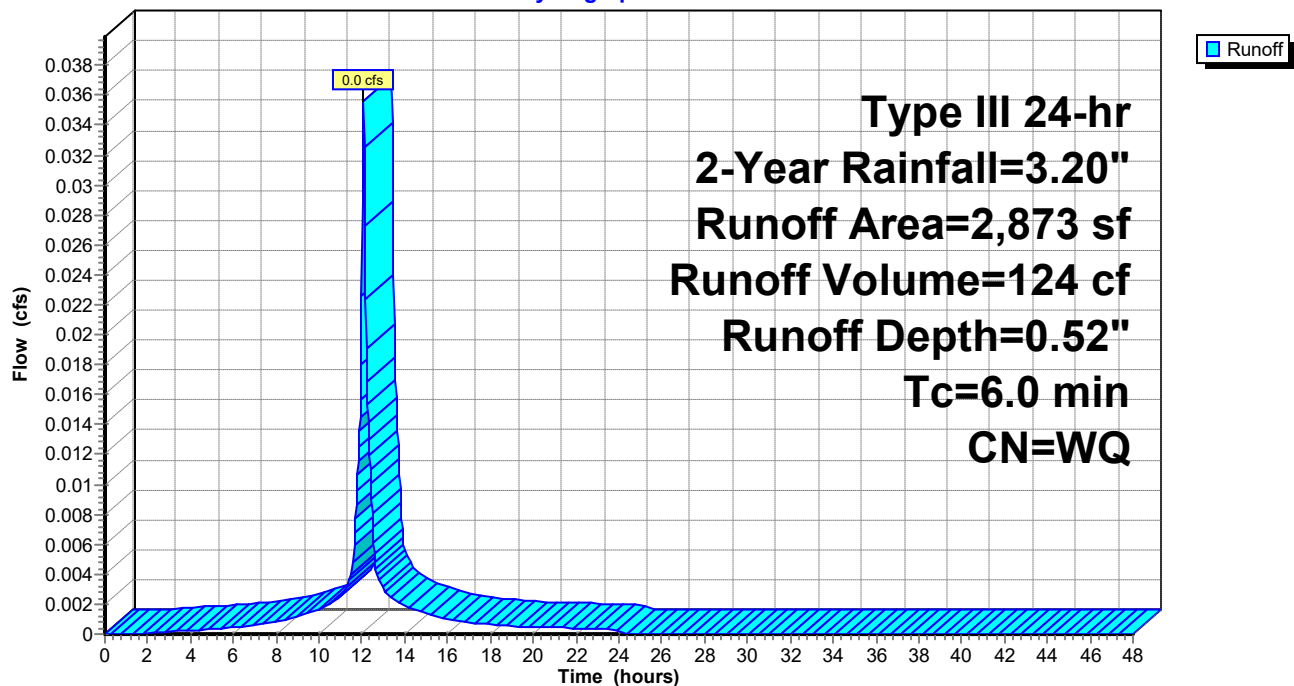
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs  
Type III 24-hr 2-Year Rainfall=3.20"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 2,005     | 39 | >75% Grass cover, Good, HSG A |
| 503       | 98 | Paved parking, HSG A          |
| 365       | 30 | Woods, Good, HSG A            |
| 2,873     |    | Weighted Average              |
| 2,370     | 38 | 82.50% Pervious Area          |
| 503       | 98 | 17.50% Impervious Area        |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description   |
|----------|---------------|---------------|-------------------|----------------|---------------|
| 6.0      |               |               |                   |                | Direct Entry, |

**Subcatchment ES-3:**

Hydrograph



**171123 - PRE**

Prepared by R. Levesque Assoc.

HydroCAD® 10.10-7c s/n 02175 © 2022 HydroCAD Software Solutions LLC

Proposed Site Improvements  
Type III 24-hr 2-Year Rainfall=3.20"

Page 7

**Summary for Subcatchment ES-4:**

Runoff = 0.0 cfs @ 23.99 hrs, Volume= 0 cf, Depth= 0.00"  
Routed to Link DP-4 : Off-Site to the East

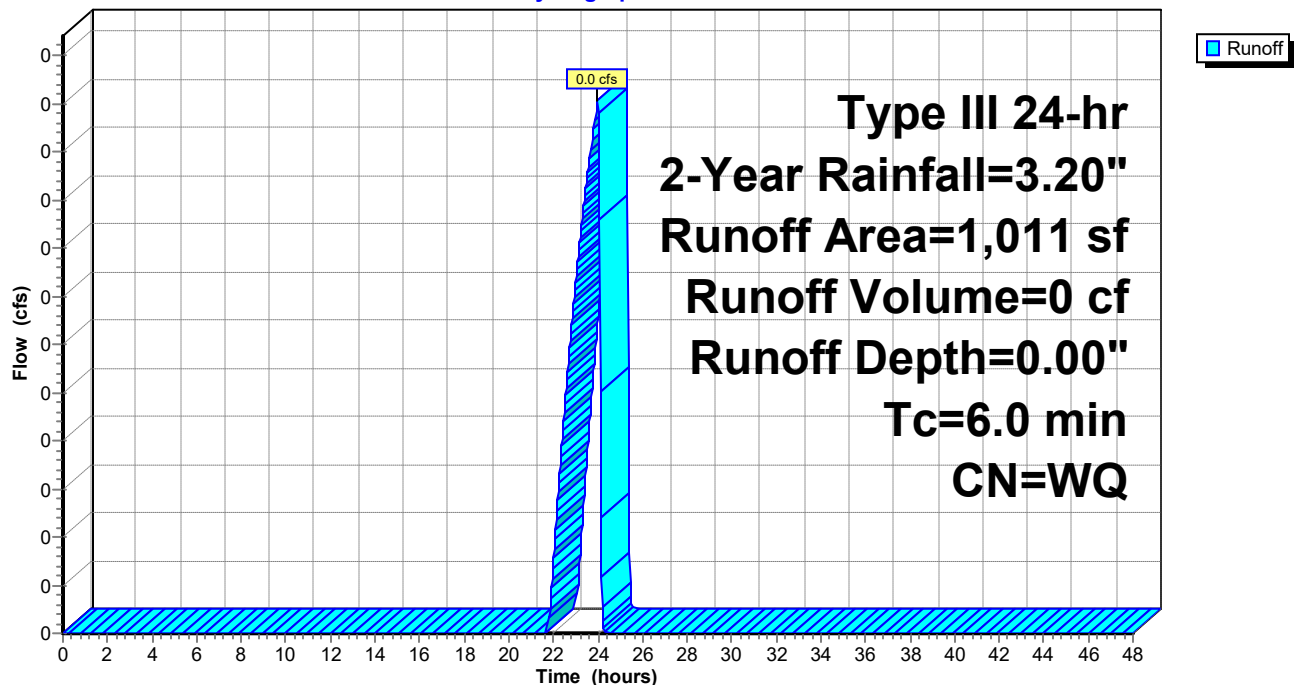
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs  
Type III 24-hr 2-Year Rainfall=3.20"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 987       | 39 | >75% Grass cover, Good, HSG A |
| 24        | 30 | Woods, Good, HSG A            |
| 1,011     |    | Weighted Average              |
| 1,011     | 39 | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description   |
|----------|---------------|---------------|-------------------|----------------|---------------|
| 6.0      |               |               |                   |                | Direct Entry, |

**Subcatchment ES-4:**

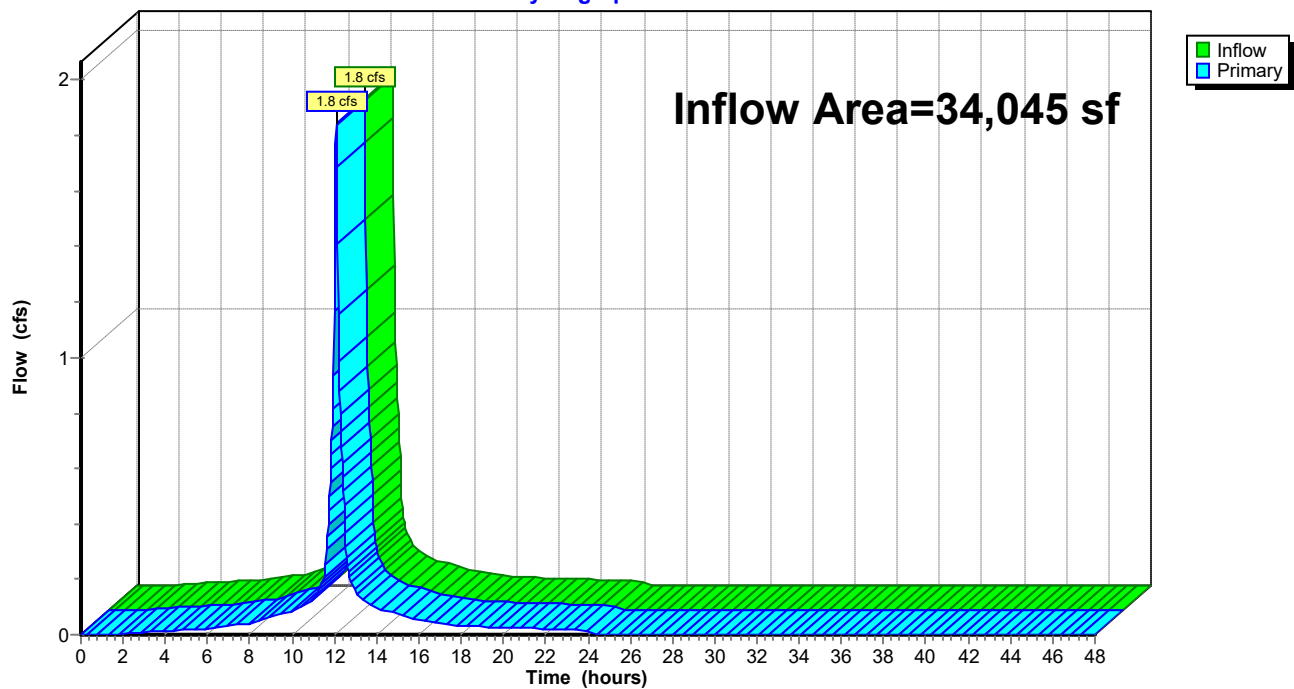
Hydrograph



**Summary for Link DP-1: Silver Street**

Inflow Area = 34,045 sf, 76.23% Impervious, Inflow Depth = 2.27" for 2-Year event  
Inflow = 1.8 cfs @ 12.08 hrs, Volume= 6,432 cf  
Primary = 1.8 cfs @ 12.08 hrs, Volume= 6,432 cf, Atten= 0%, Lag= 0.0 min

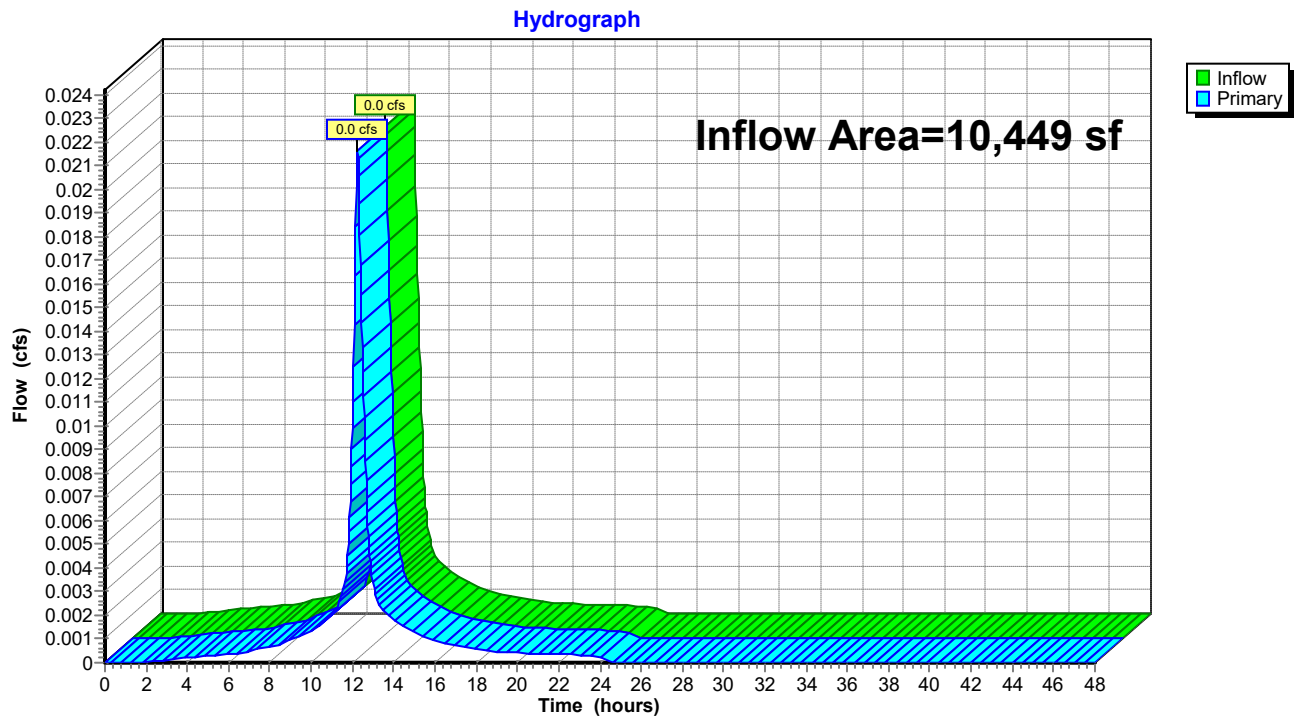
Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs

**Link DP-1: Silver Street****Hydrograph**

**Summary for Link DP-2: Off-Site to the North**

Inflow Area = 10,449 sf, 4.14% Impervious, Inflow Depth = 0.12" for 2-Year event  
Inflow = 0.0 cfs @ 12.24 hrs, Volume= 107 cf  
Primary = 0.0 cfs @ 12.24 hrs, Volume= 107 cf, Atten= 0%, Lag= 0.0 min

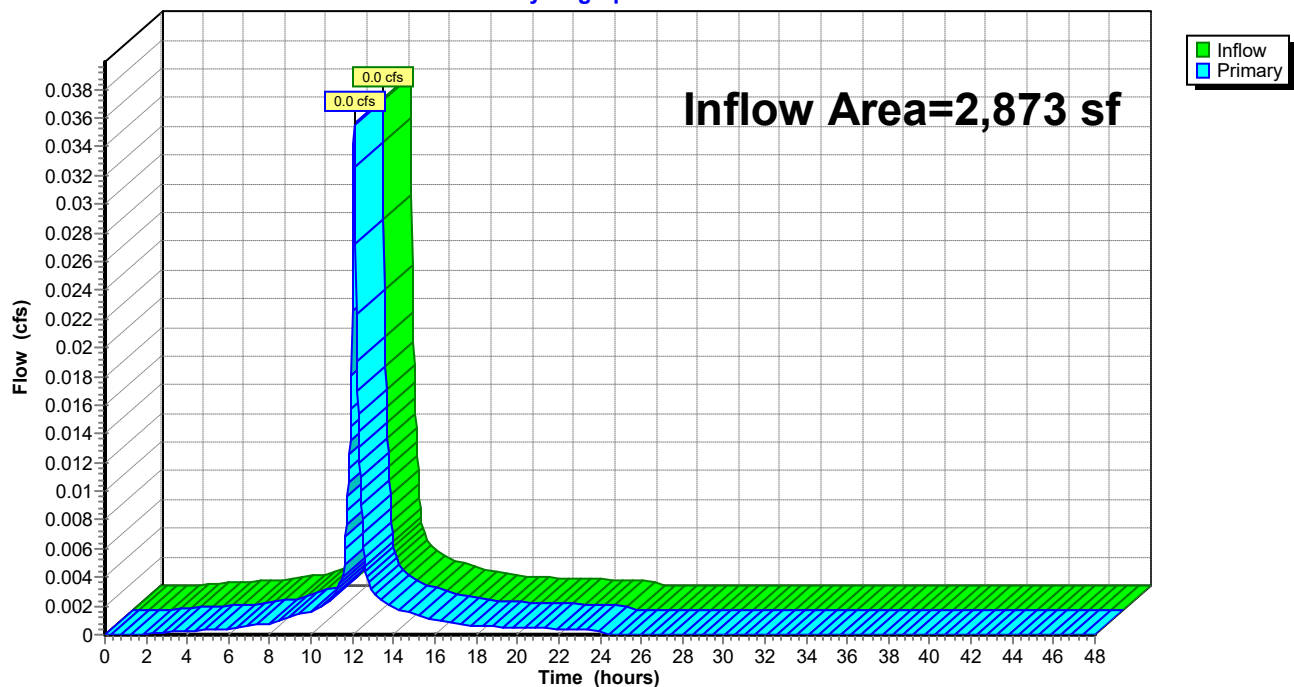
Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs

**Link DP-2: Off-Site to the North**

**Summary for Link DP-3: Suffield Street**

Inflow Area = 2,873 sf, 17.50% Impervious, Inflow Depth = 0.52" for 2-Year event  
Inflow = 0.0 cfs @ 12.08 hrs, Volume= 124 cf  
Primary = 0.0 cfs @ 12.08 hrs, Volume= 124 cf, Atten= 0%, Lag= 0.0 min

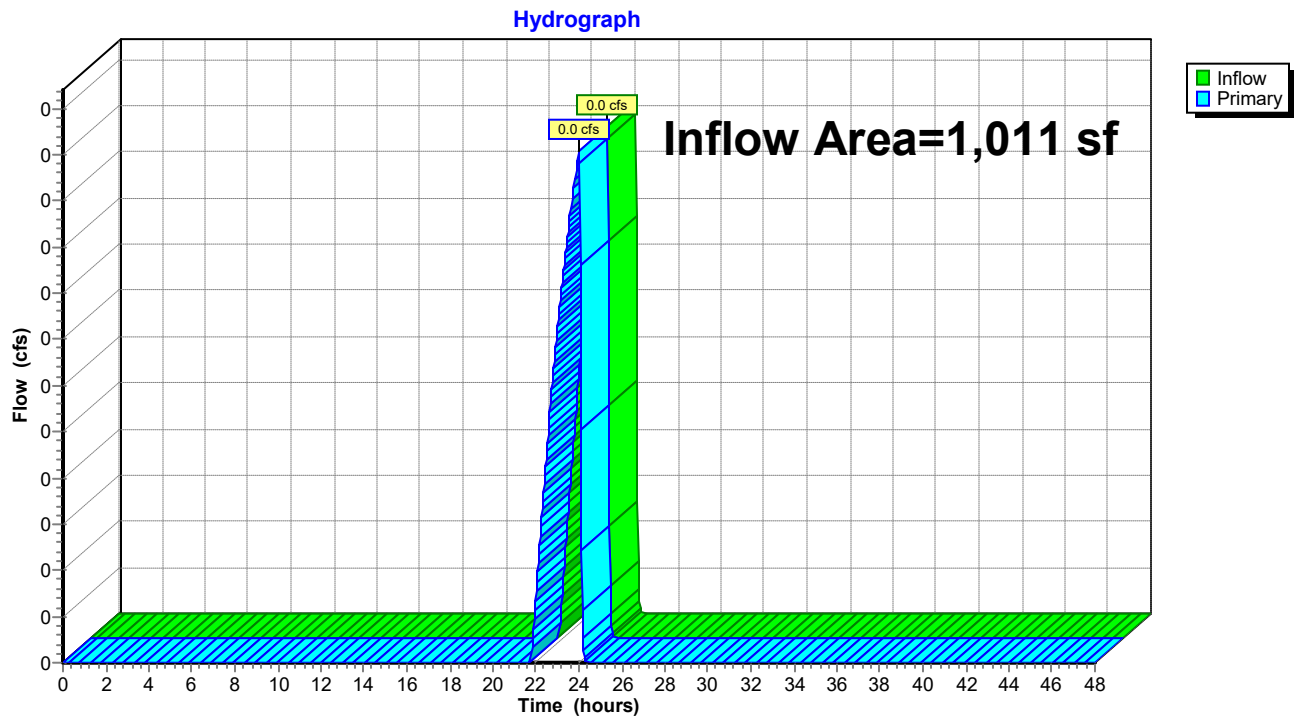
Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs

**Link DP-3: Suffield Street****Hydrograph**

**Summary for Link DP-4: Off-Site to the East**

Inflow Area = 1,011 sf, 0.00% Impervious, Inflow Depth = 0.00" for 2-Year event  
Inflow = 0.0 cfs @ 23.99 hrs, Volume= 0 cf  
Primary = 0.0 cfs @ 23.99 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs

**Link DP-4: Off-Site to the East**



**171123 - PRE**

Prepared by R. Levesque Assoc.

HydroCAD® 10.10-7c s/n 02175 © 2022 HydroCAD Software Solutions LLC

Proposed Site Improvements  
*Type III 24-hr 10-Year Rainfall=5.16"*

Page 12

Time span=0.00-48.00 hrs, dt=0.03 hrs, 1601 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment ES-1:** Runoff Area=34,045 sf 76.23% Impervious Runoff Depth=3.82"  
Flow Length=178' Slope=0.0200 '/' Tc=6.0 min CN=WQ Runoff=3.0 cfs 10,825 cf

**Subcatchment ES-2:** Runoff Area=10,449 sf 4.14% Impervious Runoff Depth=0.31"  
Flow Length=98' Slope=0.0300 '/' Tc=18.6 min CN=WQ Runoff=0.0 cfs 274 cf

**Subcatchment ES-3:** Runoff Area=2,873 sf 17.50% Impervious Runoff Depth=1.03"  
Tc=6.0 min CN=WQ Runoff=0.1 cfs 246 cf

**Subcatchment ES-4:** Runoff Area=1,011 sf 0.00% Impervious Runoff Depth=0.23"  
Tc=6.0 min CN=WQ Runoff=0.0 cfs 19 cf

**Link DP-1: Silver Street** Inflow=3.0 cfs 10,825 cf  
Primary=3.0 cfs 10,825 cf

**Link DP-2: Off-Site to the North** Inflow=0.0 cfs 274 cf  
Primary=0.0 cfs 274 cf

**Link DP-3: Suffield Street** Inflow=0.1 cfs 246 cf  
Primary=0.1 cfs 246 cf

**Link DP-4: Off-Site to the East** Inflow=0.0 cfs 19 cf  
Primary=0.0 cfs 19 cf

**Total Runoff Area = 48,378 sf Runoff Volume = 11,364 cf Average Runoff Depth = 2.82"**  
**44.42% Pervious = 21,489 sf 55.58% Impervious = 26,889 sf**

**171123 - PRE**

Prepared by R. Levesque Assoc.

HydroCAD® 10.10-7c s/n 02175 © 2022 HydroCAD Software Solutions LLC

Page 13

Proposed Site Improvements  
Type III 24-hr 10-Year Rainfall=5.16"**Summary for Subcatchment ES-1:**

Runoff = 3.0 cfs @ 12.08 hrs, Volume= 10,825 cf, Depth= 3.82"  
 Routed to Link DP-1 : Silver Street

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs  
 Type III 24-hr 10-Year Rainfall=5.16"

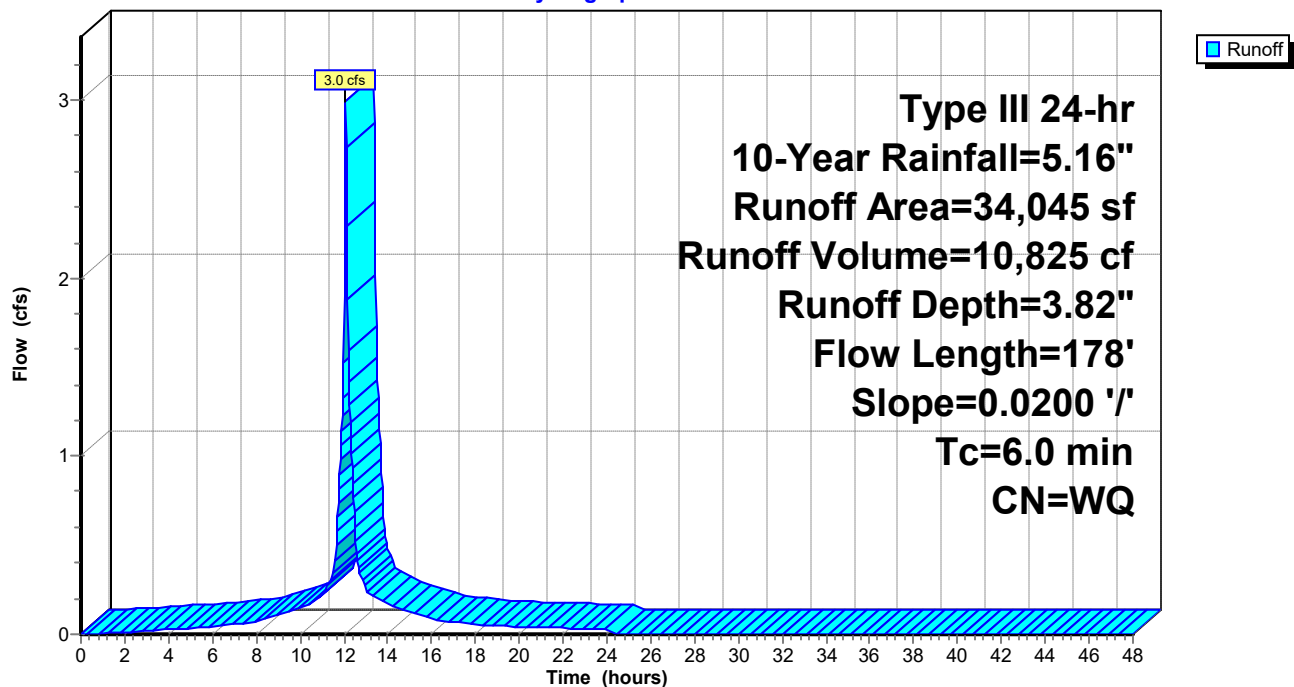
| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 7,932     | 39 | >75% Grass cover, Good, HSG A |
| 60        | 96 | Gravel surface, HSG A         |
| 23,310    | 98 | Paved parking, HSG A          |
| 2,644     | 98 | Roofs, HSG A                  |
| 99        | 30 | Woods, Good, HSG A            |
| 34,045    |    | Weighted Average              |
| 8,091     | 39 | 23.77% Pervious Area          |
| 25,954    | 98 | 76.23% Impervious Area        |

| Tc (min) | Length (feet) | Slope (ft/ft)                            | Velocity (ft/sec) | Capacity (cfs) | Description                                              |
|----------|---------------|------------------------------------------|-------------------|----------------|----------------------------------------------------------|
| 1.3      | 100           | 0.0200                                   | 1.33              |                | <b>Sheet Flow,</b><br>Smooth surfaces n= 0.011 P2= 3.00" |
| 0.5      | 78            | 0.0200                                   | 2.87              |                | <b>Shallow Concentrated Flow,</b><br>Paved Kv= 20.3 fps  |
| 1.8      | 178           | Total, Increased to minimum Tc = 6.0 min |                   |                |                                                          |

**Subcatchment ES-1:**

Hydrograph



**171123 - PRE**

Prepared by R. Levesque Assoc.

HydroCAD® 10.10-7c s/n 02175 © 2022 HydroCAD Software Solutions LLC

Page 14

Proposed Site Improvements  
Type III 24-hr 10-Year Rainfall=5.16"**Summary for Subcatchment ES-2:**

Runoff = 0.0 cfs @ 12.24 hrs, Volume= 274 cf, Depth= 0.31"  
 Routed to Link DP-2 : Off-Site to the North

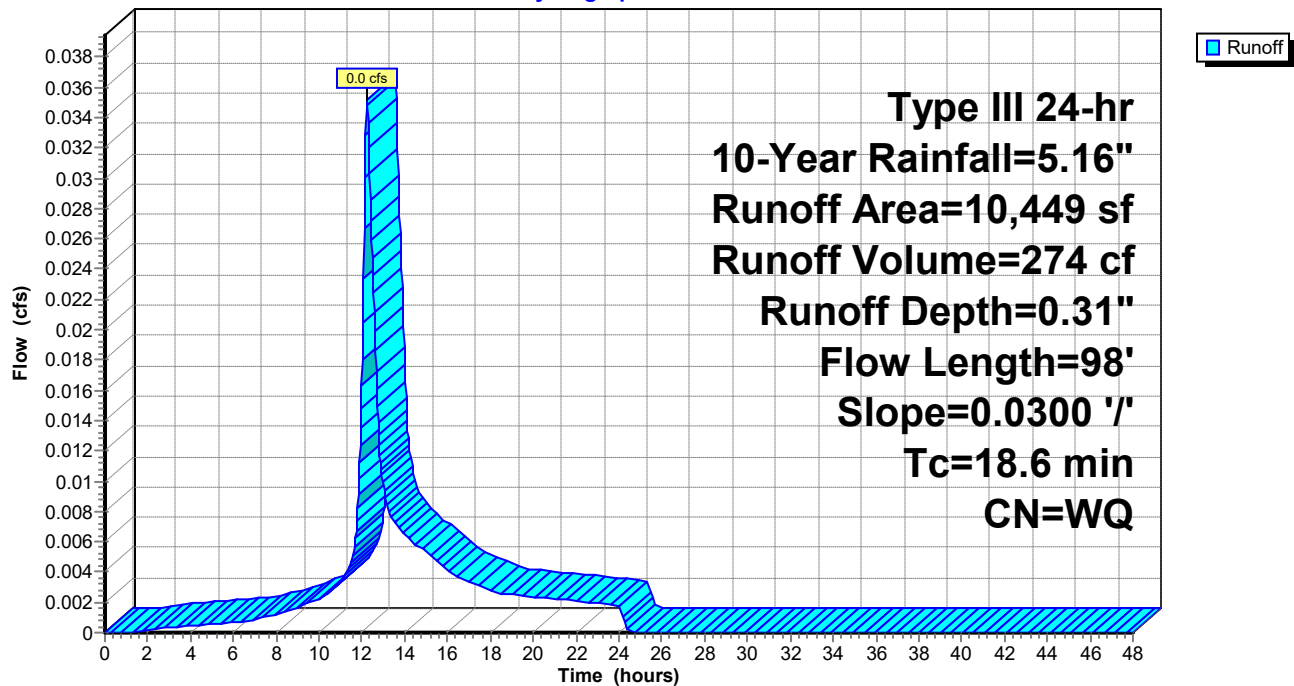
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs  
 Type III 24-hr 10-Year Rainfall=5.16"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 4,742     | 39 | >75% Grass cover, Good, HSG A |
| 432       | 98 | Paved parking, HSG A          |
| 5,275     | 30 | Woods, Good, HSG A            |
| 10,449    |    | Weighted Average              |
| 10,017    | 34 | 95.86% Pervious Area          |
| 432       | 98 | 4.14% Impervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                      |
|----------|---------------|---------------|-------------------|----------------|------------------------------------------------------------------|
| 18.6     | 98            | 0.0300        | 0.09              |                | <b>Sheet Flow,</b><br>Woods: Light underbrush n= 0.400 P2= 3.00" |

**Subcatchment ES-2:**

Hydrograph



**171123 - PRE**

Prepared by R. Levesque Assoc.

HydroCAD® 10.10-7c s/n 02175 © 2022 HydroCAD Software Solutions LLC

Page 15

Proposed Site Improvements  
Type III 24-hr 10-Year Rainfall=5.16"**Summary for Subcatchment ES-3:**

Runoff = 0.1 cfs @ 12.08 hrs, Volume= 246 cf, Depth= 1.03"  
 Routed to Link DP-3 : Suffield Street

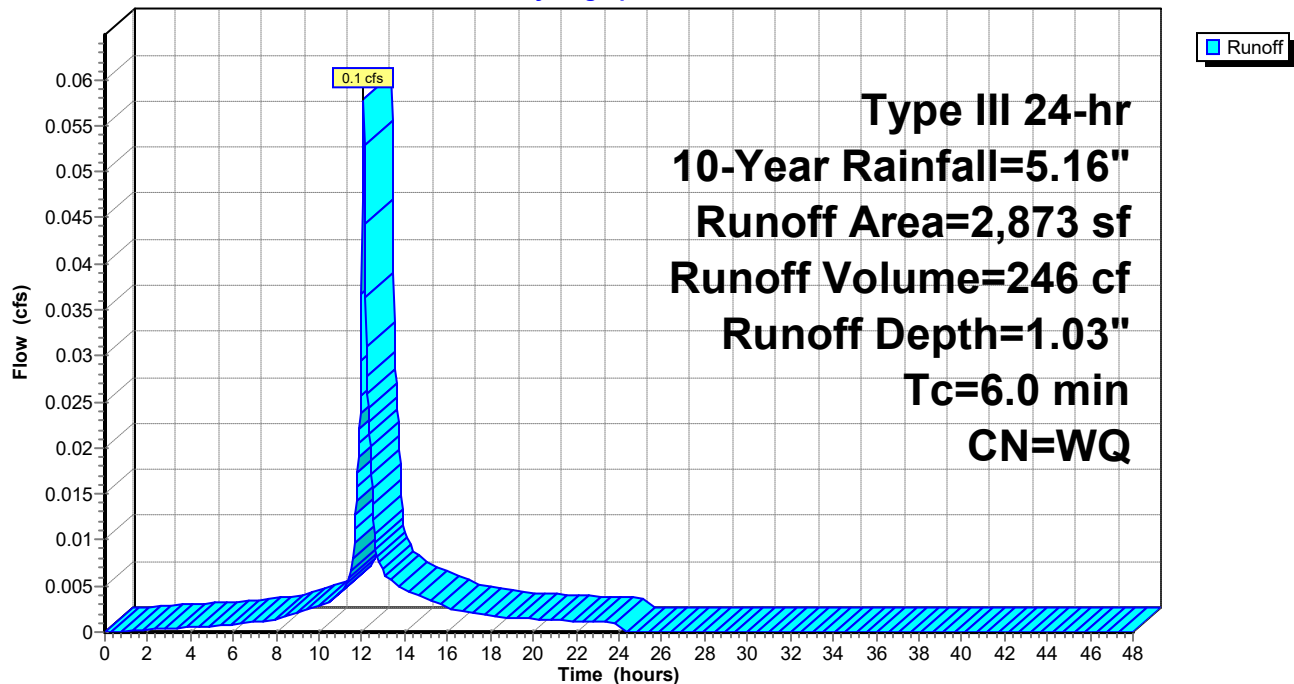
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs  
 Type III 24-hr 10-Year Rainfall=5.16"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 2,005     | 39 | >75% Grass cover, Good, HSG A |
| 503       | 98 | Paved parking, HSG A          |
| 365       | 30 | Woods, Good, HSG A            |
| 2,873     |    | Weighted Average              |
| 2,370     | 38 | 82.50% Pervious Area          |
| 503       | 98 | 17.50% Impervious Area        |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description   |
|----------|---------------|---------------|-------------------|----------------|---------------|
| 6.0      |               |               |                   |                | Direct Entry, |

**Subcatchment ES-3:**

Hydrograph



**171123 - PRE**

Prepared by R. Levesque Assoc.

HydroCAD® 10.10-7c s/n 02175 © 2022 HydroCAD Software Solutions LLC

Proposed Site Improvements

Type III 24-hr 10-Year Rainfall=5.16"

Page 16

**Summary for Subcatchment ES-4:**

Runoff = 0.0 cfs @ 12.45 hrs, Volume= 19 cf, Depth= 0.23"  
Routed to Link DP-4 : Off-Site to the East

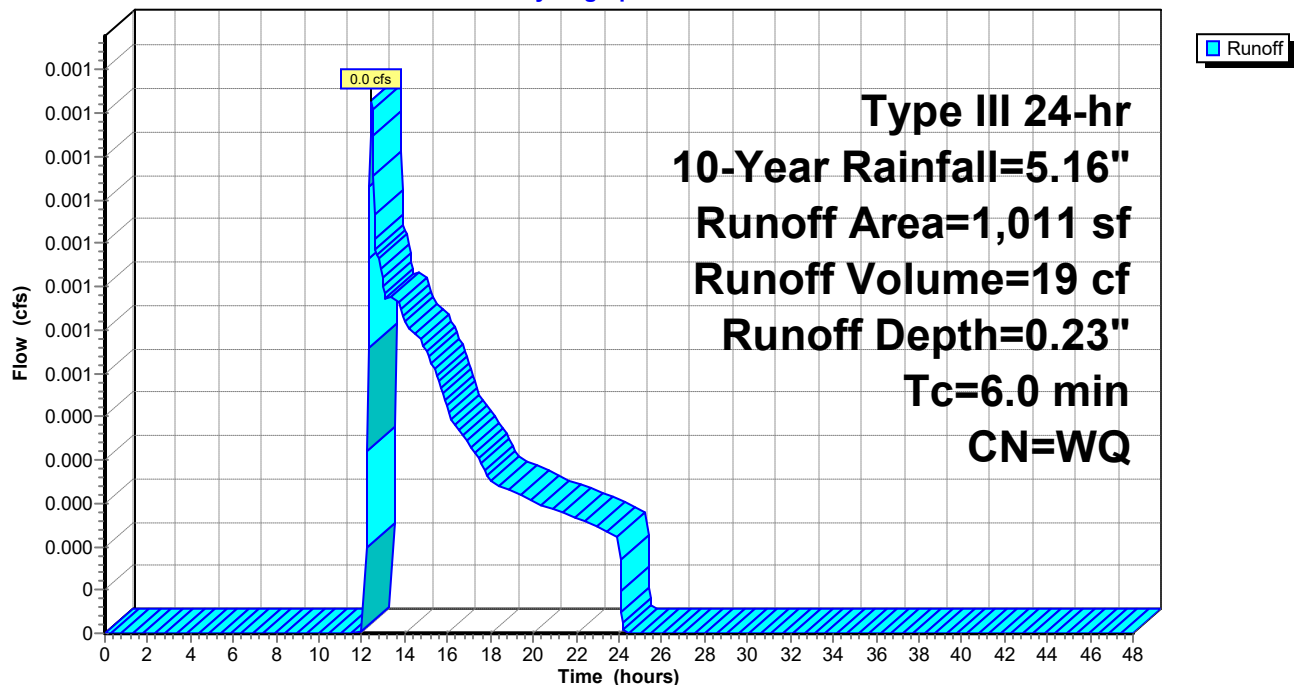
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs  
Type III 24-hr 10-Year Rainfall=5.16"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 987       | 39 | >75% Grass cover, Good, HSG A |
| 24        | 30 | Woods, Good, HSG A            |
| 1,011     |    | Weighted Average              |
| 1,011     | 39 | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description   |
|----------|---------------|---------------|-------------------|----------------|---------------|
| 6.0      |               |               |                   |                | Direct Entry, |

**Subcatchment ES-4:**

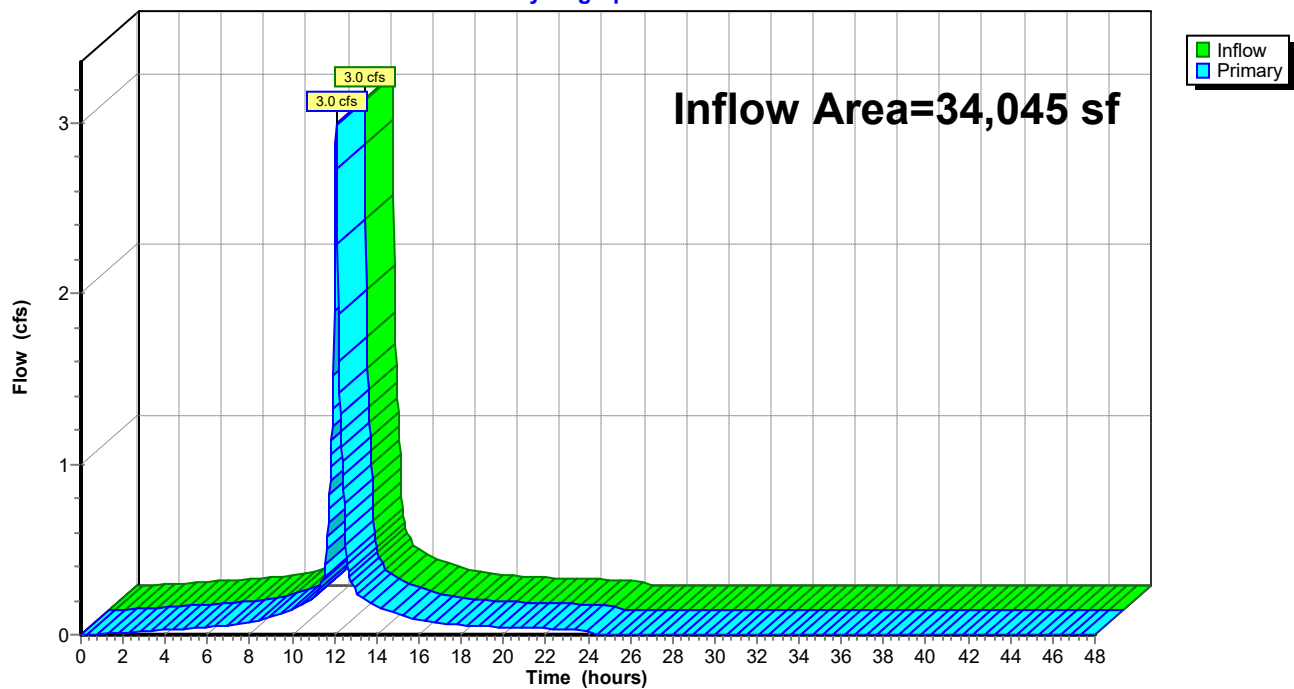
Hydrograph



**Summary for Link DP-1: Silver Street**

Inflow Area = 34,045 sf, 76.23% Impervious, Inflow Depth = 3.82" for 10-Year event  
Inflow = 3.0 cfs @ 12.08 hrs, Volume= 10,825 cf  
Primary = 3.0 cfs @ 12.08 hrs, Volume= 10,825 cf, Atten= 0%, Lag= 0.0 min

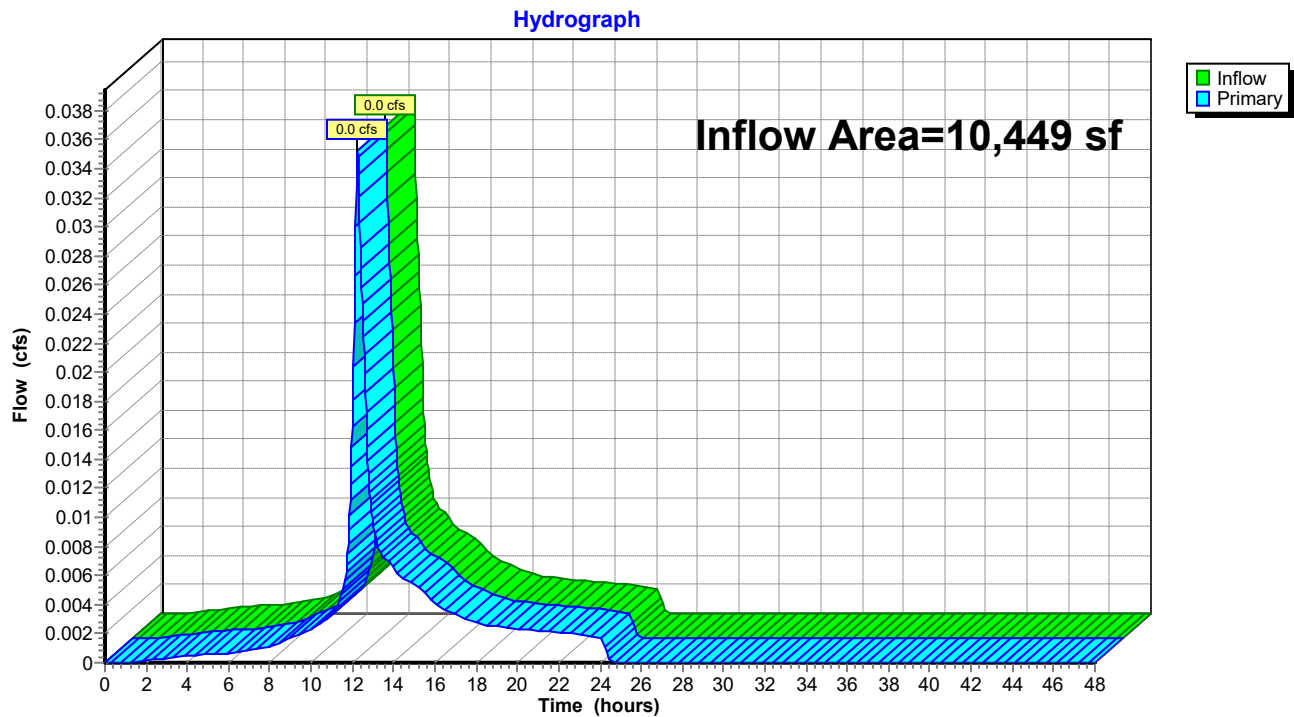
Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs

**Link DP-1: Silver Street****Hydrograph**

**Summary for Link DP-2: Off-Site to the North**

Inflow Area = 10,449 sf, 4.14% Impervious, Inflow Depth = 0.31" for 10-Year event  
Inflow = 0.0 cfs @ 12.24 hrs, Volume= 274 cf  
Primary = 0.0 cfs @ 12.24 hrs, Volume= 274 cf, Atten= 0%, Lag= 0.0 min

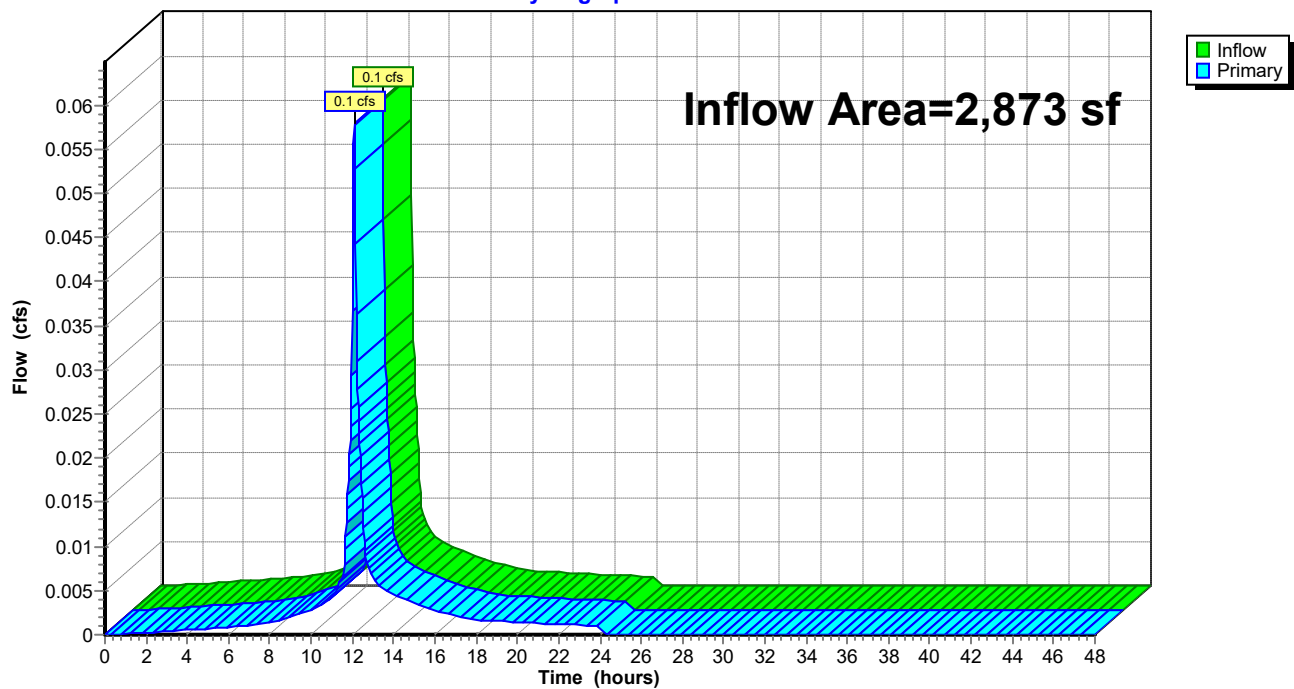
Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs

**Link DP-2: Off-Site to the North**

**Summary for Link DP-3: Suffield Street**

Inflow Area = 2,873 sf, 17.50% Impervious, Inflow Depth = 1.03" for 10-Year event  
Inflow = 0.1 cfs @ 12.08 hrs, Volume= 246 cf  
Primary = 0.1 cfs @ 12.08 hrs, Volume= 246 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs

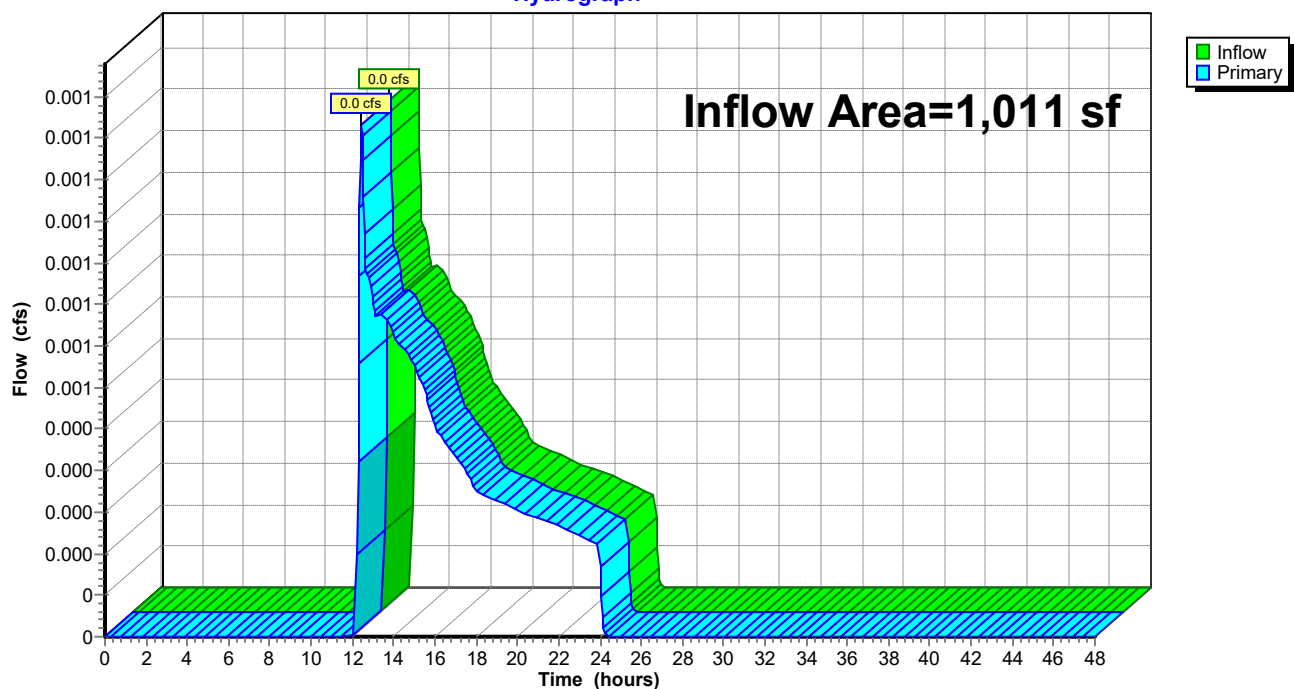
**Link DP-3: Suffield Street****Hydrograph**



**Summary for Link DP-4: Off-Site to the East**

Inflow Area = 1,011 sf, 0.00% Impervious, Inflow Depth = 0.23" for 10-Year event  
Inflow = 0.0 cfs @ 12.45 hrs, Volume= 19 cf  
Primary = 0.0 cfs @ 12.45 hrs, Volume= 19 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs

**Link DP-4: Off-Site to the East****Hydrograph**

**171123 - PRE**

Prepared by R. Levesque Assoc.

HydroCAD® 10.10-7c s/n 02175 © 2022 HydroCAD Software Solutions LLC

Proposed Site Improvements  
*Type III 24-hr 100-Year Rainfall=8.26"*

Page 21

Time span=0.00-48.00 hrs, dt=0.03 hrs, 1601 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment ES-1:** Runoff Area=34,045 sf 76.23% Impervious Runoff Depth=6.42"  
Flow Length=178' Slope=0.0200 '/' Tc=6.0 min CN=WQ Runoff=5.0 cfs 18,227 cf

**Subcatchment ES-2:** Runoff Area=10,449 sf 4.14% Impervious Runoff Depth=1.15"  
Flow Length=98' Slope=0.0300 '/' Tc=18.6 min CN=WQ Runoff=0.1 cfs 1,001 cf

**Subcatchment ES-3:** Runoff Area=2,873 sf 17.50% Impervious Runoff Depth=2.35"  
Tc=6.0 min CN=WQ Runoff=0.1 cfs 562 cf

**Subcatchment ES-4:** Runoff Area=1,011 sf 0.00% Impervious Runoff Depth=1.25"  
Tc=6.0 min CN=WQ Runoff=0.0 cfs 105 cf

**Link DP-1: Silver Street** Inflow=5.0 cfs 18,227 cf  
Primary=5.0 cfs 18,227 cf

**Link DP-2: Off-Site to the North** Inflow=0.1 cfs 1,001 cf  
Primary=0.1 cfs 1,001 cf

**Link DP-3: Suffield Street** Inflow=0.1 cfs 562 cf  
Primary=0.1 cfs 562 cf

**Link DP-4: Off-Site to the East** Inflow=0.0 cfs 105 cf  
Primary=0.0 cfs 105 cf

**Total Runoff Area = 48,378 sf Runoff Volume = 19,895 cf Average Runoff Depth = 4.93"**  
**44.42% Pervious = 21,489 sf 55.58% Impervious = 26,889 sf**

**171123 - PRE**

Prepared by R. Levesque Assoc.

HydroCAD® 10.10-7c s/n 02175 © 2022 HydroCAD Software Solutions LLC

Page 22

Proposed Site Improvements  
Type III 24-hr 100-Year Rainfall=8.26"**Summary for Subcatchment ES-1:**

Runoff = 5.0 cfs @ 12.09 hrs, Volume= 18,227 cf, Depth= 6.42"  
 Routed to Link DP-1 : Silver Street

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs  
 Type III 24-hr 100-Year Rainfall=8.26"

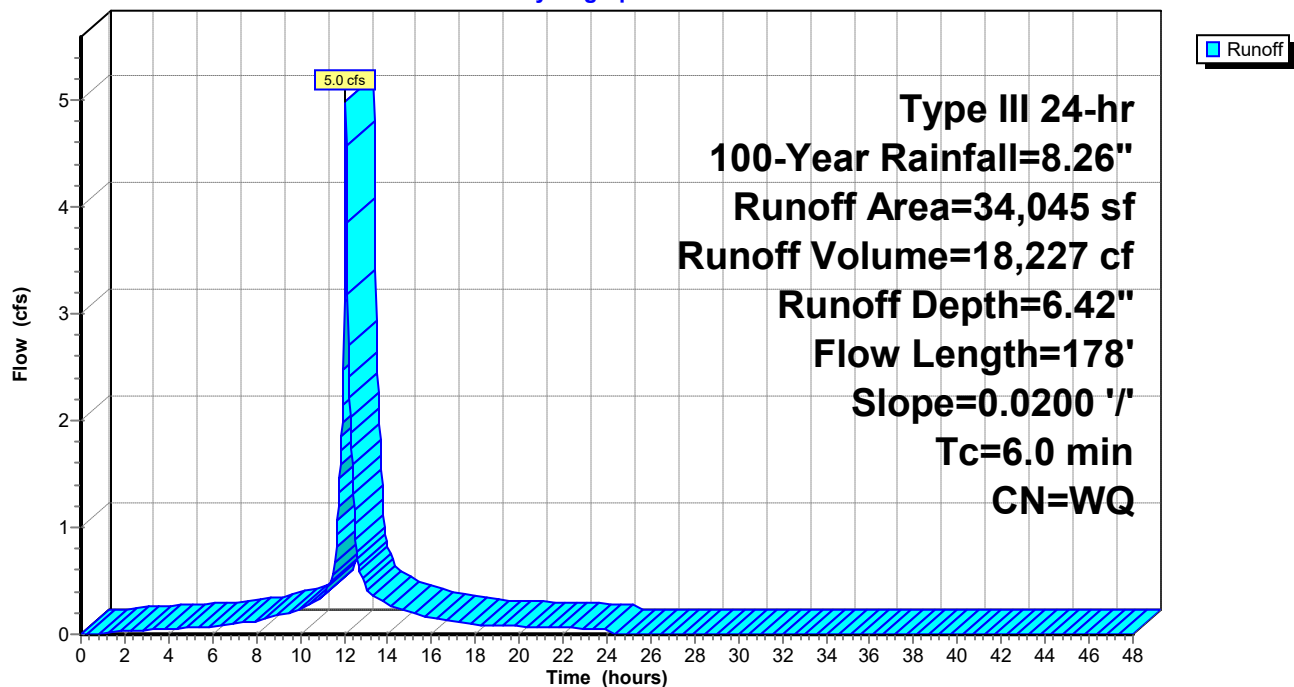
| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 7,932     | 39 | >75% Grass cover, Good, HSG A |
| 60        | 96 | Gravel surface, HSG A         |
| 23,310    | 98 | Paved parking, HSG A          |
| 2,644     | 98 | Roofs, HSG A                  |
| 99        | 30 | Woods, Good, HSG A            |
| 34,045    |    | Weighted Average              |
| 8,091     | 39 | 23.77% Pervious Area          |
| 25,954    | 98 | 76.23% Impervious Area        |

| Tc (min) | Length (feet) | Slope (ft/ft)                            | Velocity (ft/sec) | Capacity (cfs) | Description                                              |
|----------|---------------|------------------------------------------|-------------------|----------------|----------------------------------------------------------|
| 1.3      | 100           | 0.0200                                   | 1.33              |                | <b>Sheet Flow,</b><br>Smooth surfaces n= 0.011 P2= 3.00" |
| 0.5      | 78            | 0.0200                                   | 2.87              |                | <b>Shallow Concentrated Flow,</b><br>Paved Kv= 20.3 fps  |
| 1.8      | 178           | Total, Increased to minimum Tc = 6.0 min |                   |                |                                                          |

**Subcatchment ES-1:**

Hydrograph



**171123 - PRE**

Prepared by R. Levesque Assoc.

HydroCAD® 10.10-7c s/n 02175 © 2022 HydroCAD Software Solutions LLC

Page 23

Proposed Site Improvements  
Type III 24-hr 100-Year Rainfall=8.26"**Summary for Subcatchment ES-2:**

Runoff = 0.1 cfs @ 12.32 hrs, Volume= 1,001 cf, Depth= 1.15"  
 Routed to Link DP-2 : Off-Site to the North

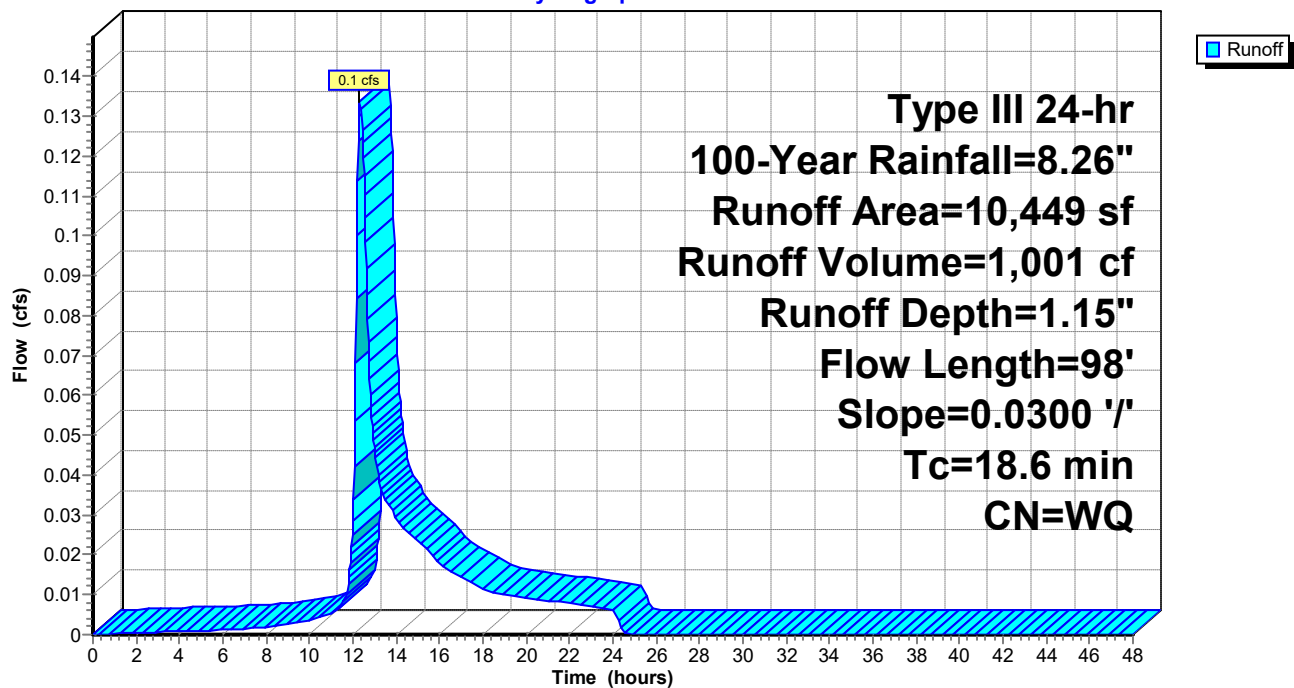
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs  
 Type III 24-hr 100-Year Rainfall=8.26"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 4,742     | 39 | >75% Grass cover, Good, HSG A |
| 432       | 98 | Paved parking, HSG A          |
| 5,275     | 30 | Woods, Good, HSG A            |
| 10,449    |    | Weighted Average              |
| 10,017    | 34 | 95.86% Pervious Area          |
| 432       | 98 | 4.14% Impervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                      |
|----------|---------------|---------------|-------------------|----------------|------------------------------------------------------------------|
| 18.6     | 98            | 0.0300        | 0.09              |                | <b>Sheet Flow,</b><br>Woods: Light underbrush n= 0.400 P2= 3.00" |

**Subcatchment ES-2:**

Hydrograph



**171123 - PRE**

Prepared by R. Levesque Assoc.

HydroCAD® 10.10-7c s/n 02175 © 2022 HydroCAD Software Solutions LLC

Proposed Site Improvements

Type III 24-hr 100-Year Rainfall=8.26"

Page 24

**Summary for Subcatchment ES-3:**

Runoff = 0.1 cfs @ 12.10 hrs, Volume= 562 cf, Depth= 2.35"  
 Routed to Link DP-3 : Suffield Street

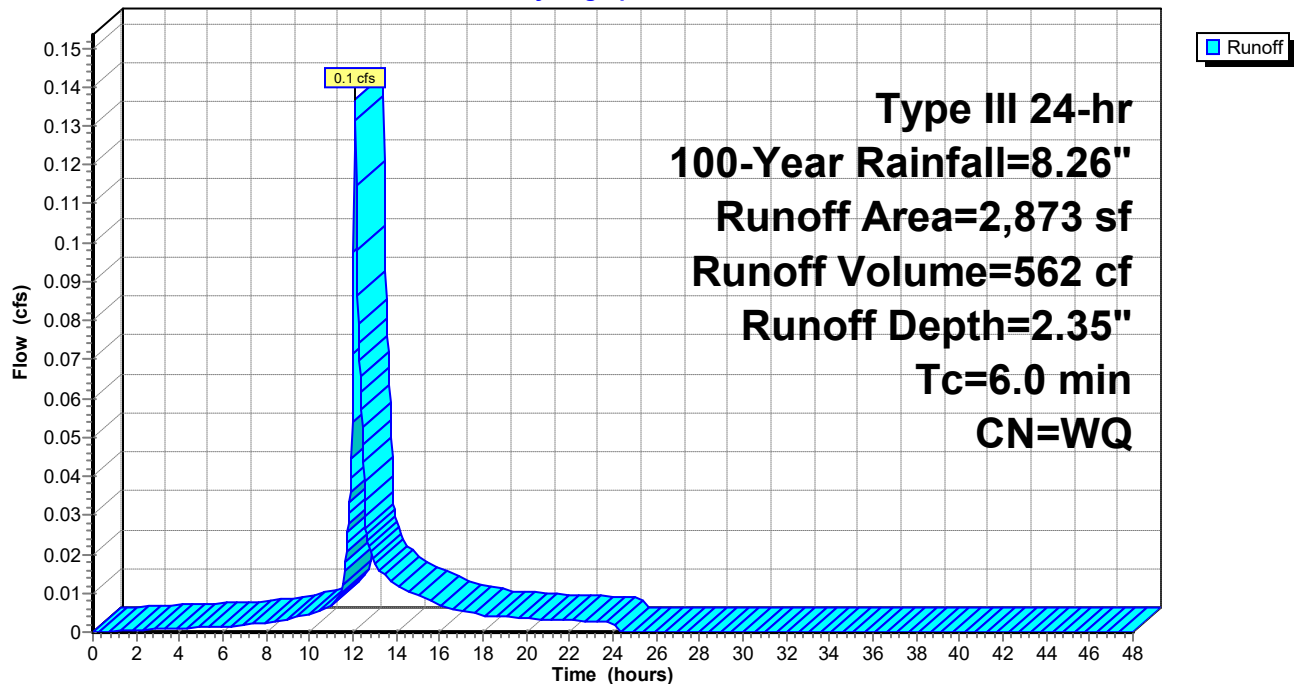
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs  
 Type III 24-hr 100-Year Rainfall=8.26"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 2,005     | 39 | >75% Grass cover, Good, HSG A |
| 503       | 98 | Paved parking, HSG A          |
| 365       | 30 | Woods, Good, HSG A            |
| 2,873     |    | Weighted Average              |
| 2,370     | 38 | 82.50% Pervious Area          |
| 503       | 98 | 17.50% Impervious Area        |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description   |
|----------|---------------|---------------|-------------------|----------------|---------------|
| 6.0      |               |               |                   |                | Direct Entry, |

**Subcatchment ES-3:**

Hydrograph



**171123 - PRE**

Prepared by R. Levesque Assoc.

HydroCAD® 10.10-7c s/n 02175 © 2022 HydroCAD Software Solutions LLC

Proposed Site Improvements

Type III 24-hr 100-Year Rainfall=8.26"

Page 25

**Summary for Subcatchment ES-4:**

Runoff = 0.0 cfs @ 12.12 hrs, Volume= 105 cf, Depth= 1.25"  
Routed to Link DP-4 : Off-Site to the East

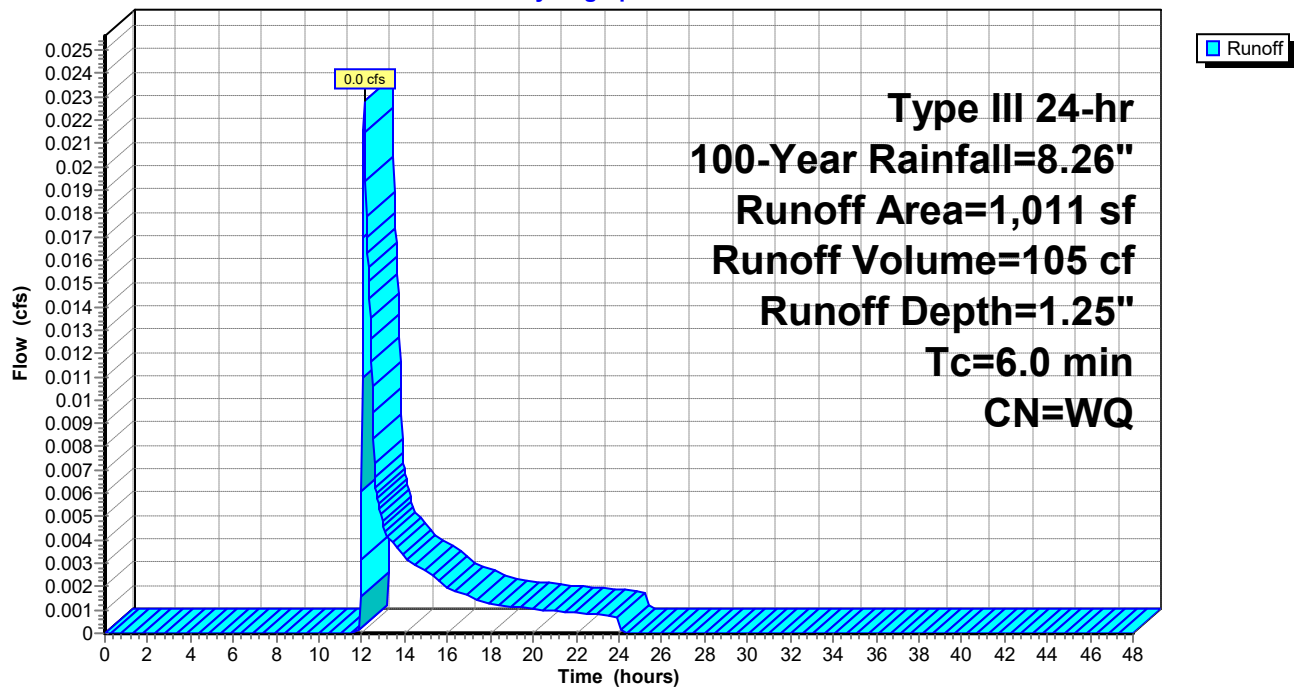
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs  
Type III 24-hr 100-Year Rainfall=8.26"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 987       | 39 | >75% Grass cover, Good, HSG A |
| 24        | 30 | Woods, Good, HSG A            |
| 1,011     |    | Weighted Average              |
| 1,011     | 39 | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description   |
|----------|---------------|---------------|-------------------|----------------|---------------|
| 6.0      |               |               |                   |                | Direct Entry, |

**Subcatchment ES-4:**

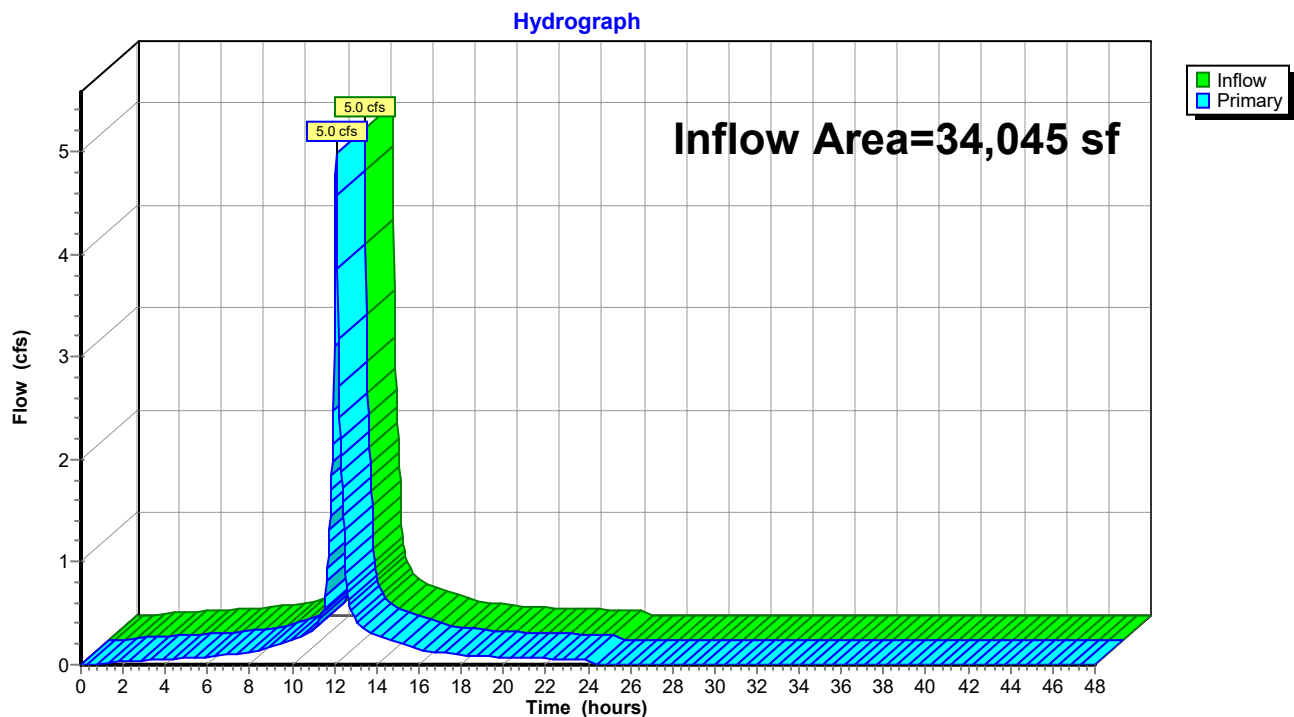
Hydrograph



**Summary for Link DP-1: Silver Street**

Inflow Area = 34,045 sf, 76.23% Impervious, Inflow Depth = 6.42" for 100-Year event  
Inflow = 5.0 cfs @ 12.09 hrs, Volume= 18,227 cf  
Primary = 5.0 cfs @ 12.09 hrs, Volume= 18,227 cf, Atten= 0%, Lag= 0.0 min

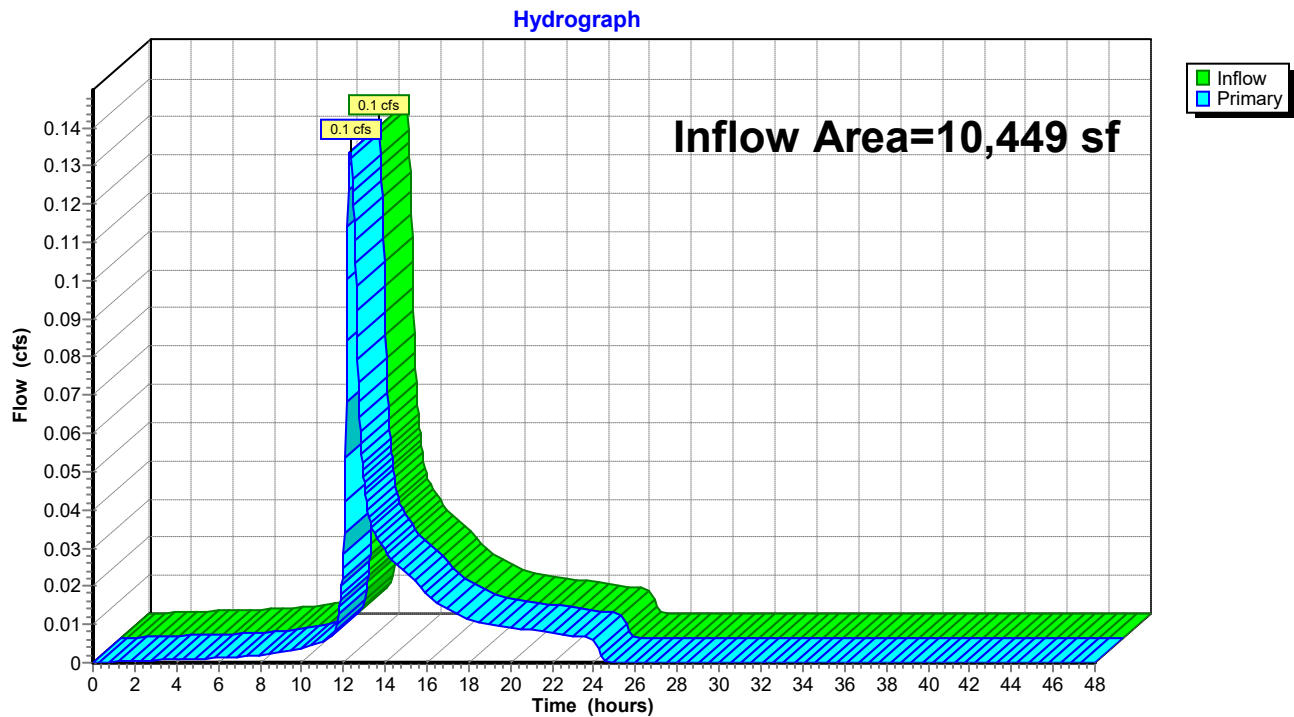
Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs

**Link DP-1: Silver Street**

**Summary for Link DP-2: Off-Site to the North**

Inflow Area = 10,449 sf, 4.14% Impervious, Inflow Depth = 1.15" for 100-Year event  
Inflow = 0.1 cfs @ 12.32 hrs, Volume= 1,001 cf  
Primary = 0.1 cfs @ 12.32 hrs, Volume= 1,001 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs

**Link DP-2: Off-Site to the North**



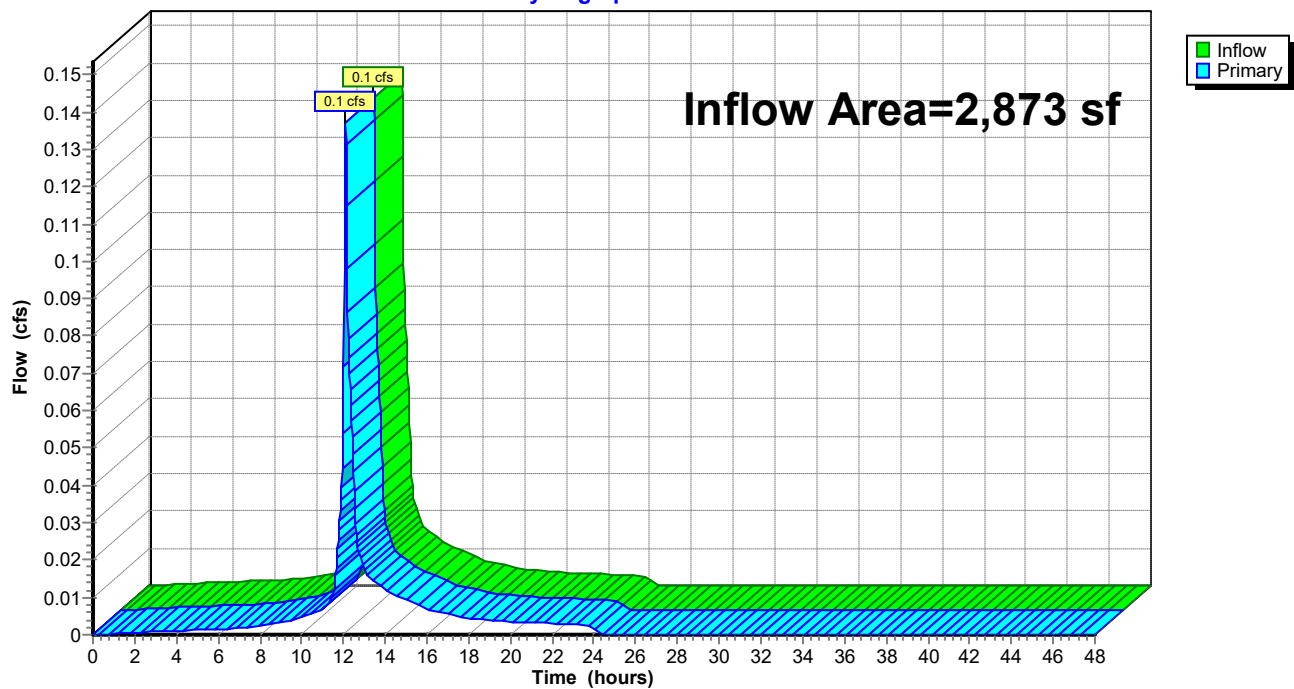
**Summary for Link DP-3: Suffield Street**

Inflow Area = 2,873 sf, 17.50% Impervious, Inflow Depth = 2.35" for 100-Year event  
Inflow = 0.1 cfs @ 12.10 hrs, Volume= 562 cf  
Primary = 0.1 cfs @ 12.10 hrs, Volume= 562 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs

**Link DP-3: Suffield Street**

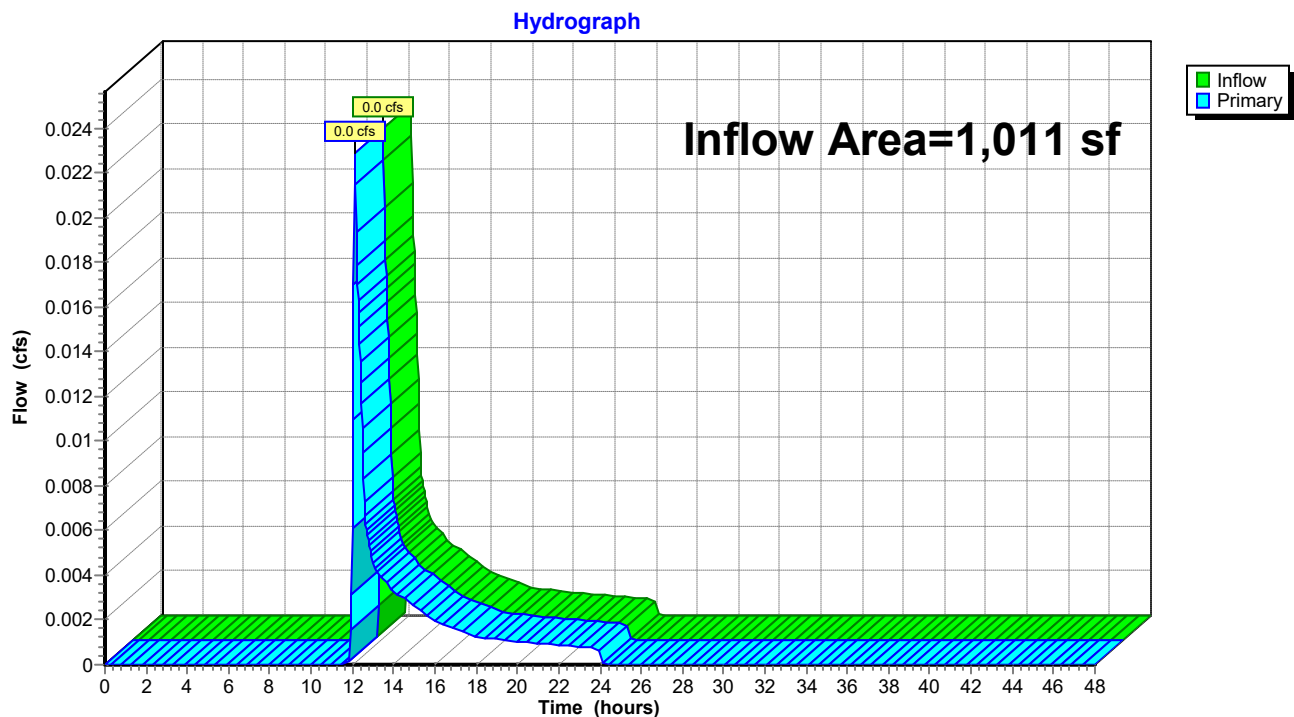
Hydrograph



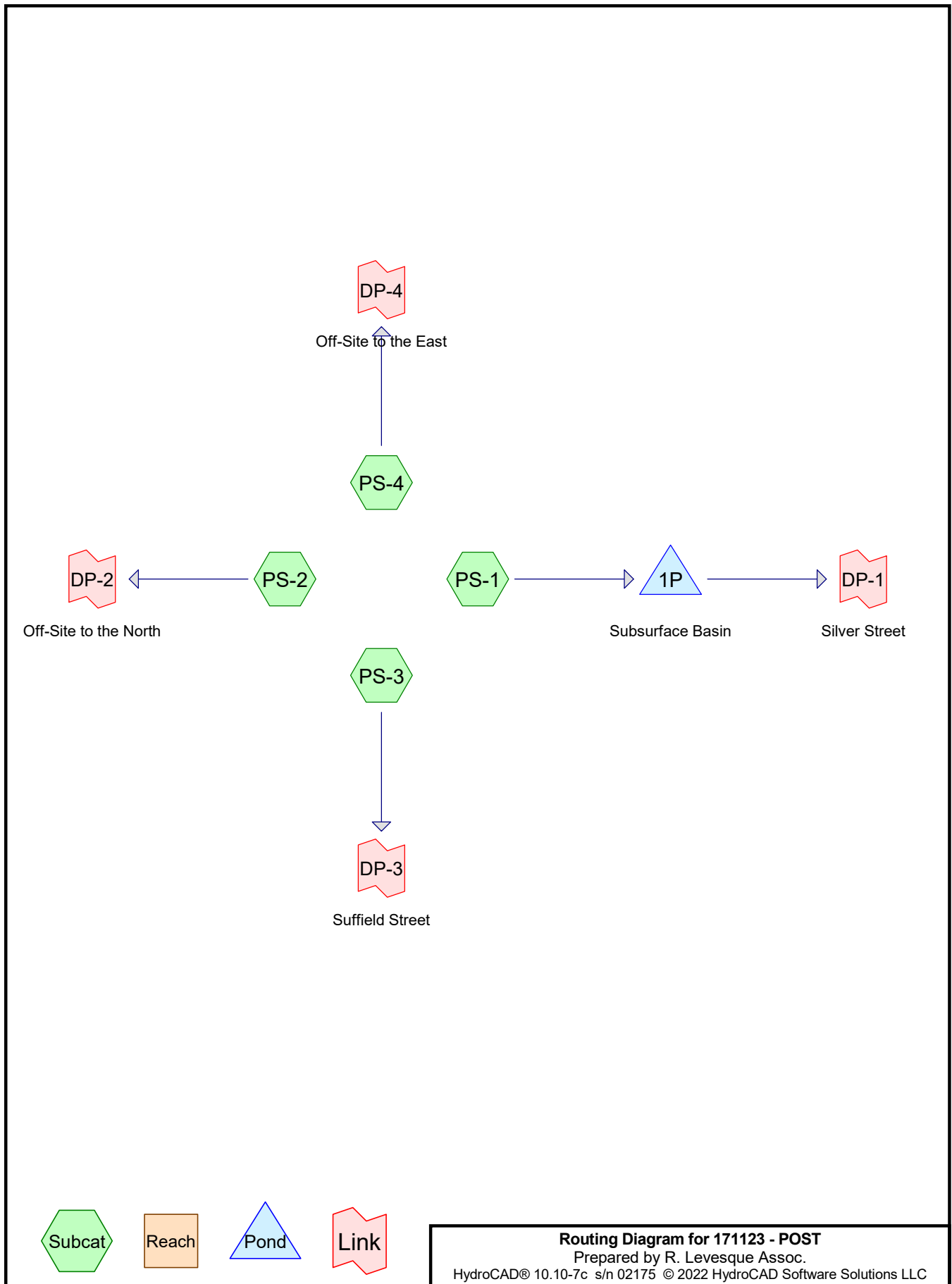
**Summary for Link DP-4: Off-Site to the East**

Inflow Area = 1,011 sf, 0.00% Impervious, Inflow Depth = 1.25" for 100-Year event  
Inflow = 0.0 cfs @ 12.12 hrs, Volume= 105 cf  
Primary = 0.0 cfs @ 12.12 hrs, Volume= 105 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs

**Link DP-4: Off-Site to the East**





**171123 - POST**

Prepared by R. Levesque Assoc.

HydroCAD® 10.10-7c s/n 02175 © 2022 HydroCAD Software Solutions LLC

Page 2

**Rainfall Events Listing**

| Event# | Event<br>Name | Storm Type     | Curve | Mode    | Duration<br>(hours) | B/B | Depth<br>(inches) | AMC |
|--------|---------------|----------------|-------|---------|---------------------|-----|-------------------|-----|
| 1      | 2-Year        | Type III 24-hr |       | Default | 24.00               | 1   | 3.20              | 2   |
| 2      | 10-Year       | Type III 24-hr |       | Default | 24.00               | 1   | 5.16              | 2   |
| 3      | 100-Year      | Type III 24-hr |       | Default | 24.00               | 1   | 8.26              | 2   |

**171123 - POST**

Prepared by R. Levesque Assoc.

HydroCAD® 10.10-7c s/n 02175 © 2022 HydroCAD Software Solutions LLC

Proposed Site Improvements  
Type III 24-hr 2-Year Rainfall=3.20"

Page 3

Time span=0.00-48.00 hrs, dt=0.03 hrs, 1601 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment PS-1:** Runoff Area=42,328 sf 80.63% Impervious Runoff Depth=2.39"  
Tc=6.0 min CN=WQ Runoff=2.4 cfs 8,440 cf

**Subcatchment PS-2:** Runoff Area=3,593 sf 0.00% Impervious Runoff Depth=0.00"  
Flow Length=58' Slope=0.0300 '/' Tc=12.2 min CN=WQ Runoff=0.0 cfs 0 cf

**Subcatchment PS-3:** Runoff Area=1,446 sf 0.00% Impervious Runoff Depth=0.00"  
Tc=6.0 min CN=39 Runoff=0.0 cfs 0 cf

**Subcatchment PS-4:** Runoff Area=1,011 sf 0.00% Impervious Runoff Depth=0.00"  
Tc=6.0 min CN=WQ Runoff=0.0 cfs 0 cf

**Pond 1P: Subsurface Basin** Peak Elev=118.62' Storage=1,879 cf Inflow=2.4 cfs 8,440 cf  
Discarded=0.5 cfs 8,437 cf Primary=0.0 cfs 0 cf Outflow=0.5 cfs 8,437 cf

**Link DP-1: Silver Street** Inflow=0.0 cfs 0 cf  
Primary=0.0 cfs 0 cf

**Link DP-2: Off-Site to the North** Inflow=0.0 cfs 0 cf  
Primary=0.0 cfs 0 cf

**Link DP-3: Suffield Street** Inflow=0.0 cfs 0 cf  
Primary=0.0 cfs 0 cf

**Link DP-4: Off-Site to the East** Inflow=0.0 cfs 0 cf  
Primary=0.0 cfs 0 cf

**Total Runoff Area = 48,378 sf Runoff Volume = 8,440 cf Average Runoff Depth = 2.09"**  
**29.45% Pervious = 14,250 sf 70.55% Impervious = 34,128 sf**

**171123 - POST**

Prepared by R. Levesque Assoc.

HydroCAD® 10.10-7c s/n 02175 © 2022 HydroCAD Software Solutions LLC

Proposed Site Improvements  
Type III 24-hr 2-Year Rainfall=3.20"

Page 4

**Summary for Subcatchment PS-1:**

Runoff = 2.4 cfs @ 12.08 hrs, Volume= 8,440 cf, Depth= 2.39"  
Routed to Pond 1P : Subsurface Basin

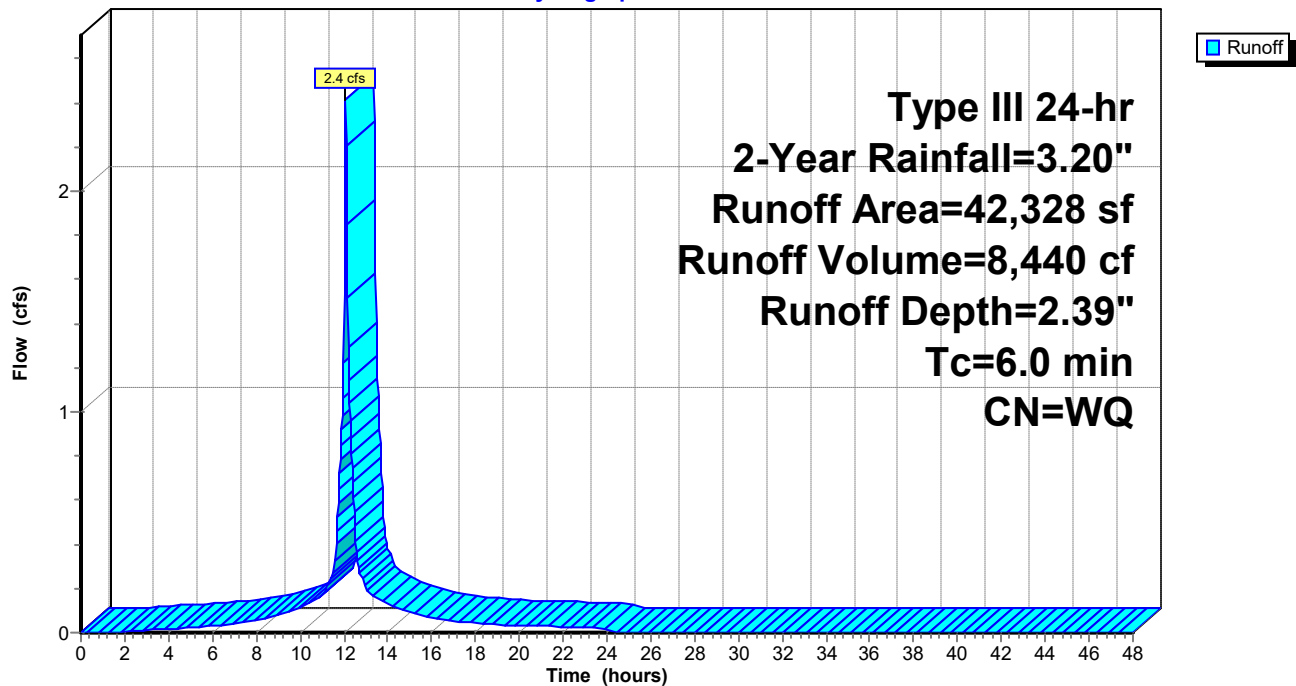
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs  
Type III 24-hr 2-Year Rainfall=3.20"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 7,772     | 39 | >75% Grass cover, Good, HSG A |
| 31,484    | 98 | Paved parking, HSG A          |
| 2,644     | 98 | Roofs, HSG A                  |
| 428       | 30 | Woods, Good, HSG A            |
| 42,328    |    | Weighted Average              |
| 8,200     | 39 | 19.37% Pervious Area          |
| 34,128    | 98 | 80.63% Impervious Area        |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description   |
|----------|---------------|---------------|-------------------|----------------|---------------|
| 6.0      |               |               |                   |                | Direct Entry, |

**Subcatchment PS-1:**

Hydrograph



**171123 - POST**

Prepared by R. Levesque Assoc.

HydroCAD® 10.10-7c s/n 02175 © 2022 HydroCAD Software Solutions LLC

Proposed Site Improvements  
Type III 24-hr 2-Year Rainfall=3.20"

Page 5

**Summary for Subcatchment PS-2:**

Runoff = 0.0 cfs @ 24.02 hrs, Volume= 0 cf, Depth= 0.00"  
Routed to Link DP-2 : Off-Site to the North

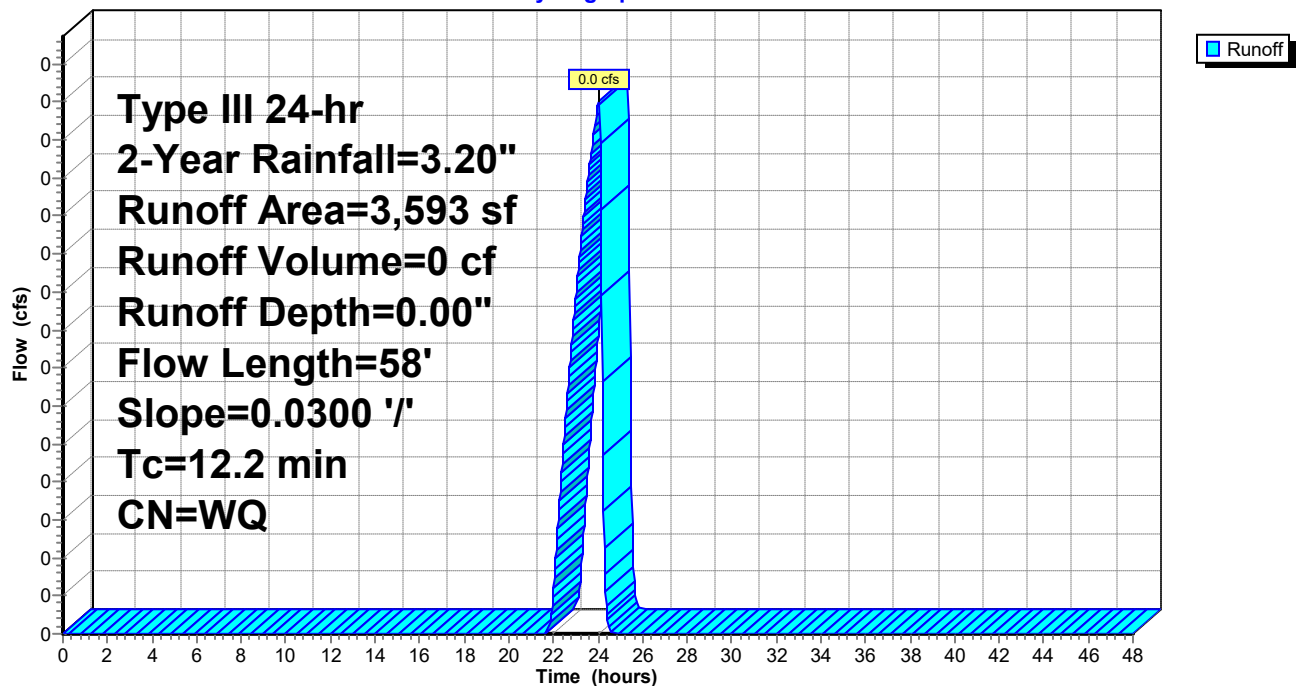
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs  
Type III 24-hr 2-Year Rainfall=3.20"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 2,557     | 39 | >75% Grass cover, Good, HSG A |
| 1,035     | 30 | Woods, Good, HSG A            |
| 3,593     |    | Weighted Average              |
| 3,593     | 36 | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                               |
|----------|---------------|---------------|-------------------|----------------|-----------------------------------------------------------|
| 12.2     | 58            | 0.0300        | 0.08              |                | Sheet Flow,<br>Woods: Light underbrush n= 0.400 P2= 3.00" |

**Subcatchment PS-2:**

Hydrograph





**171123 - POST**

Prepared by R. Levesque Assoc.

HydroCAD® 10.10-7c s/n 02175 © 2022 HydroCAD Software Solutions LLC

Proposed Site Improvements  
Type III 24-hr 2-Year Rainfall=3.20"

Page 6

**Summary for Subcatchment PS-3:**

Runoff = 0.0 cfs @ 23.99 hrs, Volume= 0 cf, Depth= 0.00"  
Routed to Link DP-3 : Suffield Street

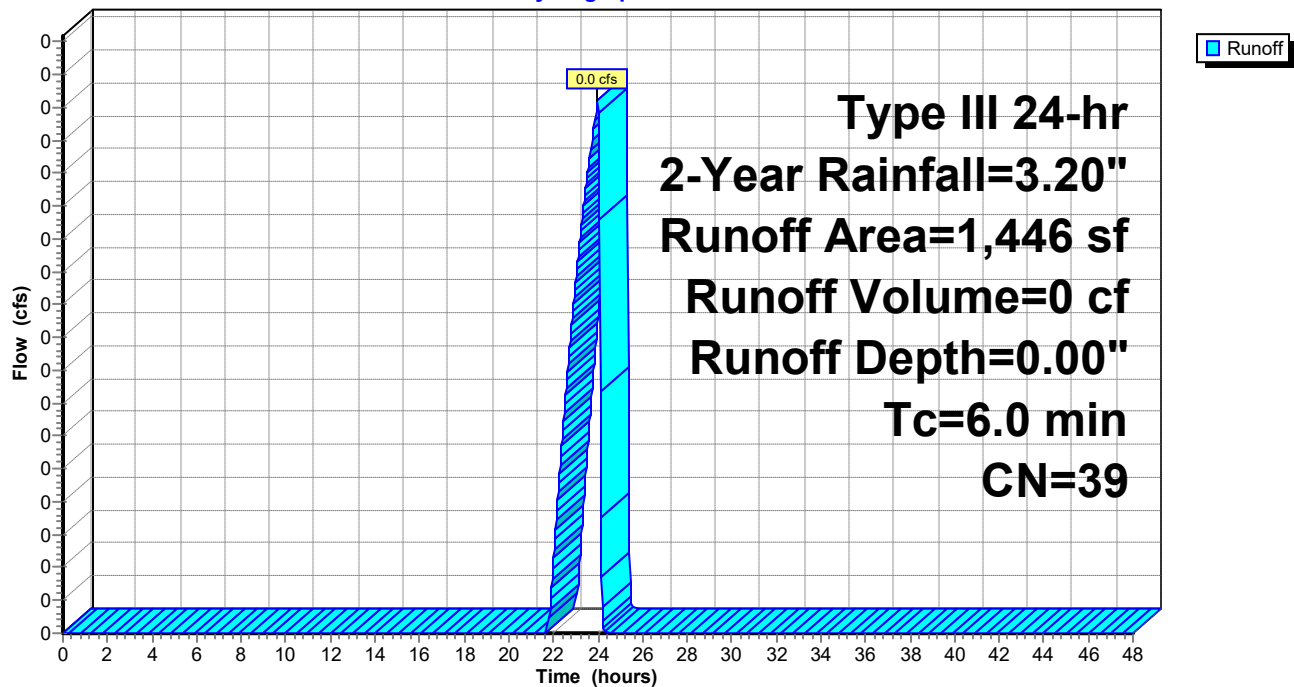
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs  
Type III 24-hr 2-Year Rainfall=3.20"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 1,446     | 39 | >75% Grass cover, Good, HSG A |
| 1,446     | 39 | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description   |
|----------|---------------|---------------|-------------------|----------------|---------------|
| 6.0      |               |               |                   |                | Direct Entry, |

**Subcatchment PS-3:**

Hydrograph



**171123 - POST**

Prepared by R. Levesque Assoc.

HydroCAD® 10.10-7c s/n 02175 © 2022 HydroCAD Software Solutions LLC

Proposed Site Improvements  
Type III 24-hr 2-Year Rainfall=3.20"

Page 7

**Summary for Subcatchment PS-4:**

Runoff = 0.0 cfs @ 23.99 hrs, Volume= 0 cf, Depth= 0.00"  
Routed to Link DP-4 : Off-Site to the East

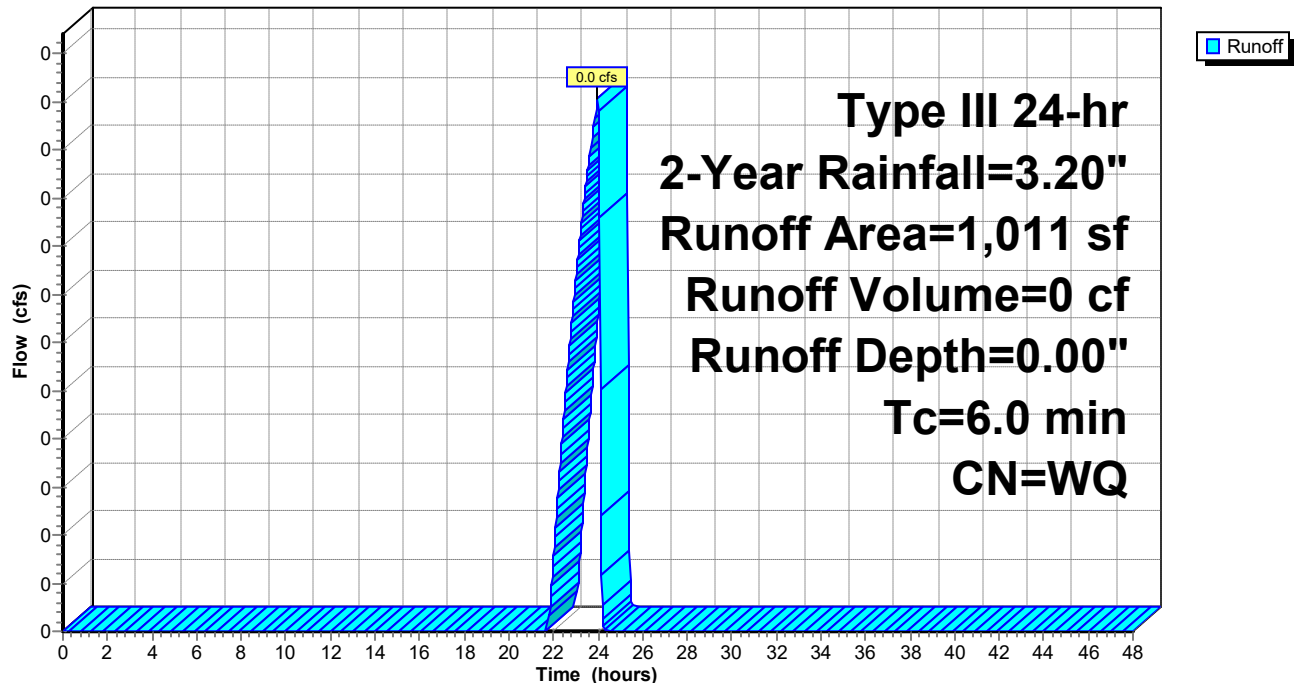
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs  
Type III 24-hr 2-Year Rainfall=3.20"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 987       | 39 | >75% Grass cover, Good, HSG A |
| 24        | 30 | Woods, Good, HSG A            |
| 1,011     |    | Weighted Average              |
| 1,011     | 39 | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description   |
|----------|---------------|---------------|-------------------|----------------|---------------|
| 6.0      |               |               |                   |                | Direct Entry, |

**Subcatchment PS-4:**

Hydrograph



**171123 - POST**

Prepared by R. Levesque Assoc.

HydroCAD® 10.10-7c s/n 02175 © 2022 HydroCAD Software Solutions LLC

Proposed Site Improvements  
Type III 24-hr 2-Year Rainfall=3.20"

Page 8

**Summary for Pond 1P: Subsurface Basin**

Inflow Area = 42,328 sf, 80.63% Impervious, Inflow Depth = 2.39" for 2-Year event  
 Inflow = 2.4 cfs @ 12.08 hrs, Volume= 8,440 cf  
 Outflow = 0.5 cfs @ 11.73 hrs, Volume= 8,437 cf, Atten= 79%, Lag= 0.0 min  
 Discarded = 0.5 cfs @ 11.73 hrs, Volume= 8,437 cf  
 Primary = 0.0 cfs @ 0.00 hrs, Volume= 0 cf  
 Routed to Link DP-1 : Silver Street

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs / 2  
 Peak Elev= 118.62' @ 12.50 hrs Surf.Area= 2,674 sf Storage= 1,879 cf

Plug-Flow detention time= 18.7 min calculated for 8,437 cf (100% of inflow)  
 Center-of-Mass det. time= 18.4 min ( 774.8 - 756.4 )

| Volume | Invert  | Avail.Storage | Storage Description                                                                                                                                                                                    |
|--------|---------|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| #1A    | 117.50' | 2,955 cf      | <b>39.50'W x 67.70'L x 4.00'H Field A</b><br>10,696 cf Overall - 3,308 cf Embedded = 7,388 cf x 40.0% Voids                                                                                            |
| #2A    | 118.00' | 3,308 cf      | <b>ADS_StormTech SC-740 +Cap</b> x 72 Inside #1<br>Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf<br>Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap<br>72 Chambers in 8 Rows |
|        |         | 6,263 cf      | Total Available Storage                                                                                                                                                                                |

Storage Group A created with Chamber Wizard

| Device | Routing   | Invert  | Outlet Devices                                                                                                                                                                   |
|--------|-----------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| #1     | Primary   | 120.50' | <b>12.0" Round Culvert</b><br>L= 21.0' RCP, groove end projecting, Ke= 0.200<br>Inlet / Outlet Invert= 120.50' / 120.30' S= 0.0095 '/' Cc= 0.900<br>n= 0.013, Flow Area= 0.79 sf |
| #2     | Discarded | 117.50' | <b>8.270 in/hr Exfiltration over Surface area</b> Phase-In= 0.01'                                                                                                                |

**Discarded OutFlow** Max=0.5 cfs @ 11.73 hrs HW=117.54' (Free Discharge)↑**2=Exfiltration** (Exfiltration Controls 0.5 cfs)**Primary OutFlow** Max=0.0 cfs @ 0.00 hrs HW=117.50' (Free Discharge)↑**1=Culvert** ( Controls 0.0 cfs)

## 171123 - POST

Prepared by R. Levesque Assoc.

HydroCAD® 10.10-7c s/n 02175 © 2022 HydroCAD Software Solutions LLC

Proposed Site Improvements  
Type III 24-hr 2-Year Rainfall=3.20"

Page 9

### Pond 1P: Subsurface Basin - Chamber Wizard Field A

**Chamber Model = ADS\_StormTech SC-740 +Cap (ADS StormTech® SC-740 with cap length)**

Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf

Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

9 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 65.70' Row Length +12.0" End Stone x 2 = 67.70' Base Length

8 Rows x 51.0" Wide + 6.0" Spacing x 7 + 12.0" Side Stone x 2 = 39.50' Base Width

6.0" Stone Base + 30.0" Chamber Height + 12.0" Stone Cover = 4.00' Field Height

72 Chambers x 45.9 cf = 3,307.7 cf Chamber Storage

10,696.1 cf Field - 3,307.7 cf Chambers = 7,388.4 cf Stone x 40.0% Voids = 2,955.4 cf Stone Storage

Chamber Storage + Stone Storage = 6,263.0 cf = 0.144 af

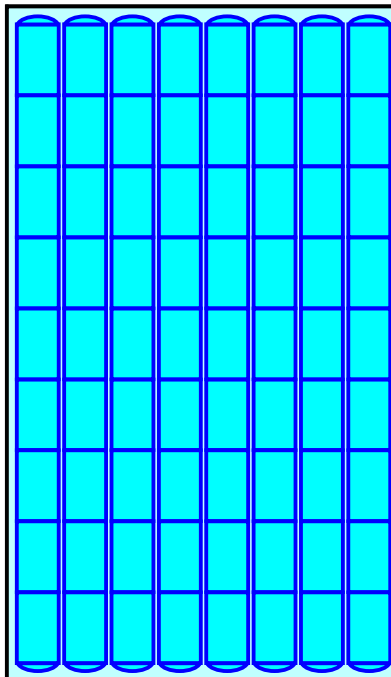
Overall Storage Efficiency = 58.6%

Overall System Size = 67.70' x 39.50' x 4.00'

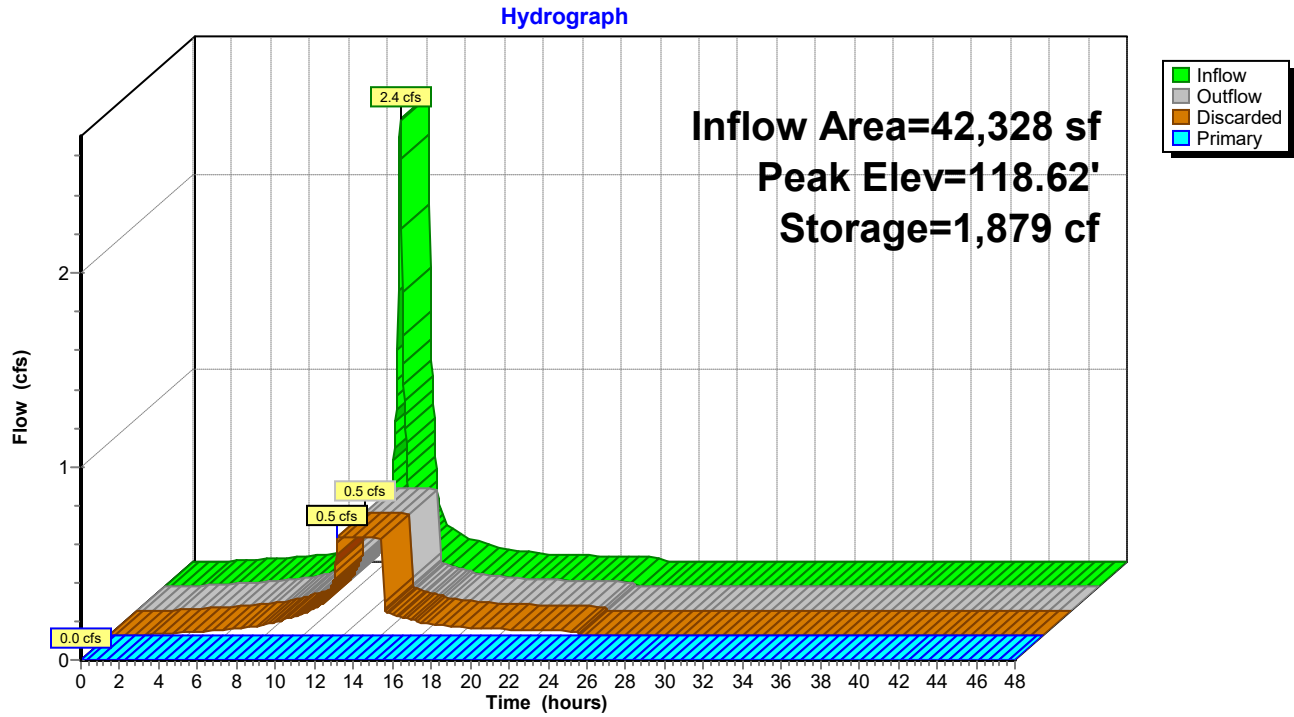
72 Chambers

396.2 cy Field

273.6 cy Stone



### Pond 1P: Subsurface Basin



# 171123 - POST

Prepared by R. Levesque Assoc.

HydroCAD® 10.10-7c s/n 02175 © 2022 HydroCAD Software Solutions LLC

Proposed Site Improvements  
Type III 24-hr 2-Year Rainfall=3.20"

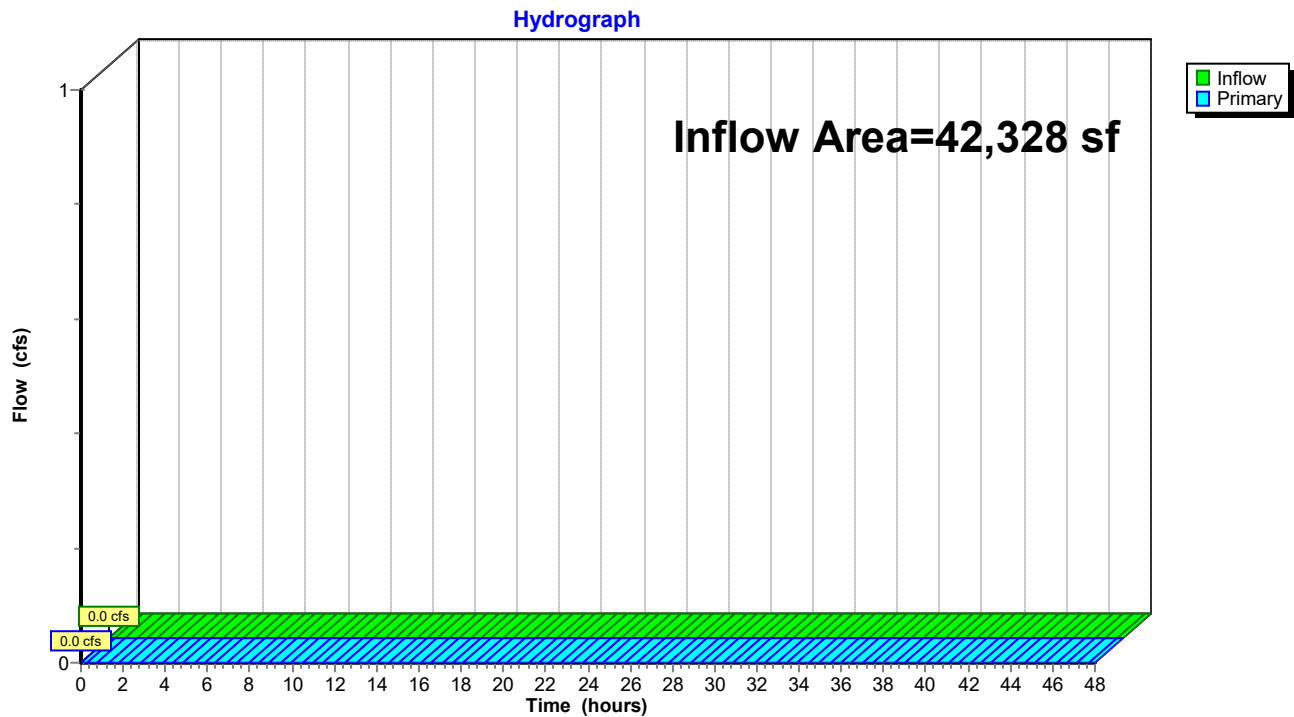
Page 11

## Summary for Link DP-1: Silver Street

Inflow Area = 42,328 sf, 80.63% Impervious, Inflow Depth = 0.00" for 2-Year event  
Inflow = 0.0 cfs @ 0.00 hrs, Volume= 0 cf  
Primary = 0.0 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs

## Link DP-1: Silver Street



# 171123 - POST

Prepared by R. Levesque Assoc.

HydroCAD® 10.10-7c s/n 02175 © 2022 HydroCAD Software Solutions LLC

Proposed Site Improvements  
Type III 24-hr 2-Year Rainfall=3.20"

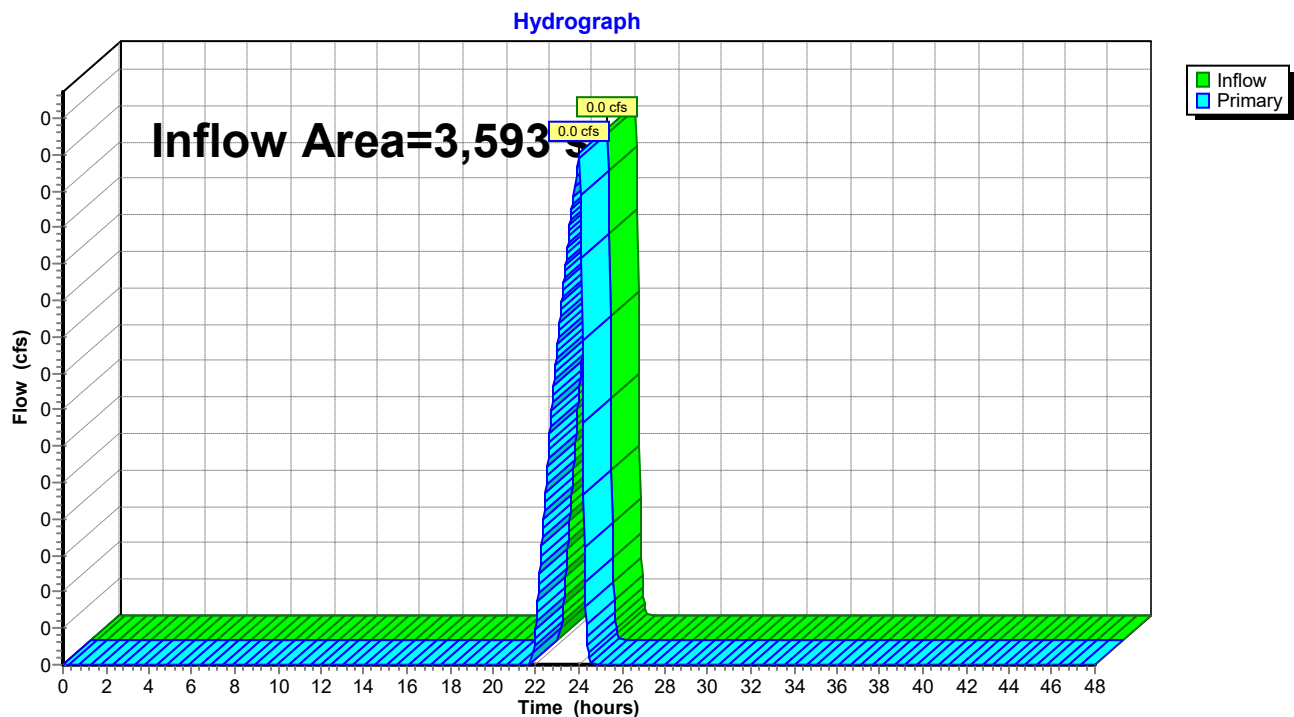
Page 12

## Summary for Link DP-2: Off-Site to the North

Inflow Area = 3,593 sf, 0.00% Impervious, Inflow Depth = 0.00" for 2-Year event  
Inflow = 0.0 cfs @ 24.02 hrs, Volume= 0 cf  
Primary = 0.0 cfs @ 24.02 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs

## Link DP-2: Off-Site to the North



# 171123 - POST

Prepared by R. Levesque Assoc.

HydroCAD® 10.10-7c s/n 02175 © 2022 HydroCAD Software Solutions LLC

Proposed Site Improvements  
Type III 24-hr 2-Year Rainfall=3.20"

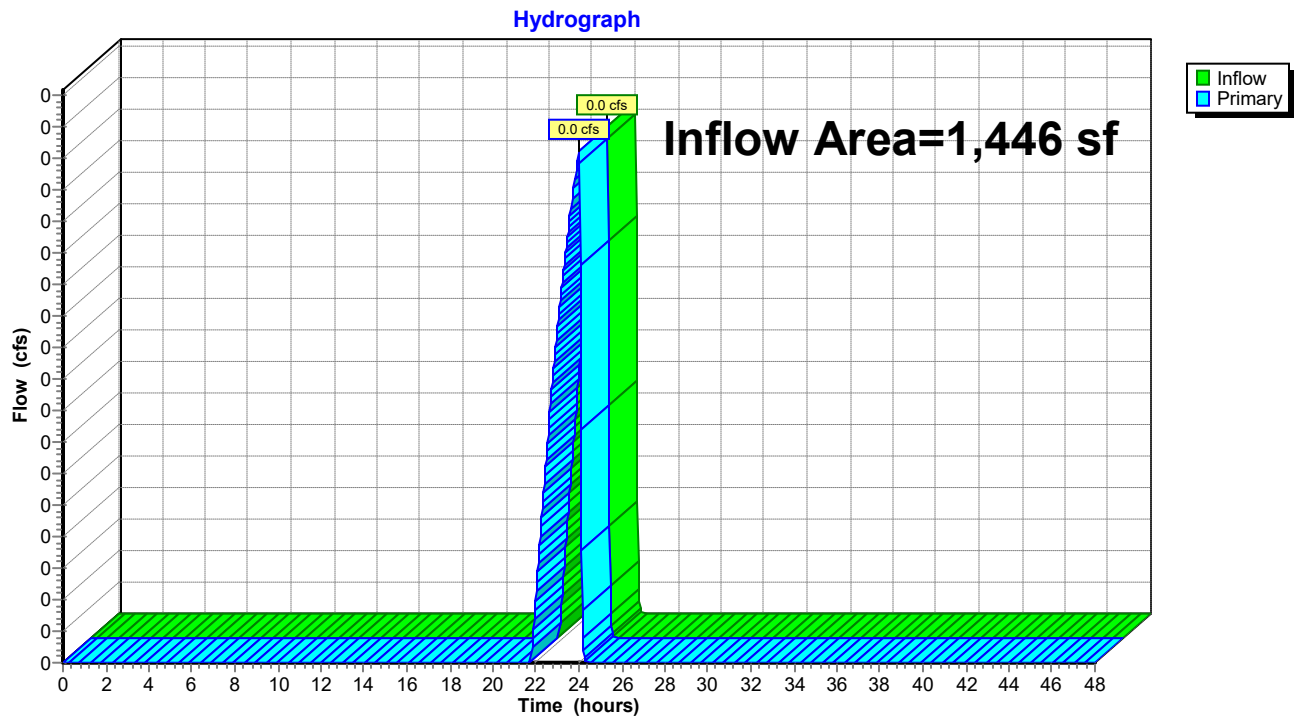
Page 13

## Summary for Link DP-3: Suffield Street

Inflow Area = 1,446 sf, 0.00% Impervious, Inflow Depth = 0.00" for 2-Year event  
Inflow = 0.0 cfs @ 23.99 hrs, Volume= 0 cf  
Primary = 0.0 cfs @ 23.99 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs

## Link DP-3: Suffield Street





# 171123 - POST

Prepared by R. Levesque Assoc.

HydroCAD® 10.10-7c s/n 02175 © 2022 HydroCAD Software Solutions LLC

Proposed Site Improvements  
Type III 24-hr 2-Year Rainfall=3.20"

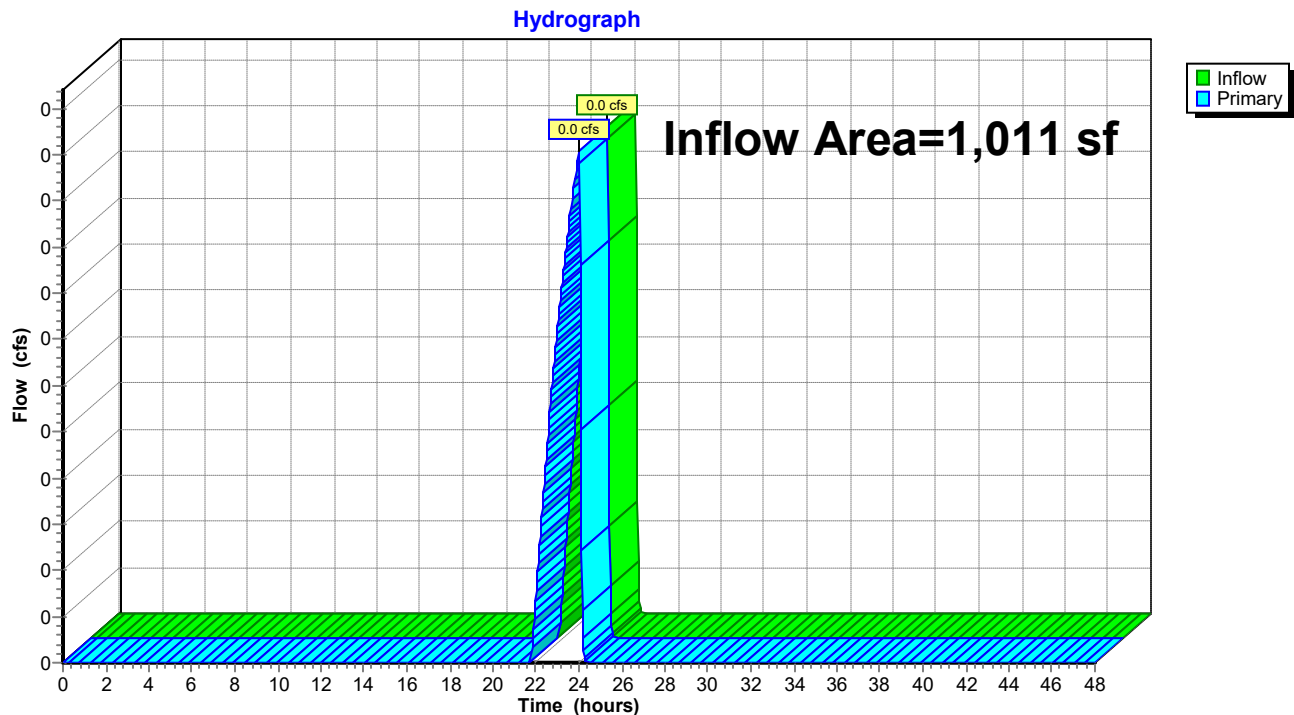
Page 14

## Summary for Link DP-4: Off-Site to the East

Inflow Area = 1,011 sf, 0.00% Impervious, Inflow Depth = 0.00" for 2-Year event  
Inflow = 0.0 cfs @ 23.99 hrs, Volume= 0 cf  
Primary = 0.0 cfs @ 23.99 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs

## Link DP-4: Off-Site to the East



**171123 - POST**

Prepared by R. Levesque Assoc.

HydroCAD® 10.10-7c s/n 02175 © 2022 HydroCAD Software Solutions LLC

Proposed Site Improvements  
Type III 24-hr 10-Year Rainfall=5.16"

Page 15

Time span=0.00-48.00 hrs, dt=0.03 hrs, 1601 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment PS-1:** Runoff Area=42,328 sf 80.63% Impervious Runoff Depth=4.01"  
Tc=6.0 min CN=WQ Runoff=3.9 cfs 14,152 cf

**Subcatchment PS-2:** Runoff Area=3,593 sf 0.00% Impervious Runoff Depth=0.17"  
Flow Length=58' Slope=0.0300 1' Tc=12.2 min CN=WQ Runoff=0.0 cfs 51 cf

**Subcatchment PS-3:** Runoff Area=1,446 sf 0.00% Impervious Runoff Depth=0.23"  
Tc=6.0 min CN=39 Runoff=0.0 cfs 28 cf

**Subcatchment PS-4:** Runoff Area=1,011 sf 0.00% Impervious Runoff Depth=0.23"  
Tc=6.0 min CN=WQ Runoff=0.0 cfs 19 cf

**Pond 1P: Subsurface Basin** Peak Elev=119.73' Storage=4,085 cf Inflow=3.9 cfs 14,152 cf  
Discarded=0.5 cfs 14,152 cf Primary=0.0 cfs 0 cf Outflow=0.5 cfs 14,152 cf

**Link DP-1: Silver Street** Inflow=0.0 cfs 0 cf  
Primary=0.0 cfs 0 cf

**Link DP-2: Off-Site to the North** Inflow=0.0 cfs 51 cf  
Primary=0.0 cfs 51 cf

**Link DP-3: Suffield Street** Inflow=0.0 cfs 28 cf  
Primary=0.0 cfs 28 cf

**Link DP-4: Off-Site to the East** Inflow=0.0 cfs 19 cf  
Primary=0.0 cfs 19 cf

**Total Runoff Area = 48,378 sf Runoff Volume = 14,251 cf Average Runoff Depth = 3.53"**  
**29.45% Pervious = 14,250 sf 70.55% Impervious = 34,128 sf**

**171123 - POST**

Prepared by R. Levesque Assoc.

HydroCAD® 10.10-7c s/n 02175 © 2022 HydroCAD Software Solutions LLC

Proposed Site Improvements

Type III 24-hr 10-Year Rainfall=5.16"

Page 16

**Summary for Subcatchment PS-1:**

Runoff = 3.9 cfs @ 12.08 hrs, Volume= 14,152 cf, Depth= 4.01"  
Routed to Pond 1P : Subsurface Basin

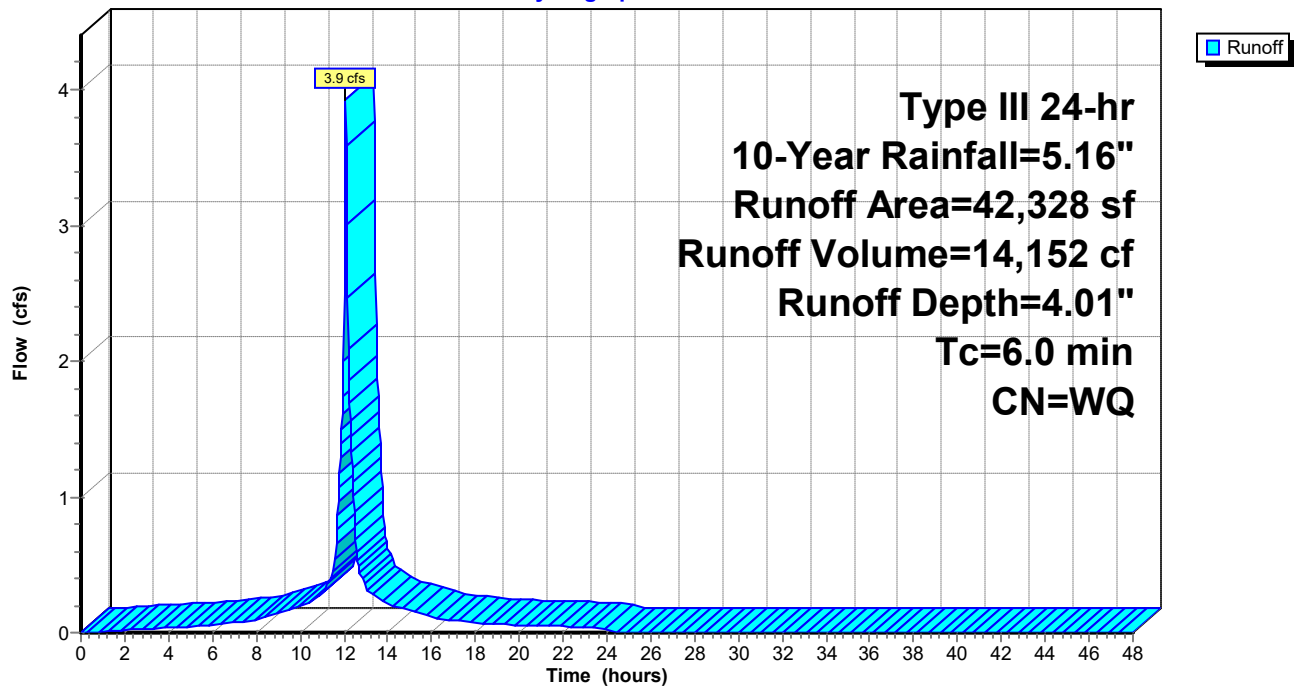
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs  
Type III 24-hr 10-Year Rainfall=5.16"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 7,772     | 39 | >75% Grass cover, Good, HSG A |
| 31,484    | 98 | Paved parking, HSG A          |
| 2,644     | 98 | Roofs, HSG A                  |
| 428       | 30 | Woods, Good, HSG A            |
| 42,328    |    | Weighted Average              |
| 8,200     | 39 | 19.37% Pervious Area          |
| 34,128    | 98 | 80.63% Impervious Area        |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description   |
|----------|---------------|---------------|-------------------|----------------|---------------|
| 6.0      |               |               |                   |                | Direct Entry, |

**Subcatchment PS-1:**

Hydrograph



**171123 - POST**

Prepared by R. Levesque Assoc.

HydroCAD® 10.10-7c s/n 02175 © 2022 HydroCAD Software Solutions LLC

Page 17

Proposed Site Improvements  
Type III 24-hr 10-Year Rainfall=5.16"**Summary for Subcatchment PS-2:**

Runoff = 0.0 cfs @ 12.54 hrs, Volume= 51 cf, Depth= 0.17"  
Routed to Link DP-2 : Off-Site to the North

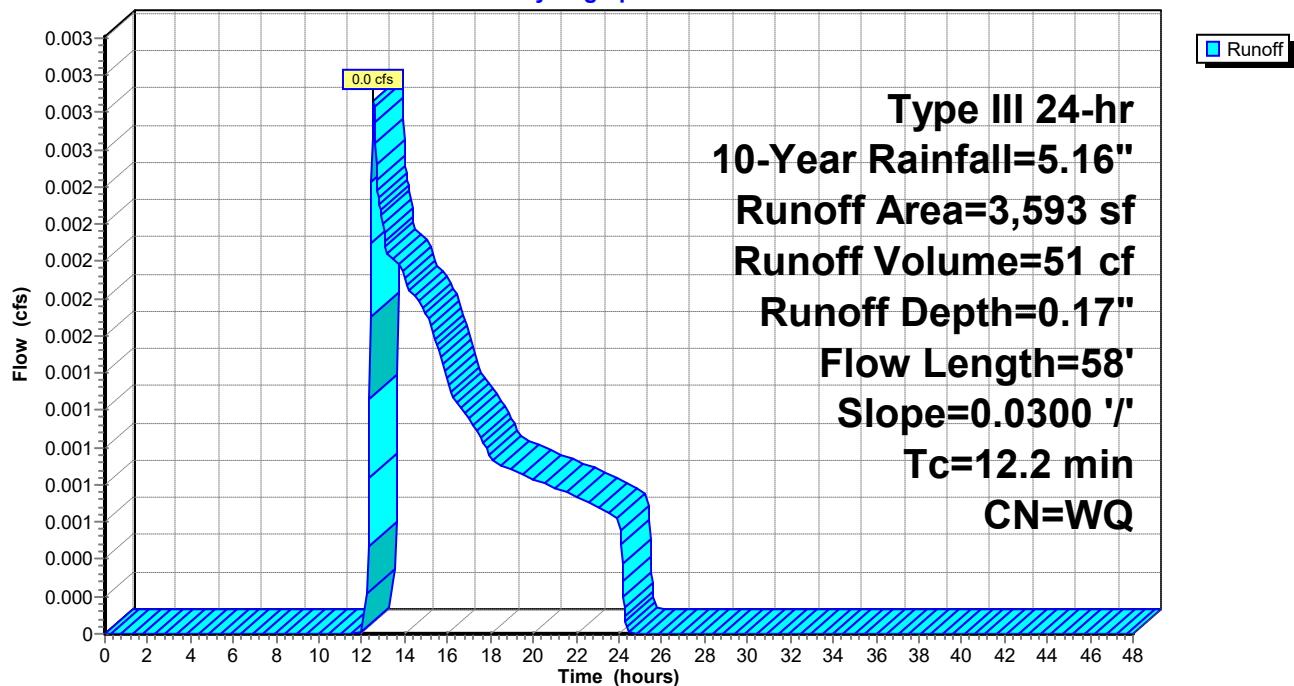
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs  
Type III 24-hr 10-Year Rainfall=5.16"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 2,557     | 39 | >75% Grass cover, Good, HSG A |
| 1,035     | 30 | Woods, Good, HSG A            |
| 3,593     |    | Weighted Average              |
| 3,593     | 36 | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                               |
|----------|---------------|---------------|-------------------|----------------|-----------------------------------------------------------|
| 12.2     | 58            | 0.0300        | 0.08              |                | Sheet Flow,<br>Woods: Light underbrush n= 0.400 P2= 3.00" |

**Subcatchment PS-2:**

Hydrograph



**171123 - POST**

Prepared by R. Levesque Assoc.

HydroCAD® 10.10-7c s/n 02175 © 2022 HydroCAD Software Solutions LLC

Page 18

Proposed Site Improvements  
Type III 24-hr 10-Year Rainfall=5.16"**Summary for Subcatchment PS-3:**

Runoff = 0.0 cfs @ 12.45 hrs, Volume= 28 cf, Depth= 0.23"  
Routed to Link DP-3 : Suffield Street

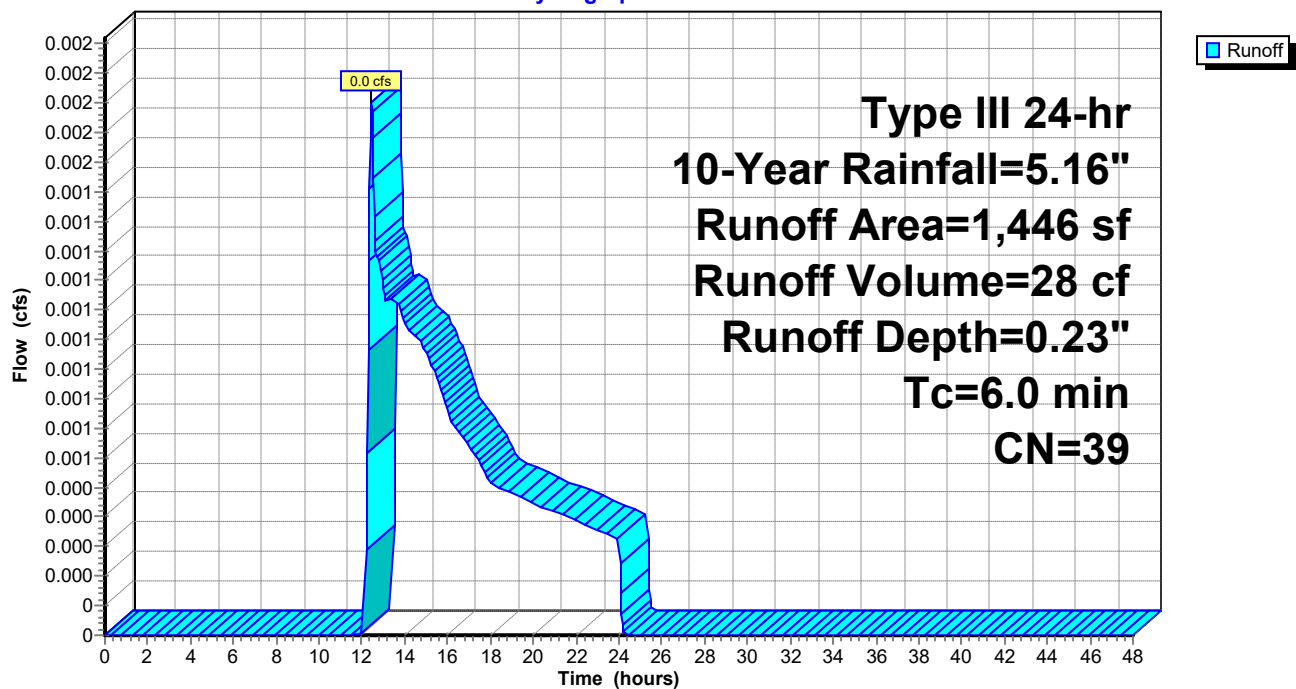
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs  
Type III 24-hr 10-Year Rainfall=5.16"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 1,446     | 39 | >75% Grass cover, Good, HSG A |
| 1,446     | 39 | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description   |
|----------|---------------|---------------|-------------------|----------------|---------------|
| 6.0      |               |               |                   |                | Direct Entry, |

**Subcatchment PS-3:**

Hydrograph



**171123 - POST**

Prepared by R. Levesque Assoc.

HydroCAD® 10.10-7c s/n 02175 © 2022 HydroCAD Software Solutions LLC

Proposed Site Improvements

Type III 24-hr 10-Year Rainfall=5.16"

Page 19

**Summary for Subcatchment PS-4:**

Runoff = 0.0 cfs @ 12.45 hrs, Volume= 19 cf, Depth= 0.23"  
Routed to Link DP-4 : Off-Site to the East

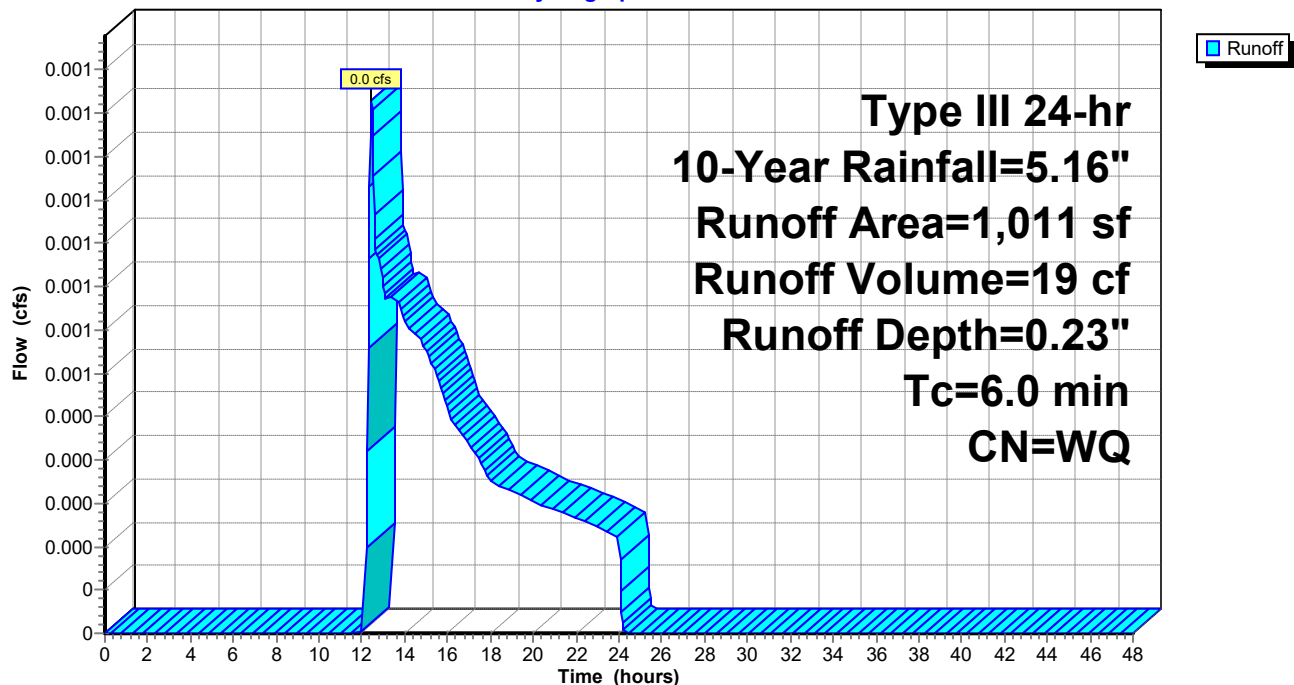
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs  
Type III 24-hr 10-Year Rainfall=5.16"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 987       | 39 | >75% Grass cover, Good, HSG A |
| 24        | 30 | Woods, Good, HSG A            |
| 1,011     |    | Weighted Average              |
| 1,011     | 39 | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description   |
|----------|---------------|---------------|-------------------|----------------|---------------|
| 6.0      |               |               |                   |                | Direct Entry, |

**Subcatchment PS-4:**

Hydrograph



**171123 - POST**

Prepared by R. Levesque Assoc.

HydroCAD® 10.10-7c s/n 02175 © 2022 HydroCAD Software Solutions LLC

Page 20

Proposed Site Improvements  
Type III 24-hr 10-Year Rainfall=5.16"**Summary for Pond 1P: Subsurface Basin**

Inflow Area = 42,328 sf, 80.63% Impervious, Inflow Depth = 4.01" for 10-Year event  
 Inflow = 3.9 cfs @ 12.08 hrs, Volume= 14,152 cf  
 Outflow = 0.5 cfs @ 11.61 hrs, Volume= 14,152 cf, Atten= 87%, Lag= 0.0 min  
 Discarded = 0.5 cfs @ 11.61 hrs, Volume= 14,152 cf  
 Primary = 0.0 cfs @ 0.00 hrs, Volume= 0 cf  
 Routed to Link DP-1 : Silver Street

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs / 2  
 Peak Elev= 119.73' @ 12.62 hrs Surf.Area= 2,674 sf Storage= 4,085 cf

Plug-Flow detention time= 47.4 min calculated for 14,152 cf (100% of inflow)  
 Center-of-Mass det. time= 47.4 min ( 797.6 - 750.2 )

| Volume | Invert  | Avail.Storage | Storage Description                                                                                                                                                                                    |
|--------|---------|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| #1A    | 117.50' | 2,955 cf      | <b>39.50'W x 67.70'L x 4.00'H Field A</b><br>10,696 cf Overall - 3,308 cf Embedded = 7,388 cf x 40.0% Voids                                                                                            |
| #2A    | 118.00' | 3,308 cf      | <b>ADS_StormTech SC-740 +Cap</b> x 72 Inside #1<br>Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf<br>Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap<br>72 Chambers in 8 Rows |
|        |         | 6,263 cf      | Total Available Storage                                                                                                                                                                                |

Storage Group A created with Chamber Wizard

| Device | Routing   | Invert  | Outlet Devices                                                                                                                                                                   |
|--------|-----------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| #1     | Primary   | 120.50' | <b>12.0" Round Culvert</b><br>L= 21.0' RCP, groove end projecting, Ke= 0.200<br>Inlet / Outlet Invert= 120.50' / 120.30' S= 0.0095 '/' Cc= 0.900<br>n= 0.013, Flow Area= 0.79 sf |
| #2     | Discarded | 117.50' | <b>8.270 in/hr Exfiltration over Surface area</b> Phase-In= 0.01'                                                                                                                |

**Discarded OutFlow** Max=0.5 cfs @ 11.61 hrs HW=117.54' (Free Discharge)↑**2=Exfiltration** (Exfiltration Controls 0.5 cfs)**Primary OutFlow** Max=0.0 cfs @ 0.00 hrs HW=117.50' (Free Discharge)↑**1=Culvert** ( Controls 0.0 cfs)

## 171123 - POST

Prepared by R. Levesque Assoc.

HydroCAD® 10.10-7c s/n 02175 © 2022 HydroCAD Software Solutions LLC

Proposed Site Improvements  
Type III 24-hr 10-Year Rainfall=5.16"

Page 21

### Pond 1P: Subsurface Basin - Chamber Wizard Field A

**Chamber Model = ADS\_StormTech SC-740 +Cap (ADS StormTech® SC-740 with cap length)**

Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf

Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

9 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 65.70' Row Length +12.0" End Stone x 2 = 67.70' Base Length

8 Rows x 51.0" Wide + 6.0" Spacing x 7 + 12.0" Side Stone x 2 = 39.50' Base Width

6.0" Stone Base + 30.0" Chamber Height + 12.0" Stone Cover = 4.00' Field Height

72 Chambers x 45.9 cf = 3,307.7 cf Chamber Storage

10,696.1 cf Field - 3,307.7 cf Chambers = 7,388.4 cf Stone x 40.0% Voids = 2,955.4 cf Stone Storage

Chamber Storage + Stone Storage = 6,263.0 cf = 0.144 af

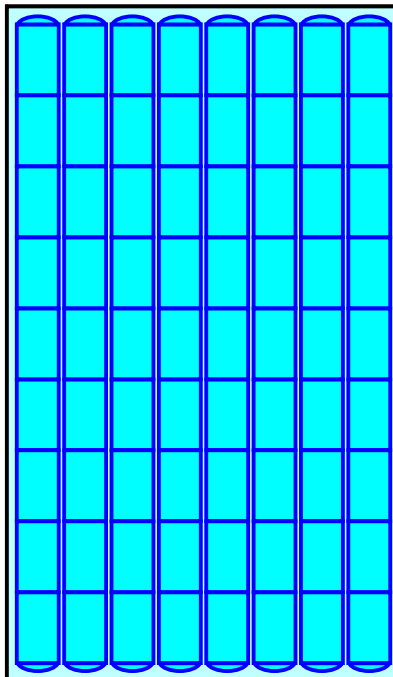
Overall Storage Efficiency = 58.6%

Overall System Size = 67.70' x 39.50' x 4.00'

72 Chambers

396.2 cy Field

273.6 cy Stone





**171123 - POST**

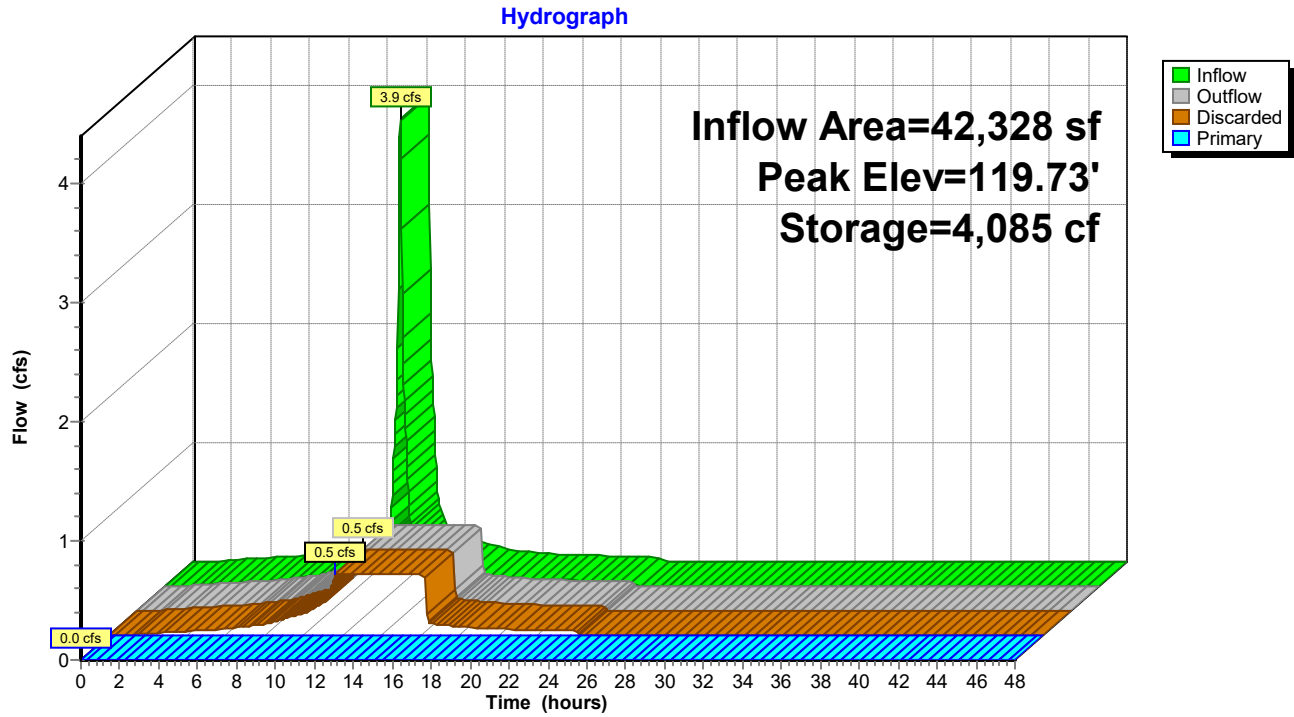
Prepared by R. Levesque Assoc.

HydroCAD® 10.10-7c s/n 02175 © 2022 HydroCAD Software Solutions LLC

Proposed Site Improvements  
Type III 24-hr 10-Year Rainfall=5.16"

Page 22

**Pond 1P: Subsurface Basin**



# 171123 - POST

Prepared by R. Levesque Assoc.

HydroCAD® 10.10-7c s/n 02175 © 2022 HydroCAD Software Solutions LLC

Proposed Site Improvements

Type III 24-hr 10-Year Rainfall=5.16"

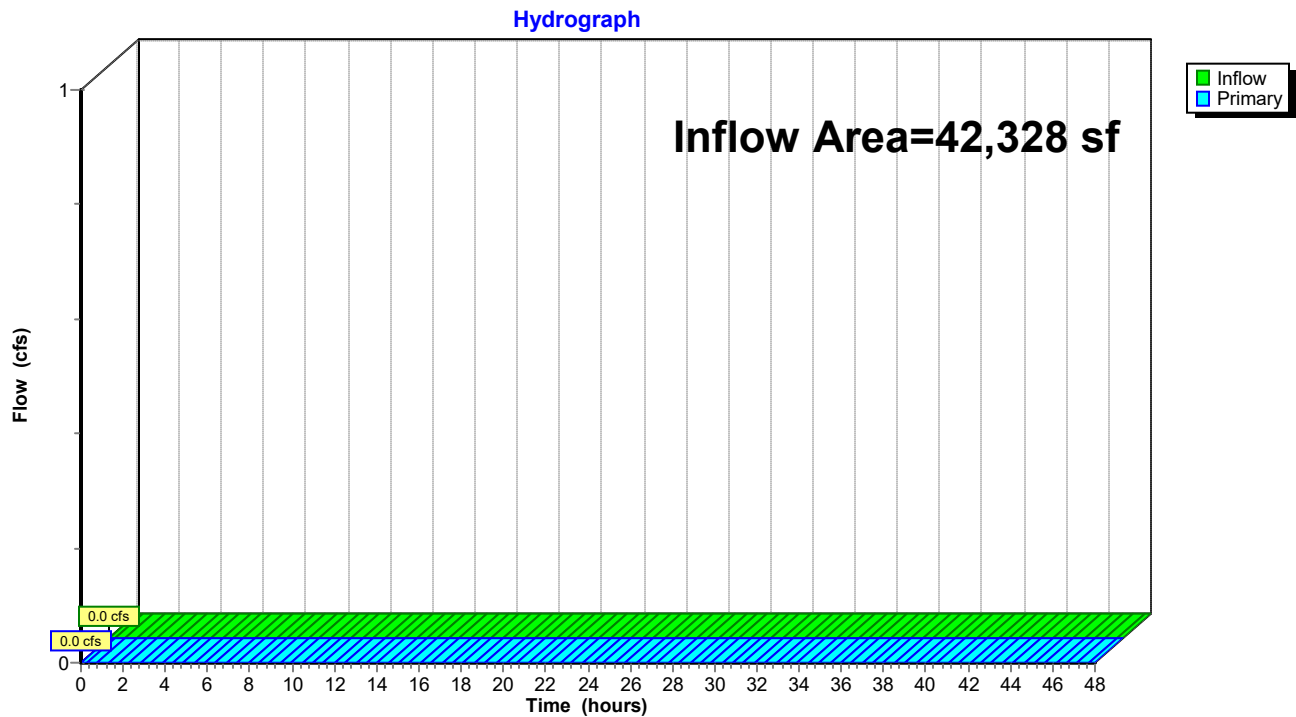
Page 23

## Summary for Link DP-1: Silver Street

Inflow Area = 42,328 sf, 80.63% Impervious, Inflow Depth = 0.00" for 10-Year event  
Inflow = 0.0 cfs @ 0.00 hrs, Volume= 0 cf  
Primary = 0.0 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs

## Link DP-1: Silver Street



# 171123 - POST

Prepared by R. Levesque Assoc.

HydroCAD® 10.10-7c s/n 02175 © 2022 HydroCAD Software Solutions LLC

Proposed Site Improvements  
Type III 24-hr 10-Year Rainfall=5.16"

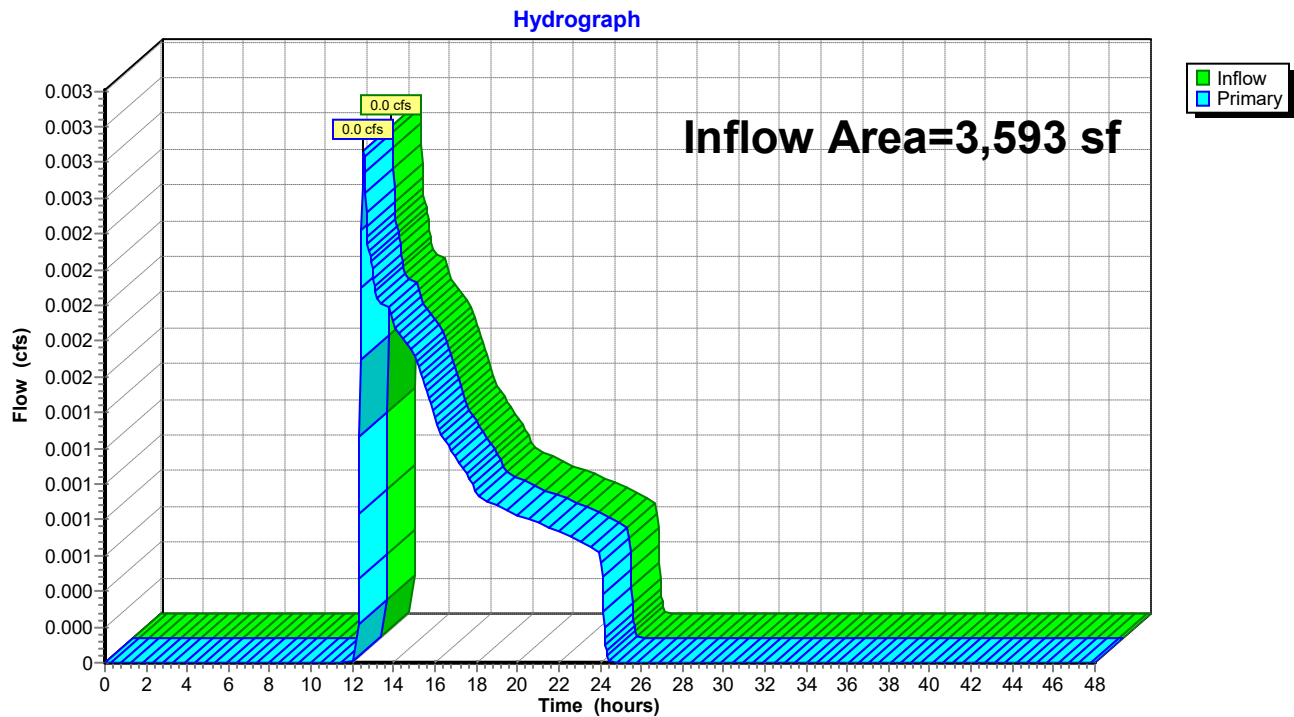
Page 24

## Summary for Link DP-2: Off-Site to the North

Inflow Area = 3,593 sf, 0.00% Impervious, Inflow Depth = 0.17" for 10-Year event  
Inflow = 0.0 cfs @ 12.54 hrs, Volume= 51 cf  
Primary = 0.0 cfs @ 12.54 hrs, Volume= 51 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs

## Link DP-2: Off-Site to the North



# 171123 - POST

Prepared by R. Levesque Assoc.

HydroCAD® 10.10-7c s/n 02175 © 2022 HydroCAD Software Solutions LLC

Proposed Site Improvements  
Type III 24-hr 10-Year Rainfall=5.16"

Page 25

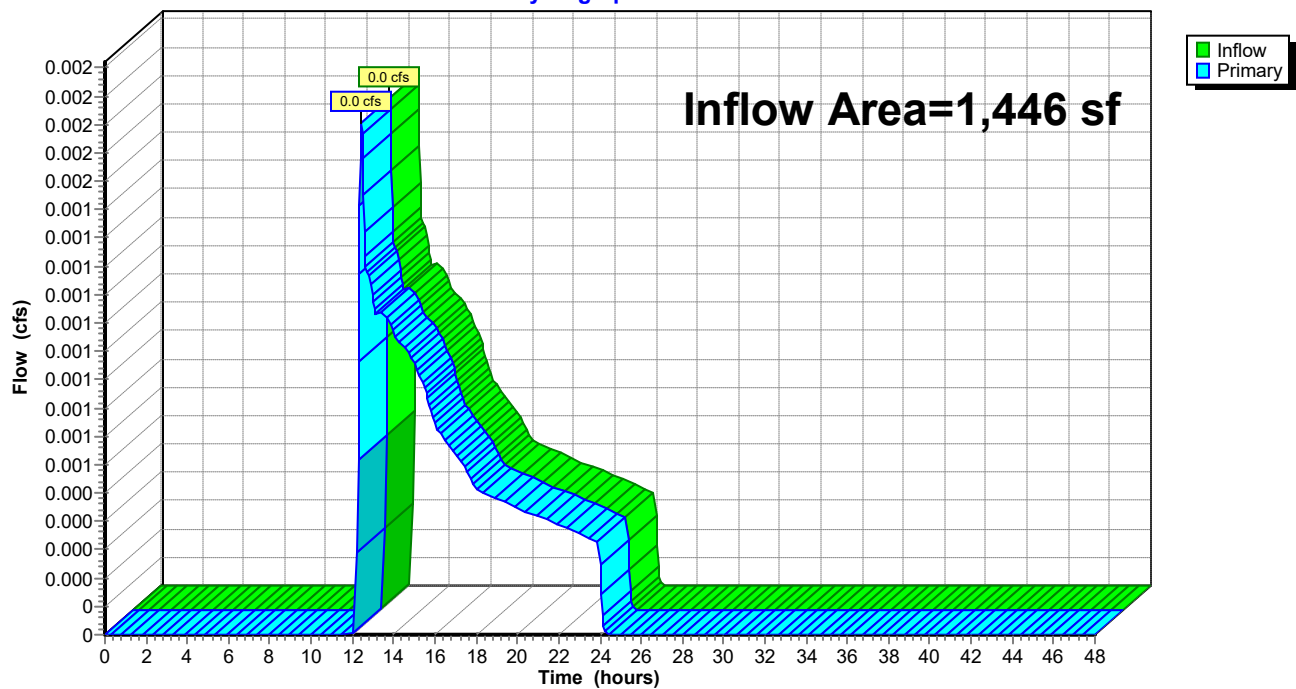
## Summary for Link DP-3: Suffield Street

Inflow Area = 1,446 sf, 0.00% Impervious, Inflow Depth = 0.23" for 10-Year event  
Inflow = 0.0 cfs @ 12.45 hrs, Volume= 28 cf  
Primary = 0.0 cfs @ 12.45 hrs, Volume= 28 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs

## Link DP-3: Suffield Street

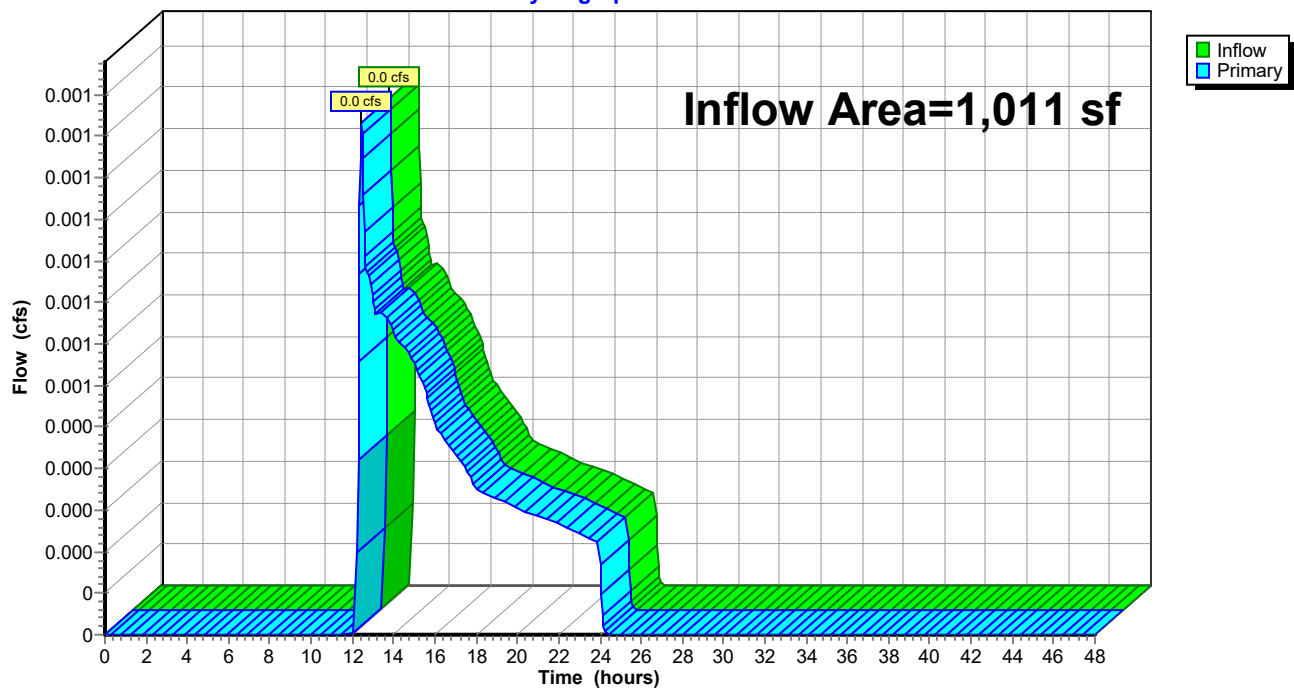
Hydrograph



**Summary for Link DP-4: Off-Site to the East**

Inflow Area = 1,011 sf, 0.00% Impervious, Inflow Depth = 0.23" for 10-Year event  
Inflow = 0.0 cfs @ 12.45 hrs, Volume= 19 cf  
Primary = 0.0 cfs @ 12.45 hrs, Volume= 19 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs

**Link DP-4: Off-Site to the East****Hydrograph**

**171123 - POST**

Prepared by R. Levesque Assoc.

HydroCAD® 10.10-7c s/n 02175 © 2022 HydroCAD Software Solutions LLC

Proposed Site Improvements  
Type III 24-hr 100-Year Rainfall=8.26"

Page 27

Time span=0.00-48.00 hrs, dt=0.03 hrs, 1601 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment PS-1:** Runoff Area=42,328 sf 80.63% Impervious Runoff Depth=6.70"  
Tc=6.0 min CN=WQ Runoff=6.5 cfs 23,647 cf

**Subcatchment PS-2:** Runoff Area=3,593 sf 0.00% Impervious Runoff Depth=1.04"  
Flow Length=58' Slope=0.0300 '/ Tc=12.2 min CN=WQ Runoff=0.0 cfs 312 cf

**Subcatchment PS-3:** Runoff Area=1,446 sf 0.00% Impervious Runoff Depth=1.27"  
Tc=6.0 min CN=39 Runoff=0.0 cfs 153 cf

**Subcatchment PS-4:** Runoff Area=1,011 sf 0.00% Impervious Runoff Depth=1.25"  
Tc=6.0 min CN=WQ Runoff=0.0 cfs 105 cf

**Pond 1P: Subsurface Basin** Peak Elev=121.35' Storage=6,104 cf Inflow=6.5 cfs 23,647 cf  
Discarded=0.5 cfs 20,550 cf Primary=2.1 cfs 3,096 cf Outflow=2.6 cfs 23,647 cf

**Link DP-1: Silver Street** Inflow=2.1 cfs 3,096 cf  
Primary=2.1 cfs 3,096 cf

**Link DP-2: Off-Site to the North** Inflow=0.0 cfs 312 cf  
Primary=0.0 cfs 312 cf

**Link DP-3: Suffield Street** Inflow=0.0 cfs 153 cf  
Primary=0.0 cfs 153 cf

**Link DP-4: Off-Site to the East** Inflow=0.0 cfs 105 cf  
Primary=0.0 cfs 105 cf

**Total Runoff Area = 48,378 sf Runoff Volume = 24,217 cf Average Runoff Depth = 6.01"**  
**29.45% Pervious = 14,250 sf 70.55% Impervious = 34,128 sf**

**171123 - POST**

Prepared by R. Levesque Assoc.

HydroCAD® 10.10-7c s/n 02175 © 2022 HydroCAD Software Solutions LLC

Proposed Site Improvements

Type III 24-hr 100-Year Rainfall=8.26"

Page 28

**Summary for Subcatchment PS-1:**

Runoff = 6.5 cfs @ 12.09 hrs, Volume= 23,647 cf, Depth= 6.70"  
Routed to Pond 1P : Subsurface Basin

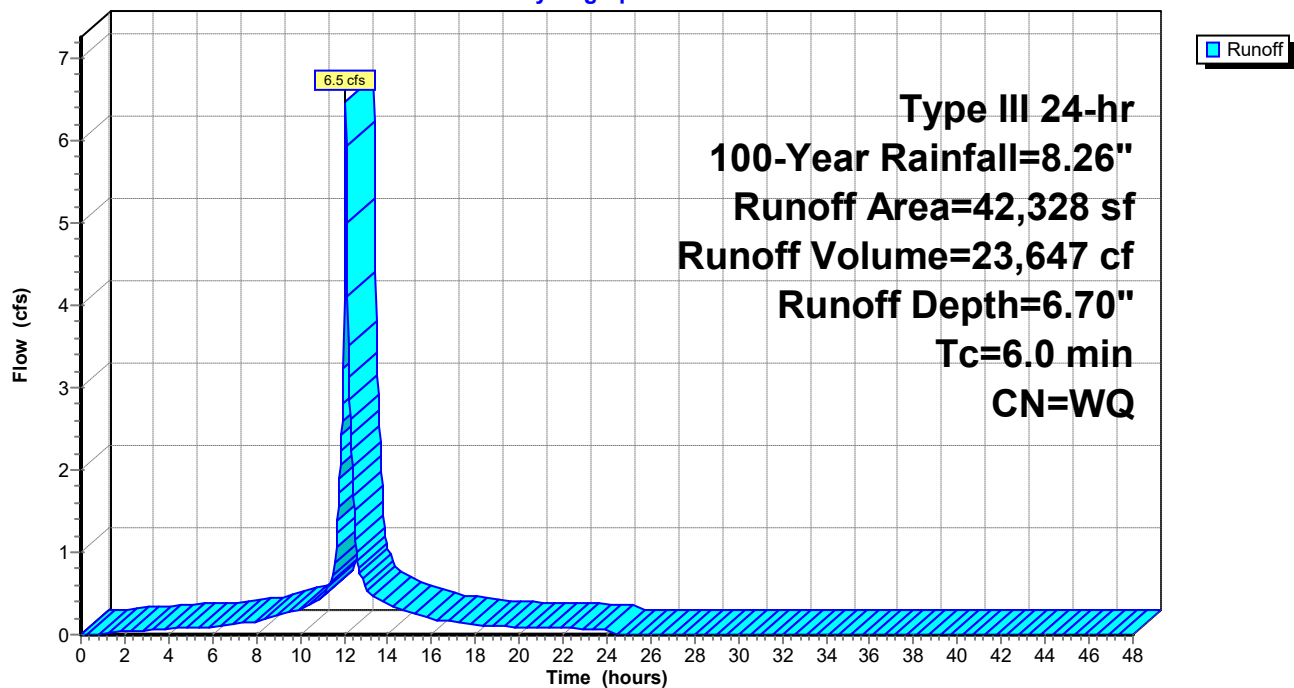
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs  
Type III 24-hr 100-Year Rainfall=8.26"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 7,772     | 39 | >75% Grass cover, Good, HSG A |
| 31,484    | 98 | Paved parking, HSG A          |
| 2,644     | 98 | Roofs, HSG A                  |
| 428       | 30 | Woods, Good, HSG A            |
| 42,328    |    | Weighted Average              |
| 8,200     | 39 | 19.37% Pervious Area          |
| 34,128    | 98 | 80.63% Impervious Area        |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description   |
|----------|---------------|---------------|-------------------|----------------|---------------|
| 6.0      |               |               |                   |                | Direct Entry, |

**Subcatchment PS-1:**

Hydrograph



**171123 - POST**

Prepared by R. Levesque Assoc.

HydroCAD® 10.10-7c s/n 02175 © 2022 HydroCAD Software Solutions LLC

Page 29

Proposed Site Improvements  
Type III 24-hr 100-Year Rainfall=8.26"**Summary for Subcatchment PS-2:**

Runoff = 0.0 cfs @ 12.23 hrs, Volume= 312 cf, Depth= 1.04"  
Routed to Link DP-2 : Off-Site to the North

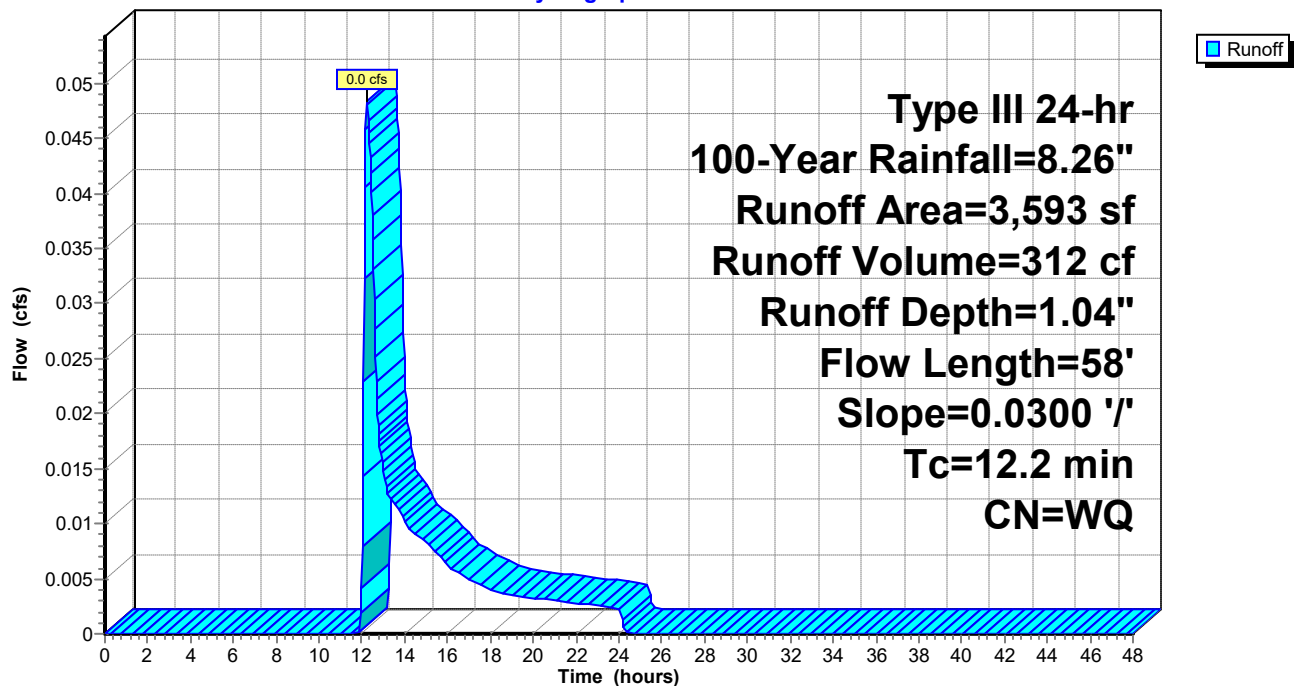
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs  
Type III 24-hr 100-Year Rainfall=8.26"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 2,557     | 39 | >75% Grass cover, Good, HSG A |
| 1,035     | 30 | Woods, Good, HSG A            |
| 3,593     |    | Weighted Average              |
| 3,593     | 36 | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                               |
|----------|---------------|---------------|-------------------|----------------|-----------------------------------------------------------|
| 12.2     | 58            | 0.0300        | 0.08              |                | Sheet Flow,<br>Woods: Light underbrush n= 0.400 P2= 3.00" |

**Subcatchment PS-2:**

Hydrograph





**171123 - POST**

Prepared by R. Levesque Assoc.

HydroCAD® 10.10-7c s/n 02175 © 2022 HydroCAD Software Solutions LLC

Page 30

Proposed Site Improvements  
Type III 24-hr 100-Year Rainfall=8.26"**Summary for Subcatchment PS-3:**

Runoff = 0.0 cfs @ 12.12 hrs, Volume= 153 cf, Depth= 1.27"  
Routed to Link DP-3 : Suffield Street

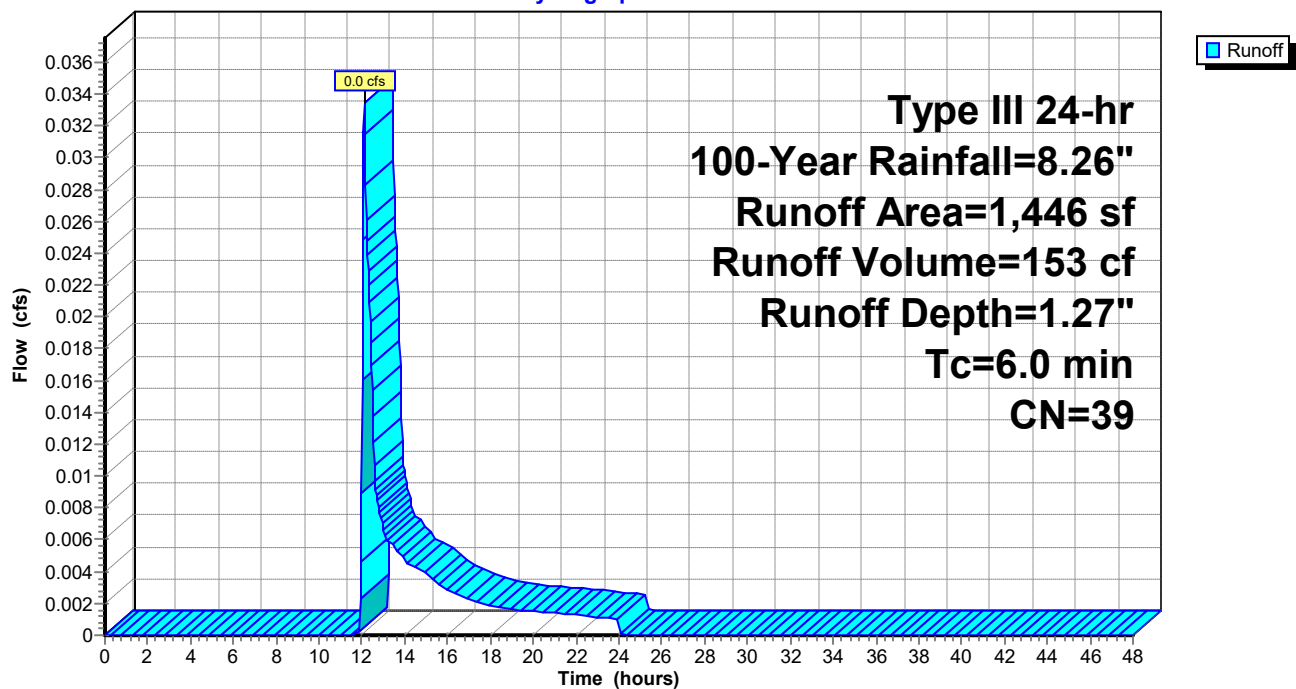
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs  
Type III 24-hr 100-Year Rainfall=8.26"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 1,446     | 39 | >75% Grass cover, Good, HSG A |
| 1,446     | 39 | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description   |
|----------|---------------|---------------|-------------------|----------------|---------------|
| 6.0      |               |               |                   |                | Direct Entry, |

**Subcatchment PS-3:**

Hydrograph



**171123 - POST**

Prepared by R. Levesque Assoc.

HydroCAD® 10.10-7c s/n 02175 © 2022 HydroCAD Software Solutions LLC

Proposed Site Improvements

Type III 24-hr 100-Year Rainfall=8.26"

Page 31

**Summary for Subcatchment PS-4:**

Runoff = 0.0 cfs @ 12.12 hrs, Volume= 105 cf, Depth= 1.25"  
Routed to Link DP-4 : Off-Site to the East

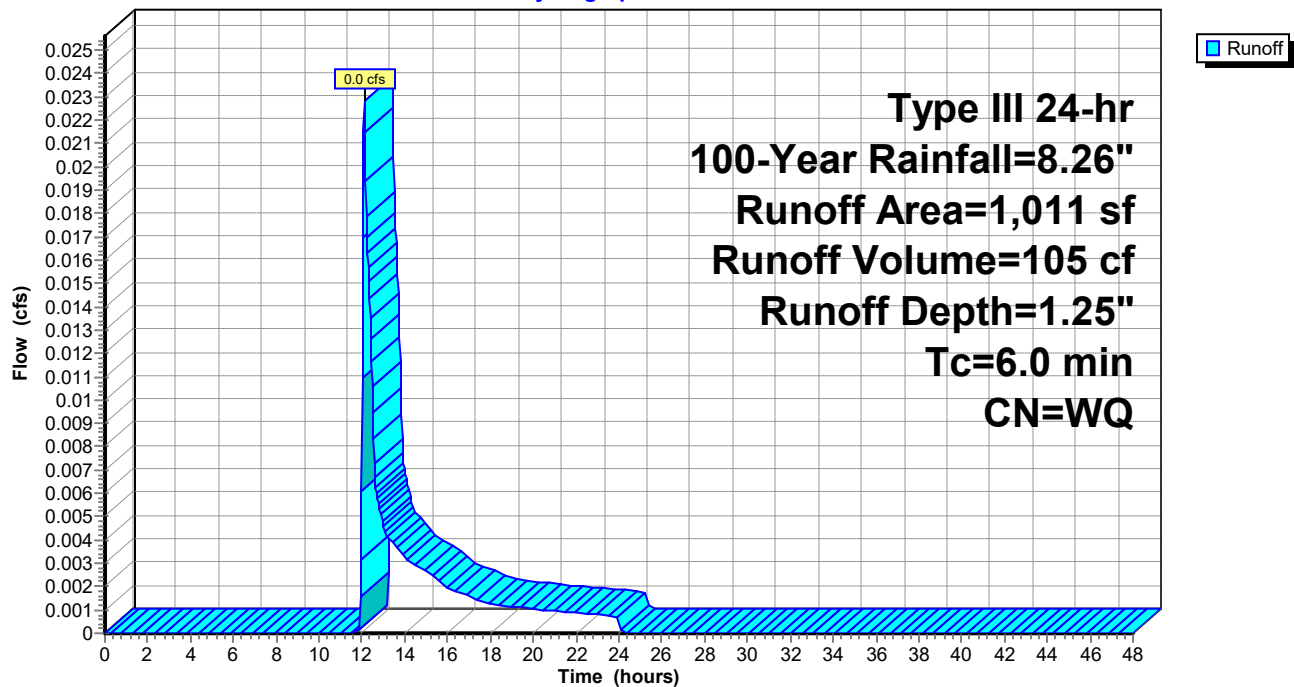
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs  
Type III 24-hr 100-Year Rainfall=8.26"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 987       | 39 | >75% Grass cover, Good, HSG A |
| 24        | 30 | Woods, Good, HSG A            |
| 1,011     |    | Weighted Average              |
| 1,011     | 39 | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description   |
|----------|---------------|---------------|-------------------|----------------|---------------|
| 6.0      |               |               |                   |                | Direct Entry, |

**Subcatchment PS-4:**

Hydrograph



**171123 - POST**

Prepared by R. Levesque Assoc.

HydroCAD® 10.10-7c s/n 02175 © 2022 HydroCAD Software Solutions LLC

Proposed Site Improvements

Type III 24-hr 100-Year Rainfall=8.26"

Page 32

**Summary for Pond 1P: Subsurface Basin**

Inflow Area = 42,328 sf, 80.63% Impervious, Inflow Depth = 6.70" for 100-Year event  
 Inflow = 6.5 cfs @ 12.09 hrs, Volume= 23,647 cf  
 Outflow = 2.6 cfs @ 12.31 hrs, Volume= 23,647 cf, Atten= 60%, Lag= 13.4 min  
 Discarded = 0.5 cfs @ 11.19 hrs, Volume= 20,550 cf  
 Primary = 2.1 cfs @ 12.31 hrs, Volume= 3,096 cf  
 Routed to Link DP-1 : Silver Street

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs / 2  
 Peak Elev= 121.35' @ 12.31 hrs Surf.Area= 2,674 sf Storage= 6,104 cf

Plug-Flow detention time= 61.5 min calculated for 23,647 cf (100% of inflow)  
 Center-of-Mass det. time= 61.5 min ( 808.3 - 746.8 )

| Volume | Invert  | Avail.Storage | Storage Description                                                                                                                                                                                    |
|--------|---------|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| #1A    | 117.50' | 2,955 cf      | <b>39.50'W x 67.70'L x 4.00'H Field A</b><br>10,696 cf Overall - 3,308 cf Embedded = 7,388 cf x 40.0% Voids                                                                                            |
| #2A    | 118.00' | 3,308 cf      | <b>ADS_StormTech SC-740 +Cap</b> x 72 Inside #1<br>Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf<br>Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap<br>72 Chambers in 8 Rows |
|        |         | 6,263 cf      | Total Available Storage                                                                                                                                                                                |

Storage Group A created with Chamber Wizard

| Device | Routing   | Invert  | Outlet Devices                                                                                                                                                                   |
|--------|-----------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| #1     | Primary   | 120.50' | <b>12.0" Round Culvert</b><br>L= 21.0' RCP, groove end projecting, Ke= 0.200<br>Inlet / Outlet Invert= 120.50' / 120.30' S= 0.0095 '/' Cc= 0.900<br>n= 0.013, Flow Area= 0.79 sf |
| #2     | Discarded | 117.50' | <b>8.270 in/hr Exfiltration over Surface area</b> Phase-In= 0.01'                                                                                                                |

**Discarded OutFlow** Max=0.5 cfs @ 11.19 hrs HW=117.54' (Free Discharge)↑ **2=Exfiltration** (Exfiltration Controls 0.5 cfs)**Primary OutFlow** Max=2.1 cfs @ 12.31 hrs HW=121.35' (Free Discharge)↑ **1=Culvert** (Barrel Controls 2.1 cfs @ 3.89 fps)

## 171123 - POST

Prepared by R. Levesque Assoc.

HydroCAD® 10.10-7c s/n 02175 © 2022 HydroCAD Software Solutions LLC

Proposed Site Improvements  
Type III 24-hr 100-Year Rainfall=8.26"

Page 33

### Pond 1P: Subsurface Basin - Chamber Wizard Field A

**Chamber Model = ADS\_StormTech SC-740 +Cap (ADS StormTech® SC-740 with cap length)**

Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf

Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

9 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 65.70' Row Length +12.0" End Stone x 2 = 67.70' Base Length

8 Rows x 51.0" Wide + 6.0" Spacing x 7 + 12.0" Side Stone x 2 = 39.50' Base Width

6.0" Stone Base + 30.0" Chamber Height + 12.0" Stone Cover = 4.00' Field Height

72 Chambers x 45.9 cf = 3,307.7 cf Chamber Storage

10,696.1 cf Field - 3,307.7 cf Chambers = 7,388.4 cf Stone x 40.0% Voids = 2,955.4 cf Stone Storage

Chamber Storage + Stone Storage = 6,263.0 cf = 0.144 af

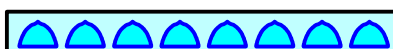
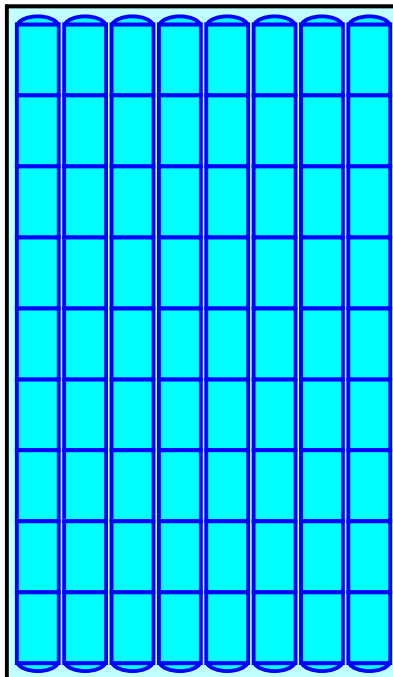
Overall Storage Efficiency = 58.6%

Overall System Size = 67.70' x 39.50' x 4.00'

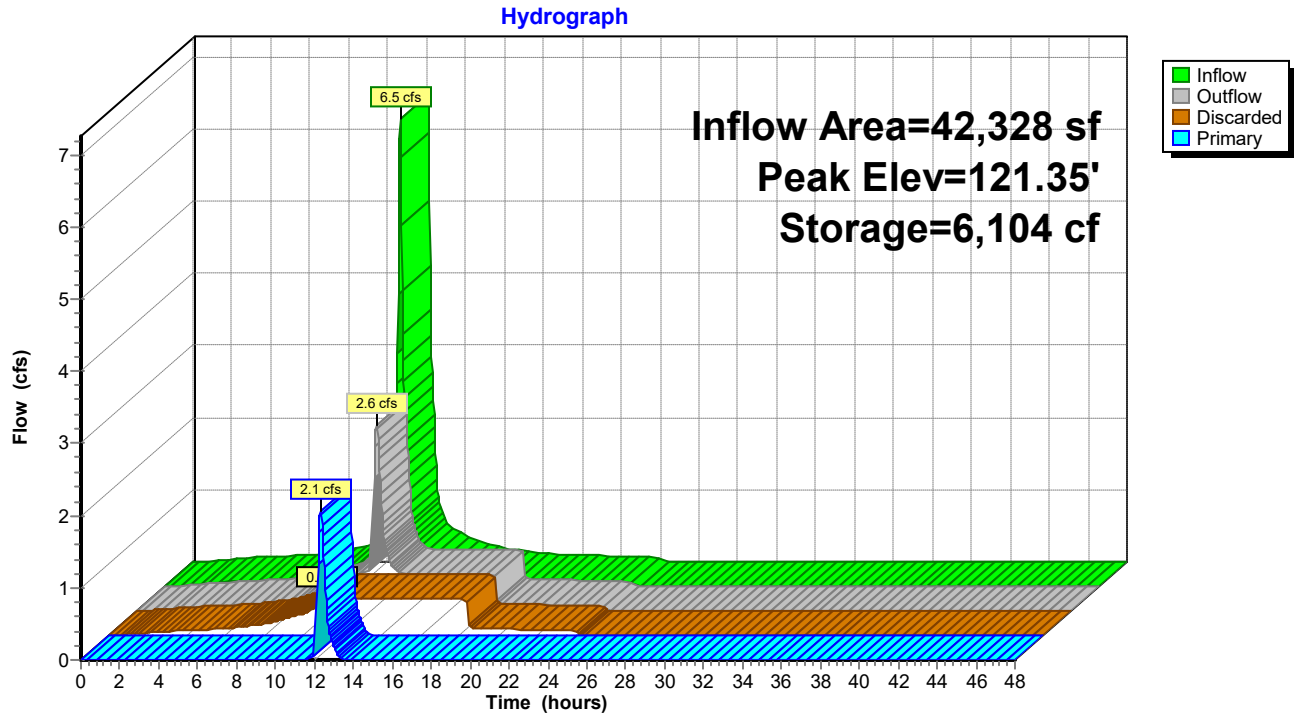
72 Chambers

396.2 cy Field

273.6 cy Stone



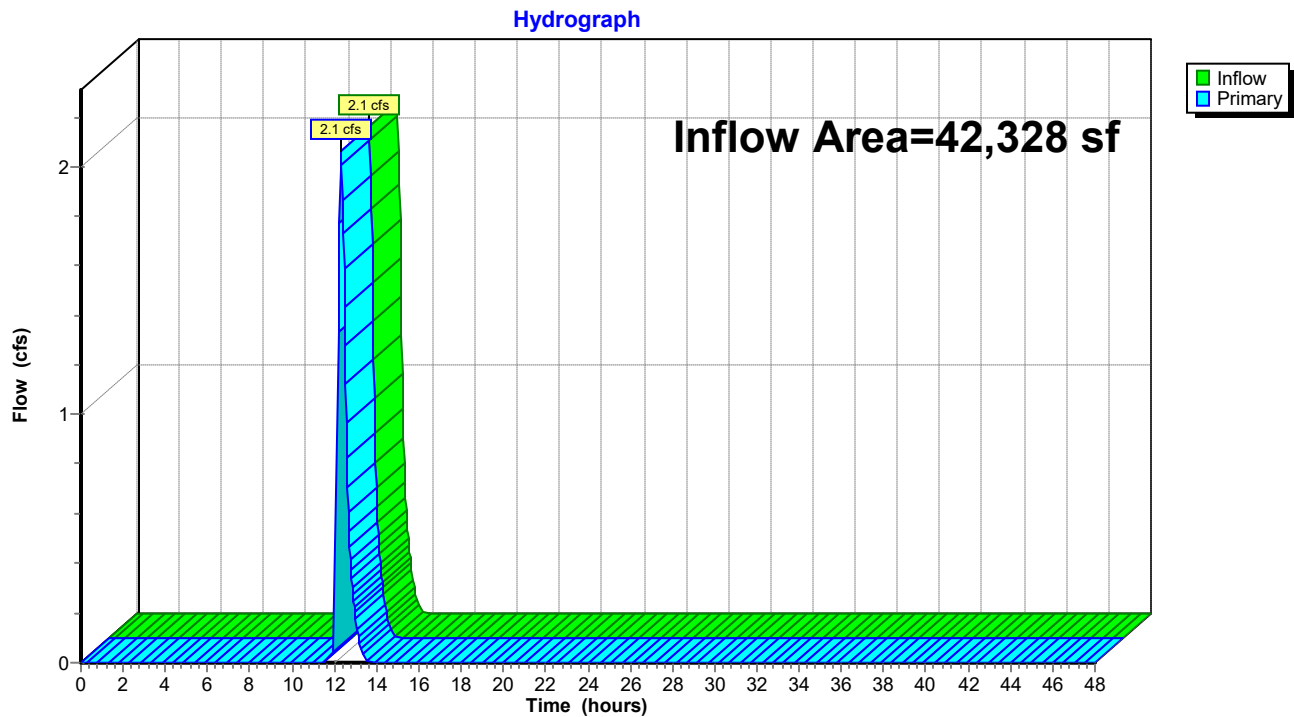
### Pond 1P: Subsurface Basin



**Summary for Link DP-1: Silver Street**

Inflow Area = 42,328 sf, 80.63% Impervious, Inflow Depth = 0.88" for 100-Year event  
Inflow = 2.1 cfs @ 12.31 hrs, Volume= 3,096 cf  
Primary = 2.1 cfs @ 12.31 hrs, Volume= 3,096 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs

**Link DP-1: Silver Street**

# 171123 - POST

Prepared by R. Levesque Assoc.

HydroCAD® 10.10-7c s/n 02175 © 2022 HydroCAD Software Solutions LLC

Proposed Site Improvements  
Type III 24-hr 100-Year Rainfall=8.26"

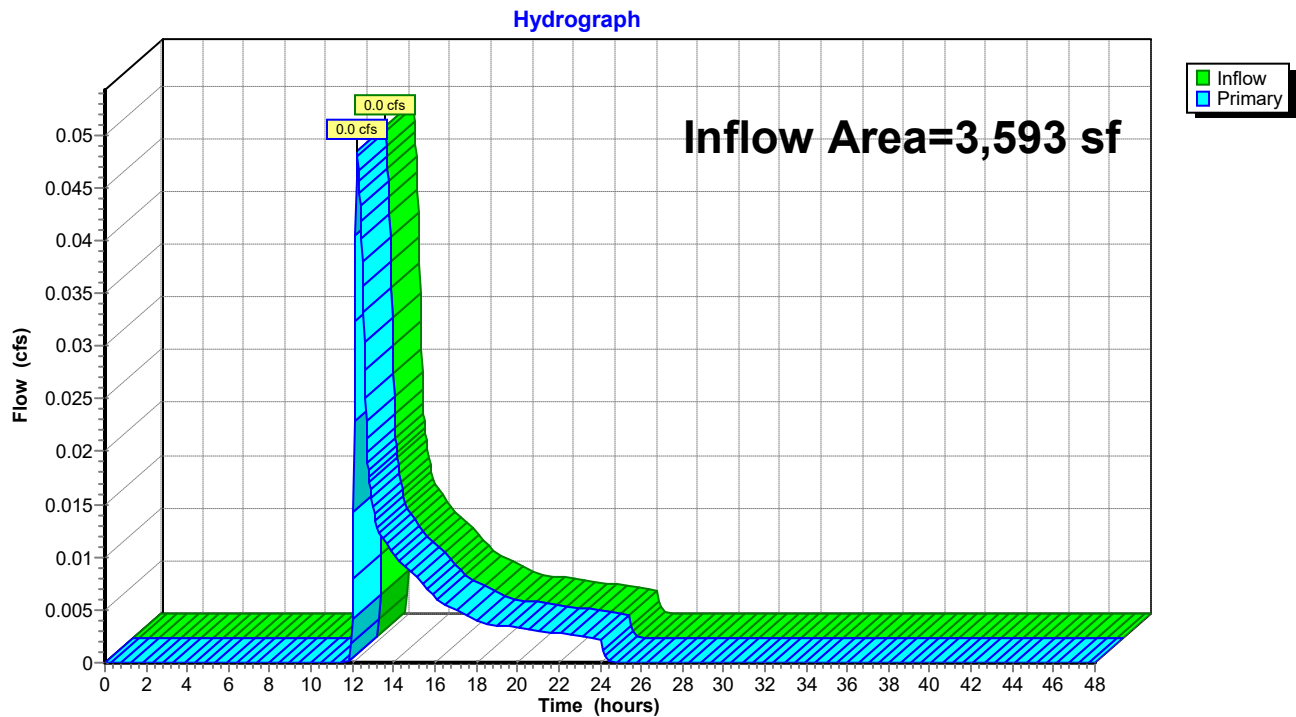
Page 36

## Summary for Link DP-2: Off-Site to the North

Inflow Area = 3,593 sf, 0.00% Impervious, Inflow Depth = 1.04" for 100-Year event  
Inflow = 0.0 cfs @ 12.23 hrs, Volume= 312 cf  
Primary = 0.0 cfs @ 12.23 hrs, Volume= 312 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs

## Link DP-2: Off-Site to the North



## 171123 - POST

Prepared by R. Levesque Assoc.

HydroCAD® 10.10-7c s/n 02175 © 2022 HydroCAD Software Solutions LLC

Proposed Site Improvements  
Type III 24-hr 100-Year Rainfall=8.26"

Page 37

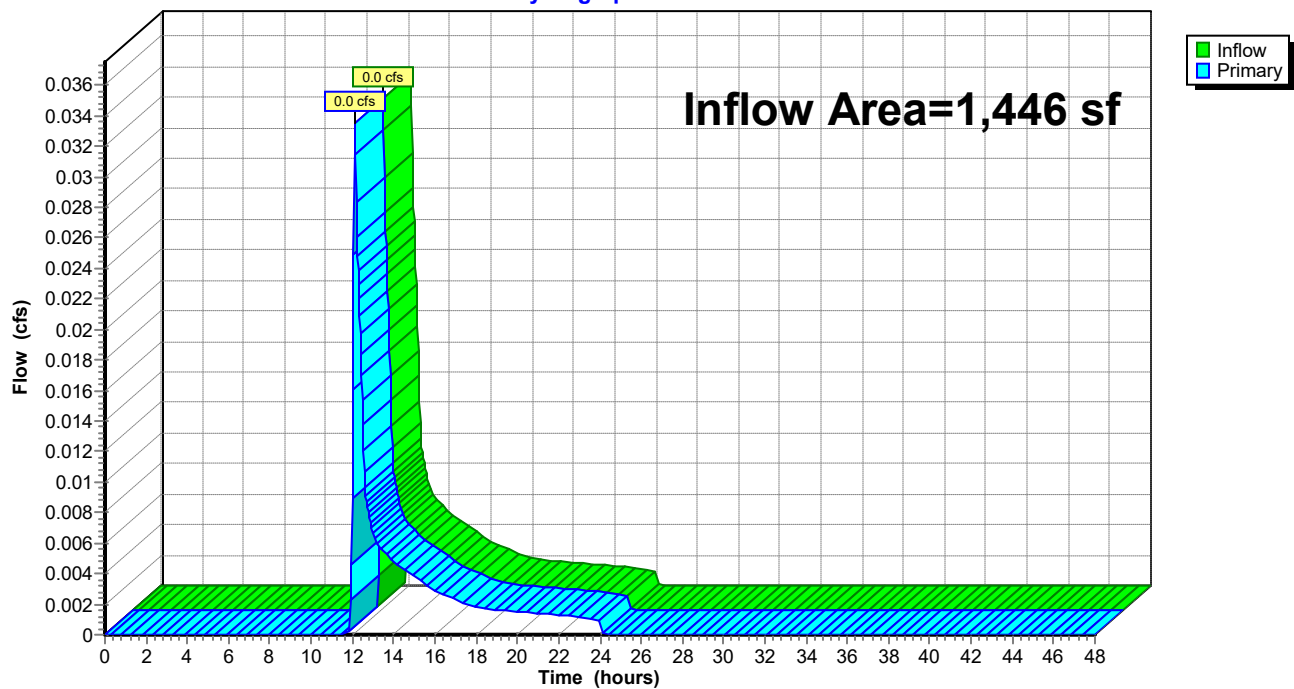
### Summary for Link DP-3: Suffield Street

Inflow Area = 1,446 sf, 0.00% Impervious, Inflow Depth = 1.27" for 100-Year event  
Inflow = 0.0 cfs @ 12.12 hrs, Volume= 153 cf  
Primary = 0.0 cfs @ 12.12 hrs, Volume= 153 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs

### Link DP-3: Suffield Street

Hydrograph





## 171123 - POST

Prepared by R. Levesque Assoc.

HydroCAD® 10.10-7c s/n 02175 © 2022 HydroCAD Software Solutions LLC

Proposed Site Improvements  
Type III 24-hr 100-Year Rainfall=8.26"

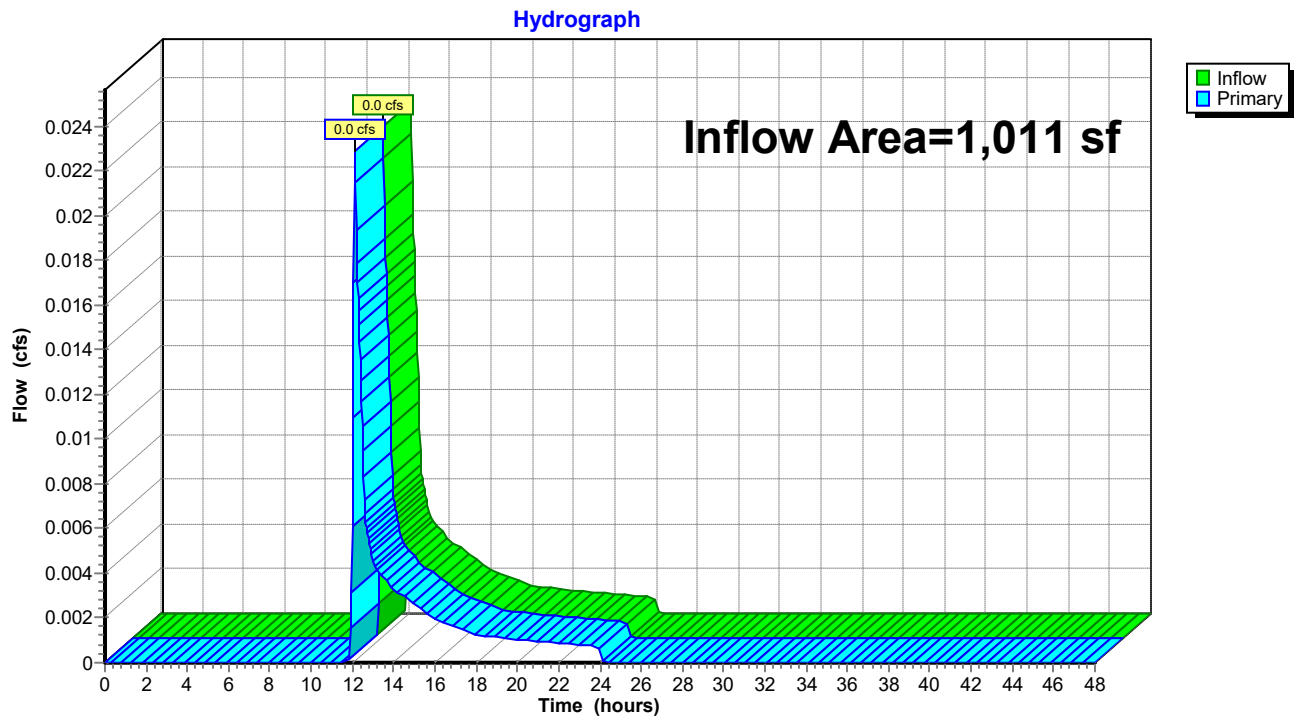
Page 38

### Summary for Link DP-4: Off-Site to the East

Inflow Area = 1,011 sf, 0.00% Impervious, Inflow Depth = 1.25" for 100-Year event  
Inflow = 0.0 cfs @ 12.12 hrs, Volume= 105 cf  
Primary = 0.0 cfs @ 12.12 hrs, Volume= 105 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs

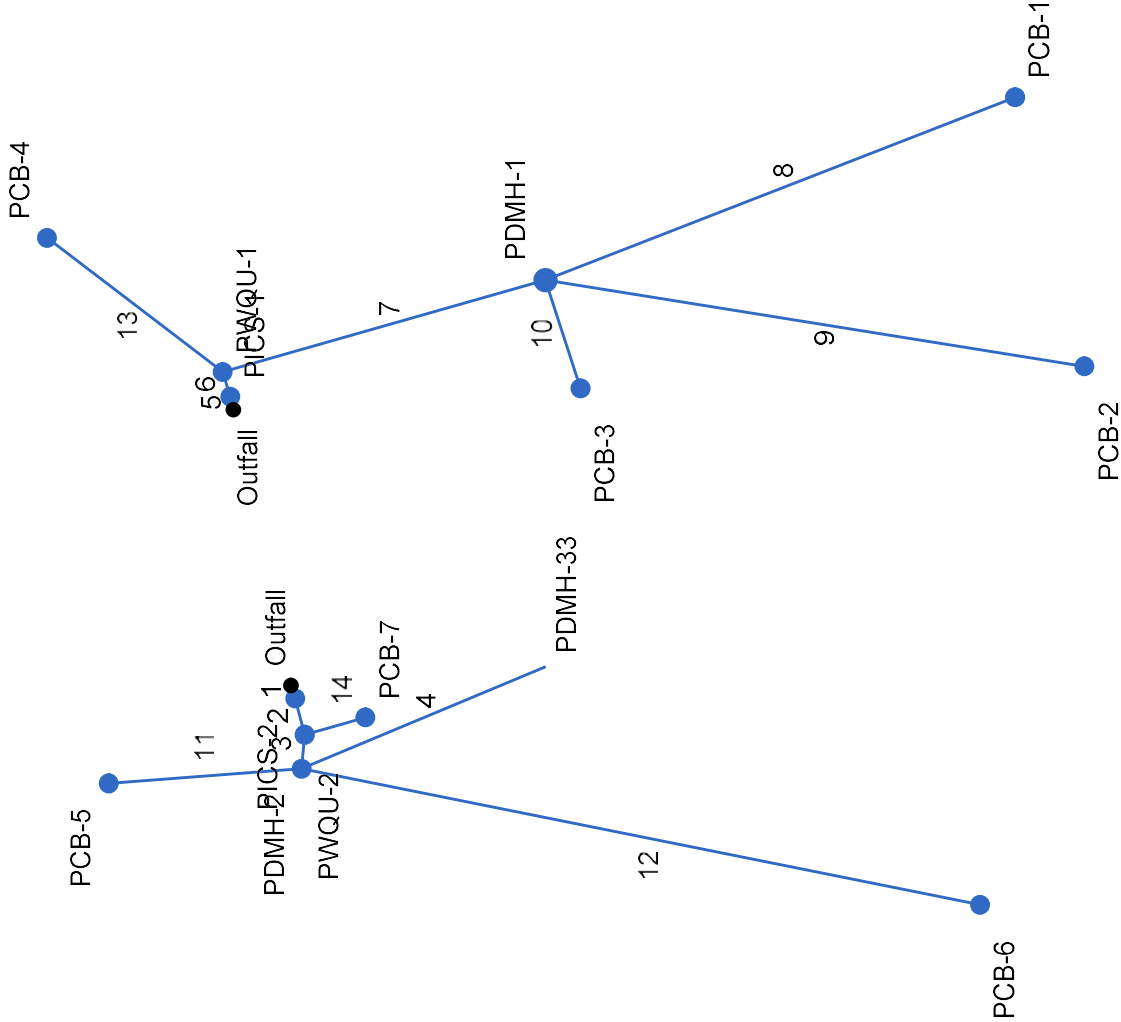
### Link DP-4: Off-Site to the East



## Appendix D: Hydraulic Analysis

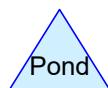
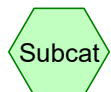
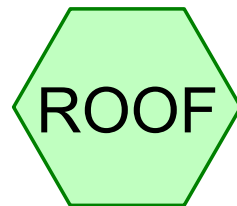
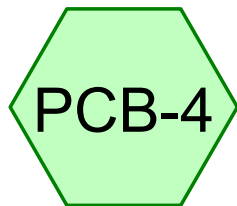
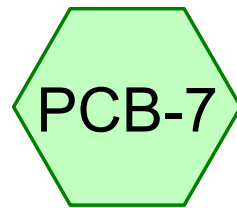
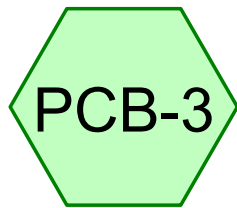
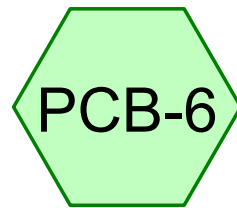
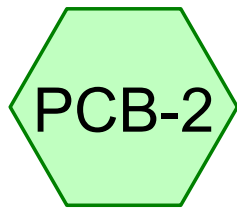
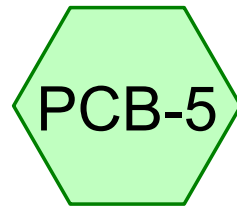
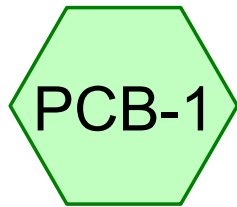


# Hydraflow Storm Sewers Extension for Autodesk® Civil 3D® Plan



# Storm Sewer Tabulation

| Station                                          |            | Le <sup>r</sup><br>(ft) | Drng Area    |               | Rnoff<br>coeff<br>(C) | Area x C |       | Tc             |               | Rain<br>(l)<br>(in/hr) | Total<br>flow<br>(cfs) | Cap<br>full<br>(cfs) | Vel<br>(ft/s) | Pipe                |              | Invert Elev |            | HGL Elev   |            | Grnd / Rim Elev |               | Line ID             |  |
|--------------------------------------------------|------------|-------------------------|--------------|---------------|-----------------------|----------|-------|----------------|---------------|------------------------|------------------------|----------------------|---------------|---------------------|--------------|-------------|------------|------------|------------|-----------------|---------------|---------------------|--|
| Line                                             | To<br>Line |                         | Incr<br>(ac) | Total<br>(ac) |                       | Incr     | Total | Inlet<br>(min) | Syst<br>(min) |                        |                        |                      |               | Size<br>(in)        | Slope<br>(%) | Dn<br>(ft)  | Up<br>(ft) | Dn<br>(ft) | Up<br>(ft) | Dn<br>(ft)      | Up<br>(ft)    |                     |  |
| 1                                                | Enc        | 3.190                   | 0.00         | 0.00          | 0.00                  | 0.00     | 0.00  | 0.00           | 0.0           | 2.7                    | 0.0                    | 2.90                 | 0.00          | 1.35                | 24           | 0.00        | 118.00     | 118.00     | 119.30     | 124.94          | P-D-PIPE-(17) |                     |  |
| 2                                                | 1          | 8.810                   | 0.00         | 0.00          | 0.00                  | 0.00     | 0.00  | 0.00           | 0.0           | 2.7                    | 0.0                    | 2.90                 | 3.75          | 3.65                | 12           | 1.14        | 118.10     | 118.20     | 119.30     | 124.94          | P-D-PIPE-(16) |                     |  |
| 3                                                | 2          | 8.000                   | 0.00         | 0.00          | 0.00                  | 0.00     | 0.00  | 0.00           | 0.0           | 2.7                    | 0.0                    | 2.20                 | 3.96          | 2.80                | 12           | 1.25        | 118.30     | 118.40     | 119.57     | 124.71          | P-D-PIPE-(15) |                     |  |
| 4                                                | 3          | 61.624                  | 0.00         | 0.00          | 0.00                  | 0.00     | 0.00  | 0.00           | 0.0           | 0.0                    | 0.0                    | 0.50                 | 1.2~          | 3.10                | 8            | 1.0~        | 120.90     | 121.52     | 121.20     | 128.59          | P-D-PIPE-(26) |                     |  |
| 5                                                | Enc        | 3.190                   | 0.00         | 0.00          | 0.00                  | 0.00     | 0.00  | 0.00           | 0.0           | 2.0                    | 0.0                    | 3.60                 | 0.00          | 1.62                | 24           | 0.00        | 118.00     | 118.00     | 119.33     | 126.29          | P-D-PIPE-(4)  |                     |  |
| 6                                                | 5          | 6.000                   | 0.00         | 0.00          | 0.00                  | 0.00     | 0.00  | 0.00           | 0.0           | 2.0                    | 0.0                    | 3.60                 | 4.60          | 4.58                | 12           | 1.67        | 118.10     | 118.20     | 119.34     | 126.08          | P-D-PIPE-(3)  |                     |  |
| 7                                                | 6          | 78.560                  | 0.00         | 0.00          | 0.00                  | 0.00     | 0.00  | 0.00           | 0.0           | 1.7                    | 0.0                    | 3.10                 | 3.56          | 3.95                | 12           | 1.00        | 118.30     | 119.09     | 119.73     | 125.18          | P-D-PIPE-(2)  |                     |  |
| 8                                                | 7          | 118.296                 | 0.00         | 0.00          | 0.00                  | 0.00     | 0.00  | 0.00           | 0.0           | 0.0                    | 0.0                    | 1.10                 | 3.15          | 1.85                | 12           | 0.80        | 119.19     | 120.14     | 120.56     | 123.14          | P-D-PIPE-(1)  |                     |  |
| 9                                                | 7          | 128.270                 | 0.00         | 0.00          | 0.00                  | 0.00     | 0.00  | 0.00           | 0.0           | 0.0                    | 0.0                    | 1.00                 | 3.7~          | 2.24                | 12           | 1.08        | 119.19     | 120.58     | 120.56     | 123.58          | P-D-PIPE-(12) |                     |  |
| 10                                               | 7          | 26.675                  | 0.00         | 0.00          | 0.00                  | 0.00     | 0.00  | 0.00           | 0.0           | 0.0                    | 0.0                    | 1.00                 | 9.04          | 2.24                | 12           | 6.45        | 119.19     | 120.91     | 120.56     | 124.41          | P-D-PIPE-(13) |                     |  |
| 11                                               | 3          | 45.576                  | 0.00         | 0.00          | 0.00                  | 0.00     | 0.00  | 0.00           | 0.0           | 0.0                    | 0.0                    | 0.90                 | 6.96          | 2.12                | 12           | 3.82        | 118.40     | 120.14     | 119.72     | 123.64          | P-D-PIPE-(14) |                     |  |
| 12                                               | 3          | 162.304                 | 0.00         | 0.00          | 0.00                  | 0.00     | 0.00  | 0.00           | 0.0           | 0.0                    | 0.0                    | 0.80                 | 4.83          | 2.00                | 12           | 1.84        | 118.40     | 121.39     | 119.72     | 124.39          | P-D-PIPE-(18) |                     |  |
| 13                                               | 6          | 51.819                  | 0.00         | 0.00          | 0.00                  | 0.00     | 0.00  | 0.00           | 0.0           | 0.0                    | 0.0                    | 0.50                 | 9.65          | 1.62                | 12           | 7.4~        | 118.30     | 122.14     | 119.73     | 125.14          | P-D-PIPE-(5)  |                     |  |
| 14                                               | 2          | 14.875                  | 0.00         | 0.00          | 0.00                  | 0.00     | 0.00  | 0.00           | 0.0           | 0.0                    | 0.0                    | 0.70                 | 14.09         | 1.88                | 12           | 15.66       | 118.30     | 120.63     | 119.57     | 124.63          | P-D-PIPE-(19) |                     |  |
| Project File: PR-STORM.stm                       |            |                         |              |               |                       |          |       |                |               |                        |                        |                      |               | Number of lines: 14 |              |             |            |            |            |                 |               | Run Date: 3/20/2025 |  |
| NOTES: Known Qs only ; c = cir e = ellip b = box |            |                         |              |               |                       |          |       |                |               |                        |                        |                      |               |                     |              |             |            |            |            |                 |               |                     |  |



**Routing Diagram for 171123 - INLET**

Prepared by R. Levesque Assoc.

HydroCAD® 10.10-7c s/n 02175 © 2022 HydroCAD Software Solutions LLC

**171123 - INLET**

Prepared by R. Levesque Assoc.

HydroCAD® 10.10-7c s/n 02175 © 2022 HydroCAD Software Solutions LLC

Page 2

**Rainfall Events Listing (selected events)**

| Event# | Event<br>Name | Storm Type     | Curve | Mode    | Duration<br>(hours) | B/B | Depth<br>(inches) | AMC |
|--------|---------------|----------------|-------|---------|---------------------|-----|-------------------|-----|
| 1      | 100-Year      | Type III 24-hr |       | Default | 24.00               | 1   | 8.26              | 2   |

**171123 - INLET**

Prepared by R. Levesque Assoc.

HydroCAD® 10.10-7c s/n 02175 © 2022 HydroCAD Software Solutions LLC

Proposed Site Improvements  
*Type III 24-hr 100-Year Rainfall=8.26"*

Page 3

Time span=0.00-48.00 hrs, dt=0.03 hrs, 1601 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

|                            |                                                                                                        |
|----------------------------|--------------------------------------------------------------------------------------------------------|
| <b>Subcatchment PCB-1:</b> | Runoff Area=6,675 sf 91.13% Impervious Runoff Depth=7.42"<br>Tc=6.0 min CN=WQ Runoff=1.1 cfs 4,128 cf  |
| <b>Subcatchment PCB-2:</b> | Runoff Area=6,601 sf 80.68% Impervious Runoff Depth=6.72"<br>Tc=6.0 min CN=WQ Runoff=1.0 cfs 3,694 cf  |
| <b>Subcatchment PCB-3:</b> | Runoff Area=6,424 sf 81.13% Impervious Runoff Depth=6.75"<br>Tc=6.0 min CN=WQ Runoff=1.0 cfs 3,611 cf  |
| <b>Subcatchment PCB-4:</b> | Runoff Area=3,306 sf 72.41% Impervious Runoff Depth=6.05"<br>Tc=6.0 min CN=WQ Runoff=0.5 cfs 1,668 cf  |
| <b>Subcatchment PCB-5:</b> | Runoff Area=6,505 sf 74.56% Impervious Runoff Depth=6.30"<br>Tc=6.0 min CN=WQ Runoff=0.9 cfs 3,416 cf  |
| <b>Subcatchment PCB-6:</b> | Runoff Area=6,137 sf 65.44% Impervious Runoff Depth=5.69"<br>Tc=6.0 min CN=WQ Runoff=0.8 cfs 2,908 cf  |
| <b>Subcatchment PCB-7:</b> | Runoff Area=4,037 sf 89.30% Impervious Runoff Depth=7.30"<br>Tc=6.0 min CN=WQ Runoff=0.7 cfs 2,455 cf  |
| <b>Subcatchment ROOF:</b>  | Runoff Area=2,644 sf 100.00% Impervious Runoff Depth=8.02"<br>Tc=6.0 min CN=98 Runoff=0.5 cfs 1,767 cf |

**Total Runoff Area = 42,328 sf Runoff Volume = 23,647 cf Average Runoff Depth = 6.70"**  
**19.37% Pervious = 8,200 sf 80.63% Impervious = 34,128 sf**



**171123 - INLET**

Prepared by R. Levesque Assoc.

HydroCAD® 10.10-7c s/n 02175 © 2022 HydroCAD Software Solutions LLC

Proposed Site Improvements

Type III 24-hr 100-Year Rainfall=8.26"

Page 4

**Summary for Subcatchment PCB-1:**

Runoff = 1.1 cfs @ 12.08 hrs, Volume= 4,128 cf, Depth= 7.42"

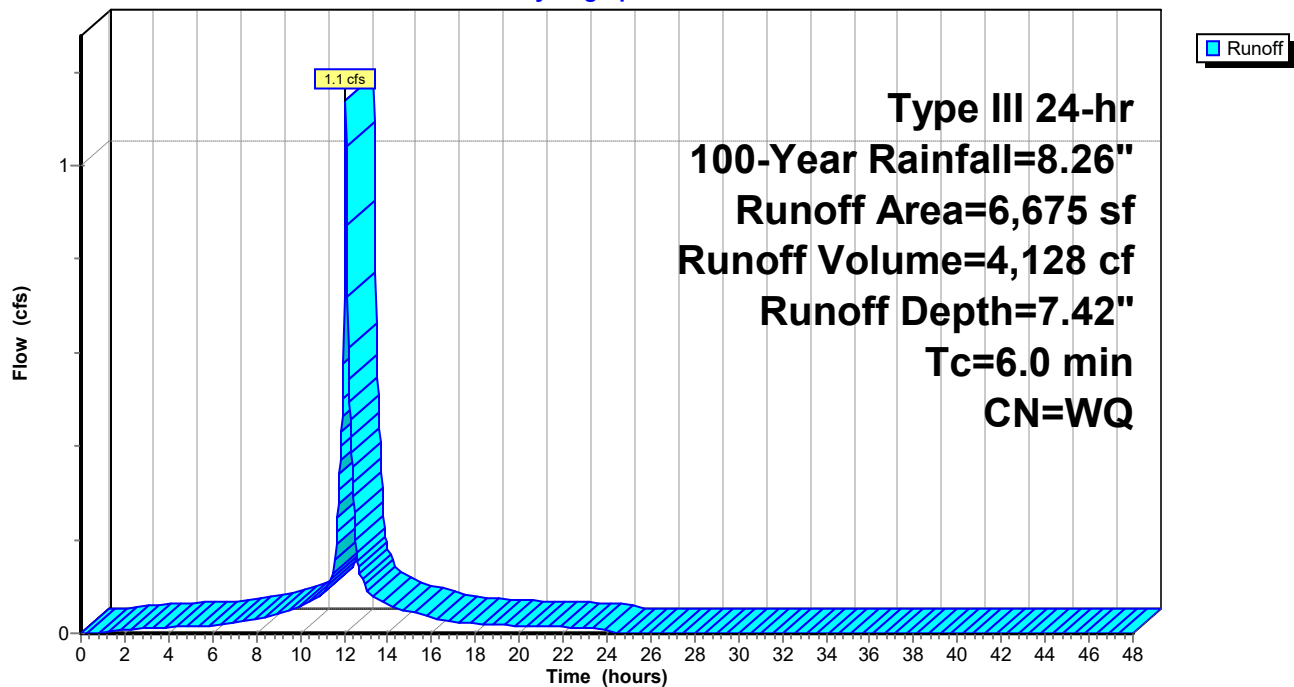
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs  
Type III 24-hr 100-Year Rainfall=8.26"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 592       | 39 | >75% Grass cover, Good, HSG A |
| 6,083     | 98 | Paved parking, HSG A          |
| 6,675     |    | Weighted Average              |
| 592       | 39 | 8.87% Pervious Area           |
| 6,083     | 98 | 91.13% Impervious Area        |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description   |
|-------------|------------------|------------------|----------------------|-------------------|---------------|
| 6.0         |                  |                  |                      |                   | Direct Entry, |

**Subcatchment PCB-1:**

Hydrograph



**171123 - INLET**

Prepared by R. Levesque Assoc.

HydroCAD® 10.10-7c s/n 02175 © 2022 HydroCAD Software Solutions LLC

Proposed Site Improvements  
Type III 24-hr 100-Year Rainfall=8.26"

Page 5

**Summary for Subcatchment PCB-2:**

Runoff = 1.0 cfs @ 12.09 hrs, Volume= 3,694 cf, Depth= 6.72"

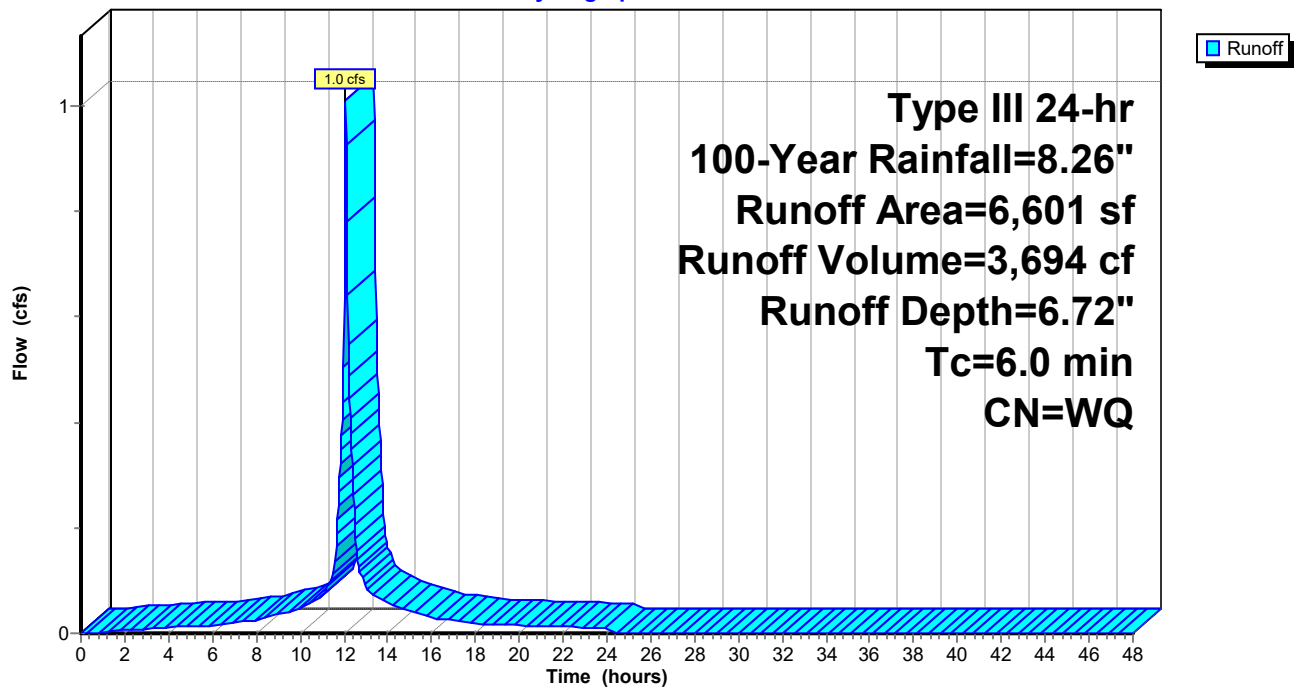
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs  
Type III 24-hr 100-Year Rainfall=8.26"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 1,276     | 39 | >75% Grass cover, Good, HSG A |
| 5,325     | 98 | Paved parking, HSG A          |
| 6,601     |    | Weighted Average              |
| 1,276     | 39 | 19.32% Pervious Area          |
| 5,325     | 98 | 80.68% Impervious Area        |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description   |
|-------------|------------------|------------------|----------------------|-------------------|---------------|
| 6.0         |                  |                  |                      |                   | Direct Entry, |

**Subcatchment PCB-2:**

Hydrograph



**171123 - INLET**

Prepared by R. Levesque Assoc.

HydroCAD® 10.10-7c s/n 02175 © 2022 HydroCAD Software Solutions LLC

Proposed Site Improvements  
Type III 24-hr 100-Year Rainfall=8.26"

Page 6

**Summary for Subcatchment PCB-3:**

Runoff = 1.0 cfs @ 12.09 hrs, Volume= 3,611 cf, Depth= 6.75"

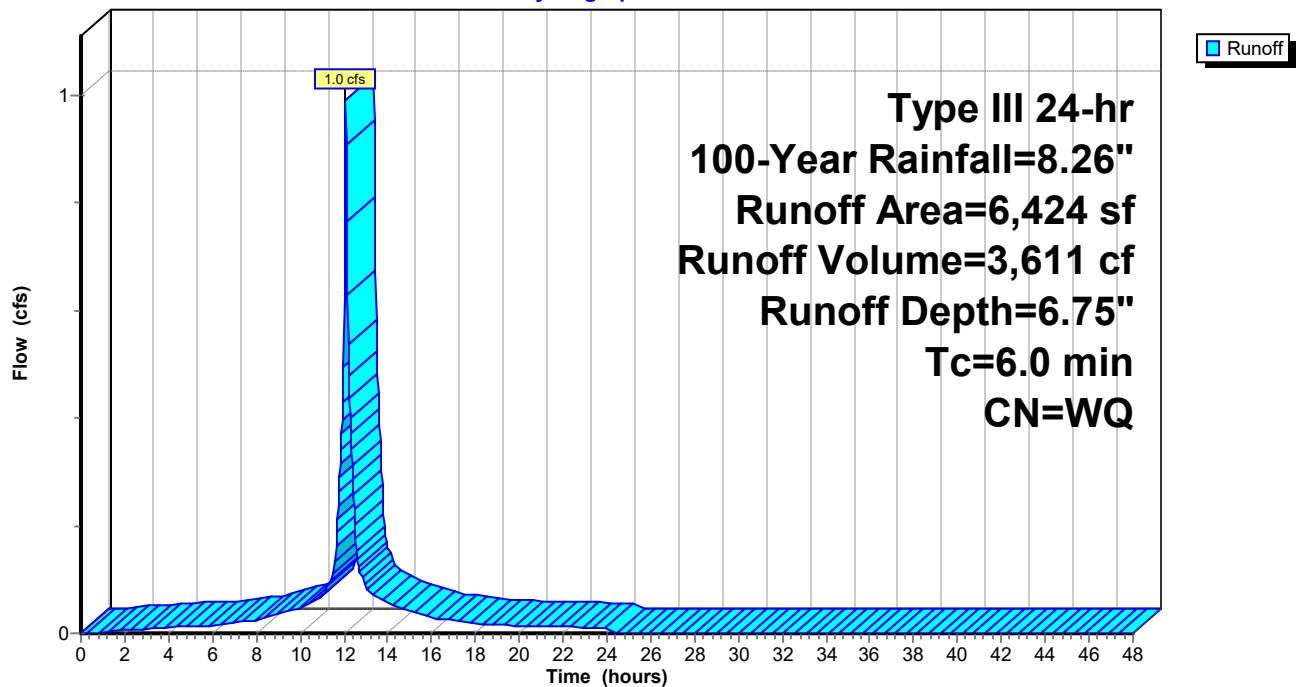
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs  
Type III 24-hr 100-Year Rainfall=8.26"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 1,212     | 39 | >75% Grass cover, Good, HSG A |
| 5,212     | 98 | Paved parking, HSG A          |
| 6,424     |    | Weighted Average              |
| 1,212     | 39 | 18.87% Pervious Area          |
| 5,212     | 98 | 81.13% Impervious Area        |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description   |
|-------------|------------------|------------------|----------------------|-------------------|---------------|
| 6.0         |                  |                  |                      |                   | Direct Entry, |

**Subcatchment PCB-3:**

Hydrograph



**171123 - INLET**

Prepared by R. Levesque Assoc.

HydroCAD® 10.10-7c s/n 02175 © 2022 HydroCAD Software Solutions LLC

Proposed Site Improvements  
Type III 24-hr 100-Year Rainfall=8.26"

Page 7

**Summary for Subcatchment PCB-4:**

Runoff = 0.5 cfs @ 12.09 hrs, Volume= 1,668 cf, Depth= 6.05"

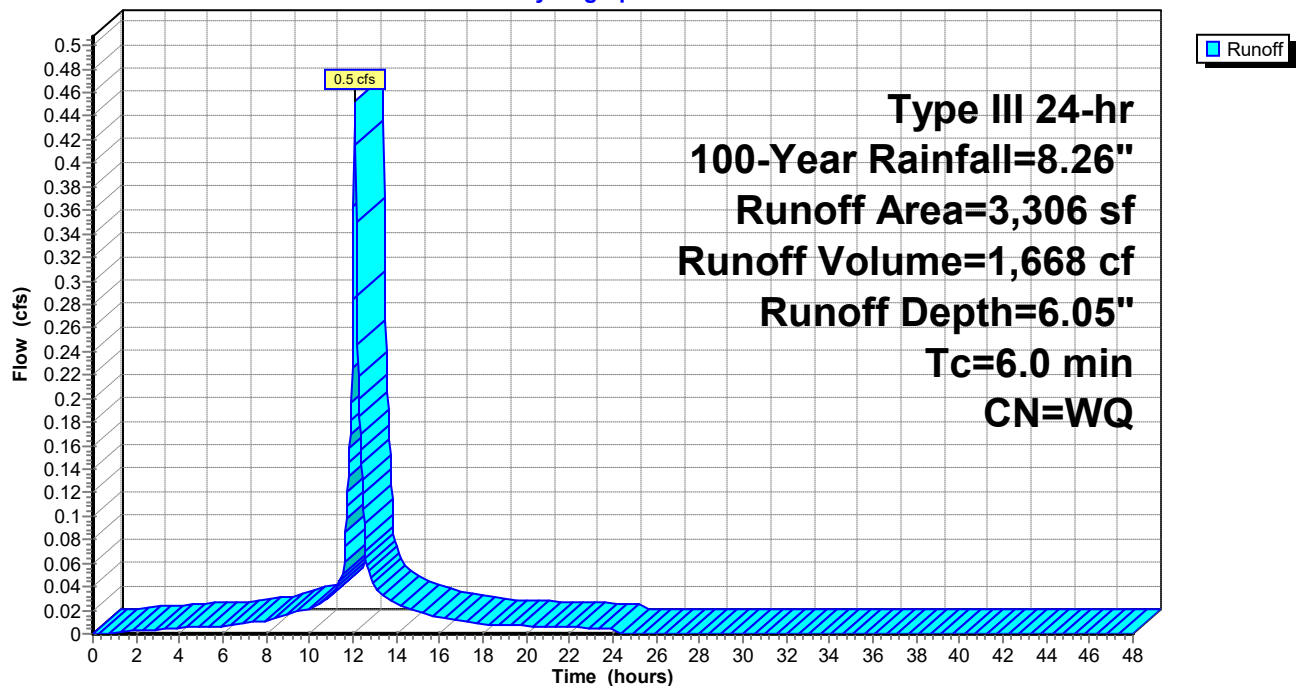
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs  
Type III 24-hr 100-Year Rainfall=8.26"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 484       | 39 | >75% Grass cover, Good, HSG A |
| 2,394     | 98 | Paved parking, HSG A          |
| 428       | 30 | Woods, Good, HSG A            |
| 3,306     |    | Weighted Average              |
| 912       | 35 | 27.59% Pervious Area          |
| 2,394     | 98 | 72.41% Impervious Area        |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description   |
|----------|---------------|---------------|-------------------|----------------|---------------|
| 6.0      |               |               |                   |                | Direct Entry, |

**Subcatchment PCB-4:**

Hydrograph



**171123 - INLET**

Prepared by R. Levesque Assoc.

HydroCAD® 10.10-7c s/n 02175 © 2022 HydroCAD Software Solutions LLC

Proposed Site Improvements  
Type III 24-hr 100-Year Rainfall=8.26"

Page 8

**Summary for Subcatchment PCB-5:**

Runoff = 0.9 cfs @ 12.09 hrs, Volume= 3,416 cf, Depth= 6.30"

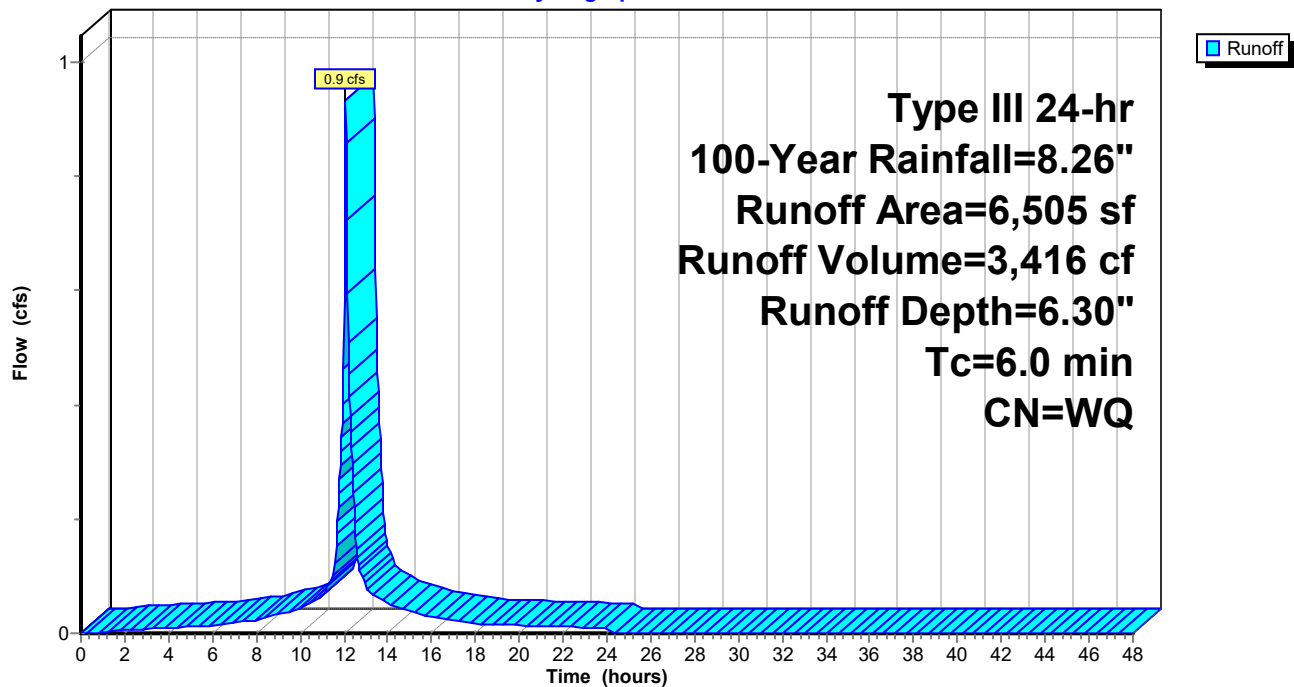
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs  
Type III 24-hr 100-Year Rainfall=8.26"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 1,655     | 39 | >75% Grass cover, Good, HSG A |
| 4,850     | 98 | Paved parking, HSG A          |
| 6,505     |    | Weighted Average              |
| 1,655     | 39 | 25.44% Pervious Area          |
| 4,850     | 98 | 74.56% Impervious Area        |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description   |
|----------|---------------|---------------|-------------------|----------------|---------------|
| 6.0      |               |               |                   |                | Direct Entry, |

**Subcatchment PCB-5:**

Hydrograph



## 171123 - INLET

Prepared by R. Levesque Assoc.

HydroCAD® 10.10-7c s/n 02175 © 2022 HydroCAD Software Solutions LLC

Proposed Site Improvements  
Type III 24-hr 100-Year Rainfall=8.26"

Page 9

### Summary for Subcatchment PCB-6:

Runoff = 0.8 cfs @ 12.09 hrs, Volume= 2,908 cf, Depth= 5.69"

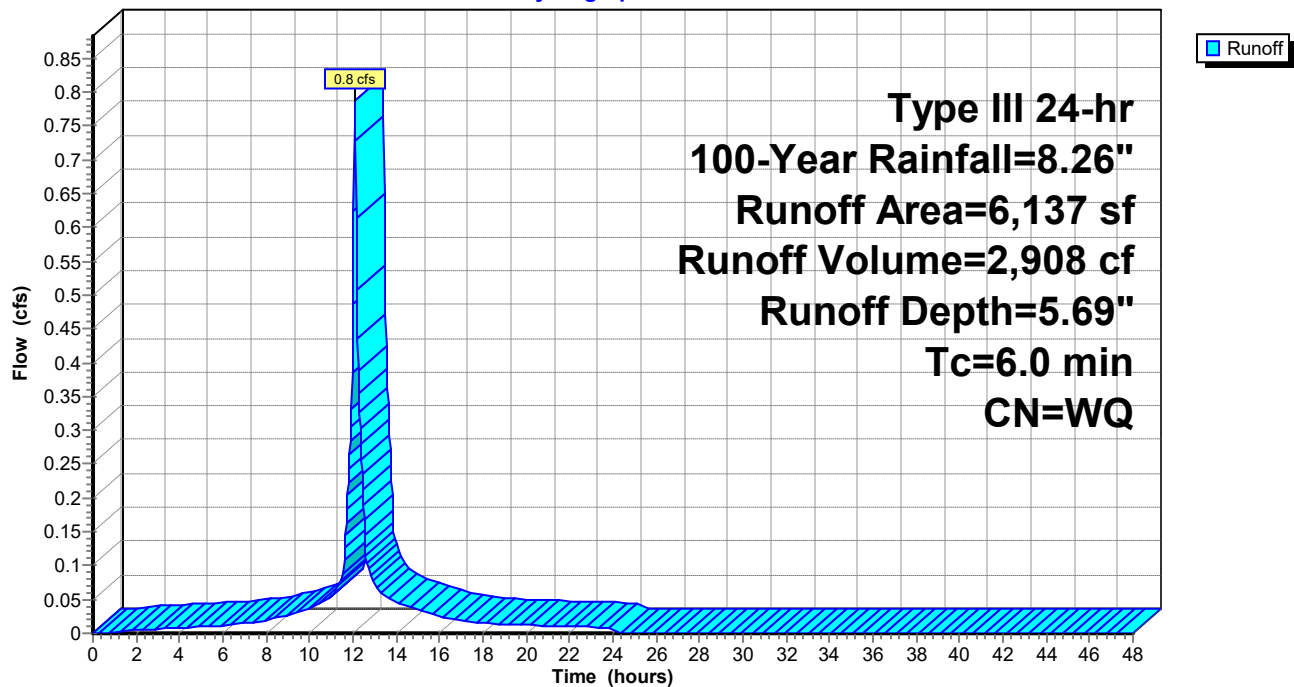
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs  
Type III 24-hr 100-Year Rainfall=8.26"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 2,121     | 39 | >75% Grass cover, Good, HSG A |
| 4,016     | 98 | Paved parking, HSG A          |
| 6,137     |    | Weighted Average              |
| 2,121     | 39 | 34.56% Pervious Area          |
| 4,016     | 98 | 65.44% Impervious Area        |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description   |
|----------|---------------|---------------|-------------------|----------------|---------------|
| 6.0      |               |               |                   |                | Direct Entry, |

### Subcatchment PCB-6:

Hydrograph



## 171123 - INLET

Prepared by R. Levesque Assoc.

HydroCAD® 10.10-7c s/n 02175 © 2022 HydroCAD Software Solutions LLC

Proposed Site Improvements  
Type III 24-hr 100-Year Rainfall=8.26"

Page 10

### Summary for Subcatchment PCB-7:

Runoff = 0.7 cfs @ 12.08 hrs, Volume= 2,455 cf, Depth= 7.30"

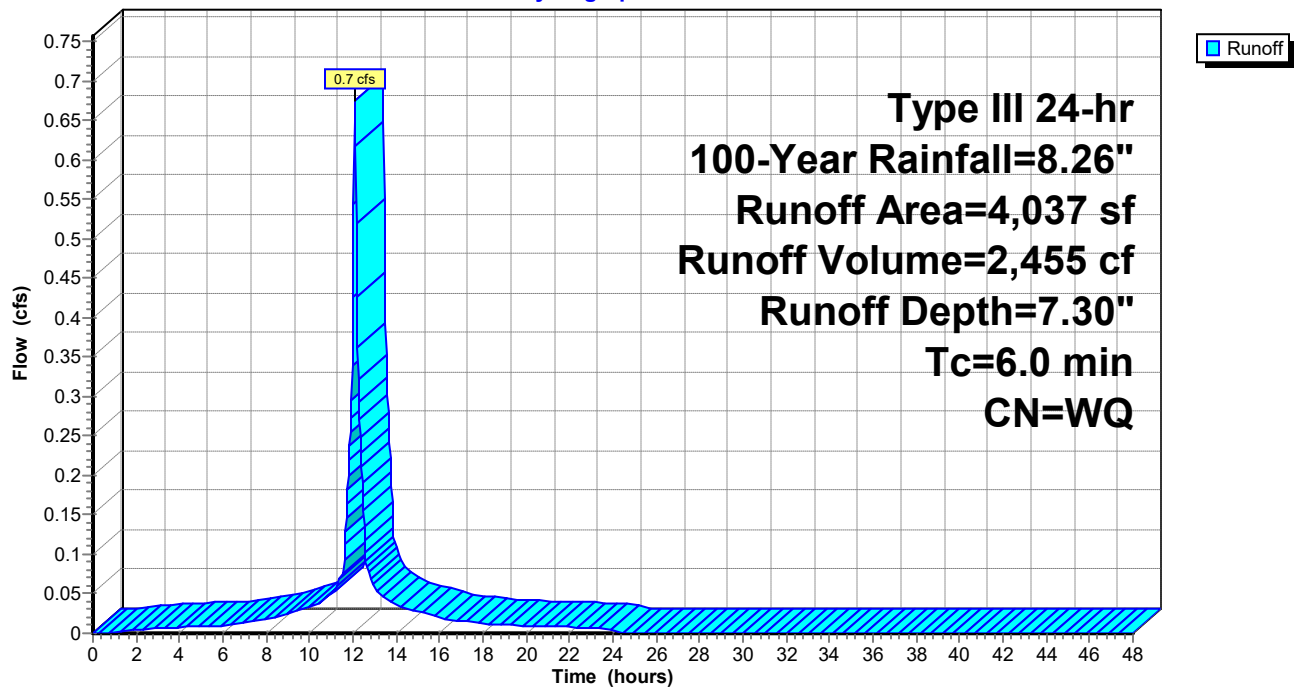
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs  
Type III 24-hr 100-Year Rainfall=8.26"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 432       | 39 | >75% Grass cover, Good, HSG A |
| 3,605     | 98 | Paved parking, HSG A          |
| 4,037     |    | Weighted Average              |
| 432       | 39 | 10.70% Pervious Area          |
| 3,605     | 98 | 89.30% Impervious Area        |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description   |
|-------------|------------------|------------------|----------------------|-------------------|---------------|
| 6.0         |                  |                  |                      |                   | Direct Entry, |

### Subcatchment PCB-7:

Hydrograph



## 171123 - INLET

Prepared by R. Levesque Assoc.

HydroCAD® 10.10-7c s/n 02175 © 2022 HydroCAD Software Solutions LLC

Proposed Site Improvements  
Type III 24-hr 100-Year Rainfall=8.26"

Page 11

### Summary for Subcatchment ROOF:

Runoff = 0.5 cfs @ 12.08 hrs, Volume= 1,767 cf, Depth= 8.02"

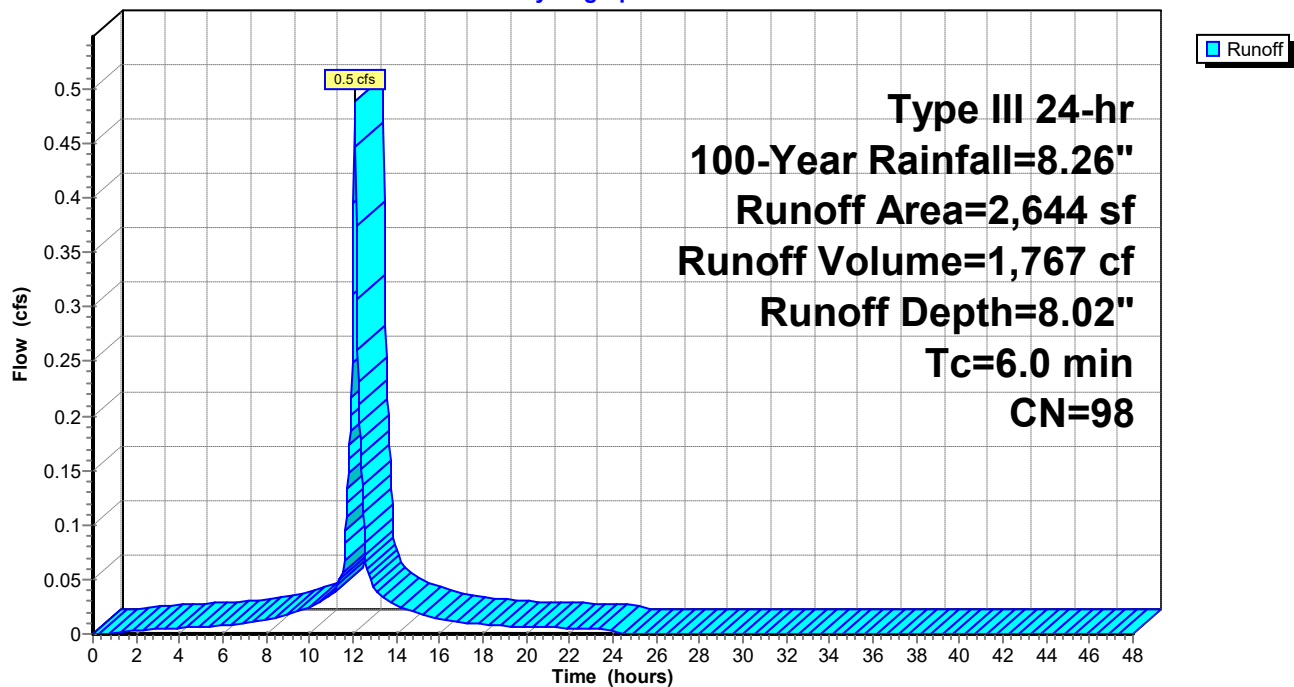
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs  
Type III 24-hr 100-Year Rainfall=8.26"

| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 2,644     | 98 | Roofs, HSG A            |
| 2,644     | 98 | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description   |
|----------|---------------|---------------|-------------------|----------------|---------------|
| 6.0      |               |               |                   |                | Direct Entry, |

### Subcatchment ROOF:

Hydrograph







## Appendix E: MassDEP Calculations

- Impervious Area Calculations
- Recharge Calculation
- Stage Storage Chart – Subsurface Infiltration Basin
- Water Quality Flow Rate Calculations – PWQU-1
- Water Quality Flow Rate Calculations – PWQU-2
- TSS Removal Worksheet – Subsurface Infiltration Basin
- Drawdown Calculation
- Barracuda Max Info Sheet
- Barracuda Max Maintenance Guide



### Standard 3: Recharge Calculations

#### Impervious Area Calculations

Existing Total Impervious Area

| Sub-Catchment | Roof (sf) | Other Impervious (sf) | Sum (sf) |
|---------------|-----------|-----------------------|----------|
| ES-1          | 2644      | 23310                 | 25,954   |
| ES-2          | 0         | 432                   | 432      |
| ES-3          | 0         | 503                   | 503      |
| ES-4          | 0         | 0                     | 0        |
|               |           |                       | 26,889   |

Proposed Total Impervious Area

| Sub-Catchment | Roof (sf) | Other Impervious (sf) | Sum (sf) |
|---------------|-----------|-----------------------|----------|
| PS-1          | 2644      | 31484                 | 34128    |
| PS-2          | 0         | 0                     | 0        |
| PS-3          | 0         | 0                     | 0        |
| PS-4          | 0         | 0                     | 0        |
|               |           |                       | 34,128   |

Tributary to subsurface basin

Summary Table

|                                          |        |    |
|------------------------------------------|--------|----|
| Total Existing Impervious Area           | 26,889 | SF |
| Total Proposed Impervious Area           | 34,128 | SF |
| Total New Impervious Area                | 7,239  | SF |
| Total Impervious Area Tributary to Basin | 34,128 | SF |

### Standard 3: Recharge Calculations - Subsurface Infiltration Basin

$$R_v \text{ (required)} = F \times \text{Impervious Area}$$

where:  $R_v$  = Required Recharge Volume (cu. ft.)

|                         |                     |
|-------------------------|---------------------|
| F = Target Depth Factor | 0.60 inch (A-soils) |
|                         | 0.35 inch (B-soils) |
|                         | 0.25 inch (C-soils) |
|                         | 0.10 inch (D-soils) |

#### New Impervious Area by Hydrologic Soil Type

|                           |               |        |
|---------------------------|---------------|--------|
| Impervious Area (A-soils) | 7,239 sq. ft. | 100.0% |
| Impervious Area (B-soils) | 0 sq. ft.     | 0.0%   |
| Impervious Area (C-soils) | 0 sq. ft.     | 0.0%   |
| Impervious Area (D-soils) | 0 sq. ft.     | 0.0%   |
| Total Impervious area     | 7,239 sq. ft. | 100.0% |

#### Required Recharge Volume Sizing ( $R_v$ )

$$R_v \text{ (required)} = \sum [F_{\text{Soil Type}} \times \text{Impervious Area}_{\text{Soil Type}}] \times 1 \text{ ft./12 in.}$$

$$R_v \text{ (required)} = 362 \text{ cu. ft.}$$

#### Capture Area Adjustment

|                                           |        |         |
|-------------------------------------------|--------|---------|
| Total Imperv. To Recharge Facilities =    | 34,128 | sq. ft. |
| Percent Imperv. To Recharge Facilities* = | 100%   |         |
| Adjustment Factor =                       | 1.00   |         |
| Adjusted $R_v$ (required) =               | 362    | cu. ft. |

\*Impervious Area tributary to recharge facilities must be greater than 65%

#### Storage Volume Provided

| Recharge Facility             | Volume Provided                       |
|-------------------------------|---------------------------------------|
| Subsurface Infiltration Basin | 5,193 cu. ft.**                       |
|                               | <u>5,193 cu. ft. &gt; 362 cu. ft.</u> |

\*\*Volume represents the available storage in the subsurface infiltration basin below orifice (El. 120.50')

**171123 - POST**

Type III 24-hr 100-Year Rainfall=8.26"

Prepared by R. Levesque Assoc.

HydroCAD® 10.10-7c s/n 02175 © 2022 HydroCAD Software Solutions LLC

**Stage-Area-Storage for Pond 1P: Subsurface Basin**

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 117.50              | <b>2,674</b>       | 0                       | 120.10              | 2,674              | 4,690                   |
| 117.55              | 2,674              | 53                      | 120.15              | 2,674              | 4,764                   |
| 117.60              | 2,674              | 107                     | 120.20              | 2,674              | 4,835                   |
| 117.65              | 2,674              | 160                     | 120.25              | 2,674              | 4,902                   |
| 117.70              | 2,674              | 214                     | 120.30              | 2,674              | 4,965                   |
| 117.75              | 2,674              | 267                     | 120.35              | 2,674              | 5,025                   |
| 117.80              | 2,674              | 321                     | 120.40              | 2,674              | 5,083                   |
| 117.85              | 2,674              | 374                     | 120.45              | 2,674              | 5,139                   |
| 117.90              | 2,674              | 428                     | 120.50              | 2,674              | 5,193                   |
| 117.95              | 2,674              | 481                     | 120.55              | 2,674              | 5,247                   |
| 118.00              | 2,674              | 535                     | 120.60              | 2,674              | 5,300                   |
| 118.05              | 2,674              | 645                     | 120.65              | 2,674              | 5,354                   |
| 118.10              | 2,674              | 756                     | 120.70              | 2,674              | 5,407                   |
| 118.15              | 2,674              | 866                     | 120.75              | 2,674              | 5,461                   |
| 118.20              | 2,674              | 977                     | 120.80              | 2,674              | 5,514                   |
| 118.25              | 2,674              | 1,086                   | 120.85              | 2,674              | 5,568                   |
| 118.30              | 2,674              | 1,196                   | 120.90              | 2,674              | 5,621                   |
| 118.35              | 2,674              | 1,305                   | 120.95              | 2,674              | 5,675                   |
| 118.40              | 2,674              | 1,414                   | 121.00              | 2,674              | 5,728                   |
| 118.45              | 2,674              | 1,522                   | 121.05              | 2,674              | 5,782                   |
| 118.50              | 2,674              | 1,630                   | 121.10              | 2,674              | 5,835                   |
| 118.55              | 2,674              | 1,737                   | 121.15              | 2,674              | 5,889                   |
| 118.60              | 2,674              | 1,844                   | 121.20              | 2,674              | 5,942                   |
| 118.65              | 2,674              | 1,951                   | 121.25              | 2,674              | 5,996                   |
| 118.70              | 2,674              | 2,057                   | 121.30              | 2,674              | 6,049                   |
| 118.75              | 2,674              | 2,162                   | 121.35              | 2,674              | 6,103                   |
| 118.80              | 2,674              | 2,267                   | 121.40              | 2,674              | 6,156                   |
| 118.85              | 2,674              | 2,371                   | 121.45              | 2,674              | 6,210                   |
| 118.90              | 2,674              | 2,475                   | 121.50              | 2,674              | <b>6,263</b>            |
| 118.95              | 2,674              | 2,578                   |                     |                    |                         |
| 119.00              | 2,674              | 2,680                   |                     |                    |                         |
| 119.05              | 2,674              | 2,782                   |                     |                    |                         |
| 119.10              | 2,674              | 2,883                   |                     |                    |                         |
| 119.15              | 2,674              | 2,983                   |                     |                    |                         |
| 119.20              | 2,674              | 3,082                   |                     |                    |                         |
| 119.25              | 2,674              | 3,181                   |                     |                    |                         |
| 119.30              | 2,674              | 3,279                   |                     |                    |                         |
| 119.35              | 2,674              | 3,376                   |                     |                    |                         |
| 119.40              | 2,674              | 3,472                   |                     |                    |                         |
| 119.45              | 2,674              | 3,567                   |                     |                    |                         |
| 119.50              | 2,674              | 3,661                   |                     |                    |                         |
| 119.55              | 2,674              | 3,754                   |                     |                    |                         |
| 119.60              | 2,674              | 3,847                   |                     |                    |                         |
| 119.65              | 2,674              | 3,937                   |                     |                    |                         |
| 119.70              | 2,674              | 4,027                   |                     |                    |                         |
| 119.75              | 2,674              | 4,115                   |                     |                    |                         |
| 119.80              | 2,674              | 4,202                   |                     |                    |                         |
| 119.85              | 2,674              | 4,287                   |                     |                    |                         |
| 119.90              | 2,674              | 4,371                   |                     |                    |                         |
| 119.95              | 2,674              | 4,454                   |                     |                    |                         |
| 120.00              | 2,674              | 4,535                   |                     |                    |                         |
| 120.05              | 2,674              | 4,613                   |                     |                    |                         |

Overflow Elevation

## **Standard 4: Water Quality - PWQU-I**

### **Water Quality Volume Conversion to Flow Rate**

**Note:** Required water quality volume based on 0.5-inch of runoff

$$Q = (qu) (A) (WQV)$$

where:  $Q$  = peak flow rate associated with first 0.5-inch of runoff (c.f.s.)

$qu$  = unit peak discharge (csm/in) - value taken from table based on  $t_c$

$A$  = impervious surface drainage area (sq. mi.)

$WQV$  = water quality volume in watershed inches

### **Proposed Water Quality Unit (PWQU-1)**

$$t_c = 0.100 \text{ hrs}$$

$$qu = 752 \text{ csm/in} \quad (\text{from table})$$

$$A = 0.00083 \text{ sq. mi.}^*$$

$$WQV = 0.5 \text{ inch}^{**}$$

$$Q_{0.5} = 0.31 \text{ c.f.s}$$

The Baracuda Max Model S4 provides treatment of flows up to 1.52 c.f.s.

\* Only includes impervious area tributary to PWQU-1

\*\* Water quality depth shall equal 1-inch for discharges within a Zone II or Interim Wellhead Protection Area, to or near another critical area, runoff from a LUHPPL, or exfiltration to soils with infiltration rate greater than 2.4-inches/hour or greater; 1/2-inch for discharges near to other areas

## **Standard 4: Water Quality - PWQU-2**

### **Water Quality Volume Conversion to Flow Rate**

**Note:** Required water quality volume based on 0.5-inch of runoff

$$Q = (qu) (A) (WQV)$$

where:  $Q$  = peak flow rate associated with first 0.5-inch of runoff (c.f.s.)

$qu$  = unit peak discharge (csm/in) - value taken from table based on  $t_c$

$A$  = impervious surface drainage area (sq. mi.)

$WQV$  = water quality volume in watershed inches

### **Proposed Water Quality Unit (PWQU-2)**

$$t_c = 0.100 \text{ hrs}$$

$$qu = 752 \text{ csm/in} \quad (\text{from table})$$

$$A = 0.00060 \text{ sq. mi.}^*$$

$$WQV = 0.5 \text{ inch}^{**}$$

$$Q_{0.5} = 0.22 \text{ c.f.s}$$

The Baracuda Max Model S4 provides treatment of flows up to 1.52 c.f.s.

\* Only includes impervious area tributary to PWQU-2

\*\* Water quality depth shall equal 1-inch for discharges within a Zone II or Interim Wellhead Protection Area, to or near another critical area, runoff from a LUHPPL, or exfiltration to soils with infiltration rate greater than 2.4-inches/hour or greater; 1/2-inch for discharges near to other areas



**TSS Removal Form - Subsurface Infiltration Basin**

| <b>Pre-Treatment</b> | BMP                              | TSS Removal Rate | Starting TSS Load | Amount Removed | Remaining Load |
|----------------------|----------------------------------|------------------|-------------------|----------------|----------------|
|                      | Deep-Sump Hooded Catch Basins    | 0.25             | 1.00              | 0.25           | 0.75           |
|                      | Proprietary Sedimentation Device | 0.80             | 0.75              | 0.60           | 0.15           |
|                      |                                  |                  |                   |                |                |

Pre-Treatment TSS Removal = 85%

| <b>Total Removal</b> | BMP                              | TSS Removal Rate | Starting TSS Load | Amount Removed | Remaining Load |
|----------------------|----------------------------------|------------------|-------------------|----------------|----------------|
|                      | Deep-Sump Hooded Catch Basins    | 0.25             | 1.00              | 0.25           | 0.75           |
|                      | Proprietary Sedimentation Device | 0.80             | 0.75              | 0.60           | 0.15           |
|                      | Subsurface Infiltration Basin    | 0.80             | 0.15              | 0.12           | 0.03           |

Total TSS Removal = 97%

**Drawdown Analysis**

$$T_{\text{DRAWDOWN}} = \frac{R_v}{KA}$$

where:  $T_{\text{DRAWDOWN}}$  = time in hours

$R_v$  = required recharge volume (cu. ft.)

$K$  = Rawls rate                      8.27 inches/hour (A-soils)\*\*

0.52 inches/hour (B-soils)\*\*

0.27 inches/hour (C-soils)\*\*

$A$  = bottom area of recharge facility (sq. ft.)

\*\* Most conservative Rawls rate values for given soil type used for analysis purposes

**Subsurface Infiltration Basin**

$R_v^*$  =              5,193 cu. ft.

$A$  =                2,674 sq. ft.

$T_{\text{DRAWDOWN}}$  =              2.8 hours              < 72 hours              (A-soils)

\*Volume represents the available storage in the subsurface infiltration basin below orifice (El. 120.5')



# Barracuda<sup>®</sup> Max

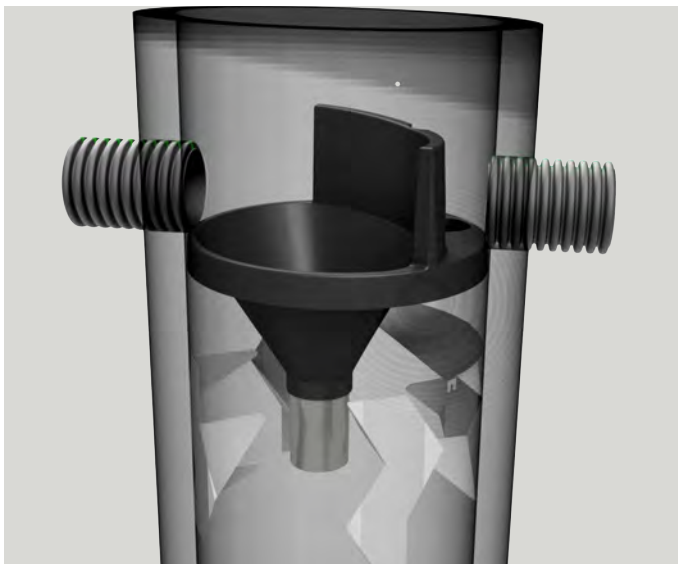
The Barracuda Max is market-changing stormwater quality technology. This high-performance vortex hydrodynamic separator is designed to remove total suspended solids in order to protect our precious receiving waters. The Barracuda Max is also an outstanding value that offers multiple pipe configurations, and quick installation. The “Max” version of the Barracuda is built on the base platform of the original ADS Barracuda with improved removal efficiencies and installation components.

## Features

- Single manhole design
- No elevation loss between the inlet and outlet
- Variable inlet/outlet angle configurations (not just 180 degree orientation)
- Internal bypass for inline installation (where applicable)
- Revolutionary, patent pending “teeth” mitigate turbulence in the sump area to prevent resuspension of captured contaminants
- Available with grated drop inlet configuration
- Available with trash and/or oil capture add-ons

## Benefits

- Internal components are in stock for quick delivery
- The S3, S4, S6, and S8 can be installed in a standard 36” (900 mm), 48” (1200 mm), 72” (1800 mm), and 96” (2400 mm) precast manhole, respectively
- The S3 & S4 can be provided factory installed within a 36” (900 mm) and 48” (1200 mm) ADS HP manhole and delivered to the jobsite
- The Barracuda Max “teeth” and deflector plate apparatus are fabricated and designed for quick and easy field assembly
- Designed for easy maintenance using a vacuum truck or similar equipment.
- Inspection and maintenance are performed from the surface with no confined space entry



# Barrucuda Specification

## Materials and Design

- Concrete Structures: Designed for H-20 traffic loading and applicable soil loads or as otherwise determined by a Licensed Professional Engineer. The materials and structural design of the devices shall be per ASTM C857 and ASTM C858.
- 36" (900 mm) and 48" (1200 mm) HP Manhole Structures: Made from an impact modified copolymer polypropylene meeting the material requirements of ASTM F2764. The eccentric cone reducer shall be manufactured from polyethylene material meeting ASTM D3350 cell class 213320C. Gaskets shall be made of material meeting the requirements of ASTM F477.
- Separator internals shall be substantially constructed of stainless steel, polyethylene or other thermoplastic material approved by the manufacturer.

## Performance

- The stormwater treatment unit shall be an inline unit capable of conveying 100% of the design peak flow. If peak flow rates exceed maximum hydraulic rate, the unit shall be installed offline.
- The Barracuda Max unit shall be designed to remove at least 80% of the suspended solids on an annual aggregate removal basis. Said removal shall be based on full-scale third party testing using OK-110 media gradation or equivalent and 300 mg/L influent concentration. Said full scale testing shall have included sediment capture based on actual total mass collected by the stormwater treatment unit.

- OR -

The Barracuda Max unit shall be designed to remove at least 50% of TSS using a media mix with  $d_{50}$ =75 micron and 200 mg/L influent concentration.

- OR -

The Barracuda Max unit shall be designed to remove at least 50% of TSS per current NJDEP/NJCAT HDS protocol.

- The stormwater treatment unit internals shall consist of (1) separator cone assembly, and (1) sump assembly, which includes the "teeth".

| Barracuda Max Model | Manhole Diameter | OK-110 (80% removal) | Pretreatment for Infiltration <sup>1</sup> |
|---------------------|------------------|----------------------|--------------------------------------------|
| S3                  | 36" (900 mm)     | 0.86 CFS (24.1 L/s)  | 1.65 CFS (46.7 L/s)                        |
| S4                  | 48" (1200 mm)    | 1.52 CFS (43.0 L/s)  | 2.94 CFS (83.3 L/s)                        |
| S6                  | 72" (1800 mm)    | 3.42 CFS (96.8 L/s)  | 6.62 CFS (187.5 L/s)                       |
| S8                  | 96" (2400 mm)    | 6.08 CFS (172.2 L/s) | 11.76 CFS (333.0 L/s)                      |

\* Peak bypass flows are dependent on final design

<sup>1</sup> 50% removal of OK-110.

## Installation

Installation of the stormwater treatment unit(s) shall be performed per manufacturer's installation instructions. Such instructions can be obtained by calling Advanced Drainage Systems at 800-821-6710 or by logging on to [www.adspipe.com](http://www.adspipe.com).



# Barracuda<sup>®</sup> Max & Barracuda Maintenance Guide

One of Barracuda's advantages is the ease of maintenance. Like any system that collects pollutants, the Barracuda must be maintained for continued effectiveness. Maintenance is a simple procedure performed using a vacuum truck or similar equipment. The systems were designed to minimize the volume of water removed during routine maintenance, reducing disposal costs.

Contractors can access the pollutants stored in the manhole through the manhole cover. This allows them to gain vacuum hose access to the bottom of the manhole to remove sediment and trash. There is no confined space entry necessary for inspection or maintenance.

The entire maintenance procedure typically takes 2 to 4 hours, depending on the system's size, the captured material, and the vacuum truck's capacity.

Local regulations may apply to the maintenance procedure. Safe and legal disposal of pollutants is the responsibility of the maintenance contractor. Maintenance should be performed only by a qualified contractor.

## Inspection and Cleaning Cycle

Periodic inspection is needed to determine the need for and frequency of maintenance. You should begin inspecting as soon as construction is complete and then on an annual basis. Typically, the system needs to be cleaned every 1-3 years.

Excessive oils, fuels or sediments may reduce the maintenance cycle. Periodic inspection is important.

## Determining When to Clean

To determine the sediment depth, the maintenance contractor should lower a stadia rod into the manhole until it contacts the top of the captured sediment and mark that spot on the rod. Then push the probe through to the bottom of the sump and mark that spot to determine sediment depth.

Maintenance should occur when the sediment has reached the levels indicated in the Storage Capacity Chart.

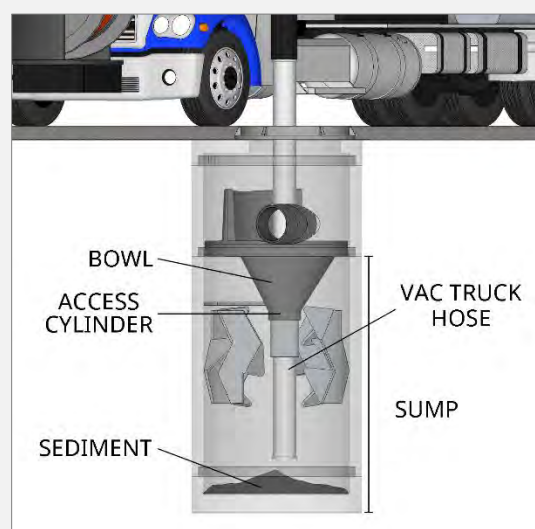
## Barracuda Storage Capacities

| Model | Manhole Diameter in. (mm) | Total System Volume Gallons (Liters) | Treatment Chamber Capacity Gallons (Liters) | Standard Sediment Capacity (20" depth) Yards <sup>3</sup> (meters <sup>3</sup> ) | NJDEP Sediment Capacity (50% of standard depth) Yards <sup>3</sup> (meters <sup>3</sup> ) |
|-------|---------------------------|--------------------------------------|---------------------------------------------|----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|
| S3    | 36 (900)                  | 264 (999)                            | 212 (803)                                   | 0.44 (0.34)                                                                      | 0.22 (0.17)                                                                               |
| S4    | 48 (1200)                 | 665 (2517)                           | 564 (2135)                                  | 0.78 (0.60)                                                                      | 0.39 (0.30)                                                                               |
| S6    | 72 (1800)                 | 1497 (5667)                          | 1269 (4804)                                 | 1.75 (1.34)                                                                      | 0.88 (0.67)                                                                               |
| S8    | 96 (2400)                 | 4196 (15884)                         | 3835 (14517)                                | 3.10 (2.37)                                                                      | 1.55 (1.19)                                                                               |

## Maintenance Instructions

1. Remove the manhole cover to provide access to the pollutant storage. Pollutants are stored in the sump, below the bowl assembly visible from the surface. Access this area through the 8" (200 mm), 10" (250 mm), 15" (375 mm) or 20" (500 mm) diameter access cylinder.
2. Use a vacuum truck or other similar equipment to remove all water, debris, oils and sediment. See figure 1.
3. Use a high pressure hose to clean the manhole of all the remaining sediment and debris. Then, use the vacuum truck to remove the water.
4. Fill the cleaned manhole with water until the level reaches the invert of the outlet pipe.
5. Replace the manhole cover.
6. Dispose of the polluted water, oils, sediment and trash at an approved facility.
  - a. Local regulations prohibit the discharge of solid material into the sanitary system. Check with the local sewer authority for authority to discharge the liquid.
  - b. Some localities treat the pollutants as leachate. Check with local regulators about disposal requirements.
  - c. Additional local regulations may apply to the maintenance procedure.

Figure 1



## Appendix F: Construction Period Erosion Control Plan





# Construction Period Erosion Control Plan

## Proposed Site Improvements

158 Silver Street  
Agawam, MA  
(Parcel ID: J8-2-3)

### Owner/Applicant:

J & N Salema Family Limited Partnership  
c/o Peter Martins  
4 Harding Avenue  
Ludlow, MA 01056

RLA Project File: 171123

**March 20, 2025**

**R LEVESQUE ASSOCIATES, INC**  
**A LAND PLANNING SERVICES COMPANY**

40 School Street · Westfield, MA 01085  
p 413.568.0985 · f 413.568.0986 · [www.rlaland.com](http://www.rlaland.com)



The project shall implement a construction period erosion control plan. The following provides descriptions and guidelines to ensure that the areas surrounding the project site will be protected from excessive sedimentation and runoff during construction.

## **1.1 Construction Period Pollution Prevention And Erosion Control Measures**

### **1.1.1 Preconstruction Notifications And Meetings**

Prior to the start of construction, the contractor shall call together a pre-construction meeting including a representative from the City, the design engineer, contractor, and any pertinent persons that should be in attendance. These requirements shall be the responsibility of the Contractor to arrange, attend, and document.

### **1.1.2 Sediment Barrier And Work Limit**

Before installation of the sediment barriers, the location shall be staked in the field for review and approval by the owner or their representative. To facilitate sediment barrier installation, woody vegetation may then be removed and any required trench may be cut by machine, provided all other ground cover is left intact. No excavation, grading, filling, or removal of vegetative ground cover shall begin until sediment barriers have been installed as shown on the plans and have been inspected by the owner or their representative.

### **1.1.3 Silt Fence**

The bottom of the fence shall be trenched into the ground a minimum of 6" and back-filled with compacted soil. Where trenching is not feasible, silt fence skirt shall be covered with compacted soil or crushed stone. The top of the fabric shall be stretched as tightly as is practical, with intermediate stakes added to correct excessive sags. Stakes shall be driven at least 12" into the ground. Splices between sections shall be made by rolling end stakes together one complete turn and driving into the ground together.

### **1.1.4 Straw Bales**

Straw bales may be used as temporary and moveable control measures, temporary check dams, or as reinforcement for silt fence in areas of concentrated runoff or high fills. Bales shall be tightly butted and staked 12" into the ground. Where used without silt fence in front, the bales shall be trenched 4" into the ground, back-filled with compacted soil, and the spaces between bales shall be chinked with loose straw.

### **1.1.5 Filter Sock (Filtrexx Or Equivalent)**

In areas of expected sheet flow, filter sock may be placed directly on the ground without trenching or stakes. In areas of expected concentrated flow, mulch or crushed stone shall be placed along the up-slope face to control and filter underflow. Additional layers of Filter Sock may be required for adequate freeboard. The filter sock shall be staked at 10 feet on-center or in cases where they cannot be staked, utilize heavy concrete blocks to hold in place.

### 1.1.6 Temporary Sedimentation Basins

Temporary sediment basins may be excavations or bermed stormwater detention structures (depending on grading) that will retain runoff for a sufficient period of time to allow suspended soil particles to settle out prior to discharge. These temporary basins will be located based on construction needs as determined by the contractor and outlet devices will be designed to control velocity and sediment. Points of discharge from sediment basins will be stabilized to minimize erosion. If the temporary basin is to be located within an area of future infiltration as part of the stormwater management system, the excavation for the temporary sedimentation basin shall be limited to one foot above final grade of the infiltration structure.

### 1.1.7 Stocking Additional Materials

A stock of additional erosion control materials shall be available on the site for emergency repairs and temporary measures. Stock shall be replenished when decreased to 50% of the numbers below. Stock shall include:

Straw Bales – 10 (kept dry) with 20 oak stakes

Or

Silt Fence – 30 Linear feet.

Or

Filter Sock – 4 – 8 foot sections (kept dry)

Washed Stone – One (1) cubic yard,  $\frac{3}{4}$ " to 2" diameter

### 1.1.8 Trench Protection

Open trenches shall be protected from accumulation of surface water or groundwater that could result in erosion of the trench and discharge of sediment. Where feasible, spoil shall be stockpiled on the up-slope side of the trench to prevent entrance of surface runoff. Backfill shall be crowned to allow for settlement and to avoid concentration of runoff on top of the trench.

### 1.1.9 Site Stabilization – Temporary

Where a portion of the site will not be subject to construction activity for over 14 days, measures shall be taken to provide temporary stabilization of that inactive portion of the site, within 14 days of the cessation of construction activity. Stabilization measures may include seeding for temporary cover, mulching, or other measures to protect exposed soil from erosion and prevent sediment movement.

### 1.1.10 Site Stabilization – Permanent

Within 14 days of completion of loaming and finish grading on any portion of the site, that area shall be seeded or planted for permanent cover (season permitting) in accordance with USDA NRCS guidelines or equivalent.

### 1.1.11 Roadway Sweeping

The entrance to the site and affected portions of the access drive or paved project areas shall be swept as needed to control sediment runoff into storm drains or waterways and to control blowing dust.

## 1.2 Short-Term Erosion Control Maintenance

The following provides short-term erosion control maintenance guidelines and requirements.

1. The contractor or subcontractor will be responsible for implementing each control shown on the sedimentation and erosion control plan.
2. All erosion and sediment control devices shall be properly maintained during all phases of construction until the completion of all construction activities and all disturbed areas have been stabilized. Additional control measures will be installed during construction in order to control erosion and/or off-site sedimentation if deemed necessary by on-site inspection.
3. Effective erosion control measures shall be initiated prior to the commencement of clearing, grading, excavation, or other operations that will disturb the natural protection.
4. All sediment and erosion control devices shall be inspected at least once every seven (7) calendar days and after any storm event greater than 0.5 inches of precipitation during any 24-hour period, and the inspection shall be documented in writing. Damaged or ineffective devices shall be repaired or replaced, as necessary.
5. The contractor shall take all reasonable precautions to avoid excess erosion of the site due to the construction of this project.
6. Silt shall be removed from behind barriers if greater than 6-inches deep or as needed. Sediment that is collected in structures shall be disposed of properly and covered if stored on-site
7. Damaged or deteriorated items will be repaired immediately after identification.
8. All ditches shall be stabilized as soon as is practicable to minimize erosion.
9. The contractor shall maintain all erosion control devices in a good, working state of repair. Upon complete stabilization of any tributary areas, the erosion control devices shall be removed and disposed of so as to cause no off-site siltation.
10. Inspect and maintain construction entrance stone such that sediment does not track onto the street. Any sediment tracked onto the street shall be swept daily.
11. After catch basins have been constructed, the contractor shall protect the inlets by constructing inlet protection as shown on the plans.
12. Once the site has been paved, all catch basin inlets shall receive a silt sack type protection.

13. Erosion control measures shall remain in place until all disturbed earth has been substantially stabilized. After removal of structures, disturbed areas shall be regraded and stabilized as necessary.



## Appendix G: Long-Term Operation and Maintenance Plan

- Long-Term Operation & Maintenance Plan Narrative
- Barracuda Concrete Installation Guide
- Barracuda Max Maintenance Guide
- StormTech 740 Info Sheet
- StormTech Isolator Row O&M Manual
- O&M Checklist





# Long-Term Operation & Maintenance Plan

## Proposed Site Improvements

158 Silver Street  
Agawam, MA  
(Parcel ID: J8-2-3)

### Owner/Applicant:

J & N Salema Family Limited Partnership  
c/o Peter Martins  
4 Harding Avenue  
Ludlow, MA 01056

RLA Project File: 171123

**March 20, 2025**

## R LEVESQUE ASSOCIATES, INC

**A LAND PLANNING SERVICES COMPANY**

40 School Street · Westfield, MA 01085

p 413.568.0985 · f 413.568.0986 · [www.rlaland.com](http://www.rlaland.com)





## I. Long-Term Stormwater Maintenance Program:

---

This Long-Term Operation and Maintenance Plan (O&M) identifies inspection and maintenance requirements for the proposed stormwater management system. The O&M references guidelines set forth by the Stormwater Management Handbook developed by the Massachusetts Department of Environmental Protection.

**Owner/Responsible Party\*:**

J & N Salema Limited Partnership  
c/o Peter Martins  
4 Harding Avenue  
Ludlow, MA 01056

\*The party listed shall be responsible for implementation and record keeping of the requirements listed in this operation and maintenance plan. Upon sale of property or any other transition of ownership, the responsible party shall be reinstated as the new owner or any other group created as determined by the owner.

---

Signature of Responsible Party Representative

---

Date

## 2. Inspection and Maintenance Program:

Regular inspection and routine maintenance are necessary to ensure that the stormwater management system continues to control and treat runoff. The following lists the inspection schedule and maintenance procedures for the proposed stormwater Best Management Practices:

| BMP                           | Inspection Schedule                                            | Maintenance Schedule             | Maintenance Procedures                                                                                                                                                                       |
|-------------------------------|----------------------------------------------------------------|----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Bituminous Concrete Pavement  | Four times per year                                            | Twice per year                   | <ul style="list-style-type: none"> <li>Roadway to be swept in March or April following snow melt and again in late November or early December to remove fallen leaves and debris.</li> </ul> |
| Deep-Sump Catch Basins        | Four times per year                                            | Four times per year              | <ul style="list-style-type: none"> <li>Remove sediment once deposits reach one half the depth from the bottom sump to the lowest invert.</li> </ul>                                          |
| Stormwater Piping             | Once per year                                                  | Once per year                    | <ul style="list-style-type: none"> <li>Inspect pipe entrances in catch basins and manholes and remove any blockages.</li> </ul>                                                              |
| Water Quality Unit*           | As specified by the manufacturer                               | As specified by the manufacturer | <ul style="list-style-type: none"> <li>Clean the unit using the method specified by the manufacturer. Vector trucks are typically used to clean these units.</li> </ul>                      |
| Subsurface Infiltration Basin | Twice per year thereafter.                                     | Twice per year                   | <ul style="list-style-type: none"> <li>Verify that the inlet structure has no accumulation of sediment.</li> </ul>                                                                           |
| Flared End Section            | Four times per year                                            | As Needed                        | <ul style="list-style-type: none"> <li>Remove any debris or vegetation around the flared end section such that flow out of the structure is not impeded.</li> </ul>                          |
| Roof Leaders                  | Once per year                                                  | Once per year                    | <ul style="list-style-type: none"> <li>Inspect downspout connections at grade and remove any blockages.</li> <li>Open and inspect cleanout locations and remove any blockages.</li> </ul>    |
| Isolator Row(s)**             | Every 6 months for the first year.<br>Once per year thereafter | 3 inches of accumulated sediment | <ul style="list-style-type: none"> <li>Measure accumulated sediment depth. Once sediment reaches 3 inches, maintenance cleaning should be performed.</li> </ul>                              |

\*See attached Device Operation and Maintenance Guides

\*\*See attached Maintenance Guide

See the attached Long-Term O&M Inspection Checklist for record keeping purposes.

### 3. Additional Long-Term Operation and Maintenance Items

---

The following is a list of additional operation and maintenance items to be implemented by the owner/governing group to maintain the features proposed in this project.

- A. Proper storage, use, and disposal of hazardous chemicals, including automobile fluids, pesticides, paints, solvents, etc. shall be required. Information should be provided on chemicals of concern, proper use, and disposal options. Recycling programs for used motor oil, antifreeze, and other products should be developed.
- B. Vehicle Washing. This management measure involves educating the owner on the water quality impacts of the outdoor washing of vehicles and how to avoid allowing polluted runoff to enter the storm drain system. Outdoor vehicle washing has the potential to result in high loads of nutrients, metals, and hydrocarbons which is conveyed by the detergent-rich water into storm drains.
- C. Recycling, spill prevention and response plans, and proper material storage and disposal of potentially hazardous materials shall be implemented. It will be the responsibility of the owner to contain and legally remove any materials that are spilled onsite. The use of dry floor cleaners and absorbent materials and limiting the use of water to clean pavement is encouraged. Care should be taken to avoid accidental disposal of hazardous materials.
- D. Provisions for storing trash and waste products shall be implemented. The waste materials shall be collected by the owner and all materials shall be properly disposed of.
- E. Requirements for routine inspections and maintenance of stormwater best management practices. Routine inspections shall be performed to ensure the correct functioning of stormwater best management practices. See the specific maintenance criteria for detail regarding inspections and maintenance frequency.
- F. Requirements for Storage and Use of Fertilizers, Herbicides, and Pesticides. Fertilizers, pesticides, herbicides, lawn care chemicals, or other leachable materials shall be used in accordance with the Lawn Care Regulations of the Massachusetts Pesticide Board, 33 CMR 10.03 (30,31), as amended, with manufacturer's label instructions and all other necessary precautions to minimize adverse impacts on surface and groundwater. The storage of any such materials shall be within structures designed to prevent the escape of contaminated runoff or leachate.
- G. Provisions for prevention of illicit discharges to the stormwater management system shall be implemented. Any illicit discharges to the stormwater management system shall be prohibited. It will be the owner's responsibility to ensure compliance with the legal disposal of all materials and containment/cleanup of any illicit discharges.
- H. Training for staff or personnel involved with implementation of the Long-Term Pollution Prevention Plan shall be required. The owner/governing group will be responsible for the implementation of the measures set forth in the Long-Term Pollution Prevention Plan. Documentation that personnel and owners involved with the implementation of the Long-Term Pollution Prevention Plan have been trained to conduct such tasks shall be documented.

## 4. Winter and Snow Conditions

---

The following is a list of additional operation and maintenance items to be implemented by the owner during winter and snow conditions.

- A. Snowfall shall be stored on the grassed areas surrounding the pavement areas, excluding any areas utilized for stormwater management practices. As needed, any snow that cannot be stored on site shall be trucked off site and disposed of properly.
- B. Winter road salt and/or sand use and storage restrictions shall be implemented based on any restrictions issued for the project. Sodium chloride for ice control shall be used at the minimum salt to sand ratio which is consistent with the Massachusetts Department of Environmental Protections guidelines. Sodium chloride, calcium chloride, chemically treated abrasives or other chemicals used for the removal of ice and snow on roads/drives shall not be stored on site.

## 5. Public Safety Features

---

The proposed site design utilizes the following features which have been incorporated to ensure the safety of the public:

- A. Control and collection of stormwater runoff through positive drainage and curbing directing it towards the drainage inlets;
- B. Heavy-duty stormwater drain manhole covers and catch basin grates have been designed to withstand H20 loading;
- C. Reduction of peak discharge rates from the site in the post-development condition as compared to the pre-developed conditions;
- D. Development and implementation of an Operations & Maintenance Plan to ensure the stormwater management system continues to function as designed.

## 6. Estimated Cost of Maintenance

The following budget was prepared as an estimate of inspection and maintenance costs for the stormwater management system. The budget is an estimate only as the costs may vary depending on the level of sediment accumulation and frequency of maintenance tasks required.

| BMP Inspections                            | Number of Occurrences | Inspection Cost* | Number of Structures | Sum*    |
|--------------------------------------------|-----------------------|------------------|----------------------|---------|
| Catch Basin                                | 4/year                | \$50             | 7                    | \$1,400 |
| Water Quality Unit                         | 2/year                | \$100            | 2                    | \$400   |
| Subsurface Infiltration Basin              | 2/year                | \$100            | 1                    | \$200   |
| Isolator Row                               | 2/year                | \$100            | 2                    | \$400   |
| Total Estimated Annual Cost of Inspections |                       |                  |                      | \$2,400 |

| BMP Maintenance                            | Number of Occurrences | Maintenance Cost* | Number of Structures | Sum*    |
|--------------------------------------------|-----------------------|-------------------|----------------------|---------|
| Catch Basin                                | 4/year                | \$100             | 7                    | \$2,800 |
| Water Quality Unit                         | 2/year                | \$500             | 2                    | \$2,000 |
| Subsurface Infiltration Basin              | 4/year                | \$300             | 1                    | \$1,200 |
| Isolator Row                               | 2/year                | \$500             | 2                    | \$2,000 |
| Total Estimated Annual Cost of Maintenance |                       |                   |                      | \$8,000 |

\*All above costs are estimates to be used for permitting purposes only. Actual maintenance costs are to be ascertained by the responsible party.





# ADS® Barracuda® Concrete

## Installation Guide

### ADS Barracuda Max & Barracuda S4, S6, S8 Concrete Installation Guide

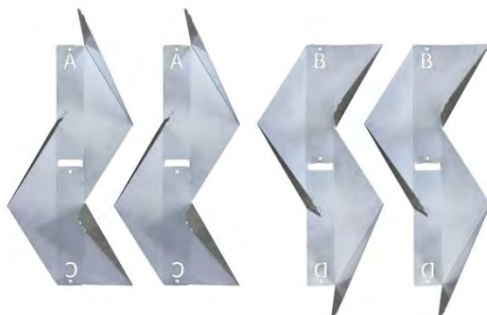
This installation guide is reference for installing the Barracuda Max S4, S6, S8 Water Quality Units into a precast concrete structure in the field.



(1) Deflector Plate



(1) Center Funnel Extender



(2) A/C Stainless Steel  
Tooth Set

(2) B/D Stainless Steel  
Tooth Set



(1) Barracuda Max  
Plastic Funnel

## S4



(4) Stainless Steel Funnel  
Mounting Flanges



(1) Roll of Conseal®



(16) Concrete Anchor  
 $\frac{1}{4} \times 2\frac{1}{4}$ "

## S6



(4) Stainless Steel Funnel  
Mounting Flanges



(3) Roll of Conseal®



(16) Concrete Anchor  
 $\frac{1}{4} \times 2\frac{1}{4}$ "

## S8



(8) Stainless Steel Funnel  
Mounting Flanges



(4) Roll of Conseal®



(22) Concrete Anchor  
 $\frac{1}{4} \times 2\frac{1}{4}$ "

Please check that all components are on site. Below is a list of tools that may be required for installation.

- ☐ 1/4" Diameter Carbide Tipped Concrete Bit
- ☐ Standard Electrical or Battery Operated Drill
- ☐ Adjustable Wrench
- ☐ Marker for writing on the concrete wall
- ☐ Hammer Drill for Concrete (Fits the 1/4" Diameter Concrete Drill Bit)
- ☐ 7/16" Driver or deep socket for installation of provided 1/4" Concrete Wedge Anchors
- ☐ Hammer
- ☐ Level
- ☐ Ladder that will extend to bottom of the structure
- ☐ Safety Glasses
- ☐ Hard Hat
- ☐ Protective Gloves
- ☐ Site Drawings
- ☐ ADS Design Layout



## Installation Instructions (These directions assume the manhole base and riser have been assembled, but that the top slab/cone has not been set).

\*Do not insert the inlet or outlet pipes until after the Barracuda Max internals have been installed. If pipes must be inserted in advance, the pipes should not protrude into the structure as they will interfere with installation of the bowl.

1. Install mounting flanges for the Barracuda Max plastic funnel. These flanges need to be installed at the same height, as indicated by model in Table 1. For example, the anchor holes for S4 flanges should be drilled 77" (1925 mm) from the sump floor. S4 and S6 models have four flanges and they need to be evenly spaced at 12, 3, 6, and 9 o'clock positions. S8 funnels require eight flanges that also need to be evenly spaced (i.e., forty-five degrees on a circle) around the inside of the manhole. This flange points are typically located in the third manhole section from the sump and also contain the pipe openings for the Barracuda Max unit. Use the same anchor procedure as you will when mounting the teeth (see step #4 below), using the ¼" (6.25 mm) concrete drill bit to drill 1¼" (31.25 mm) deep holes. Do not over drill the depth of the anchors. Lightly hammer the anchors in place and use locking nuts to firmly secure the flanges (Figure 1).
2. Next, mount the four sets of teeth vertically inside the manhole sump. Using the engineer's plans or the ADS layout, determine the correct orientation for the plastic funnel outlet hole in relation to the outlet pipe (Figures 2 and 5). The first set of teeth (marked as "A" on the teeth part) will be mounted under the center of the outlet hole from the Bowl. Mark that location with a plumb vertical line, this will serve as the "12 o'clock" landmark in the manhole (Figure 3). Repeat this process to mark lines at the 3, 6, and 9 o'clock positions for a total of four.
3. Each kit includes four sets of teeth. Two of these sets are stamped with the letters A and C. The other two sets are stamped B and D. The ADS shop drawing layout will label the teeth letters and all designs will be the A/B configuration (Figure 5). You will install each set of teeth in the correct location, with the indicated letter facing up (Figure 4). See Table 1 for the correct elevation for the top anchor location of each tooth set, measured from the sump floor for each Barracuda Max Unit. The teeth anchors are all at the same elevation. For example, for an S4 Barracuda the top anchor of an A or B indicated set of teeth will be 60" (1500 mm) off the sump floor. Mark the top anchor elevations on each of your four vertical lines (Figure 3), noting that A and B sets of teeth will be at the same height.

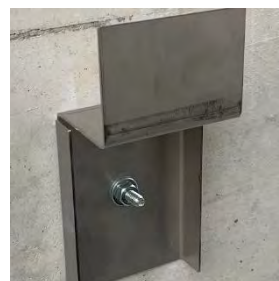


Figure 1



Figure 2

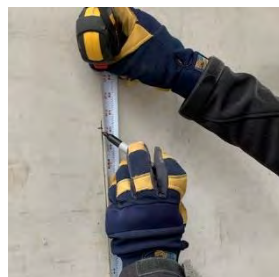
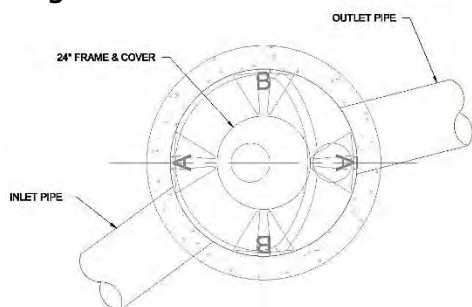


Figure 3



Figure 5

Figure 4



4. To fasten the sets of the teeth to the manhole, use the ¼" concrete drill bit and drill holes approximately 1¼" (31.25 mm) deep at your marked top anchor locations. Do not over drill into the concrete wall. Using a hammer, lightly tap the concrete anchors into the drilled holes (Figure 4). Hang the tooth set on the top anchor with the correct letter facing up and use a locking nut to loosely secure the tooth set to the wall (do not fully tighten the locking nut at this point). With the set of teeth hanging from the top anchor, line up and mark the bottom anchor location and drill the hole. Then hammer the bottom anchor in place and secure the teeth with a lock nut. Use an adjustable or socket wrench to tighten all the top and bottom locking nuts, except for the top nut on the outlet set of teeth (see step #5 below for the deflector plate installation, which will share the top anchor post), so that the teeth are firmly secured to the wall.
5. To attach the deflector plate to the concrete manhole you will use the exit tooth's top concrete anchor and share that linking point with the center tab of the deflector plate. Place the center tab of the deflector plate over the anchor bolt "post" on the outlet set of teeth and hand tighten the nut. Ideally, the plate will be held in place by this center point. Mark the location of the additional mounting tabs for the deflector plate while holding the plate relatively level. All deflector plate concrete anchors will be at the same elevation as the top tooth linking points and the anchors will be installed like the description in step #4. Once the two outer deflector plate linking points have been located, the installer can draw a vertical line and measure the exact location corresponding to the "high" teeth anchoring elevation. Once the deflector plate concrete anchors are installed tighten the nuts to complete the fastening of the deflector plate to the wall of the structure. See Figure 6 to show this more clearly.
6. Lower the plastic funnel into the structure (Figure 7), orienting the weir and outlet hole as depicted in the ADS layout (as identified in step 1). S6 and S8 units have eyebolts threaded holes on the top of the funnel to assist in lifting, and the eyebolts are provided in the equipment kit. If the eyebolts are misplaced, S6 units have ⅜" (9 mm) -16 threads and S8 units utilize ½" (12 mm) -13 threads. After the bowl is in place, install the center funnel extender through the hole and seat it until the tabs of the extender touch the bowl itself (Figure 8). This is a friction-based attachment and no fasteners are needed.
7. Next, you'll use Conseal to fill any gaps around the funnel. S6 and S8 units are provided with a metal funnel plug. This plug is placed in the funnel opening for worker safety and must be utilized ANYTIME SOMEONE ENTERS THE STRUCTURE. Unroll the Conseal and wedge it between the funnel and manhole to create a seal (Figure 9). Conseal should also be used to seal between the vertical edges of the weir wall and the manhole. The plastic funnel can expand with high temperature. Install the funnel during cooler parts of the day, or keep the funnel shaded until installation can mitigate fitment issues. Once the Conseal is installed, the internal component installation is complete. The funnel plug may be discarded (if applicable), and the top slab can be set. If the application calls for a grated inlet, orient the slab so the grate is above the inlet (large bowl) side of the plastic funnel.

For maintenance details, please refer to the Barracuda Max Maintenance Manual. If the application requires a trash rack or oil boom, reference the appropriate supplementary installation instructions.



Figure 6



Figure 7



Figure 8

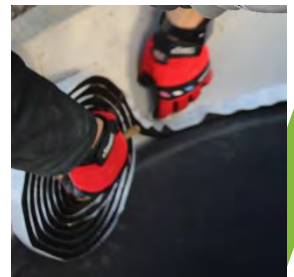


Figure 9

**Table 1**

|                                                                    | S4            | S6            | S8             |
|--------------------------------------------------------------------|---------------|---------------|----------------|
| Top Anchor Elevation from Sump Floor<br>(A and B tooth indication) | 60" (1270 mm) | 68" (1475 mm) | 90" (1880 mm)  |
| Funnel Flange Anchor Elevation from<br>Sump Floor                  | 77" (1960 mm) | 77" (1960 mm) | 127" (3220 mm) |

**Note:** Distances can be +/- 1-2 inches (25-50 mm) from these locations for the A, and B teeth, but flange elevations should be adhered to as much as possible and can only be lowered a maximum of 1 inch (25 mm) from these values listed above.

This guide is intended for field installations of Barracuda Max S4, S6, and S8 water quality units into precast manholes. For pre-casters installing internal components prior to job site delivery, contact ADS for possible modifications to component elevations.



# Barracuda<sup>®</sup> Max & Barracuda Maintenance Guide

One of Barracuda's advantages is the ease of maintenance. Like any system that collects pollutants, the Barracuda must be maintained for continued effectiveness. Maintenance is a simple procedure performed using a vacuum truck or similar equipment. The systems were designed to minimize the volume of water removed during routine maintenance, reducing disposal costs.

Contractors can access the pollutants stored in the manhole through the manhole cover. This allows them to gain vacuum hose access to the bottom of the manhole to remove sediment and trash. There is no confined space entry necessary for inspection or maintenance.

The entire maintenance procedure typically takes 2 to 4 hours, depending on the system's size, the captured material, and the vacuum truck's capacity.

Local regulations may apply to the maintenance procedure. Safe and legal disposal of pollutants is the responsibility of the maintenance contractor. Maintenance should be performed only by a qualified contractor.

## Inspection and Cleaning Cycle

Periodic inspection is needed to determine the need for and frequency of maintenance. You should begin inspecting as soon as construction is complete and then on an annual basis. Typically, the system needs to be cleaned every 1-3 years.

Excessive oils, fuels or sediments may reduce the maintenance cycle. Periodic inspection is important.

## Determining When to Clean

To determine the sediment depth, the maintenance contractor should lower a stadia rod into the manhole until it contacts the top of the captured sediment and mark that spot on the rod. Then push the probe through to the bottom of the sump and mark that spot to determine sediment depth.

Maintenance should occur when the sediment has reached the levels indicated in the Storage Capacity Chart.



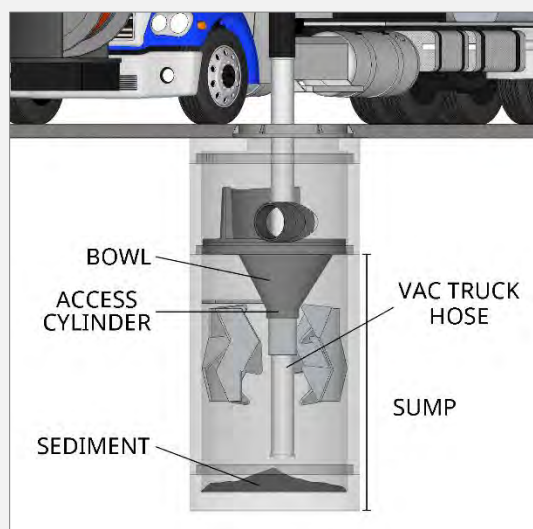
## Barracuda Storage Capacities

| Model | Manhole Diameter in. (mm) | Total System Volume Gallons (Liters) | Treatment Chamber Capacity Gallons (Liters) | Standard Sediment Capacity (20" depth) Yards <sup>3</sup> (meters <sup>3</sup> ) | NJDEP Sediment Capacity (50% of standard depth) Yards <sup>3</sup> (meters <sup>3</sup> ) |
|-------|---------------------------|--------------------------------------|---------------------------------------------|----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|
| S3    | 36 (900)                  | 264 (999)                            | 212 (803)                                   | 0.44 (0.34)                                                                      | 0.22 (0.17)                                                                               |
| S4    | 48 (1200)                 | 665 (2517)                           | 564 (2135)                                  | 0.78 (0.60)                                                                      | 0.39 (0.30)                                                                               |
| S6    | 72 (1800)                 | 1497 (5667)                          | 1269 (4804)                                 | 1.75 (1.34)                                                                      | 0.88 (0.67)                                                                               |
| S8    | 96 (2400)                 | 4196 (15884)                         | 3835 (14517)                                | 3.10 (2.37)                                                                      | 1.55 (1.19)                                                                               |

## Maintenance Instructions

1. Remove the manhole cover to provide access to the pollutant storage. Pollutants are stored in the sump, below the bowl assembly visible from the surface. Access this area through the 8" (200 mm), 10" (250 mm), 15" (375 mm) or 20" (500 mm) diameter access cylinder.
2. Use a vacuum truck or other similar equipment to remove all water, debris, oils and sediment. See figure 1.
3. Use a high pressure hose to clean the manhole of all the remaining sediment and debris. Then, use the vacuum truck to remove the water.
4. Fill the cleaned manhole with water until the level reaches the invert of the outlet pipe.
5. Replace the manhole cover.
6. Dispose of the polluted water, oils, sediment and trash at an approved facility.
  - a. Local regulations prohibit the discharge of solid material into the sanitary system. Check with the local sewer authority for authority to discharge the liquid.
  - b. Some localities treat the pollutants as leachate. Check with local regulators about disposal requirements.
  - c. Additional local regulations may apply to the maintenance procedure.

Figure 1



# StormTech SC-740 Chamber

Designed to meet the most stringent industry performance standards for superior structural integrity while providing designers with a cost-effective method to save valuable land and protect water resources. The StormTech system is designed primarily to be used under parking lots thus maximizing land usage for commercial and municipal applications.



## StormTech SC-740 Chamber

(not to scale)

### Nominal Chamber Specifications

#### Size (L x W x H)

85.4" x 51.0" x 30.0"

(2170 x 1295 x 762 mm)

#### Chamber Storage

45.9 ft<sup>3</sup> (1.30 m<sup>3</sup>)

#### Minimum Installed Storage\*

74.9 ft<sup>3</sup> (2.12 m<sup>3</sup>)

#### Weight

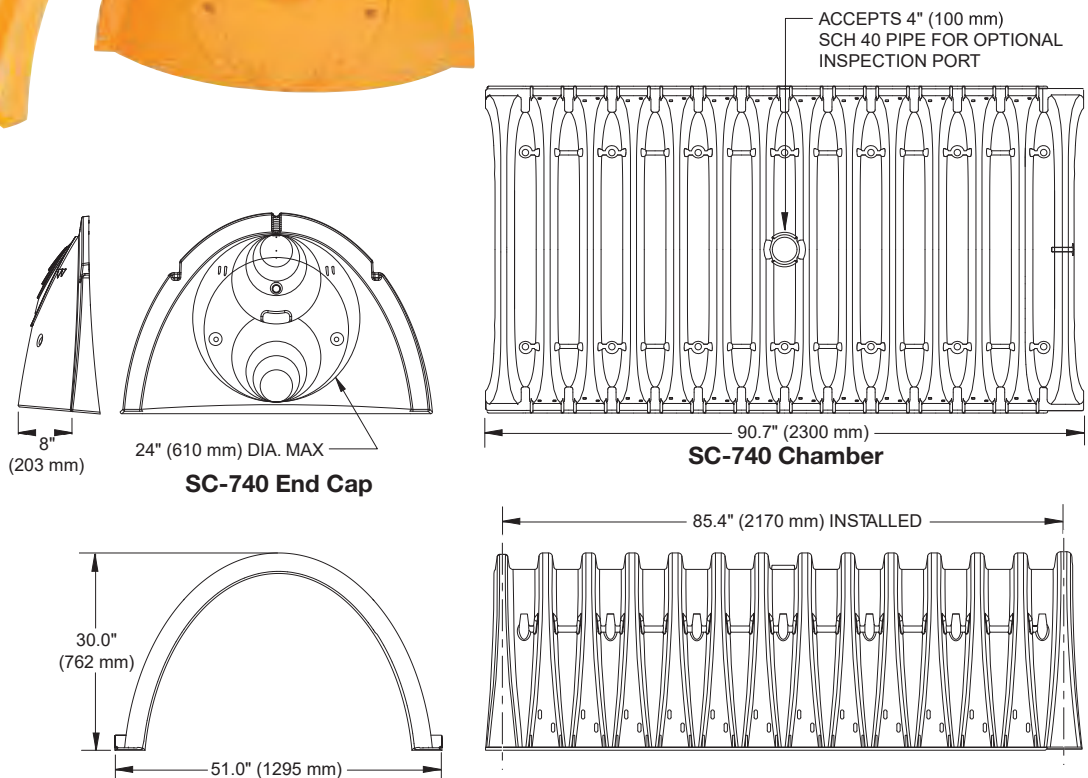
74.0 lbs (33.6 kg)

#### Shipping

30 chambers/pallet

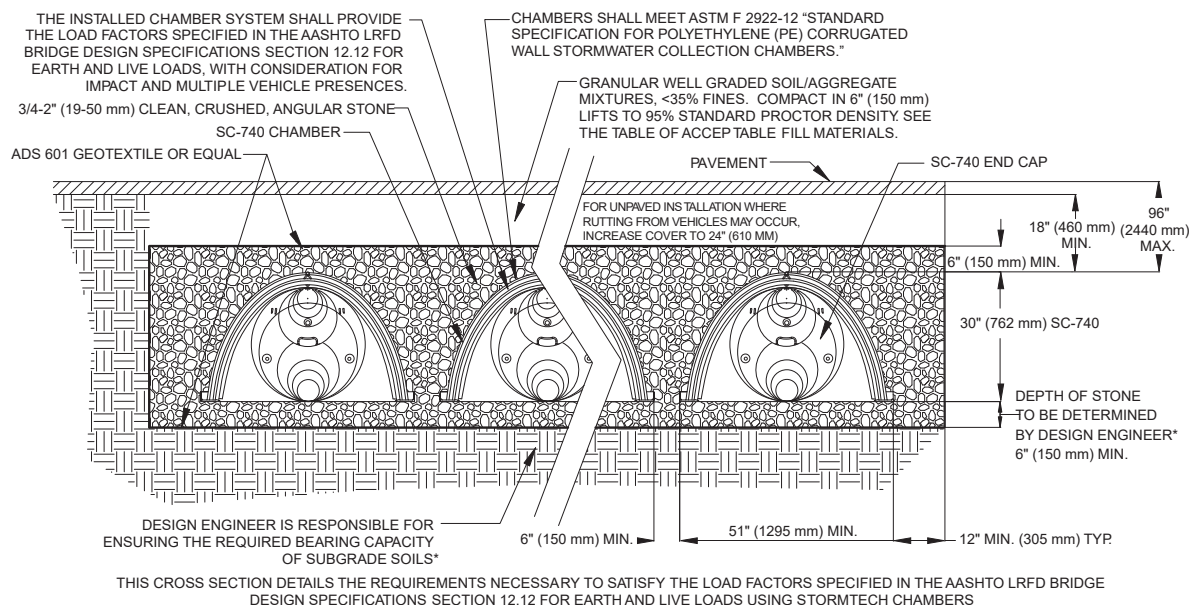
60 end caps/pallet

12 pallets/truck



## Typical Cross Section Detail

(not to scale)





### SC-740 Cumulative Storage Volumes Per Chamber

Assumes 40% Stone Porosity. Calculations are Based Upon a 6" (152 mm) Stone Base Under the Chambers.

| Depth of Water in System Inches (mm) | Cumulative Chamber Storage Ft <sup>3</sup> (m <sup>3</sup> ) | Total System Cumulative Storage Ft <sup>3</sup> (m <sup>3</sup> ) |
|--------------------------------------|--------------------------------------------------------------|-------------------------------------------------------------------|
| 42 (1067)                            | 45.90 (1.300)                                                | 74.90 (2.121)                                                     |
| 41 (1041)                            | 45.90 (1.300)                                                | 73.77 (2.089)                                                     |
| 40 (1016)                            | Stone 45.90 (1.300)                                          | 72.64 (2.057)                                                     |
| 39 (991)                             | Cover 45.90 (1.300)                                          | 71.52 (2.025)                                                     |
| 38 (965)                             | 45.90 (1.300)                                                | 70.39 (1.993)                                                     |
| 37 (948)                             | 45.90 (1.300)                                                | 69.26 (1.961)                                                     |
| 36 (914)                             | 45.90 (1.300)                                                | 68.14 (1.929)                                                     |
| 35 (889)                             | 45.85 (1.298)                                                | 66.98 (1.897)                                                     |
| 34 (864)                             | 45.69 (1.294)                                                | 65.75 (1.862)                                                     |
| 33 (838)                             | 45.41 (1.286)                                                | 64.46 (1.825)                                                     |
| 32 (813)                             | 44.81 (1.269)                                                | 62.97 (1.783)                                                     |
| 31 (787)                             | 44.01 (1.246)                                                | 61.36 (1.737)                                                     |
| 30 (762)                             | 43.06 (1.219)                                                | 59.66 (1.689)                                                     |
| 29 (737)                             | 41.98 (1.189)                                                | 57.89 (1.639)                                                     |
| 28 (711)                             | 40.80 (1.155)                                                | 56.05 (1.587)                                                     |
| 27 (686)                             | 39.54 (1.120)                                                | 54.17 (1.534)                                                     |
| 26 (660)                             | 38.18 (1.081)                                                | 52.23 (1.479)                                                     |
| 25 (635)                             | 36.74 (1.040)                                                | 50.23 (1.422)                                                     |
| 24 (610)                             | 35.22 (0.977)                                                | 48.19 (1.365)                                                     |
| 23 (584)                             | 33.64 (0.953)                                                | 46.11 (1.306)                                                     |
| 22 (559)                             | 31.99 (0.906)                                                | 44.00 (1.246)                                                     |
| 21 (533)                             | 30.29 (0.858)                                                | 41.85 (1.185)                                                     |
| 20 (508)                             | 28.54 (0.808)                                                | 39.67 (1.123)                                                     |
| 19 (483)                             | 26.74 (0.757)                                                | 37.47 (1.061)                                                     |
| 18 (457)                             | 24.89 (0.705)                                                | 35.23 (0.997)                                                     |
| 17 (432)                             | 23.00 (0.651)                                                | 32.96 (0.939)                                                     |
| 16 (406)                             | 21.06 (0.596)                                                | 30.68 (0.869)                                                     |
| 15 (381)                             | 19.09 (0.541)                                                | 28.36 (0.803)                                                     |
| 14 (356)                             | 17.08 (0.484)                                                | 26.03 (0.737)                                                     |
| 13 (330)                             | 15.04 (0.426)                                                | 23.68 (0.670)                                                     |
| 12 (305)                             | 12.97 (0.367)                                                | 21.31 (0.608)                                                     |
| 11 (279)                             | 10.87 (0.309)                                                | 18.92 (0.535)                                                     |
| 10 (254)                             | 8.74 (0.247)                                                 | 16.51 (0.468)                                                     |
| 9 (229)                              | 6.58 (0.186)                                                 | 14.09 (0.399)                                                     |
| 8 (203)                              | 4.41 (0.125)                                                 | 11.66 (0.330)                                                     |
| 7 (178)                              | 2.21 (0.063)                                                 | 9.21 (0.264)                                                      |
| 6 (152)                              | 0                                                            | 6.76 (0.191)                                                      |
| 5 (127)                              | 0                                                            | 5.63 (0.160)                                                      |
| 4 (102)                              | Stone Foundation 0                                           | 4.51 (0.125)                                                      |
| 3 (76)                               | 0                                                            | 3.38 (0.095)                                                      |
| 2 (51)                               | 0                                                            | 2.25 (0.064)                                                      |
| 1 (25)                               | 0                                                            | 1.13 (0.032)                                                      |

Note: Add 1.13 cu. ft. (0.032 m<sup>3</sup>) of storage for each additional inch (25 mm) of stone foundation.

### Storage Volume Per Chamber

|                  | Bare Chamber Storage ft <sup>3</sup> (m <sup>3</sup> ) | Chamber and Stone Foundation Depth in. (mm) |            |            |
|------------------|--------------------------------------------------------|---------------------------------------------|------------|------------|
|                  |                                                        | 6 (150)                                     | 12 (305)   | 18 (460)   |
| StormTech SC-740 | 45.9 (1.3)                                             | 74.9 (2.1)                                  | 81.7 (2.3) | 88.4 (2.5) |

Note: Storage volumes are in cubic feet per chamber. Assumes 40% porosity for the stone plus the chamber volume.

### Amount of Stone Per Chamber

|                                        | Stone Foundation Depth     |                            |                            |
|----------------------------------------|----------------------------|----------------------------|----------------------------|
|                                        | 6" (150 mm)                | 12" (305 mm)               | 18" (460 mm)               |
| ENGLISH TONS (CUBIC YARDS)             | 6"                         | 12"                        | 18"                        |
| StormTech SC-740                       | 3.8 (2.8 yd <sup>3</sup> ) | 4.6 (3.3 yd <sup>3</sup> ) | 5.5 (3.9 yd <sup>3</sup> ) |
| METRIC KILOGRAMS (METER <sup>3</sup> ) | 150 mm                     | 305 mm                     | 460 mm                     |
| StormTech SC-740                       | 3450 (2.1 m <sup>3</sup> ) | 4170 (2.5 m <sup>3</sup> ) | 4490 (3.0 m <sup>3</sup> ) |

Note: Assumes 6" (150 mm) of stone above, and between chambers.

### Volume of Excavation Per Chamber

|                  | Stone Foundation Depth |              |              |
|------------------|------------------------|--------------|--------------|
|                  | 6" (150 mm)            | 12" (305 mm) | 18" (460 mm) |
| StormTech SC-740 | 5.5 (4.2)              | 6.2 (4.7)    | 6.8 (5.2)    |

Note: Volumes are in cubic yards (cubic meters) per chamber. Assumes 6" (150 mm) of separation between chamber rows and 18" (460 mm) of cover. The volume of excavation will vary as the depth of the cover increases.

### STANDARD LIMITED WARRANTY OF STORMTECH LLC ("STORMTECH"): PRODUCTS

- (A) This Limited Warranty applies solely to the StormTech chambers and endplates manufactured by StormTech and sold to the original purchaser (the "Purchaser"). The chambers and endplates are collectively referred to as the "Products."
- (B) The structural integrity of the Products, when installed strictly in accordance with StormTech's written installation instructions at the time of installation, are warranted to the Purchaser against defective materials and workmanship for one (1) year from the date of purchase. Should a defect appear in the Limited Warranty period, the Purchaser shall provide StormTech with written notice of the alleged defect at StormTech's corporate headquarters within ten (10) days of the discovery of the defect. The notice shall describe the alleged defect in reasonable detail. StormTech agrees to supply replacements for those Products determined by StormTech to be defective and covered by this Limited Warranty. The supply of replacement products is the sole remedy of the Purchaser for breaches of this Limited Warranty. StormTech's liability specifically excludes the cost of removal and/or installation of the Products.
- (C) **THIS LIMITED WARRANTY IS EXCLUSIVE. THERE ARE NO OTHER WARRANTIES WITH RESPECT TO THE PRODUCTS, INCLUDING NO IMPLIED WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE.**
- (D) This Limited Warranty only applies to the Products when the Products are installed in a single layer. **UNDER NO CIRCUMSTANCES, SHALL THE PRODUCTS BE INSTALLED IN A MULTI-LAYER CONFIGURATION.**
- (E) No representative of StormTech has the authority to change this Limited Warranty in any manner or to extend this Limited Warranty. This Limited Warranty does not apply to any person other than to the Purchaser.
- (F) Under no circumstances shall StormTech be liable to the Purchaser or to any third party for product liability claims; claims arising from the design, shipment, or installation of the Products, or the cost of other goods or services related to the purchase and installation of the Products. For this Limited Warranty to apply, the Products must be installed in accordance with all site conditions required by state and local codes; all other applicable laws; and StormTech's written installation instructions.
- (G) **THE LIMITED WARRANTY DOES NOT EXTEND TO INCIDENTAL, CONSEQUENTIAL, SPECIAL OR INDIRECT DAMAGES. STORMTECH SHALL NOT BE LIABLE FOR PENALTIES OR LIQUIDATED DAMAGES, INCLUDING LOSS OF PRODUCTION AND PROFITS; LABOR AND MATERIALS; OVERHEAD COSTS; OR OTHER LOSS OR EXPENSE INCURRED BY THE PURCHASER OR ANY THIRD PARTY. SPECIFICALLY EXCLUDED FROM LIMITED WARRANTY COVERAGE ARE DAMAGE TO THE PRODUCTS ARISING FROM ORDINARY WEAR AND TEAR; ALTERATION, ACCIDENT, MISUSE, ABUSE OR NEGLIGENCE; THE PRODUCTS BEING SUBJECT TO VEHICLE TRAFFIC OR OTHER CONDITIONS WHICH ARE NOT PERMITTED BY STORMTECH'S WRITTEN SPECIFICATIONS OR INSTALLATION INSTRUCTIONS; FAILURE TO MAINTAIN THE MINIMUM GROUND COVERS SET FORTH IN THE INSTALLATION INSTRUCTIONS; THE PLACEMENT OF IMPROPER MATERIALS INTO THE PRODUCTS; FAILURE OF THE PRODUCTS DUE TO IMPROPER SITING OR IMPROPER SIZING; OR ANY OTHER EVENT NOT CAUSED BY STORMTECH. THIS LIMITED WARRANTY REPRESENTS STORMTECH'S SOLE LIABILITY TO THE PURCHASER FOR CLAIMS RELATED TO THE PRODUCTS, WHETHER THE CLAIM IS BASED UPON CONTRACT, TORT, OR OTHER LEGAL THEORY.**

20 Beaver Road, Suite 104 | Wethersfield | Connecticut | 06109

860.529.8188 | 888.892.2694 | fax 866.328.8401 | fax 860-529-8040 | [www.stormtech.com](http://www.stormtech.com)

**Save Valuable Land and  
Protect Water Resources**



## **Isolator® Row O&M Manual**

StormTech® Chamber System for Stormwater Management



# 1.0 The Isolator<sup>®</sup> Row

## 1.1 INTRODUCTION

An important component of any Stormwater Pollution Prevention Plan is inspection and maintenance. The StormTech Isolator Row is a patented technique to inexpensively enhance Total Suspended Solids (TSS) removal and provide easy access for inspection and maintenance.



*Looking down the Isolator Row from the manhole opening, woven geotextile is shown between the chamber and stone base.*

## 1.2 THE ISOLATOR ROW

The Isolator Row is a row of StormTech chambers, either SC-310, SC-310-3, SC-740, DC-780, MC-3500 or MC-4500 models, that is surrounded with filter fabric and connected to a closely located manhole for easy access. The fabric-wrapped chambers provide for settling and filtration of sediment as storm water rises in the Isolator Row and ultimately passes through the filter fabric. The open bottom chambers and perforated sidewalls (SC-310, SC-310-3 and SC-740 models) allow storm water to flow both vertically and horizontally out of the chambers. Sediments are captured in the Isolator Row protecting the storage areas of the adjacent stone and chambers from sediment accumulation.

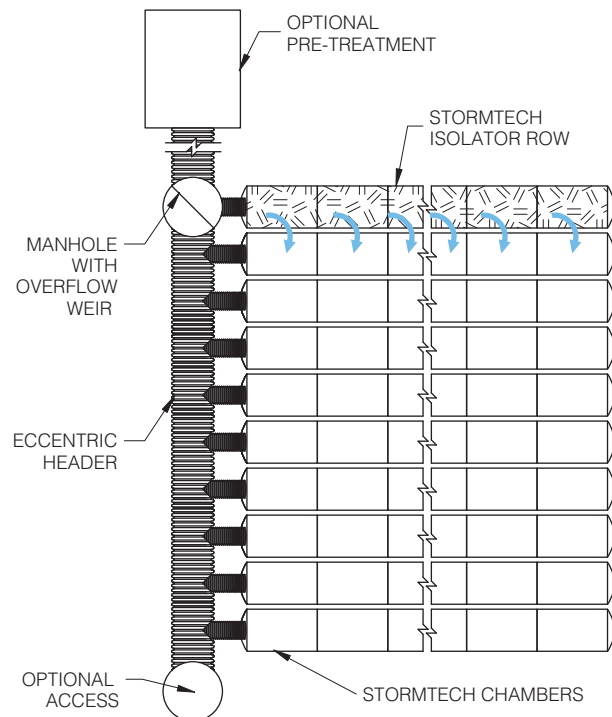
Two different fabrics are used for the Isolator Row. A woven geotextile fabric is placed between the stone and the Isolator Row chambers. The tough geotextile provides a media for storm water filtration and provides a durable surface for maintenance operations. It is also designed to prevent scour of the underlying stone and remain intact during high pressure jetting. A non-woven fabric is placed over the chambers to provide a filter media for flows passing through the perforations in the sidewall of the chamber. The non-woven fabric is not required over the DC-780, MC-3500 or MC-4500 models as these chambers do not have perforated side walls.

The Isolator Row is typically designed to capture the “first flush” and offers the versatility to be sized on a volume basis or flow rate basis. An upstream manhole not only provides access to the Isolator Row but typically includes a high flow weir such that storm water flowrates or volumes that exceed the capacity of the Isolator Row overtop the over flow weir and discharge through a manifold to the other chambers.

The Isolator Row may also be part of a treatment train. By treating storm water prior to entry into the chamber system, the service life can be extended and pollutants such as hydrocarbons can be captured. Pre-treatment best management practices can be as simple as deep sump catch basins, oil-water separators or can be innovative storm water treatment devices. The design of the treatment train and selection of pretreatment devices by the design engineer is often driven by regulatory requirements. Whether pretreatment is used or not, the Isolator Row is recommended by StormTech as an effective means to minimize maintenance requirements and maintenance costs.

*Note: See the StormTech Design Manual for detailed information on designing inlets for a StormTech system, including the Isolator Row.*

### StormTech Isolator Row with Overflow Spillway (not to scale)



## 2.0 Isolator Row Inspection/Maintenance



### 2.1 INSPECTION

The frequency of Inspection and Maintenance varies by location. A routine inspection schedule needs to be established for each individual location based upon site specific variables. The type of land use (i.e. industrial, commercial, residential), anticipated pollutant load, percent imperviousness, climate, etc. all play a critical role in determining the actual frequency of inspection and maintenance practices.

At a minimum, StormTech recommends annual inspections. Initially, the Isolator Row should be inspected every 6 months for the first year of operation. For subsequent years, the inspection should be adjusted based upon previous observation of sediment deposition.

The Isolator Row incorporates a combination of standard manhole(s) and strategically located inspection ports (as needed). The inspection ports allow for easy access to the system from the surface, eliminating the need to perform a confined space entry for inspection purposes.

If upon visual inspection it is found that sediment has accumulated, a stadia rod should be inserted to determine the depth of sediment. When the average depth of sediment exceeds 3 inches throughout the length of the Isolator Row, clean-out should be performed.

### 2.2 MAINTENANCE

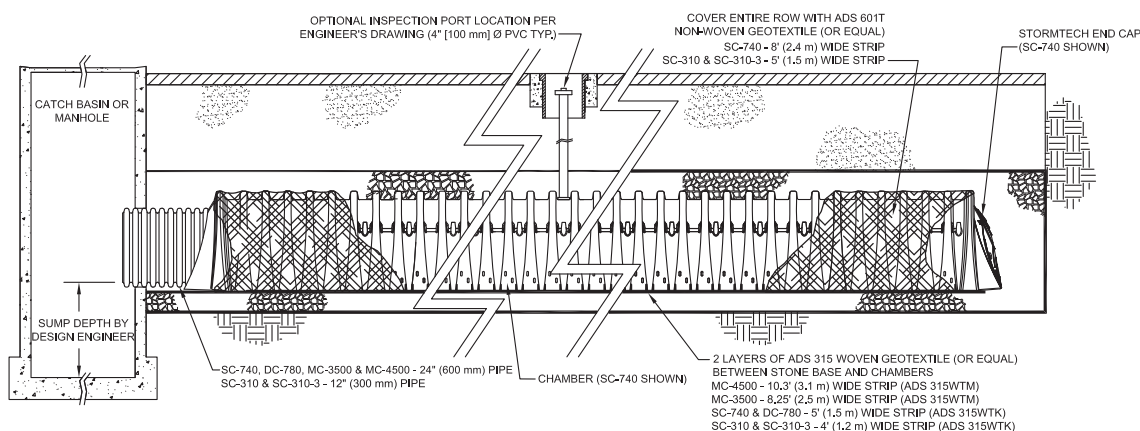
The Isolator Row was designed to reduce the cost of periodic maintenance. By “isolating” sediments to just one row, costs are dramatically reduced by eliminating the need to clean out each row of the entire storage bed. If inspection indicates the potential need for maintenance, access is provided via a manhole(s) located on the end(s) of the row for cleanout. If entry into the manhole is required, please follow local and OSHA rules for a confined space entries.



Examples of culvert cleaning nozzles appropriate for Isolator Row maintenance. (These are not StormTech products.)

Maintenance is accomplished with the JetVac process. The JetVac process utilizes a high pressure water nozzle to propel itself down the Isolator Row while scouring and suspending sediments. As the nozzle is retrieved, the captured pollutants are flushed back into the manhole for vacuuming. Most sewer and pipe maintenance companies have vacuum/JetVac combination vehicles. Selection of an appropriate JetVac nozzle will improve maintenance efficiency. Fixed nozzles designed for culverts or large diameter pipe cleaning are preferable. Rear facing jets with an effective spread of at least 45” are best. Most JetVac reels have 400 feet of hose allowing maintenance of an Isolator Row up to 50 chambers long. **The JetVac process shall only be performed on StormTech Isolator Rows that have AASHTO class 1 woven geotextile (as specified by StormTech) over their angular base stone.**

#### StormTech Isolator Row (not to scale)



**NOTE:** NON-WOVEN FABRIC IS ONLY REQUIRED OVER THE INLET PIPE CONNECTION INTO THE END CAP FOR DC-780, MC-3500 AND MC-4500 CHAMBER MODELS AND IS NOT REQUIRED OVER THE ENTIRE ISOLATOR ROW.

## 3.0 Isolator Row Step By Step Maintenance Procedures

### Step 1) Inspect Isolator Row for sediment

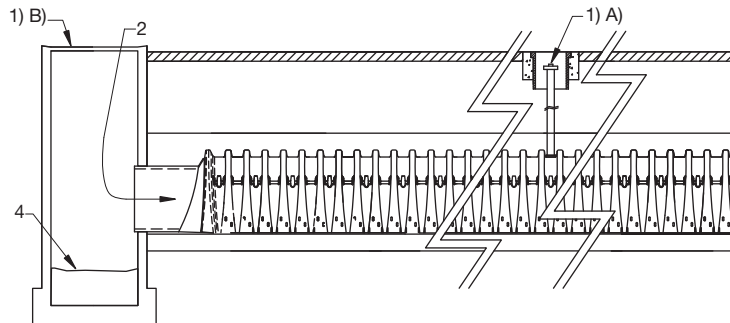
#### A) Inspection ports (if present)

- i. Remove lid from floor box frame
- ii. Remove cap from inspection riser
- iii. Using a flashlight and stadia rod, measure depth of sediment and record results on maintenance log.
- iv. If sediment is at, or above, 3 inch depth proceed to Step 2. If not proceed to step 3.

#### B) All Isolator Rows

- i. Remove cover from manhole at upstream end of Isolator Row
- ii. Using a flashlight, inspect down Isolator Row through outlet pipe
  1. Mirrors on poles or cameras may be used to avoid a confined space entry
  2. Follow OSHA regulations for confined space entry if entering manhole
- iii. If sediment is at or above the lower row of sidewall holes (approximately 3 inches) proceed to Step 2. If not proceed to Step 3.

StormTech Isolator Row (not to scale)



### Step 2) Clean out Isolator Row using the JetVac process

- A) A fixed culvert cleaning nozzle with rear facing nozzle spread of 45 inches or more is preferable
- B) Apply multiple passes of JetVac until backflush water is clean
- C) Vacuum manhole sump as required

### Step 3) Replace all caps, lids and covers, record observations and actions

### Step 4) Inspect & clean catch basins and manholes upstream of the StormTech system

### Sample Maintenance Log

| Date    | Stadia Rod Readings               |                                    | Sediment Depth<br>(1) - (2) | Observations/Actions                                                       | Inspector |
|---------|-----------------------------------|------------------------------------|-----------------------------|----------------------------------------------------------------------------|-----------|
|         | Fixed point to chamber bottom (1) | Fixed point to top of sediment (2) |                             |                                                                            |           |
| 3/15/01 | 6.3 ft.                           | none                               |                             | New installation. Fixed point is CI frame at grade                         | djm       |
| 9/24/01 |                                   | 6.2                                | 0.1 ft.                     | Some grit felt                                                             | sm        |
| 6/20/03 |                                   | 5.8                                | 0.5 ft.                     | Mucky feel, debris visible in manhole and in Isolator row, maintenance due | rv        |
| 7/7/03  | 6.3 ft.                           |                                    | 0                           | System jetted and vacuumed                                                 | djm       |



70 Inwood Road, Suite 3 | Rocky Hill | Connecticut | 06067  
 860.529.8188 | 888.892.2694 | fax 866.328.8401 | www.stormtech.com

ADS "Terms and Conditions of Sale" are available on the ADS website, [www.ads-pipe.com](http://www.ads-pipe.com)

Advanced Drainage Systems, the ADS logo, and the green stripe are registered trademarks of Advanced Drainage Systems.

Stormtech® and the Isolator® Row are registered trademarks of StormTech, Inc.

Green Building Council Member logo is a registered trademark of the U.S. Green Building Council.

Operation & Maintenance Inspection Checklist

| BMP Element:                  | Potential Problem:                                                                                                                 | Resolution:                                                                                                              | Pass | Fail | Recommended Remediation |
|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|------|------|-------------------------|
| Bituminous Concrete Roadway   | Build-up of sediment over the winter months and collection of leaves during the fall months.                                       | Sweep roadway using a high-efficiency street sweeper.                                                                    |      |      |                         |
| Deep-Sump Catch Basins        | Sediment has accumulated to a depth greater than the original design depth for sediment storage, approximately 2-feet of sediment. | Remove the sediment and dispose of in accordance with local and state regulations.                                       |      |      |                         |
| Stormwater Piping             | Blockage of inlet/outlet pipes due to debris or sediment accumulation.                                                             | Remove any debris and sediment via proper means. Dispose of debris/sediment in accordance with local & state regulations |      |      |                         |
| Subsurface Infiltration Basin | Accumulation of sediment at the inlet structure above maintenance level.                                                           | Remove the sediment and conduct proper maintenance to the up-gradient pretreatment devices.                              |      |      |                         |
| Roof Leaders                  | Downspout connections have been damaged or disconnected.                                                                           | Repair and reconnect downspout connections                                                                               |      |      |                         |
| Isolator Row                  | Accumulation of sediment over 3-inches within the isolator row.                                                                    | Remove the sediment and conduct the proper maintenance per the Isolator Row Operation and Maintenance Manual.            |      |      |                         |
| Water Quality Units           | Sediment has accumulated to a depth greater than the original design depth for sediment storage.                                   | Remove sediment and disposed of in accordance with local and state regulations.                                          |      |      |                         |

Inspector's Signature

Date



## Appendix H: Illicit Discharge Compliance Statement





## Illicit Discharge Compliance Statement

---

The owners of the land/responsible party will be responsible for prohibiting illicit discharges to the stormwater management system during construction and during its life of operation. The stormwater management system is comprised of the components for conveying, treating, and infiltrating stormwater runoff on-site, including stormwater best management practices and any pipes intended to transport stormwater to the groundwater, a surface water, or municipal separate storm sewer system. An illicit discharge shall constitute any connection or discharge to the stormwater management system including, but not limited to, wastewater discharges, discharge of stormwater contaminated by contact with process wastes, raw materials, toxic pollutants, hazardous substances, oil, or grease.

**Responsible Party\*:**

J & N Salema Family Limited Partnership  
c/o Peter Martins  
4 Harding Avenue  
Ludlow, MA 01056

\*The party listed shall be responsible for implementation and record keeping of the requirements listed in this operation and maintenance plan. Upon sale of property or any other transition of ownership, the responsible party shall be reinstated as the new owner or any other group created as determined by the owner.

---

Signature of Responsible Party Representative

---

Date



## Appendix I: Low Impact Development Considerations



# Low Impact Development Considerations

## Proposed Site Improvements

158 Silver Street  
Agawam, MA  
(Parcel ID: J8-2-3)

### Owner/Applicant:

J & N Limited Family Limited Partnership  
c/o Peter Martins  
4 Harding Avenue  
Ludlow, MA 01056

RLA Project File: 171123

**March 20, 2025**

**R LEVESQUE ASSOCIATES, INC**  
**A LAND PLANNING SERVICES COMPANY**

40 School Street · Westfield, MA 01085  
p 413.568.0985 · f 413.568.0986 · [www.rlaland.com](http://www.rlaland.com)





## **Introduction**

Per the Massachusetts Stormwater Handbook, project proponents must consider environmentally sensitive site design and low impact development techniques to effectively manage stormwater. As a part of the proposed project, the proponent has considered a number of environmentally sensitive, low impact development techniques to prevent the generation of stormwater and non-point source pollution.

The following is a detailed description of the considerations for each low impact development measure. For ease of review, RLA has provided the consideration of each measure as detailed in the Massachusetts Stormwater Report Checklist.

## **Low Impact Development (Lid) Measures**

### **1. Environmentally Sensitive Project Approach**

During the design feasibility effort for the subject property, RLA considered several design scenarios for the development and layout of the proposed project. The applicant is proposing to improve the existing property by expanding the existing parking area and constructing a stormwater management system to mitigate the impacts of the proposed project.

### **2. No disturbance to any Wetland Resource Areas**

No wetland resource areas are located within or adjacent to the property therefore no disturbance is proposed to wetland resource areas.

### **3. Site Design Practices (e.g. clustered development, reduced frontage setbacks)**

This LID is not applicable for this project. The proposed project does not include any changes to existing property lines therefore no cluster or reduced frontage options are available.

### **4. Reduced Impervious Area (Redevelopment Only)**

The proposed project is not part of a redevelopment project. Impervious areas have been reduced to functional minimums required for applicant needs and town requirements.

### **5. Minimizing disturbance to existing trees and shrubs**

The proposed site improvements have been reduced to the minimums allowed by town requirements for the proposed project. Driveway widths and parking areas have been reduced to the minimum amounts required for functional accessibility based on town regulations. Demolition of existing trees and shrubs has been minimized to the extent practicable.

### **6. LID Site Design Credit Requested**

No LID Site Design Credit is requested for the proposed project.



7. Use of "country drainage" versus curb and gutter conveyance and pipe

Country drainage conveyance requires a larger footprint than curb and gutter conveyance and creates areas with undulating terrain. Due to pre-existing constraints and limitations of the project site, country drainage was not utilized.

8. Bioretention Cells (includes Rain Gardens)

Due to stormwater burdens from the 100-year storm event, a subsurface infiltration basin was determined to be the only BMP capable of meeting required town regulations.

9. Constructed Stormwater Wetlands (includes Gravel Wetlands designs)

Constructed stormwater wetlands require very specific design scenarios such as large tributary areas to support wetland characteristics and high groundwater elevations among others. The sub-catchment drainage area for this project site is not large enough to incorporate a constructed stormwater wetland.

10. Treebox Filter

The extensive costs associated with treebox filters, along with the climatic conditions of the area over the winter, present unique circumstances that would only provide a maintenance problem and a potential hazard for the owner. Additionally, the limited pavement width combined with minimization of sidewalks areas create an environmentally sensitive design with limited impervious areas. Due to this design, treebox filters are not an applicable stormwater BMP.

11. Water Quality Swale

Water quality swales are best management practices that require a greater footprint of development in order to facilitate the grading of the swale. Due to the limited available pervious areas within the project site, water quality swales were not utilized.

12. Grass Channel

Grassed channels are best management practices that require a greater footprint of development in order to facilitate the grading of the swale. Due to the limited available pervious areas within the project site, water quality swales were not utilized.

13. Green Roof

Based on project size and scope, green roofs were not selected as a cost-effective BMP for this project.

14. Other

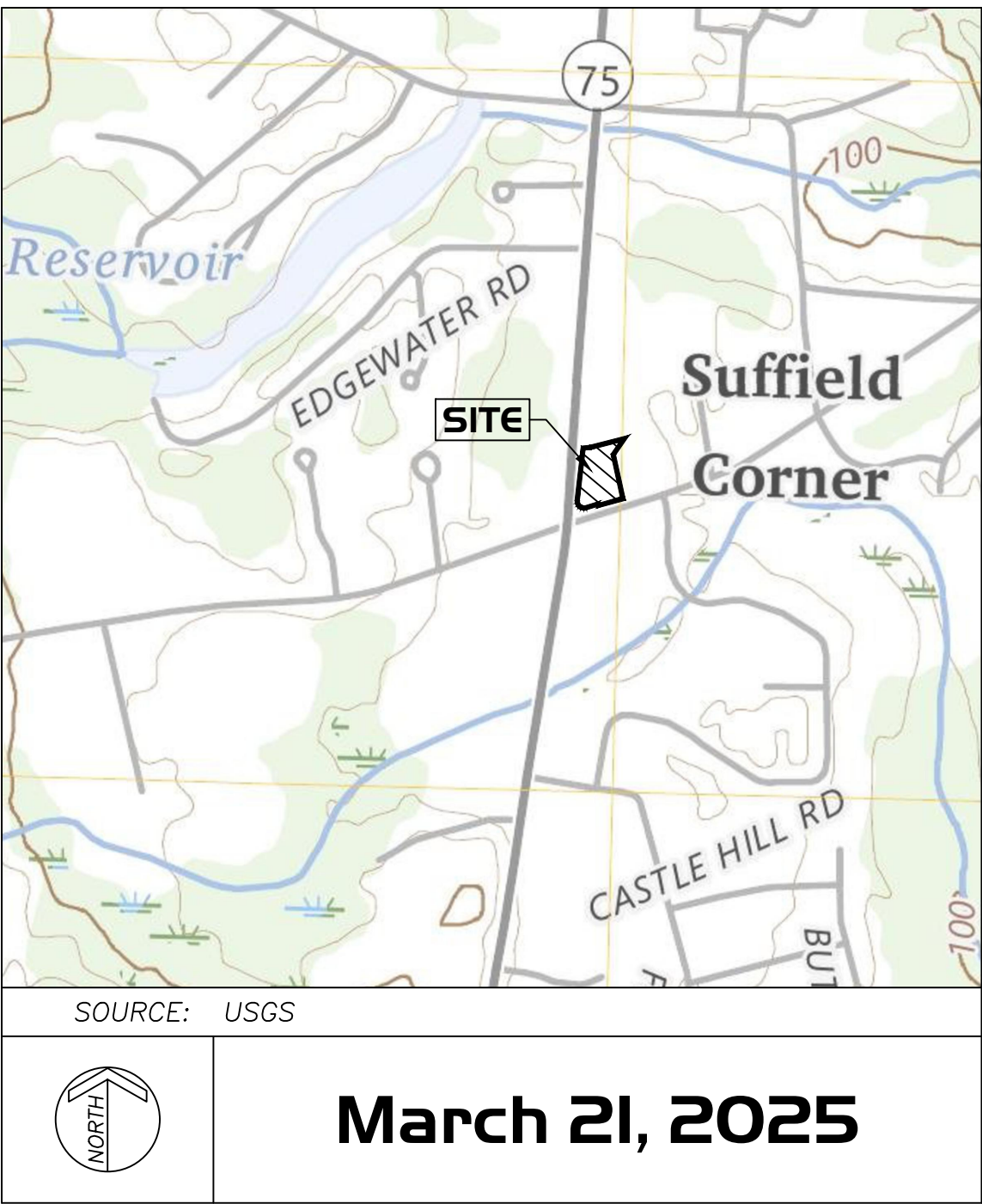
Please see the Stormwater Report for more information.

Site Plans

# Proposed Site Improvements

**158 Silver Street  
Agawam, MA  
Parcel ID: J8-2-3**

AS PREPARED FOR  
**J & N Salema Family Limited Partnership  
c/o Peter Martins**  
**4 Harding Avenue  
Ludlow, MA 01056**



| DRAWING INDEX |                                                |            |               |
|---------------|------------------------------------------------|------------|---------------|
| SHEET NO.     | SHEET NAME                                     | ISSUE DATE | REVISION DATE |
| T-1           | TITLE SHEET                                    | 3/21/25    |               |
| EX-1          | EXISTING CONDITIONS PLAN                       | 3/20/25    |               |
| C-1           | NOTES, SYMBOL & LINE LEGEND, AND ABBREVIATIONS | 3/21/25    |               |
| C-2           | CONSTRUCTION NOTES                             | 3/21/25    |               |
| C-3           | DEMOLITION AND REMOVALS PLAN                   | 3/21/25    |               |
| C-4           | LAYOUT AND MATERIALS PLAN                      | 3/21/25    |               |
| C-5           | GRADING, EROSION & SEDIMENTATION CONTROL PLAN  | 3/21/25    |               |
| C-6           | DRAINAGE AND UTILITIES PLAN                    | 3/21/25    |               |
| C-7           | LANDSCAPING PLAN                               | 3/21/25    |               |
| SL-1          | PHOTOMETRIC PLAN                               | 3/21/25    |               |
| D-1           | DETAILS                                        | 3/21/25    |               |
| D-2           | DETAILS                                        | 3/21/25    |               |
| D-3           | DETAILS                                        | 3/21/25    |               |

BY



**R LEVESQUE  
ASSOCIATES**INC

A LAND PLANNING SERVICES COMPANY

40 School Street · Westfield, MA · 01085  
ph 413.568.0985 · fax 413.568.0986  
www.rlaland.com



ZONING REVIEW - Business A (BA)

| TYPE (MINIMUM)          | REQUIRED | EXISTING        |
|-------------------------|----------|-----------------|
| AREA                    | NONE     | 47,639 S.F.     |
| FRONTAGE                | 20'      | 594.10' (TOTAL) |
| FRONT YARD              | 35'      | 36.0'           |
| SIDE YARD               | *        | 110.3'          |
| REAR YARD               | 35'      | 136.9'          |
| HEIGHT (MAX)            | 45'      | 1 STORY         |
| BUILDING COVERAGE (MAX) | 50%      | 5.6%            |

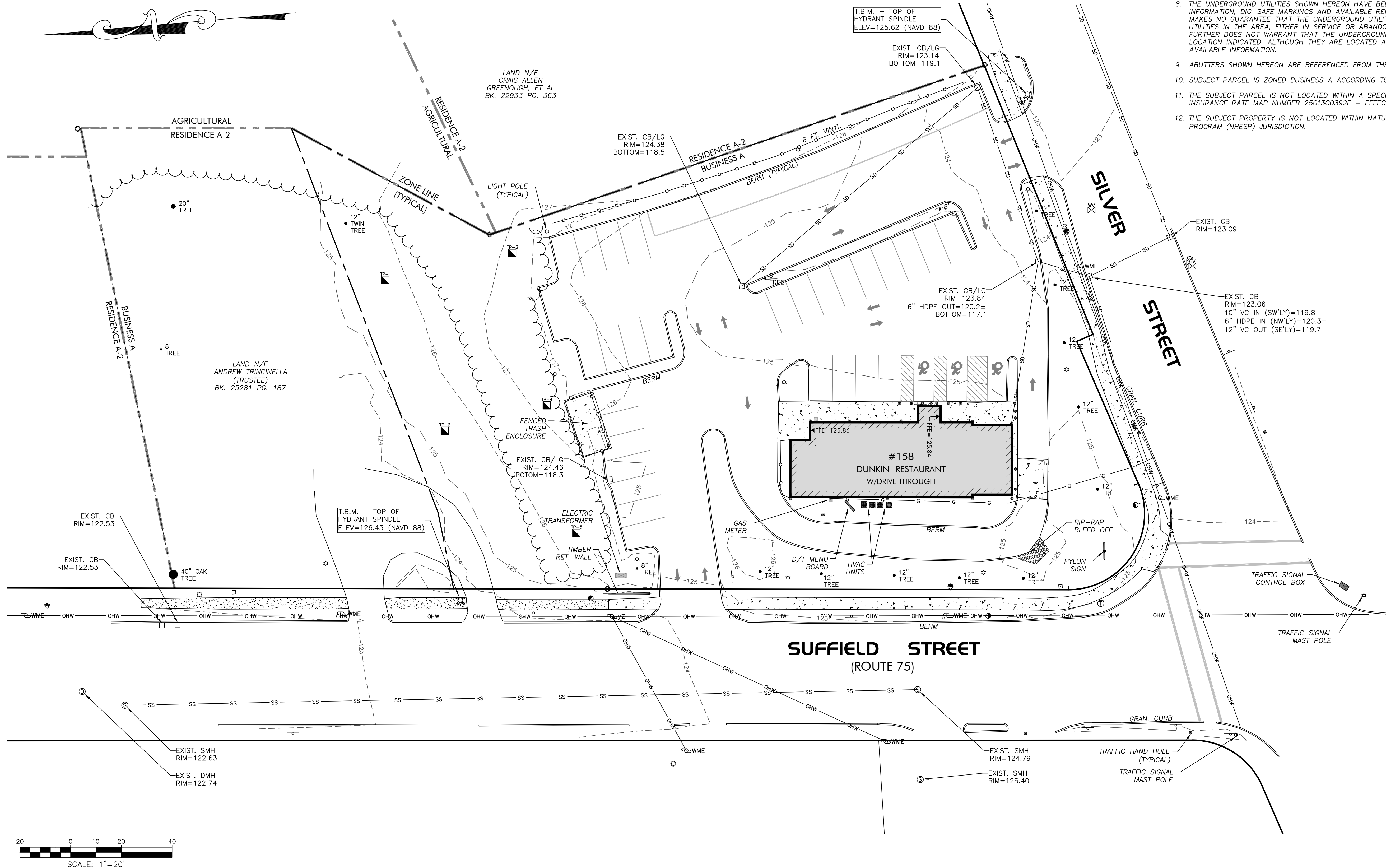
\* SEE STATE BUILDING CODE

SYMBOL & LINE LEGEND

|   |                                 |               |                               |
|---|---------------------------------|---------------|-------------------------------|
| ○ | IRON PIPE FOUND                 | — G — G —     | EXISTING GAS LINE             |
| □ | GRANITE BOUND FOUND             | — SD — SD —   | EXISTING STORM DRAIN          |
| ⊗ | EXISTING WATER VALVE            | — SS — SS —   | EXISTING SANITARY SEWER       |
| ⊕ | EXISTING GAS VALVE              | — OHW — OHW — | EXISTING OVERHEAD WIRES       |
| ⊙ | EXISTING SANITARY SEWER MANHOLE | — UEL — UEL — | EXISTING UNDERGROUND ELECTRIC |
| □ | EXISTING CATCH BASIN            | — ○ — ○ —     | EXISTING FENCE                |
| ⊕ | EXISTING DRAIN MANHOLE          |               |                               |
| ⊙ | EXISTING TELECOMM MANHOLE       |               |                               |
| — | EXISTING SIGN                   |               |                               |
| ☆ | EXISTING LIGHT POLE             |               |                               |
| ⊙ | EXISTING BOLLARD                |               |                               |

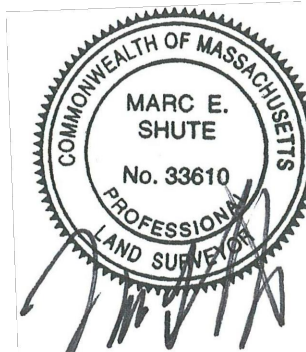
NOTES

1. THE RECORD OWNER OF THE SUBJECT PARCEL IS J & N SALEMA FAMILY LIMITED PARTNERSHIP. SEE HAMPDEN COUNTY REGISTRY OF DEEDS BOOK 10978 PAGE 203.
2. THE PROPERTY LINES SHOWN HEREON ARE BASED UPON A PLAN RECORDED IN THE HAMPDEN COUNTY REGISTRY OF DEEDS IN BOOK OF PLANS 392 PAGE 126.
3. THE EXISTING BUILDING(S) SHOWN HEREON ARE BASED ON AN APPROXIMATE MEASUREMENT OF THE OUTSIDE PERIMETER OF THE EXISTING STRUCTURES. THE ACTUAL LOCATION OF THE EXISTING BUILDING WALLS AND CORNERS SHOULD BE VERIFIED IN THE FIELD PRIOR TO ANY CONSTRUCTION WORK THAT WOULD ABUT OR TAKE PLACE ADJACENT TO THE EXISTING BUILDING(S). IF THE PLAN HEREON IS USED FOR CONSTRUCTION LAYOUT PURPOSES, THE PARTIES CONDUCTING LAYOUT SHALL CONTACT R. LEVESQUE ASSOCIATES INC. PRIOR TO SAID LAYOUT TO DETERMINE PROPER CONTROL. PLEASE NOTE WHILE THE BUILDING(S) ARE SHOWN TO BE SQUARE, IT SHOULD NOT BE ASSUMED THAT THE WALLS ARE SQUARE OR PLUMB. R. LEVESQUE ASSOCIATES TAKES NO RESPONSIBILITY FOR THIRD PARTY LAYOUT OF THE PLAN SHOWN HEREON.
4. THIS PLAN HAS BEEN PREPARED FOR SITE PLANNING PURPOSES AND SHALL NOT BE USED FOR THE CONVEYANCE OF LAND OR FOR ANY OTHER USE.
5. SUBJECT PARCEL CONTAINS A TOTAL AREA OF 47,639 S.F.
6. THE SUBJECT PROPERTIES SHOWN HEREON MAY BE SUBJECT TO RIGHTS AND EASEMENTS AS CONTAINED IN THE VARIOUS DEEDS OF RECORD DESCRIBING SAID PROPERTIES. THE LOCATION AND EXTENT OF ANY SUCH RIGHTS AND EASEMENTS IS NOT THE SUBJECT OF THIS PLAN.
7. THE EXISTING CONDITIONS INFORMATION SHOWN IS BASED UPON A TOPOGRAPHIC SURVEY PERFORMED BY R. LEVESQUE ASSOCIATES, INC. BETWEEN DECEMBER 30, 2024 AND JANUARY 10, 2025.
8. THE UNDERGROUND UTILITIES SHOWN HEREON HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION, DIG-SAFE MARKINGS AND AVAILABLE RECORD DATA. R. LEVESQUE ASSOCIATES, INC. MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN HEREON COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. R. LEVESQUE ASSOCIATES, INC. FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN HERE ARE IN THE EXACT LOCATION INDICATED. ALTHOUGH THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM AVAILABLE INFORMATION.
9. ABUTTERS SHOWN HEREON ARE REFERENCED FROM THE TOWN OF AGAWAM MUNICIPAL GIS WEBSITE
10. SUBJECT PARCEL IS ZONED BUSINESS A ACCORDING TO THE TOWN OF AGAWAM ZONING MAP.
11. THE SUBJECT PARCEL IS NOT LOCATED WITHIN A SPECIAL FLOOD ZONE AREA ACCORDING TO FLOOD INSURANCE RATE MAP NUMBER 25013C0392E - EFFECTIVE DATE: JULY 16, 2013.
12. THE SUBJECT PROPERTY IS NOT LOCATED WITHIN NATURAL HERITAGE & ENDANGERED SPECIES PROGRAM (NHESP) JURISDICTION.



EXISTING CONDITIONS PLAN

158 Silver Street  
Assessors Parcel J8 2 3  
Agawam, Mass.



PREPARED FOR:

Salmar Realty, Inc.  
c/o Mr. Peter Marfins  
350 Cottage Street  
Springfield, MA 01104

ISSUANCE DATE: March 20, 2025

REVISIONS: DATE:

UNAUTHORIZED ALTERATION OF THIS DOCUMENT IS A VIOLATION OF MASSACHUSETTS STATE LAW

SCALE: 1" = 20'

RLA PROJ. NUMBER: 171123

DRAWING# REV.

EX-1

-

PERMITTING



| SYMBOL & LINE LEGEND                                                                |                                 |  |
|-------------------------------------------------------------------------------------|---------------------------------|--|
|    | IRON PIPE FOUND                 |  |
|    | IRON PIPE TO BE SET             |  |
|    | CONCRETE BOUND FOUND            |  |
|    | CONCRETE BOUND TO BE SET        |  |
|    | COMPUTED POINT                  |  |
|    | EXISTING SIGN                   |  |
|    | EXISTING MAILBOX                |  |
|    | EXISTING MONITORING WELL        |  |
|    | EXISTING LIGHT POLE             |  |
|    | UTILITY POLE                    |  |
|    | GUY ANCHOR                      |  |
|    | EXISTING ELECTRIC MANHOLE       |  |
|    | EXISTING TELEPHONE MANHOLE      |  |
|    | EXISTING CABLE TV BOX           |  |
|    | EXISTING WELL LOCATION          |  |
|    | EXISTING WATER VALVE            |  |
|    | EXISTING WATER SHUT-OFF         |  |
|    | EXISTING HYDRANT                |  |
|    | PROPOSED WATER VALVE            |  |
|    | PROPOSED HYDRANT                |  |
|    | EXISTING GAS VALVE              |  |
|    | EXISTING SANITARY SEWER MANHOLE |  |
|    | EXISTING CATCH BASIN            |  |
|    | EXISTING DRAIN MANHOLE          |  |
|    | PROPOSED CATCH BASIN            |  |
|    | PROPOSED MANHOLE                |  |
|    | PROP. OUTLET CONTROL STRUCTURE  |  |
|    | SOIL BORING LOCATION            |  |
|    | TEST PIT LOCATION               |  |
|    | PERC TEST LOCATION              |  |
|    | WETLAND FLAG LOCATION           |  |
|    | M.A.H.W. FLAG LOCATION          |  |
|    | EXISTING STONE WALL             |  |
|  | TREE LINE                       |  |
|  | EXISTING CONTOUR                |  |
|  | PROPOSED SPOT GRADE             |  |
|  | PROPOSED CONTOUR                |  |
|  | EDGE OF WETLAND                 |  |
|  | FENCE LINE                      |  |
|  | GUARDRAIL                       |  |
|  | EXISTING OVERHEAD WIRES         |  |
|  | EXISTING UNDERGROUND ELECTRIC   |  |
|  | EXISTING TELEPHONE LINE         |  |
|  | EXISTING GAS LINE               |  |
|  | EXISTING WATER LINE             |  |
|  | EXISTING STORM DRAIN            |  |
|  | EXISTING SANITARY SEWER         |  |
|  | EXISTING FORCE MAIN             |  |
|  | LIMIT OF WORK LINE              |  |
|  | SILT FENCE LINE                 |  |

| ABBREVIATIONS |                                |
|---------------|--------------------------------|
| A.F.F.        | – ABOVE FINISHED FLOOR         |
| A.F.S.        | – ABOVE FINISHED SLAB          |
| APPROX.       | – APPROXIMATE                  |
| A.T.F.        | – ABOVE TOP OF FOUNDATION      |
| BLDG.         | – BUILDING                     |
| BLK.          | – BLOCK                        |
| BOT.          | – BOTTOM                       |
| B.O.W.        | – BOTTOM OF WALL               |
| BRG.          | – BEARING                      |
| CB.           | – CATCH BASIN                  |
| CL            | – CENTERLINE                   |
| C.I.          | – CAST IRON                    |
| CLR.          | – CLEAR                        |
| CONC.         | – CONCRETE                     |
| CONT.         | – CONTINUOUS                   |
| CONTR.        | – CONTRACTOR                   |
| DBL.          | – DOUBLE                       |
| DET.          | – DETAIL                       |
| D.I.          | – DUCTILE IRON                 |
| DIA.          | – DIAMETER                     |
| DIM.          | – DIMENSION                    |
| DT'L.         | – DETAIL                       |
| DWG.          | – DRAWING                      |
| EA.           | – EACH                         |
| ELEC.         | – ELECTRIC                     |
| ELEV.         | – ELEVATION                    |
| EXIST.        | – EXISTING                     |
| EXT.          | – EXTERIOR                     |
| FFE           | – FINISH FLOOR ELEVATION       |
| FIN.          | – FINISH                       |
| FLR.          | – FLOOR                        |
| FOUND.        | – FOUNDATION                   |
| FT.           | – FOOT OR FEET                 |
| INSTL.        | – INSTALLED                    |
| LT.           | – LIGHT                        |
| MAX.          | – MAXIMUM                      |
| M.A.H.W.      | – MEAN ANNUAL HIGH WATER       |
| MH.           | – MANHOLE                      |
| MIN.          | – MINIMUM                      |
| MISC.         | – MISCELLANEOUS                |
| N.T.S.        | – NOT TO SCALE                 |
| O.A.          | – OVERALL                      |
| O.C.          | – ON CENTER                    |
| PCB           | – PROPOSED CATCH BASIN         |
| PDMH          | – PROPOSED DRAIN MANHOLE       |
| PFES          | – PROP. FLARED END SECTION     |
| POCS          | – PROP. OUTLET CONTROL STRUCT. |
| PROP.         | – PROPOSED                     |
| PSMH          | – PROP. SANITARY SEWER MANHOLE |
| PWQU          | – PROP. WATER QUALITY UNIT     |
| P.S.I.        | – POUNDS PER SQUARE INCH       |
| REINF.        | – REINFORCING                  |
| R.H.          | – RIGHT HAND                   |
| SHT.          | – SHEET                        |
| SPEC.         | – SPECIAL OR SPECIFICATIONS    |
| SQ.           | – SQUARE                       |
| ST.           | – STEEL                        |
| STA.          | – STATION                      |
| T.O.F.        | – TOP OF FOUNDATION            |
| T.O.W.        | – TOP OF WALL                  |
| T.S.          | – TOP OF STEEL                 |
| TYP.          | – TYPICAL                      |
| W/            | – WITH                         |
| WTR.          | – WATER                        |
| W.W.M.        | – WELDED WIRE MESH             |

## EROSION & SEDIMENT CONTROL NOTES

### MANAGEMENT STRATEGIES

- CONSTRUCTION TRAFFIC SHALL BE LIMITED TO THE CONSTRUCTION ENTRANCE.
- CONSTRUCTION SEQUENCE SHALL BE PHASED TO AVOID LEAVING LARGE AREAS EXPOSED FOR LONG PERIODS OF TIME.
- TEMPORARY SEED AND MULCH SHALL BE APPLIED IMMEDIATELY FOLLOWING ROUGH GRADING.
- SEDIMENTATION CONTROL MEASURES SHALL BE INSPECTED CONTINUOUSLY, ESPECIALLY FOLLOWING STORM EVENTS TO LOCATE FAILING CONTROL MEASURES AND CONDUCT ROUTINE MAINTENANCE OPERATIONS.
- THE CONSTRUCTION SUPERINTENDENT SHALL INFORM ALL ON-SITE WORKERS OF THE SEDIMENTATION CONTROL PROGRAM.

### VEGETATIVE CONTROL PRACTICES

- TOPSOIL STOCKPILING: TOPSOIL SHALL BE STRIPPED FROM AREAS TO BE DISTURBED AND STOCKPILED FOR LATER USE. STOCKPILE LOCATION SHALL BE APPROVED BY THE OWNER AND ENGINEER AND BE WITHIN LIMIT OF WORK.
- TEMPORARY SEEDING: THE TEMPORARY SEDIMENT BASIN, TOPSOIL STOCKPILE AND ROUGH GRADED AREAS SHALL BE SEEDED WITH WINTER RYE AT A RATE OF 30 LBS. PER ACRE ANY SOILS THAT ARE LEFT EXPOSED AND UNDISTURBED FOR MORE THAN 30 DAYS SHALL BE TEMPORARILY SEEDED.
  - SITE PREPARATION
    - COMPLETE ALL ROUGH GRADING ACTIVITIES
    - REMOVE ALL ROCKS AND DEBRIS LARGER THAN 3" IN DIAMETER FROM AREAS TO BE TEMPORARILY SEEDED. –EVENLY APPLY LIME TO ACHIEVE A PH VALUE OF 6.0.
    - EVENLY APPLY 14 LBS. OF 5-10-10 ANALYSIS FERTILIZER TO A DEPTH OF 4" USING SUITABLE EQUIPMENT.
    - SEEDBED IS TO BE LEFT IN FIRM AND SMOOTH CONDITION.
    - THE LAST TILLAGE OPERATION SHALL BE PERFORMED ACROSS THE SLOPE.
  - ESTABLISHMENT
    - EVENLY APPLY SEED IN ACCORDANCE WITH THE SPECIES AND RATE INDICATED ABOVE BY MEANS OF BROADCASTING OR HYDROSEEDING.
    - UNLESS HYDROSEEDED, COVER SEED WITH 1/4" TO 1/2" OF TOPSOIL
    - APPLY MULCH OR EROSION CONTROL BLANKET IMMEDIATELY FOLLOWING SEEDING.
    - VERIFY SEEDING DATES WITH ENGINEER/LANDSCAPE ARCHITECT. IF ENGINEER/LANDSCAPE ARCHITECT DETERMINES THAT SEED CANNOT BE APPLIED DUE TO CLIMATE, TOPSOIL SHALL NOT BE SPREAD AND MULCHING SHALL BE APPLIED TO THE EXPOSED SURFACE TO STABILIZE SOILS UNTIL THE NEXT RECOMMENDED SEEDING PERIOD.
    - PERMANENT SEEDING SHALL BE APPLIED BETWEEN APRIL 15 AND SEPTEMBER 30. TEMPORARY SEEDING SHALL BE APPLIED TO ALL DISTURBED AREAS OUTSIDE THIS TIME FRAME, UPON APPROVAL BY THE ENGINEER/LANDSCAPE ARCHITECT.
  - MAINTENANCE
    - ALL SEEDED/MULCHED AREAS SHALL BE INSPECTED REGULARLY TO SEE THAT A GOOD STAND IS MAINTAINED. AREAS SHALL BE REPAIRED AS NECESSARY.
- NONSTRUCTURAL CONTROL PRACTICES
  - SCARIFICATION: EXPOSED SLOPES EXCEEDING 4:1 SHALL BE SCARIFIED AT RIGHT ANGLES TO THE SLOPE. PROVIDE PERIODIC UPGRADING OF SERRATIONS DURING EXPOSED PERIOD UNTIL VEGETATION IS ESTABLISHED. PROVIDE VEGETATIVE COVER AS SOON AS POSSIBLE.
  - STRAW MULCH: STRAW MULCH SHALL BE APPLIED IN CONJUNCTION WITH TEMPORARY/PERMANENT SEEDING AND TO GRADED AREAS WHICH REMAIN EXPOSED OUTSIDE OF RECOMMENDED SEEDING DATES. MULCH SHALL BE APPLIED AT 90 LBS. PER 1000 S.F. CONTRACTOR SHALL PERIODICALLY INSPECT AND REAPPLY AS NECESSARY, PARTICULARLY FOLLOWING SIGNIFICANT STORM EVENTS.
  - TOPSOIL: DISTURBED AREAS SHALL BE TOPSOILED PRIOR TO SEED APPLICATION. APPLICATION STANDARDS:
    - REMOVE ALL ROCKS AND DEBRIS OVER 1"-1 1/2" IN DIAMETER.
    - SCARIFY SURFACE PRIOR TO SEED APPLICATION.
    - APPLY 6" DEPTH OF TOPSOIL.
  - SILT FENCE: SILT FENCE SHALL BE INSTALLED AROUND THE PERIMETER OF THE SITE, AT CULVERT OUTLET LOCATIONS, OR AS INDICATED ON THE DRAWINGS. SILT FENCE SHALL BE INSPECTED AND REPAIRED ROUTINELY, ESPECIALLY FOLLOWING STORM EVENTS UNTIL THE SITE HAS BEEN STABILIZED (COVER > 70%) BY VEGETATION.

### STRUCTURAL CONTROL PRACTICES

- RIP-RAP OUTLET PROTECTION: RIP-RAP SHALL BE PROVIDED AT ALL PIPE OUTLETS. MATERIAL SHALL BE HARD, DURABLE FIELD OR QUARRY STONE WHICH IS ANGULAR AND RESISTS BREAKING DOWN WHEN EXPOSED TO WATER OR WEATHERING.
- CONSTRUCTION ENTRANCE: CONSTRUCTION ENTRANCE SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE DRAWINGS.
- DUST CONTROL: A WATER TRUCK SHOULD BE LOCATED ON-SITE FOR DUST CONTROL WHILE WORK IS PROCEEDING. MAINTENANCE SEDIMENTATION CONTROL MEASURES SHALL BE CHECKED WEEKLY AND AFTER EACH SIGNIFICANT RAINFALL EVENT. THE FOLLOWING ITEMS SHALL BE CHECKED IN PARTICULAR:
  - RIP-RAP OUTLET PROTECTION SHALL BE CHECKED REGULARLY FOR SEDIMENT ACCUMULATION. IF SIGNIFICANT AMOUNTS OF SEDIMENT ACCUMULATE, RIP-RAP SHALL BE REMOVED AND REPLACED.
  - SILT FENCING SHALL BE INSPECTED REGULARLY FOR UNDERMINING AND DETERIORATION. REMOVE SEDIMENT FROM BEHIND FENCE WHEN IT BECOMES 6 INCHES DEEP.
  - SEEDED/MULCHED AREAS SHALL BE INSPECTED REGULARLY TO SEE THAT A GOOD STAND IS MAINTAINED. AREAS SHALL BE REPAIRED AS NECESSARY.

## SILT FENCE INSTALLATION NOTES

- THIS SEDIMENT BARRIER UTILIZES MIRAFI ENVROFENCE (100X) OR EQUAL. IT IS DESIGNED FOR SITUATIONS IN WHICH ONLY SHEET OR OVERLAND FLOWS ARE EXPECTED.
- THE HEIGHT OF THE BARRIER SHALL NOT EXCEED 36 INCHES (HIGHER BARRIERS MAY IMPOUND VOLUMES OF WATER SUFFICIENT TO CAUSE FAILURE OF THE STRUCTURE). IDEALLY THE FILTER FENCE SHALL BE PLACED 10 FEET AWAY FROM THE TOE OF SLOPE.
- WHEN JOINTS ARE NECESSARY, FILTER FABRICS SHALL BE SPLICED TOGETHER ONLY AT A SUPPORT STAKES WITH A MINIMUM 6-INCH OVERLAP, AND SECURELY SEALED. SEE MANUFACTURER'S RECOMMENDATION.
- STAKES SHALL BE SPACED A MAXIMUM OF 10 FEET APART AT THE BARRIER LOCATION AND DRIVEN SECURELY INTO THE GROUND (MINIMUM OF 12 INCHES). IN APPLICATIONS WHERE HEAVY FLOWS ARE EXPECTED SUCH AS IN-STREAM INSTALLATIONS STAKE SPACING SHALL BE PER MANUFACTURER'S RECOMMENDATIONS AND/OR THE ENGINEERS RECOMMENDATIONS.
- A TRENCH SHALL BE EXCAVATED APPROXIMATELY 6 INCHES WIDE AND 6 INCHES DEEP ALONG THE LINE OF STAKES AND UPSLOPE FROM THE BARRIER IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- THE PRE ASSEMBLED SILT FENCE SYSTEM SHALL BE UNROLLED, POSITION THE STAKES ON THE DOWNHILL SIDE OF THE TRENCH AND HAMMER THE STAKES AT LEAST 12 INCHES INTO THE GROUND.
- THE BOTTOM SIX (6) INCHES OF THE FABRIC SHALL BE LAID INTO THE TRENCH TO PREVENT UNDERMINING BY STORM WATER RUNOFF.
- BACKFILL THE TRENCH OVER THE FILTER FABRIC AND COMPACT SUFFICIENTLY TO PREVENT THE RUNOFF FROM ERODING THE BACKFILL.
- THE FABRIC SHALL NOT EXTEND MORE THAN 36 INCHES ABOVE THE ORIGINAL GROUND SURFACE. FILTER FABRIC SHALL NOT BE STAPLED TO EXISTING TREES OR SUPPORTS OTHER THAN THE STANDARD STAKES.
- INSTALLED SILT FENCE BARRIERS SHALL BE MAINTAINED ON A REGULAR SCHEDULE WHICH MAY BE PRESCRIBED BY THE LOCAL, STATE OF FEDERAL REGULATORY AUTHORITY; BUT, AT MINIMUM SHALL BE CHECKED WEEKLY AS WELL AS AFTER EACH STORM EVENT. MAINTENANCE SHALL CONSIST OF AN INSPECTION OF THE ENTIRE LENGTH OF THE BARRIER TO DETERMINE IF IT IS FUNCTIONING AS INTENDED. ALL BREAKS, DETACHED FABRIC, SLUMPED FABRIC, CLOGGED FABRIC, AND UNDERMINED AREAS SHALL BE FIXED THE DAY THAT THEY ARE DISCOVERED.
- WHEN A MAXIMUM OF SIX (6) INCHES OF SEDIMENT HAS ACCUMULATED BEHIND THE SILT FENCE THIS SEDIMENT SHALL BE REMOVED AND THE FENCE SHALL BE INSPECTED FOR TEARS, CLOGGING OF BREAKS. ALL DEFICIENCIES SHALL BE CORRECTED IMMEDIATELY EITHER BY REPAIR OF REPLACEMENT OF THE SILT FENCE BARRIER AND/OR STAKES AS NEEDED.
- SILT FENCE BARRIERS SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFUL PURPOSE, BUT NOT BEFORE THE UPSLOPE AREA HAS BEEN CLEANED OF SILT AND PERMANENTLY STABILIZED.

## STRAW BALE INSTALLATION & MAINTENANCE (AS REQ'D)

- STRAW BALES SHALL BE PLACED IN A SINGLE ROW, LENGTHWISE ON THE CONTOUR, WITH ENDS OF ADJACENT BALES TIGHTLY ABUTTING ONE ANOTHER.
- ALL BALES SHALL BE EITHER WIRE BOUND OR STRING TIES. BALES SHALL BE INSTALLED SO THAT BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES TO PREVENT DETERIORATION OF THE BINDINGS.
- THE BARRIER SHALL BE ENTRENCHED AND BACKFILLED. A TRENCH SHALL BE EXCAVATED THE WIDTH OF A BALE AND THE LENGTH OF THE PROPOSED BARRIER TO A MINIMUM DEPTH OF FOUR (4) INCHES AND A MAXIMUM DEPTH OF SIX (6) INCHES. AFTER THE BALES ARE STAKED AND CHINKED, THE EXCAVATED SOIL SHALL BE BACKFILLED AGAINST THE BARRIER. BACKFILL SOIL SHALL CONFORM TO THE GROUND LEVEL ON THE DOWNHILL SIDE AND SHALL BE BUILT UP TO FOUR (4) INCHES AGAINST THE UPHILL SIDE OF THE BARRIER.
- EACH BALE SHALL BE SECURELY ANCHORED BY AT LEAST TWO (2) STAKES OR REBARS DRIVEN THROUGH THE BALE. THE FIRST STAKE IN EACH BALE SHALL BE DRIVEN TOWARD THE PREVIOUSLY LAID BALE TO FORCE THE BALES TOGETHER. STAKES OR REBARS SHALL BE DRIVEN DEEP ENOUGH INTO THE GROUND TO SECURELY ANCHOR THE BALES.
- THE GAPS BETWEEN BALES SHALL BE CHINKED (FILLED BY WEDGING) WITH STRAW TO PREVENT WATER FROM ESCAPING BETWEEN THE BALES. (LOOSE STRAW SCATTERED OVER THE AREA IMMEDIATELY UPHILL FROM A STRAW BALE BARRIER TENDS TO INCREASE BARRIER EFFICIENCY.)
- STRAW BALES GENERALLY DETERIORATE IN 2-6 MONTHS AND THUS NEED REPLACEMENT.
- INSPECTION SHALL BE FREQUENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
- BALE BARRIERS SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFULNESS, BUT NOT BEFORE THE UPSLOPE AREAS HAVE BEEN PERMANENTLY STABILIZED.

## SITE PREP

- CONTRACTOR SHALL BE RESPONSIBLE FOR ALL RELOCATION, INCLUDING BUT NOT LIMITED TO, ALL UTILITIES, STORM DRAINAGE, SIGNS, TRAFFIC SIGNALS & POLES, ETC. AS REQUIRED. ALL WORK SHALL BE IN ACCORDANCE WITH GOVERNING AUTHORITIES SPECIFICATIONS AND SHALL BE APPROVED BY SUCH.
- CONTRACTOR SHALL ERECT AND MAINTAIN SAFETY BARRICADES AND POST PROPER NOTICES PRIOR TO THE COMMENCEMENT OF WORK.
- CONTRACTOR SHALL PROTECT EXISTING SITE IMPROVEMENTS, APPURTENANCES, AND LANDSCAPING TO REMAIN.
- CONTRACTOR SHALL MAINTAIN EXISTING UTILITIES TO REMAIN IN SERVICE AND PROTECT THEM FROM DAMAGE DURING DEMOLITION OPERATIONS.
- DO NOT DAMAGE EXISTING UTILITIES TO REMAIN WITHIN PROJECT AREA. ALL DAMAGE TO EXISTING UTILITIES TO REMAIN SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE UTILITY OWNER.
- THERE SHALL BE NO BURNING OF DEMOLISHED MATERIAL ALLOWED ON SITE.
- CONTRACTOR SHALL COORDINATE WITH OWNER FOR ANY ITEMS TO BE TURNED OVER TO OWNER.
- DEMOLISH AND REMOVE ALL PAVEMENT, SLABS, FOOTINGS, SUBSURFACE ELEMENTS, MISCELLANEOUS DEBRIS, ETC. WITHIN PROPERTY LINES UNLESS NOTED OTHERWISE.
- CONTRACTOR IS RESPONSIBLE FOR CONTROLLING DUST SO THAT DUST DOES NOT CREATE A NUISANCE ON ADJACENT ROADS OR PROPERTIES. SITE CONTRACTOR SHALL BE RESPONSIBLE FOR STREET SWEEPING AND CATCH BASIN CLEANING AFTER EACH PHASE OF CONSTRUCTION AND AS NEED IS DETERMINED BY THE ENGINEER.
- CONTRACTOR SHALL REMOVE AND DISPOSE OF ANY ABANDONED SUBSURFACE SOIL ABSORPTION SYSTEM (SAS) AND MISCELLANEOUS DEBRIS.
- NO ACTIVITY OTHER THAN NORMAL MAINTENANCE SHALL OCCUR OUTSIDE OF LIMIT OF WORK LINES AS SHOWN ON PLAN WITHOUT THE APPROVAL OF THE ENGINEER.
- THE CONTRACTOR SHALL NOTIFY DIG SAFE @ 1-888-344-7233 PRIOR TO COMMENCEMENT OF ANY DEMOLITION/CONSTRUCTION ACTIVITY.

## LANDSCAPE NOTES

- THE CONTRACTOR SHALL VERIFY FINAL SELECTION OF PLANT MATERIALS WITH THE LANDSCAPE ARCHITECT AND OWNER PRIOR TO INSTALLATION.
- NO PLANT MATERIAL WILL BE ACCEPTED WHICH DISPLAYS MAJOR IRREGULARITIES OR DAMAGE. THE OWNER/LANDSCAPE ARCHITECT RETAINS THE RIGHT TO REJECT ANY PLANT MATERIAL DEEMED UNFIT.
- WARRANTEE: FOR A PERIOD OF TWO GROWING SEASONS FROM THE DATE THAT THE WORK UNDER THIS CONTRACT IS CERTIFIED AS SUBSTANTIALLY COMPLETE, THE CONTRACTOR SHALL: 1) WARRANTEE ALL PLANTS AND SEEDED AREAS UNDER THIS CONTRACT; 2)REMOVE AND REPLACE DURING THIS GUARANTEE PERIOD PLANTS WHICH DIE OR ARE IN POOR CONDITION AS DETERMINED BY THE OWNER; 3) REPLANT WITH STOCK OF SAME SIZE AND QUALITY AS ORIGINALLY SPECIFIED; 4) GUY AND MAINTAIN AS SPECIFIED HEREIN AT NO ADDITIONAL COST TO THE OWNER.
- ALL NEW LAWN AREAS SHALL RECEIVE A MINIMUM OF 4 INCHES TOPSOIL OF THE PROPER pH AND ORGANIC CONTENT SUITABLE FOR THE HEALTHY GROWTH OF LAWNS. THESE AREAS SHALL BE SEEDED WITH A FINE BLADE LAWN GRASS SEED OR SODDED. ADDITIONAL OFF-SITE TOPSOIL MAY BE REQUIRED.
- ALL AREAS TO BE MULCHED SHALL RECEIVE 4 INCHES MINIMUM 100% SHREDDED BARK MULCH WITHIN 48 HOURS OF PLANTING UNLESS OTHERWISE NOTED IN PLANTING DETAILS.
- ALL TREE AND SHRUB PITS SHALL BE AT LEAST 2 FEET WIDER AND 1 FOOT DEEPER THAN THE TREE OR SHRUB ROOT BALL TO BE PLANTED IN IT. BACKFILL SHALL BE HIGH QUALITY LOAM OF THE PROPER pH AND ORGANIC CONTENT SUITABLE FOR THE HEALTHY GROWTH OF PLANT MATERIALS.
- ALL PLANTS SHALL BE NURSERY GROWN AND CONFORM TO THE LATEST EDITION OF "ANSI Z60.1, AMERICAN STANDARD FOR NURSERY STOCK".
- EACH PLANT TO BE FREE FROM DISEASE, INSECT INFESTATION, MECHANICAL INJURIES, AND IN ALL RESPECTS BE SUITABLE FOR FIELD PLANTING.
- EACH PLANT TO BE IN THE TOP OF ITS SIZE CLASS AFTER SHEARING AND PRUNING.
- ADJACENT TO THE TOP OF ANY WALLS OVER 36" A FENCE OR WALL SHALL BE CONSTRUCTED PER PLAN THAT MEETS LOCAL BUILDING CODE AND ALL OTHER APPLICABLE STATE AND FEDERAL LAWS.
- SEE DETAIL SHEETS FOR ADDITIONAL DETAILS & SPECIFICATIONS.
- SHOULD GC OR ANY SUBCONTRACTOR ENCOUNTER A DISCREPANCE/CONFLICT IN THE PLAN AN THE ACTUAL LOCATION OF A SITE FEATURE, THE CONTRACTOR SHALL CONTACT THE LANDSCAPE ARCHITECT/ENGINEER AND OWNER IMMEDIATELY.
- ALL AREAS DISTURBED DURING CONSTRUCTION NOT DESIGNATED TO RECEIVE OTHER TREATMENT SHALL BE LOAMED TO A MINIMUM DEPTH OF 4" AND SEEDED IN ACCORDANCE WITH THE FOLLOWING:
  - INCORPORATE GROUND LIMESTONE INTO ALL AREAS TO BE SEEDED AT A RATE OF 50 LBS/1,000 S.F.
  - APPLY 10-6-4 FERTILIZER TO ALL AREAS TO BE SEEDED AT A RATE OF 2 LBS/1,000 S.F.
  - THOROUGHLY INCORPORATE LIME AND FERTILIZER INTO SEED BED TO DEPTH OF 3" BY DISCING OR OTHER APPROVED METHOD.
  - SEED WITH THE FOLLOWING MIXTURE, APPLIED AT A RATE OF 10 LBS/1,000 S.F. SEED MIX:

| NAME OF SEED                             | % BY WEIGHT IN MIXTURE | MIN. % PURITY | MIN. GERMINATION |
|------------------------------------------|------------------------|---------------|------------------|
| POS PRETENSES "BARON" BARON BLUEGRASS    | 50                     | 90            | 75               |
| FESTUCA RUBRA "PENNLAWN" PENNLAWN FESCUE | 25                     | 95            | 85               |
| LOLIUM PERENNE "PENNFINE" PENNFINE       | 25                     | 98            | 95               |
  - MULCH ALL SEEDED AREAS WITH STRAW AT A RATE OF 5 LBS/1,000 S.F.UNLESS HYDROSEEDING WAS USED.
  - ALL SLOPES OF 3:1 OR GREATER AFTER BEING LOAMED, SEEDED AND MULCHED IN ACCORDANCE WITH THE ABOVE SHALL SECURED WITH EROSION CONTROL BLANKETS (NO. AMERICAN GREEN S150 OR EQUAL). OVERLAP ALL NETTING JOINTS A MINIMUM OF 6" AND SECURE WITH DOUBLE ROW OF STAPLES.

## NOTES, SYMBOL & LINE LEGEND AND ABBREVIATIONS

158 Silver Street  
Assessors Parcel J8 2 3  
Agawam, Mass.



### PREPARED FOR:

Salmar Realty, Inc.  
c/o Mr. Peter Martins  
350 Cottage Street  
Springfield, MA 01104

### ISSUANCE DATE:

March 21, 2025

### REVISIONS:

### DATE:

UNAUTHORIZED ALTERATION OF THIS DOCUMENT IS A VIOLATION OF MASSACHUSETTS STATE LAW

### SCALE:

As Noted

### RLA PROJ. NUMBER:

171123

### DRAWING#

### REV.

C-1

-

PERMITTING  
NOT FOR CONSTRUCTION



S:\Projects\2017\171123 - Martins - 779 Suffield St, Agawam\Civil 3D\171123 - SITE.dwg

GENERAL CONSTRUCTION NOTES

1. PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR OR HIS AUTHORIZED REPRESENTATIVE SHALL CONVENE A PRE-CONSTRUCTION CONFERENCE BETWEEN THE CITY/TOWN REPRESENTATIVES, CONSULTING ENGINEER/LANDSCAPE ARCHITECT, UTILITY COMPANY REPRESENTATIVES, AND ANY OTHER AFFECTED PARTIES.
2. THE OWNER, R LEVESQUE ASSOCIATES, INC., AND/OR THEIR REPRESENTATIVES, IN PREPARING THESE PLANS HAVE ATTEMPTED TO LOCATE ALL EXISTING UTILITIES IN THE PROJECT AREA. HOWEVER, THERE MAY BE UTILITIES THAT WERE NOT OR COULD NOT BE LOCATED. UNDERGROUND UTILITIES SHOWN ON THE PLANS ARE IN APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATIONS AND ELEVATIONS OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR SHALL CALL ALL APPROPRIATE UTILITY COMPANIES FOR LOCATIONS OF THEIR UTILITIES AT LEAST 48 HOURS BEFORE COMMENCING EXCAVATION. IN THE EVENT THAT A UTILITY IS SITUATED SUCH THAT CONSTRUCTION CANNOT PROCEED AS SHOWN ON THE PLANS, THE PROJECT ENGINEER/LANDSCAPE ARCHITECT AND OWNER SHALL BE NOTIFIED IMMEDIATELY.
3. THE SITE CONTRACTOR IS RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH OCCUR DUE TO HIS FAILURE TO LOCATE AND PRESERVE ANY AND ALL UTILITIES.
4. ALL FILL WORK REQUIRED TO BRING THE PROPOSED ROADWAY UP TO SUB-GRADE LEVEL SHALL CONFORM TO MHD SPECIFICATIONS SECTION 150.
5. CONSTRUCTION SHALL COMPLY WITH ALL APPLICABLE GOVERNING CODES AND BE CONSTRUCTED TO SAME.
6. ALL WORK IN THE CITY/TOWN RIGHT-OF-WAY AND EASEMENTS SHALL BE IN ACCORDANCE WITH THE CITY/TOWN SPECIFICATIONS AND MASSACHUSETTS DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, LATEST EDITION.
7. THE CONTRACTOR SHALL GIVE THE CITY/TOWN A MINIMUM OF 48 HOURS NOTICE BEFORE BEGINNING EACH PHASE OF CONSTRUCTION.
8. CONTRACTOR IS RESPONSIBLE FOR REPAIRS OF DAMAGE TO ANY EXISTING IMPROVEMENTS DURING CONSTRUCTION, SUCH AS, BUT NOT LIMITED TO, DRAINAGE, UTILITIES, PAVEMENT, STRIPING, CURB, ETC. REPAIRS SHALL BE EQUAL TO OR BETTER THAN EXISTING CONDITIONS.
9. ALL WORK SHALL BE PERFORMED IN CONFORMANCE WITH THE CONDITIONS OF APPROVAL OUTLINED IN ALL STATE AND LOCAL PERMITS. COPIES OF THE CONDITIONS ARE INCLUDED WITHIN THE PROJECTS TECHNICAL SPECIFICATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REVIEWING THIS INFORMATION PRIOR TO CONSTRUCTION AND CONFORMING TO THE CONDITIONS AS REQUIRED DURING CONSTRUCTION.
10. THE CONTRACTOR SHALL MAINTAIN THE JOB CLEAR OF TRASH AND DEBRIS. THE WORK AREAS ARE TO BE PICKED UP AT THE END OF EACH WORK DAY.
11. ANY TEMPORARY FACILITIES FOR THE STORAGE OR PROTECTION OF TOOLS, EQUIPMENT OR MATERIALS SHALL CONFORM TO LOCAL REGULATIONS AND SHALL BE THE GENERAL CONTRACTORS RESPONSIBILITY. THESE DOCUMENTS DO NOT INCLUDE THE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY. SAFETY, CARE OF ADJACENT PROPERTIES DURING CONSTRUCTION, AND COMPLIANCE WITH STATE AND FEDERAL REGULATIONS REGARDING SAFETY SHALL BE THE GENERAL CONTRACTORS RESPONSIBILITY.
12. THE GENERAL CONTRACTOR AND HIS SUBCONTRACTORS SHALL VISIT THE SITE AND BECOME FAMILIAR WITH ALL CONDITIONS PRIOR TO SUBMITTING HIS PROPOSAL. NO EXTRAS DUE TO UNFAMILIARITY WITH THE EXISTING SITE OR WORKING CONDITIONS WILL BE ALLOWED.
13. CONTRACTOR SHALL BE REQUIRED TO PERFORM FINAL CLEANUP CONSISTING OF CLEANING THE PROPOSED DRAINAGE AND SEWER SYSTEMS OF ALL DEBRIS PRIOR TO THE ACCEPTANCE BY THE OWNER. ADDITIONALLY, THE PROPOSED ROADWAY SHALL BE CLEANED AND SWEEPED BY THE CONTRACTOR PRIOR TO ACCEPTANCE.
14. ALL EXCAVATION SHALL COMPLY WITH OSHA'S LATEST STANDARDS. ALL REQUIREMENTS OF OSHA'S EXCAVATION STANDARDS SHALL BE PROVIDED BY THE CONTRACTOR INCLUDING, BUT NOT LIMITED TO, THE PROVISION FOR A COMPETENT PERSON ON SITE MANAGER AND ANY REQUIRED DOCUMENTATION THAT MAY REQUIRE CERTIFICATION BY A PROFESSIONAL ENGINEER. THE OWNER, THROUGH ITS ENGINEER, SHALL EXPRESSLY NOT PROVIDE ANY OF THE ABOVE REQUIREMENTS DESIGNATED BY OSHA'S EXCAVATION STANDARD.
15. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE COST OF LAYING OUT ALL ITEMS OF THE WORK BASED ON CERTAIN HORIZONTAL CONTROL AND BENCHMARK SUPPLIED BY THE SURVEYOR OF RECORD. ANY DISCREPANCIES SHALL BE IMMEDIATELY REPORTED TO THE ENGINEER.
16. THE CONTRACTOR SHALL PROVIDE ALL MATERIALS, LABOR, EQUIPMENT, PERMITS AND APPURTENANCES NECESSARY TO PROVIDE A COMPLETE PROJECT AS INDICATED ON THE PLANS AND IN THESE SPECIFICATIONS.
17. THE CONTRACTOR SHALL BE RESPONSIBLE FOR A THOROUGH SITE EXAMINATION IN ORDER TO PREPARE SITE FOR CONSTRUCTION.
18. ANY AND ALL DEMOLISHED TREES, STRUCTURES AND OTHER RUBBLE MATERIAL PERTAINING TO THIS PROJECT SHALL BE DISPOSED OF BY THE CONTRACTOR OFF-SITE AT HIS EXPENSE IN ACCORDANCE WITH ALL OF THE CITY/TOWN ORDINANCES AND ALL APPLICABLE STATE AND FEDERAL ENVIRONMENTAL REGULATIONS.
19. ALL PAVEMENT DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE REPLACED IN ACCORDANCE WITH THE SPECIFICATIONS AND AS SHOWN ON THE DRAWINGS.
20. ALL STREET EXCAVATIONS SHALL BE COMPLETELY CLOSED AT THE END OF EACH WORKING DAY BY BACKFILLING OR COVERING WITH STEEL PLATES.
21. ALL MATERIALS AND METHODS ARE TO COMPLY WITH THE CITY/TOWN DPW STANDARDS OR MASSACHUSETTS DEPARTMENT OF TRANSPORTATION (MASSDOT) (WHERE APPLICABLE), UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
22. PERMITS WILL BE REQUIRED BY CONTRACTOR WHEN WORKING WITHIN OR OCCUPYING PUBLIC WAY. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL REQUIRED WORK PERMITS AND MAINTAINING A COPY OF ALL PERMITS IN A THREE RING BINDER OR PROJECT BOOK AND ON-SITE AT ALL TIMES.
23. BACKFILL WILL BE PLACED IN SUCCESSIVE LAYERS NOT MORE THAN TWELVE INCHES IN THICKNESS AND SHALL BE COMPACTED TO 95% OF MAXIMUM DRY DENSITY DETERMINED BY STANDARD PROCTOR TEST (ASTM 698) FOR ALL APPLICABLE TYPES OF BACKFILL MATERIAL. NO FROZEN MATERIAL SHALL BE USED AS BACKFILL. IF, IN THE OPINION OF THE ENGINEER OR THE DPW, THE EXCAVATED MATERIAL IS UNSUITABLE, THE ENTIRE MATERIAL FOR BACKFILLING SHALL CONSIST OF APPROVED GRAVEL OR APPROVED BORROW, AS DIRECTED. AFTER THOROUGH TAMPING AROUND AND BENEATH THE UTILITY, A SIX-INCH LAYER OF BACKFILL WILL BE THOROUGHLY COMPACTED AS FOLLOWS: IF DRY, SHALL BE MOISTENED AND THEN COMPACTED WITH MECHANICAL TAMPERS OR BY HAND TAMPERS HAVING A TAMPING FACE NOT EXCEEDING 25 SQUARE INCHES IN AREA. THE FINAL TWELVE INCHES OF FILLING WILL, IN ALL CASES, CONSIST OF APPROVED GRAVEL THOROUGHLY TAMPED.
24. CONTRACTOR SHALL PROVIDE FIELD COMPACTION VERIFICATION UTILIZING ASTM D5195-02, STANDARD TEST METHOD FOR DENSITY OF SOIL & ROCK IN-PLACE AT DEPTHS BELOW THE SURFACE BY NUCLEAR METHODS.
25. CONTRACTOR SHALL PROVIDE FIELD COMPACTION RESULTS TO ENGINEER WITHIN 24-HOURS PRIOR TO PLACEMENT OF INFRASTRUCTURE OR BITUMINOUS BINDER.
26. ALL FILL TO BRING PROPOSED ROADWAY UP TO THE SUB-GRADE LEVEL SHALL EXTEND PAST THE EDGE OF THE RIGHT-OF-WAY AT A 2:1 SLOPE. THIS IS TO PROVIDE ADEQUATE SUPPORT FOR THE RIGHT-OF-WAY.

LAYOUT NOTES

1. ALL CONSTRUCTION IN CITY/TOWN RIGHT-OF-WAYS AND/OR EASEMENTS SHALL BE IN ACCORDANCE WITH THE CITY/TOWN STANDARD SPECIFICATIONS.
2. IN THE EVENT OF DISCREPANCIES BETWEEN LOCAL SPECIFICATIONS AND SITE SPECIFICATIONS, THE MORE STRINGENT REQUIREMENT SHALL GOVERN.
3. SITE CONTRACTOR SHALL PROTECT ALL BENCHMARKS AND PROPERTY MONUMENTATION AND SHALL REPLACE OR REPAIR, AT HIS OWN EXPENSE, BENCHMARKS AND MONUMENTATION DISTURBED DURING CONSTRUCTION.
4. ALL STRIPING, PAVEMENT MARKINGS, AND TRAFFIC SIGNAGE SHALL BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION, UNLESS OTHERWISE NOTED ON THE PLANS.
5. ALL WORK SHALL COMPLY WITH FEDERAL, STATE AND LOCAL CODES AND ORDINANCES INCLUDING BUT NOT LIMITED TO: AASHTO, OSHA, EPA, DEP, MASSDOT, ETC. THE GENERAL CONTRACTOR SHALL APPLY FOR ALL PERMITS AND SHALL PAY ALL PERMIT RELATED FEES. ALL NECESSARY PERMITS SHALL BE OBTAINED PRIOR TO THE START OF WORK.
6. ALL DIMENSIONS AND CONDITIONS SHOWN ON THE DRAWINGS ARE TO BE VERIFIED BY THE CONTRACTOR. IF FIELD CONDITIONS VARY SIGNIFICANTLY ENOUGH TO REQUIRE A CHANGE TO THE CONTRACT DOCUMENTS, THE PROJECT PROPONENT AND ENGINEER SHALL BE NOTIFIED IMMEDIATELY.
7. THE SITE/GENERAL CONTRACTOR AND SUBCONTRACTORS SHALL CONTACT THE OWNER AND ENGINEER SHOULD HE FIND ANY CONFLICT OR INCONSISTENCY BETWEEN THE WORK SHOWN ON THE DRAWINGS AND NORMAL ACCEPTED CONSTRUCTION PRACTICES, OR HE SHALL ASSUME RESPONSIBILITY FOR ALL CORRECTIONS.
8. ANY CORRECTIONS REQUIRED FOR REVISIONS TO THE CONTRACT DRAWINGS INITIATED BY THE GENERAL CONTRACTOR OR SUBCONTRACTORS WITHOUT PRIOR APPROVAL OF THE OWNER AND/OR THE ENGINEER SHALL BE ACCOMPLISHED AT THE CONTRACTORS RISK.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL & LEGAL DISPOSAL OF ALL MATERIAL NECESSARY TO PREPARE THE SITE FOR THE NEW CONSTRUCTION AS SHOWN ON THE SITE DRAWINGS.
10. REPAIR DAMAGED CITY/TOWN ROADS AND CURBS IN ACCORDANCE WITH MASSDOT AND/OR THE CITY/TOWN REGULATIONS.
11. CONTRACTOR SHALL SAWCUT PAVEMENT EDGE WHERE PAVEMENT TO REMAIN IS ADJACENT TO PAVEMENT TO BE REMOVED.
12. CONTRACTOR SHALL PREPARE SITE AS NECESSARY FOR CONSTRUCTION SHOWN ON THE PLANS.

EARTHWORK NOTES

1. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES, AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANIES AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
2. ALL CUT OR FILL SLOPES SHALL BE 3:1 OR FLATTER UNLESS OTHERWISE NOTED.
3. STORM PIPE SHALL BE AS NOTED ON PLANS.
4. EXISTING DRAINAGE STRUCTURES TO BE INSPECTED AND REPAIRED AS NEEDED, AND EXISTING PIPES TO BE CLEANED OUT TO REMOVE ALL SILT AND DEBRIS.
5. EXISTING GRADE CONTOUR INTERVALS SHOWN AT 1 FOOT INTERVALS.
6. PROPOSED GRADE CONTOUR INTERVALS SHOWN AT 1 FOOT INTERVALS.
7. IF ANY EXISTING STRUCTURES TO REMAIN ARE DAMAGED DURING CONSTRUCTION IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO REPAIR AND/OR REPLACE THE EXISTING STRUCTURE AS NECESSARY TO RETURN IT TO EXISTING CONDITIONS OR BETTER.
8. ALL STORM PIPE ENTERING STRUCTURES SHALL BE SEALED TO ASSURE CONNECTION AT STRUCTURE IS WATERTIGHT.
9. ALL STORM SEWER MANHOLES FRAMES AND GRATES ARE TO BE SET EQUAL TO FINISH GRADES, AND SHALL HAVE TRAFFIC BEARING RING & COVERS (H20).
10. CONTRACTOR SHALL ADJUST AND/OR CUT EXISTING PAVEMENT AS NECESSARY TO ASSURE A SMOOTH FIT AND CONTINUOUS GRADE.
11. CONTRACTOR SHALL ASSURE POSITIVE DRAINAGE AWAY FROM BUILDINGS FOR ALL NATURAL AND PAVED AREAS.
12. ALL UNSURFACED AREAS DISTURBED BY GRADING OPERATION SHALL RECEIVE 4 INCHES OF TOPSOIL. CONTRACTOR SHALL APPLY STABILIZATION FABRIC TO ALL SLOPES 3H:1V OR STEEPER. CONTRACTOR SHALL GRASS DISTURBED AREAS IN ACCORDANCE WITH THE SPECIFICATIONS UNTIL A HEALTHY STAND OF GRASS IS OBTAINED.
13. CONSTRUCTION SHALL COMPLY WITH ALL APPLICABLE GOVERNING CODES AND BE CONSTRUCTED TO SAME.
14. IF CONTRACTOR RELOCATES OR SETS NEW BENCHMARKS, THE VERTICAL ELEVATIONS OF THE BENCHMARKS SHALL BE SET WITHIN A TOLERANCE OF 0.010 FT.
15. CONTRACTOR SHALL LEAVE GRADE BEHIND CURB IN ALL PLANTER AREAS A MINIMUM OF 4" LOW FOR THE PLACEMENT OF SUITABLE TOPSOIL OR PLANTING MIX.

SITE UTILITY NOTES

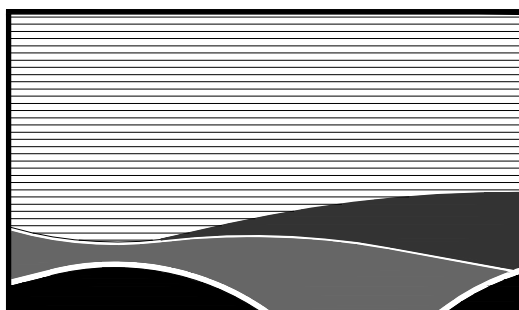
- GENERAL:
1. ALL FILL MATERIAL IS TO BE IN PLACE, AND COMPACTED BEFORE INSTALLATION OF PROPOSED UTILITIES.
  2. TOPS OF EXISTING MANHOLES SHALL BE SET EQUAL TO FINISH GRADE. IN GRASSED LANDSCAPED AREAS WITH WATER TIGHT LIDS.
  3. ALL CONCRETE FOR ENCASEMENTS SHALL HAVE A MINIMUM 28 DAY COMPRESSION STRENGTH AT 3000 P.S.I.
  4. DRAWINGS DO NOT PURPORT TO SHOW ALL EXISTING UTILITIES.
  5. EXISTING UTILITIES SHALL BE VERIFIED IN FIELD PRIOR TO INSTALLATION OF ANY NEW LINES.
  6. SITE/GENERAL CONTRACTOR IS RESPONSIBLE FOR COMPLYING TO THE SPECIFICATIONS OF THE LOCAL AUTHORITIES AT THE CITY WITH REGARD TO MATERIALS AND INSTALLATION OF THE WATER AND SEWER LINES.
  7. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES, AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANIES AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
  8. CONTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES FOR INSTALLATION REQUIREMENTS AND SPECIFICATIONS.
  9. CONTRACTOR SHALL COORDINATE INSPECTION OF UTILITY LINES WITH APPROPRIATE AUTHORITIES PRIOR TO BACKFILLING TRENCHES.
  10. CONTRACTOR SHALL COMPLY WITH THE LATEST OSHA STANDARDS OR DIRECTIVES OR ANY OTHER AGENCY HAVING JURISDICTION FOR EXCAVATION AND TRENCHING PROCEDURES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND MAINTENANCE OF ALL SUPPORT SYSTEMS, SLOPING, BENCHING, AND OTHER MEANS OF PROTECTION.
  11. CONTRACTOR SHALL COORDINATE INSTALLATION OF UTILITIES WITH LOCAL COMPANIES TO AVOID CONFLICTS AND TO ASSURE THAT PROPER DEPTHS ARE ACHIEVED. CONTRACTOR SHALL COORDINATE WITH LOCAL UTILITY COMPANIES FOR EXACT LOCATION AND SCHEDULING OF CONNECTIONS TO THEIR FACILITIES.
  12. THE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. DUE TO THE LACK OF AVAILABLE DOCUMENTATION, ALL UTILITIES, INCLUDING CURB BOXES, MAY NOT BE SHOWN ON THESE DRAWINGS. THE CONTRACTOR SHALL CALL THE "DIG SAFE CENTER" TO HAVE ALL UTILITIES MARKED ON THE GROUND PRIOR TO THE START OF CONSTRUCTION
  13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION OF ALL EXISTING UTILITIES. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH OCCUR DUE TO HIS FAILURE TO LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.
  14. DO NOT INTERRUPT EXISTING UTILITIES WITHOUT AUTHORIZATION FROM THE OWNER, OWNERS OF ADJACENT PROPERTIES, AND THE CORRESPONDING UTILITY OWNER. CONTRACTOR SHALL ARRANGE TO SHUT OFF UTILITIES, AS REQUIRED, WITH THE UTILITY OWNERS.
  15. COORDINATE UTILITY TERMINATION WITH UTILITY OWNERS.

- SEWER:
1. SANITARY SEWER MAINS AND LATERALS SHALL BE PVC PIPE CONFORMING TO ASTM D 3034--SDR35. THE MINIMUM SIZE FOR SEWER MAINS SHAL BE 8", SEWER LATERALS SHALL BE 4" MIN.
  2. ALL SANITARY SEWERS, SEWER FORCE MAINS, AND SEWER LATERALS SHALL BE INSTALLED IN FIRST-CLASS BEDDING AND IN ACCORDANCE WITH THE DEPARTMENT OF PUBLIC WORKS SPECIFICATIONS. SEWERS SHALL BE INSTALLED TO THE LINE AND GRADE INDICATED ON THE PLANS.
  3. ONLY PRECAST CONCRETE MANHOLES OF A DESIGN APPROVED BY THE TOWN ENGINEER SHALL BE INSTALLED ON A SANITARY SEWER MAIN.
  4. NO GROUNDWATER OR SURFACE WATER SHALL BE DISCHARGED INTO THE SANITARY SEWER.
  5. WHERE ROCK IS ENCOUNTERED, IT SHALL BE REMOVED TO A DEPTH OF ONE FOOT BELOW THE FLOWLINE OF THE SEWER AND THE PIPE LAID IN A PROPERLY COMPACTED GRANULAR MATERIAL APPROVED BY THE TOWN ENGINEER.
  6. ONLY GRANULAR MATERIAL APPROVED BY THE TOWN ENGINEER SHALL BE USED AS BACKFILL IN ANY TRENCH EXCAVATION.

- WATER:
1. CONTRACTOR SHALL CONTACT THE CITY/TOWN WATER DEPARTMENT FOR SPECIFICATIONS AND MAKE OF VALVES, VALVE BOXES, FIRE HYDRANTS AND ALL OTHER WATER LINE APPURTENANCES.
  2. WATER LINE TESTING AND STERILIZATION SHALL BE PERFORMED IN ACCORDANCE WITH LOCAL DPW SPECIFICATIONS AND WATER DISTRIBUTION SYSTEM. CONTRACTOR SHALL COORDINATE TESTING WITH THE CITY WATER DEPARTMENT.
  3. ALL WATER MAIN SHALL BE DUCTILE IRON (D.I.), CLASS 52, AWWA C-151 (ANSI A21.40). D.I. PIPE SHALL BE DOUBLE CEMENT LINED WITH A SEAL COAT CONFORMING TO AWWA C-104 (ANSI A-21.4).
  4. JOINTS FOR D.I. PIPE SHALL BE PUSH-ON OR OTHERWISE APPROVED, AWWA C151(ANSI A-21.51) WITH GASKETS CONFORMING TO AWWA C-111 (ANSI A-21.11) MAXIMUM LENGTH OF PIPE TO BE 20 L.F.
  5. ALL FITTINGS SHALL BE DUCTILE IRON CLASS 53 WITH PRESSURE RATING OF 350 PSI AND MECHANICAL JOINTS CONFORMING TO AWWA C-151 (ANSI A21.51).
  6. RETAINER GLANDS: RETAINER GLANDS SHALL BE DESIGNED TO IMPART MULTIPLE WEDGING ACTION AGAINST THE PIPE, INCREASE ITS RESISTANCE AS THE PRESSURE INCREASES. GLANDS SHALL BE MANUFACTURED OF DUCTILE IRON CONFORMING TO ASTM A536-80. RESTRAINING DEVICES SHALL BE DUCTILE IRON HEAT-TREATED TO A MINIMUM HARNESS OF 370 BHN. TWIST-OFF NUTS SHALL BE USED TO INSURE PROPER ACTUATING OF THE RETAINER GLAND. DIMENSIONS OF THE GLAND SHALL BE SUCH THAT IT CAN BE USED WITH THE STANDARD MECHANICAL JOINT BELL AND TEE-HEADED BOLTS CONFORMING TO ANSI/AWWA A21.1 AND ANSI/WWA 153/A21.5. THE RETAINER GLAND SHALL HAVE A WORKING PRESSURE OF 250 PSI WITH A MINIMUM SAFETY FACTOR OF 2:1 AND SHALL BE CERTIFIED BY THE MANUFACTURER TO BE COMPATIBLE WITH THE PIPE CLASS AND PIPE MANUFACTURER FOR ALL SIZES PROVIDED ON THE JOB. THE RETAINER GLAND SHALL BE MEGA-LUG AS MANUFACTURED EBAA IRON, INC., OR APPROVED EQUAL.
  7. ALL WATER MAINS, UNLESS OTHERWISE NOTED, SHALL BE INSTALLED WITH A MINIMUM FIVE FEET OF COVER. WHEN CROSSING ABOVE OR BELOW WATER PIPELINES, A MINIMUM VERTICAL SEPARATION OF SIX INCHES SHALL BE PROVIDED. WHEN CROSSING SANITARY SEWERS, A MINIMUM OF 18" SHALL BE PROVIDED.

SITE UTILITY NOTES (CONTINUED)

8. THE INSTALLED WATER MAIN SHALL BE PRESSURE TESTED, FLUSHED AND DISINFECTED BY CONTRACTOR IN ACCORDANCE WITH AWWA C-600 AND AWWA C-651 OR PER CITY/TOWN WATER DEPARTMENT STANDARDS.
9. DUCTILE IRON PIPES SHALL BE INSTALLED IN ACCORDANCE WITH AWWA C-600.
10. ALL MECHANICAL JOINTS ARE TO BE RESTRAINED. FITTINGS SHALL BE RESTRAINED BY MECHANICAL JOINT RESTRAINTS. THE PIPE CONNECTED TO THE FITTING SHALL BE RESTRAINED PER THE MANUFACTURER'S SCHEDULE.
11. THE CONTRACTOR SHALL MARK THE LOCATION OF THE PROPOSED WATER MAIN AT LEAST 48 HOURS PRIOR TO EXCAVATING. EXCAVATION SHALL NOT PROCEED WITHOUT AUTHORIZATION BY THE ENGINEER.
12. ALL WATER MAINS, HYDRANT BRANCHES, AND SERVICES SHALL HAVE UTILITY WARNING TAPE. THE TAPE SHALL BE BURIED APPROXIMATELY 2 FEET BELOW FINISHED GRADE.
13. BACKFILL SHALL BE COMPACTED TO 95 PERCENT OF THE STANDARD PROCTOR DENSITY AS DETERMINED BY ASTM D698. COMPACTION EQUIPMENT USED MUST BE SPECIFICALLY DESIGNED FOR COMPACTION. TAMPING WITH THE BACK OF THE BACK HOE BUCKET IS UNACCEPTABLE COMPACTION.
14. ALL WATER SERVICES SHALL BE 1" DIA. COPPER TUBING TYPE K, SOFT TEMPER CONFORMING TO ASTM B88 UNLESS OTHERWISE NOTED.
15. DEPRESS WATER MAIN UNDER EXISTING SERVICES AND HYDRANT BRANCHES TO MAINTAIN 5'-0" OF COVER.
16. ALL WATER MAINS SHALL BE LAID PER THE PLANS TO MAINTAIN THE MAXIMUM SEPARATION FROM EXISTING OR PROPOSED SANITARY SEWER. DISTANCE SHALL BE MEASURED EDGE TO EDGE.
17. IDENTIFY EACH PIPE LENGTH & FITTING CLEARLY WITH MANUFACTURE'S NAME & TRADEMARK. NOMINAL PIPE SIZE & MATERIAL DESIGNATION.
18. ALL WATER MAINS & SERVICE PIPES SHALL BE LAID IN A TRENCH SEPARATE FROM ANY OTHER UTILITY (GAS, ELECTRIC, TELEPHONE, ETC.) SHALL BE A MINIMUM NO LESS THAN FIVE (5) FEET FROM ANOTHER UTILITY.
19. ALL MATERIAL SHALL BE IN ACCORDANCE WITH CITY/TOWN WATER DEPARTMENT "RULES & REGULATIONS". ALL WORK TO BE PERFORMED IN ACCORDANCE WITH CITY/TOWN WATER DEPARTMENT "SPECIFICATIONS". CITY/TOWN WATER DEPARTMENT STANDARDS SHALL TAKE PRECEDENCE OVER ANY REQUIREMENTS LISTED ABOVE.



**RLA**

**R LEVESQUE ASSOCIATES INC.**

Landscape Architects  
Civil Engineers - Land Surveyors  
Environmental Consultants

ph: 413.568.0985 fax: 413.568.0986

40 School Street  
Westfield, MA 01085  
**rlaland.com**

**CONSTRUCTION NOTES**

**158 Silver Street**  
**Assessors Parcel J8 2 3**  
**Agawam, Mass.**



**PREPARED FOR:**

Salmar Realty, Inc.  
c/o Mr. Peter Martins  
350 Cottage Street  
Springfield, MA 01104

|                                      |              |
|--------------------------------------|--------------|
| <b>ISSUANCE DATE:</b> March 21, 2025 |              |
| <b>REVISIONS:</b>                    | <b>DATE:</b> |
|                                      |              |
|                                      |              |
|                                      |              |
|                                      |              |
|                                      |              |
|                                      |              |

UNAUTHORIZED ALTERATION OF THIS DOCUMENT IS A VIOLATION OF MASSACHUSETTS STATE LAW

**SCALE:** As Noted

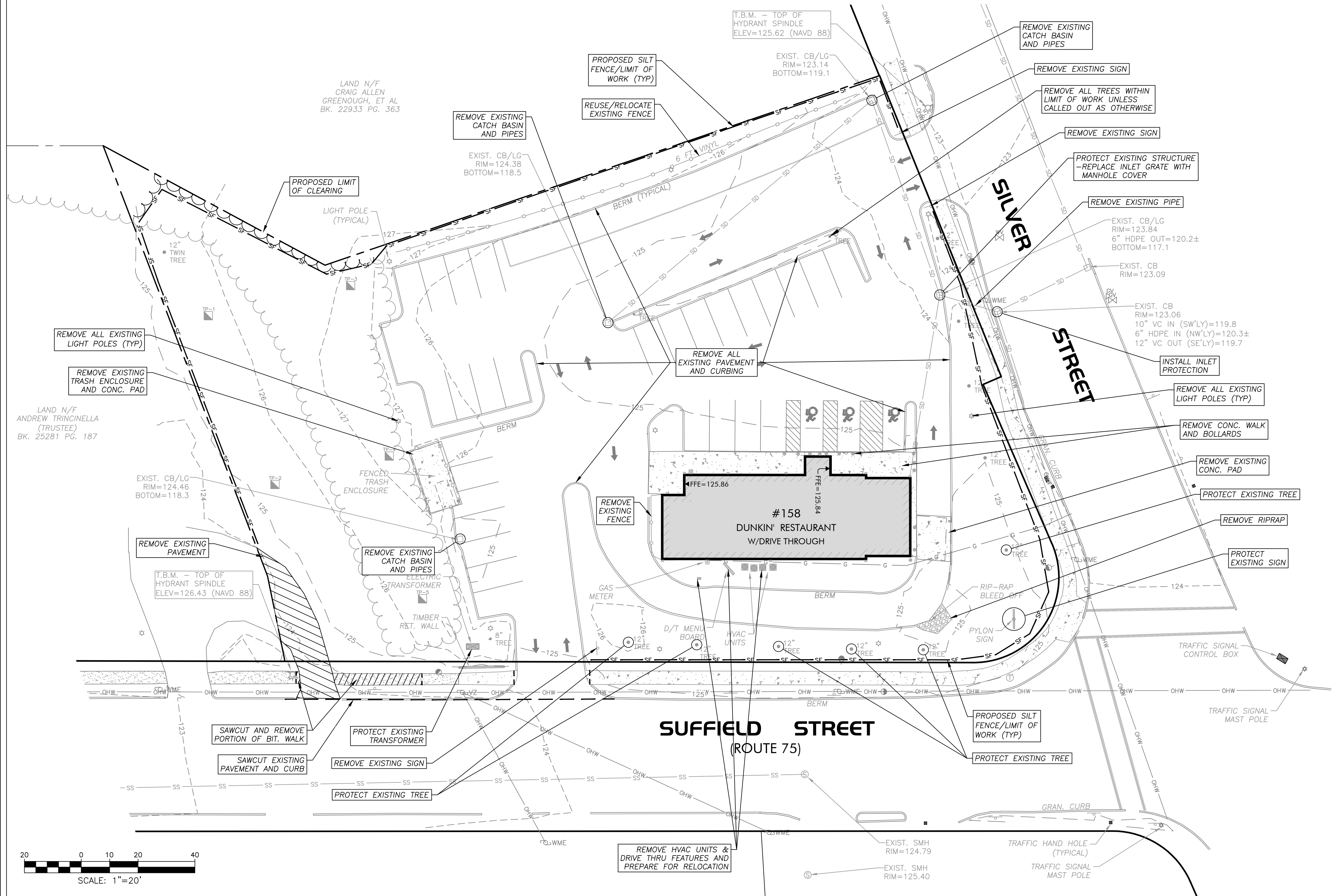
**RLA PROJ. NUMBER:** 171123

|                 |             |
|-----------------|-------------|
| <b>DRAWING#</b> | <b>REV.</b> |
| <b>C-2</b>      | <b>-</b>    |

**PERMITTING**  
NOT FOR CONSTRUCTION



S:\Projects\2017\171123 - Martins - 779 Suffield St, Agawam\Civil 3D\171123 - SITE.dwg



#### DEMOLITION NOTES

1. THE INFORMATION SHOWN HEREON IS NOT INTENDED TO BE AN EXHAUSTIVE SURVEY OF ALL APPURTENANCES THAT MAY OR MAY NOT BE IN PLACE TO SERVE THE EXISTING ON-SITE STRUCTURES AND USE. SEPTIC SYSTEM COMPONENTS, UNDERGROUND TANKS, AND OTHER SUB-SURFACE STRUCTURES MAY BE IN PLACE AND MAY REQUIRE ATTENTION BEFORE CONSTRUCTION MAY PROCEED.
2. CONTRACTOR SHALL CONDUCT A PRE-DEMOLITION SURVEY TO IDENTIFY ANY AND ALL UTILITIES AND UTILITY COMPONENTS TO BE DISCONTINUED, REMOVED, OR DEMOLISHED IN PLACE AND THE PRESENCE OR ABSENCE OF ANY HAZARDOUS MATERIALS.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DEMOLITION, REMOVAL OR RELOCATION, INCLUDING BUT NOT LIMITED TO: ALL UTILITIES, STORM DRAINAGE, SIGNS, TRAFFIC SIGNALS & POLES, ETC. AS REQUIRED. ALL WORK SHALL BE IN ACCORDANCE WITH GOVERNING AUTHORITIES' SPECIFICATIONS AND SHALL BE APPROVED BY SUCH. ALL COSTS SHALL BE INCLUDED IN BASE BID.
4. CONTRACTOR SHALL ERECT AND MAINTAIN SAFETY BARRICADES AND POST PROPER NOTICES PRIOR TO THE COMMENCEMENT OF WORK.
5. CONTRACTOR SHALL PROTECT EXISTING SITE IMPROVEMENTS, APPURTENANCES AND LANDSCAPING TO REMAIN.
6. CONTRACTOR SHALL MAINTAIN EXISTING UTILITIES TO REMAIN IN SERVICE AND PROTECT THEM FROM DAMAGE DURING DEMOLITION OPERATIONS. ANY DAMAGE TO EXISTING UTILITIES TO REMAIN SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE UTILITY OWNER.
7. ALL UTILITY DISCONNECTION SHALL BE PERFORMED TO THE SATISFACTION OF THE RELEVANT UTILITY COMPANY AND COMPLY WITH ANY LOCAL, STATE AND/OR FEDERAL REGULATORY AGENCIES.
8. CONTRACTOR SHALL PROMPTLY TRANSPORT AND LEGALLY DISPOSE OF DEMOLISHED MATERIALS OFF OWNERS PROPERTY. DO NOT ALLOW DEMOLISHED MATERIAL TO COLLECT ON SITE. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DISPOSAL.
9. THERE SHALL BE NO BURNING OF DEMOLISHED MATERIAL ALLOWED ON SITE.
10. CONTRACTOR SHALL COORDINATE WITH OWNER FOR ANY ITEMS TO BE TURNED OVER TO OWNER.
11. CONTRACTOR IS RESPONSIBLE FOR CONTROLLING DUST SO THAT DUST DOES NOT CREATE A NUISANCE ON ADJACENT ROADS OR PROPERTIES. SITE CONTRACTOR SHALL BE RESPONSIBLE FOR STREET SWEEPING AND CATCH BASIN CLEANING AFTER EACH PHASE OF CONSTRUCTION AND AS NEED IS DETERMINED BY THE LANDSCAPE ARCHITECT/ENGINEER.
12. NO ACTIVITY SHALL OCCUR OUTSIDE OF LIMIT OF WORK LINE AS SHOWN ON PLAN WITHOUT THE APPROVAL OF THE LANDSCAPE ARCHITECT/ENGINEER AND LANDOWNER.
13. THE CONTRACTOR SHALL NOTIFY DIG SAFE @ 1-888-344-7233 A MINIMUM OF 72 HOURS (M-F) PRIOR TO COMMENCEMENT OF ANY DEMOLITION/CONSTRUCTION ACTIVITY.
14. THE LANDSCAPE ARCHITECT/ENGINEER IS NOT RESPONSIBLE FOR ANY ITEMS THAT MAY BE DISCOVERED ON-SITE DURING DEMOLITION OR CONSTRUCTION THAT WAS NOT PREVIOUSLY INDICATED ON THE SURVEYS OR INFORMATION PROVIDED.
15. PAVEMENT SHALL BE SAWCUT AT THE LIMIT OF WORK. ALL PAVING, FOOTINGS, UTILITIES, CURBING AND OTHER EXISTING IMPROVEMENTS SHALL BE REMOVED OR SUITABLY MILLED TO THE SATISFACTION OF THE OWNER AND GENERAL CONTRACTOR.

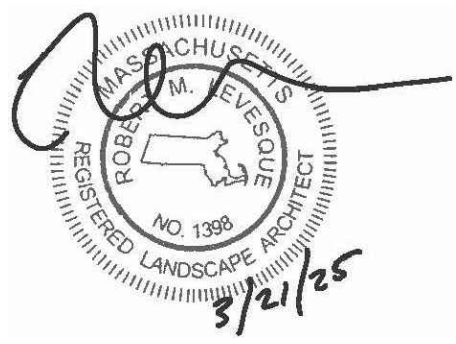
#### CONSTRUCTION SEQUENCE

1. CONTACT THE TOWN OF AGAWAM AT LEAST FORTY-EIGHT HOURS PRIOR TO COMMENCEMENT OF ANY DEMOLITION, CONSTRUCTION, OR EARTHWORK ACTIVITY ON THIS PROJECT.
2. CONSTRUCT ANTI-TRACKING PAD AT ENTRANCE AND INSTALL ANY REQUIRED INLET PROTECTION AS DEPICTED ON THE PLAN.
3. INSTALL SILT FENCE AS SHOWN ON THE PLANS.
4. UPON COMPLETION OF EROSION CONTROL MEASURES, CLEARING AND GRUBBING AND EARTHWORK MAY COMMENCE.
5. CLEAR AND GRUB SITE. STOCKPILE ANY CHIPPING OR TOPSOIL MATERIAL TO REMAIN ON SITE FOR LONGER THAN 14 DAYS AND INSTALL SILT FENCE AROUND THE PERIMETER OF THE STOCKPILE.
6. COMMENCE EARTHWORK BY EXCAVATING FOR THE CUT/FILL SLOPES AS SHOWN ON THE PLANS. STABILIZE/SEED ANY SLOPES THAT HAVE ACHIEVED FINAL GRADE.
7. INSTALL UTILITIES AS SHOWN ON PLANS INCLUDING WATER SERVICE, SEWER SERVICE, GAS SERVICE, ELECTRICAL SERVICE AND STORMWATER MANAGEMENT SYSTEM.
8. GRADE THE SITE TO ACCEPT PAVEMENT SECTION MATERIALS.
9. INSTALL PAVEMENT AS SPECIFIED ON THE PLANS.
10. UPON INSTALLATION OF PAVEMENT SURFACE, INSTALL INLET PROTECTION AS REQUIRED ON ANY NEW INLET STRUCTURES.
11. FINAL GRADING AND STABILIZATION OF ANY REMAINING EXPOSED AREAS.
12. AT THE DIRECTION OF THE TOWN OF AGAWAM, EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED.

**PERMITTING**  
NOT FOR CONSTRUCTION

## DEMOLITION & REMOVALS PLAN

158 Silver Street  
Assessors Parcel J8 2 3  
Agawam, Mass.



PREPARED FOR:

Salmar Realty, Inc.  
c/o Mr. Peter Martins  
350 Cottage Street  
Springfield, MA 01104

ISSUANCE DATE: March 21, 2025

REVISIONS: DATE:

UNAUTHORIZED ALTERATION OF THIS DOCUMENT IS A VIOLATION OF MASSACHUSETTS STATE LAW

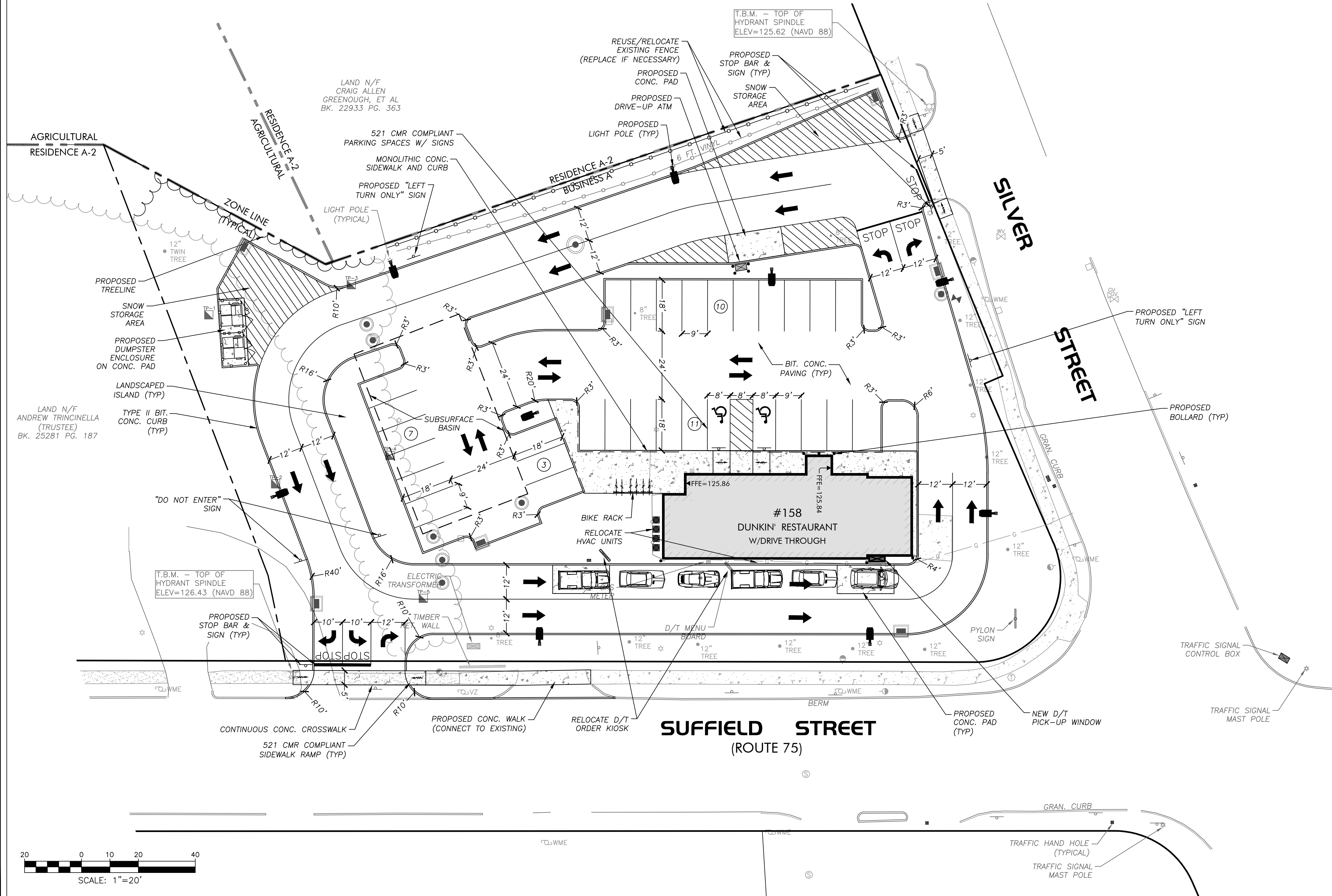
SCALE: As Noted

RLA PROJ. NUMBER: 171123

DRAWING# REV.

C-3





### ZONING REVIEW - Business A (BA)

| TYPE (MINIMUM)          | REQUIRED | EXISTING        | PROPOSED        |
|-------------------------|----------|-----------------|-----------------|
| AREA                    | NONE     | 47,639 S.F.     | 47,639 S.F.     |
| FRONTAGE                | 20'      | 594.10' (TOTAL) | 594.10' (TOTAL) |
| FRONT YARD              | 35'      | 36.0'           | 36.0'           |
| SIDE YARD               | *        | 110.3'          | 110.3'          |
| REAR YARD               | 35'      | 136.9'          | 136.9'          |
| HEIGHT (MAX)            | 45'      | 1 STORY         | 1 STORY         |
| BUILDING COVERAGE (MAX) | 50%      | 5.6%            | 5.6%            |
| PARKING                 | 25       | 31              | 31              |

\* SEE STATE BUILDING CODE

#### NOTES

1. THE RECORD OWNER OF THE SUBJECT PARCEL IS J & N SALEMA FAMILY LIMITED PARTNERSHIP. SEE HAMPDEN COUNTY REGISTRY OF DEEDS BOOK 10978 PAGE 203.
2. THE PROPERTY LINES SHOWN HEREON ARE BASED UPON A PLAN RECORDED IN THE HAMPDEN COUNTY REGISTRY OF DEEDS IN BOOK OF PLANS 392 PAGE 126.
3. THE EXISTING BUILDING(S) SHOWN HEREON ARE BASED ON AN APPROXIMATE MEASUREMENT OF THE OUTSIDE PERIMETER OF THE EXISTING STRUCTURES. THE ACTUAL LOCATION OF THE EXISTING BUILDING WALLS AND CORNERS SHOULD BE VERIFIED IN THE FIELD PRIOR TO ANY CONSTRUCTION WORK THAT WOULD ADJUT OR TAKE PLACE ADJACENT TO THE EXISTING BUILDING(S). IF THE PLAN HEREON IS USED FOR CONSTRUCTION LAYOUT PURPOSES, THE PARTIES CONDUCTING LAYOUT SHALL CONTACT R. LEVESQUE ASSOCIATES INC. PRIOR TO SAID LAYOUT TO DETERMINE PROPER CONTROL. PLEASE NOTE WHILE THE BUILDING(S) ARE SHOWN TO BE SQUARE, IT SHOULD NOT BE ASSUMED THAT THE WALLS ARE SQUARE OR PLUMB. R. LEVESQUE ASSOCIATES TAKES NO RESPONSIBILITY FOR THIRD PARTY LAYOUT OF THE PLAN SHOWN HEREON.
4. THIS PLAN HAS BEEN PREPARED FOR SITE PLANNING PURPOSES AND SHALL NOT BE USED FOR THE CONVEYANCE OF LAND OR FOR ANY OTHER USE.
5. SUBJECT PARCEL CONTAINS A TOTAL AREA OF 47,639 S.F.
6. THE SUBJECT PROPERTIES SHOWN HEREON MAY BE SUBJECT TO RIGHTS AND EASEMENTS AS CONTAINED IN THE VARIOUS DEEDS OF RECORD DESCRIBING SAID PROPERTIES. THE LOCATION AND EXTENT OF ANY SUCH RIGHTS AND EASEMENTS IS NOT THE SUBJECT OF THIS PLAN.
7. THE EXISTING CONDITIONS INFORMATION SHOWN IS BASED UPON A TOPOGRAPHIC SURVEY PERFORMED BY R LEVESQUE ASSOCIATES, INC. BETWEEN DECEMBER 30, 2024 AND JANUARY 10, 2025.
8. THE UNDERGROUND UTILITIES SHOWN HEREON HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION, DIG-SAFE MARKINGS AND AVAILABLE RECORD DATA. R LEVESQUE ASSOCIATES, INC. MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN HEREON COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. R LEVESQUE ASSOCIATES, INC. FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN HERE ARE IN THE EXACT LOCATION INDICATED, ALTHOUGH THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM AVAILABLE INFORMATION.
9. ABUTTERS SHOWN HEREON ARE REFERENCED FROM THE TOWN OF AGAWAM MUNICIPAL GIS WEBSITE
10. SUBJECT PARCEL IS ZONED BUSINESS A ACCORDING TO THE TOWN OF AGAWAM ZONING MAP.
11. THE SUBJECT PARCEL IS NOT LOCATED WITHIN A SPECIAL FLOOD ZONE AREA ACCORDING TO FLOOD INSURANCE RATE MAP NUMBER 25013CD392E - EFFECTIVE DATE: JULY 16, 2013.
12. THE SUBJECT PROPERTY IS NOT LOCATED WITHIN NATURAL HERITAGE & ENDANGERED SPECIES PROGRAM (NHESP) JURISDICTION.

#### LAYOUT NOTES

1. SITE CONTRACTOR SHALL REFER TO REMAINING PLAN SET FOR INFORMATION REGARDING SITE LAYOUT.
2. IT SHALL BE THE SITE CONTRACTORS RESPONSIBILITY TO CROSS REFERENCE INFORMATION CONTAINED IN OTHER SHEETS WITH SITE INFORMATION SHOWN HEREON.
3. PRIOR TO SUBMITTING THEIR BID FOR CONSTRUCTION, THE SITE CONTRACTOR SHALL COMMUNICATE ANY DISCREPANCIES BETWEEN THE PROPOSED DESIGN AND THE SAID SPECIFICATIONS WITH THE PROJECT PROPONENT AND LANDSCAPE ARCHITECT/ENGINEER. SHOULD THE SITE CONTRACTOR FAIL TO COMMUNICATE ANY DISCREPANCIES, HE/SHE SHALL BE RESPONSIBLE FOR ANY COSTS RESULTING FROM SAID DISCREPANCY.

#### SIGNAGE AND PAVEMENT MARKING NOTES

1. STRIPE ALL PARKING AREAS AS SHOWN, INCLUDING PARKING SPACES, STOP BARS, CROSSWALKS, AND ACCESSIBLE ROUTE MARKINGS AND SYMBOLS USING WHITE TRAFFIC PAINT. PAINTED ISLANDS, FIRE LANES, AND TRAVEL WAY CENTERLINES SHALL BE PAINTED USING YELLOW TRAFFIC PAINT. ALL TRAFFIC PAINT SHALL CONFORM TO AASHTO M248 TYPE "N".
2. STOP BARS SHALL BE 12" WIDE (WHITE).
3. ALL PARKING STALL LINES SHALL BE 4" WIDE (WHITE).
4. ALL PAVEMENT MARKINGS AND SIGNS SHALL CONFORM TO "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS", MASSDOT, STATE BUILDING CODE AND ADA REQUIREMENTS, AND AS SHOWN ON THE PLANS & DETAILS.

#### ACCESSIBILITY NOTES

1. ALL ACCESSIBLE ROUTES, TRANSITIONS, AND ACCESSIBLE PARKING/LOADING AREAS, INCLUDING ALL ENTRANCES TO BUILDING, SHALL ADHERE TO 521 CMR.
2. SHOULD THE ARCHITECT PROVIDE ADDITIONAL ENTRANCES OR MEANS OF EGRESS, ADDITIONAL ACCESSIBLE ROUTES MAY BE REQUIRED.
3. IT IS THE RESPONSIBILITY OF THE ARCHITECT AND CONTRACTOR TO NOTIFY THE ENGINEER AND LANDSCAPE ARCHITECT OF ANY CHANGES TO THE PROPOSED BUILDING THAT WOULD AFFECT THE ACCESSIBILITY REQUIREMENTS OF THE PROPOSED SITE.
4. THE CONTRACTOR SHALL REVIEW IN DETAIL THE REQUIREMENTS OF 521 CMR AND SHALL BE RESPONSIBLE FOR CONFORMANCE WITH SAID REGULATIONS.

RLA

R LEVESQUE ASSOCIATES INC.

Landscape Architects  
Civil Engineers - Land Surveyors  
Environmental Consultants

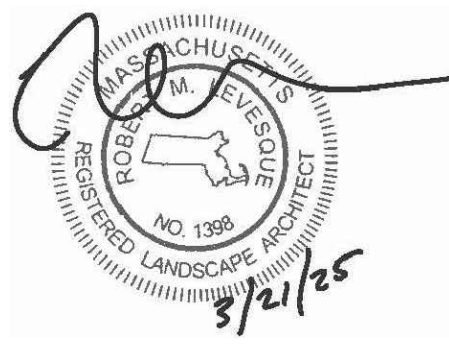
ph: 413.568.0985 fax: 413.568.0986

40 School Street  
Westfield, MA 01085

rlaland.com

### LAYOUT & MATERIALS PLAN

158 Silver Street  
Assessors Parcel J8 2 3  
Agawam, Mass.



#### PREPARED FOR:

Salmar Realty, Inc.  
c/o Mr. Peter Martins  
350 Cottage Street  
Springfield, MA 01104

ISSUANCE DATE: March 21, 2025

| REVISIONS: | DATE: |
|------------|-------|
|            |       |
|            |       |
|            |       |
|            |       |
|            |       |
|            |       |

UNAUTHORIZED ALTERATION OF  
THIS DOCUMENT IS A VIOLATION  
OF MASSACHUSETTS STATE LAW

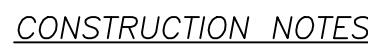
SCALE: As Noted

RLA PROJ. NUMBER: 171123

| DRAWING# | REV. |
|----------|------|
| C-4      | -    |

PERMITTING  
NOT FOR CONSTRUCTION





1. THE CONTRACTOR/OWNER/DEVELOPER TO BE AWARE THAT A STORMWATER POLLUTION PREVENTION PLAN (SWPPP) WILL BE REQUIRED IF DISTURBANCE IS 1 ACRE OR GREATER.
2. UNDERGROUND UTILITIES SHOWN HEREON ARE BASED UPON SURFACE FEATURES AS LOCATED BY SURVEY AND AVAILABLE RECORD DATA AND ARE APPROXIMATE. ACTUAL FIELD LOCATIONS SHOULD BE VERIFIED WITH THE APPROPRIATE UTILITY COMPANY AND/OR MUNICIPAL DEPARTMENT PRIOR TO CONSTRUCTION.
3. CONTRACTOR TO NOTIFY DIG SAFE A MINIMUM OF 72 HOURS PRIOR TO START OF CONSTRUCTION ACCORDING TO MA GENERAL LAWS.
4. APPROVED PLANS TO BE ON SITE AT ALL TIMES.
5. CHANGES TO THIS PLAN MAY OCCUR AS UNFORESEEN CONDITIONS ARISE. ALL CHANGES TO BE APPROVED BY DESIGN ENGINEER, FIELD INSPECTOR AND CITY/TOWN ENGINEER.
6. CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE AND SAFETY OF TRAFFIC ON THE PUBLIC AND PRIVATE WAYS AFFECTED BY THE CONSTRUCTION OF THIS PROJECT.
7. CONTRACTOR SHALL PROTECT ALL SLOPES, VEGETATION, PAVING, WALKS, AND IMPROVEMENTS OUTSIDE THE AREAS TO BE AFFECTED BY THE CONSTRUCTION OF THIS PROJECT.
8. TREES, BRUSH AND STUMPS REMOVED BY CLEARING AND GRUBBING OPERATIONS SHALL BE TRANSPORTED OFF THE PROJECT SITE TO AN APPROVED DISPOSAL LOCATION.
9. ALL PAVEMENT MARKINGS CHANGED, ALTERED OR REMOVED SHALL BE REAPPLIED.
10. ALL CONSTRUCTION METHODS TO CONFORM TO AGAWAM PLANNING BOARD REGULATIONS AND DEPARTMENT OF PUBLIC WORKS SPECIFICATIONS.
11. AGAWAM DEPARTMENT OF PUBLIC WORKS APPROVAL IS NOT TO BE CONSTRUED AS AN ALL INCLUSIVE APPROVAL AS OTHER APPROVALS MAY BE NECESSARY, I.E. TOWN ENGINEER, CONSERVATION, FIRE DEPARTMENT, WATER DEPARTMENT, ETC.
12. EROSION CONTROL MEASURES TO BE IN PLACE PRIOR TO START OF CONSTRUCTION.

### SHORT-TERM EROSION CONTROL MAINTENANCE

1. THE CONTRACTOR OR SUBCONTRACTOR WILL BE RESPONSIBLE FOR IMPLEMENTING EACH CONTROL SHOWN ON THE SEDIMENTATION AND EROSION CONTROL PLAN.
2. ALL EROSION AND SEDIMENT CONTROL DEVICES SHALL BE PROPERLY MAINTAINED DURING ALL PHASES OF CONSTRUCTION UNTIL THE COMPLETION OF ALL CONSTRUCTION ACTIVITIES AND ALL DISTURBED AREAS HAVE BEEN STABILIZED. ADDITIONAL CONTROL MEASURES WILL BE INSTALLED DURING CONSTRUCTION IN ORDER TO CONTROL EROSION AND/OR OFF-SITE SEDIMENTATION IF DEEMED NECESSARY BY ON-SITE INSPECTION.
3. EFFECTIVE EROSION CONTROL MEASURES SHALL BE INITIATED PRIOR TO THE COMMENCEMENT OF CLEARING, GRADING, EXCAVATION, OR OTHER OPERATIONS THAT WILL DISTURB THE NATURAL PROTECTION.
4. ALL SEDIMENT AND EROSION CONTROL DEVICES SHALL BE INSPECTED AT LEAST ONCE EVERY SEVEN (7) CALENDAR DAYS AND AFTER ANY STORM EVENT GREATER THAN 0.5 INCHES OF PRECIPITATION DURING ANY 24-HOUR PERIOD, AND THE INSPECTION SHALL BE DOCUMENTED IN WRITING. DAMAGED OR INEFFECTIVE DEVICES SHALL BE REPAIRED OR REPLACED, AS NECESSARY.
5. THE CONTRACTOR SHALL TAKE ALL REASONABLE PRECAUTIONS TO AVOID EXCESS EROSION OF THE SITE DUE TO THE CONSTRUCTION OF THIS PROJECT.
6. SILT SHALL BE REMOVED FROM BEHIND BARRIERS IF GREATER THAN 6-INCHES DEEP OR AS NEEDED. SEDIMENT THAT IS COLLECTED IN STRUCTURES SHALL BE DISPOSED OF PROPERLY AND COVERED IF STORED ON-SITE.
7. DAMAGED OR DETERIORATED ITEMS WILL BE REPAIRED IMMEDIATELY AFTER IDENTIFICATION.
8. ALL DITCHES SHALL BE STABILIZED AS SOON AS IS PRACTICABLE TO MINIMIZE EROSION.
9. THE CONTRACTOR SHALL MAINTAIN ALL EROSION CONTROL DEVICES IN A GOOD WORKING STATE OF REPAIR UNTIL THEIR USE IS NO LONGER WARRANTED. AT THAT TIME, THE EROSION CONTROL DEVICES SHALL BE REMOVED AND DISPOSED OF SO AS TO CAUSE NO OFF-SITE SILTATION.
10. INSPECT AND MAINTAIN CONSTRUCTION ENTRANCE STONE SUCH THAT SEDIMENT DOES NOT TRACK ONTO THE STREET. ANY SEDIMENT TRACKED ONTO THE STREET SHALL BE CLEANED DAILY.
11. AFTER CATCH BASINS HAVE BEEN CONSTRUCTED AND THE SITE HAS BEEN PAVED, THE CONTRACTOR SHALL PROTECT THE INLETS BY CONSTRUCTING INLET PROTECTION AS SHOWN ON THE PLANS. INLET PROTECTION TO REMAIN IN PLACE AND MAINTAINED UNTIL DISTURBED AREAS HAVE BEEN STABILIZED, LOAMED AND SEEDED.
12. EROSION CONTROL MEASURES SHALL REMAIN IN PLACE UNTIL ALL DISTURBED EARTH HAS BEEN SUBSTANTIALLY STABILIZED. AFTER REMOVAL OF MEASURES, DISTURBED AREAS SHALL BE REGRADED AND STABILIZED AS NECESSARY.
13. THIS PLAN IS PROVIDED AS A BASIS FOR THE INITIAL SEDIMENTATION AND EROSION CONTROL MEASURES. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO UPDATE AND EXPAND THIS PLAN AS SITE CONDITIONS DICTATE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PREVENT THE OCCURRENCE OF SILTATION TO WETLAND RESOURCE AREAS AND THE MOVEMENT OF SEDIMENT BEYOND THE SITE BOUNDARIES.

### ACCESSIBILITY NOTES

1. ALL ACCESSIBLE ROUTES, TRANSITIONS, AND ACCESSIBLE PARKING/LOADING AREAS, INCLUDING ALL ENTRANCES TO BUILDING, SHALL ADHERE TO 521 CMR.
2. SHOULD THE ARCHITECT PROVIDE ADDITIONAL ENTRANCES OR MEANS OF EGRESS, ADDITIONAL ACCESSIBLE ROUTES MAY BE REQUIRED.
3. IT IS THE RESPONSIBILITY OF THE ARCHITECT AND CONTRACTOR TO NOTIFY THE ENGINEER AND LANDSCAPE ARCHITECT OF ANY CHANGES TO THE PROPOSED BUILDING THAT WOULD AFFECT THE ACCESSIBILITY REQUIREMENTS OF THE PROPOSED SITE.
4. THE CONTRACTOR SHALL REVIEW IN DETAIL THE REQUIREMENTS OF 521 CMR AND SHALL BE RESPONSIBLE FOR CONFORMANCE WITH SAID REGULATIONS.

GRADING & DRAINAGE NOTES

1. SITE CONTRACTOR SHALL REFER TO REMAINING PLAN SET FOR INFORMATION REGARDING GRADING AND DRAINAGE.
2. IT SHALL BE THE SITE CONTRACTORS RESPONSIBILITY TO CROSS REFERENCE INFORMATION CONTAINED IN OTHER SHEETS WITH GRADING AND DRAINAGE INFORMATION SHOWN HEREON.
3. PRIOR TO SUBMITTING A BID FOR CONSTRUCTION, THE SITE CONTRACTOR SHALL COMMUNICATE ANY DISCREPANCIES BETWEEN THE PROPOSED DESIGN AND THE SPECIFICATIONS WITH THE PROJECT PROPONENT AND LANDSCAPE ARCHITECT/ENGINEER. SHOULD THE SITE CONTRACTOR FAIL TO COMMUNICATE ANY DISCREPANCIES, HE/SHE SHALL BE RESPONSIBLE FOR ANY COSTS RESULTING FROM SAID DISCREPANCY.
4. CONTRACTOR SHALL NOTIFY LANDSCAPE ARCHITECT/ENGINEER OF ANY UNEXPECTED CONDITIONS THAT ARE ENCOUNTERED DURING CONSTRUCTION.
5. ONCE DRAINAGE SYSTEM IS INSTALLED AND FUNCTIONING, THE OWNER/SITE CONTRACTOR SHALL COORDINATE WITH R LEVEUSSE ASSOCIATES, INC. (RLA) TO CONDUCT A POST-CONSTRUCTION ANALYSIS OF THE DRAINAGE SYSTEM DURING ACTUAL STORM EVENTS TO DETERMINE THE FUNCTIONALITY OF THE INSTALLED DRAINAGE SYSTEM DURING SAID EVENTS. SHOULD THE DRAINAGE SYSTEM NOT FUNCTION AS DESIGNED UNDER REAL WORLD CONDITIONS, RLA WILL RECOMMEND ADJUSTMENTS TO THE DRAINAGE SYSTEM TO BE IMPLEMENTED BY THE OWNER/SITE CONTRACTOR.
6. ALL UTILITY CONSTRUCTION SHALL CONFORM TO THEIR RESPECTIVE TOWN DEPARTMENT SPECIFICATIONS.
7. CONTRACTOR TO ACHIEVE POSITIVE DRAINAGE AWAY FROM PROPOSED BUILDINGS.

**PERMITTING**  
**NOT FOR CONSTRUCTION**



**158 Silver Street  
Assessors Parcel J8 2 3  
Agawam, Mass.**



Salmar Realty, Inc.  
c/o Mr. Peter Martins  
350 Cottage Street  
Springfield, MA 01104

ISSUANCE DATE: March 21, 2025

|            |       |
|------------|-------|
| REVISIONS: | DATE: |
|------------|-------|

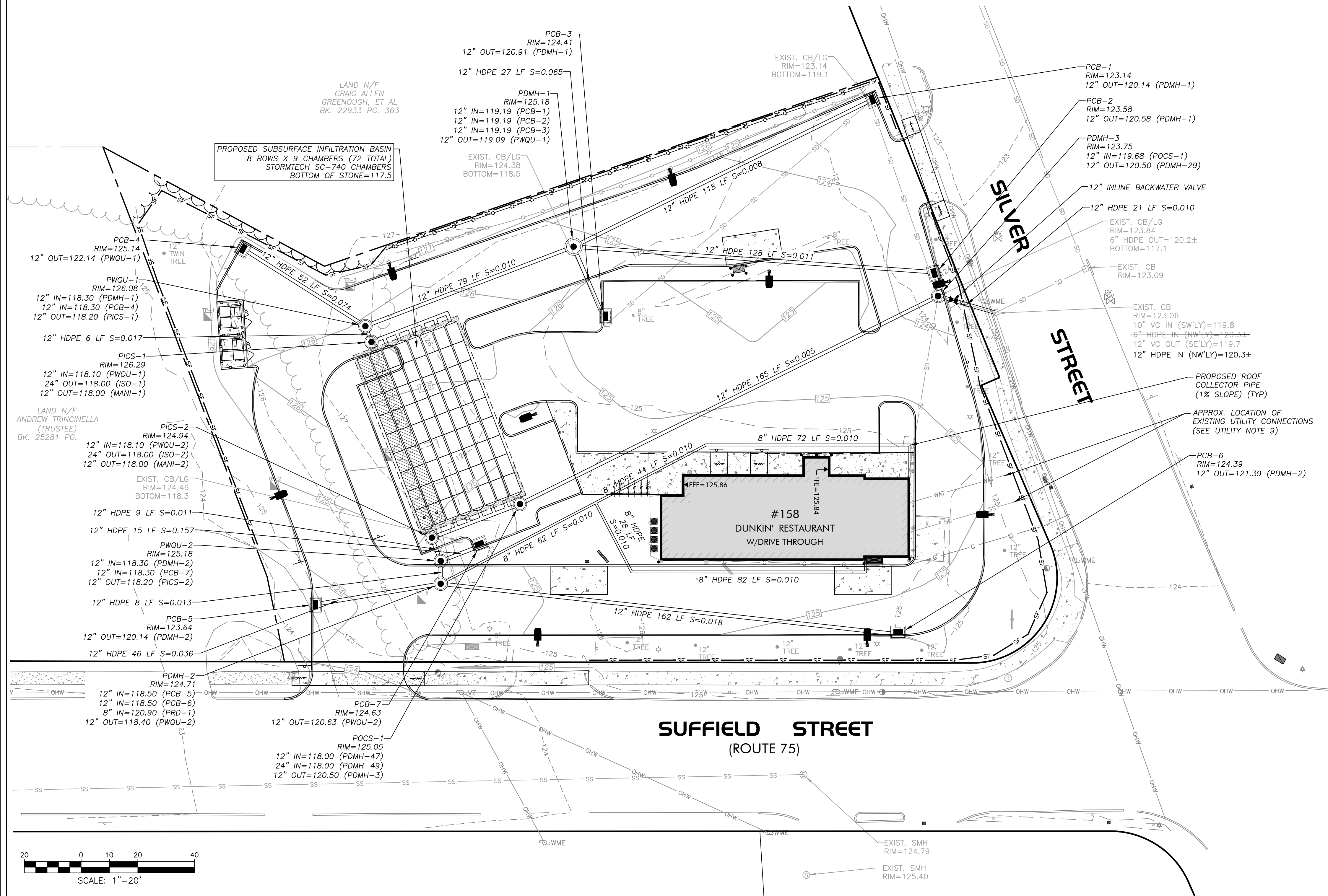
UNAUTHORIZED ALTERATION OF  
THIS DOCUMENT IS A VIOLATION  
OF MASSACHUSETTS STATE LAW

**SCALE:** As Noted

RLA PROJ. NUMBER: 171123

|          |      |
|----------|------|
| DRAWING# | REV. |
| C-5      | -    |





CONSTRUCTION NOTES

- UNDERGROUND UTILITIES SHOWN HEREON ARE BASED UPON SURFACE FEATURES AS LOCATED BY SURVEY AND AVAILABLE RECORD DATA AND ARE APPROXIMATE. ACTUAL FIELD LOCATIONS SHOULD BE VERIFIED WITH THE APPROPRIATE UTILITY COMPANY AND/OR MUNICIPAL DEPARTMENT PRIOR TO CONSTRUCTION.
- CONTRACTOR TO NOTIFY DIG SAFE A MINIMUM OF 72 HOURS PRIOR TO START OF CONSTRUCTION ACCORDING TO MA GENERAL LAWS.
- APPROVED PLANS TO BE ON SITE AT ALL TIMES.
- CHANGES TO THIS PLAN MAY OCCUR AS UNFORESEEN CONDITIONS ARISE. ALL CHANGES TO BE APPROVED BY DESIGN ENGINEER, FIELD INSPECTOR AND CITY/TOWN ENGINEER.
- CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE AND SAFETY OF TRAFFIC ON THE PUBLIC AND PRIVATE WAYS AFFECTED BY THE CONSTRUCTION OF THIS PROJECT.
- CONTRACTOR SHALL PROTECT ALL SLOPES, VEGETATION, PAVING, WALKS, AND IMPROVEMENTS OUTSIDE THE AREAS TO BE AFFECTED BY THE CONSTRUCTION OF THIS PROJECT.
- TREES, BRUSH AND STUMPS REMOVED BY CLEARING AND GRUBBING OPERATIONS SHALL BE TRANSPORTED OFF THE PROJECT SITE TO AN APPROVED DISPOSAL LOCATION.
- CALCIUM CHLORIDE/WATER FOR DUST CONTROL TO BE AVAILABLE AT ALL TIMES.
- ALL PAVEMENT MARKINGS CHANGED, ALTERED OR REMOVED SHALL BE REAPPLIED.
- ALL CONSTRUCTION METHODS TO CONFORM TO AGAWAM PLANNING BOARD REGULATIONS AND BOARD OF PUBLIC WORKS SPECIFICATIONS.
- AGAWAM DEPARTMENT OF PUBLIC WORKS APPROVAL IS NOT TO BE CONSTRUED AS AN ALL INCLUSIVE APPROVAL AS OTHER APPROVALS MAY BE NECESSARY, I.E. TOWN ENGINEER, CONSERVATION, FIRE DEPARTMENT, WATER DEPARTMENT, ETC.
- ALL CATCH BASINS TO HAVE 48" SEALED SUMPS AND HOODS.
- EROSION CONTROL MEASURES TO BE IN PLACE PRIOR TO START OF CONSTRUCTION.

GRADING & DRAINAGE NOTES

- SITE CONTRACTOR SHALL REFER TO REMAINING PLAN SET FOR INFORMATION REGARDING GRADING AND DRAINAGE.
- IT SHALL BE THE SITE CONTRACTOR'S RESPONSIBILITY TO CROSS REFERENCE INFORMATION CONTAINED IN OTHER SHEETS WITH GRADING AND DRAINAGE INFORMATION SHOWN HEREON.
- PRIOR TO SUBMITTING A BID FOR CONSTRUCTION, THE SITE CONTRACTOR SHALL COMMUNICATE ANY DISCREPANCIES BETWEEN THE PROPOSED DESIGN AND THE SPECIFICATIONS WITH THE PROJECT PROPONENT AND LANDSCAPE ARCHITECT/ENGINEER. SHOULD THE SITE CONTRACTOR FAIL TO COMMUNICATE ANY DISCREPANCIES, HE/SHE SHALL BE RESPONSIBLE FOR ANY COSTS RESULTING FROM SAID DISCREPANCY.
- CONTRACTOR SHALL NOTIFY DESIGNER/ENGINEER OF ANY UNEXPECTED CONDITIONS THAT ARE ENCOUNTERED DURING CONSTRUCTION.
- ONCE DRAINAGE SYSTEM IS INSTALLED AND FUNCTIONING, THE OWNER/SITE CONTRACTOR SHALL COORDINATE WITH R LEVESQUE ASSOCIATES, INC. (RLA) TO CONDUCT A POST-CONSTRUCTION ANALYSIS OF THE DRAINAGE SYSTEM DURING ACTUAL STORM EVENTS TO DETERMINE THE FUNCTIONALITY OF THE INSTALLED DRAINAGE SYSTEM DURING SAID EVENTS. SHOULD THE DRAINAGE SYSTEM NOT FUNCTION AS DESIGNED UNDER REAL WORLD CONDITIONS, RLA WILL RECOMMEND ADJUSTMENTS TO THE DRAINAGE SYSTEM TO BE IMPLEMENTED BY THE OWNER/SITE CONTRACTOR.
- ALL UTILITY CONSTRUCTION SHALL CONFORM TO THEIR RESPECTIVE AGAWAM DEPARTMENT SPECIFICATIONS.
- ALL FILL MATERIAL DISCOVERED UNDER INFILTRATION SITES SHALL BE REMOVED AND PROPERLY DISPOSED OF PRIOR TO INSTALLATION OF INFILTRATION STRUCTURE.
- A LICENSED SOIL EVALUATOR AND/OR PROFESSIONAL ENGINEER MUST BE PRESENT DURING GRADING AND CONSTRUCTION OF THE SUBSURFACE INFILTRATION SYSTEM TO ENSURE NATIVE OR SIMILAR SOILS UNDERLAY THE STRUCTURES.

UTILITY NOTES

- SITE CONTRACTOR SHALL REFER TO REMAINING PLAN SET FOR INFORMATION REGARDING GRADING AND DRAINAGE.
- IT SHALL BE THE SITE CONTRACTORS RESPONSIBILITY TO CROSS REFERENCE INFORMATION CONTAINED IN OTHER SHEETS WITH GRADING AND DRAINAGE INFORMATION SHOWN HEREON.
- PRIOR TO SUBMITTING A BID FOR CONSTRUCTION, THE SITE CONTRACTOR SHALL COMMUNICATE ANY DISCREPANCIES BETWEEN THE PROPOSED DESIGN AND THE SPECIFICATIONS WITH THE PROJECT PROPONENT AND LANDSCAPE ARCHITECT/ENGINEER. SHOULD THE SITE CONTRACTOR FAIL TO COMMUNICATE ANY DISCREPANCIES, HE/SHE SHALL BE RESPONSIBLE FOR ANY COSTS RESULTING FROM SAID DISCREPANCY.
- CONTRACTOR TO VERIFY ALL UTILITY CONNECTIONS AND INVERTS FROM EXISTING/PROPOSED BUILDING TO SERVICES IN THE STREET. IF ANY DISCREPANCIES EXISTS BETWEEN PLAN AND INFORMATION FOUND IN THE FIELD, CONTACT ENGINEER AND LANDSCAPE ARCHITECT IMMEDIATELY.
- SEE ARCHITECTURAL PLANS FOR BUILDING CONNECTIONS OF ALL UTILITIES.
- UTILITY CONNECTIONS (NATURAL GAS, ELECTRICAL, TELECOMMUNICATIONS, ETC) SHOWN HEREON ARE SCHEMATIC IN NATURE TO DEPICT CONNECTION OF SAID UTILITIES TO THE SUBJECT BUILDING(S). THE RESPECTIVE UTILITY PROVIDER SHALL BE RESPONSIBLE FOR THE FINAL DESIGN OF THE RELEVANT UTILITY.
- ONCE DRAINAGE SYSTEM IS INSTALLED AND FUNCTIONING, THE OWNER/SITE CONTRACTOR SHALL COORDINATE WITH R LEVESQUE ASSOCIATES, INC. (RLA) TO CONDUCT A POST-CONSTRUCTION ANALYSIS OF THE DRAINAGE SYSTEM DURING ACTUAL STORM EVENTS TO DETERMINE THE FUNCTIONALITY OF THE INSTALLED DRAINAGE SYSTEM DURING SAID EVENTS. SHOULD THE DRAINAGE SYSTEM NOT FUNCTION AS DESIGNED UNDER REAL WORLD CONDITIONS, RLA WILL RECOMMEND ADJUSTMENTS TO THE DRAINAGE SYSTEM TO BE IMPLEMENTED BY THE OWNER/SITE CONTRACTOR.
- ALL UTILITY CONSTRUCTION SHALL CONFORM TO THEIR RESPECTIVE TOWN DEPARTMENT SPECIFICATIONS.
- LOCATIONS OF SEWER AND WATER CONNECTIONS SHOWN HEREON ARE BASED UPON A PLAN TITLED, "SITE GRADING & UTILITIES / PROPOSED DUNKIN' DONUTS # 158 SILVER STREET AGAWAM, MASS." BY ECOTEC ENVIRONMENTAL ASSOCIATES, INC., REVISED ON 7/12/99.

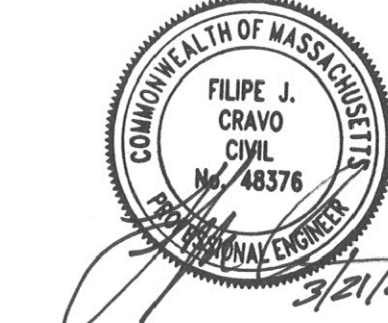
SUBSURFACE INFILTRATION BASIN CONSTRUCTION NOTE:

- A MASSACHUSETTS REGISTERED PROFESSIONAL ENGINEER OR LICENSED SOIL EVALUATOR SHALL INSPECT THE CONSTRUCTION OF THE SUBSURFACE BASIN AT THE MILESTONES LISTED BELOW. THE CONTRACTOR SHALL GIVE NOTICE OF 24 HOURS OR MORE FOR INSPECTION PURPOSES:
- EXCAVATION OF THE INFILTRATION AREA
  - INSTALLATION OF THE STONE & CHAMBERS PRIOR TO BACKFILL
  - BACKFILL OF INFILTRATION SYSTEM PRIOR TO COVERING WITH FILL
- \* OVER-EXCAVATION SHALL BE REQUIRED TO REMOVE ANY FILL OR DISTURBED SOILS ASSOCIATED WITH FORMER TANK REMOVAL AND EXCAVATION UNTIL NATIVE MATERIAL IS REACHED.

**PERMITTING**  
NOT FOR CONSTRUCTION

DRAINAGE & UTILITIES PLAN

158 Silver Street  
Assessors Parcel J8 2 3  
Agawam, Mass.



PREPARED FOR:

Salmar Realty, Inc.  
c/o Mr. Peter Martins  
350 Cottage Street  
Springfield, MA 01104

ISSUANCE DATE: March 21, 2025

REVISIONS: DATE:

UNAUTHORIZED ALTERATION OF THIS DOCUMENT IS A VIOLATION OF MASSACHUSETTS STATE LAW

SCALE: As Noted

RLA PROJ. NUMBER: 171123

DRAWING# REV.

C-6





\* PERENNIAL PLANTING BEDS MAY TYPICALLY INCLUDE NATIVE AND NON-INVASIVE VARIETIES SUCH AS *VERNONIA NOVEBORACENSIS*, *PHLOX PANICULATA*, *ACHILLEA MILLEFOLIUM*, *ASTILBE* VAR., *HEUCHERA* VAR., *SAAPONARIA OCYMOIDES*, *VERONICASTRUM VIRGINICUM ALBUM*, *RUDBECKIA HIRTA*, AND ORNAMENTAL NON-SPREADING GRASSES. ANNUAL PLANTINGS MAY BE CHOSEN TO PROVIDE ADDITIONAL SEASONAL INTEREST.

1. SITE CONTRACTOR SHALL REFER TO SHEET C-1, C-2, DETAIL SHEETS AND REMAINING PLAN SET FOR INFORMATION REGARDING LANDSCAPING.
2. IT SHALL BE THE SITE CONTRACTOR'S RESPONSIBILITY TO CROSS-REFERENCE INFORMATION CONTAINED IN OTHER SHEETS WITH THE LANDSCAPE INFORMATION SHOWN HEREON.
3. ALL SITE PLANTINGS ARE TO MEET OR EXCEED THE MINIMUM SPECIFICATIONS DETAILED IN THE ATTENTIONED/NOTED NOTES. IT IS THE CONTRACTOR'S RESPONSIBILITY TO REVIEW THE SPECIFICATIONS FOR EACH INDIVIDUAL PLANTING AND SOURCE IT APPROPRIATELY.
4. PRIOR TO SUBMITTING THEIR BID FOR CONSTRUCTION, THE SITE CONTRACTOR SHALL COMMUNICATE ANY DISCREPANCIES BETWEEN THE PROPOSED DESIGN AND SAID SPECIFICATIONS WITH THE PROJECT PRESENTATION, LANDSCAPE ARCHITECT/ENGINEER. SHOULD THE SITE CONTRACTOR FAIL TO COMMUNICATE ANY DISCREPANCIES, HE/SHE SHALL BE RESPONSIBLE FOR ANY COSTS RESULTING FROM BID DISCREPANCY.
5. LANDSCAPE CONTRACTOR SHALL HAVE EXCAVATING CONTRACTOR, "DIGSAFE", AND ANY APPLICABLE NON-[DIGSAFE] MEMBER UTILITIES MARK ALL UNDERGROUND UTILITIES AND PRIOR TO ANY PLANTING NOTES. THE CONTRACTOR SHALL NOTES ALL EXISTING UTILITIES AND PROJECT PROPONENT IF ANY CONFLICTS ARISE AND STOP ALL WORK UNTIL CONFLICT IS RESOLVED.



**158 Silver Street  
Assessors Parcel J8 2 3  
Agawam, Mass.**



Salmar Realty, Inc.  
c/o Mr. Peter Martins  
350 Cottage Street  
Springfield, MA 01104

ISSUANCE DATE: March 21, 2025

|            |       |
|------------|-------|
| REVISIONS: | DATE: |
|------------|-------|

UNAUTHORIZED ALTERATION OF  
THIS DOCUMENT IS A VIOLATION  
OF MASSACHUSETTS STATE LAW

**SCALE:** As Noted

RLA PROJ. NUMBER: 171123

|          |      |
|----------|------|
| DRAWING# | REV. |
|----------|------|

C-7





| Luminaire Schedule |       |                 |             |             |       |                                     |
|--------------------|-------|-----------------|-------------|-------------|-------|-------------------------------------|
| Qty                | Label | Luminaire Watts | Total Watts | Arrangement | LLF   | Description                         |
| 1                  | S5W   | 39.1            | 39.1        | Single      | 1.000 | VP-ST-1-36L-39-3K7-5W @20FT         |
| 6                  | S4W   | 39.1            | 234.6       | Single      | 1.000 | VP-ST-1-36L-39-3K7-4W-HSS-90B @20FT |

| Calculation Summary |             |       |      |     |     |         |         |
|---------------------|-------------|-------|------|-----|-----|---------|---------|
| Label               | CalcType    | Units | Avg  | Max | Min | Avg/Min | Max/Min |
| CalcPts_1           | Illuminance | Fc    | 0.28 | 1.6 | 0.0 | N.A.    | N.A.    |

Project:  
158 Silver Street  
Agawam, MA



263 Winn Street  
Burlington, MA 01803  
(781) 935-8500

333 Pleasant Valley Road  
South Windsor, CT 06074  
(860) 282-0597

Detail: Photometric Calculation

Date: 3/20/2025

Revision: A

Scale: 1"=20'

Drawn By: MGS

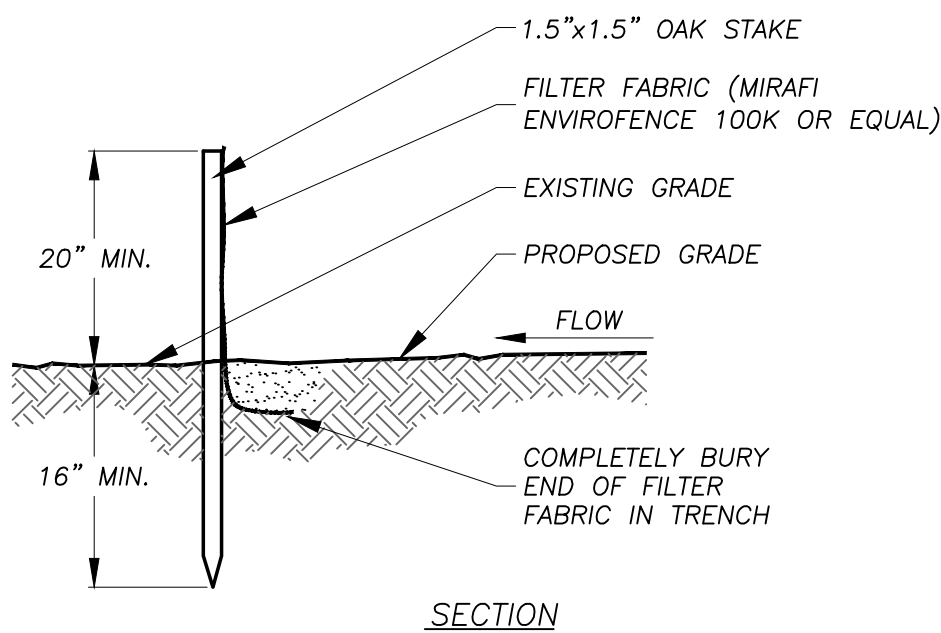
Drawing Number:

SL-1

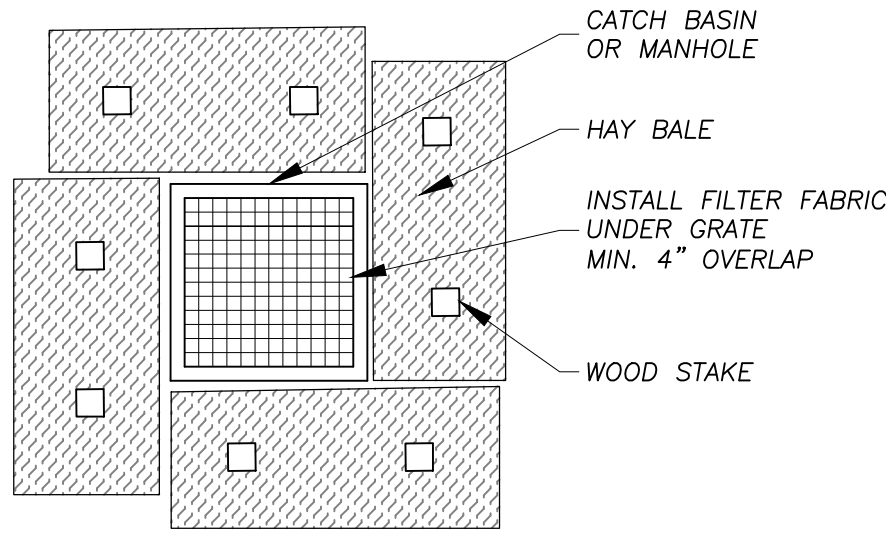
Sheet 1 of 1

Page 258 of 271



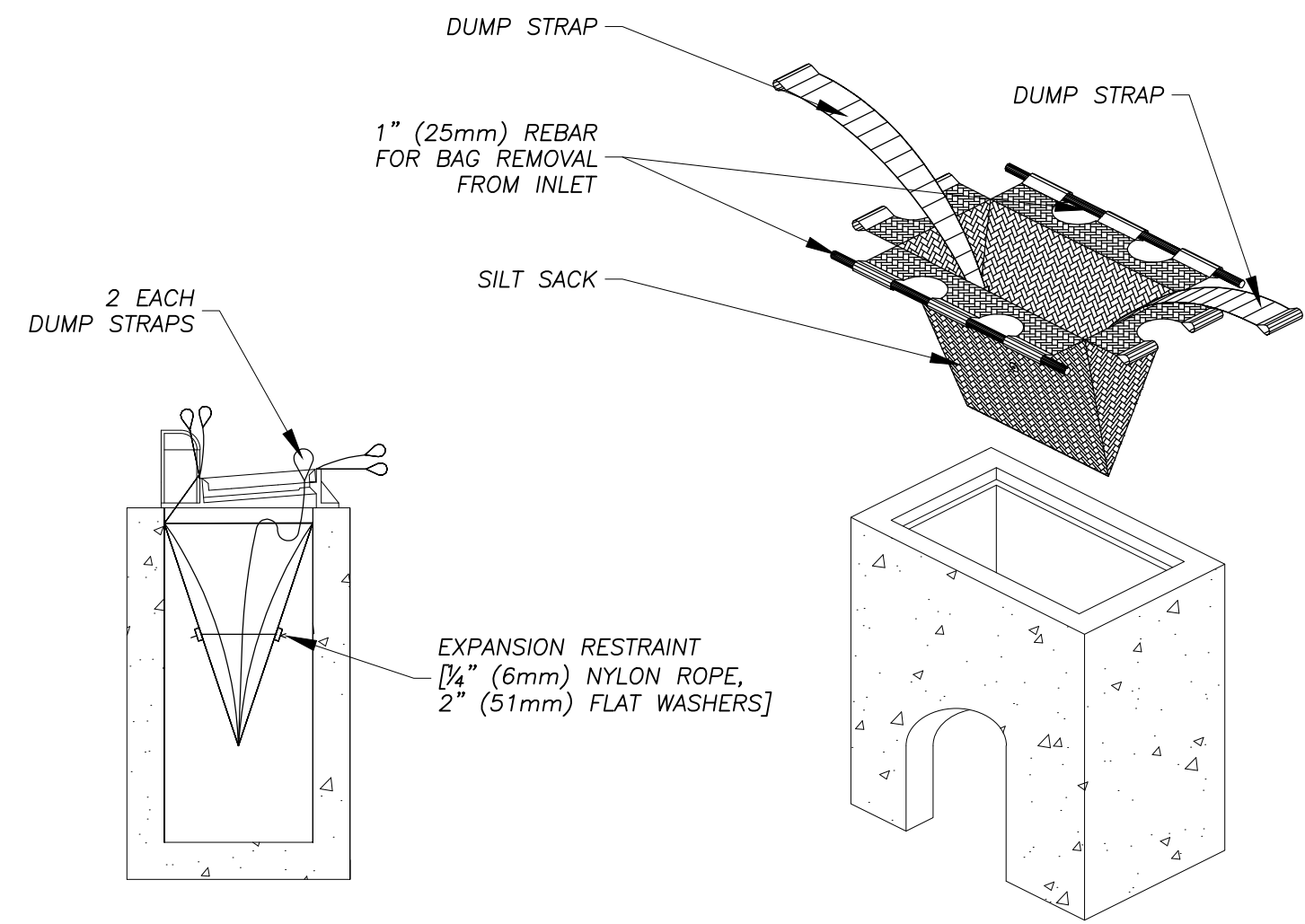


SILT FENCE DETAIL  
NO SCALE

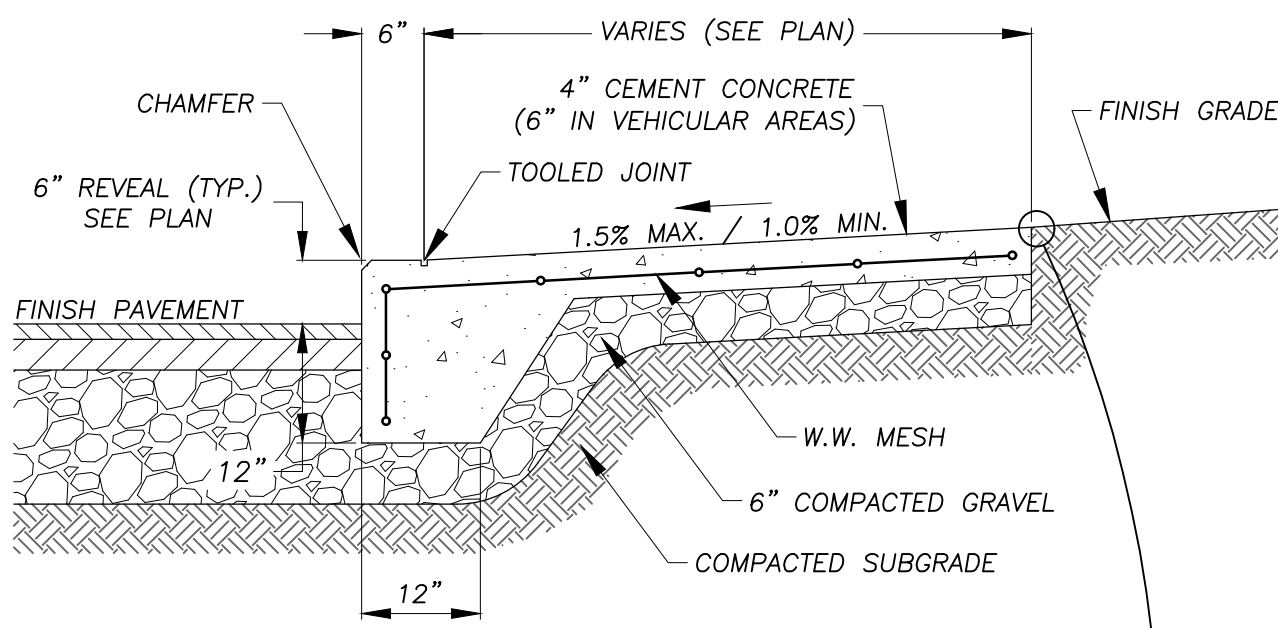


NOTE  
INSTALL BARRIER AT EACH CATCH BASIN AND DRAINAGE BASIN.  
CATCH BASINS IN PAVEMENT AREAS ARE TO RECEIVE ONLY THE  
FILTER FABRIC TREATMENT.

INLET PROTECTION - HAY BALES  
NO SCALE

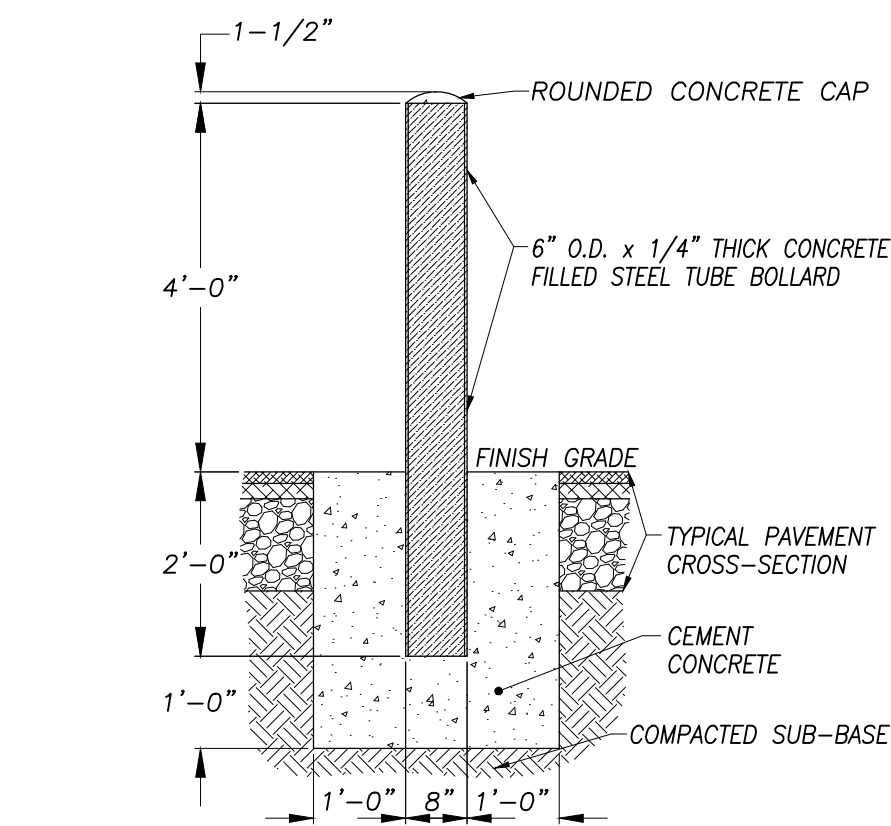


INLET PROTECTION - SEDIMENT FILTER SACK  
NO SCALE

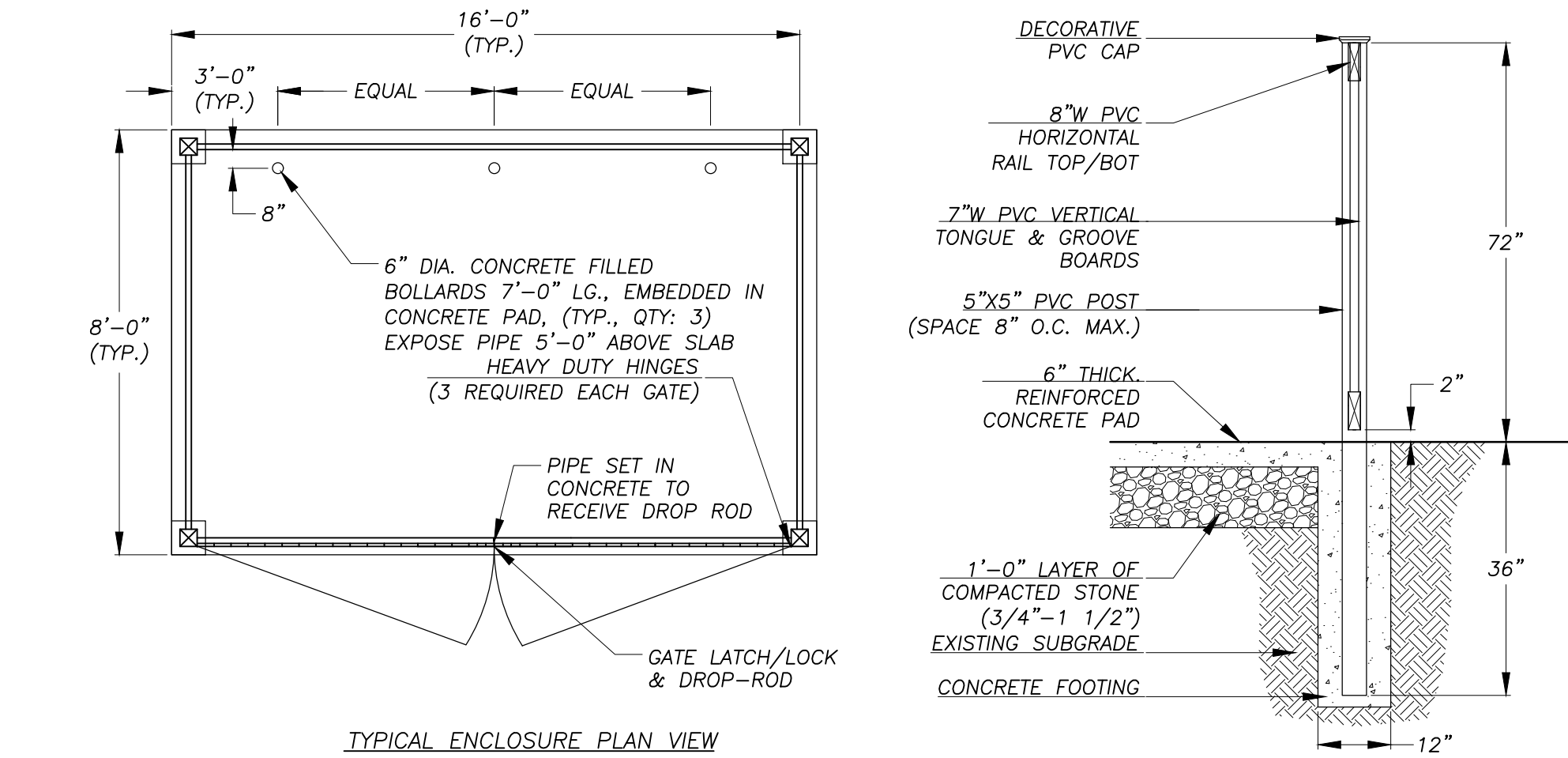


- NOTES:
1. PROVIDE EXPANSION JOINTS AT MINIMUM 30 FEET O.C. WITH PRE-MOLDED JOINT FILLER.
  2. PROVIDE CONTROL JOINTS AT 6 FEET O.C.
  3. PROVIDE BROOM FINISH IN DIRECTION PERPENDICULAR TO CURB.
  4. CEMENT CONCRETE SHALL BE 4,000 PSI, TYPE II.

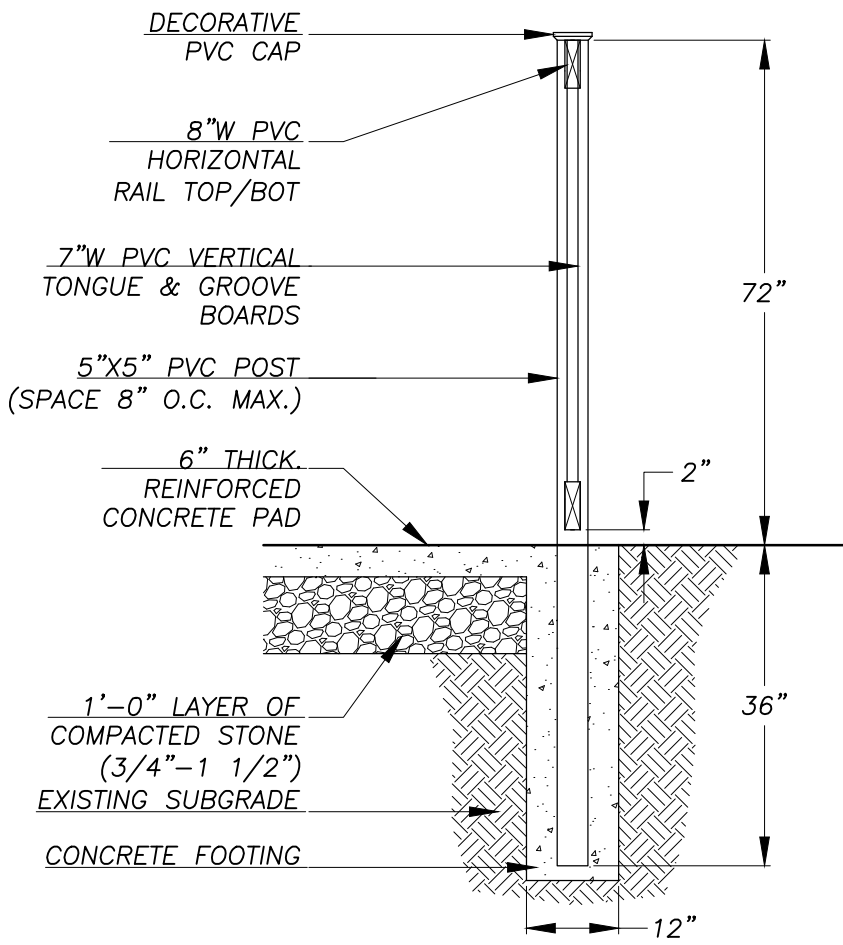
MONOLITHIC CONCRETE CURB & SIDEWALK  
NO SCALE



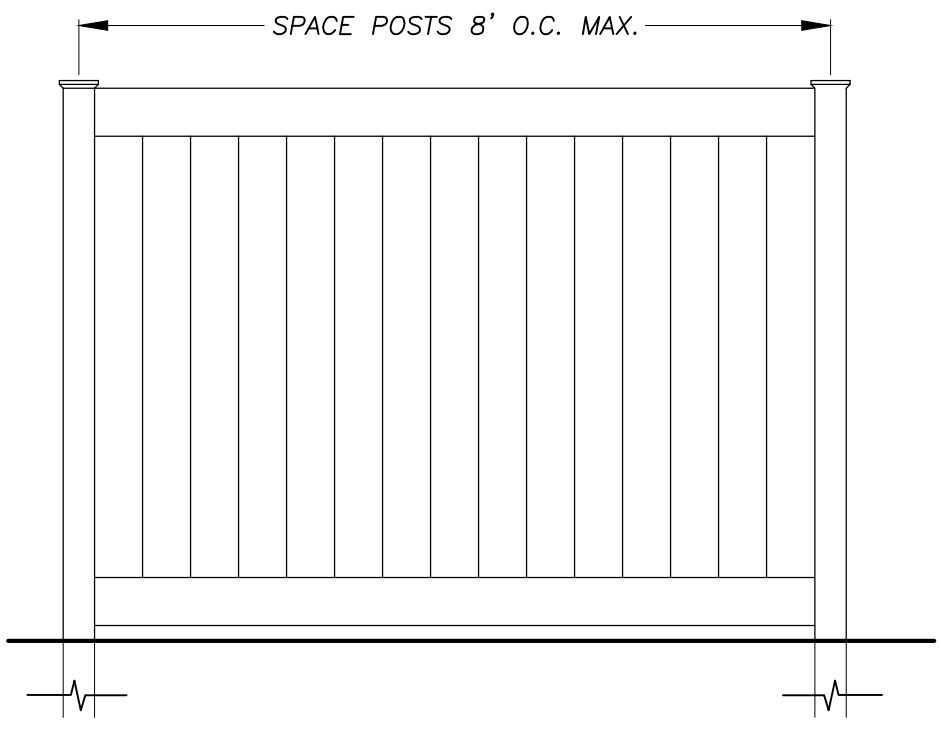
STEEL BOLLARD DETAIL  
NO SCALE



TYPICAL ENCLOSURE PLAN VIEW

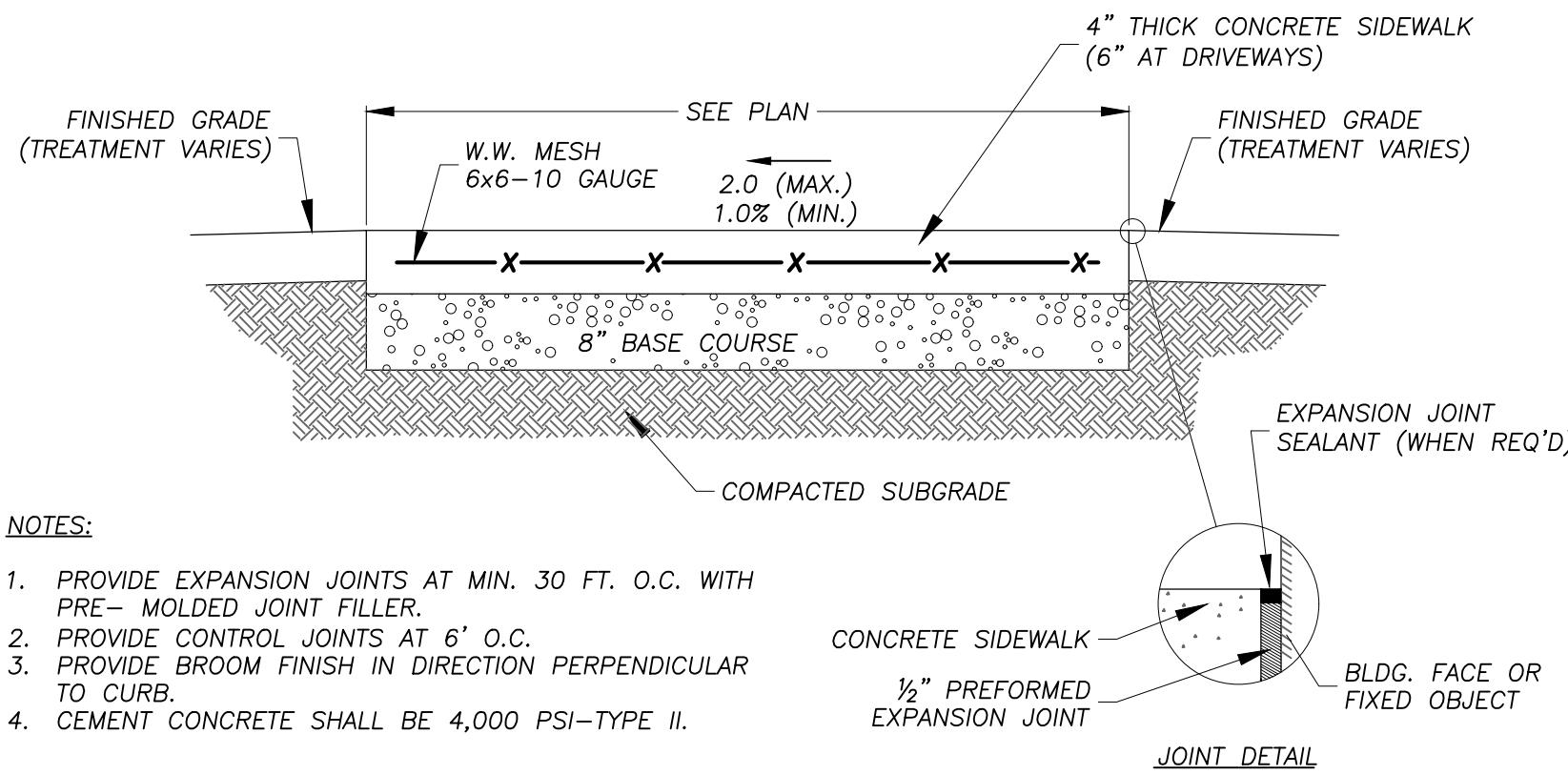


TYPICAL ENCLOSURE DUMPSTER SECTION



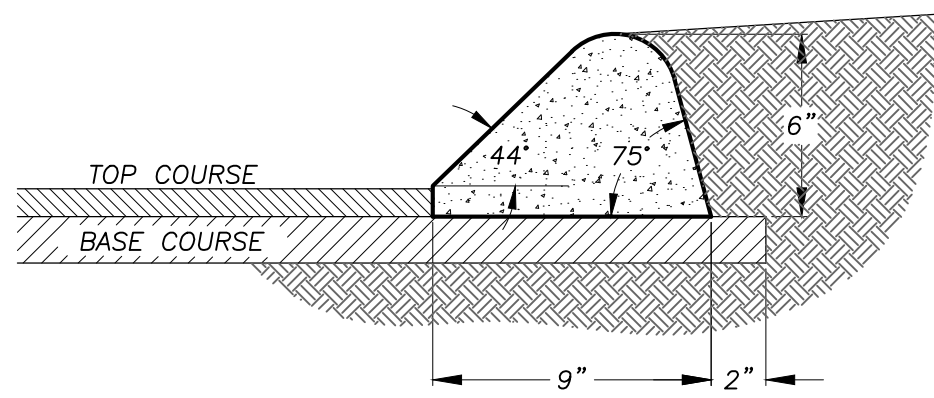
TYPICAL DUMPSTER ENCLOSURE ELEVATION

DUMPSTER ENCLOSURE  
NO SCALE

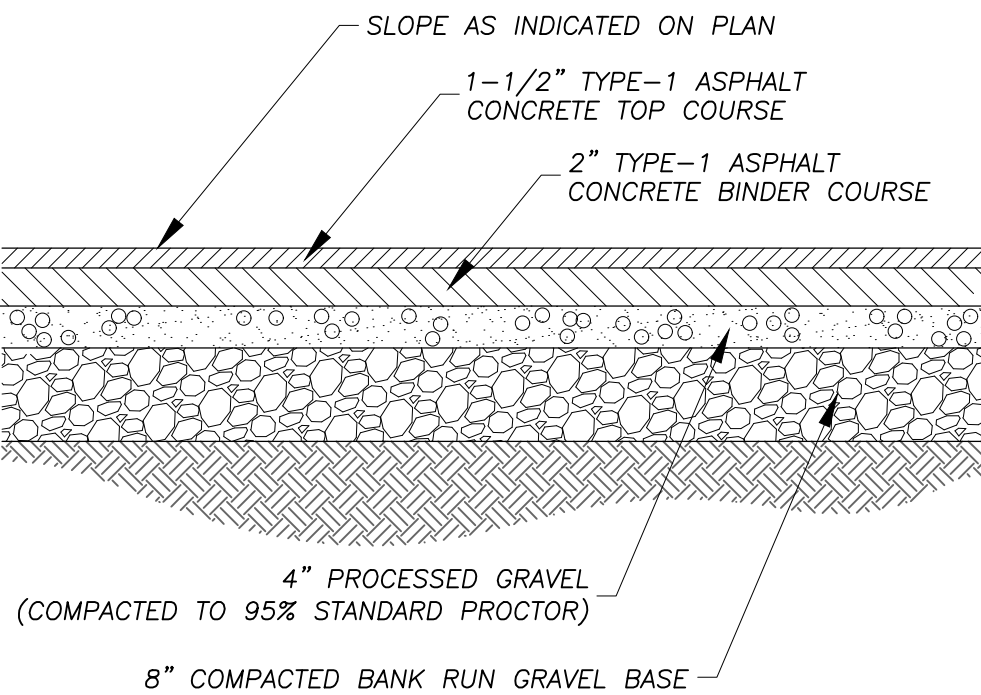


- NOTES:
1. PROVIDE EXPANSION JOINTS AT MIN. 30 FT. O.C. WITH PRE-MOLDED JOINT FILLER.
  2. PROVIDE CONTROL JOINTS AT 6' O.C.
  3. PROVIDE BROOM FINISH IN DIRECTION PERPENDICULAR TO CURB.
  4. CEMENT CONCRETE SHALL BE 4,000 PSI-TYPE II.

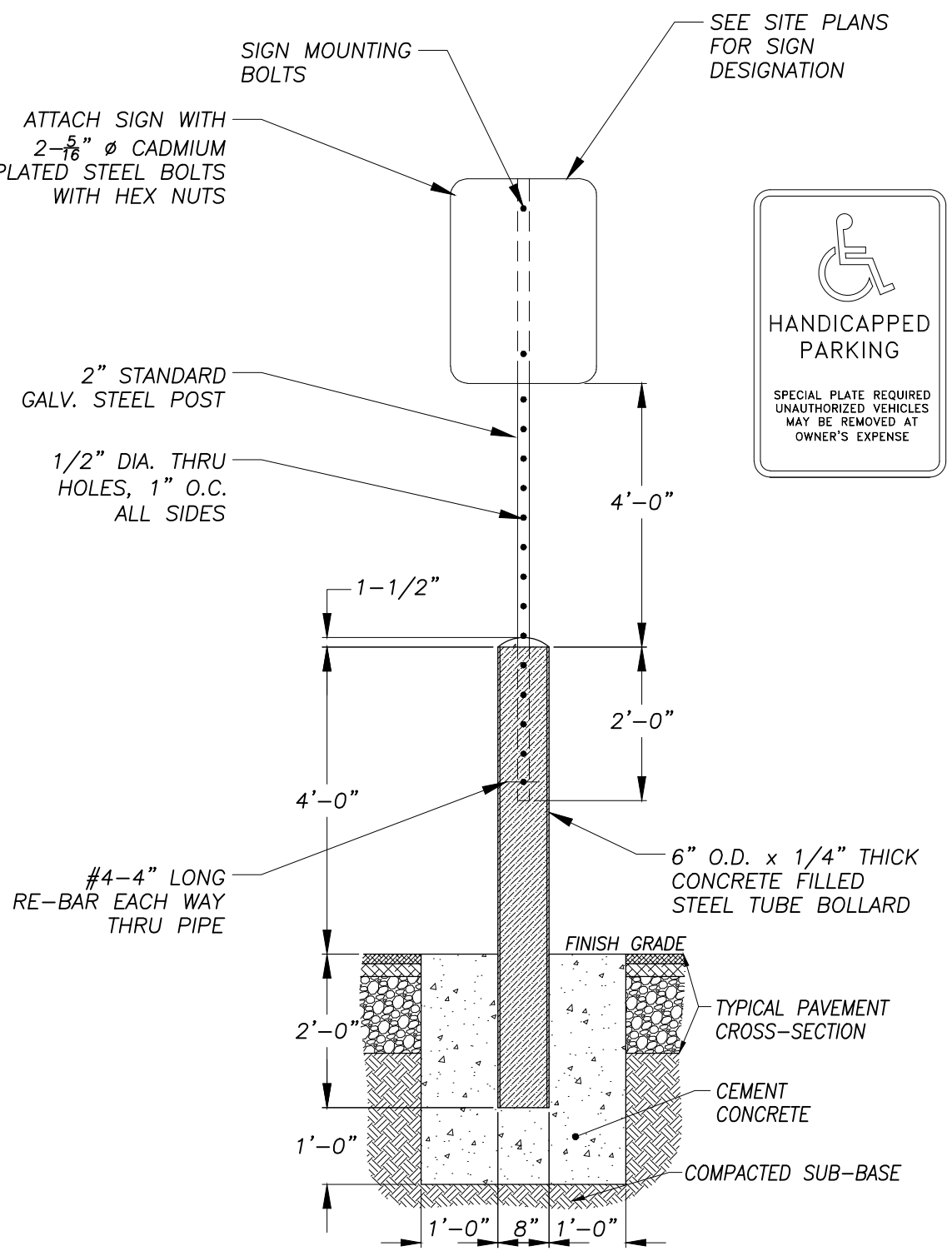
REINFORCED CONCRETE SIDEWALK SECTION  
NO SCALE



BITUMINOUS CONCRETE BERM (TYPE-2)  
NO SCALE



BITUMINOUS CONCRETE PAVING DETAIL  
NO SCALE



STEEL BOLLARD WITH SIGN DETAIL  
NO SCALE

RLA  
R LEVESQUE  
ASSOCIATES INC.

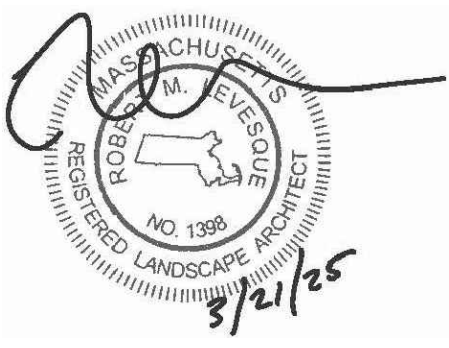
Landscape Architects  
Civil Engineers - Land Surveyors  
Environmental Consultants

ph: 413.568.0985 fax: 413.568.0986

40 School Street  
Westfield, MA 01085  
rlaland.com

DETAILS

158 Silver Street  
Assessors Parcel J8 2 3  
Agawam, Mass.



PREPARED FOR:

Salmar Realty, Inc.  
c/o Mr. Peter Martins  
350 Cottage Street  
Springfield, MA 01104

ISSUANCE DATE: March 21, 2025

REVISIONS: DATE:

UNAUTHORIZED ALTERATION OF  
THIS DOCUMENT IS A VIOLATION  
OF MASSACHUSETTS STATE LAW

SCALE: As Noted

RLA PROJ. NUMBER: 171123

DRAWING# REV.

D-1

-

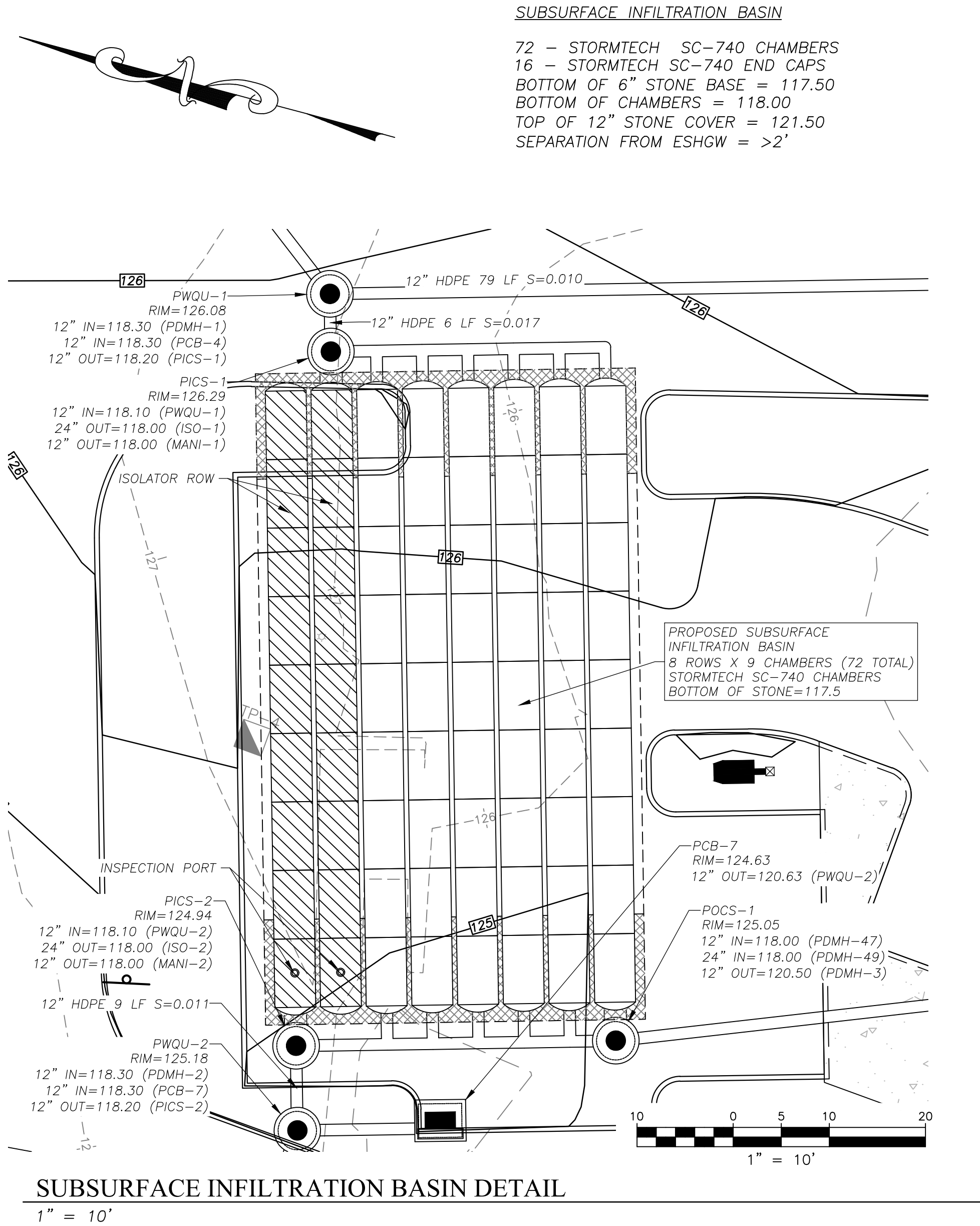
PERMITTING  
NOT FOR CONSTRUCTION





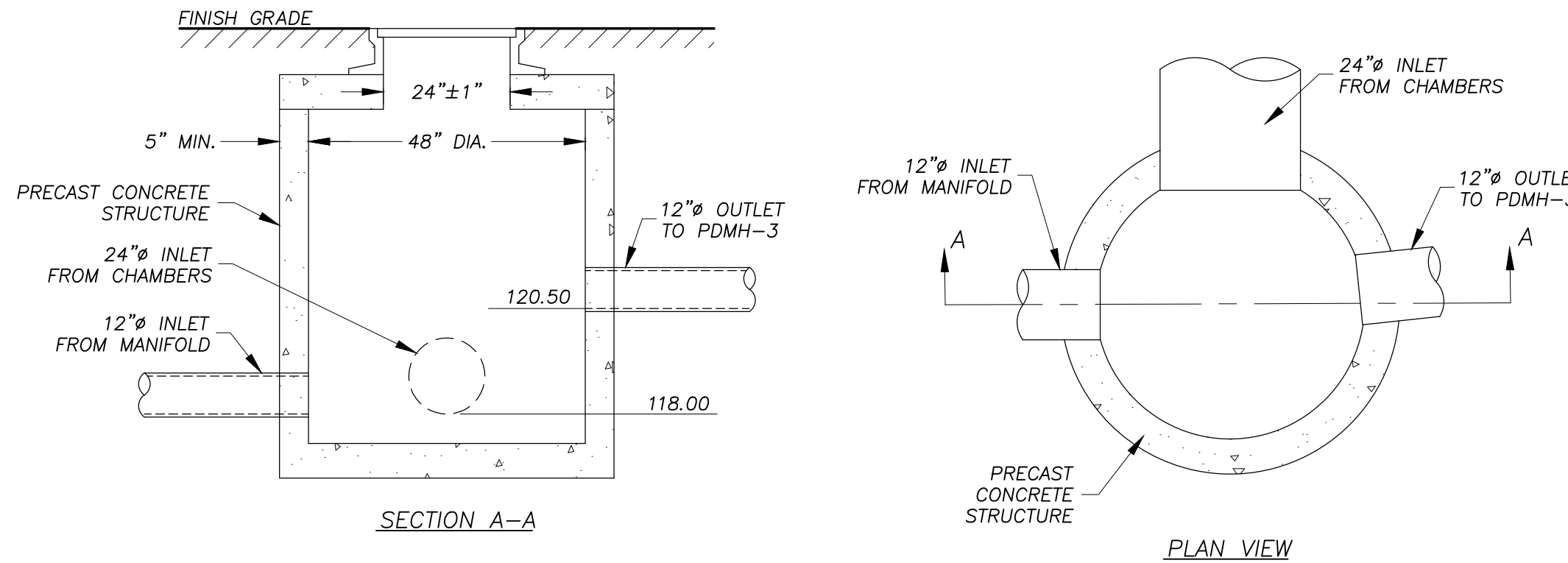
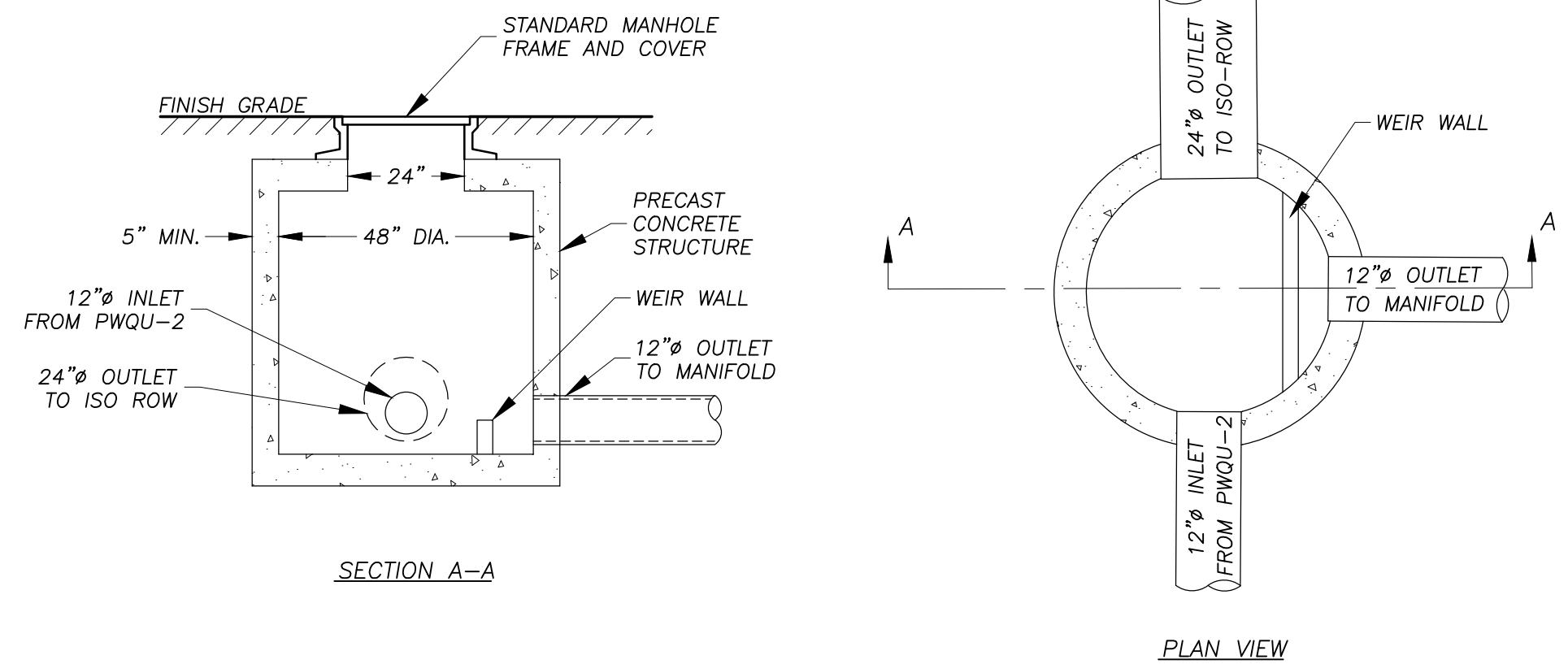
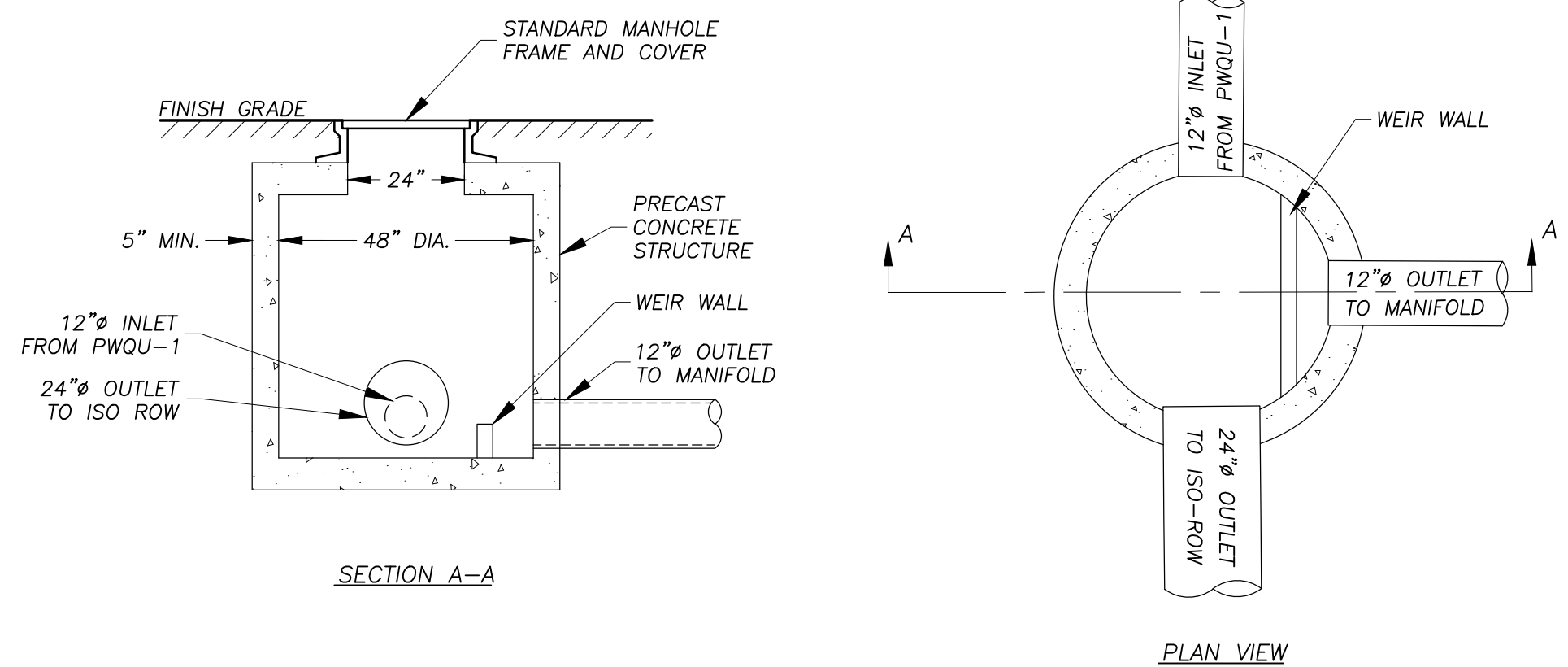
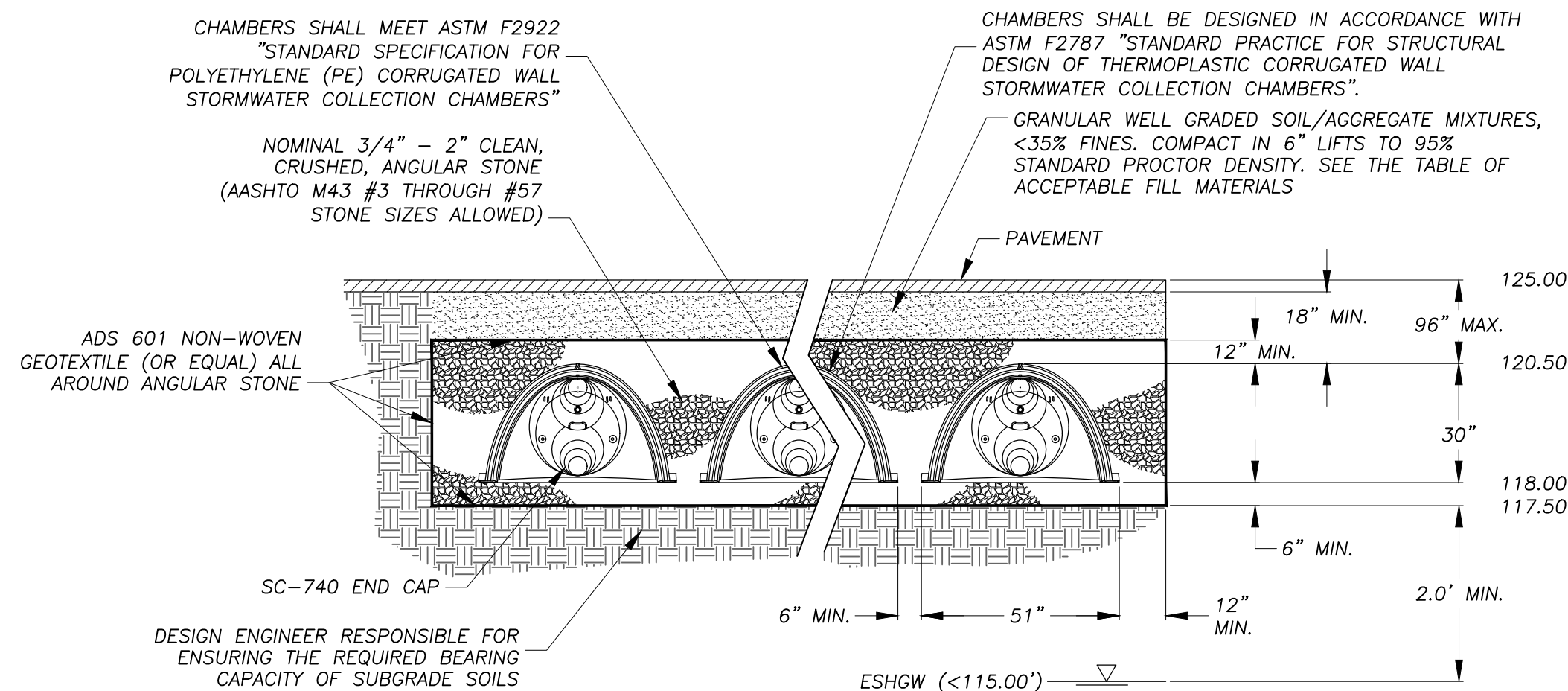
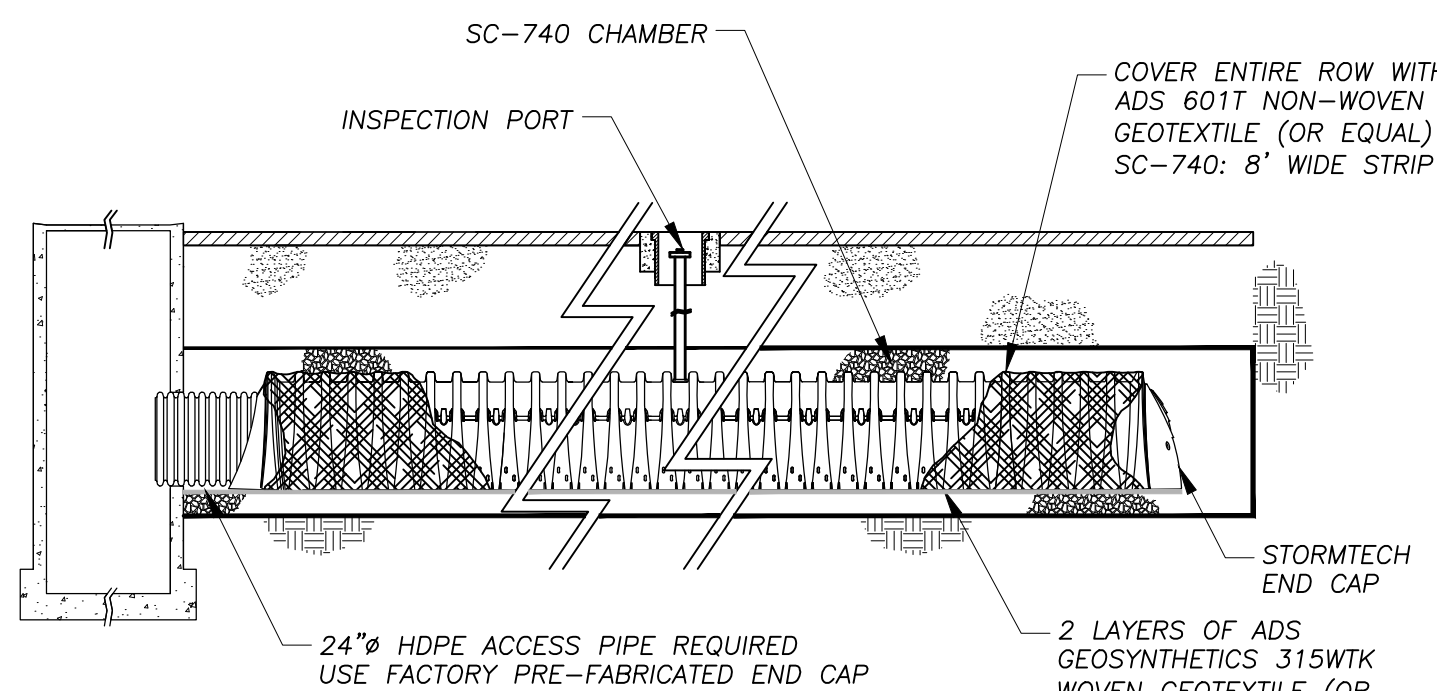
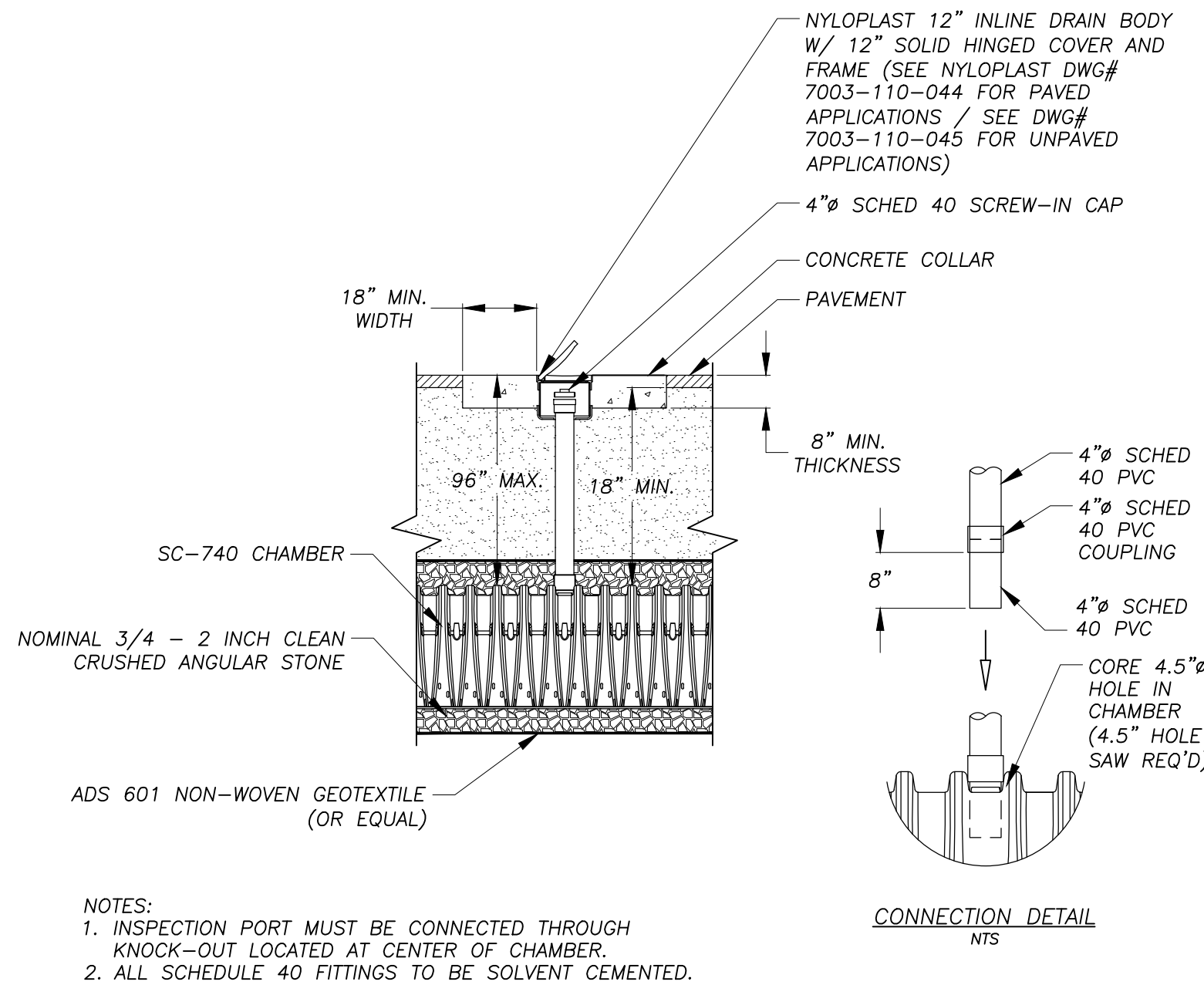


S:\Projects\2017\171123 - Martins - 779 Suffield St, Agawam\Civil 3D\171123 - SITE.dwg



#### CHAMBER SPECIFICATIONS

- CHAMBERS SHALL BE STORMTECH SC-740 OR APPROVED EQUAL.
- CHAMBERS SHALL BE MANUFACTURED FROM VIRGIN POLYPROPYLENE OR POLYETHYLENE RESINS TESTED USING ASTM STANDARDS.
- CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
- CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORT PANELS.
- THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12 ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCE.
- ONLY CHAMBERS THAT ARE APPROVED BY THE ENGINEER WILL BE ALLOWED. THE CONTRACTOR SHALL SUBMIT (3 SETS) OF THE FOLLOWING TO THE ENGINEER FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE:
  - A STRUCTURAL EVALUATION BY A REGISTERED STRUCTURAL ENGINEER THAT DEMONSTRATES THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12 ARE MET. THE 50-YEAR CREEP MODULUS DATA SPECIFIED IN ASTM F2922 MUST BE USED AS A PART OF THE AASHTO STRUCTURAL EVALUATION TO VERIFY LONG-TERM PERFORMANCE.
- CHAMBERS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.
- ALL DESIGN SPECIFICATIONS FOR CHAMBERS SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S LATEST DESIGN MANUAL.
- THE INSTALLATION OF CHAMBERS SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S LATEST INSTALLATION INSTRUCTIONS.



RLA

R LEVESQUE ASSOCIATES INC.

Landscape Architects  
Civil Engineers - Land Surveyors  
Environmental Consultants

ph: 413.568.0985 fax: 413.568.0986

40 School Street  
Westfield, MA 01085  
rlaland.com

#### DETAILS

158 Silver Street  
Assessors Parcel J8 2 3  
Agawam, Mass.



PREPARED FOR:

Salmar Realty, Inc.  
c/o Mr. Peter Martins  
350 Cottage Street  
Springfield, MA 01104

ISSUANCE DATE: March 21, 2025

REVISIONS: DATE:

UNAUTHORIZED ALTERATION OF THIS DOCUMENT IS A VIOLATION OF MASSACHUSETTS STATE LAW

SCALE: As Noted

RLA PROJ. NUMBER: 171123

DRAWING# REV.

D-3

## Taryn Egerton

---

**From:** Derek Myers  
**Sent:** Monday, March 24, 2025 9:30 AM  
**To:** Taryn Egerton  
**Subject:** RE: Site Plan Review - 158 Silver Street

Taryn,

This project will require a swept path analysis for emergency vehicles. When the site was originally designed originally swept path analysis were not required. This new design will require one.

Thank You

If you have any question please feel free to contact this office at (413)786-0657

Derek Myers  
Fire Inspector  
Agawam Fire Department  
[afdinsp@agawam.ma.us](mailto:afdinsp@agawam.ma.us)  
(413)786-0657

---

**From:** Taryn Egerton <[TEgerton@agawam.ma.us](mailto:TEgerton@agawam.ma.us)>  
**Sent:** Friday, March 21, 2025 4:05 PM  
**To:** All\_Engineering Department <[All\\_Eng\\_Dept@agawam.ma.us](mailto:All_Eng_Dept@agawam.ma.us)>; Kevin Duquette <[inspections@agawam.ma.us](mailto:inspections@agawam.ma.us)>; Brian Machos <[BMachos@agawam.ma.us](mailto:BMachos@agawam.ma.us)>; Derek Myers <[afdinsp@agawam.ma.us](mailto:afdinsp@agawam.ma.us)>  
**Cc:** Stefanie Kesecker <[SKesecker@agawam.ma.us](mailto:SKesecker@agawam.ma.us)>  
**Subject:** Site Plan Review - 158 Silver Street

Good afternoon –  
Please review and comment prior to the April 3, 2025 meeting.

Taryn Egerton  
Planning Director & Conservation Agent  
Office of Planning and Community Development

413.726.9737 | [tegerton@agawam.ma.us](mailto:tegerton@agawam.ma.us)



---

### Confidentiality/Public Record Statement

Under Massachusetts Law, any email created or received by an employee of The Town of Agawam is considered a public record. All email correspondence is subject to the requirements of M.G.L. Chapter 66. This email may contain confidential and



**Town of Agawam**  
***Inspection Services Department***  
1000 Suffield Street, Agawam, Massachusetts 01001  
Telephone - (413) 821-0632

Kevin Duquette  
*Inspector of Buildings*  
inspections@agawam.ma.us

March 27, 2025

To: Office of Planning and Community Development:

Re: Site Plan Review Comments- April 3<sup>rd</sup>, 2025 Meeting- 158 Silver Street Agawam, MA 01001;

Inspection Services has no zoning issues or concerns at this time for the proposed Site plan for the above referenced address.

Respectfully,

*Kevin Duquette*

Kevin Duquette  
Inspector of Buildings  
Town of Agawam



## Agawam Planning Board March 6, 2025

---

### MEMBERS PRESENT:

Violet Baldwin, Chair  
Frank DeStefano, Vice Chair  
Charles Elfman  
Michael DiLullo  
Michael Cleavall

### MEMBERS ABSENT:

### ALSO PRESENT:

Taryn Egerton  
Stefanie Kesecker

Ms. Baldwin called the meeting to order at 6:00pm.

1. 6:00PM PUBLIC HEARING-ZONE CHANGE-Old River Street, 27 Walnut Street, 17 High Street-Calabrese Construction, LLC

Filipe Cravo, with R. Levesque Associates Inc., and applicant Charles Calabrese were present for this agenda item. Mr. Cravo stated the applicant wishes to create zoning on the subject properties to allow for future development and improvements upon existing conditions at the site. He stated a zone change would also lend itself to the continuity of the neighborhood. Mr. Cravo stated the parcels are currently zoned Industrial-A and Business-A and the petitioner is requesting that all 3 parcels be changed to Residence-B.

Mr. DiLullo asked if condos would be developed. Mr. Cravo stated multi-family units, which are similar to what's in the area now.

Mr. Elfman asked what is on the property currently. Mr. Cravo stated it is vacant land.

Ms. Baldwin asked if duplexes would be built. Mr. Cravo stated yes.

Ms. Baldwin opened the meeting for public comment.

Jason Collingnon, 33 Walnut Street, stated he did not have a problem with the zone change and his concern is to ensure things are done correctly. He does not want any new construction too close to his residence.

Mr. Cravo stated tonight's meeting is just for a recommendation for the zone change, and that any proposed projects would need to come before the Planning Board in the future.

Ms. Baldwin stated professional comments have been received and there was no opposition to this proposal.

Motion was made by Mr. Cleavall and seconded by Mr. DiLullo to close the PUBLIC HEARING-ZONE CHANGE-Old River Street, 27 Walnut Street, 17 High Street-Calabrese Construction, LLC.

VOTE 5-0-0

## Agawam Planning Board March 6, 2025

---

Motion was made by Mr. Elfman and seconded by Mr. Cleavall to send a Positive Recommendation to the City Council for the Zone Change-Old River Street, 27 Walnut Street, 17 High Street from Industrial-A and Business-A to Residence-B.

VOTE 5-0-0

Motion was made by Mr. Cleavall and seconded by Mr. Elfman to take the agenda out of order.

VOTE 5-0-0

### 3. SITE PLAN-207 Bowles Road-RHM Realty, LLC

Luke Showalter, Furrow Engineering was present for this agenda item. Mr. Showalter stated that the proposed project is for an 11,100 sq. ft. addition to Litron's existing manufacturing office facility and expansion of the parking lot for 37 parking spaces. He stated they had received several Engineering comments, which mostly concerned stormwater. He stated a revised Site Plan and Stormwater Report have been submitted, and all outstanding Engineering comments have been satisfied. He also stated Police, Fire, and Inspection services had no concerns.

Motion was made by Mr. Elfman and seconded by Mr. DiLullo to approve the SITE PLAN-207 Bowles Road-RHM Realty, LLC.

VOTE 5-0-0

Motion was made by Mr. DeStefano and seconded by Mr. Cleavall to put the agenda back in order.

VOTE 5-0-0

### 2. SITE PLAN-760 Cooper Street-Town of Agawam

Mayor Johnson stated this project is a collaborative effort between various town employees, Flansburgh Architects, and all the various experts they have employed. He stated this is an ongoing process and the planning stage is entering year four. Mayor Johnson went on to say the school will be fully operational during construction.

Kent Kovacs with Flansburgh Architects stated this project consolidates the school and makes it easier to maintain and operate, while improving educational aspects. He stated the bulk of bus drop-offs will occur at the front of the school. He stated the addition from 1996 will remain and an old vocational wing will be converted into a Pre-K. Mr. Kovacs stated the building is based on two wings. The first is the community wing which houses the gymnasium, cafeteria, auditorium, vocational innovative spaces, and an enclosed link that connects to academics and an enclosed outdoor courtyard. He stated an entire vehicular circulation goes around the school in a 24 ft. wide loop road that goes in two directions. The Mill Street access will be widened. He stated the Pre-K will have its' own distinct drop-off and parking. The new elements include:

## Agawam Planning Board March 6, 2025

---

new parking, Pre-K building/playground, greenhouse, parent drop off, new soccer field, new softball field, new track fields, and 559 parking spaces.

Johnathan Charwick, Activitas, Inc., stated they will be renovating the athletic fields north of the facility. The existing baseball field will be left in place, and no work will be done to it. He stated there will be two softball fields on west side. Between the softball fields and the parking lot adjacent to Pre-K will be a large natural grass soccer field that can be used for multiple sports.

Mr. Charwick stated the high end of the grading is on the west side of the facility and everything pitches toward the parking lot. He stated a majority of the athletic fields are surrounded by ball guards and fencing.

He stated there is a full sub-surface drainage along the field and water will be taken off the athletic fields quickly.

Mr. Elfman asked if the turf was natural grass. Mr. Charwick stated yes.

Elizabeth Thompson, Terraink, Inc., stated the landscaping design focused on accessibility, visibility, and safety. She stated there are bollards near the drop off area, and there is a direct access for students to enter the school. She stated there is also an artificial turf area and a spill out area from the cafeteria for students to enjoy outdoor dining during warmer months. She stated in the south west corner there is a plaza for students. The north side of the school will be for parent drop-off, with vehicular bollards for safety. She went on to say closer to the Pre-K building there is a new greenhouse and planter beds. There will be a new playground area near the Pre-K. She stated the existing planting beds north of the Pre-K building will be preserved.

Mr. Kovacs stated they will be meeting with the tree warden and DPW to further discuss planting shrubs and ground cover. Mr. Kovacs shared the overall concept for site lighting, which included parking lot lights, pedestrian lights, and building lights. He stated per LEED and MA State code, EV provision for charging stations will be included.

Mr. Kovacs also showed the floor plan along with circulation and security, and pictures of the exterior changes and elevations.

Vinod Kalikiri, VHB, stated a traffic study was performed and an onsite review of vehicular circulation/parking, pedestrian traffic, as well as offsite traffic flow. He stated the queueing of vehicles at drop-off and pick up times was also evaluated. He stated the current design is ineffective because there is no continual circular flow, which causes back-ups. He went on to say that the 4 intersections along Mill Street were studied as well as the one at Cooper Street. The study found about 2,565 vehicles enter the location each day, and the study has taken into consideration the increased traffic for the Pre-K. He stated the driveways have been widened. There will be stacking and it will reduce the load of traffic at the intersections. He stated the onsite circulation will reduce a lot of the current problems with vehicular flow.

Ms. Baldwin asked about the driveway that abuts the library, as kids come out of school and down the hill to the library on foot and it is a safety issue. Mr. Kovacs stated with the new design most of the traffic will be focused on new main entry, which has shifted from the current design.

## Agawam Planning Board March 6, 2025

---

Drew Garvin, Samiotes Consultants, stated the drainage system has been designed to capture all the impervious areas. He stated the site has excellent soils and lends itself to infiltration systems. He stated this is a standard catch basin system, and is an improvement to the current drainage system. There will be a release overflow in extreme weather conditions. Mr. Garvin stated they have coordinated with MEP and Agawam Fire Chief and the fire hydrants will be 500 ft. apart.

Mr. Kovacs stated they had received Engineering comments, most of which focused on stormwater. They submitted a response, and will continue to work with Engineering. He stated most of the comments focused on stormwater.

John Kastrinos, Haley & Aldrich gave an overview of the geothermal aspects of heating/cooling, which is intended to eliminate fossil fuels. He stated the heat is exchanged between indoors and outdoors. He stated heat is extracted out of the water in the winter and heat can be taken out of the building and rejected to the subsurface.

Jason Boudreau, Fontaine Brothers, stated the proposed construction will occur in three phases. Phase 1 will occur between April 2025-December of 2026 which will include enlarging the entrance, temporary fencing, the community wing, and some parking. Phase 2 will take place between January 2027-June 2028 and includes the academic space and Pre-K building. Phase 3 will take place between June 2028-November 2028 and will include the rest of the demolition of existing high school, the fields, and finishing the Pre-K building. He stated none of the school operations will be impacted and the school will be fully operational during the construction phases.

Mr. DeStefano asked if Mill Street could be widened to include a left turn for cars entering the school. Mr. Kalikiri stated as part of the traffic study the operations at the intersections were studied. He went on to say the proposed design will improve traffic, due to the circulation.

Mr. DiLullo asked if the school would be open in September 2028. Mr. Boudreau stated yes, but the Pre-K building (which will be completed by January 2029).

Mayor Johnson stated the community wing will be operational by January of 2027.

Motion was made by Mr. Cleavall and seconded by Mr. Elfman to approve the design concept of the Site Plan for 760 Cooper Street, with the understanding that the Engineering details will be worked out between Engineering and the project consultant.

VOTE 5-0-0

#### 4. APPROVAL OF MINUTES-February 20, 2025

Motion was made by Mr. DeStefano and seconded by Mr. Elfman to approve the February 20, 2025 minutes as written.

VOTE 5-0-0

#### 5. Correspondences

## Agawam Planning Board March 6, 2025

---

None

Motion was made by Mr. Elfman and seconded by Mr. DiLullo to adjourn the meeting.

VOTE 5-0-0

Meeting adjourned at 7:10pm.

## Agawam Planning Board March 20, 2025

---

### MEMBERS PRESENT:

Frank DeStefano, Vice Chair

Charles Elfman

Michael DiLullo

Michael Cleavall

### MEMBERS ABSENT:

Violet Baldwin, Chair

### ALSO PRESENT:

Taryn Egerton

Mr. DeStefano called the meeting to order at 6:00pm.

1. 6:00PM PUBLIC HEARING – ZONING AMENDMENT – “An Ordinance to Amend Chapter 180 of the Code of the City of Agawam regarding Battery Energy Storage Systems” – Mayor Johnson

Mayor Johnson was present for this agenda item. He stated this proposed ordinance creates a process that will regulate Battery Energy Storage Systems (BESS) and follow Chapter 40A, Section 3. BESS is a technology that captures energy from different sources and stores it in rechargeable batteries. They are often combined with other forms of renewable energy, collecting the energy during off-peak times and storing it for later use during peak times. Small systems are available to homeowners and small businesses, medium size BESS connect to the grid, and large grade utility can connect to BESS for greater storage capacity.

Mayor Johnson stated the BESS are equipped with a fire suppression system and if a fire is detected it will deploy, which in turn notifies the Fire Department. He stated once a fire is detected the unit on fire will completely turn off. Mayor Johnson stated the ordinance proposes 3 tiers. Tier 1 are for residential or small commercial operations. Tier 1 is allowed by right in all zoning districts. Tier 2 will be allowed by right in the industrial zone and agriculturally zoned districts and Tier 3 will be allowed by right in industrial and may apply for a Special Permit for installation in agriculturally zoned parcels. Mayor Johnson states this amendment mirrors the solar array ordinance. Each tier must meet all applicable Building Codes, State Electric codes, State Fire Codes, and are subject to site plan review. Mayor Johnson stated that Tier 2 and 3 require a decommissioning bond that the owner/operator must continually maintain and provide proof of liability insurance.

Mr. Elfman asked if there was a cap on the number of these facilities for the Town. Mayor Johnson stated no. He stated each small town may only see one utility grade BESS due to the need to access and be in close proximity of the grid. Mr. Elfman asked about the decommissioning bond and if the cost would fluctuate due to the economy. Mayor Johnson stated some bonds have a flat inflationary increase each year.

Mr. Cleavall asked about the size of homes and small business BESS. Mayor Johnson stated the small BESS are typically placed inside the house or garage.

## Agawam Planning Board March 20, 2025

---

Mr. DiLullo asked if all tiers had the fire suppression system. Mayor Johnson stated tiers 2 and 3. Mr. DiLullo asked if any of the surrounding towns had experienced issues with the fire suppression system malfunctioning. Mayor Johnson stated no, the battery technology is not the same as when these systems were causing fires. Mr. DiLullo asked if there was any data on the risk of fire. Mayor Johnson stated the Town is looking into state of the art fire monitoring system that goes directly to the Agawam Fire Department. He went on to say the current technology is very sophisticated.

Mr. DeStefano stated Inspection Services and Engineering did not express any concerns regarding BESS.

Mr. DeStefano opened the hearing to the public for comment. There was none.

Motion was made by Mr. DiLullo and seconded by Mr. Elfman to close the Public Hearing for the Zoning Amendment “An Ordinance to Amend Chapter 180 of the Code of the City of Agawam regarding Battery Energy Storage Systems” – Mayor Johnson.

VOTE 4-0-0

Motion was made by Mr. Cleavall and seconded by Mr. DiLullo to send a Positive Recommendation to the City Council for the Zoning Amendment “An Ordinance to Amend Chapter 180 of the Code of the City of Agawam regarding Battery Energy Storage Systems” – Mayor Johnson.

VOTE 4-0-0

### 2. PUBLIC HEARING – FY25 Community Development Block Grant Application & FY22/23 Community Development Block Grant Review

Joseph Hagopian, with Pioneer Valley Planning Commission, was present for this agenda item. He stated they are currently administering the combined FY22/23 grant and this includes housing rehabilitation. He stated the program is funded through HUD with the Massachusetts Executive Office of Housing and Livable Communities, who administers the grants for small cities and towns. He stated the FY22/23 has been funded for up to 7 units of full housing rehabilitation and 8 aging in place units. He stated there are currently 2 homes in Agawam that are on the waitlist for future funding.

Mr. Hagopian gave a brief overview of the program. He stated a homeowner must submit documents to PVPC offices once their name is called from the wait list. They must provide proof of ownership, income eligibility, and ensure all property/utility taxes paid directly to the Town are up to date. Once the homeowner is approved, a home inspection is done to identify any urgent needs or concerns. Then the project is bid to a list of preapproved contractors. He stated the program will cover the cost of the lowest bid on a project. If a homeowner wishes to use a specific contractor that is not the lowest bidder, they are responsible for the excess costs.

Mr. DeStefano asked if there was a maximum spending limit for each home. Mr. Hagopian stated \$50,000 per unit where there may be lead paint or other costly issues, but if not \$40,000 is

## Agawam Planning Board March 20, 2025

---

average per residence. Due to the increase of building cost the average cost may increase to \$50,000 per project.

Mr. DeStefano opened the hearing for public comment.

Corrine Wingard, 194 Elm Street, stated she supports the rehabbing and aging in place. She stated her research has shown that sometimes this money can be used for infrastructure improvements such as roads. Ms. Wingard asked if this funding applies for the whole Town, as it seems in the past the grants have only been given to the homes in North Agawam.

Mr. Hagopian stated that the program is open to anyone in Agawam as long as the income and eligibility requirements are met. Mr. Hagopian stated the FY24 program funds will be going to Moore and Valley Street to complete this infrastructure design, and they will be selecting contractors for the project soon.

Motion was made by Mr. Cleavall and seconded by Mr. DiLullo to send a letter in favor of FY25 Agawam Community Development Block Fund Grant Application to the Massachusetts Executive Office of Housing and Livable Communities to include housing rehab services for residents of the Town of Agawam.

VOTE 4-0-0

### 3. APPROVAL OF MINUTES – March 6, 2025

Motion was made by Mr. Cleavall and seconded Mr. Elfman to table the March 6<sup>th</sup> minutes until the April 3, 2025 meeting.

VOTE 4-0-0

### 4. Correspondences

None

Motion was made by Mr. Elfman and Mr. Cleavall to adjourn the meeting.

VOTE 4-0-0

Meeting adjourned at 6:45pm.