

**ST. ANN'S VILLAGE**  
**124 COCHITUATE ROAD**  
**Wayland, MA**

**NOTICE OF INTENT**

*Pursuant to M.G.L.c. 131 §40*

*Submitted to:*

Town of Wayland Conservation Commission  
Massachusetts Department of Environmental Protection

*Applicant:*

Planning Office for Urban Affairs  
84 State Street, Suite 600  
Boston, MA, 02109

*Civil Engineer/ Land Surveyor:*

Samiotes Consultants, Inc.  
20 A Street  
Framingham, MA 01701

*Architect:*

The Architectural Team, Inc.  
50 Commandants Way  
Chelsea, MA 02150

*Landscape Architect:*

RBLA Design



**October 25, 2023**

# Wayland Wetlands and Water Resources Bylaw, Chapter 194 Application

## 1. Applicant:

William H. Grogan, President, Planning Office of Urban Affairs, Inc.

whg@poua.org

Name (PLEASE PRINT)	Email Address (if applicable)		
84 State Street	Boston	MA	02150
Mailing Address	City/Town	State	Zip Code
617-350-8885			
Phone Number	Fax Number (if applicable)		

## 2. Representative:

Samiotes Consultants, Inc.

Stephen Garvin

Firm/Business Name	Contact Name		
20 A Street	Framingham	MA	01701
Mailing Address	City/Town	State	Zip Code
508-887-6688			
Phone Number	Fax Number (if applicable)		

## 3. Property Owner(s)

Fr. David O'Leary

frdave@goodshepherdwayland.org

Property Owner (PLEASE PRINT)	Email Address (if applicable)		
66 Brooks Drive	Braintree	MA	02184
Address	City/Town	State	Zip Code
508-650-3545			
Phone Number	Fax Number (if applicable)		

## 4. Type of Application

- |                                                                             |                                                            |
|-----------------------------------------------------------------------------|------------------------------------------------------------|
| <input type="checkbox"/> Request for a Determination of Applicability (RDA) | <input checked="" type="checkbox"/> Notice of Intent (NOI) |
| <input type="checkbox"/> Abbreviated NOI                                    | <input type="checkbox"/> Extension of O.O.C.               |
| <input type="checkbox"/> Notice of Resource Area Delineation                | <input type="checkbox"/> Certificate of Compliance         |
| <input type="checkbox"/> After the Fact Amendment (AFA)                     | <input type="checkbox"/> After the Fact Filing (AFF)       |
| <input type="checkbox"/> Amendment to Order of Conditions                   |                                                            |

## 5. Project

124 Cochituate Road

34

4 and 5

Location Address Assessors Map(s) Parcel(s)

Project Description (PLEASE PRINT): See attached narrative

## 6. Title/Date of Plan(s)

St. Ann's Village, 10/25/2023

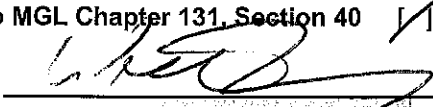
## 7. Bylaw Application Fee:

\$ 1,735

## 8. Application filed pursuant to MGL Chapter 131, Section 40

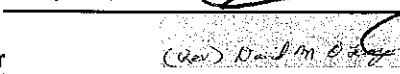
☒ Yes ☐ No

## 9. Signature of Applicant



Date 10/25/2023

## Signature of Property Owner



Date 10/25/2023

(NOTE: This application shall be signed by the property owner as well as the applicant.

Signature of the property owner on this application shall be deemed permission granted to the Conservation Commission and their agents to go upon the subject property.)

# FEES- Wetlands and Water Resources Bylaw (Chapter 194) and Stormwater and Land Disturbance Bylaw(Chapter 193)

ADOPTED: May 10, 2005  
Effective June 8, 2005

<b>RDA (1)</b> – S.f.h. addition/Landscaping/Septic Repair (w/on-site grading, other than septic, less than 1,000 s.f.): Work less than 50' from wetlands	\$100.00
<b>RDA (1):</b> Work, including grading more than 50' from wetlands	\$ 50.00
<b>RDA</b> – Determination of Conservation Commission jurisdiction, <i>w/no proposed work</i>	\$100.00/40,000 s.f. of lot area
<b>Other RDA</b> – Work less than 50' from wetlands	\$150.00
<b>Other RDA</b> – if no alteration of resource area is proposed, except buffer zone more than 50' from wetlands	\$100.00
<b>Other RDA</b> – w/alteration of resource area more than 50' from wetlands, excluding buffer zone	\$100.00 + .25/s.f. of resource area impacted (excluding buffer zone)
<b>NOI</b> – Single-family addition and on-site grading less than 2,000 s.f. and work more than 50' from wetlands	\$50.00
<b>NOI</b> – Single-family addition and on-site grading less than 2,000 s.f. and work less than 50' from wetlands	\$100.00
<b>NOI</b> – New construction and <i>NO</i> alteration of v.w. or l.s.f.i. work less than 50' from wetlands	\$200.00/unit
<b>NOI</b> – New construction and <i>NO</i> alteration of v.w. or l.s.f.i. and work more than 50' from wetlands	\$100.00/unit
<b>NOI</b> –Other, work less than 50' from wetlands	\$200.00
<b>NOI</b> –Other, work more than 50' from wetlands	\$100.00
<b>NOI</b> – w/alteration of v.w. and/or l.s.f.i. and work less than 50' from wetlands	\$200.00 + .25/s.f. of resource area impacted
<b>NOI</b> – w/alteration of v.w. and/or l.s.f.i. and work more than 50' from wetlands	\$100.00 + .25/s.f. of resource area impacted
<b>NOI/RDA:</b> Riverfront Area –Work within 100' and 200' of mean annual high water (First application)	Two times the applicable fee
<b>NOI/RDA:</b> Riverfront Area – work between 100' and 200' of mean annual high water (First application)	Applicable fee times 1.5
<b>ANRAD</b>	\$100.00/40,000 s.f. of lot area
<b>After the Fact Amendment</b>	Applicable fee above + \$100.00
<b>After the Fact Filing</b>	Double the applicable fee above
<b>Amendment</b>	\$75.00
<b>Extension</b>	\$25.00
<b>Certificate of Compliance</b>	\$50.00/unit
<b>Chapter 193-</b> Stormwater Management and Land Disturbance Bylaw	\$100.00

## Abbreviations:

Request for Determination of Applicability (RDA)  
Notice of Intent (NOI)  
Request to Amend Order of Conditions (Amendment)  
Abbreviate Notice of Intent – Resource Area Determination (ANRAD)  
Single Family House (S.f.h.)  
Vegetated Wetlands (v.w.)  
Land Subject to Flooding and Inundation (l.s.f.i.)  
Riverfront Area (R.A.)  
Vernal Pool (V.P.)  
Square Feet (s.f.)

6,140 SF within 50 FT from wetlands

$\$200.00 + \$0.25 * 6,140 \text{ SF} = \$1,735.00$

\* **NOTE:** Stormwater Management and Land Disturbance Bylaw, Chapter 193, has a separate filing fee. Please refer to the application for further submittal requirement.

## NOTES:

- Legal advertising will be billed directly to the applicant.
- The Conservation Commission may seek consultant fees pursuant to the Rules and Regulations.
- These fees are in addition to the fees required for applications filed pursuant to the Wetlands Protection Act (MGL Chapter 131, Section 40).
- Payment of fee does NOT guarantee approval of project.
- Town, county, state, and federal projects may be exempted from fees upon request.



**TOWN OF WAYLAND**  
**Conservation Commission**  
41 COCHITUATE ROAD  
WAYLAND, MASSACHUSETTS 01778

## CHAPTER 194 Submittal Requirements

Upon submittal of any Bylaw application the applicant(s), property owner (if different), and their representative(s) must sign this checklist.

- ☒ Original and one copy of the MA Wetlands Protection Act ("WPA") application and Chapter 194 Bylaw application, including owner(s) signature, the applicant(s) signature, site plan(s), narrative, etc. \*

**NOTE:** If a WPA Application is not filed, a copy of either a statement as to not applicable (limited generally to buffer zone or bordering land subject to flooding) or a valid Order of Resource Area Determination (ORAD) must be provided with copies.

- ☒ A separate check for all applicable Wetlands Act fees.
- ☒ A separate check for all applicable Chapter 194 Bylaw fees.
- ☒ A list of the 100' Abutters, certified by the Assessors Office.
- ☒ Evidence of Board of Health receipt of application or approval for all applications with septic work or home renovations.

\*A copy of all documents submitted should be provided electronically to [conservation@wayland.ma.us](mailto:conservation@wayland.ma.us)

## Project Summary

- ☒ A narrative statement describing all of the activities proposed. If work is omitted from the narrative it may not be permitted.
- ☒ A narrative summary description of the types of resource areas on or near the site. Omission of resource areas is a basis for denial of the project as being incomplete.
- ☒ A narrative discussion how the project has been designed to minimize impacts to resource areas and how any mitigation has been proposed to better protect or enhance the resource areas during and after construction.

**The Conservation Commission will evaluate the application based on the scope of the project and the potential impacts on the resource area (e.g. a wetland, pond, vernal pool, riverfront area, etc.) The Commission's priorities for project assessment are avoidance, minimization, and mitigation of impacts to resource area/s in that order. If mitigation is proposed, the Commission will require a 1:1.5 ratio of replication for impacts to wetlands and for buffer zones. The narrative should clearly address these priorities.**

- ☒ A narrative discussion that presents justification, based on factors of technical or economic feasibility, why alternatives that might minimize or completely avoid adverse impact to the Riverfront Area, Floodplain, the Buffer Zone, and/or any other resource area are not being proposed. At a minimum there must be discussion of the alternative for no alteration.

**The following items are required for Site Plans submitted with a Bylaw application; however, if the Applicant considers that the information is not relevant to the scope or scale of the proposed project, a **Waiver(s) of requirements must be requested at the time of filing the application with the Conservation Commission.****





## TOWN OF WAYLAND Conservation Commission

41 COCHITUATE ROAD  
WAYLAND, MASSACHUSETTS 01778

### Site Plan Minimum Requirements

The following shall be included on the Site Plan:

- ☒ Stamp of a Professional Engineer (P.E.) and/or a Professional Land Surveyor (P.L.S.) depending upon proximity to lot lines or project complexity.  
**OR**
- ☐ Stamp of a Registered Sanitarian (R.S.) is acceptable for designs of septic systems handling less than 2,000 gallons per day, with incidental site work.
- ☒ Grade elevations based on National Geodetic Vertical Datum (NGVD). Grade contours in the area of work shall be provided with at least 1-foot intervals.
- ☒ Plan Scale: 1 inch = 10 feet or 1 inch = 20 feet.
- ☒ Wetlands flagging with letters and/or numbers as defined in the field.
- ☒ Date that wetlands flagging was done and name of the wetland delineator (if GIS was used to wetlands, then include the GIS source.)
- ☒ Site Plans must clearly show existing conditions and proposed conditions, utilities, impervious surfaces, limit of lawn, trees greater than 6 inches in diameter proposed for removal, significant land features such as rock outcroppings, all Resource Areas (differentiate each) including Buffer Zone. *Note: It may be more comprehensible to submit two plans: an existing conditions plan and a proposed conditions plan.*
- ☒ Site plans must detail the permanent demarcation of the limit of lawn with minimum 30' offset from resource area for new construction, and minimum average 15' offset for existing dwellings.
- ☒ Locations and identifiers for all test pit locations.
- ☒ A cross-section of grading and profile for proposed septic systems.
- ☒ Locations for temporary stockpiles or storage of soils or demolition debris during construction.
- ☒ Access route for construction equipment and construction entrance location details.
- ☒ Location of erosion control barrier(s).
- ☒ Detail for installation of erosion control barrier(s).
- ☒ Location for refueling of equipment. (Outside buffer zone strongly preferred)
- ☒ Locations designated for snow storage, if necessary.
- ☒ Pre/Post-Construction Lot Coverage Summary for areas within by-law jurisdiction: a) Total lot area; b) total impervious area (**Note: impervious areas shall include, but are not limited to, roofs, decks, walks, and driveways**); c) total landscaped/lawn area; and d) total area altered during construction (including temporary impacts).



## TOWN OF WAYLAND Conservation Commission

41 COCHITUATE ROAD  
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### Drainage Requirements

The Commission seeks to protect water quality of surface waters and groundwater, and to limit any increase in the rate or quantity of runoff of storm water from the property.

- ☐ For projects adding less than or equal to 500 square feet of impervious area, a narrative description of specific measures used to provide for infiltration of runoff equivalent to runoff this additional impervious area. Those measures must be clearly depicted on the Site Plan as a specification.

**OR**

- ☒ For projects adding more than 500 square feet of impervious area,
- ☒ A narrative discussion of the methods and all assumptions used in the drainage calculations
  - ☒ A plan showing drainage catchment areas
  - ☒ Supporting calculations (i.e. HydroCAD) stamped by a P.E.
  - ☒ Summary tables presenting Pre/Post Construction Storm Water Runoff Rates and Volumes for a 1-inch storm event, a 10-year, and a 100-year storm events. Note: Rainfall of at least 8 inches in 24 hours must be used for 100-year storm event.
  - ☒ Compliance with DEP's Stormwater Management Standards.
- ☒ Narrative description of structural and non-structural best management practice (BMP) (See "Definitions), controls for storm water management for the project **during construction phases and for long term site management:**
- ☒ Evaluation of BMP selection and factors of site suitability including: soils, drainage area, depth to water table, depth to bedrock, slopes and proximity to wells and foundations
  - ☒ Discussion of construction phasing
  - ☒ Relevant site characterization data for design
  - ☒ Water quality calculations for total suspended solids (TSS) removal
  - ☒ Calculated storm water recharge rate
  - ☒ Calculated peak discharge rate
- ☒ Maintenance requirements and site inspections templates for BMPs must be specified. Operation and Maintenance (O&M) plans for Stormwater shall be submitted with the application describing short-term BMPs (during construction) and long-term BMPs (post-construction) for management of the drainage structures, roadway and/or parking lot (as applicable) including but not limited to sweeping; catch basin cleaning; snow storage and erosion controls, such as hay bales or sediment fences. The drainage components (Best Management Practice – BMP) shall be as described using terminology in the most recent version of the DEP Storm water Technical Handbook, March 1997. A Plan for protecting the post-construction BMPs during construction shall be include in the O&M Plan.
- ☐ Aquifer Protection District – If the project is within this area, a narrative description of how the project complies with aquifer protection requirements.



**TOWN OF WAYLAND**  
**Conservation Commission**  
41 COCHITUATE ROAD  
WAYLAND, MASSACHUSETTS 01778

**Soils Information**

- ☒ Septic Systems or Drainage BMPs (where applicable) - Clear statement of how many test pits or borings were conducted for the project planning and engineering evaluations and what number and types of analytical methods may have been applied for soils characterization including visual evaluation, percolation tests, field screening, and laboratory analyses.
- ☒ Septic Systems and/or applicable drainage BMP - Copies of all soil data including boring and/or test pit logs.
- ☒ Wetland field data forms that document observations made during the wetland delineation including soil or test pit logs.

**Waivers**

In the event that Applicant considers certain required information to be, in their opinion, not relevant to the scope or scale of the proposed project Applicant may request a Waiver of the requirements with this application to the Conservation Commission. Indicate all provisions requested for Waiver below designating the specific paragraph number/letter designation.

Site Plan Minimum Requirement Waiver(s) ☐ None ☐ List \_\_\_\_\_

Drainage Requirement Waiver(s) ☐ None ☐ List \_\_\_\_\_

Soils Information Waiver(s) ☐ None ☐ List \_\_\_\_\_

If applicable, attach a statement for justification of the requested waivers.

In the event that any requested Waiver is not granted by the Commission or the application is otherwise found to be deficient in providing required information the hearing may at the discretion of the Commission either be closed and denied for the lack of information or continued for a specific timeframe approved by the Commission for the Applicant to submit the required information.

The Commission has authorized its Administrator to review projects and to not accept project applications under the Bylaw that have apparent deficiencies to meeting the above requirements. Notwithstanding that authority, acceptance of an application by the Administrator does not represent a decision that the application is fully complete. Deficiencies identified by the Administrator will be report to the applicant and the Commission during the hearing.

The property owner, as well as the applicant and/or representative (if different from owner) must sign this checklist and all other applicable applications. The property owner, by signing this checklist and the applications, acknowledges that the Commission and Staff may enter the property to inspect the premises as part of the assessment of the application.

Fr. David O'Leary

(Rev.) David M. O'Leary

October 25, 2023

Property Owner's Name (Print)

Property Owner's Signature

Date

I certify under penalty of law that this document and all its attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

William H. Grogan, President

Applicant's Name (Print)

Applicant's Signature

October 25, 2023

Date



**Massachusetts Department of Environmental Protection**  
Bureau of Resource Protection - Wetlands

**WPA Form 3 – Notice of Intent**

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Wayland

City/Town

**Important:**

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



Note:  
Before completing this form consult your local Conservation Commission regarding any municipal bylaw or ordinance.

**A. General Information**

1. Project Location (**Note:** electronic filers will click on button to locate project site):

124 Cochituate Road

a. Street Address

Wayland

b. City/Town

01778

c. Zip Code

Latitude and Longitude:

34

f. Assessors Map/Plat Number

42.351912

d. Latitude

-71.356741

e. Longitude

34-4 and 34-5

g. Parcel /Lot Number

2. Applicant:

William

a. First Name

Grogan

b. Last Name

Planning Office for Urban Affairs, Inc.

c. Organization

84 State Street, Suite 600

d. Street Address

Boston

e. City/Town

MA

f. State

02109

g. Zip Code

617-350-8885

h. Phone Number

i. Fax Number

philipc@poua.org

j. Email Address

3. Property owner (required if different from applicant): ☐ Check if more than one owner

David

a. First Name

O'Leary

b. Last Name

Roman Catholic Archbishop of Boston

c. Organization

66 Brooks Drive

d. Street Address

Braintree

e. City/Town

MA

f. State

02184

g. Zip Code

508-650-3545

h. Phone Number

i. Fax Number

frdave@goodshepherdwayland.org

j. Email address

4. Representative (if any):

Stephen

a. First Name

Garvin

b. Last Name

Samiotes Consultants, Inc.

c. Company

20 A Street

d. Street Address

Framingham

e. City/Town

MA

f. State

01701

g. Zip Code

508-877-6688

h. Phone Number

i. Fax Number

sgarvin@samiotes.com

j. Email address

5. Total WPA Fee Paid (from NOI Wetland Fee Transmittal Form):

5,150

a. Total Fee Paid

2,562.50

b. State Fee Paid

2,587.50

c. City/Town Fee Paid



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**A. General Information (continued)**

6. General Project Description:

See attached narrative.

7a. Project Type Checklist: (Limited Project Types see Section A. 7b.)

- |                                                                       |                                                                |
|-----------------------------------------------------------------------|----------------------------------------------------------------|
| 1. <input type="checkbox"/> Single Family Home                        | 2. <input checked="" type="checkbox"/> Residential Subdivision |
| 3. <input type="checkbox"/> Commercial/Industrial                     | 4. <input type="checkbox"/> Dock/Pier                          |
| 5. <input type="checkbox"/> Utilities                                 | 6. <input type="checkbox"/> Coastal engineering Structure      |
| 7. <input type="checkbox"/> Agriculture (e.g., cranberries, forestry) | 8. <input type="checkbox"/> Transportation                     |
| 9. <input type="checkbox"/> Other                                     |                                                                |

7b. Is any portion of the proposed activity eligible to be treated as a limited project (including Ecological Restoration Limited Project) subject to 310 CMR 10.24 (coastal) or 310 CMR 10.53 (inland)?

1. ☐ Yes ☒ No If yes, describe which limited project applies to this project. (See 310 CMR 10.24 and 10.53 for a complete list and description of limited project types)

2. Limited Project Type

If the proposed activity is eligible to be treated as an Ecological Restoration Limited Project (310 CMR 10.24(8), 310 CMR 10.53(4)), complete and attach Appendix A: Ecological Restoration Limited Project Checklist and Signed Certification.

8. Property recorded at the Registry of Deeds for:

Middlesex

a. County

8272

c. Book

b. Certificate # (if registered land)

0156

d. Page Number

**B. Buffer Zone & Resource Area Impacts (temporary & permanent)**

- ☒ Buffer Zone Only – Check if the project is located only in the Buffer Zone of a Bordering Vegetated Wetland, Inland Bank, or Coastal Resource Area.
- ☐ Inland Resource Areas (see 310 CMR 10.54-10.58; if not applicable, go to Section B.3, Coastal Resource Areas).

Check all that apply below. Attach narrative and any supporting documentation describing how the project will meet all performance standards for each of the resource areas altered, including standards requiring consideration of alternative project design or location.



**Massachusetts Department of Environmental Protection**  
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**B. Buffer Zone & Resource Area Impacts (temporary & permanent) (cont'd)**

For all projects affecting other Resource Areas, please attach a narrative explaining how the resource area was delineated.

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
a. <input type="checkbox"/> Bank	1. linear feet	2. linear feet
b. <input checked="" type="checkbox"/> Bordering Vegetated Wetland	15,500 1. square feet	0 2. square feet
c. <input type="checkbox"/> Land Under Waterbodies and Waterways	1. square feet 3. cubic yards dredged	2. square feet

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
d. <input type="checkbox"/> Bordering Land Subject to Flooding	1. square feet 3. cubic feet of flood storage lost	2. square feet 4. cubic feet replaced
e. <input type="checkbox"/> Isolated Land Subject to Flooding	1. square feet 2. cubic feet of flood storage lost	3. cubic feet replaced
f. <input type="checkbox"/> Riverfront Area	1. Name of Waterway (if available) - <b>specify coastal or inland</b>	

2. Width of Riverfront Area (check one):

- ☐ 25 ft. - Designated Densely Developed Areas only
- ☐ 100 ft. - New agricultural projects only
- ☐ 200 ft. - All other projects

3. Total area of Riverfront Area on the site of the proposed project: \_\_\_\_\_ square feet

4. Proposed alteration of the Riverfront Area:

a. total square feet \_\_\_\_\_ b. square feet within 100 ft. \_\_\_\_\_ c. square feet between 100 ft. and 200 ft. \_\_\_\_\_

5. Has an alternatives analysis been done and is it attached to this NOI? ☐ Yes ☐ No

6. Was the lot where the activity is proposed created prior to August 1, 1996? ☐ Yes ☐ No

3. ☐ Coastal Resource Areas: (See 310 CMR 10.25-10.35)

**Note:** for coastal riverfront areas, please complete **Section B.2.f.** above.



**Massachusetts Department of Environmental Protection**  
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**B. Buffer Zone & Resource Area Impacts (temporary & permanent) (cont'd)**

Check all that apply below. Attach narrative and supporting documentation describing how the project will meet all performance standards for each of the resource areas altered, including standards requiring consideration of alternative project design or location.

Online Users:  
Include your document transaction number (provided on your receipt page) with all supplementary information you submit to the Department.

<u>Resource Area</u>	<u>Size of Proposed Alteration</u>	<u>Proposed Replacement (if any)</u>
a. <input type="checkbox"/> Designated Port Areas	Indicate size under Land Under the Ocean, below	
b. <input type="checkbox"/> Land Under the Ocean	1. square feet _____ 2. cubic yards dredged _____	
c. <input type="checkbox"/> Barrier Beach	Indicate size under Coastal Beaches and/or Coastal Dunes below	
d. <input type="checkbox"/> Coastal Beaches	1. square feet _____	2. cubic yards beach nourishment _____
e. <input type="checkbox"/> Coastal Dunes	1. square feet _____	2. cubic yards dune nourishment _____
	<u>Size of Proposed Alteration</u>	<u>Proposed Replacement (if any)</u>
f. <input type="checkbox"/> Coastal Banks	1. linear feet _____	
g. <input type="checkbox"/> Rocky Intertidal Shores	1. square feet _____	
h. <input type="checkbox"/> Salt Marshes	1. square feet _____	2. sq ft restoration, rehab., creation _____
i. <input type="checkbox"/> Land Under Salt Ponds	1. square feet _____	
	2. cubic yards dredged _____	
j. <input type="checkbox"/> Land Containing Shellfish	1. square feet _____	
k. <input type="checkbox"/> Fish Runs	Indicate size under Coastal Banks, inland Bank, Land Under the Ocean, and/or inland Land Under Waterbodies and Waterways, above	
	1. cubic yards dredged _____	
l. <input type="checkbox"/> Land Subject to Coastal Storm Flowage	1. square feet _____	

4. ☐ Restoration/Enhancement

If the project is for the purpose of restoring or enhancing a wetland resource area in addition to the square footage that has been entered in Section B.2.b or B.3.h above, please enter the additional amount here.

a. square feet of BVW \_\_\_\_\_

b. square feet of Salt Marsh \_\_\_\_\_

5. ☐ Project Involves Stream Crossings

a. number of new stream crossings \_\_\_\_\_

b. number of replacement stream crossings \_\_\_\_\_



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**C. Other Applicable Standards and Requirements**

- ☐ This is a proposal for an Ecological Restoration Limited Project. Skip Section C and complete Appendix A: Ecological Restoration Limited Project Checklists – Required Actions (310 CMR 10.11).

**Streamlined Massachusetts Endangered Species Act/Wetlands Protection Act Review**

1. Is any portion of the proposed project located in **Estimated Habitat of Rare Wildlife** as indicated on the most recent Estimated Habitat Map of State-Listed Rare Wetland Wildlife published by the Natural Heritage and Endangered Species Program (NHESP)? To view habitat maps, see the *Massachusetts Natural Heritage Atlas* or go to [http://maps.massgis.state.ma.us/PRI\\_EST\\_HAB/viewer.htm](http://maps.massgis.state.ma.us/PRI_EST_HAB/viewer.htm).

a. ☐ Yes ☒ No

**If yes, include proof of mailing or hand delivery of NOI to:**

**Natural Heritage and Endangered Species Program  
Division of Fisheries and Wildlife  
1 Rabbit Hill Road  
Westborough, MA 01581**

b. Date of map \_\_\_\_\_

If yes, the project is also subject to Massachusetts Endangered Species Act (MESA) review (321 CMR 10.18). To qualify for a streamlined, 30-day, MESA/Wetlands Protection Act review, please complete Section C.1.c, and include requested materials with this Notice of Intent (NOI); *OR* complete Section C.2.f, if applicable. *If MESA supplemental information is not included with the NOI, by completing Section 1 of this form, the NHESP will require a separate MESA filing which may take up to 90 days to review (unless noted exceptions in Section 2 apply, see below).*

- c. Submit Supplemental Information for Endangered Species Review\*

1. ☐ Percentage/acreage of property to be altered:

(a) within wetland Resource Area

percentage/acreage

(b) outside Resource Area

percentage/acreage

2. ☐ Assessor's Map or right-of-way plan of site

2. ☒ Project plans for entire project site, including wetland resource areas and areas outside of wetlands jurisdiction, showing existing and proposed conditions, existing and proposed tree/vegetation clearing line, and clearly demarcated limits of work \*\*

(a) ☒ Project description (including description of impacts outside of wetland resource area & buffer zone)

(b) ☐ Photographs representative of the site

\* Some projects **not** in Estimated Habitat may be located in Priority Habitat, and require NHESP review (see <https://www.mass.gov/mas-endangered-species-act-mesa-regulatory-review>).

Priority Habitat includes habitat for state-listed plants and strictly upland species not protected by the Wetlands Protection Act.

\*\* MESA projects may not be segmented (321 CMR 10.16). The applicant must disclose full development plans even if such plans are not required as part of the Notice of Intent process.





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Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

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**C. Other Applicable Standards and Requirements (cont'd)**

- (c) ☐ MESA filing fee (fee information available at <https://www.mass.gov/how-to/how-to-file-for-a-mesa-project-review>).

Make check payable to "Commonwealth of Massachusetts - NHESP" and **mail to NHESP** at above address

*Projects altering 10 or more acres of land, also submit:*

- (d) ☐ Vegetation cover type map of site

- (e) ☐ Project plans showing Priority & Estimated Habitat boundaries

- (f) OR Check One of the Following

1. ☐ Project is exempt from MESA review.  
Attach applicant letter indicating which MESA exemption applies. (See 321 CMR 10.14, <https://www.mass.gov/service-details/exemptions-from-review-for-projectsactivities-in-priority-habitat>; the NOI must still be sent to NHESP if the project is within estimated habitat pursuant to 310 CMR 10.37 and 10.59.)

2. ☐ Separate MESA review ongoing.

a. NHESP Tracking #

b. Date submitted to NHESP

3. ☐ Separate MESA review completed.

Include copy of NHESP "no Take" determination or valid Conservation & Management Permit with approved plan.

3. For coastal projects only, is any portion of the proposed project located below the mean high water line or in a fish run?

- a. ☒ Not applicable – project is in inland resource area only      b. ☐ Yes    ☐ No

If yes, include proof of mailing, hand delivery, or electronic delivery of NOI to either:

South Shore - Cohasset to Rhode Island border, and the Cape & Islands:

North Shore - Hull to New Hampshire border:

Division of Marine Fisheries -  
Southeast Marine Fisheries Station  
Attn: Environmental Reviewer  
836 South Rodney French Blvd.  
New Bedford, MA 02744  
Email: [dmf.envreview-south@mass.gov](mailto:dmf.envreview-south@mass.gov)

Division of Marine Fisheries -  
North Shore Office  
Attn: Environmental Reviewer  
30 Emerson Avenue  
Gloucester, MA 01930  
Email: [dmf.envreview-north@mass.gov](mailto:dmf.envreview-north@mass.gov)

Also if yes, the project may require a Chapter 91 license. For coastal towns in the Northeast Region, please contact MassDEP's Boston Office. For coastal towns in the Southeast Region, please contact MassDEP's Southeast Regional Office.

- c. ☐ Is this an aquaculture project?

- d. ☐ Yes    ☐ No

If yes, include a copy of the Division of Marine Fisheries Certification Letter (M.G.L. c. 130, § 57).



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**C. Other Applicable Standards and Requirements (cont'd)**

**Online Users:**

Include your document transaction number (provided on your receipt page) with all supplementary information you submit to the Department.

4. Is any portion of the proposed project within an Area of Critical Environmental Concern (ACEC)?  
a. ☐ Yes ☒ No If yes, provide name of ACEC (see instructions to WPA Form 3 or MassDEP Website for ACEC locations). **Note:** electronic filers click on Website.  
b. ACEC
5. Is any portion of the proposed project within an area designated as an Outstanding Resource Water (ORW) as designated in the Massachusetts Surface Water Quality Standards, 314 CMR 4.00?  
a. ☐ Yes ☒ No
6. Is any portion of the site subject to a Wetlands Restriction Order under the Inland Wetlands Restriction Act (M.G.L. c. 131, § 40A) or the Coastal Wetlands Restriction Act (M.G.L. c. 130, § 105)?  
a. ☐ Yes ☒ No
7. Is this project subject to provisions of the MassDEP Stormwater Management Standards?  
a. ☒ Yes. Attach a copy of the Stormwater Report as required by the Stormwater Management Standards per 310 CMR 10.05(6)(k)-(q) and check if:  
1. ☐ Applying for Low Impact Development (LID) site design credits (as described in Stormwater Management Handbook Vol. 2, Chapter 3)  
2. ☒ A portion of the site constitutes redevelopment  
3. ☐ Proprietary BMPs are included in the Stormwater Management System.  
b. ☐ No. Check why the project is exempt:  
1. ☐ Single-family house  
2. ☐ Emergency road repair  
3. ☐ Small Residential Subdivision (less than or equal to 4 single-family houses or less than or equal to 4 units in multi-family housing project) with no discharge to Critical Areas.

**D. Additional Information**

- ☐ This is a proposal for an Ecological Restoration Limited Project. Skip Section D and complete Appendix A: Ecological Restoration Notice of Intent – Minimum Required Documents (310 CMR 10.12).

Applicants must include the following with this Notice of Intent (NOI). See instructions for details.

**Online Users:** Attach the document transaction number (provided on your receipt page) for any of the following information you submit to the Department.

1. ☒ USGS or other map of the area (along with a narrative description, if necessary) containing sufficient information for the Conservation Commission and the Department to locate the site. (Electronic filers may omit this item.)
2. ☒ Plans identifying the location of proposed activities (including activities proposed to serve as a Bordering Vegetated Wetland [BVW] replication area or other mitigating measure) relative to the boundaries of each affected resource area.



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**D. Additional Information (cont'd)**

3. ☒ Identify the method for BVW and other resource area boundary delineations (MassDEP BVW Field Data Form(s), Determination of Applicability, Order of Resource Area Delineation, etc.), and attach documentation of the methodology.

4. ☒ List the titles and dates for all plans and other materials submitted with this NOI.

See Appendix

a. Plan Title

Samiotes Consultants, Inc.

Stephen Powers, P.E.

b. Prepared By

c. Signed and Stamped by

10/25/23

1/20

d. Final Revision Date

e. Scale

10/25/23

f. Additional Plan or Document Title

g. Date

5. ☐ If there is more than one property owner, please attach a list of these property owners not listed on this form.
6. ☐ Attach proof of mailing for Natural Heritage and Endangered Species Program, if needed.
7. ☐ Attach proof of mailing for Massachusetts Division of Marine Fisheries, if needed.
8. ☒ Attach NOI Wetland Fee Transmittal Form
9. ☒ Attach Stormwater Report, if needed.

**E. Fees**

1. ☐ Fee Exempt: No filing fee shall be assessed for projects of any city, town, county, or district of the Commonwealth, federally recognized Indian tribe housing authority, municipal housing authority, or the Massachusetts Bay Transportation Authority.

Applicants must submit the following information (in addition to pages 1 and 2 of the NOI Wetland Fee Transmittal Form) to confirm fee payment:

00159

10/23/23

2. Municipal Check Number

3. Check date

00157

10/23/23

4. State Check Number

5. Check date

POUA/HOLDINGS LLC

6. Payor name on check: First Name

7. Payor name on check: Last Name



**Massachusetts Department of Environmental Protection**  
Bureau of Resource Protection - Wetlands

Provided by MassDEP:

## WPA Form 3 – Notice of Intent

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MassDEP File Number

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### F. Signatures and Submittal Requirements

I hereby certify under the penalties of perjury that the foregoing Notice of Intent and accompanying plans, documents, and supporting data are true and complete to the best of my knowledge. I understand that the Conservation Commission will place notification of this Notice in a local newspaper at the expense of the applicant in accordance with the wetlands regulations, 310 CMR 10.05(5)(a).

I further certify under penalties of perjury that all abutters were notified of this application, pursuant to the requirements of M.G.L. c. 131, § 40. Notice must be made by Certificate of Mailing or in writing by hand delivery or certified mail (return receipt requested) to all abutters within 100 feet of the property line of the project location.

1. Signature of Applicant

October 25, 2023

2. Date

October 25, 2023

3. Signature of Property Owner (if different)

4. Date

5. Signature of Representative (if any)

6. Date

#### For Conservation Commission:

Two copies of the completed Notice of Intent (Form 3), including supporting plans and documents, two copies of the NOI Wetland Fee Transmittal Form, and the city/town fee payment, to the Conservation Commission by certified mail or hand delivery.

#### For MassDEP:

One copy of the completed Notice of Intent (Form 3), including supporting plans and documents, one copy of the NOI Wetland Fee Transmittal Form, and a **copy** of the state fee payment to the MassDEP Regional Office (see Instructions) by certified mail or hand delivery.

#### Other:

If the applicant has checked the "yes" box in any part of Section C, Item 3, above, refer to that section and the Instructions for additional submittal requirements.

The original and copies must be sent simultaneously. Failure by the applicant to send copies in a timely manner may result in dismissal of the Notice of Intent.



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**NOI Wetland Fee Transmittal Form**  
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

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



## A. Applicant Information

### 1. Location of Project:

124 Cochituate Road

a. Street Address

Wayland

b. City/Town

5,150

d. Fee amount

c. Check number

### 2. Applicant Mailing Address:

Philip

a. First Name

Crean

b. Last Name

Planning Office of Urban Affairs

c. Organization

84 State Street

d. Mailing Address

Boston

e. City/Town

MA

f. State

02109

g. Zip Code

617-350-8885

h. Phone Number

i. Fax Number

philipc@poua.com

j. Email Address

### 3. Property Owner (if different):

David

a. First Name

O'Leary

b. Last Name

Roman Catholic Archbishop of Boston

c. Organization

66 Brooks Drive

d. Mailing Address

Braintree

e. City/Town

MA

f. State

02184

g. Zip Code

508-677-6688

h. Phone Number

i. Fax Number

frdave@goodshepherdwayland.org

j. Email Address

To calculate filing fees, refer to the category fee list and examples in the instructions for filling out WPA Form 3 (Notice of Intent).

## B. Fees

Fee should be calculated using the following process & worksheet. **Please see Instructions before filling out worksheet.**

**Step 1/Type of Activity:** Describe each type of activity that will occur in wetland resource area and buffer zone.

**Step 2/Number of Activities:** Identify the number of each type of activity.

**Step 3/Individual Activity Fee:** Identify each activity fee from the six project categories listed in the instructions.

**Step 4/Subtotal Activity Fee:** Multiply the number of activities (identified in Step 2) times the fee per category (identified in Step 3) to reach a subtotal fee amount. Note: If any of these activities are in a Riverfront Area in addition to another Resource Area or the Buffer Zone, the fee per activity should be multiplied by 1.5 and then added to the subtotal amount.

**Step 5/Total Project Fee:** Determine the total project fee by adding the subtotal amounts from Step 4.

**Step 6/Fee Payments:** To calculate the state share of the fee, divide the total fee in half and subtract \$12.50. To calculate the city/town share of the fee, divide the total fee in half and add \$12.50.



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**B. Fees** (continued)

Step 1/Type of Activity	Step 2/Number of Activities	Step 3/Individual Activity Fee	Step 4/Subtotal Activity Fee
2b Parking Lot	1	500	500
2g Project Source Discharge	2	500	1000
2j Septic system for development	1	500	500
3b Each building including site	1	1050	1050
3c driveway	2	1050	2100

**Step 5/Total Project Fee:**

**Step 6/Fee Payments:**

Total Project Fee:	5150
	a. Total Fee from Step 5
State share of filing Fee:	2562.50
	b. 1/2 Total Fee <b>less</b> \$12.50
City/Town share of filing Fee:	2587.50
	c. 1/2 Total Fee <b>plus</b> \$12.50

**C. Submittal Requirements**

- a.) Complete pages 1 and 2 and send with a check or money order for the state share of the fee, payable to the Commonwealth of Massachusetts.

Department of Environmental Protection  
Box 4062  
Boston, MA 02211

- b.) **To the Conservation Commission:** Send the Notice of Intent or Abbreviated Notice of Intent; a **copy** of this form; and the city/town fee payment.

**To MassDEP Regional Office** (see Instructions): Send a copy of the Notice of Intent or Abbreviated Notice of Intent; a **copy** of this form; and a **copy** of the state fee payment. (E-filers of Notices of Intent may submit these electronically.)

# **ST. ANN'S VILLAGE PROJECT NARRATIVE WAYLAND, MA**

## **1.0 Introduction**

Saint Ann's Senior Village will transform underutilized land at 124 Cochituate Road into a 60-unit (62+) rental development located on the property of Saint Ann's Catholic Church in Wayland. All units will be affordable, with a mix of 30% and 60% of area median income.

The on-site amenities are designed to enrich the lives of the residents and provide a strong sense of community. Site amenities will include a community room, living room, indoor bicycle parking, staffed management office, on-site laundry, programmed outdoor recreational space, and extensive walking trails and passive recreation on the adjacent Sudbury Valley Trust's land. There will be two programmed outdoor spaces in a resident courtyard and patio space. Off-site recreational opportunities are in close proximity to the site, such as the Greenways Conservation Land, which is within a short walk's distance. The Wayland Free Public Library and the Senior Citizen's Center are a short drive from the site.

## **1.1 Existing Conditions**

The Plans entitled "St. Ann Church Wayland, MA – Existing Conditions Plan of Land" on sheets EX-1 and EX-2 illustrate the existing conditions, topography, wetland resource areas, vegetation/trees, and hardscape areas.

The proposed project is located at 124 Cochituate Road (State Route 27), about 1.5 miles South of Wayland Town Center, on the property of Saint Ann's Catholic Church, of the Good Shepherd Parish. The subject property combines two parcels to create a ground lease area of approximately 9.75 acres of mostly undeveloped wooded area (Assessors Map 34, Lots 4 and 5). A two-story rectory is located adjacent to the southwest corner of the lease area, which fronts on Cochituate Road. St Ann's Church is just to the south of the rectory, also located at 124 Cochituate Road. Much of the eastern portion of the site is undevelopable due to wetlands and steeply descending grade.

## **1.2 Regional Context**

Land use surrounding the property is a mixture of commercial and residential. Figure-001 (Regional Context Map) in the Appendix depicts the context of the property in relation to the neighborhood.

The site abuts single family homes on Windy Hill Lane to the North and Sudbury Valley Trust's conservation land to the Northeast, with vegetative screening. The site is approximately 1.5 miles from retail and grocery amenities located off Boston Post Road and is approximately 0.8 miles from Town Hall. The immediate vicinity of the subject property consists of residential, recreational, and institutional uses.

## **1.3 Resource Areas**

On April 12, 2023 Environmental Consulting & Restoration, LLC (ECR) conducted an inspection and evaluation of the landward limits of wetland resources subject to jurisdiction under the Massachusetts Wetlands Protection Act (MGL Ch. 131 s. 40). Pursuant to the Chapter 40B regulations (760 CMR 56.00), the requirements outlined in Chapter 194: Wetlands and Water Resources Protection of the Code of the Town of Wayland have been waived for this project and it is only required to comply with the Massachusetts Wetlands Protection Act.

Wetlands were delineated in accordance with the procedures established in the Massachusetts Wetlands Protection Act Regulations (310 CMR 10.55). Numbered and sequence flags were placed in the field to identify the limit of wetland resource areas.

A copy of the report and data sheets, titled "Wetland Delineation Report," prepared by ECR and dated June 5, 2023, is included in the Appendix.

#### **1.4 Bordering Vegetated Wetlands, (BVW)**

As outlined by the Massachusetts Wetlands Protection Act (MGL Ch. 131 s.40.10.55), Bordering Vegetated Wetlands (BVW) are freshwater wetlands which border on creeks, rivers, streams, ponds, or lakes. They are areas where ground water discharges to the surface and where, under some circumstances, surface water discharges to the ground water. BVWs are likely to be significant to public or private water supply, to ground water supply, to flood control, to storm damage prevention, to prevention of pollution, to the protection of fisheries and to wildlife habitat.

The project site was found to contain Bordering Vegetated Wetlands within the property limits. This wetland resource area, delineated by flags B1-B25 and B1-1 to B1-27, is on and near the northeastern portion of the site and merges into a pond. The vegetated wetlands contain hydric soils, saturated soils, and dominant wetland indicator plants. The existing watershed that drains to the BVW consists of wooded area, the existing rectory parking lot, the rectory building, paved driveways, walkways, and landscaped areas. Stormwater runoff from this watershed sheet flows to the BVW.

#### **1.5 Isolated Vegetated Wetlands, (IVW)**

Isolated Vegetated Wetlands (IVW) are freshwater wetlands which do not border on creeks, rivers, streams, ponds, or lakes. Still, they may be significant to public or private water supply, to ground water supply, to flood control, to storm damage prevention, to prevention of pollution, to the protection of fisheries and to wildlife habitat.

The project site was found to contain an Isolated Vegetated Wetland (IVW) within the property limits. This wetland resource area, delineated by flags A1-A10, and A1-1 to A1-22 connecting to A10, is located to the east of the parking lot. This wetland does not connect to other wetland resource areas. The vegetated wetlands contain hydric soils, saturated soils, and dominant wetland indicator plants. The existing watershed consists of wooded areas, an asphalt driveway, and landscaped areas. Stormwater runoff from this watershed sheet flows to the IVW.

#### **1.6 Potential Vernal Pool, (PVP)**

Vernal pools typically fill with water in the autumn or winter due to rainfall and rising groundwater and remain ponded through the spring and into the summer. They dry completely by the middle or end of summer each year, or at least every few years. These pools prevent fish from establishing permanent populations and are critical habitat for the reproductive success of many amphibian and invertebrate species.

The project site was found to contain a Potential Vernal Pool (PVP) within the property limits. This wetland resource area, delineated by flags PVP1-PVP19, are the Mean Annual High-Water line of a Potential Vernal Pool within the A series IVW. The PVP was holding water during the April 12<sup>th</sup> review and during the May 31<sup>st</sup> review and contained abundant evidence of vernal pool indicators to include tadpoles feeding off the water surface. Chorusing Wood Frogs could also be heard during the May 31<sup>st</sup> review.

#### **1.7 Bordering Land Subject to Flooding**

This site does not contain areas mapped as Land Subject to Flooding (FEMA Flood Zones).



### **1.8 Estimated Habitats of Rare Wetlands Wildlife**

The project area is not within Estimated Habitat of Rare Wetlands Wildlife or Priority Habitat and contains no certified vernal pools as determined by reference to Massachusetts Division of Fisheries and Wildlife – Natural Heritage and Endangered Species Program (NHESP) data available on MassGIS.

### **2.0 Project Description**

The new building will consist of a total of three (3) floors. Notably, because the site slopes away from Cochituate Road towards the East, the building will present as only two stories facing Cochituate Road, with main access to the building on the south-facing elevation interior to the site, facing the church, established beyond a retaining wall. The first floor will feature community and common space in addition to ten one-bedroom apartments. The second and third floors will be served by an elevator, and each will feature twenty-five additional apartments. The building will be served by 60 parking spaces, including three with electric vehicle charging stations, as well as outdoor bicycle parking racks and an indoor bicycle storage room. Of the 60 units being created in total, 15 of the units (25%) will be for households at 30% or below of AMI, and the remaining 45 units for households at 60% or below of AMI. At least three units will be Group 2 accessible, and the entire property will be visitable. The project will provide much needed affordable senior rental housing for Wayland. As described in the Town's 2022 Housing Production Plan ("HPP"), seniors comprise over 20% of Wayland's population. Further, the HPP finds that there is an "extreme dearth" of rental housing opportunities in Wayland. Saint Ann's Senior Village will provide a local preference up to 70% for eligible residents of Wayland.

### **3.0 Construction Impacts and Mitigation**

Extensive work in the inner portion of the buffer zone, particularly clearing of natural vegetation and soil disturbance is likely to alter the physical characteristics of resource areas by changing their soil composition, topography, hydrology, temperature, and the amount of light received. Soil and water chemistry within resource areas may be adversely affected by work in the buffer zone. Alterations to biological conditions in adjacent resource areas may include changes in plant community composition and structure, invertebrate and vertebrate biomass and species composition, and nutrient cycling. These alterations from work in the buffer zone can occur through the disruption and erosion of soil, loss of shading, reduction in nutrient inputs, and changes in litter and soil composition that filters runoff, serving to attenuate pollutants and sustain wildlife habitat within resource areas.

There will be erosion and sediment control measures installed before and until acceptance of the project by the Conservation Commission when they designate that the measures may be removed. These measures consist of the installation of compost filter socks around all areas expected to drain into the wetlands resource areas. A sequence of 6 compost wattle check dams will also be used to control erosion sediment flowing through a temporary diversion swale that will remain in use during construction.

#### **3.1 Bordering Vegetated Wetlands**

Performance Standard: No work is proposed within the Bordering Vegetated Wetlands (BVW).

#### **3.2 Buffer Zone to Bordering Vegetated Wetlands**

Performance Standards: In the pre-development condition, there is 100' wetland buffer that extends into the site. This wetland buffer zone consists of wooded area. In the post-development condition, the proposed full depth pavement parking lot with associated drive aisles, retaining walls, a stormwater

management system, grading, lighting utilities and a small portion of the Senior Housing building exists within the 100' buffer zone. In total, the project proposes approximately 15,500 SF of impervious area within the 100' buffer zone, which results in a net increase of approximately 15,500 SF from the existing condition.

Effort was made to maintain a 30 foot buffer from the resource area where no construction activities would occur, however, the limit of work does minimally enter the 30 foot buffer zone at 3 points to allow for minimal clearing and grading as well as to address comments by the ZBA and Peer Reviewer to widen the driveway on the East face of the proposed building from a maintenance and safety perspective. However, on average, the limit of work exceeds a distance of 40' from the resource areas. After construction, only a minimal portion of a retaining wall will remain within the 30 feet buffer.

In the post-development condition, the watersheds that drain to the BVW to the North East consists of wooded and landscaped area, the rectory building and associated driveways and parking, the proposed Senior Housing building and the paved vehicular and pedestrian ways to the north and east of the proposed buildings. Stormwater from the rectory and associated impervious areas is captured by deep sump catch basins and conveyed to Infiltration System #2 through underground piping prior to being discharged to the BVW. Stormwater from the Senior Housing building and associated impervious areas is captured by deep sump catch basins and conveyed to Infiltration System #1 through underground piping prior to being conveyed to a detention basin. This system has been designed to reduce stormwater runoff peak rates, provide adequate recharge volume to groundwater, and meet the 80% TSS removal per Massachusetts Stormwater Handbook Standard 4. We have also compiled an Operation and Maintenance plan with the intent to provide direction in order to preserve and maintain the site improvements beyond post-development.

### **3.3 Isolated Vegetated Wetlands**

Performance Standard: No work is proposed within the Isolated Vegetated Wetlands (IVW).

### **3.4 Buffer Zone to Isolated Vegetated Wetlands**

Performance Standards: In the pre-development condition, there is 100' wetland buffer that extends into the site. This wetland buffer zone consists of wooded area, landscaped area and a portion of a paved driveway. In the post-development condition, the design will provide a new full depth pavement parking lot with associated drive aisles, retaining walls, a stormwater management system, grading, and lighting utilities within the 100' buffer zone. In total, the project proposes approximately 5,125 SF of impervious area within the 100' buffer zone, resulting in a net increase of approximately 5,125 SF from the existing condition.

In the post-development condition, the watershed consists of unimproved wooded and landscaped areas servicing the existing church not being developed for this project with de minimus stormwater discharge. Impervious areas within the buffer zone are designed to drain to the northeast wetlands and not into the IVW resource area.

### **3.4 Potential Vernal Pool**

Performance Standard: No work is proposed within the Potential Vernal Pool (PVP).

### **3.5 Buffer Zone to Potential Vernal Pool**

Performance Standard: In the pre-development condition, there is 100' wetland buffer that extends into the site. This wetland buffer zone consists of wooded area, landscaped area and a portion of a paved

driveway. In the post-development condition, the design will provide a new full depth pavement parking lot with associated drive aisles, retaining walls, a stormwater management system, grading, and lighting utilities within the 100' buffer zone. In total, the project proposes approximately 5,125 SF of impervious area within the 100' buffer zone, resulting in a net increase of approximately 5,125 SF from the existing condition.

In the post-development condition, the watershed consists of unimproved wooded and landscaped areas servicing the existing church not being developed for this project with de minimus stormwater discharge. Impervious areas within the buffer zone are designed to drain to the northeast wetlands and not into the PVP resource area.

### **3.5 Bordering Land Subject to Flooding (BLSF)**

This site does not contain areas mapped as Land Subject to Flooding (FEMA Flood Zones)

#### **4.0 Soil Erosion and Sediment Control Plan**

The objectives of the Soil Erosion and Sediment Control Plan are to control erosion at its source with temporary control structures, minimize the runoff from areas of disturbance, and de-concentrate and distribute stormwater runoff through natural vegetation before discharge to critical zones such as streams or wetlands. The Soil Erosion and Sediment Control Plan will be conducted in order to protect the resource areas during construction. The erosion control devices will remain in place until all exposed areas have been stabilized with vegetation or impervious surfaces.

- A. The Contractor shall implement all soil erosion and sediment control devices prior to excavation within the site.
- B. The following erosion control principles shall apply to the land grading and construction phases:
  - Stripping of vegetation, grading, or other soil disturbance shall be done in a manner which will minimize soil erosion.
  - Clearing and damage to existing vegetation shall be kept to a minimum.
  - The duration of the work which exposes unstabilized soil will be kept to a minimum.
  - Trenches and other disturbed areas will be mulched or stabilized within one day of final backfill.
  - Sediment shall be retained on-site.
  - Erosion control devices shall be installed as early as possible in the construction sequence prior to the start of grubbing and earthwork operations.
  - Existing loam and topsoil from the work area shall be used as final cover over the disturbed areas and then stabilized.
- C. Sediment control structures will be placed in order to prevent siltation from exiting the project site. These practices will mitigate any potential adverse problems encountered during construction. The steps and specifications to be followed are as follows:
  - Prior to the start of earthwork operations, the Conservation Commission and the Engineer shall inspect and approve the installation of all soil erosion and sediment control measures.
  - Haybales, filter bags, and wattles shall be inspected periodically and deteriorated sections shall be replaced until construction is completed and exposed slopes have been stabilized.
  - Perform construction work.
  - Remove soil erosion measures after inspection of Conservation Commission or agent and Civil Engineer.
- D. Soil erosion will be installed prior to commencing and site work
- E. Downgradient catch basins within 100' of the work shall be protected with Silt Sacks or other equivalent methods.

#### **4.1 Erosion Control Devices**

##### **1. Straw Wattles**

Straw Wattles shall be manufactured from rice straw and be wrapped in a tubular plastic netting. The netting shall have a strand thickness of 0.03 inch, and a knot thickness of 0.055 and a weight of 0.35 ounce per foot (each +/- 10%) and shall be made from 85% high density polyethylene, 14% ethyl vinyl acetate, and 1% color for UV inhibition. Straw Wattles shall be 9 inches in diameter (+/- one inch), twenty-five feet long (+/- 0.5 feet) and weigh approximately 35 pounds (+/- 10%). Wattles shall be installed along

the edge of resource areas adjacent to the proposed work. Wattles shall also be placed around the toe of stockpiles and at locations where grading is performed.

Installation and Maintenance

- a. Wattles shall be installed as indicated on the drawing, prior to the start of grubbing and earthwork operations.
- b. Wattles shall be new and shall be secured in place as shown on the plans.
- c. Wattles shall be placed in a row with ends tightly abutting the adjacent wattles. Each wattle shall be securely anchored in place by 2 stakes or re-bars driven through the wattles. The first stake in each wattle shall be angled toward the previously laid wattles to force the wattles together.
- d. Sedimentation shall be removed from wattles barrier when sediment has accumulated to greater than 6 inches deep. Sediment deposits shall be disposed of in accordance with the SWPPP.
- e. Wattles barrier(s) shall be inspected periodically and deteriorated wattles replaced until such time as construction is completed and exposed slopes have been stabilized.
- f. Wattles barrier(s) shall remain in place until exposed soils have been stabilized with a vegetative cover.
- g. Wattles shall not be removed until approval is given by the Commission.

2. Siltation Fence

Geotextile Fabric shall consist of long-chain synthetic polymers, composed of at least 85% by weight polyolefins, polyesters, or polyamides. They shall be formed into a network such that the filaments or yarns retain dimensional stability relative to each other, including selvages. The geotextile fabric shall have the following properties:

Property (ASTM Test Method)	Unit	Typical Values
Grab Strength (D-4632-86)	lbs	100
Grab Elongation (D-4632-86)	%	30 (max)
Trapezoid Tear Strength (D-4533-85)	lbs	65
Mullen Burst Strength (D-3786-80a)	psi	280
Coeff. of Permeability (D-4491-85)	cm/sec	0.01
Water Flow Rate (D-4491-85)	gal/min/(ft)(ft)	35
Ultraviolet Stability (D-4355-84)	%	90

Support fence posts shall be at least 48 inches high and strong enough to support applied loads. The Contractor shall have the option of using wood or metal posts. Wood posts shall consist of 1 ½" square, kiln dried, hardwood posts. Steel posts of U, T, L, or C shape weighing 1.3 pounds per linear foot may be substituted for wood. Filter fabric shall be attached to wood posts with staples and with 13 gage minimum, galvanized steel wire for steel post application.

Installation and Maintenance

- a. Silt Fence shall be installed as indicated on the drawing, prior to the start of grubbing and earthwork operations.
- b. The location of silt fence shall be reviewed and approved by the Commission.
- c. Accumulation of siltation behind the fence shall be removed once the total depth of silt reaches 6".
- d. Silt fence shall remain in place until directed to be removed by the Commission.
- e. Areas disturbed after removal shall be regraded and seeded.

### 3. Catch Basin Filters

The filters will be manufactured to fit the opening of the catch basins, area drains, and drywell inlets. The filters will have the following features:

- a. Two dump straps attached at the bottom to facilitate the emptying of the filters.
- b. The filters will also have lifting loops as an integral part of the system to be used to lift the filters from the basin.
- c. The filters will have a restraint cord approximately halfway up the sack to keep the sides away from the catch basin walls; this yellow cord shall also be a visual means of indicating when the sack should be emptied.
- d. Filters shall be removed once paving is completed but not prior to installation of oil hoods. Filters in landscaped areas (or subject to runoff from landscaped areas) shall remain until vegetation is established.

#### Installation and Maintenance

- a. Silt sacks or approved equal shall be installed where shown on the plans.
- b. Silt sacks or approved equal shall be installed in all new drain inlets as soon as the structure is installed.
- c. Once the strap is covered the filter shall be emptied, cleaned and reinstalled.

### 4. Construction Entrance

The construction entrance shall consist of filter fabric, a layer of clean, crushed stone, ranging from 1-2" to 3" in size, and a top dressing of clean 2" crushed stone. Geotextile Fabric shall consist of long-chain synthetic polymers, composed of at least 85% by weight polyolefins, polyesters, or polyamides. They shall be formed into a network such that the filaments or yarns retain dimensional stability relative to each other, including selvages. The geotextile fabric shall have the following properties:

<b>Property (ASTM Test Method)</b>	<b>Unit</b>	<b>Typical Values</b>
Grab Strength (D-4632-86)	lbs	100
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Coeff. of Permeability (D-4491-85)	cm/sec	0.01
Water Flow Rate (D-4491-85)	gal/min/(ft)(ft)	35
Ultraviolet Stability (D-4355-84)	%	90

### 5. Dust Control

Water will be applied by sprinkler or water truck as necessary during grading operations in order to minimize sediment transport and maintain acceptable air quality conditions. Repetitive treatments will be done as needed until the grades are paved or seeded.

## 6. Temporary Seed Cover

Grass seed for temporary seed cover shall be the previous year's crop. Not more than 0.1% by weight shall be weed seed and not more than 1.75% by weight shall be crop seed. Seed shall be delivered to the site in sealed containers, labeled with the name of seed grower and seed formula, in form stated below. Seed shall be dry and free of mold. Seed shall meet the following requirements:

Species Name	% by Weight	Minimum % in Mixture	Minimum % Germination Purity
Chewing Fescue (Festuca Rubra Comutata)	25	85	97
Alta Fescue (Festuca Arundinacea)	30	85	97
Annual Rye Grass (Lolium Multiflorum)	20	90	98
Red Top (Agrostis Alba)	15	90	92
White Clover (Trifolium Repens)	10	90	98

## Installation

- At the Contractor's option, seed may be spread by the hydro-seeding method, utilizing power equipment commonly used for that purpose. Seed and mulch shall be mixed and applied to achieve application quantities specified herein for the conventional seeding method, with mulch applied at the rate of 2700 lb. dry weight of mulch per acre. A mulching machine, acceptable to the Civil Engineer, shall be equipped to eject the thoroughly wet mulch material at a uniform rate to provide the mulch coverage specified.
- If the results of hydro-seeding are unsatisfactory, the mixture and/or application rates and methods shall be modified to achieve the desired results.
- After the grass has appeared, all areas and parts of areas which fail to show a uniform stand of grass, for any reason whatsoever, shall be re-seeded repeatedly if necessary, until all areas are covered with a satisfactory growth of grass.
- If seeding cannot be established due to weather conditions, jute mesh shall be placed on the surface to reduce soil erosion.

## 7. Jute Mesh

Jute mesh shall be a uniform, open, plain weave cloth of undyed and unbleached single jute yarn. The yarn shall be of a loosely twisted construction and it shall not vary in thickness more than one-half its normal diameter. Jute mesh shall be furnished in rolled strips and shall meet the following requirements:

- Width – 48 inches, plus or minus one inch
- 78 warp – ends per width of cloth (minimum)
- 41 weft – ends per yard (minimum)
- Weight shall average 1.22 pounds per linear yard with a tolerance of plus or minus 5%. Mesh shall be secured using U-shaped staples.

## **5.0 Snow Storage**

Snow storage areas will be provided on site per our snow storage plan. The plans note areas which are available to maintain snow piles and do not affect site access or underground utilities. All snow melt will be captured and disposed within the proposed storm water management system. If snow removal is required due to above average snowfall, the removal process will follow all local and MassDEP regulations and testing.

## **6.0 Stormwater Management Standards**

The Department of Environmental Protection has implemented the Stormwater Management Standards as of November 18, 1996 and updated them in April 2008. The standards met are described below and in the Stormwater Management Form as provided by DEP.

### **Standard #1: Untreated Stormwater**

The project is designed so that stormwater conveyances (outfalls/discharges) do not discharge untreated stormwater into, or cause erosion to, wetlands or waters.

Therefore Standard #1 is met.

### **Standard #2: Post-development peak discharge rates**

The proposed project will result in an increase in impervious area. The proposed stormwater management system has been designed so that there is no increase in post construction discharge rates from the site. See Table A - Table C above.

Therefore Standard #2 is met.

### **Standard #3: Recharge to groundwater**

Loss of annual recharge to groundwater shall be eliminated or minimized through the use of environmentally sensitive site design, low impact development techniques, stormwater best management practices, 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 recharge volume as determined in accordance with the Massachusetts Stormwater Handbook.

Soil types have been identified based on the information contained in the Soil Report. We have determined that the soils are consistent with Hydrologic soil type "A", which requires runoff to be infiltrated (as listed in the table below) from new impervious areas.

The proposed development will result in an increase in impervious area in the "A", soil areas. To be conservative, the calculations for required recharge volumes are based on the required inches of runoff for the new impervious area per soil area.



Hydrologic Group Volume to Recharge (x Total Impervious Area)	
Hydrologic Group	Volume to Recharge x Total Impervious Area
A	0.60 inches of runoff
B	0.35 inches of runoff
C	0.25 inches of runoff
D	0.10 inches of runoff

Required Recharge Volumes:

"A" Soils

Infiltration Rate: 0.60 inches of runoff  
Proposed Site New Impervious Area in "A" Soils: 54,090 sf  
 $54,090 \text{ sf} \times 0.60 \times (1/12) = 2,745 \text{ cf}$

**Total required recharge volume: 2,745 cf**

Proposed Recharge Volume:

Infiltration System #1 = 4,403 cf  
Infiltration System #2 = 14,922 cf  
Drain Basin = 2,610 cf

**Total provided recharge volume: 21,935 cf**

Drawdown Time:

INF-1 (maximum time 72 hours) =  $3,076 \text{ cf} / (8.27 \text{ in/hr} \times 1,070 \text{ sf} / 12 \text{ in/ft}) = 4.2 \text{ hours}$   
INF-2 (maximum time 72 hours) =  $12,572 \text{ cf} / (8.27 \text{ in/hr} \times 2,562 \text{ sf} / 12 \text{ in/ft}) = 7.2 \text{ hours}$   
Detention Basin (maximum time 72 hours) =  $625 \text{ cf} / (8.27 \text{ in/hr} \times 1,330 \text{ sf} / 12 \text{ in/ft}) = 0.68 \text{ hours}$

Therefore Standard #3 is met.

**Standard #4: TSS removal**

The BMP's selected to remove TSS from impervious areas for this include: Area Drains, Catch Basins, Outlet Control Structures, Water Quality Units, and Subsurface Structures.

PR-Watershed-2B:

Initial TSS=1.00  
Water Quality Unit:  $(1.00)(1.00-0.80) = 0.20 \text{ TSS}$   
Infiltration System:  $(0.20)(1.00-0.80) = 0.04 \text{ TSS}$   
Total TSS Removal= 96%

PR-Watershed-2C:

Initial TSS=1.00  
Catch Basin:  $(1.00)(1.00-0.25) = 0.75 \text{ TSS}$   
Water Quality Unit:  $(0.75)(1.00-0.80) = 0.15 \text{ TSS}$   
Infiltration System:  $(0.15)(1.00-0.80) = 0.03$   
Drainage Basin (Infiltration):  $(0.03)(1.00-0.80) = 0.01$

Total TSS Removal= 99%

Watersheds 3, and 4 are areas servicing the existing church not being developed for this project with de minimus stormwater discharge.

The remaining watershed areas (new construction) meet the 80% TSS removal per Massachusetts Stormwater Handbook Standard 4.

#### **Water Quality Volume:**

The stormwater management system has been sized to treat for the 1" runoff rate applied to the total impervious area for the water quality volume, as shown in the calculations provided below calculations for the infiltration stormwater BMPs, which all receive the minimum 25% pretreatment, are shown below. Roof runoff is considered "clean" and has therefore been excluded from this calculation. Where site topography and groundwater elevation precluded the use of infiltration BMPs, proprietary water quality unit are proposed which are specifically designed to address water quality prior to discharge.

Impervious area for watershed areas of new development (WS 2B, 2C, and BLDG) requiring water quality treatment= 82,679 sf  
 $62,923 \text{ sf} \times 1" \times (1'/12") = 5,244 \text{ cf}$

Total Water Quality Volume Required = 5,244 cf

Proposed Water Quality Volume:

Infiltration System #1 = 4,403 cf  
Infiltration System #2 = 14,992 cf  
Drain Basin = 2,610 cf

**Total Water Quality Volume Provided = 21,935 cf**

Therefore Standard #4 is met.

#### **Standard #5: Higher potential pollutant loads**

The project site does not contain Land Uses with Higher Potential Pollutant Loads.

Therefore Standard #5 is met.

#### **Standard #6: Protection of critical areas**

The site is not located within critical areas as defined by Critical areas are Outstanding Resource Waters (ORW) as designated in 314 CMR 4.00, Special Resource Waters as designated in 314 CMR 4.00, recharge areas for public water supplies as defined in 310 CMR 22.02 (Zone Is, Zone IIs and Interim Wellhead Protection Areas for groundwater sources and Zone As for surface water sources), bathing beaches as defined in 105 CMR 445.000, cold-water fisheries as defined in 314 CMR 9.02 and 310 CMR 10.04, and shellfish growing areas as defined in 314 CMR 9.02 and 310 CMR 10.04.

The site is not located within critical areas, therefore Standard #6 is met.

**Standard #7: Redevelopment projects**

While a portion of the site is being redeveloped, there is an increase in impervious area, thus the project is considered New Construction and all of the Standards will be met.

Therefore Standard #7 is met.

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

Soil Erosion and Sediment Control Plan:

The objectives of the Soil Erosion and Sediment Control Plan are to control erosion at its source with temporary control structures, minimize the runoff from areas of disturbance, and de-concentrate and distribute stormwater runoff through natural vegetation before discharge to critical zones such as streams or wetlands. Soil erosion control does not begin with the perimeter sediment trap. It begins at the source of the sediment, the disturbed land areas, and extends down to the control structure.

The Soil Erosion and Sediment Control Plan will be enacted in order to protect the resource areas during construction. The erosion control devices will remain in place until all exposed areas have been stabilized with vegetation or impervious surfaces.

The objective of the Soil erosion & Sediment Control Plan that will be enacted on site is to control the vulnerability of the soil to the erosion process or the capability of moving water to detach soil particles during the construction phase(s).

The erosion and sediment control plan to be in place during the construction phase is detailed within the NOI narrative (under separate cover).

Therefore Standard #8 is met.

**Standard #9: Operation/maintenance plan**

An operation and maintenance plan for both construction and post-development stormwater controls has been developed. The plan includes owner(s); parties responsible for operation and maintenance; schedule for inspection and maintenance; routine and non-routine maintenance tasks. A copy of the O&M is included in the Appendix.

Therefore Standard #9 is met.

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

It is not anticipated that there will be any Illicit discharges for the project.

Therefore Standard #10 is met.



## **TABLE OF APPENDICES**

**APPENDIX 1:**  
**ABUTTER NOTIFICATION LETTER**  
**CERTIFIED ABUTTERS LIST**  
**AFFIDAVIT OF SERVICE**

**APPENDIX 2:**  
**BOH RECEIPT OF APPLICATION**

**APPENDIX 3:**  
**SKETCHES AND FIGURES**

**APPENDIX 4:**  
**OPERATION AND MAINTENANCE PLAN**

**APPENDIX 5:**  
**STORMWATER REPORT**



**APPENDIX 1:**  
**ABUTTER NOTIFICATION LETTER**  
**CERTIFIED ABUTTERS LIST**  
**AFFIDAVIT OF SERVICE**





## Notification to Abutters

By Hand Delivery, Certified Mail (return receipt requested), or Certificates of Mailing

*This is a notification required by law. You are receiving this notification because you have been identified as the owner of land abutting another parcel of land for which certain activities are proposed. Those activities require a permit under the Massachusetts Wetlands Protection Act (M.G.L. c. 131, § 40).*

In accordance with the second paragraph of the Massachusetts Wetlands Protection Act, and 310 CMR 10.05(4)(a) of the Wetlands Regulations, you are hereby notified that:

- A. A Notice of Intent was filed with the Wayland Conservation Commission on **10/25/2023** seeking permission to remove, fill, dredge, or alter an area subject to protection under M.G.L. c. 131 §40. The following is a description of the proposed activity/activities:

The proposed project includes a new, 3-story 60-unit ±19,600 square foot senior affordable housing with associated paved parking areas, landscaping, utilities and a new stormwater management system in compliance with the Massachusetts DEP Stormwater Standards. Vehicular parking consists of providing 60 parking spaces.

- B. The name of the applicant is: Planning Office for Urban Affairs, Inc.
- C. The address of the land where the activity is proposed is: 124 Cochituate Road, Assessor's Map Sheet 34, Parcels 4 and 5.
- D. Copies of the Notice of Intent may be examined or obtained at the office of the Wayland Conservation Commission, located at 41 Cochituate Road. The regular business hours of the Commission are Monday 8AM-7PM and Tuesday-Thursday 8AM-4PM, and the Commission may be reached at (508)-358-3669.
- E. Copies of the Notice of Intent may be obtained from the applicant by calling Philip Crean, Project Manager, Planning Office for Urban Affairs, Inc. at 617-350-8885 ext. 116. An administrative fee may be applied for providing copies of the NOI and plans.
- F. Information regarding the date, time, and location of the public hearing regarding the Notice of Intent may be obtained from the Wayland Conservation Commission. Notice of the public hearing will be published at least five business days in advance, in the Wayland Town Crier.

Notification provided pursuant to the above requirement does not automatically confer standing to the recipient to request Departmental Action for the underlying matter. See 310 CMR 10.05(7)(a)4.



**Town of Wayland**  
41 COCHITUATE ROAD  
WAYLAND MASSACHUSETTS 01778

[www.wayland.ma.us](http://www.wayland.ma.us) / [assessors@wayland.ma.us](mailto:assessors@wayland.ma.us) / 508-358-3788

**OFFICE STAFF**

Tamara Keith, Assistant Assessor  
Rob Leroux, MAA, Director of Assessing

**BOARD OF ASSESSORS**

Zachariah L. Ventress, Chair  
Philip Parks, Vice Chair  
Sharon Burke, Secretary  
Massimo Taurisano, Member  
Steven Klitgord, Member

**OFFICE OF THE ASSESSOR  
REQUEST FOR CERTIFIED LIST OF ABUTTERS**

**PLEASE NOTE**

PER MGL CHAPTER 66 SECTION 10,  
THE ASSESSOR'S OFFICE HAS 10 BUSINESS DAYS TO CERTIFY AN ABUTTER'S LIST.  
PLEASE PLAN ACCORDINGLY.

Date of Request: May 3, 2023

Address To Be Certified: 124 Cochituate Road Parcel ID (Map / Lot): 34 / 5

Owner's Name (Print): Roman Catholic Archbishop of Boston

Owner's Mailing Address: 66 Brooks Drive, Braintree, MA 02184

Applicant's Name: Planning Office for Urban Affairs, Inc.

Applicant's Telephone: 617-350-8885 Email: whg@poua.org

Applicant's Mailing Address: 84 State Street, Boston, MA 02129

Applicant's Signature: [Signature]

Reason for List (Check One)

- ☐ Liquor License Immediate abutters and also 500 feet from all borders for churches/hospitals/public & private schools
- ☐ Conservation (100') ☐ Health (\_\_\_\_) ☐ Planning (300') ☒ Zoning (300') ☐ Select Board (\_\_\_\_)
- ☐ Conservation (1,000') An Applicant proposing a linear-shaped project greater than 1,000 feet in length is required to provide notification only to abutters whose lot is within 1,000 feet from the project site.

\*\* Please check with the individual Board/Commission for their guidelines regarding the number of feet required for notification. Each Board/Commission has its own regulations and requirements for their abutter's list. The list(s) of abutters must be provided by the person or company requesting certification. Currently, a fee does not exist for abutter's certification.

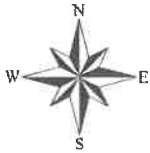
**ASSESSORS' USE ONLY**

The Board of Assessor's certifies that the names and addresses of the parties assessed as adjoining "Owners in Possession" (as opposed to Owners of record on January 1) to the requested parcel described on this form. "Owners in Possession" have been assessed on deeds dated through 31 MAR 2023

Certified By: [Signature] Date: 08 MAY 2023

CC:

- ☐ Liquor License ☐ Conservation (1,000')
- ☐ Conservation (100') ☐ Health (\_\_\_\_) ☐ Planning (300') ☒ Zoning (300') ☐ Select Board (\_\_\_\_)



# Wayland, MA

1 inch = 556 Feet



[www.cai-tech.com](http://www.cai-tech.com)

May 8, 2023



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# 300 foot Abutters List Report

Wayland, MA

May 08, 2023

## Subject Property:

Parcel Number: 34-005  
CAMA Number: 34-005  
Property Address: 124 COCHITUATE RD

Mailing Address: GOOD SHEPHERD PARISH  
99 MAIN ST  
WAYLAND, MA 01778

---

## Abutters:

Parcel Number: 29-005  
CAMA Number: 29-005  
Property Address: 103 COCHITUATE RD

Mailing Address: MARSHALL ROBERT TRUSTEE  
MUNSEY FAMILY TRUST  
69 WINN ST  
BURLINGTON, MA 01803

Parcel Number: 33-001G  
CAMA Number: 33-001G  
Property Address: 137 COCHITUATE RD

Mailing Address: MES-WAYLAND ASSISTED LIVING LLC  
850 PROVIDENCE HWY  
DEDHAM, MA 02060

Parcel Number: 33-001H  
CAMA Number: 33-001H  
Property Address: 137A COCHITUATE RD

Mailing Address: TOWN OF WAYLAND  
41 COCHITUATE ROAD  
WAYLAND, MA 01778

Parcel Number: 33-001L  
CAMA Number: 33-001L  
Property Address: 139 COCHITUATE RD

Mailing Address: GITTO CHRISTA U  
KEIL HANS CONRADT  
139 COCHITUATE RD  
WAYLAND, MA 01778

Parcel Number: 33-004B  
CAMA Number: 33-004B  
Property Address: 172 OLD CONNECTICUT PATH

Mailing Address: TOWN OF WAYLAND  
HIGHWAY DEPT  
MAIN STREET  
WAYLAND, MA 01778

Parcel Number: 33-005  
CAMA Number: 33-005  
Property Address: 163 COCHITUATE RD

Mailing Address: GARDNER ROBERT K  
GARDNER AUDRA J  
163 COCHITUATE RD  
WAYLAND, MA 01778

Parcel Number: 33-006  
CAMA Number: 33-006  
Property Address: 1 GREEN WAY

Mailing Address: GUPTA RAJIV  
GUPTA MARIA G  
1 GREEN WAY  
WAYLAND, MA 01778

Parcel Number: 33-007  
CAMA Number: 33-007  
Property Address: 3 GREEN WAY

Mailing Address: FRANK DAVID E  
PIZZI MARISSA L  
3 GREEN WAY  
WAYLAND, MA 01778

Parcel Number: 33-CM1  
CAMA Number: 33-023A  
Property Address: 6 GREEN WAY #101

Mailing Address: SALERNO CHARLES M  
SALERNO CARL R  
6 GREEN WAY, UNIT 101  
WAYLAND, MA 01778



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5/8/2023

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# 300 foot Abutters List Report

Wayland, MA  
May 08, 2023

Parcel Number: 33-CM1  
CAMA Number: 33-023B  
Property Address: 6 GREEN WAY #102

Mailing Address: RACHEL E GUTIERREZ  
VALDIVA RICHARD G  
6 GREEN WAY, UNIT 102  
WAYLAND, MA 01778

Parcel Number: 33-CM1  
CAMA Number: 33-023C  
Property Address: 6 GREEN WAY #103

Mailing Address: ROTHSCHILD WILLIAM  
6 GREEN WAY, UNIT 103  
WAYLAND, MA 01778

Parcel Number: 33-CM1  
CAMA Number: 33-023D  
Property Address: 6 GREEN WAY #104

Mailing Address: DEVOE CHARLOTTE  
6 GREEN WAY, UNIT 104  
WAYLAND, MA 01778

Parcel Number: 33-CM1  
CAMA Number: 33-023E  
Property Address: 6 GREEN WAY #105

Mailing Address: NORRIS MELVIN  
MELNOR REALTY TRUST  
6 GREEN WAY, UNIT 105  
WAYLAND, MA 01778

Parcel Number: 33-CM1  
CAMA Number: 33-023F  
Property Address: 6 GREEN WAY #106

Mailing Address: CRIBBEN THOMAS  
6 GREEN WAY, UNIT 106  
WAYLAND, MA 01778

Parcel Number: 33-CM1  
CAMA Number: 33-023G  
Property Address: 6 GREEN WAY #107

Mailing Address: HECKSCHER KATHERINE  
6 GREEN WAY, UNIT 107  
WAYLAND, MA 01778

Parcel Number: 33-CM1  
CAMA Number: 33-023H  
Property Address: 6 GREEN WAY #108

Mailing Address: POND KEVIN R  
POND JANET A  
6 GREEN WAY, UNIT 108  
WAYLAND, MA 01778

Parcel Number: 33-CM1  
CAMA Number: 33-023I  
Property Address: 6 GREEN WAY #201

Mailing Address: HALLORAN DONNA  
6 GREEN WAY, UNIT 201  
WAYLAND, MA 01778

Parcel Number: 33-CM1  
CAMA Number: 33-023J  
Property Address: 6 GREEN WAY #202

Mailing Address: BADER FRANK  
BADER NANCY  
6 GREEN WAY, UNIT 202  
WAYLAND, MA 01778

Parcel Number: 33-CM1  
CAMA Number: 33-023K  
Property Address: 6 GREEN WAY #203

Mailing Address: HUA QINGXIN  
JIA WENHUA  
6 GREEN WAY, UNIT 203  
WAYLAND, MA 01778

Parcel Number: 33-CM1  
CAMA Number: 33-023L  
Property Address: 6 GREEN WAY #204

Mailing Address: HOAGLUND ROBERT I  
HOAGLUND PAULINE A  
6 GREEN WAY, UNIT 204  
WAYLAND, MA 01778



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5/8/2023

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# 300 foot Abutters List Report

Wayland, MA

May 08, 2023

Parcel Number: 33-CM1  
CAMA Number: 33-023M  
Property Address: 6 GREEN WAY #205

Mailing Address: WASSERMAN MARION  
WASSERMAN ELIZABETH  
WASSERMAN JANE  
6 GREEN WAY, UNIT 205  
WAYLAND, MA 01778

Parcel Number: 33-CM1  
CAMA Number: 33-023N  
Property Address: 6 GREEN WAY #206

Mailing Address: RICHARD I HOYER FAMILY TRUST  
6 GREEN WAY, UNIT 206  
WAYLAND, MA 01778

Parcel Number: 33-CM1  
CAMA Number: 33-023O  
Property Address: 6 GREEN WAY #207

Mailing Address: ANTES MARY M  
11 OLD FARM CIRCLE  
WAYLAND, MA 01778

Parcel Number: 33-CM1  
CAMA Number: 33-023P  
Property Address: 6 GREEN WAY #208

Mailing Address: ALLEN SUZI TRUSTEE  
GREEN WAY NOMINEE TRUST  
6 GREEN WAY, UNIT 208  
WAYLAND, MA 01778

Parcel Number: 33-CM1  
CAMA Number: 33-023Q  
Property Address: 6 GREEN WAY #301

Mailing Address: TUNIK GALIA  
6 GREEN WAY, UNIT 301  
WAYLAND, MA 01778

Parcel Number: 33-CM1  
CAMA Number: 33-023R  
Property Address: 6 GREEN WAY #302

Mailing Address: MARKS WESLEY  
MARKS SHIRLEY  
6 GREEN WAY, UNIT 302  
WAYLAND, MA 01778

Parcel Number: 33-CM1  
CAMA Number: 33-023S  
Property Address: 6 GREEN WAY #303

Mailing Address: KONG SON CHIU  
6 GREEN WAY, UNIT 303  
WAYLAND, MA 01778

Parcel Number: 33-CM1  
CAMA Number: 33-023T  
Property Address: 6 GREEN WAY #304

Mailing Address: MAKARIOUS SHADIA  
6 GREEN WAY, UNIT 304  
WAYLAND, MA 01778

Parcel Number: 33-CM1  
CAMA Number: 33-023U  
Property Address: 6 GREEN WAY #305

Mailing Address: LADD PAUL F  
LADD JACQUELINE  
6 GREEN WAY, UNIT 305  
WAYLAND, MA 01778

Parcel Number: 33-CM1  
CAMA Number: 33-023V  
Property Address: 6 GREEN WAY #306

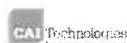
Mailing Address: BROWN LOUISE R  
6 GREEN WAY, UNIT 306  
WAYLAND, MA 01778

Parcel Number: 33-CM1  
CAMA Number: 33-023W  
Property Address: 6 GREEN WAY #307

Mailing Address: SUESS JENNIE-RAY M  
SARAH OLSON LIBERMAN  
17 HOPESTILL BROWN RD  
SUDBURY, MA 01776

Parcel Number: 33-CM1  
CAMA Number: 33-023X  
Property Address: 6 GREEN WAY #308

Mailing Address: GREGORIAN JOHN B  
GREGORIAN JUDITH T  
6 GREEN WAY, UNIT 308  
WAYLAND, MA 01778



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5/8/2023

Page 3 of 4



# 300 foot Abutters List Report

Wayland, MA  
May 08, 2023

Parcel Number: 34-004  
CAMA Number: 34-004  
Property Address: 124 COCHITUATE RD

Mailing Address: SAINT ANN'S CHURCH  
PARSONAGE  
124 COCHITUATE RD  
WAYLAND, MA 01778

Parcel Number: 34-042  
CAMA Number: 34-042  
Property Address: 163 OLD CONNECTICUT PATH

Mailing Address: QIAN CHANGGENG  
ZUO ZHENGFA  
163 OLD CONNECTICUT  
PATH WAYLAND, MA 01778

Parcel Number: 34-043  
CAMA Number: 34-043  
Property Address: 171 OLD CONNECTICUT PATH

Mailing Address: GITTEN MICHAEL S  
LEWIS CYNTHIA A  
171 OLD CONNECTICUT  
PATH WAYLAND, MA 01778



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5/8/2023

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Page 4 of 4

ALLEN SUZI  
GREEN WAY NOMINEE TRUST  
6 GREEN WAY, UNIT 208  
WAYLAND, MA 01778

GITTO CHRISTA U  
KEIL HANS CONRADT  
139 COCHITUATE RD  
WAYLAND, MA 01778

MARKS WESLEY  
MARKS SHIRLEY  
6 GREEN WAY, UNIT 302  
WAYLAND, MA 01778

ANTES MARY M  
11 OLD FARM CIRCLE  
WAYLAND, MA 01778

GREGORIAN JOHN B  
GREGORIAN JUDITH T  
6 GREEN WAY, UNIT 308  
WAYLAND, MA 01778

MARSHALL ROBERT  
MUNSEY FAMILY TRUST  
69 WINN ST  
BURLINGTON, MA 01803

BADER FRANK  
BADER NANCY  
6 GREEN WAY, UNIT 202  
WAYLAND, MA 01778

GUPTA RAJIV  
GUPTA MARIA G  
1 GREEN WAY  
WAYLAND, MA 01778

MES-WAYLAND ASSIST. LIVING  
850 PROVIDENCE HWY  
DEDHAM, MA 02060

BROWN LOUISE R  
LOUISE R BROWN REVOCABLE  
6 GREEN WAY, UNIT 306  
WAYLAND, MA 01778

HALLORAN DONNA  
6 GREEN WAY, UNIT 201  
WAYLAND, MA 01778

NORRIS MELVIN  
MELNOR REALTY TRUST  
6 GREEN WAY, UNIT 105  
WAYLAND, MA 01778

CRIBBEN THOMAS  
6 GREEN WAY, UNIT 106  
WAYLAND, MA 01778

HOAGLUND ROBERT I  
HOAGLUND PAULINE A  
6 GREEN WAY, UNIT 204  
WAYLAND, MA 01778

POND KEVIN R  
POND JANET  
6 GREEN WAY, UNIT 108  
WAYLAND, MA 01778

DEVOE CHARLOTTE  
6 GREEN WAY, UNIT 104  
WAYLAND, MA 01778

HECKSCHER KATHERINE D  
6 GREEN WAY, UNIT 107  
WAYLAND, MA 01778

QIAN CHANGGENG  
ZUO ZHENGFA  
163 OLD CONNECTICUT PATH  
WAYLAND, MA 01778

FRANK DAVID E  
PIZZI MARISSA L  
3 GREEN WAY  
WAYLAND, MA 01778

HUA QINGXIN  
JIA WENHUA  
6 GREEN WAY, UNIT 203  
WAYLAND, MA 01778

GUTIERREZ RACHEL E  
VALDIVA RICHARD G  
6 GREEN WAY, UNIT 102  
WAYLAND, MA 01778

GARDNER ROBERT K  
GARDNER AUDRA J  
163 COCHITUATE RD  
WAYLAND, MA 01778

KONG SON CHIU  
LING CHUN FU CHIU  
6 GREEN WAY, UNIT 303  
WAYLAND, MA 01778

RICHARD I HOYER  
6 GREEN WAY, UNIT 206  
WAYLAND, MA 01778

GITTEN MICHAEL S  
LEWIS CYNTHIA A  
171 OLD CONNECTICUT PATH  
WAYLAND, MA 01778

LADD PAUL F  
LADD JACQUELINE  
6 GREEN WAY, UNIT 305  
WAYLAND, MA 01778

ROTHSCHILD WILLIAM  
6 GREEN WAY, UNIT 103  
WAYLAND, MA 01778

MAKARIOUS SHADIA  
6 GREEN WAY, UNIT 304  
WAYLAND, MA 01778

SAINT ANN'S CHURCH  
PARSONAGE  
124 COCHITUATE RD  
WAYLAND, MA 01778



SALERNO CHARLES M  
SALERNO CARL R  
6 GREEN WAY, UNIT 101  
WAYLAND, MA 01778

SUESS JENNIE-RAY M  
SARAH OLSON LIBERMAN  
17 HOPESTILL BROWN RD  
SUDBURY, MA 01776

TOWN OF WAYLAND  
HIGHWAY DEPT  
MAIN STREET  
WAYLAND, MA 01778

TOWN OF WAYLAND  
41 COCHITUATE ROAD  
WAYLAND, MA 01778

TUNIK GALIA  
6 GREEN WAY, UNIT 301  
WAYLAND, MA 01778

WASSERMAN MARION  
WASSERMAN JANE  
WASSERMAN ELIZABETH  
6 GREEN WAY, UNIT 205  
WAYLAND, MA 01778



**Town of Wayland**  
41 COCHITUATE ROAD  
WAYLAND MASSACHUSETTS 01778

[www.wayland.ma.us](http://www.wayland.ma.us) / [assessors@wayland.ma.us](mailto:assessors@wayland.ma.us) / 508-358-3788

**OFFICE STAFF**

Tamara Keith, Assistant Assessor  
Rob Leroux, MAA, Director of Assessing

**BOARD OF ASSESSORS**

Zachariah L. Ventress, Chair  
Philip Parks, Vice Chair  
Sharon Burke, Secretary  
Massimo Taurisano, Member  
Steven Klitgord, Member

**OFFICE OF THE ASSESSOR  
REQUEST FOR CERTIFIED LIST OF ABUTTERS**

**PLEASE NOTE**

PER MGL CHAPTER 66 SECTION 10,  
THE ASSESSOR'S OFFICE HAS 10 BUSINESS DAYS TO CERTIFY AN ABUTTER'S LIST.  
PLEASE PLAN ACCORDINGLY.

Date of Request: May 3, 2023

Address To Be Certified: 124 Cochituate Road Parcel ID (Map / Lot): 34 / 4

Owner's Name (Print): Roman Catholic Archbishop of Boston

Owner's Mailing Address: 66 Brooks Drive, Braintree, MA 02184

Applicant's Name: Planning Office for Urban Affairs, Inc.

Applicant's Telephone: 617-350-8885 Email: whg@poua.org

Applicant's Mailing Address: 84 State Street, Boston, MA 02129

Applicant's Signature: [Signature]

Reason for List (Check One)

- ☐ Liquor License Immediate abutters and also 500 feet from all borders for churches/hospitals/public & private schools
- ☐ Conservation (100') ☐ Health (\_\_\_\_) ☐ Planning (300') ☒ Zoning (300') ☐ Select Board (\_\_\_\_)
- ☐ Conservation (1,000') An Applicant proposing a linear-shaped project greater than 1,000 feet in length is required to provide notification only to abutters whose lot is within 1,000 feet from the project site.

\*\* Please check with the individual Board/Commission for their guidelines regarding the number of feet required for notification. Each Board/Commission has its own regulations and requirements for their abutter's list. The list(s) of abutters must be provided by the person or company requesting certification. Currently, a fee does not exist for abutter's certification.

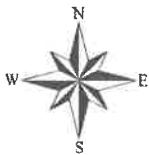
**ASSESSORS' USE ONLY**

The Board of Assessor's certifies that the names and addresses of the parties assessed as adjoining "Owners in Possession" (as opposed to Owners of record on January 1) to the requested parcel described on this form. "Owners in Possession" have been identified by deeds dated through 31 MAR 2023

Certified By: [Signature] Date: 08 MAY 2023

CC:

- ☐ Liquor License ☐ Conservation (1,000')
- ☐ Conservation (100') ☐ Health (\_\_\_\_) ☐ Planning (300') ☒ Zoning (300') ☐ Select Board (\_\_\_\_)



Wayland, MA

1 inch = 556 Feet



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May 8, 2023



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# 300 foot Abutters List Report

Wayland, MA  
May 08, 2023

## Subject Property:

Parcel Number: 34-004  
CAMA Number: 34-004  
Property Address: 124 COCHITUATE RD

Mailing Address: SAINT ANN'S CHURCH PARSONAGE  
124 COCHITUATE RD  
WAYLAND, MA 01778

---

## Abutters:

Parcel Number: 29-005  
CAMA Number: 29-005  
Property Address: 103 COCHITUATE RD

Mailing Address: MARSHALL ROBERT TRUSTEE  
MUNSEY FAMILY TRUST  
69 WINN ST  
BURLINGTON, MA 01803

Parcel Number: 33-005  
CAMA Number: 33-005  
Property Address: 163 COCHITUATE RD

Mailing Address: GARDNER ROBERT K  
GARDNER AUDRA J  
163 COCHITUATE RD  
WAYLAND, MA 01778

Parcel Number: 33-006  
CAMA Number: 33-006  
Property Address: 1 GREEN WAY

Mailing Address: GUPTA RAJIV  
GUPTA MARIA G  
1 GREEN WAY  
WAYLAND, MA 01778

Parcel Number: 33-007  
CAMA Number: 33-007  
Property Address: 3 GREEN WAY

Mailing Address: FRANK DAVID E  
PIZZI MARISSA L  
3 GREEN WAY  
WAYLAND, MA 01778

Parcel Number: 34-002  
CAMA Number: 34-002  
Property Address: 4 WINDY HILL LN

Mailing Address: NOWLAND QUENTIN & JAYME  
LYNCH MICHAEL W & KELLEIGH M  
4 WINDY HILL LN  
WAYLAND, MA 01778

Parcel Number: 34-002A  
CAMA Number: 34-002A  
Property Address: 2 WINDY HILL LN

Mailing Address: SHAMOIAN DAVID V  
SHAMOIAN ANDREA S  
2 WINDY HILL LN  
WAYLAND, MA 01778

Parcel Number: 34-002B  
CAMA Number: 34-002B  
Property Address: 7 WINDY HILL LN

Mailing Address: SUDBURY VALLEY TRUSTEES, INC.  
18 WOLBACH RD  
SUDBURY, MA 01776

Parcel Number: 34-002C  
CAMA Number: 34-002C  
Property Address: 7A WINDY HILL LN

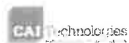
Mailing Address: SUDBURY VALLEY TRUSTEES INC  
18 WOLBACH RD  
SUDBURY, MA 01776

Parcel Number: 34-003  
CAMA Number: 34-003  
Property Address: 1 WINDY HILL LN

Mailing Address: RUTLEDGE JOHN L  
RUTLEDGE BARBARA C  
1 WINDY HILL LN  
WAYLAND, MA 01778

Parcel Number: 34-003A  
CAMA Number: 34-003A  
Property Address: 3 WINDY HILL LN

Mailing Address: MEADOR C LAWRENCE  
MEADOR DIANE  
3 WINDY HILL LANE  
WAYLAND, MA 01778



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5/8/2023

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Page 1 of 2



# 300 foot Abutters List Report

Wayland, MA

May 08, 2023

Parcel Number: 34-005  
CAMA Number: 34-005  
Property Address: 124 COCHITUATE RD

Mailing Address: GOOD SHEPHERD PARISH  
99 MAIN ST  
WAYLAND, MA 01778

Parcel Number: 34-006  
CAMA Number: 34-006  
Property Address: 140 OLD CONNECTICUT PATH

Mailing Address: NANFELDT ELIZABETH A  
140 OLD CONNECTICUT PATH  
WAYLAND, MA 01778

Parcel Number: 34-006A  
CAMA Number: 34-006A  
Property Address: 134 OLD CONNECTICUT PATH

Mailing Address: XIANMING ZHOU  
YIFAN ZHANG  
134 OLD CONNECTICUT  
PATH WAYLAND, MA 01778

Parcel Number: 34-028  
CAMA Number: 34-028  
Property Address: 143 OLD CONNECTICUT PATH

Mailing Address: SUDBURY VALLEY TRUSTEES INC  
18 WOLBACH RD  
SUDBURY, MA 01776

Parcel Number: 34-029  
CAMA Number: 34-029  
Property Address: 147 OLD CONNECTICUT PATH

Mailing Address: TAUNTON-RIGBY JASON  
TAUNTON-RIGBY KATHLEEN  
147 OLD CONNECTICUT  
PATH WAYLAND, MA 01778

Parcel Number: 34-030  
CAMA Number: 34-030  
Property Address: 153 OLD CONNECTICUT PATH

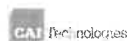
Mailing Address: DOWD JOHN G  
WHITE JULIA F  
153 OLD CONNECTICUT PATH  
WAYLAND, MA 01778

Parcel Number: 34-041A  
CAMA Number: 34-041A  
Property Address: 7 SHAW DR

Mailing Address: YARBROUGH CHASE GARRETT  
YARBROUGH AMANDA  
7 SHAW DR  
WAYLAND, MA 01778

Parcel Number: 34-042  
CAMA Number: 34-042  
Property Address: 163 OLD CONNECTICUT PATH

Mailing Address: QIAN CHANGGENG  
ZUO ZHENGFA  
163 OLD CONNECTICUT  
PATH WAYLAND, MA 01778



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5/8/2023

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DOWD JOHN G  
WHITE JULIA F  
153 OLD CONNECTICUT PATH  
WAYLAND, MA 01778

RUTLEDGE JOHN L  
RUTLEDGE BARBARA C  
1 WINDY HILL LN  
WAYLAND, MA 01778

FRANK DAVID E  
PIZZI MARISSA L  
3 GREEN WAY  
WAYLAND, MA 01778

SHAMOIAN DAVID V  
SHAMOIAN ANDREA S  
2 WINDY HILL LN  
WAYLAND, MA 01778

GARDNER ROBERT K  
GARDNER AUDRA J  
163 COCHITUATE RD  
WAYLAND, MA 01778

SUDBURY VALLEY TRUSTEES  
18 WOLBACH RD  
SUDBURY, MA 01776

GOOD SHEPHERD PARISH  
99 MAIN ST  
WAYLAND, MA 01778

TAUNTON-RIGBY JASON  
TAUNTON-RIGBY KATHLEEN T  
147 OLD CONNECTICUT PATH  
WAYLAND, MA 01778

GUPTA RAJIV  
GUPTA MARIA G T/E  
1 GREEN WAY  
WAYLAND, MA 01778

XIANMING ZHOU  
YIFAN ZHANG  
134 OLD CONNECTICUT PATH  
WAYLAND, MA 01778

MARSHALL ROBERT  
MUNSEY FAMILY TRUST  
69 WINN ST  
BURLINGTON, MA 01803

YARBROUGH CHASE GARRETT  
YARBROUGH AMANDA  
7 SHAW DR  
WAYLAND, MA 01778

MEADOR C LAWRENCE  
MEADOR DIANE  
3 WINDY HILL LANE  
WAYLAND, MA 01778

NANFELDT ELIZABETH A  
140 OLD CONNECTICUT PATH  
WAYLAND, MA 01778

NOWLAND QUENTIN  
LYNCH MICHAEL W  
4 WINDY HILL LN  
WAYLAND, MA 01778

QIAN CHANGGENG  
ZUO ZHENGFA  
163 OLD CONNECTICUT PATH  
WAYLAND, MA 01778

**APPENDIX 2:**  
**BOH RECEIPT OF APPLICATION**





**Samiotes Consultants, Inc.**

20 A Street  
Framingham, MA 01701  
T 508.877.6688  
F 508.877.8349  
www.samiotes.com

Civil Engineering + Land Surveying

Town of Wayland.  
Petty. 508 358 3617.  
**samiotes**

## Transmittal

Project Name: St. Ann's Village / Wayland, MA SCI File # 50006.00  
Attention: Board of Health, Wayland, MA Date: 10/12/2023  
Company: Board of Health, Wayland, MA  
Address: 41 Cochituate Road,  
City, State, Zip: Wayland, MA 01778

Copies	Date	Drwg No.	Description
5	28 September, 2023		Subsurface Sewage Disposal- Dosing Design Calculations
5	05 October, 2023	C-2.1, C-4.1, C-3.2	Subsurface Sewage Disposal <b>Stamped Plan Set</b>

**Transmittal of**

- ☐ Drawings  
☐ Specifications  
☐ Documents  
☒ Plan(s)


**We are sending**

- ☒ Enclosed  
☐ Under separate cover  
☐ Via \_\_\_\_\_  
☐ \_\_\_\_\_

**These are transmitted as indicated**

- ☐ Accepted  
☐ Accepted as Noted  
☐ Revise and Resubmit  
☐ For Recording  
☒ For Your Approval  
☐ For Construction  
☐ For Your Information  
☐ For your review

Remarks:

Received by 

Wayland Board Of Health  
41 Cochituate Road  
Wayland, MA 01778

Prepared By: Stephen Garvin, PE, LEED AP

T 508 877-6688 ext 13  
F 508 877-8349

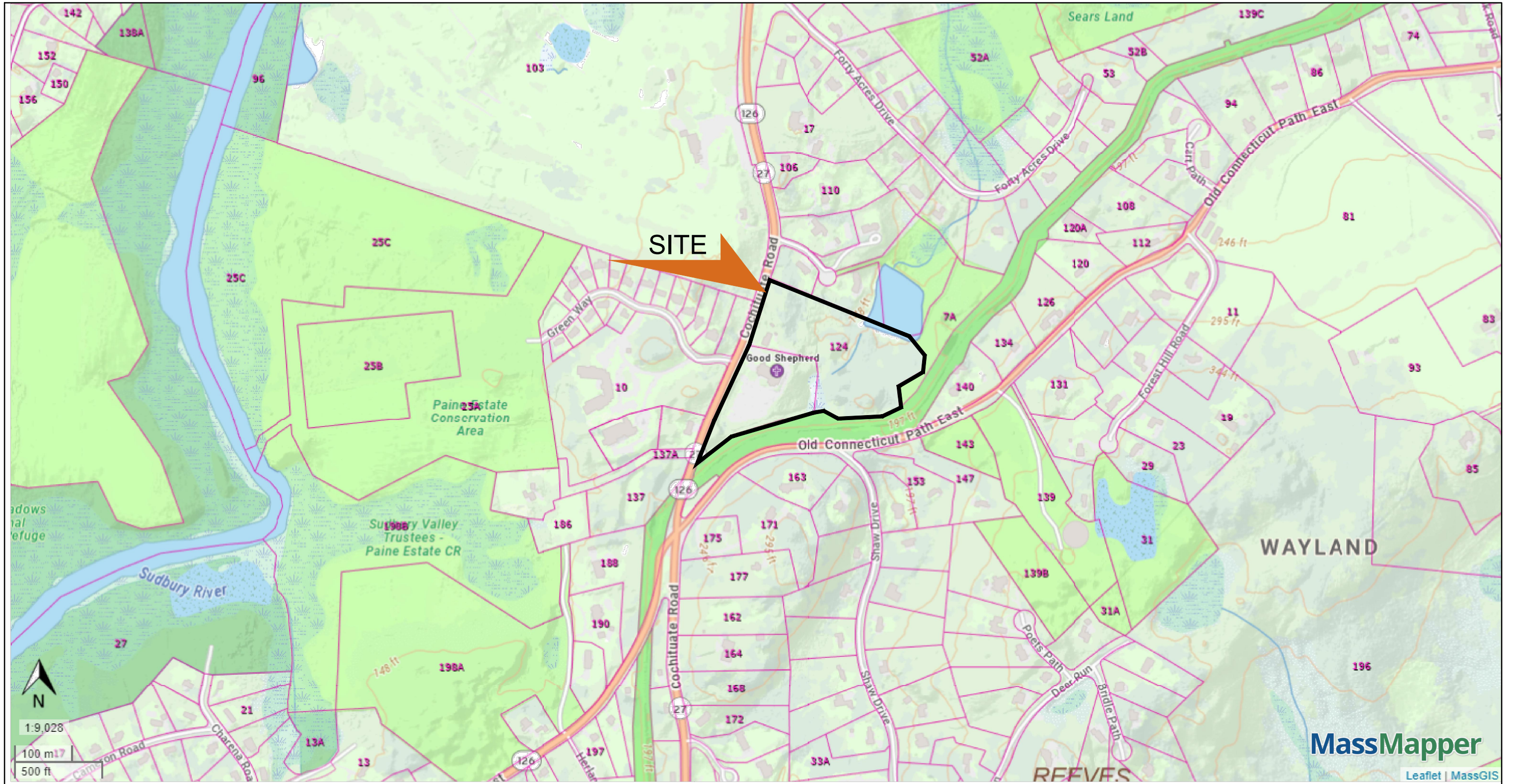


## **APPENDIX 3:**

### **SKETCHES AND FIGURES**







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Sketch No.
<b>SKCE-001</b>
Reference Drawing
-

Job #:	50006.00
Drawn by:	KAH
Scale:	NTS
Date:	03/07/23

Project:	SAINT ANN'S VILLAGE
Title:	REGIONAL CONTEXT MAP

Samiotes Consultants Inc.  
Civil Engineers + Land Surveyors  
20 A Street  
Framingham, MA 01701  
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F 508.877.8349  
www.samiotes.com



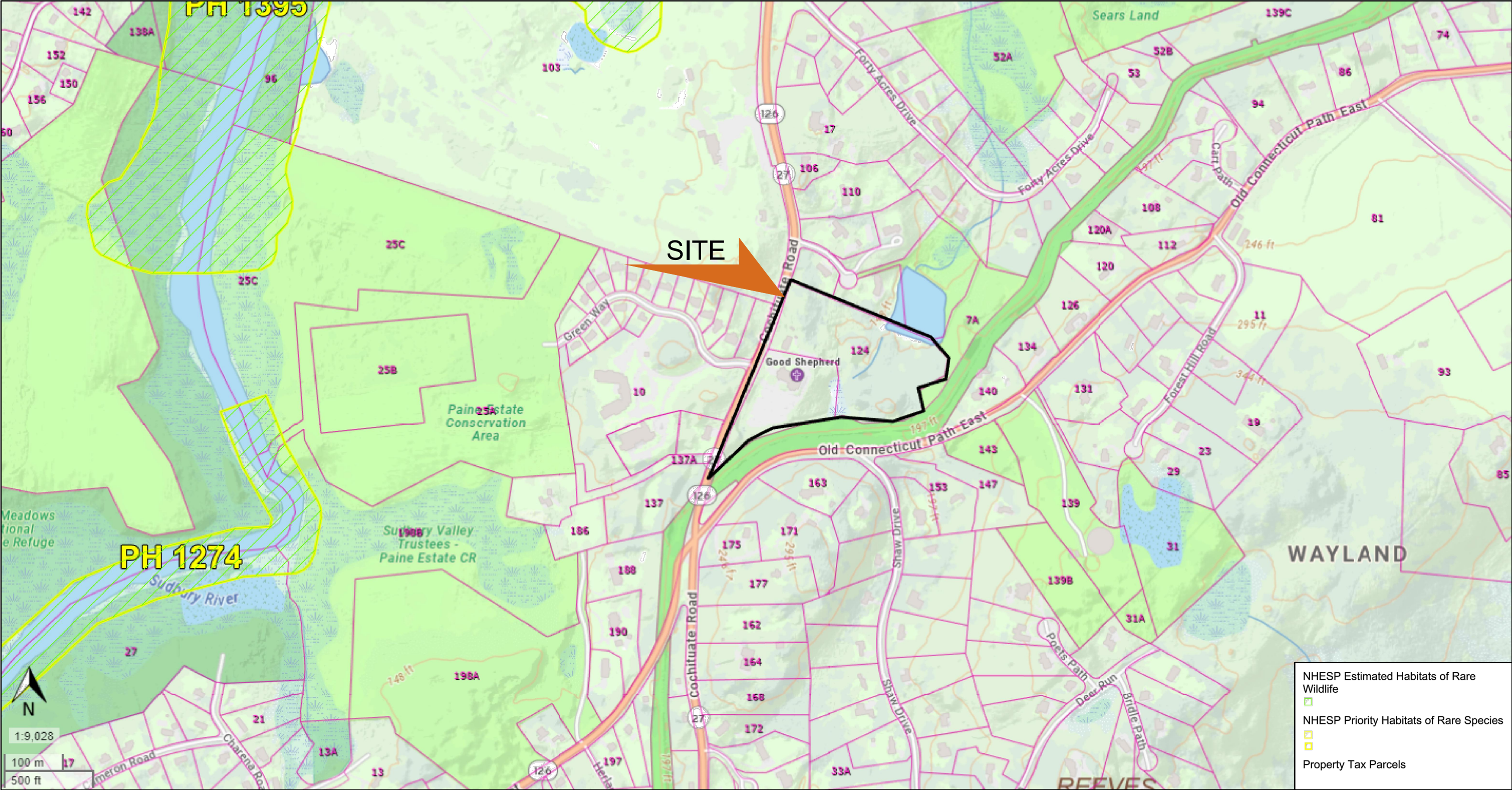












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Sketch No.  
**SKCE-004**

Reference Drawing  
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Job #:	50006.00
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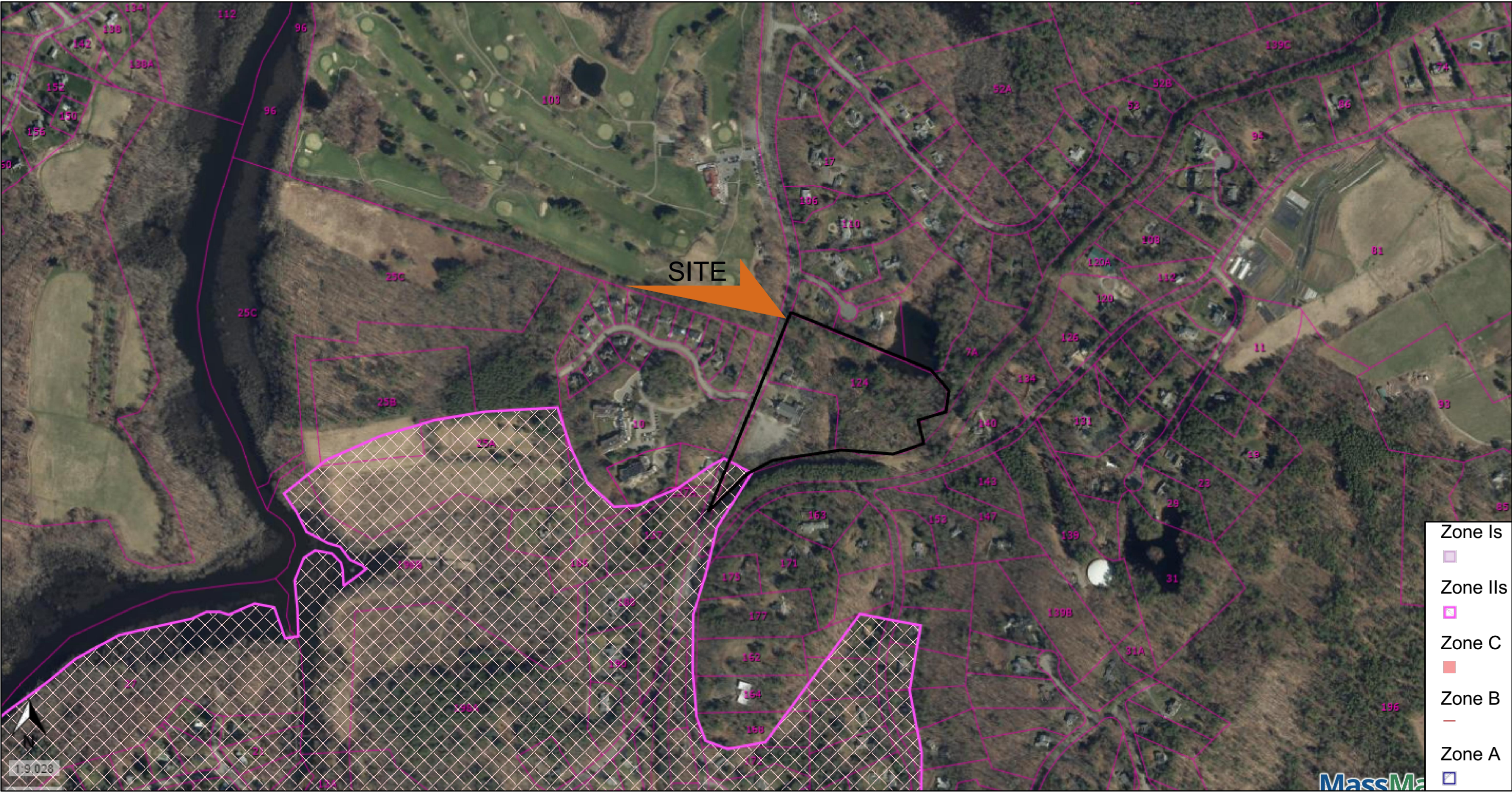
Project: SAINT ANN'S VILLAGE

Title: NHESP

Samiotes Consultants Inc.  
Civil Engineers + Land Surveyors  
  
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F 508.877.8349  
www.samiotes.com







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Sketch No.  
**SKCE-005**

Reference Drawing  
-

Job #: 50006.00

Drawn by: KAH

Scale: NTS

Date: 03/07/23

Project: SAINT ANN'S VILLAGE

Title: ZONE A, ZONE B, ZONE C  
ZONE Is, ZONE IIs

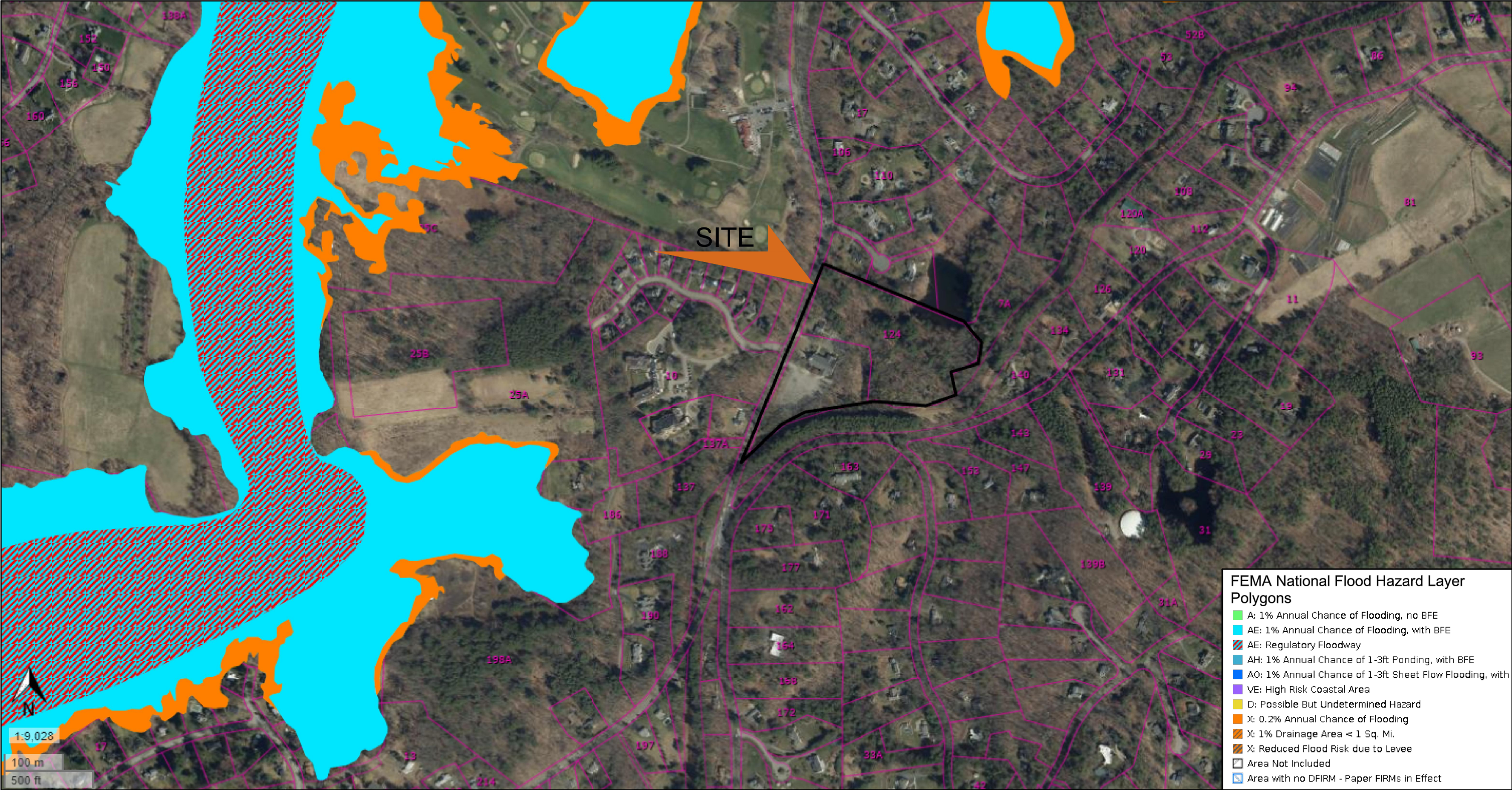
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Civil Engineers + Land Surveyors

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Framingham, MA 01701

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F 508.877.8349  
www.samiotes.com







Sketch No.  
**SKCE-006**

Reference Drawing  
-

Job #: 50006.00

Drawn by: KAH

Scale: NTS

Date: 03/07/23

Project: SAINT ANN'S VILLAGE

Title: FEMA FLOOD MAP  
FIRM PANEL 25017C0526F

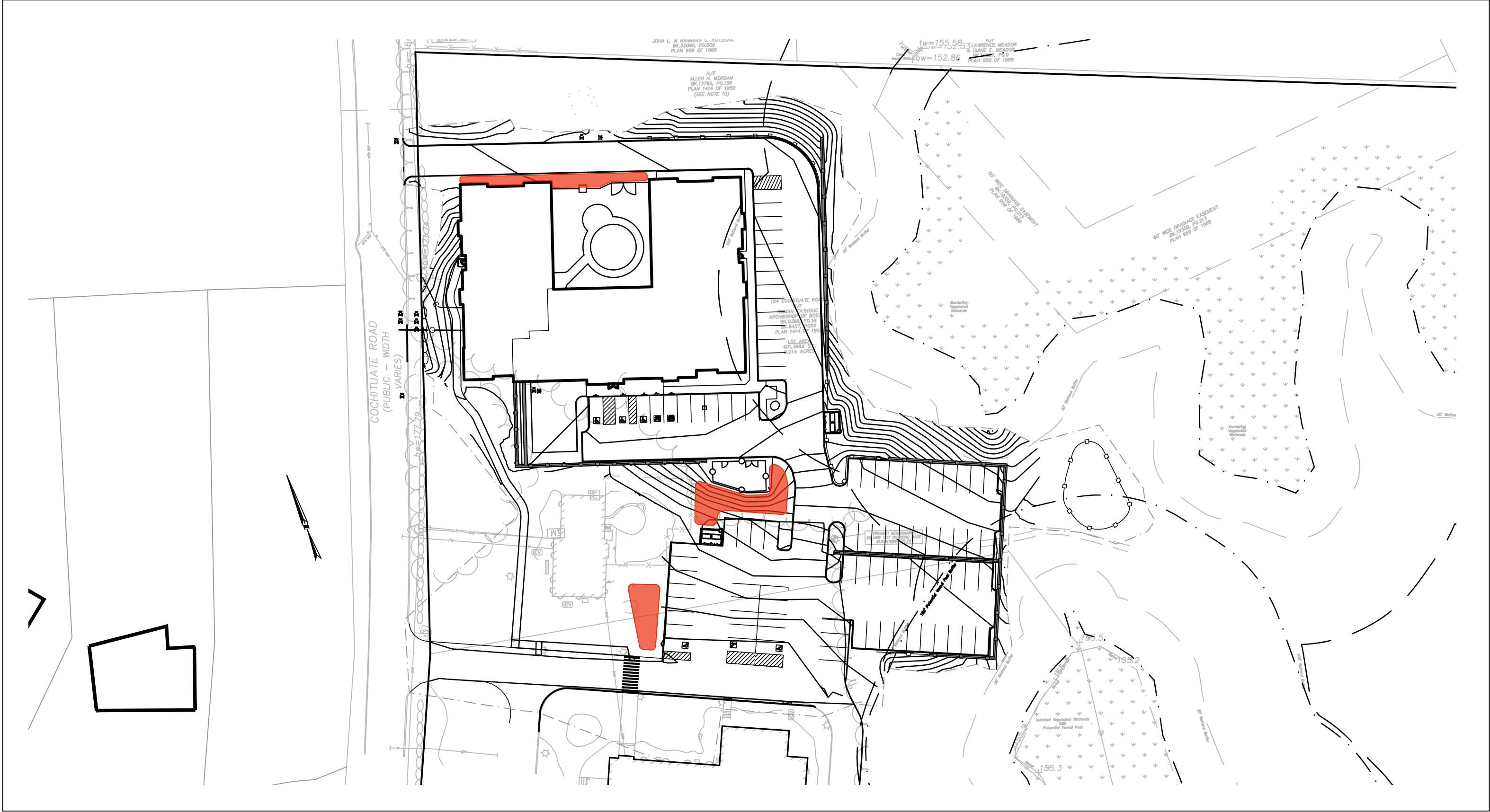
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Civil Engineers + Land Surveyors

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Framingham, MA 01701

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LEGEND:

SNOW STORAGE AREAS

Sketch No.  
SKCE-08

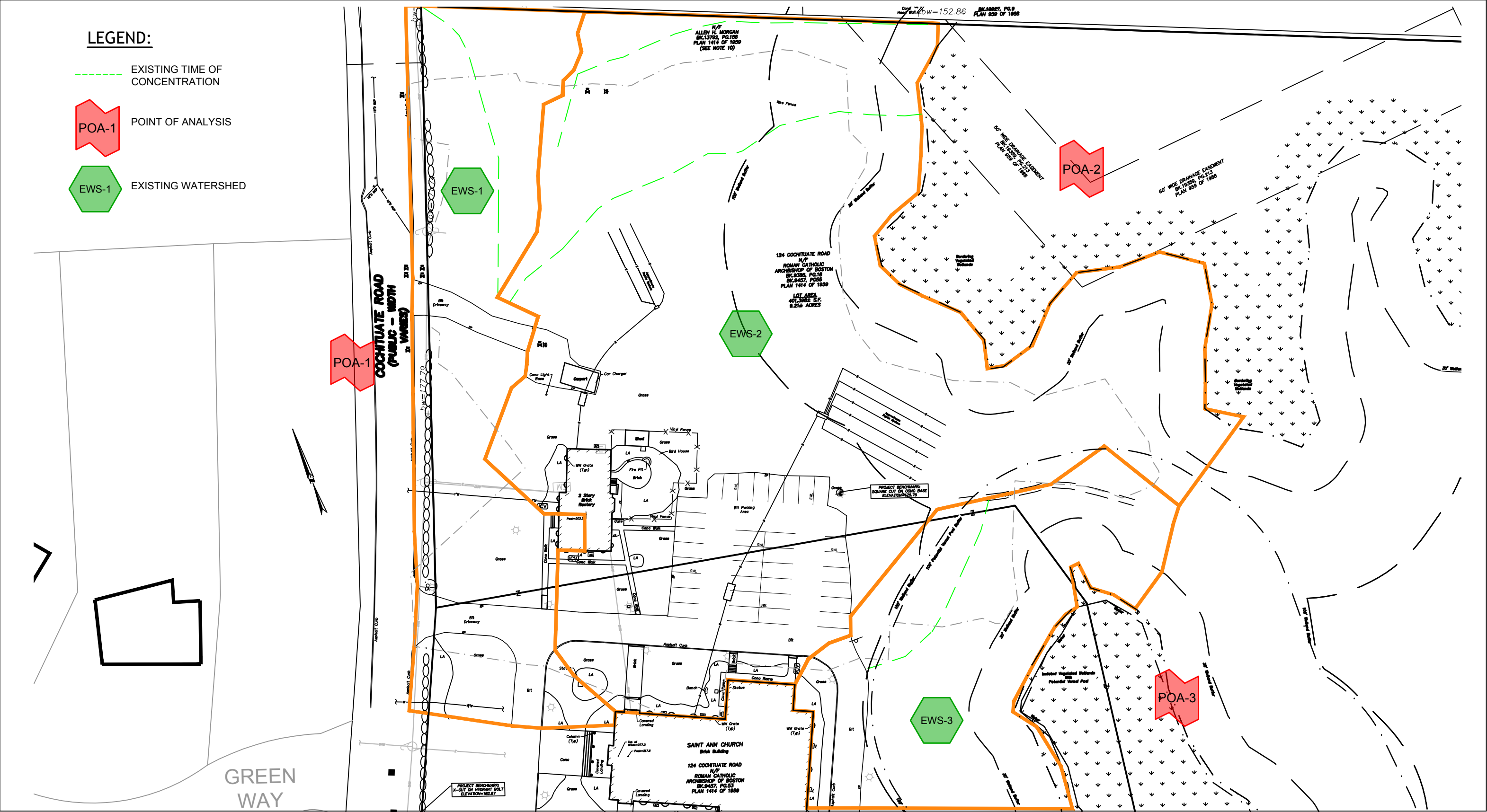
Reference Drawing  
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Job #: 50006.00  
Drawn by: GJM  
Scale: 1"=60'  
Date: 10/25/23

Project: ST. ANN'S VILLAGE  
Title: SNOW STORAGE PLAN

Samiotes Consultants Inc.  
Civil Engineers + Land Surveyors  
20 A Street  
Framingham, MA 01701  
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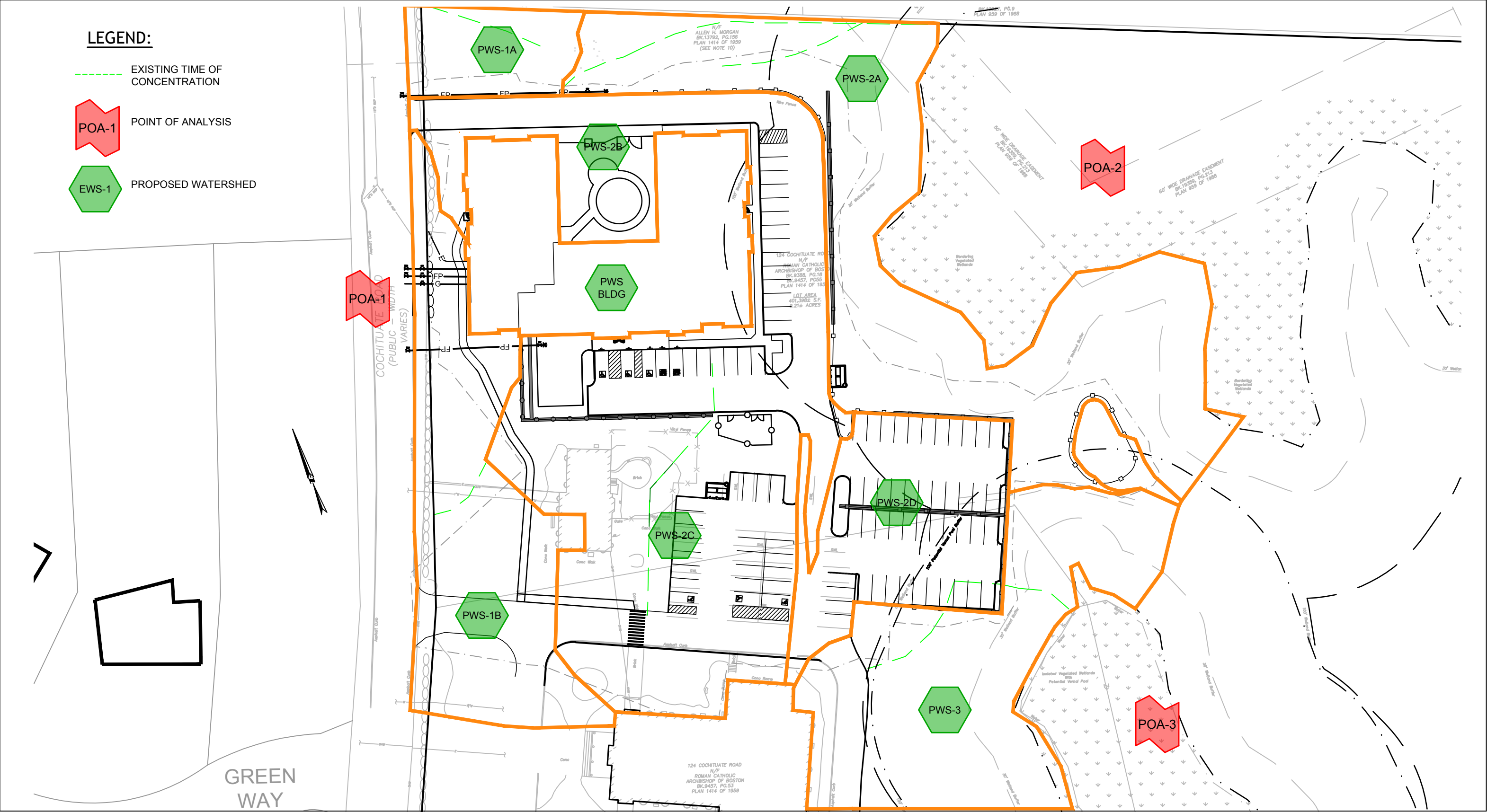
Sketch No.
SKCE-09
Reference Drawing
-

Job #:	50006.00
Drawn by:	GJM
Scale:	1"=60'
Date:	10/25/23

Project:	ST. ANN'S VILLAGE
Title:	EXISTING WATERSHED

Samiotes Consultants Inc.  
Civil Engineers + Land Surveyors  
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Sketch No.	SKCE-10
Reference Drawing	-

Job #:	50006.00
Drawn by:	GJM
Scale:	1"=60'
Date:	10/25/23

Project:	ST. ANN'S VILLAGE
Title:	PROPOSED WATERSHED

Samiotes Consultants Inc.  
Civil Engineers + Land Surveyors  
  
20 A Street  
Framingham, MA 01701  
  
T 508.877.6688  
F 508.877.8349  
www.samiotes.com





**APPENDIX 4:**  
**OPERATION AND MAINTENANCE PLAN**





**ST. ANN'S VILLAGE SENIOR HOUSING  
CONSTRUCTION PERIOD POLLUTION PREVENTION PLAN AND EROSION CONTROL  
OPERATION AND MAINTENANCE PLAN  
OCTOBER 2023**

**During The Construction Period the General Contractor shall be responsible for the following:**

**1. Erosion Control**

Erosion control barriers will be placed along down-gradient portion of the site as indicated on the project plans. Additional erosion control barriers will be placed at the limit of work and surrounding temporary soil stockpiles as needed, and in any sensitive areas as work progresses. Wattles shall be inspected for depth of sediment, tears, to check that the fabric is securely fastened to the fence posts, and to inspect that the fence posts are firmly set in the ground.

A stockpile of additional erosion control barriers shall be kept on site at all times.

**2. Site Access**

Site access, for construction equipment will be via a new construction entrance which will be installed at the onset of the project by the general contractor per construction entrance detail on Civil Details sheet C-5.1.

**3. Construction Staging**

A construction staging area will be established on the existing site by the contractor. All construction materials, supplies, trailers and offices, portable toilets, and equipment shall be stored within the limits of the staging area. All temporary stockpiles will be surrounded with straw wattles and silt fencing, as required to prevent erosion damages. The construction staging area will be established outside of the 100' wetland buffer zone.

**4. Site Grading/Site Work**

The site activities may only commence when the site is stable from erosion and all required control measures are in place and functional.

**5. Slope Stabilization**

All surfaces and slopes shall be checked after each major storm event and at *least once every (7 calendar days or once every 14 calendar days and within 24 hours of the occurrence of a storm event 0.25 inches or greater)* to see that vegetation is in good condition. Any rills or damage from erosion shall be repaired immediately to avoid further damage. If seeps develop on the slopes, the area will be evaluated to determine if the seep will cause an unstable condition and shall be stabilized immediately if necessary. Problems found during the inspections by the General Contractor shall be repaired promptly. Areas requiring re-vegetation shall be replanted immediately or stabilized in a manner acceptable to the Conservation Commission if it is outside of the growing season. Slopes and other exposed surfaces receiving vegetation will be maintained as necessary to support healthy vegetation. If stabilization is required during the non-growing season, straw mulch, or a commercially manufactured blanket must be employed to prevent erosion.

## **6. Permanent Stabilization**

Disturbed portions of the site where construction activities permanently cease shall be stabilized with permanent seed no later than 14 days after the last construction activity. The permanent seed mix, fertilizer, and mulch shall be specified on the project plans. Permanent seeding shall occur in the Spring or Fall.

## **7. Drainage Structures (Area Drains, Catch Basins (CB), Drain Manholes (DMH), Drywells, and Water Quality Units (WQU))**

All structures shall be inspected on a bi-weekly basis and/or after every rain storm and repairs made as necessary. Sediment shall be removed from the sump after the sediment has reached a maximum of one half the depth of the sump. The sediment shall be removed from the site and properly disposed of. Drainage structures/sumps shall be cleaned completely at the end of construction. See attached manufacture requirements for infiltration structures and WQU Operation & Maintenance.

## **8. Dust and Sediment Control**

### **Siltsacks:**

Catch basin / area drain filters shall be placed at all inlets to drainage structures as structures are installed and prior to pavement removal. Outlet protection work shall be constructed before runoff is allowed to enter the drainage system. Construction and location of catch basin filters shall be as indicated on the Drawings.

### **Straw Wattles and Silt Fence:**

Straw wattles and silt fence shall be installed as indicated on the Drawings.

Wattles shall be placed in a row with ends tightly abutting the adjacent wattles. Each wattle shall be securely anchored in place by 2 stakes or re-bars driven through the wattles. The first stake in each wattle shall be angled toward the previously laid wattle to force the wattles together.

Silt fence shall be installed with a 6 in. by 6 in. trench on the contour with 6 ft. extending up slope at the ends to prevent silt laden runoff from escaping. Set the posts to the depth specified on the Drawings. The fabric shall be attached to the posts on the upstream side and shall extend 2 ft. above the normal water level and at least 10 in. shall extend horizontally along the soil at the bottom. Soil shall be backfilled over the bottom 10 in. of the fabric around the inside of the trench.

### **Construction Entrance:**

The area of the construction entrance should be cleared of all vegetation, roots, and other objectionable material. The filter fabric should be placed on the subgrade prior to the gravel placement. The gravel shall be placed to the specified dimensions depicted on the plans.

The Construction entrance shall be a minimum of 50-feet in length and 20-feet wide, unless otherwise stated on drawings.

### **Dust Control:**

The Contractor shall employ dust control methods and materials at all times using sprinkled water or other approved means. A mechanical street sweeper shall be utilized to clean the existing paved areas on an as-needed basis.

For emergency control of dust apply water to affected areas. The source of supply and the method of application for water are the responsibility of the contractor.

## **9. Allowable Non-Stormwater Discharges**

No illicit discharge allowed per Stormwater Management Policy requirement #8.

Type of Allowable Non-Stormwater Discharge:

- Discharges from emergency fire-fighting activities
- Fire hydrant flushings
- Landscape irrigation
- Waters used to wash vehicles and equipment
- Water used to control dust
- Potable water including uncontaminated water line flushings
- Routine external building wash down
- Pavement wash waters
- Uncontaminated air conditioning or compressor condensate
- Uncontaminated, non-turbid discharges of ground water or spring water
- Foundation or footing drains
- Construction dewatering water

## **Pollution Prevention Measures**

1. Before, during, and after construction, functional erosion and sedimentation controls shall be implemented to prevent the silting of the wetland areas down-gradient of the site. Straw wattles, crushed stone, temporary stabilization and other controls shall be properly maintained and are not to be removed until the site is permanently stabilized. Other controls shall be added as warranted during construction to protect environmentally-sensitive areas. Sufficient extra materials (e.g. straw wattles, silt fencing and other control materials) shall be stored on site for emergencies.
2. Silt sacks and straw wattle check dams shall be installed at all existing and proposed infiltration areas to protect from soils and sediment.
3. Casting of excavated materials shall be stored away from wetland areas and sensitive land areas.
4. Any stockpiling of loose materials shall be properly stabilized to prevent erosion and siltation. Preventative controls such as straw wattles, temporary seeding/mulching and jute covering shall be implemented to prevent such an occurrence.
5. There shall be no flooding, ponding, or flood related damage caused by the project or surface run-off emanating from the project on lands of an abutter, nearby or down-gradient of the site.
6. There shall be no contaminant migration caused by the project to nearby and down-gradient properties, nearby aquifers, and nearby resource areas.
7. The contractor shall make sufficient provisions to control any unexpected drainage and erosion conditions that may arise during construction that may create damage on abutting properties. Said control measures are to be implemented at once.
8. During construction flood prevention, erosion, and sedimentation controls shall be in place before the natural ground cover is disturbed. Said controls shall be in place prior to other construction work and shall be monitored and approved by the Contractor. They shall be properly maintained and are not to be removed until the site is stabilized.

9. The Contractor shall designate a person or persons to inspect and supervise the erosion controls for the project. The Conservation Commission shall be notified as to the means to contact said individual or individuals on a 24-hour basis on all working and non-working days of the project. Said means of contact shall include at least 2 separate telephone number of said designated person or persons.
10. There shall be periodic inspection of straw wattles, and other erosion controls by the Contractor's Designee to assure their continued effectiveness.
11. The Contractor shall make adequate provisions for controlling erosion and sediment from activities that might yield water at high volumes with high suspended solid contents, such as dewatering excavations.
12. Street sweeping shall be used to keep public ways free and clear of sediment and dirt from the site activities.

### **Other Control Measures**

**Waste Materials.** All trash and construction debris from the site will be hauled to an approved landfill or recycling facility. No construction waste material will be buried on the site. All personnel will receive instructions regarding the correct procedure for waste disposal. Notices describing these practices will be posted in the construction office. The site superintendent will be responsible for seeing that these procedures are followed. Employee waste and other loose materials will be collected so as to prevent the release of floatables during rainfall events.

**Hazardous Waste.** No Hazardous materials are expected to be encountered. The mandated State and Local permits for removal of such materials, if located, will be implemented when such materials are encountered.

### **After Construction Planning Office of Urban Affairs (the Owner) shall be responsible for the following:**

#### **General Land Grading and Slopes Stabilization**

All surfaces and slopes shall be checked bi-annually to see that vegetation is in good condition. Any rills or damage from erosion shall be repaired immediately to avoid further damage. If seeps develop on the slopes, the area will be evaluated to determine if the seep will cause an unstable condition and shall be stabilized immediately if necessary. Problems found during the inspections by the Owner shall be repaired promptly. Areas requiring re-vegetation shall be replanted immediately. Slopes and other exposed surfaces receiving vegetation will be maintained as necessary to support healthy vegetation.

Areas of steep slope (2.5:1 or greater) shall be stabilized using jute mesh or a similar approved erosion blanket.

#### **Erosion Controls**

Erosion controls shall not be removed or dismantled without approval from the Engineer. Sediment deposits that are removed or left in place after the barriers have been dismantled shall be graded manually to conform to the existing topography and vegetated using seeding or other long-term cover as approved in the Landscape Plan. Bare ground that cannot be permanently stabilized within 30 days shall be stabilized by temporary measures.

### **Street Sweeping**

It is proposed that the parking and drive areas be swept with a wet brush street sweeper on a semi-annual basis, with at least two sweepings per year. One sweep shall be done at the end of the winter season (prior to the heavy rains), and the other sweep at the end of autumn (prior to snowfall).

### **Stormwater Management System**

#### **Area Drains, Catch Basins, Drain Manholes, Drywells:**

All area drains, catch basins, drain manholes, and drywells shall be inspected annually, and cleaned out when sumps are approximately one foot full. The use of "clam shells" for sediment removal shall not be allowed; a vacuum truck shall be the approved method of cleaning. Integrity and functionality of oil hoods shall also be checked at the time of the inspection.

#### **Infiltration Systems:**

The infiltration systems' inlets and outlets should be inspected twice a year, in spring and fall. Any clogs, debris, or sedimentation should be cleared as required to ensure the inlets and outlets are flowing freely.

#### *Isolator Row:*

The Isolator Rows should be inspected every 6 months for the first year of service. For subsequent years, the inspections can be adjusted based upon previous inspection observations. However, the isolator rows should be inspected at a minimum of once annually.

Inspection of the isolator rows can be achieved via inspection port riser installed during construction. This inspection port riser will connect the top of the isolator row chambers to finished grade with a removable lid. For more information on the inspection ports & isolator row maintenance, see below.

#### *Inspection Ports:*

These perforated columns are designed to give the user a base-line sediment depth across the system floor. After inspecting the bottom of the structure, use a mirror on a pole (or some other device) to check for sediment or debris in the pipe connecting to the Infiltration Chambers.

If sediment or debris is observed in any of these structures, you should determine the depth of the material. This is typically accomplished with a stadia rod, but you should determine the best way to obtain the measurement. All observations and measurements should be recorded on an Inspection Log kept on file.

The Infiltration-Chambers System should be back-flushed once sediment accumulation exceeds 3 inches in depth.

If sediment accumulation reaches 3 inches in depth:

Before any maintenance is performed on your system, be sure to plug the outlet pipe to prevent contamination of the adjacent systems. To back-flush the Infiltration Chambers, water is pumped into the system through the Maintenance Ports as rapidly as possible. Water should be pumped into ALL Maintenance Ports. The turbulent action of the water moving through the Infiltration Chamber(s) will suspend sediments which may then be pumped out. If your system includes an Outlet Structure, this will be the ideal location to pump contaminated water out of the system. However, removal of back-flush water may be accomplished through the Maintenance Ports, as well. For systems with large footprints that would require extensive volumes of water to properly flush the system, you should consider performing your maintenance within 24 hours of a rain event. Stormwater entering the system will aid in the suspension of sediments and reduce the volume of water required to properly flush the system.

**Water Quality Unit (WQU):**

Water Quality Unit shall be as follows per manufacturer's recommendations:

- Units should be inspected post-construction, prior to being put into service.
- Inspect every six months for the first year of operation to determine the oil and sediment accumulation rate. In subsequent years, inspections can be based on first-year observations
- Cleaning is required once the sediment depth reaches 15% of storage capacity, (generally taking one year or longer).
- Inspect the unit immediately after an oil, fuel or chemical spill.
- A licensed waste management company should remove captured petroleum waste products from any oil, chemical or fuel spills and dispose responsibly

INSPECTION REPORT FORM FOR STORM WATER SYSTEM
-----------------------------------------------

**Project: St. Ann's Village - Wayland, MA**  
124 Cochituate Road, Wayland, MA, 01778

**INSPECTOR:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**Regular Inspection:** ☐

**Inspection after Rainfall:** ☐ **Amount of Rainfall:** \_\_\_\_\_ inches

BMP	Functioning Correctly	Notes/Action Taken
	Y/N	
	Y/N	
	Y/N	
	Y/N	
	Y/N	
	Y/N	
	Y/N	

**Additional Observations:** \_\_\_\_\_

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

**Action Required:** \_\_\_\_\_

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

**To be performed by:** \_\_\_\_\_ **On or Before:** \_\_\_\_\_





**APPENDIX 5:**  
**STORMWATER REPORT**



**PLANNING OFFICE FOR URBAN AFFAIRS  
ST. ANN'S VILLAGE  
Wayland, MA**

## **STORMWATER MANAGEMENT REPORT**

*Submitted to:*

Town of Wayland Conservation Commission  
Massachusetts Department of Environmental Protection

*Applicant:*

Planning Office for Urban Affairs  
84 State Street, Suite 600  
Boston, MA 02109

*Civil Engineer/ Land Surveyor:*

Samiotes Consultants, Inc.  
20 A Street  
Framingham, MA 01701

*Architect:*

The Architectural Team, Inc.  
50 Commandmant's Way  
Chelsea, MA 02150



**October 25, 2023**



# 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.

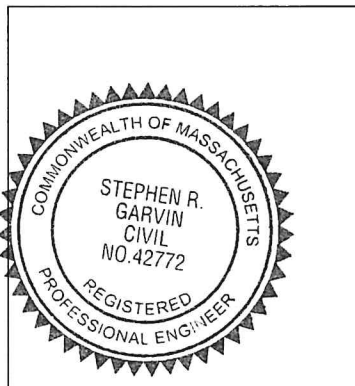
*Note:* Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that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

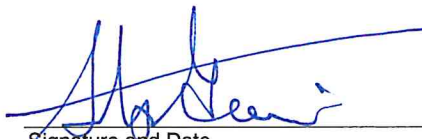
A complete checklist must include the Certification set forth below signed by the Registered Professional Engineer who prepared the Stormwater Report.

### 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

10/24/23

## 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

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## 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): Drainage 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

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## 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.

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



# Checklist for Stormwater Report

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## Checklist (continued)

### Standard 3: Recharge (continued)

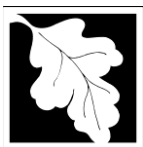
- ☐ The infiltration BMP is used to attenuate peak flows during storms greater than or equal to the 10-year 24-hour storm and separation to seasonal high groundwater is less than 4 feet and a mounding analysis is provided.
- ☒ Documentation is provided showing that infiltration BMPs do not adversely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

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## 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

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## 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

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## 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.

# **ST ANN CATHOLIC CHURCH STORMWATER MANAGEMENT NARRATIVE WAYLAND, MA**

**October 2023**

## **Introduction**

The existing parish and rectory are located on two parcels encompassing a 9.22± acre property, located at 124 Cochituate Road, Wayland, MA, (Zoning District: Single Residence Zone R40). The existing site consists of the St Ann Catholic church and the existing Rectory building, with associated paved driveways and parking, landscaped areas, and utilities. The property is abutted by the Windy Hill Lane subdivision on the north side, Cochituate Road (route 27) on the west side, and Old Connecticut Path on the south and east sides. The site slopes approximately 28 feet from the southwest to the northeast, with the high point of the site being at the church and the low point being on the northeast side of the site at the Bordering Vegetated Wetlands.

### **Project Description:**

The proposed project includes a new, 3- story 60- unit 19,600± square foot senior affordable housing with associated paved parking areas, landscaping, utilities and a new stormwater management system in compliance with the Massachusetts DEP Stormwater Standards. Vehicular parking consists of providing 60 parking spaces

### **Soils:**

Soils on the site consist of hydrological "A", soils. The soils resource report, and test pit results conducted on February 23, 2023, are located in the appendix of this report.

### **Existing Stormwater Management:**

The parish and rectory parcels comprise 9.22 ± acres in size, with a significant portion consisting of woods and wetland resource areas. In the current conditions, the site has minimal stormwater management control and treatment. Stormwater sheet flows to the wetlands or offsite untreated. Additionally, the runoff is conveyed without tying into a municipal system.

### **Proposed Stormwater Management System:**

The proposed stormwater management system consists of deep sump catch basins located throughout the site's impervious vehicular areas. The majority of the site's stormwater runoff from impervious areas are routed via catch basins into water quality units and conveyed to the infiltration system / drainage basin prior to out-letting towards the wetlands via overflow drain lines. The proposed building roof runoff is captured via the subsurface infiltration systems prior to discharging to the wetland resource area.

## **Methodology/ Procedure**

### **Objective:**

The objective of the stormwater management for the site is to improve mitigation of stormwater quality and treatment of any increase in peak storm runoff rates due to the construction of the proposed project. Outlined below are the numerous stormwater Best Management Practices (BMP's) proposed to be used.

### **Proposed Stormwater Control Systems:**

The following are the proposed Best Management Practices (BMP's) stormwater control systems to be used on the site to mitigate an increase in peak stormwater runoff and improve water quality:

**Subsurface Structures (Infiltration Chambers):** Subsurface structures are underground systems that capture runoff, and gradually infiltrate it into the groundwater. There are a number of underground infiltration systems that can be installed to enhance groundwater recharge. Subsurface structures are

constructed to store stormwater temporarily and let it percolate into the underlying soil. They are feasible only where the soil is adequately permeable and the maximum water table and/or elevation is sufficiently low. They can be used to control the quantity as well as quality of stormwater runoff, if properly designed and constructed. The structures serve as storage chambers for captured stormwater, while the soil matrix provides treatment.

**Deep Sump Catch Basins:** A deep sump catch basins (also known as oil and grease or hooded catch basins) acts as underground retention systems designed to remove trash, debris, and coarse sediment from stormwater runoff, and serve as temporary spill containment devices for floatables such as oil and grease that provides pretreatment. A 25% TSS removal is awarded to the deep sump catch basin when used as pre-treatment.

**Infiltration Basins:** Infiltration basins are stormwater runoff impoundments that are constructed over permeable soils. Runoff from the design storm is pretreated before being stored within the infiltration basin until it exfiltrates through the soil of the basin floor. The basin systems can be sized to provide storage and exfiltration of the required recharge volume and treatment of the required water quality volume. They also attenuate peak discharges.

**Water Quality Units (WQUs):** Water Quality Units are a flow-through structure with a settling or separation unit to remove sediments and other pollutants. They typically use the power of swirling or flowing water to separate floatables and coarser sediments, are typically designed and manufactured by private businesses, and come in different sizes to accommodate different design storms and flow conditions. Since proprietary separators can be placed in almost any location on a site, they are particularly useful when either site constraints prevent the use of other stormwater techniques or as part of a larger treatment train. Generally they are placed below ground and contain inspection and access ports so that they may be inspected and cleaned.

## **Watershed Routing**

Below is a summary of the various existing and proposed watersheds with a brief narrative describing the routing. The descriptions of the watersheds are depicted in sketches EX-HYD and PR-HYD located in the Appendix.

### *Existing Watersheds:*

**Ex-Watershed-1:** This watershed consists mainly of wooded area. Stormwater runoff from this watershed flows to the north of the site and into Cochituate Road, depicted as POA-1.

**Ex-Watershed-2:** This watershed consists of wooded area, the existing rectory parking lot, the majority of the rectory building, paved driveways, walkways, and landscaped areas. Stormwater runoff from this watershed sheet flows to the bordering vegetated wetland east of the site, depicted as POA-2.

**Ex-Watershed-3:** This watershed consists of wooded areas, an asphalt driveway, a portion of the rectory building and landscaped areas. Stormwater runoff from this watershed sheet flows to the bordering vegetated wetland south-east of the site, depicted as POA-4.

**Ex-Watershed-4:** This watershed consists mainly of landscaped and wooded areas, driveways from Cochituate road, walkways, and landscape areas. Stormwater runoff from this watershed sheet flows to Cochituate road depicted as (POA-1).

*Proposed Watersheds:*

PR-Watershed-1: This watershed consists mainly of wooded and landscaped areas. Stormwater runoff from this watershed flows to the north of the site and into Cochituate Road, depicted as POA-1.

PR-Watershed-2A: This watershed consists of wooded areas, landscaped areas and a retaining wall at the north east limit of work. Stormwater runoff from this watershed sheet flows to the bordering vegetated wetland east of the site, depicted as POA-2.

PR-Watershed-2B: This watershed consists mainly of impervious areas including paved vehicular and pedestrian ways to the north and east of the proposed building. Stormwater runoff from this watershed is captured by deep sump catch basins and conveyed to Infiltration System #2 via underground piping prior to discharging to the bordering vegetated wetland east of the site, depicted as POA-2.

PR-Watershed-2C: This watershed consists of most of the rectory building, proposed parking lot, driveways, walkways, and landscape areas. Stormwater runoff from this watershed is captured by a deep sump catch basin and conveyed to Infiltration System #1 via underground piping prior to discharging to the bordering vegetated wetland east of the site, depicted as POA-2.

PR-Watershed-BLDG: This watershed consists of the senior affordable housing building. Stormwater runoff from this watershed is routed to Infiltration System#2 which outlets to the bordering vegetated east wetland of the site, depicted as POA-2.

PR-Watershed-3: This watershed consists of part of the driveway off of Cochituate road, paved sidewalks, a portion of the rectory building, wooded and landscaped areas. Stormwater runoff from this watershed sheet flows to Cochituate road, depicted as POA-1.

PR-Watershed-4: This watershed consists of wooded areas, access drives, walkways and landscaped areas. Stormwater runoff from this watershed sheet flows to the bordering vegetated wetlands south east of the site depicted as POA-4.

## Results/ Summary

### Results of Analysis:

Through the use of the HydroCAD Software, the curve numbers, times of concentrations, and peak discharge rates were determined for both the existing conditions and the proposed conditions. The results of the study shows that both the post-development peak rates of runoff are equal or less than the existing rates.

As shown in Tables A-F, the post development peak rates of runoff and runoff volume from the site will be mitigated.

Table A – POA 1 #1 Cochituate Road Peak Rates of Runoff (cfs)			
	2-year storm	10-year storm	100-year storm
<b>Existing</b>	0.01	0.11	0.77
<b>Proposed</b>	0.01	0.11	0.75

Table B – POA 2 Northeast Wetlands Peak Rates of Runoff (cfs)			
	2-year storm	10-year storm	100-year storm
<b>Existing</b>	0.00	0.07	1.53
<b>Proposed</b>	0.00	0.06	1.06

Table C – POA 3 Southeast Wetlands Peak Rates of Runoff (cfs)			
	2-year storm	10-year storm	100-year storm
<b>Existing</b>	0.00	0.01	0.32
<b>Proposed</b>	0.00	0.00	0.15

Table D – POA 1 #1 Cochituate Road Stormwater Runoff Volumes (cf)			
	2-year storm	10-year storm	100-year storm
<b>Existing</b>	218	915	3,528
<b>Proposed</b>	174	871	3,311

Table E – POA 2 Northeast Wetlands Stormwater Runoff Volumes (cf)			
	2-year storm	10-year storm	100-year storm
<b>Existing</b>	131	1,786	10,019
<b>Proposed</b>	0	218	10,019

Table F – POA 3 Southeast Wetlands Stormwater Runoff Volumes (cf)			
	2-year storm	10-year storm	100-year storm
<b>Existing</b>	0	305	2,178
<b>Proposed</b>	0	131	1,307

## Stormwater Management Standards

The Department of Environmental Protection has implemented the Stormwater Management Standards as of November 18, 1996 and updated them in April 2008. The standards met are described below and in the Stormwater Management Form as provided by DEP.

### Standard #1: Untreated Stormwater

The project is designed so that stormwater conveyances (outfalls/discharges) do not discharge untreated stormwater into, or cause erosion to, wetlands or waters.

Therefore Standard #1 is met.

### Standard #2: Post-development peak discharge rates

The proposed project will result in an increase in impervious area. The proposed stormwater management system has been designed so that there is no increase in post construction discharge rates from the site. See Table A - Table C above.

Therefore Standard #2 is met.

### Standard #3: Recharge to groundwater

Loss of annual recharge to groundwater shall be eliminated or minimized through the use of environmentally sensitive site design, low impact development techniques, stormwater best management



practices, 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 recharge volume as determined in accordance with the Massachusetts Stormwater Handbook.

Soil types have been identified based on the information contained in the Soil Report. We have determined that the soils are consistent with Hydrologic soil type "A", which requires runoff to be infiltrated (as listed in the table below) from new impervious areas.

The proposed development will result in an increase in impervious area in the "A", soil areas. To be conservative, the calculations for required recharge volumes are based on the required inches of runoff for the new impervious area per soil area.

Hydrologic Group Volume to Recharge (x Total Impervious Area)	
Hydrologic Group	Volume to Recharge x Total Impervious Area
A	0.60 inches of runoff
B	0.35 inches of runoff
C	0.25 inches of runoff
D	0.10 inches of runoff

Required Recharge Volumes:

#### "A" Soils

Infiltration Rate: 0.60 inches of runoff  
 Proposed Site New Impervious Area in "A" Soils: 54,090 sf  
 $54,090 \text{ sf} \times 0.60 \times (1/12) = 2,745 \text{ cf}$

**Total required recharge volume: 2,745 cf**

Proposed Recharge Volume:

Infiltration System #1 = 4,403 cf  
 Infiltration System #2 = 14,922 cf  
 Drain Basin = 2,610 cf

**Total provided recharge volume: 21,935 cf**

#### Drawdown Time:

INF-1 (maximum time 72 hours)=  $3,076 \text{ cf} / (8.27 \text{ in/hr} \times 1,070 \text{ sf} / 12 \text{ in/ft}) = 4.2 \text{ hours}$   
 INF-2 (maximum time 72 hours)=  $12,572 \text{ cf} / (8.27 \text{ in/hr} \times 2,562 \text{ sf} / 12 \text{ in/ft}) = 7.2 \text{ hours}$   
 Detention Basin (maximum time 72 hours)=  $625 \text{ cf} / (8.27 \text{ in/hr} \times 1,330 \text{ sf} / 12 \text{ in/ft}) = 0.68 \text{ hours}$

Therefore Standard #3 is met.

#### **Standard #4: TSS removal**

The BMP's selected to remove TSS from impervious areas for this include: Area Drains, Catch Basins, Outlet Control Structures, Water Quality Units, and Subsurface Structures.

##### **PR-Watershed-2B:**

Initial TSS=1.00

Water Quality Unit:  $(1.00)(1.00-0.80) = 0.20$  TSS

Infiltration System:  $(0.20)(1.00-0.80) = 0.04$  TSS

Total TSS Removal= 96%

##### **PR-Watershed-2C:**

Initial TSS=1.00

Catch Basin:  $(1.00)(1.00-0.25) = 0.75$  TSS

Water Quality Unit:  $(0.75)(1.00-0.80) = 0.15$  TSS

Infiltration System:  $(0.15)(1.00-0.80) = 0.03$

Drainage Basin (Infiltration):  $(0.03)(1.00-0.80) = 0.01$

Total TSS Removal= 99%

Watersheds 3, and 4 are areas servicing the existing church not being developed for this project with de minimus stormwater discharge.

The remaining watershed areas (new construction) meet the 80% TSS removal per Massachusetts Stormwater Handbook Standard 4.

#### **Water Quality Volume:**

The stormwater management system has been sized to treat for the 1" runoff rate applied to the total impervious area for the water quality volume, as shown in the calculations provided below calculations for the infiltration stormwater BMPs, which all receive the minimum 25% pretreatment, are shown below. Roof runoff is considered "clean" and has therefore been excluded from this calculation. Where site topography and groundwater elevation precluded the use of infiltration BMPs, proprietary water quality unit are proposed which are specifically designed to address water quality prior to discharge.

Impervious area for watershed areas of new development (WS 2B, 2C, and BLDG) requiring water quality treatment= 82,679 sf

$62,923 \text{ sf} \times 1" \times (1'/12") = 5,244 \text{ cf}$

Total Water Quality Volume Required = 5,244 cf

##### **Proposed Water Quality Volume:**

Infiltration System #1 = 4,403 cf

Infiltration System #2 = 14,992 cf

Drain Basin = 2,610 cf

**Total Water Quality Volume Provided = 21,935 cf**

Therefore Standard #4 is met.

**Standard #5: Higher potential pollutant loads**

The project site does not contain Land Uses with Higher Potential Pollutant Loads.

Therefore Standard #5 is met.

**Standard #6: Protection of critical areas**

The site is not located within critical areas as defined by Critical areas are Outstanding Resource Waters (ORW) as designated in 314 CMR 4.00, Special Resource Waters as designated in 314 CMR 4.00, recharge areas for public water supplies as defined in 310 CMR 22.02 (Zone Is, Zone IIs and Interim Wellhead Protection Areas for groundwater sources and Zone As for surface water sources), bathing beaches as defined in 105 CMR 445.000, cold-water fisheries as defined in 314 CMR 9.02 and 310 CMR 10.04, and shellfish growing areas as defined in 314 CMR 9.02 and 310 CMR 10.04.

The site is not located within critical areas, therefore Standard #6 is met.

**Standard #7: Redevelopment projects**

While a portion of the site is being redeveloped, there is an increase in impervious area, thus the project is considered New Construction and all of the Standards will be met.

Therefore Standard #7 is met.

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

Soil Erosion and Sediment Control Plan:

The objectives of the Soil Erosion and Sediment Control Plan are to control erosion at its source with temporary control structures, minimize the runoff from areas of disturbance, and de-concentrate and distribute stormwater runoff through natural vegetation before discharge to critical zones such as streams or wetlands. Soil erosion control does not begin with the perimeter sediment trap. It begins at the source of the sediment, the disturbed land areas, and extends down to the control structure.

The Soil Erosion and Sediment Control Plan will be enacted in order to protect the resource areas during construction. The erosion control devices will remain in place until all exposed areas have been stabilized with vegetation or impervious surfaces.

The objective of the Soil erosion & Sediment Control Plan that will be enacted on site is to control the vulnerability of the soil to the erosion process or the capability of moving water to detach soil particles during the construction phase(s).

The erosion and sediment control plan to be in place during the construction phase is detailed within the NOI narrative (under separate cover).

Therefore Standard #8 is met.

**Standard #9: Operation/maintenance plan**

An operation and maintenance plan for both construction and post-development stormwater controls has been developed. The plan includes owner(s); parties responsible for operation and maintenance; schedule for inspection and maintenance; routine and non-routine maintenance tasks. A copy of the O&M is included in the Appendix.

Therefore Standard #9 is met.

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

It is not anticipated that there will be any Illicit discharges for the project.

Therefore Standard #10 is met.

**STORMWATER REPORT**  
**TABLE OF APPENDICES**

**APPENDIX 1:**  
**EXISTING CONDITIONS HYDROCAD REPORT**

**APPENDIX 2:**  
**PROPOSED CONDITIONS HYDROCAD REPORT**

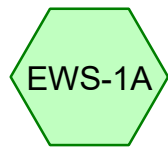
**APPENDIX 3:**  
**ECR WETLANDS REPORT**



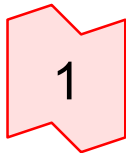
**APPENDIX 1:**  
**EXISTING CONDITIONS HYDROCAD REPORT**







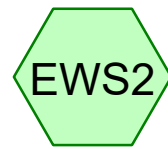
EWS-1A



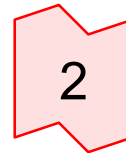
POA-1



EWS-1B



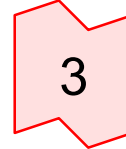
EWS-2



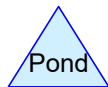
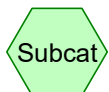
POA-2



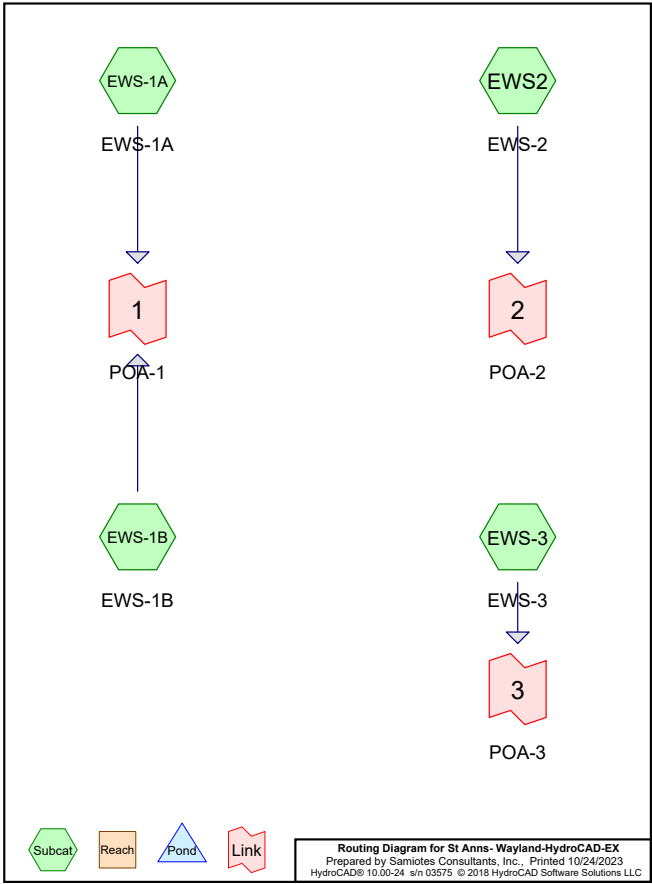
EWS-3



POA-3



Area Listing (all nodes)		
Area (acres)	CN	Description (subcatchment-numbers)
0.679	39	>75% Grass cover, Good, HSG A (EWS-1B, EWS-3, EWS2)
0.097	98	Pavement (EWS-3)
3.414	30	Woods, Good, HSG A (EWS-1A, EWS-1B, EWS-3, EWS2)
0.537	98	impervious (EWS-1B, EWS2)
4.727	40	TOTAL AREA



Soil Listing (all nodes)		
Area (acres)	Soil Group	Subcatchment Numbers
4.093	HSG A	EWS-1A, EWS-1B, EWS-3, EWS2
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
0.634	Other	EWS-1B, EWS-3, EWS2
4.727		TOTAL AREA

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points Runoff by SCS TR-20 method, UH=SCS, Weighted-CN Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method		
SubcatchmentEWS-1A: EWS-1A	Runoff Area=0.336 ac 0.00% Impervious	Runoff Depth=0.00"
	Flow Length=224' Tc=9.7 min CN=30	Runoff=0.00 cfs 0.000 af
SubcatchmentEWS-1B: EWS-1B	Runoff Area=0.606 ac 20.63% Impervious	Runoff Depth=0.00"
	Flow Length=64' Slope=0.0400 1' Tc=9.5 min CN=48	Runoff=0.00 cfs 0.000 af
SubcatchmentEWS-3: EWS-3	Runoff Area=0.775 ac 12.52% Impervious	Runoff Depth=0.00"
	Flow Length=146' Tc=7.2 min CN=39	Runoff=0.00 cfs 0.000 af
SubcatchmentEWS2: EWS-2	Runoff Area=3.010 ac 13.69% Impervious	Runoff Depth=0.00"
	Flow Length=287' Tc=13.2 min CN=41	Runoff=0.00 cfs 0.000 af
Link 1: POA-1	Inflow=0.00 cfs 0.000 af	Primary=0.00 cfs 0.000 af
Link 2: POA-2	Inflow=0.00 cfs 0.000 af	Primary=0.00 cfs 0.000 af
Link 3: POA-3	Inflow=0.00 cfs 0.000 af	Primary=0.00 cfs 0.000 af
Total Runoff Area = 4.727 ac Runoff Volume = 0.000 af Average Runoff Depth = 0.00"		
86.59% Pervious = 4.093 ac 13.41% Impervious = 0.634 ac		

Summary for Subcatchment EWS-1A: EWS-1A

[45] Hint: Runoff=Zero

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
Type III 24-hr 1" Rainfall=1.00"

Area (ac)	CN	Description			
0.336	30	Woods, Good, HSG A			
0.336		100.00% Pervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.1	50	0.0800	0.12		<b>Sheet Flow, 50 sf woods</b> Woods: Light underbrush n= 0.400 P2= 3.20" <b>Shallow Concentrated Flow, 134 scf</b> Woodland Kv= 5.0 fps
2.6	174	0.0500	1.12		
9.7	224	Total			

Summary for Subcatchment EWS-1B: EWS-1B

[45] Hint: Runoff=Zero

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
Type III 24-hr 1" Rainfall=1.00"

Area (ac)	CN	Description			
0.240	39	>75% Grass cover, Good, HSG A			
0.125	98	Impervious			
0.241	30	Woods, Good, HSG A			
0.606	48	Weighted Average			
0.481		79.37% Pervious Area			
0.125		20.63% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3	50	0.0400	0.09		<b>Sheet Flow, 50' woods-sf</b> Woods: Light underbrush n= 0.400 P2= 3.20" <b>Shallow Concentrated Flow, 75 scf</b> Woodland Kv= 5.0 fps
0.2	14	0.0400	1.00		
9.5	64	Total			

Summary for Subcatchment EWS-3: EWS-3

[45] Hint: Runoff=Zero

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
Type III 24-hr 1" Rainfall=1.00"

Area (ac)	CN	Description			
0.638	30	Woods, Good, HSG A			
0.040	39	>75% Grass cover, Good, HSG A			
0.097	98	Pavement			
0.775	39	Weighted Average			
0.678		87.48% Pervious Area			
0.097		12.52% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	50	0.1100	0.13		Sheet Flow, 50' sf Woods: Light underbrush n= 0.400 P2= 3.20" Shallow Concentrated Flow, 80'-scf Woodland Kv= 5.0 fps
1.0	96	0.1000	1.58		
7.2	146	Total			

Summary for Subcatchment EWS2: EWS-2

[45] Hint: Runoff=Zero

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
Type III 24-hr 1" Rainfall=1.00"

Area (ac)	CN	Description			
0.412	98	Impervious			
0.399	39	>75% Grass cover, Good, HSG A			
2.199	30	Woods, Good, HSG A			
3.010	41	Weighted Average			
2.598		86.31% Pervious Area			
0.412		13.69% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0	50	0.0340	0.08		<b>Sheet Flow, 50' woods sf</b> Woods: Light underbrush n= 0.400 P2= 3.20" <b>Shallow Concentrated Flow, 237scf</b> Woodland Kv= 5.0 fps
3.2	237	0.0600	1.22		
13.2	287	Total			

Summary for Link 1: POA-1

Inflow Area = 0.942 ac, 13.27% Impervious, Inflow Depth = 0.00" for 1" event  
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Summary for Link 2: POA-2

Inflow Area = 3.010 ac, 13.69% Impervious, Inflow Depth = 0.00" for 1" event  
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Summary for Link 3: POA-3

Inflow Area = 0.775 ac, 12.52% Impervious, Inflow Depth = 0.00" for 1" event  
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentEWS-1A: EWS-1A      Runoff Area=0.336 ac 0.00% Impervious    Runoff Depth=0.00"  
Flow Length=224'    Tc=9.7 min    CN=30    Runoff=0.00 cfs 0.000 af

SubcatchmentEWS-1B: EWS-1B      Runoff Area=0.606 ac 20.63% Impervious    Runoff Depth=0.41"  
Flow Length=64'    Slope=0.0400 1/8    Tc=9.5 min    CN=48    Runoff=0.11 cfs 0.021 af

SubcatchmentEWS-3: EWS-3      Runoff Area=0.775 ac 12.52% Impervious    Runoff Depth=0.11"  
Flow Length=146'    Tc=7.2 min    CN=39    Runoff=0.01 cfs 0.007 af

SubcatchmentEWS2: EWS-2      Runoff Area=3.010 ac 13.69% Impervious    Runoff Depth=0.16"  
Flow Length=287'    Tc=13.2 min    CN=41    Runoff=0.07 cfs 0.041 af

Link 1: POA-1      Inflow=0.11 cfs 0.021 af  
Primary=0.11 cfs 0.021 af

Link 2: POA-2      Inflow=0.07 cfs 0.041 af  
Primary=0.07 cfs 0.041 af

Link 3: POA-3      Inflow=0.01 cfs 0.007 af  
Primary=0.01 cfs 0.007 af

Total Runoff Area = 4.727 ac    Runoff Volume = 0.069 af    Average Runoff Depth = 0.18"  
86.59% Pervious = 4.093 ac    13.41% Impervious = 0.634 ac

Summary for Subcatchment EWS-1A: EWS-1A

[45] Hint: Runoff=Zero

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
 Type III 24-hr 10 yr Rainfall=4.50"

Area (ac)	CN	Description			
0.336	30	Woods, Good, HSG A			
0.336		100.00% Pervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.1	50	0.0800	0.12		<b>Sheet Flow, 50 sf woods</b> Woods: Light underbrush n= 0.400 P2= 3.20"
2.6	174	0.0500	1.12		<b>Shallow Concentrated Flow, 134 scf</b> Woodland Kv= 5.0 fps
9.7	224	Total			

Summary for Subcatchment EWS-1B: EWS-1B

Runoff = 0.11 cfs @ 12.36 hrs, Volume= 0.021 af, Depth= 0.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
 Type III 24-hr 10 yr Rainfall=4.50"

Area (ac)	CN	Description			
0.240	39	>75% Grass cover, Good, HSG A			
0.125	98	Impervious			
0.241	30	Woods, Good, HSG A			
0.606	48	Weighted Average			
0.481		79.37% Pervious Area			
0.125		20.63% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3	50	0.0400	0.09		<b>Sheet Flow, 50' woods-sf</b> Woods: Light underbrush n= 0.400 P2= 3.20"
0.2	14	0.0400	1.00		<b>Shallow Concentrated Flow, 75 scf</b> Woodland Kv= 5.0 fps
9.5	64	Total			

Summary for Subcatchment EWS-3: EWS-3

Runoff = 0.01 cfs @ 14.73 hrs, Volume= 0.007 af, Depth= 0.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
 Type III 24-hr 10 yr Rainfall=4.50"

Area (ac)	CN	Description			
0.638	30	Woods, Good, HSG A			
0.040	39	>75% Grass cover, Good, HSG A			
0.097	98	Pavement			
0.775	39	Weighted Average			
0.678		87.48% Pervious Area			
0.097		12.52% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	50	0.1100	0.13		Sheet Flow, 50' sf Woods: Light underbrush n= 0.400 P2= 3.20"
1.0	96	0.1000	1.58		Shallow Concentrated Flow, 80'-scf Woodland Kv= 5.0 fps
7.2	146	Total			

Summary for Subcatchment EWS2: EWS-2

Runoff = 0.07 cfs @ 13.71 hrs, Volume= 0.041 af, Depth= 0.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
 Type III 24-hr 10 yr Rainfall=4.50"

Area (ac)	CN	Description			
0.412	98	Impervious			
0.399	39	>75% Grass cover, Good, HSG A			
2.199	30	Woods, Good, HSG A			
3.010	41	Weighted Average			
2.598		86.31% Pervious Area			
0.412		13.69% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0	50	0.0340	0.08		<b>Sheet Flow, 50' woods sf</b> Woods: Light underbrush n= 0.400 P2= 3.20"
3.2	237	0.0600	1.22		<b>Shallow Concentrated Flow, 237scf</b> Woodland Kv= 5.0 fps
13.2	287	Total			

Summary for Link 1: POA-1

Inflow Area = 0.942 ac, 13.27% Impervious, Inflow Depth = 0.27" for 10 yr event  
Inflow = 0.11 cfs @ 12.36 hrs, Volume= 0.021 af  
Primary = 0.11 cfs @ 12.36 hrs, Volume= 0.021 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Summary for Link 2: POA-2

Inflow Area = 3.010 ac, 13.69% Impervious, Inflow Depth = 0.16" for 10 yr event  
Inflow = 0.07 cfs @ 13.71 hrs, Volume= 0.041 af  
Primary = 0.07 cfs @ 13.71 hrs, Volume= 0.041 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Summary for Link 3: POA-3

Inflow Area = 0.775 ac, 12.52% Impervious, Inflow Depth = 0.11" for 10 yr event  
Inflow = 0.01 cfs @ 14.73 hrs, Volume= 0.007 af  
Primary = 0.01 cfs @ 14.73 hrs, Volume= 0.007 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentEWS-1A: EWS-1A      Runoff Area=0.336 ac 0.00% Impervious    Runoff Depth=0.21"  
Flow Length=224'    Tc=9.7 min    CN=30    Runoff=0.01 cfs 0.006 af

SubcatchmentEWS-1B: EWS-1B      Runoff Area=0.606 ac 20.63% Impervious    Runoff Depth=1.49"  
Flow Length=64'    Slope=0.0400 1'    Tc=9.5 min    CN=48    Runoff=0.77 cfs 0.075 af

SubcatchmentEWS-3: EWS-3      Runoff Area=0.775 ac 12.52% Impervious    Runoff Depth=0.77"  
Flow Length=146'    Tc=7.2 min    CN=39    Runoff=0.32 cfs 0.050 af

SubcatchmentEWS2: EWS-2      Runoff Area=3.010 ac 13.69% Impervious    Runoff Depth=0.92"  
Flow Length=287'    Tc=13.2 min    CN=41    Runoff=1.53 cfs 0.230 af

Link 1: POA-1      Inflow=0.77 cfs 0.081 af  
Primary=0.77 cfs 0.081 af

Link 2: POA-2      Inflow=1.53 cfs 0.230 af  
Primary=1.53 cfs 0.230 af

Link 3: POA-3      Inflow=0.32 cfs 0.050 af  
Primary=0.32 cfs 0.050 af

Total Runoff Area = 4.727 ac    Runoff Volume = 0.361 af    Average Runoff Depth = 0.92"  
86.59% Pervious = 4.093 ac    13.41% Impervious = 0.634 ac

Summary for Subcatchment EWS-1A: EWS-1A

Runoff = 0.01 cfs @ 13.83 hrs, Volume= 0.006 af, Depth= 0.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
Type III 24-hr 100 yr Rainfall=7.00"

Area (ac)	CN	Description			
0.336	30	Woods, Good, HSG A			
0.336		100.00% Pervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.1	50	0.0800	0.12		<b>Sheet Flow, 50 sf woods</b> Woods: Light underbrush n= 0.400 P2= 3.20" <b>Shallow Concentrated Flow, 134 scf</b> Woodland Kv= 5.0 fps
2.6	174	0.0500	1.12		
9.7	224	Total			

Summary for Subcatchment EWS-1B: EWS-1B

Runoff = 0.77 cfs @ 12.15 hrs, Volume= 0.075 af, Depth= 1.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
Type III 24-hr 100 yr Rainfall=7.00"

Area (ac)	CN	Description			
0.240	39	>75% Grass cover, Good, HSG A			
0.125	98	Impervious			
0.241	30	Woods, Good, HSG A			
0.606	48	Weighted Average			
0.481		79.37% Pervious Area			
0.125		20.63% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3	50	0.0400	0.09		<b>Sheet Flow, 50' woods-sf</b> Woods: Light underbrush n= 0.400 P2= 3.20" <b>Shallow Concentrated Flow, 75 scf</b> Woodland Kv= 5.0 fps
0.2	14	0.0400	1.00		
9.5	64	Total			

Summary for Subcatchment EWS-3: EWS-3

Runoff = 0.32 cfs @ 12.17 hrs, Volume= 0.050 af, Depth= 0.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
Type III 24-hr 100 yr Rainfall=7.00"

Area (ac)	CN	Description			
0.638	30	Woods, Good, HSG A			
0.040	39	>75% Grass cover, Good, HSG A			
0.097	98	Pavement			
0.775	39	Weighted Average			
0.678		87.48% Pervious Area			
0.097		12.52% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	50	0.1100	0.13		<b>Sheet Flow, 50' sf</b> Woods: Light underbrush n= 0.400 P2= 3.20" <b>Shallow Concentrated Flow, 80'-scf</b> Woodland Kv= 5.0 fps
1.0	96	0.1000	1.58		
7.2	146	Total			

Summary for Subcatchment EWS2: EWS-2

Runoff = 1.53 cfs @ 12.27 hrs, Volume= 0.230 af, Depth= 0.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
Type III 24-hr 100 yr Rainfall=7.00"

Area (ac)	CN	Description			
0.412	98	Impervious			
0.399	39	>75% Grass cover, Good, HSG A			
2.199	30	Woods, Good, HSG A			
3.010	41	Weighted Average			
2.598		86.31% Pervious Area			
0.412		13.69% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0	50	0.0340	0.08		<b>Sheet Flow, 50' woods sf</b> Woods: Light underbrush n= 0.400 P2= 3.20" <b>Shallow Concentrated Flow, 237scf</b> Woodland Kv= 5.0 fps
3.2	237	0.0600	1.22		
13.2	287	Total			

Summary for Link 1: POA-1

Inflow Area = 0.942 ac, 13.27% Impervious, Inflow Depth = 1.03" for 100 yr event  
Inflow = 0.77 cfs @ 12.15 hrs, Volume= 0.081 af  
Primary = 0.77 cfs @ 12.15 hrs, Volume= 0.081 af, Atten= 0%, Lag= 0.0 min  
  
Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Summary for Link 2: POA-2

Inflow Area = 3.010 ac, 13.69% Impervious, Inflow Depth = 0.92" for 100 yr event  
Inflow = 1.53 cfs @ 12.27 hrs, Volume= 0.230 af  
Primary = 1.53 cfs @ 12.27 hrs, Volume= 0.230 af, Atten= 0%, Lag= 0.0 min  
  
Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

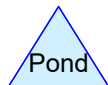
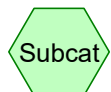
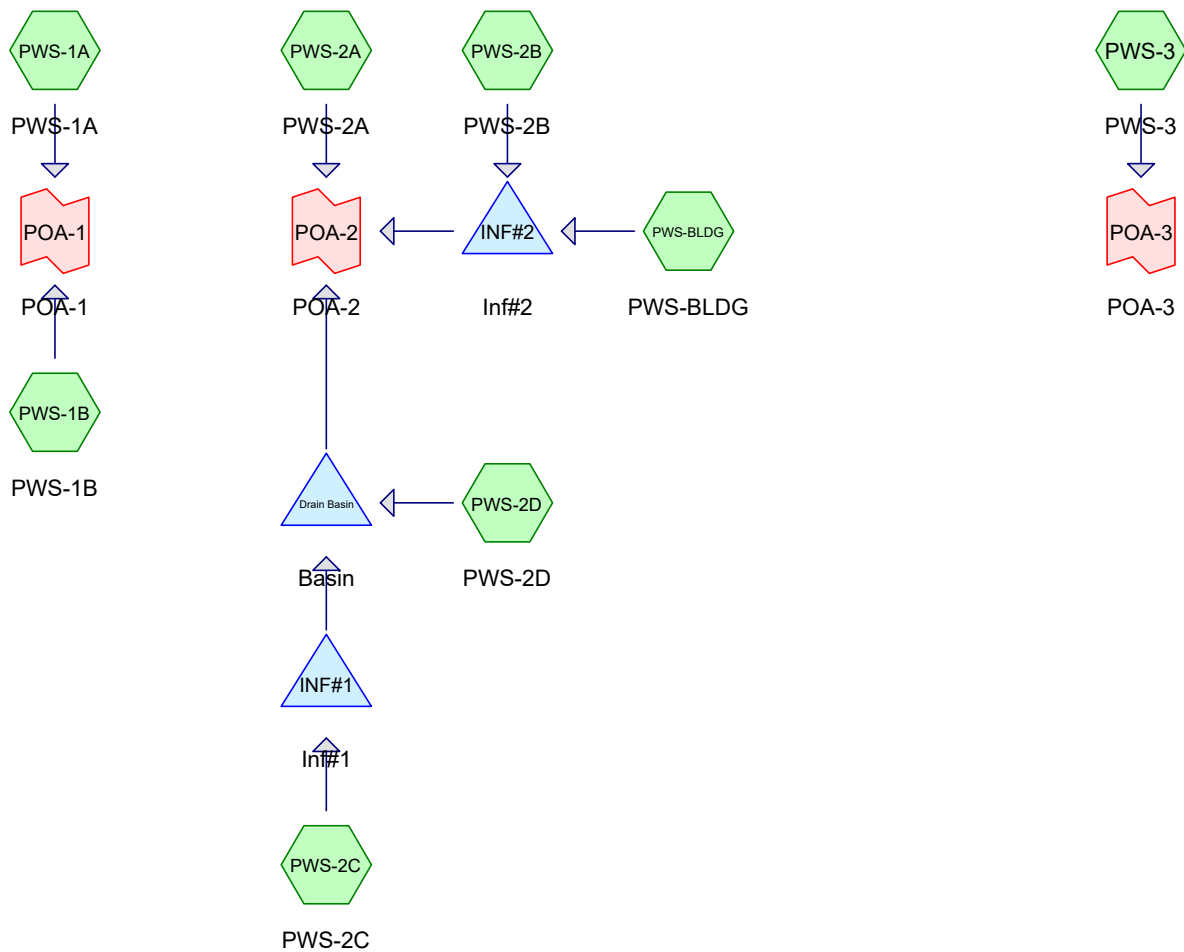
Summary for Link 3: POA-3

Inflow Area = 0.775 ac, 12.52% Impervious, Inflow Depth = 0.77" for 100 yr event  
Inflow = 0.32 cfs @ 12.17 hrs, Volume= 0.050 af  
Primary = 0.32 cfs @ 12.17 hrs, Volume= 0.050 af, Atten= 0%, Lag= 0.0 min  
  
Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs



**APPENDIX 2:**  
**PROPOSED CONDITIONS HYDROCAD REPORT**

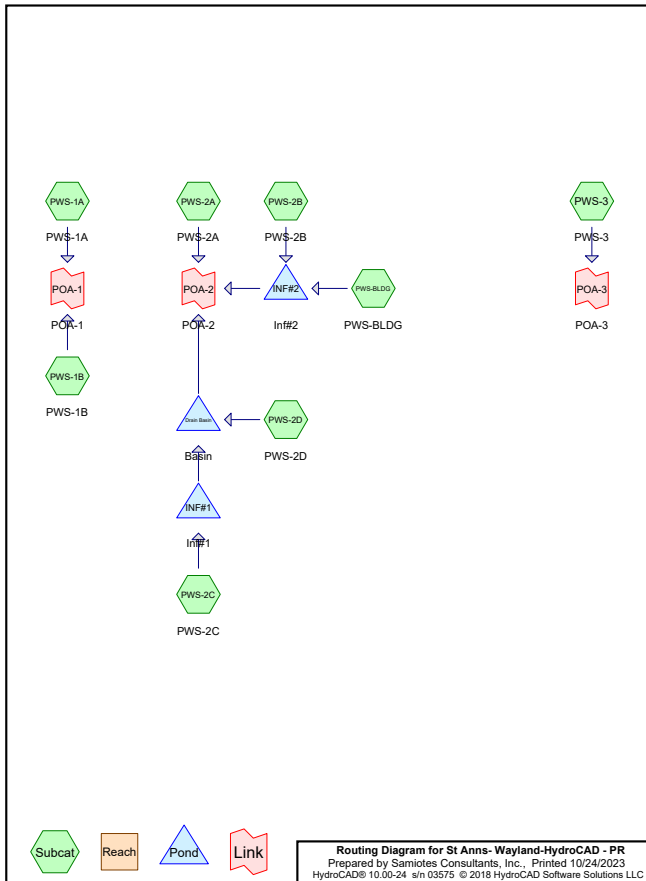




**Routing Diagram for St Anns- Wayland-HydroCAD - PR**  
 Prepared by Samiotes Consultants, Inc., Printed 10/24/2023  
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## Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.249	39	>75% Grass cover, Good, HSG A (PWS-1A, PWS-1B, PWS-2A, PWS-2B, PWS-2C, PWS-2D, PWS-3)
0.450	98	BLDG (PWS-BLDG)
0.953	98	DRIVEWAY (PWS-2B, PWS-3)
0.381	98	IMPERVIOUS (PWS-2C)
0.130	98	Impervious (PWS-1B, PWS-2A)
1.565	30	Woods, Good, HSG A (PWS-1A, PWS-1B, PWS-2A, PWS-2D, PWS-3)
<b>4.728</b>	<b>60</b>	<b>TOTAL AREA</b>



## Soil Listing (all nodes)

Prepared by Samiotes Consultants, Inc.

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## Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
2.814	HSG A	PWS-1A, PWS-1B, PWS-2A, PWS-2B, PWS-2C, PWS-2D, PWS-3
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
1.914	Other	PWS-1B, PWS-2A, PWS-2B, PWS-2C, PWS-3, PWS-BLDG
<b>4.728</b>		<b>TOTAL AREA</b>

## Ground Covers (all nodes)

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## Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
1.249	0.000	0.000	0.000	0.000	1.249	>75% Grass cover, Good	PWS-1A
							PWS-1B
							PWS-2A
							PWS-2B
							PWS-2C
							PWS-2D
							PWS-3
0.000	0.000	0.000	0.000	0.450	0.450	BLDG	PWS-BLDG
0.000	0.000	0.000	0.000	0.953	0.953	DRIVEWAY	PWS-2B
							PWS-3
0.000	0.000	0.000	0.000	0.381	0.381	IMPERVIOUS	PWS-2C
0.000	0.000	0.000	0.000	0.130	0.130	Impervious	PWS-1B
							PWS-2A
1.565	0.000	0.000	0.000	0.000	1.565	Woods, Good	PWS-1A
							PWS-1B
							PWS-2A
							PWS-2D
							PWS-3
<b>2.814</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>1.914</b>	<b>4.728</b>	<b>TOTAL AREA</b>	

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentPWS-1A: PWS-1A	Runoff Area=0.149 ac 0.00% Impervious Runoff Depth=0.00" Flow Length=76' Tc=9.1 min CN=31 Runoff=0.00 cfs 0.000 af
SubcatchmentPWS-1B: PWS-1B	Runoff Area=0.584 ac 19.86% Impervious Runoff Depth=0.00" Flow Length=50' Slope=0.0390 /' Tc=9.4 min CN=48 Runoff=0.00 cfs 0.000 af
SubcatchmentPWS-2A: PWS-2A	Runoff Area=1.000 ac 1.40% Impervious Runoff Depth=0.00" Flow Length=250' Tc=12.3 min CN=33 Runoff=0.00 cfs 0.000 af
SubcatchmentPWS-2B: PWS-2B	Runoff Area=1.458 ac 61.73% Impervious Runoff Depth=0.03" Tc=6.0 min CN=75 Runoff=0.01 cfs 0.004 af
SubcatchmentPWS-2C: PWS-2C	Runoff Area=0.396 ac 96.21% Impervious Runoff Depth=0.63" Flow Length=181' Tc=6.0 min CN=96 Runoff=0.29 cfs 0.021 af
SubcatchmentPWS-2D: PWS-2D	Runoff Area=0.052 ac 0.00% Impervious Runoff Depth=0.00" Tc=6.0 min CN=38 Runoff=0.00 cfs 0.000 af
SubcatchmentPWS-3: PWS-3	Runoff Area=0.639 ac 8.29% Impervious Runoff Depth=0.00" Flow Length=168' Tc=7.0 min CN=36 Runoff=0.00 cfs 0.000 af
SubcatchmentPWS-BLDG: PWS-BLDG	Runoff Area=0.450 ac 100.00% Impervious Runoff Depth=0.79" Tc=6.0 min CN=98 Runoff=0.40 cfs 0.030 af
Pond Drain Basin: Basin	Peak Elev=161.50' Storage=0 cf Inflow=0.00 cfs 0.000 af Discarded=0.00 cfs 0.000 af Primary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af
Pond INF#1: Inf#1	Peak Elev=160.03' Storage=54 cf Inflow=0.29 cfs 0.021 af Discarded=0.20 cfs 0.021 af Primary=0.00 cfs 0.000 af Outflow=0.20 cfs 0.021 af
Pond INF#2: Inf#2	Peak Elev=153.47' Storage=67 cf Inflow=0.40 cfs 0.033 af Discarded=0.36 cfs 0.033 af Primary=0.00 cfs 0.000 af Outflow=0.36 cfs 0.033 af
Link POA-1: POA-1	Inflow=0.00 cfs 0.000 af Primary=0.00 cfs 0.000 af
Link POA-2: POA-2	Inflow=0.00 cfs 0.000 af Primary=0.00 cfs 0.000 af
Link POA-3: POA-3	Inflow=0.00 cfs 0.000 af Primary=0.00 cfs 0.000 af
Total Runoff Area = 4.728 ac Runoff Volume = 0.054 af Average Runoff Depth = 0.14" 59.52% Pervious = 2.814 ac 40.48% Impervious = 1.914 ac	

Summary for Subcatchment PWS-1A: PWS-1A

[45] Hint: Runoff=Zero

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
Type III 24-hr 1" Rainfall=1.00"

Area (ac)	CN	Description
0.135	30	Woods, Good, HSG A
0.014	39	>75% Grass cover, Good, HSG A
0.149	31	Weighted Average
0.149		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5	50	0.0500	0.10		Sheet Flow, 50
0.6	26	0.0200	0.71		Woods: Light underbrush n= 0.400 P2= 3.20"
9.1	76	Total			Shallow Concentrated Flow, 51' SCF WOODS Woodland Kv= 5.0 fps

Summary for Subcatchment PWS-1B: PWS-1B

[45] Hint: Runoff=Zero

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
Type III 24-hr 1" Rainfall=1.00"

Area (ac)	CN	Description
0.308	39	>75% Grass cover, Good, HSG A
* 0.116	98	Impervious
0.160	30	Woods, Good, HSG A
0.584	48	Weighted Average
0.468		80.14% Pervious Area
0.116		19.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	50	0.0390	0.09		Sheet Flow, 50 SF
					Woods: Light underbrush n= 0.400 P2= 3.20"

Summary for Subcatchment PWS-2A: PWS-2A

[45] Hint: Runoff=Zero

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
Type III 24-hr 1" Rainfall=1.00"

Area (ac)	CN	Description
0.723	30	Woods, Good, HSG A
0.263	39	>75% Grass cover, Good, HSG A
* 0.014	98	Impervious
1.000	33	Weighted Average
0.986		98.60% Pervious Area
0.014		1.40% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3	50	0.0400	0.09		Sheet Flow, 50 sf woods 4%
3.0	200	0.0500	1.12		Woods: Light underbrush n= 0.400 P2= 3.20"
12.3	250	Total			Shallow Concentrated Flow, 200' scf woods 5% Woodland Kv= 5.0 fps

Summary for Subcatchment PWS-2B: PWS-2B

Runoff = 0.01 cfs @ 13.78 hrs, Volume= 0.004 af, Depth= 0.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
Type III 24-hr 1" Rainfall=1.00"

Area (ac)	CN	Description
* 0.900	98	DRIVEWAY
0.558	39	>75% Grass cover, Good, HSG A
1.458	75	Weighted Average
0.558		38.27% Pervious Area
0.900		61.73% Impervious Area

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

Summary for Subcatchment PWS-2C: PWS-2C

Runoff = 0.29 cfs @ 12.09 hrs, Volume= 0.021 af, Depth= 0.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
Type III 24-hr 1" Rainfall=1.00"

Area (ac)	CN	Description
* 0.381	98	IMPERVIOUS
0.015	39	>75% Grass cover, Good, HSG A
0.396	96	Weighted Average
0.015		3.79% Pervious Area
0.381		96.21% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.7	50	0.0320	0.18		Sheet Flow, 50' SF GRASS Grass: Short n= 0.150 P2= 3.20"
0.1	5	0.0320	1.25		Shallow Concentrated Flow, 5 Short Grass Pasture Kv= 7.0 fps
0.0	3	0.0320	3.63		Shallow Concentrated Flow, 3' PAVED Paved Kv= 20.3 fps
0.3	47	0.0300	2.60		Shallow Concentrated Flow, GRASS SCF Grassed Waterway Kv= 15.0 fps
0.1	44	0.2100	6.87		Shallow Concentrated Flow, 44' SCF GRASS Grassed Waterway Kv= 15.0 fps
0.1	32	0.0500	4.54		Shallow Concentrated Flow, 32' SCF PAVE Paved Kv= 20.3 fps
5.3	181				Total, Increased to minimum Tc = 6.0 min

Summary for Subcatchment PWS-2D: PWS-2D

[45] Hint: Runoff=Zero

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
Type III 24-hr 1" Rainfall=1.00"

Area (ac)	CN	Description
0.048	39	>75% Grass cover, Good, HSG A
0.004	30	Woods, Good, HSG A
0.052	38	Weighted Average
0.052		100.00% Pervious Area

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

Summary for Subcatchment PWS-3: PWS-3

[45] Hint: Runoff=Zero

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
Type III 24-hr 1" Rainfall=1.00"

Area (ac)	CN	Description
0.043	39	>75% Grass cover, Good, HSG A
0.543	30	Woods, Good, HSG A
* 0.053	98	DRIVEWAY
0.639	36	Weighted Average
0.586		91.71% Pervious Area
0.053		8.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	50	0.1100	0.13		Sheet Flow, 50' sf woods Woods: Light underbrush n= 0.400 P2= 3.20"
0.4	38	0.1000	1.58		Shallow Concentrated Flow, 38' scf woods Woodland Kv= 5.0 fps
0.2	43	0.0500	3.35		Shallow Concentrated Flow, 43' scf Grassed Waterway Kv= 15.0 fps
0.2	37	0.2500	2.50		Shallow Concentrated Flow, 37' scf woods Woodland Kv= 5.0 fps
7.0	168				Total

Summary for Subcatchment PWS-BLDG: PWS-BLDG

Runoff = 0.40 cfs @ 12.08 hrs, Volume= 0.030 af, Depth= 0.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
Type III 24-hr 1" Rainfall=1.00"

Area (ac)	CN	Description
* 0.450	98	BLDG
0.450		100.00% Impervious Area

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

Summary for Pond Drain Basin: Basin

Inflow Area = 0.448 ac, 85.04% Impervious, Inflow Depth = 0.00" for 1" event  
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min  
Discarded = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
Peak Elev= 161.50' @ 0.00 hrs Surf.Area= 54 sf Storage= 0 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
Center-of-Mass det. time= (not calculated: no inflow)

Volume	Invert	Avail.Storage	Storage	Description
#1	161.50'	2,610 cf		Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
161.50	54	0	0
162.00	108	41	41
163.00	313	211	251
164.00	603	458	709
165.00	934	769	1,478
166.00	1,330	1,132	2,610

Device	Routing	Invert	Outlet Devices
#1	Discarded	161.50'	2.410 in/hr Exfiltration over Surface area
#2	Primary	163.50'	4.0" Round Culvert L= 37.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 163.50' / 162.00' S= 0.0405' /' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.09 sf
#3	Primary	165.50'	8.0' long x 4.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Discarded OutFlow Max=0.00 cfs @ 0.00 hrs HW=161.50' (Free Discharge)  
1=Exfiltration (Passes 0.00 cfs of 0.00 cfs potential flow)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=161.50' (Free Discharge)  
2=Culvert ( Controls 0.00 cfs)  
3=Broad-Crested Rectangular Weir( Controls 0.00 cfs)

Summary for Pond INF#1: Inf#1

Inflow Area = 0.396 ac, 96.21% Impervious, Inflow Depth = 0.63" for 1" event  
Inflow = 0.29 cfs @ 12.09 hrs, Volume= 0.021 af  
Outflow = 0.20 cfs @ 12.06 hrs, Volume= 0.021 af, Atten= 30%, Lag= 0.0 min  
Discarded = 0.20 cfs @ 12.06 hrs, Volume= 0.021 af  
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
Peak Elev= 160.03' @ 12.17 hrs Surf.Area= 1,070 sf Storage= 54 cf

Plug-Flow detention time= 2.7 min calculated for 0.021 af (100% of inflow)  
Center-of-Mass det. time= 2.7 min ( 816.8 - 814.1 )

Volume	Invert	Avail.Storage	Storage Description
#1A	159.90'	2,058 cf	55.75'W x 19.19'L x 7.00'H Field A 7,490 cf Overall - 2,345 cf Embedded = 5,144 cf x 40.0% Voids
#2A	160.90'	2,345 cf	ADS StormTech MC-4500 +Cap x 18 Inside #1 Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.03'L = 106.5 cf Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap 18 Chambers in 6 Rows Cap Storage= +35.7 cf x 2 x 6 rows = 428.4 cf
		4,403 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	159.90'	8.270 in/hr Exfiltration over Surface area
#2	Primary	163.25'	4.0" Round Culvert L= 80.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 163.25' / 162.85' S= 0.0050' /' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.09 sf
#3	Primary	164.50'	12.0" Round Culvert L= 75.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 164.50' / 164.00' S= 0.0067' /' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Discarded OutFlow Max=0.20 cfs @ 12.06 hrs HW=159.97' (Free Discharge)  
1=Exfiltration (Exfiltration Controls 0.20 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=159.90' (Free Discharge)  
2=Culvert ( Controls 0.00 cfs)  
3=Culvert ( Controls 0.00 cfs)

Pond INF#1: Inf#1 - Chamber Wizard Field A

Chamber Model = ADS StormTechMC-4500 +Cap (ADS StormTech®MC-4500 with cap volume)  
Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.03'L = 106.5 cf  
Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap  
Cap Storage= +35.7 cf x 2 x 6 rows = 428.4 cf

100.0" Wide + 9.0" Spacing = 109.0" C-C Row Spacing

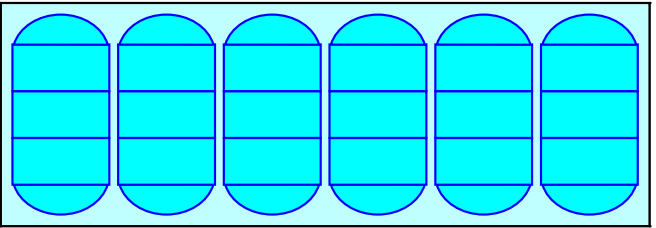
3 Chambers/Row x 4.02' Long +2.56' Cap Length x 2 = 17.19' Row Length +12.0" End Stone x 2 = 19.19' Base Length  
6 Rows x 100.0" Wide + 9.0" Spacing x 5 + 12.0" Side Stone x 2 = 55.75' Base Width  
12.0" Base + 60.0" Chamber Height + 12.0" Cover = 7.00' Field Height

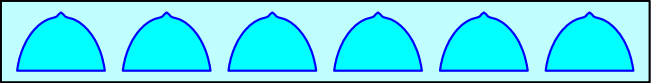
18 Chambers x 106.5 cf + 35.7 cf Cap Volume x 2 x 6 Rows = 2,345.2 cf Chamber Storage

7,489.5 cf Field - 2,345.2 cf Chambers = 5,144.3 cf Stone x 40.0% Voids = 2,057.7 cf Stone Storage

Chamber Storage + Stone Storage = 4,403.0 cf = 0.101 af  
Overall Storage Efficiency = 58.8%  
Overall System Size = 19.19' x 55.75' x 7.00'

18 Chambers  
277.4 cy Field  
190.5 cy Stone





Summary for Pond INF#2: Inf#2

Inflow Area = 1.908 ac, 70.75% Impervious, Inflow Depth = 0.21" for 1" event  
Inflow = 0.40 cfs @ 12.08 hrs, Volume= 0.033 af  
Outflow = 0.36 cfs @ 12.13 hrs, Volume= 0.033 af, Atten= 11%, Lag= 2.5 min  
Discarded = 0.36 cfs @ 12.13 hrs, Volume= 0.033 af  
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
Peak Elev= 153.47' @ 12.13 hrs Surf.Area= 2,562 sf Storage= 67 cf

Plug-Flow detention time= 3.1 min calculated for 0.033 af (100% of inflow)  
Center-of-Mass det. time= 3.1 min ( 818.3 - 815.1 )

Volume	Invert	Avail.Storage	Storage Description
#1A	153.40'	2,775 cf	<b>23.79'W x 107.69'L x 9.00'H Field A</b> 23,059 cf Overall - 16,122 cf Embedded = 6,937 cf x 40.0% Voids
#2A	154.40'	12,147 cf	<b>StormTrap ST2 DoubleTrap 6-0</b> x 6 Inside #1 Inside= 101.7"W x 72.0"H => 45.99 sf x 15.40'L = 708.0 cf Outside= 101.7"W x 84.0"H => 59.35 sf x 15.40'L = 913.8 cf 8.48' x 92.38' Core + 6.66' Border = 21.79' x 105.69' System
	14,922 cf	Total Available Storage	

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	153.40'	<b>8.270 in/hr Exfiltration over Surface area</b>
#2	Primary	155.00'	<b>6.0" Round Culvert</b> L= 35.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 155.00' / 154.00' S= 0.0286'/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 2	160.40'	<b>5.0' long x 0.5' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#4	Device 2	157.25'	<b>3.0" Vert. Orifice/Grate</b> C= 0.600
#5	Device 2	158.65'	<b>4.0" Vert. Orifice/Grate</b> C= 0.600

Discarded OutFlow Max=0.49 cfs @ 12.13 hrs HW=153.47' (Free Discharge)  
1=Exfiltration (Exfiltration Controls 0.49 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=153.40' (Free Discharge)  
2=Culvert ( Controls 0.00 cfs)  
3=Broad-Crested Rectangular Weir( Controls 0.00 cfs)  
4=Orifice/Grate ( Controls 0.00 cfs)  
5=Orifice/Grate ( Controls 0.00 cfs)

Pond INF#2: Inf#2 - Chamber Wizard Field A

Chamber Model = StormTrapST2 DoubleTrap 6-0 (StormTrapST2 DoubleTrap@Type II+IV)  
Inside= 101.7"W x 72.0"H => 45.99 sf x 15.40'L = 708.0 cf  
Outside= 101.7"W x 84.0"H => 59.35 sf x 15.40'L = 913.8 cf

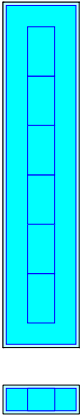
6 Chambers/Row x 15.40' Long = 92.38' Row Length +79.9" Border x 2 +12.0" End Stone x 2 = 107.69' Base Length  
1 Rows x 101.7" Wide + 79.9" Side Border x 2 + 12.0" Side Stone x 2 = 23.79' Base Width  
12.0" Base + 84.0" Chamber Height + 12.0" Cover = 9.00' Field Height

6 Chambers x 708.0 cf + 7,898.9 cf Border = 12,146.8 cf Chamber Storage  
6 Chambers x 913.8 cf + 10,638.9 cf Border = 16,121.7 cf Displacement

23,058.6 cf Field - 16,121.7 cf Chambers = 6,936.8 cf Stone x 40.0% Voids = 2,774.7 cf Stone Storage

Chamber Storage + Stone Storage = 14,921.5 cf = 0.343 af  
Overall Storage Efficiency = 64.7%  
Overall System Size = 107.69' x 23.79' x 9.00'

6 Chambers (plus border)  
854.0 cy Field  
256.9 cy Stone



Summary for Link POA-1: POA-1

Inflow Area = 0.733 ac, 15.83% Impervious, Inflow Depth = 0.00" for 1" event  
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Summary for Link POA-2: POA-2

Inflow Area = 3.356 ac, 52.00% Impervious, Inflow Depth = 0.00" for 1" event  
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs



Summary for Link POA-3: POA-3

Inflow Area = 0.639 ac, 8.29% Impervious, Inflow Depth = 0.00" for 1" event  
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentPWS-1A: PWS-1A Runoff Area=0.149 ac 0.00% Impervious Runoff Depth=0.00"  
Flow Length=76' Tc=9.1 min CN=31 Runoff=0.00 cfs 0.000 af

SubcatchmentPWS-1B: PWS-1B Runoff Area=0.584 ac 19.86% Impervious Runoff Depth=0.41"  
Slope=0.0390 1/ Flow Length=50' Tc=9.4 min CN=48 Runoff=0.11 cfs 0.020 af

SubcatchmentPWS-2A: PWS-2A Runoff Area=1.000 ac 1.40% Impervious Runoff Depth=0.01"  
Flow Length=250' Tc=12.3 min CN=33 Runoff=0.00 cfs 0.001 af

SubcatchmentPWS-2B: PWS-2B Runoff Area=1.458 ac 61.73% Impervious Runoff Depth=2.05"  
Tc=6.0 min CN=75 Runoff=3.48 cfs 0.249 af

SubcatchmentPWS-2C: PWS-2C Runoff Area=0.396 ac 96.21% Impervious Runoff Depth=4.04"  
Flow Length=181' Tc=6.0 min CN=96 Runoff=1.71 cfs 0.133 af

SubcatchmentPWS-2D: PWS-2D Runoff Area=0.052 ac 0.00% Impervious Runoff Depth=0.09"  
Tc=6.0 min CN=38 Runoff=0.00 cfs 0.000 af

SubcatchmentPWS-3: PWS-3 Runoff Area=0.639 ac 8.29% Impervious Runoff Depth=0.05"  
Flow Length=168' Tc=7.0 min CN=36 Runoff=0.00 cfs 0.003 af

SubcatchmentPWS-BLDG: PWS-BLDG Runoff Area=0.450 ac 100.00% Impervious Runoff Depth=4.26"  
Tc=6.0 min CN=98 Runoff=1.98 cfs 0.160 af

Pond Drain Basin: Basin Peak Elev=161.51' Storage=0 cf Inflow=0.00 cfs 0.000 af  
Discarded=0.00 cfs 0.000 af Primary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af

Pond INF#1: Inf#1 Peak Elev=162.62' Storage=1,825 cf Inflow=1.71 cfs 0.133 af  
Discarded=0.20 cfs 0.133 af Primary=0.00 cfs 0.000 af Outflow=0.20 cfs 0.133 af

Pond INF#2: Inf#2 Peak Elev=157.44' Storage=6,475 cf Inflow=5.45 cfs 0.409 af  
Discarded=0.49 cfs 0.405 af Primary=0.06 cfs 0.004 af Outflow=0.55 cfs 0.409 af

Link POA-1: POA-1 Inflow=0.11 cfs 0.020 af  
Primary=0.11 cfs 0.020 af

Link POA-2: POA-2 Inflow=0.06 cfs 0.005 af  
Primary=0.06 cfs 0.005 af

Link POA-3: POA-3 Inflow=0.00 cfs 0.003 af  
Primary=0.00 cfs 0.003 af

Total Runoff Area = 4.728 ac Runoff Volume = 0.566 af Average Runoff Depth = 1.44"  
59.52% Pervious = 2.814 ac 40.48% Impervious = 1.914 ac

Summary for Subcatchment PWS-1A: PWS-1A

Runoff = 0.00 cfs @ 24.03 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
Type III 24-hr 10 yr Rainfall=4.50"

Area (ac)	CN	Description
0.135	30	Woods, Good, HSG A
0.014	39	>75% Grass cover, Good, HSG A
0.149	31	Weighted Average
0.149		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5	50	0.0500	0.10		Sheet Flow, 50
0.6	26	0.0200	0.71		Woods: Light underbrush n= 0.400 P2= 3.20"
					Shallow Concentrated Flow, 51' SCF WOODS
					Woodland Kv= 5.0 fps
9.1	76	Total			

Summary for Subcatchment PWS-1B: PWS-1B

Runoff = 0.11 cfs @ 12.35 hrs, Volume= 0.020 af, Depth= 0.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
Type III 24-hr 10 yr Rainfall=4.50"

Area (ac)	CN	Description
0.308	39	>75% Grass cover, Good, HSG A
* 0.116	98	Impervious
0.160	30	Woods, Good, HSG A
0.584	48	Weighted Average
0.468		80.14% Pervious Area
0.116		19.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	50	0.0390	0.09		Sheet Flow, 50 SF
					Woods: Light underbrush n= 0.400 P2= 3.20"

Summary for Subcatchment PWS-2A: PWS-2A

Runoff = 0.00 cfs @ 22.92 hrs, Volume= 0.001 af, Depth= 0.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
Type III 24-hr 10 yr Rainfall=4.50"

Area (ac)	CN	Description
0.723	30	Woods, Good, HSG A
0.263	39	>75% Grass cover, Good, HSG A
* 0.014	98	Impervious
1.000	33	Weighted Average
0.986		98.60% Pervious Area
0.014		1.40% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3	50	0.0400	0.09		Sheet Flow, 50 sf woods 4% Woods: Light underbrush n= 0.400 P2= 3.20"
3.0	200	0.0500	1.12		Shallow Concentrated Flow, 200' scf woods 5% Woodland Kv= 5.0 fps
12.3	250	Total			

Summary for Subcatchment PWS-2B: PWS-2B

Runoff = 3.48 cfs @ 12.09 hrs, Volume= 0.249 af, Depth= 2.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
Type III 24-hr 10 yr Rainfall=4.50"

Area (ac)	CN	Description
* 0.900	98	DRIVEWAY
0.558	39	>75% Grass cover, Good, HSG A
1.458	75	Weighted Average
0.558		38.27% Pervious Area
0.900		61.73% Impervious Area

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

Summary for Subcatchment PWS-2C: PWS-2C

Runoff = 1.71 cfs @ 12.08 hrs, Volume= 0.133 af, Depth= 4.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
Type III 24-hr 10 yr Rainfall=4.50"

Area (ac)	CN	Description
* 0.381	98	IMPERVIOUS
0.015	39	>75% Grass cover, Good, HSG A
0.396	96	Weighted Average
0.015		3.79% Pervious Area
0.381		96.21% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.7	50	0.0320	0.18		Sheet Flow, 50' SF GRASS Grass: Short n= 0.150 P2= 3.20"
0.1	5	0.0320	1.25		Shallow Concentrated Flow, 5 Short Grass Pasture Kv= 7.0 fps
0.0	3	0.0320	3.63		Shallow Concentrated Flow, 3' PAVED Paved Kv= 20.3 fps
0.3	47	0.0300	2.60		Shallow Concentrated Flow, GRASS SCF Grassed Waterway Kv= 15.0 fps
0.1	44	0.2100	6.87		Shallow Concentrated Flow, 44' SCF GRASS Grassed Waterway Kv= 15.0 fps
0.1	32	0.0500	4.54		Shallow Concentrated Flow, 32' SCF PAVE Paved Kv= 20.3 fps
5.3	181	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment PWS-2D: PWS-2D

Runoff = 0.00 cfs @ 14.98 hrs, Volume= 0.000 af, Depth= 0.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
Type III 24-hr 10 yr Rainfall=4.50"

Area (ac)	CN	Description
0.048	39	>75% Grass cover, Good, HSG A
0.004	30	Woods, Good, HSG A
0.052	38	Weighted Average
0.052		100.00% Pervious Area

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

Summary for Subcatchment PWS-3: PWS-3

Runoff = 0.00 cfs @ 15.64 hrs, Volume= 0.003 af, Depth= 0.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
Type III 24-hr 10 yr Rainfall=4.50"

Area (ac)	CN	Description
0.043	39	>75% Grass cover, Good, HSG A
0.543	30	Woods, Good, HSG A
* 0.053	98	DRIVEWAY
0.639	36	Weighted Average
0.586		91.71% Pervious Area
0.053		8.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	50	0.1100	0.13		Sheet Flow, 50' sf woods
					Woods: Light underbrush n= 0.400 P2= 3.20"
0.4	38	0.1000	1.58		Shallow Concentrated Flow, 38' scf woods
					Woodland Kv= 5.0 fps
0.2	43	0.0500	3.35		Shallow Concentrated Flow, 43' scf
					Grassed Waterway Kv= 15.0 fps
0.2	37	0.2500	2.50		Shallow Concentrated Flow, 37' scf woods
					Woodland Kv= 5.0 fps
7.0	168	Total			

Summary for Subcatchment PWS-BLDG: PWS-BLDG

Runoff = 1.98 cfs @ 12.08 hrs, Volume= 0.160 af, Depth= 4.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
Type III 24-hr 10 yr Rainfall=4.50"

Area (ac)	CN	Description
* 0.450	98	BLDG
0.450		100.00% Impervious Area

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

Summary for Pond Drain Basin: Basin

Inflow Area = 0.448 ac, 85.04% Impervious, Inflow Depth = 0.01" for 10 yr event  
Inflow = 0.00 cfs @ 14.98 hrs, Volume= 0.000 af  
Outflow = 0.00 cfs @ 15.19 hrs, Volume= 0.000 af, Atten= 1%, Lag= 12.9 min  
Discarded = 0.00 cfs @ 15.19 hrs, Volume= 0.000 af  
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
Peak Elev= 161.51' @ 15.19 hrs Surf.Area= 55 sf Storage= 0 cf

Plug-Flow detention time= 12.9 min calculated for 0.000 af (100% of inflow)  
Center-of-Mass det. time= 12.9 min ( 1,088.5 - 1,075.6 )

Volume	Invert	Avail.Storage	Storage Description
#1	161.50'	2,610 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
161.50	54	0	0
162.00	108	41	41
163.00	313	211	251
164.00	603	458	709
165.00	934	769	1,478
166.00	1,330	1,132	2,610

Device	Routing	Invert	Outlet Devices
#1	Discarded	161.50'	2.410 in/hr Exfiltration over Surface area
#2	Primary	163.50'	4.0" Round Culvert L= 37.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 163.50' / 162.00' S= 0.0405' /' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.09 sf
#3	Primary	165.50'	8.0' long x 4.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Discarded OutFlow Max=0.00 cfs @ 15.19 hrs HW=161.51' (Free Discharge)  
1=Exfiltration (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=161.50' (Free Discharge)  
2=Culvert ( Controls 0.00 cfs)  
3=Broad-Crested Rectangular Weir ( Controls 0.00 cfs)

Summary for Pond INF#1: Inf#1

Inflow Area = 0.396 ac, 96.21% Impervious, Inflow Depth = 4.04" for 10 yr event  
Inflow = 1.71 cfs @ 12.08 hrs, Volume= 0.133 af  
Outflow = 0.20 cfs @ 11.60 hrs, Volume= 0.133 af, Atten= 88%, Lag= 0.0 min  
Discarded = 0.20 cfs @ 11.60 hrs, Volume= 0.133 af  
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
Peak Elev= 162.62' @ 12.66 hrs Surf.Area= 1,070 sf Storage= 1,825 cf

Plug-Flow detention time= 57.3 min calculated for 0.133 af (100% of inflow)  
Center-of-Mass det. time= 57.3 min ( 822.3 - 765.0 )

Volume	Invert	Avail.Storage	Storage Description
#1A	159.90'	2,058 cf	55.75'W x 19.19'L x 7.00'H Field A 7,490 cf Overall - 2,345 cf Embedded = 5,144 cf x 40.0% Voids
#2A	160.90'	2,345 cf	ADS StormTech MC-4500 +Capx 18 Inside #1 Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.03'L = 106.5 cf Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap 18 Chambers in 6 Rows Cap Storage= +35.7 cf x 2 x 6 rows = 428.4 cf
		4,403 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	159.90'	8.270 in/hr Exfiltration over Surface area
#2	Primary	163.25'	4.0" Round Culvert L= 80.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 163.25' / 162.85' S= 0.0050' /' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.09 sf
#3	Primary	164.50'	12.0" Round Culvert L= 75.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 164.50' / 164.00' S= 0.0067' /' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Discarded OutFlow Max=0.20 cfs @ 11.60 hrs HW=159.97' (Free Discharge)  
1=Exfiltration (Exfiltration Controls 0.20 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=159.90' (Free Discharge)  
2=Culvert ( Controls 0.00 cfs)  
3=Culvert ( Controls 0.00 cfs)

Pond INF#1: Inf#1 - Chamber Wizard Field A

Chamber Model = ADS\_StormTechMC-4500 +Cap (ADS StormTech®MC-4500 with cap volume)  
Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.03'L = 106.5 cf  
Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap  
Cap Storage= +35.7 cf x 2 x 6 rows = 428.4 cf

100.0" Wide + 9.0" Spacing = 109.0" C-C Row Spacing

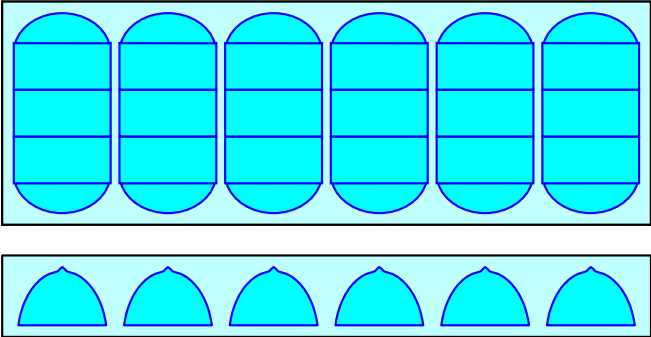
3 Chambers/Row x 4.02' Long +2.56" Cap Length x 2 = 17.19' Row Length +12.0" End Stone x 2 = 19.19'  
Base Length  
6 Rows x 100.0" Wide + 9.0" Spacing x 5 + 12.0" Side Stone x 2 = 55.75' Base Width  
12.0" Base + 60.0" Chamber Height + 12.0" Cover = 7.00' Field Height

18 Chambers x 106.5 cf + 35.7 cf Cap Volume x 2 x 6 Rows = 2,345.2 cf Chamber Storage

7,489.5 cf Field - 2,345.2 cf Chambers = 5,144.3 cf Stone x 40.0% Voids = 2,057.7 cf Stone Storage

Chamber Storage + Stone Storage = 4,403.0 cf = 0.101 af  
Overall Storage Efficiency = 58.8%  
Overall System Size = 19.19' x 55.75' x 7.00'

18 Chambers  
277.4 cy Field  
190.5 cy Stone



Pond INF#2: Inf#2 - Chamber Wizard Field A

Chamber Model = StormTrapST2 DoubleTrap 6-0 (StormTrapST2 DoubleTrap@Type II+IV)  
Inside= 101.7"W x 72.0"H => 45.99 sf x 15.40'L = 708.0 cf  
Outside= 101.7"W x 84.0"H => 59.35 sf x 15.40'L = 913.8 cf

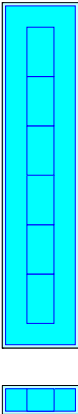
6 Chambers/Row x 15.40' Long = 92.38' Row Length +79.9" Border x 2 + 12.0" End Stone x 2 = 107.69'  
Base Length  
1 Rows x 101.7" Wide + 79.9" Side Border x 2 + 12.0" Side Stone x 2 = 23.79' Base Width  
12.0" Base + 84.0" Chamber Height + 12.0" Cover = 9.00' Field Height

6 Chambers x 708.0 cf + 7,898.9 cf Border = 12,146.8 cf Chamber Storage  
6 Chambers x 913.8 cf + 10,638.9 cf Border = 16,121.7 cf Displacement

23,058.6 cf Field - 16,121.7 cf Chambers = 6,936.8 cf Stone x 40.0% Voids = 2,774.7 cf Stone Storage

Chamber Storage + Stone Storage = 14,921.5 cf = 0.343 af  
Overall Storage Efficiency = 64.7%  
Overall System Size = 107.69' x 23.79' x 9.00'

6 Chambers (plus border)  
854.0 cy Field  
256.9 cy Stone



Summary for Pond INF#2: Inf#2

Inflow Area = 1.908 ac, 70.75% Impervious, Inflow Depth = 2.57" for 10 yr event  
Inflow = 5.45 cfs @ 12.09 hrs, Volume= 0.409 af  
Outflow = 0.55 cfs @ 12.98 hrs, Volume= 0.409 af, Atten= 90%, Lag= 53.7 min  
Discarded = 0.49 cfs @ 11.61 hrs, Volume= 0.405 af  
Primary = 0.06 cfs @ 12.98 hrs, Volume= 0.004 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
Peak Elev= 157.44' @ 12.98 hrs Surf.Area= 2,562 sf Storage= 6,475 cf

Plug-Flow detention time= 105.1 min calculated for 0.409 af (100% of inflow)  
Center-of-Mass det. time= 105.0 min ( 909.8 - 804.8 )

Volume	Invert	Avail.Storage	Storage Description
#1A	153.40'	2,775 cf	<b>23.79'W x 107.69'L x 9.00'H Field A</b> 23,059 cf Overall - 16,122 cf Embedded = 6,937 cf x 40.0% Voids
#2A	154.40'	12,147 cf	<b>StormTrap ST2 DoubleTrap 6-0</b> x 6 Inside #1 Inside= 101.7"W x 72.0"H => 45.99 sf x 15.40'L = 708.0 cf Outside= 101.7"W x 84.0"H => 59.35 sf x 15.40'L = 913.8 cf 8.48' x 92.38' Core + 6.66' Border = 21.79' x 105.69' System
14,922 cf			Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	153.40'	<b>8.270 in/hr Exfiltration over Surface area</b>
#2	Primary	155.00'	<b>6.0" Round Culvert</b> L= 35.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 155.00' / 154.00' S= 0.0286'/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 2	160.40'	<b>5.0' long x 0.5' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#4	Device 2	157.25'	<b>3.0" Vert. Orifice/Grate</b> C= 0.600
#5	Device 2	158.65'	<b>4.0" Vert. Orifice/Grate</b> C= 0.600

**Discarded OutFlow** Max=0.49 cfs @ 11.61 hrs HW=153.49' (Free Discharge)  
1=Exfiltration (Exfiltration Controls 0.49 cfs)

**Primary OutFlow** Max=0.06 cfs @ 12.98 hrs HW=157.44' (Free Discharge)  
2=Culvert (Passes 0.06 cfs of 1.10 cfs potential flow)  
3=Broad-Crested Rectangular Weir( Controls 0.00 cfs)  
4=Orifice/Grate (Orifice Controls 0.06 cfs @ 1.47 fps)  
5=Orifice/Grate ( Controls 0.00 cfs)

Summary for Link POA-1: POA-1

Inflow Area = 0.733 ac, 15.83% Impervious, Inflow Depth = 0.33" for 10 yr event  
Inflow = 0.11 cfs @ 12.35 hrs, Volume= 0.020 af  
Primary = 0.11 cfs @ 12.35 hrs, Volume= 0.020 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Summary for Link POA-2: POA-2

Inflow Area = 3.356 ac, 52.00% Impervious, Inflow Depth = 0.02" for 10 yr event  
Inflow = 0.06 cfs @ 12.98 hrs, Volume= 0.005 af  
Primary = 0.06 cfs @ 12.98 hrs, Volume= 0.005 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Summary for Link POA-3: POA-3

Inflow Area = 0.639 ac, 8.29% Impervious, Inflow Depth = 0.05" for 10 yr event  
Inflow = 0.00 cfs @ 15.64 hrs, Volume= 0.003 af  
Primary = 0.00 cfs @ 15.64 hrs, Volume= 0.003 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentPWS-1A: PWS-1A Runoff Area=0.149 ac 0.00% Impervious Runoff Depth=0.26"  
Flow Length=76' Tc=9.1 min CN=31 Runoff=0.01 cfs 0.003 af

SubcatchmentPWS-1B: PWS-1B Runoff Area=0.584 ac 19.86% Impervious Runoff Depth=1.49"  
Flow Length=50' Slope=0.0390 1' Tc=9.4 min CN=48 Runoff=0.75 cfs 0.073 af

SubcatchmentPWS-2A: PWS-2A Runoff Area=1.000 ac 1.40% Impervious Runoff Depth=0.37"  
Flow Length=250' Tc=12.3 min CN=33 Runoff=0.10 cfs 0.031 af

SubcatchmentPWS-2B: PWS-2B Runoff Area=1.458 ac 61.73% Impervious Runoff Depth=4.15"  
Tc=6.0 min CN=75 Runoff=7.09 cfs 0.504 af

SubcatchmentPWS-2C: PWS-2C Runoff Area=0.396 ac 96.21% Impervious Runoff Depth=6.52"  
Flow Length=181' Tc=6.0 min CN=96 Runoff=2.70 cfs 0.215 af

SubcatchmentPWS-2D: PWS-2D Runoff Area=0.052 ac 0.00% Impervious Runoff Depth=0.70"  
Tc=6.0 min CN=38 Runoff=0.02 cfs 0.003 af

SubcatchmentPWS-3: PWS-3 Runoff Area=0.639 ac 8.29% Impervious Runoff Depth=0.56"  
Flow Length=168' Tc=7.0 min CN=36 Runoff=0.15 cfs 0.030 af

SubcatchmentPWS-BLDG: PWS-BLDG Runoff Area=0.450 ac 100.00% Impervious Runoff Depth=6.76"  
Tc=6.0 min CN=98 Runoff=3.09 cfs 0.254 af

Pond Drain Basin: Basin Peak Elev=163.86' Storage=625 cf Inflow=0.27 cfs 0.027 af  
Discarded=0.03 cfs 0.017 af Primary=0.14 cfs 0.011 af Outflow=0.18 cfs 0.027 af

Pond INF#1: Inf#1 Peak Elev=164.32' Storage=3.076 cf Inflow=2.70 cfs 0.215 af  
Discarded=0.20 cfs 0.191 af Primary=0.26 cfs 0.024 af Outflow=0.46 cfs 0.215 af

Pond INF#2: Inf#2 Peak Elev=160.30' Storage=12.572 cf Inflow=10.18 cfs 0.758 af  
Discarded=0.49 cfs 0.569 af Primary=0.92 cfs 0.189 af Outflow=1.41 cfs 0.758 af

Link POA-1: POA-1 Inflow=0.75 cfs 0.076 af  
Primary=0.75 cfs 0.076 af

Link POA-2: POA-2 Inflow=1.06 cfs 0.230 af  
Primary=1.06 cfs 0.230 af

Link POA-3: POA-3 Inflow=0.15 cfs 0.030 af  
Primary=0.15 cfs 0.030 af

Total Runoff Area = 4.728 ac Runoff Volume = 1.113 af Average Runoff Depth = 2.82"  
59.52% Pervious = 2.814 ac 40.48% Impervious = 1.914 ac

Summary for Subcatchment PWS-1A: PWS-1A

Runoff = 0.01 cfs @ 12.54 hrs, Volume= 0.003 af, Depth= 0.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
Type III 24-hr 100 yr Rainfall=7.00"

Area (ac)	CN	Description
0.135	30	Woods, Good, HSG A
0.014	39	>75% Grass cover, Good, HSG A
0.149	31	Weighted Average
0.149		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5	50	0.0500	0.10		Sheet Flow, 50
0.6	26	0.0200	0.71		Woods: Light underbrush n= 0.400 P2= 3.20"
					Shallow Concentrated Flow, 51' SCF WOODS
					Woodland Kv= 5.0 fps
9.1	76	Total			

Summary for Subcatchment PWS-1B: PWS-1B

Runoff = 0.75 cfs @ 12.15 hrs, Volume= 0.073 af, Depth= 1.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
Type III 24-hr 100 yr Rainfall=7.00"

Area (ac)	CN	Description
0.308	39	>75% Grass cover, Good, HSG A
* 0.116	98	Impervious
0.160	30	Woods, Good, HSG A
0.584	48	Weighted Average
0.468		80.14% Pervious Area
0.116		19.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	50	0.0390	0.09		Sheet Flow, 50 SF Woods: Light underbrush n= 0.400 P2= 3.20"

Summary for Subcatchment PWS-2A: PWS-2A

Runoff = 0.10 cfs @ 12.51 hrs, Volume= 0.031 af, Depth= 0.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
Type III 24-hr 100 yr Rainfall=7.00"

Area (ac)	CN	Description
0.723	30	Woods, Good, HSG A
0.263	39	>75% Grass cover, Good, HSG A
* 0.014	98	Impervious
1.000	33	Weighted Average
0.986		98.60% Pervious Area
0.014		1.40% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3	50	0.0400	0.09		Sheet Flow, 50 sf woods 4% Woods: Light underbrush n= 0.400 P2= 3.20"
3.0	200	0.0500	1.12		Shallow Concentrated Flow, 200' scf woods 5% Woodland Kv= 5.0 fps
12.3	250	Total			

Summary for Subcatchment PWS-2B: PWS-2B

Runoff = 7.09 cfs @ 12.09 hrs, Volume= 0.504 af, Depth= 4.15"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
Type III 24-hr 100 yr Rainfall=7.00"

Area (ac)	CN	Description
* 0.900	98	DRIVEWAY
0.558	39	>75% Grass cover, Good, HSG A
1.458	75	Weighted Average
0.558		38.27% Pervious Area
0.900		61.73% Impervious Area

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

Summary for Subcatchment PWS-2C: PWS-2C

Runoff = 2.70 cfs @ 12.08 hrs, Volume= 0.215 af, Depth= 6.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
Type III 24-hr 100 yr Rainfall=7.00"

Area (ac)	CN	Description
* 0.381	98	IMPERVIOUS
0.015	39	>75% Grass cover, Good, HSG A
0.396	96	Weighted Average
0.015		3.79% Pervious Area
0.381		96.21% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.7	50	0.0320	0.18		Sheet Flow, 50' SF GRASS Grass: Short n= 0.150 P2= 3.20"
0.1	5	0.0320	1.25		Shallow Concentrated Flow, 5 Short Grass Pasture Kv= 7.0 fps
0.0	3	0.0320	3.63		Shallow Concentrated Flow, 3' PAVED Paved Kv= 20.3 fps
0.3	47	0.0300	2.60		Shallow Concentrated Flow, GRASS SCF Grassed Waterway Kv= 15.0 fps
0.1	44	0.2100	6.87		Shallow Concentrated Flow, 44' SCF GRASS Grassed Waterway Kv= 15.0 fps
0.1	32	0.0500	4.54		Shallow Concentrated Flow, 32' SCF PAVE Paved Kv= 20.3 fps
5.3	181	Total			Total, Increased to minimum Tc = 6.0 min

Summary for Subcatchment PWS-2D: PWS-2D

Runoff = 0.02 cfs @ 12.16 hrs, Volume= 0.003 af, Depth= 0.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
Type III 24-hr 100 yr Rainfall=7.00"

Area (ac)	CN	Description
0.048	39	>75% Grass cover, Good, HSG A
0.004	30	Woods, Good, HSG A
0.052	38	Weighted Average
0.052		100.00% Pervious Area

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

Summary for Subcatchment PWS-3: PWS-3

Runoff = 0.15 cfs @ 12.34 hrs, Volume= 0.030 af, Depth= 0.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
Type III 24-hr 100 yr Rainfall=7.00"

Area (ac)	CN	Description
0.043	39	>75% Grass cover, Good, HSG A
0.543	30	Woods, Good, HSG A
* 0.053	98	DRIVEWAY
0.639	36	Weighted Average
0.586		91.71% Pervious Area
0.053		8.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	50	0.1100	0.13		Sheet Flow, 50' sf woods Woods: Light underbrush n= 0.400 P2= 3.20"
0.4	38	0.1000	1.58		Shallow Concentrated Flow, 38' scf woods Woodland Kv= 5.0 fps
0.2	43	0.0500	3.35		Shallow Concentrated Flow, 43' scf Grassed Waterway Kv= 15.0 fps
0.2	37	0.2500	2.50		Shallow Concentrated Flow, 37' scf woods Woodland Kv= 5.0 fps
7.0	168	Total			

Summary for Subcatchment PWS-BLDG: PWS-BLDG

Runoff = 3.09 cfs @ 12.08 hrs, Volume= 0.254 af, Depth= 6.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
Type III 24-hr 100 yr Rainfall=7.00"

Area (ac)	CN	Description
* 0.450	98	BLDG
0.450		100.00% Impervious Area

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

Summary for Pond Drain Basin: Basin

[81] Warning: Exceeded Pond INF#1 by 0.85' @ 16.00 hrs

Inflow Area = 0.448 ac, 85.04% Impervious, Inflow Depth = 0.73" for 100 yr event  
Inflow = 0.27 cfs @ 12.51 hrs, Volume= 0.027 af  
Outflow = 0.18 cfs @ 13.29 hrs, Volume= 0.027 af, Atten= 35%, Lag= 46.9 min  
Discarded = 0.03 cfs @ 13.29 hrs, Volume= 0.017 af  
Primary = 0.14 cfs @ 13.29 hrs, Volume= 0.011 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
Peak Elev= 163.86' @ 13.29 hrs Surf.Area= 561 sf Storage= 625 cf

Plug-Flow detention time= 144.6 min calculated for 0.027 af (100% of inflow)  
Center-of-Mass det. time= 144.6 min ( 934.6 - 790.0 )

Volume #1	Invert 161.50'	Avail.Storage 2,610 cf	Storage Description Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
161.50	54	0	0
162.00	108	41	41
163.00	313	211	251
164.00	603	458	709
165.00	934	769	1,478
166.00	1,330	1,132	2,610

Device	Routing	Invert	Outlet Devices
#1	Discarded	161.50'	2.410 in/hr Exfiltration over Surface area
#2	Primary	163.50'	4.0" Round Culvert L= 37.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 163.50' / 162.00' S= 0.0405' / Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.09 sf
#3	Primary	165.50'	8.0' long x 4.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Discarded OutFlow Max=0.03 cfs @ 13.29 hrs HW=163.86' (Free Discharge)  
1=Exfiltration (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.14 cfs @ 13.29 hrs HW=163.86' (Free Discharge)  
2=Culvert (Inlet Controls 0.14 cfs @ 1.65 fps)  
3=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

## Summary for Pond INF#1: Inf#1

Inflow Area = 0.396 ac, 96.21% Impervious, Inflow Depth = 6.52" for 100 yr event  
Inflow = 2.70 cfs @ 12.08 hrs, Volume= 0.215 af  
Outflow = 0.46 cfs @ 12.54 hrs, Volume= 0.215 af, Atten= 83%, Lag= 27.3 min  
Discarded = 0.20 cfs @ 11.16 hrs, Volume= 0.191 af  
Primary = 0.26 cfs @ 12.54 hrs, Volume= 0.024 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
Peak Elev= 164.32' @ 12.54 hrs Surf.Area= 1,070 sf Storage= 3,076 cf

Plug-Flow detention time= 78.2 min calculated for 0.215 af (100% of inflow)  
Center-of-Mass det. time= 78.2 min ( 833.2 - 755.0 )

Volume	Invert	Avail.Storage	Storage Description
#1A	159.90'	2,058 cf	<b>55.75'W x 19.19'L x 7.00'H Field A</b> 7,490 cf Overall - 2,345 cf Embedded = 5,144 cf x 40.0% Voids
#2A	160.90'	2,345 cf	<b>ADS StormTech MC-4500 +Cap</b> x 18 Inside #1 Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.03'L = 106.5 cf Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap 18 Chambers in 6 Rows Cap Storage= +35.7 cf x 2 x 6 rows = 428.4 cf
		4,403 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	159.90'	<b>8.270 in/hr Exfiltration over Surface area</b>
#2	Primary	163.25'	<b>4.0" Round Culvert</b> L= 80.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 163.25' / 162.85' S= 0.0050' /' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.09 sf
#3	Primary	164.50'	<b>12.0" Round Culvert</b> L= 75.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 164.50' / 164.00' S= 0.0067' /' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

**Discarded OutFlow** Max=0.20 cfs @ 11.16 hrs HW=159.97' (Free Discharge)

1=Exfiltration (Exfiltration Controls 0.20 cfs)

**Primary OutFlow** Max=0.26 cfs @ 12.54 hrs HW=164.32' (Free Discharge)

2=Culvert (Barrel Controls 0.26 cfs @ 2.96 fps)

3=Culvert (Controls 0.00 cfs)

## Pond INF#1: Inf#1 - Chamber Wizard Field A

**Chamber Model = ADS StormTechMC-4500 +Cap (ADS StormTech®MC-4500 with cap volume)**

Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.03'L = 106.5 cf

Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap

Cap Storage= +35.7 cf x 2 x 6 rows = 428.4 cf

100.0" Wide + 9.0" Spacing = 109.0" C-C Row Spacing

3 Chambers/Row x 4.02' Long +2.56' Cap Length x 2 = 17.19' Row Length +12.0" End Stone x 2 = 19.19' Base Length

6 Rows x 100.0" Wide + 9.0" Spacing x 5 + 12.0" Side Stone x 2 = 55.75' Base Width

12.0" Base + 60.0" Chamber Height + 12.0" Cover = 7.00' Field Height

18 Chambers x 106.5 cf + 35.7 cf Cap Volume x 2 x 6 Rows = 2,345.2 cf Chamber Storage

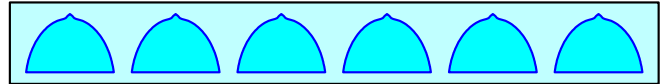
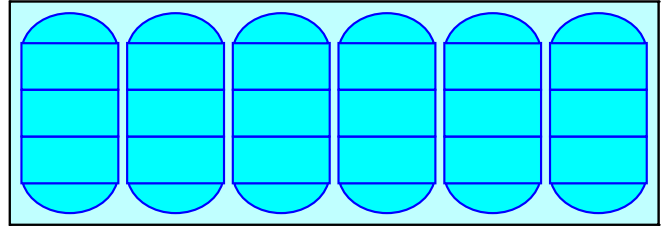
7,489.5 cf Field - 2,345.2 cf Chambers = 5,144.3 cf Stone x 40.0% Voids = 2,057.7 cf Stone Storage

Chamber Storage + Stone Storage = 4,403.0 cf = 0.101 af

Overall Storage Efficiency = 58.8%

Overall System Size = 19.19' x 55.75' x 7.00'

18 Chambers  
277.4 cy Field  
190.5 cy Stone



## Summary for Pond INF#2: Inf#2

Inflow Area = 1.908 ac, 70.75% Impervious, Inflow Depth = 4.77" for 100 yr event  
Inflow = 10.18 cfs @ 12.09 hrs, Volume= 0.758 af  
Outflow = 1.41 cfs @ 12.62 hrs, Volume= 0.758 af, Atten= 86%, Lag= 32.2 min  
Discarded = 0.49 cfs @ 10.92 hrs, Volume= 0.569 af  
Primary = 0.92 cfs @ 12.62 hrs, Volume= 0.189 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
Peak Elev= 160.30' @ 12.62 hrs Surf.Area= 2,562 sf Storage= 12,572 cf

Plug-Flow detention time= 124.3 min calculated for 0.758 af (100% of inflow)  
Center-of-Mass det. time= 124.3 min ( 918.3 - 794.0 )

Volume	Invert	Avail.Storage	Storage Description
#1A	153.40'	2,775 cf	<b>23.79'W x 107.69'L x 9.00'H Field A</b> 23,059 cf Overall - 16,122 cf Embedded = 6,937 cf x 40.0% Voids
#2A	154.40'	12,147 cf	<b>StormTrap ST2 DoubleTrap 6-0</b> x 6 Inside #1 Inside= 101.7"W x 72.0"H => 45.99 sf x 15.40'L = 708.0 cf Outside= 101.7"W x 84.0"H => 59.35 sf x 15.40'L = 913.8 cf 8.48' x 92.38' Core + 6.66' Border = 21.79' x 105.69' System
		14,922 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	153.40'	<b>8.270 in/hr Exfiltration over Surface area</b>
#2	Primary	155.00'	<b>6.0" Round Culvert</b> L= 35.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 155.00' / 154.00' S= 0.0286' /' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 2	160.40'	<b>5.0' long x 0.5' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#4	Device 2	157.25'	<b>3.0" Vert. Orifice/Grate</b> C= 0.600
#5	Device 2	158.65'	<b>4.0" Vert. Orifice/Grate</b> C= 0.600

**Discarded OutFlow** Max=0.49 cfs @ 10.92 hrs HW=153.49' (Free Discharge)

1=Exfiltration (Exfiltration Controls 0.49 cfs)

**Primary OutFlow** Max=0.92 cfs @ 12.62 hrs HW=160.30' (Free Discharge)

2=Culvert (Passes 0.92 cfs of 1.68 cfs potential flow)

3=Broad-Crested Rectangular Weir( Controls 0.00 cfs)

4=Orifice/Grate (Orifice Controls 0.40 cfs @ 8.24 fps)

5=Orifice/Grate (Orifice Controls 0.51 cfs @ 5.87 fps)

## Pond INF#2: Inf#2 - Chamber Wizard Field A

**Chamber Model = StormTrapST2 DoubleTrap 6-0 (StormTrapST2 DoubleTrap®Type II+IV)**

Inside= 101.7"W x 72.0"H => 45.99 sf x 15.40'L = 708.0 cf

Outside= 101.7"W x 84.0"H => 59.35 sf x 15.40'L = 913.8 cf

6 Chambers/Row x 15.40' Long = 92.38' Row Length +79.9" Border x 2 +12.0" End Stone x 2 = 107.69' Base Length

1 Rows x 101.7" Wide + 79.9" Side Border x 2 + 12.0" Side Stone x 2 = 23.79' Base Width

12.0" Base + 84.0" Chamber Height + 12.0" Cover = 9.00' Field Height

6 Chambers x 708.0 cf + 7,898.9 cf Border = 12,146.8 cf Chamber Storage

6 Chambers x 913.8 cf + 10,638.9 cf Border = 16,121.7 cf Displacement

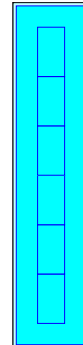
23,058.6 cf Field - 16,121.7 cf Chambers = 6,936.8 cf Stone x 40.0% Voids = 2,774.7 cf Stone Storage

Chamber Storage + Stone Storage = 14,921.5 cf = 0.343 af

Overall Storage Efficiency = 64.7%

Overall System Size = 107.69' x 23.79' x 9.00'

6 Chambers (plus border)  
854.0 cy Field  
256.9 cy Stone





Summary for Link POA-1: POA-1

Inflow Area = 0.733 ac, 15.83% Impervious, Inflow Depth = 1.24" for 100 yr event  
Inflow = 0.75 cfs @ 12.15 hrs, Volume= 0.076 af  
Primary = 0.75 cfs @ 12.15 hrs, Volume= 0.076 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Summary for Link POA-2: POA-2

Inflow Area = 3.356 ac, 52.00% Impervious, Inflow Depth = 0.82" for 100 yr event  
Inflow = 1.06 cfs @ 13.00 hrs, Volume= 0.230 af  
Primary = 1.06 cfs @ 13.00 hrs, Volume= 0.230 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Summary for Link POA-3: POA-3

Inflow Area = 0.639 ac, 8.29% Impervious, Inflow Depth = 0.56" for 100 yr event  
Inflow = 0.15 cfs @ 12.34 hrs, Volume= 0.030 af  
Primary = 0.15 cfs @ 12.34 hrs, Volume= 0.030 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs



**APPENDIX 3:**  
**ECR WETLANDS REPORT**





Environmental Consulting & Restoration, LLC



## **WETLAND DELINEATION REPORT**

**TO:** Samiotes Consultants, Inc.  
**FROM:** Brad Holmes @ ECR, LLC  
**DATE:** June 5, 2023  
**RE:** 124 Cochituate Road, Wayland

Per your request, Environmental Consulting & Restoration, LLC (ECR) performed wetland delineation activities on January 7, 2023 and April 12, 2023 at St. Ann's Church at 124 Cochituate Road in Wayland (the Site). The delineation events covered both parcels of land referenced as 124 Cochituate Road, which consists of the church with associated parking lot and the residence building with associated forested woodland. ECR also performed additional site reviews to evaluate the presence of a potential vernal pool at the site. The weather during the delineation events consisted of fair-weather conditions suitable for field work.

### **Wetland Delineation**

ECR located the landward limits of the vegetated wetlands on and near the site. Wetland flags consisting of pink & black striped ribbons were placed at the landward limit of the following wetland areas:

Isolated Vegetated Wetland (IVW) #A1 to #A10, #A1-1 to #A1-22 connecting to #A10 – this marks the landward limit of an isolated vegetated wetland to the east of the parking lot. This wetland is isolated and does not connect to other wetland resource areas.

Potential Vernal Pool #PVP1 to #PVP19 – Mean Annual High Water line of a Potential Vernal Pool within the A series IVW. The PVP was holding water during the April 12<sup>th</sup> review. ECR performed an additional review of this PVP on May 31, 2023. The PVP was also holding water during the May 31<sup>st</sup> review and contained abundant evidence of vernal pool indicators to include tadpoles feeding off the water surface. Chorusng Wood Frogs could also be heard during the May 31<sup>st</sup> review. Based on ECR's two reviews during the vernal pool season, it is ECR opinion that this PVP contains the physical and biological criteria necessary for certification of the vernal pool by Massachusetts Natural Heritage & Endangered Species Program.

Bordering Vegetated Wetland (BVW) #B1 to #B25, #B1-1 to #B1-27 – this marks the limit of a large wetland system on and near the northeastern portion of the site. This wetland merges into a pond.

ECR walked and reviewed the remaining portions of the site and confirms that the rest of the site is upland.

### **Wetland Delineation Methodology**

The vegetated wetlands were delineated following the methodology established by the Massachusetts Department of Environmental Protection (DEP) regulations found at 310 CMR 10.55 pertaining to the delineation of Bordering Vegetated Wetlands. The delineation was performed by analyzing vegetation, hydrology within 12 inches of the surface, and soil conditions within 20 inches of the surface. The vegetated wetlands contain hydric soils, saturated soils, and dominant wetland indicator plants. One transect with two examination plots (yellow numbered plastic ribbons) was conducted in order to verify the accuracy of this wetland delineation (please refer to the DEP BVW Field Data Sheets attached).

# ECR

Environmental Consulting & Restoration, LLC



As a result of ECR's field work and review of available environmental databases, ECR is able to confirm that the site contains the following wetland resource areas and areas of Conservation Commission jurisdiction:

- Isolated Vegetated Wetland (IVW)
- Bordering Vegetated Wetlands (BVW)
- 100-foot buffer zone to BVW & IVW

**Notes:**

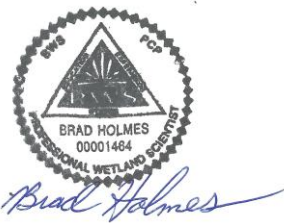
1. The site is not located within Estimated/Priority Habitat for Rare Species according to the Massachusetts Natural Heritage & Endangered Species Program (MaNHESP).
2. The site does not contain Certified Vernal Pools according to the MaNHESP. There Potential Vernal Pool flagged at the site is mapped by MaNHESP as a Potential Vernal Pool.
3. The site does not contain areas mapped as Land Subject to Flooding according to the FEMA maps.
4. The site is not located within an Area of Critical Environmental Concern.

**Attachments**

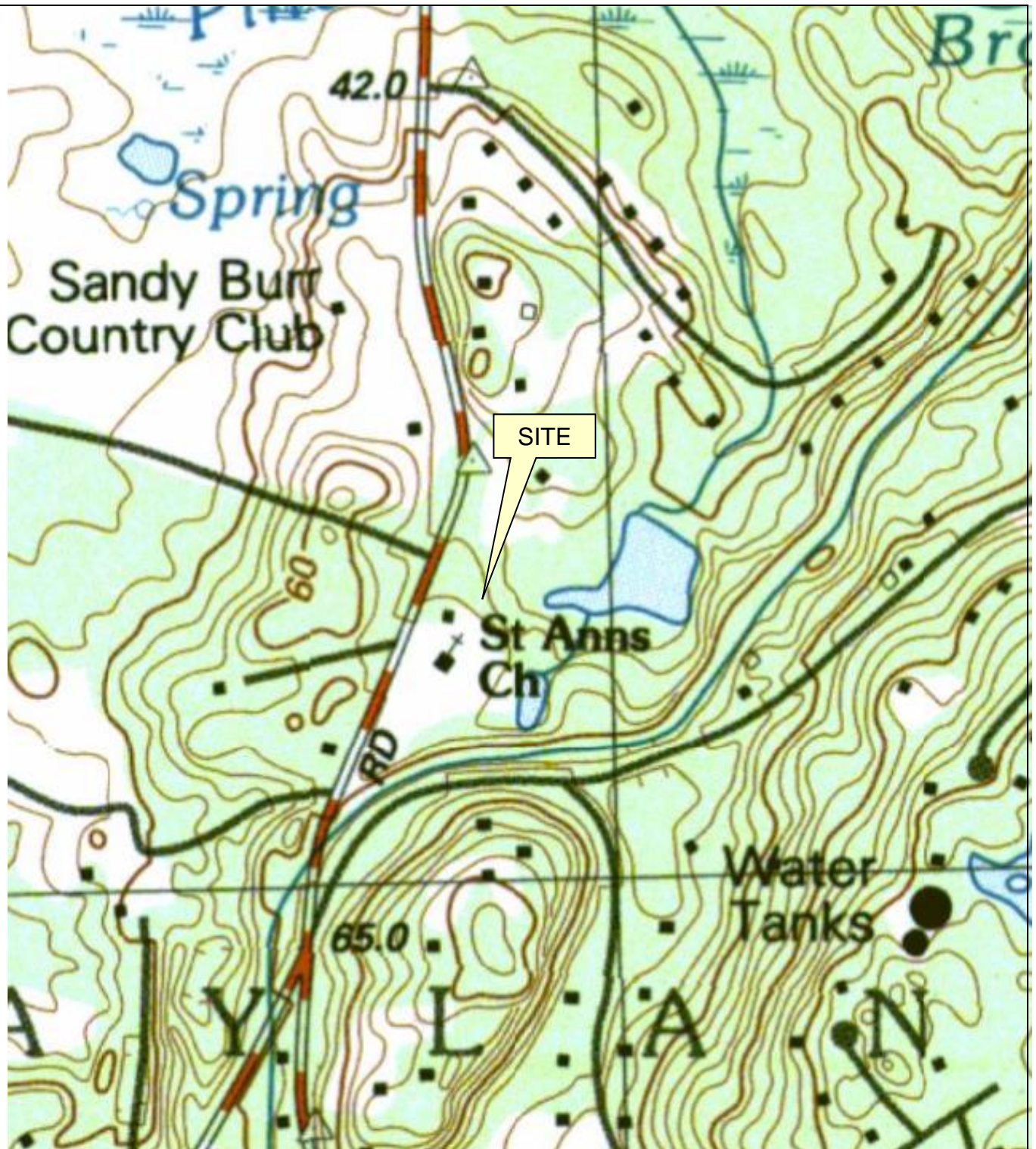
- USGS locus map
- FEMA map
- NHESP map
- DEP BVW field data forms

Upon review of this wetland delineation report, please contact me at (617) 529 – 3792 or Brad@ecrwetlands.com with any questions or requests for additional information.

Sincerely yours,  
Environmental Consulting & Restoration, LLC



Brad Holmes, PWS, MCA  
Manager

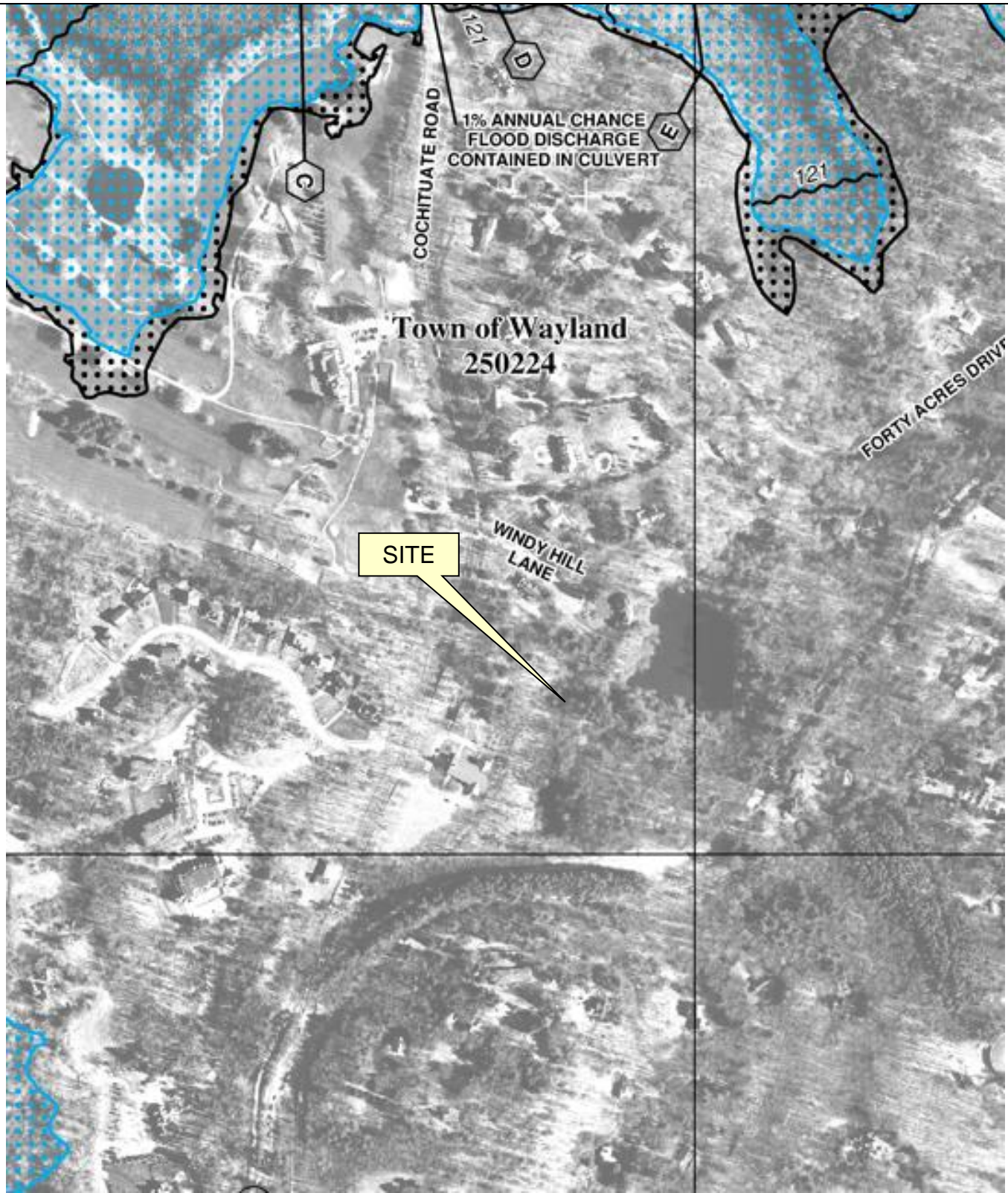


**USGS SITE LOCUS MAP**  
124 Cochituate Road  
Wayland, Massachusetts

Source: MassGIS Mass Mapper

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▲





**FEMA F.I.R.M MAP**  
**124 Cochituate Road**  
**Wayland, Massachusetts**

Source: FEMA Map 25017C0526F Eff: 07/07/2014







**Priority Habitat of Rare Species, Estimated Habitat of Rare Wildlife  
& Certified Vernal Pool Map  
124 Cochituate Road  
Wayland, Massachusetts**

Source: MassGIS Mass Mapper



Applicant: Prepared by: Brad Holmes, Environmental Consulting & Restoration, LLC Project Location: 124 Cochituate Road  
Wayland, MA

- Check all that apply:
- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indications of hydrology used to delineate BVW boundary: fill out sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation			Transect B	Plot 1	Date: 1/7/23		
A. Sample Layer and Plant Species			B. Basal Area (or percent cover)		C. Percent Dominance	D. Dominant Plant	Wetland Indicator Status
Trees	White Pine	<i>Pinus strobus</i>	16,26=736.7		67.0%	Yes	FACU
	Red Maple	<i>Acer rubrum</i>	8,10,10,12=319		33.0%	Yes	FAC*
Saplings	None						
Shrubs	Glossy Buckthorn	<i>Rhamnus frangula</i>	60.0%		100.0%	Yes	FAC
Herbaceous	Spinulose Wood Fern	<i>Dryopteris carthusiana</i>	40.0%		50.0%	Yes	FACW
	Bittersweet	<i>Celastrus orbiculatus</i>	20.0%		25.0%	Yes	FACU
	Glossy Buckthorn	<i>Rhamnus frangula</i>	20.0%		25.0%	Yes	FAC
Vines	Bittersweet	<i>Celastrus orbiculatus</i>	10.0%		100.0%	Yes	FACU

\* Use an asterisk to mark wetland indicator plants: plant species listed in the Wetlands Protection Act (MGL c. 131, s. 40); plants in the genus Sphagnum; plants listed as FAC, FAC+, FACW-, FACW, FACW+, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

\*\* Use to identify plants that are acting as Hydrophytes (buttress roots, adventitious buds, etc.)

#### Vegetation Conclusion

Number of dominant wetland indicator plants: 4

Number of dominant non-wetland indicator plants: 3

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants? Yes

If vegetation alone is presumed adequate to delineate the BVW boundary, submit this form with the Request for Determination of Applicability or Notice of Intent.

<b>Section II. Indicators of Hydrology</b>					Other Indicators of Hydrology (check all that apply)	
Hydric Soil Interpretation					Site inundated? No	
1. Soil Survey					Depth to free water in observation hole: At 6"	
Is there a published soil survey for this site? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No					Depth to soil saturation in observation hole: at surface	
title/date: <a href="http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx">http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx</a>					Water lines: No	
map number: MA 017					Drift Marks: No	
soil type map: Freetown muck, Hinckley loamy sand, Narragansett silt loam					Sediment Deposits: No	
hydric soil inclusions: Yes, Freetown					Drainage Patterns in BVW: No	
Are field observations consistent with soil survey? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No					Oxidized Rhizospheres: No	
Remarks:					Water Stained Leaves: No	
2. Soil Description					Recorded data (stream, tidal gauge; aerial photo; other)	
Horizon	Depth	Matrix	Texture	Redoximorphic Features	Other: Plot is in wetland below wetland flag #B15	
	1-0"	Fibric			Evidence of flooding	
	0-2"	10YR 2/2			Number of wetland plants > than number of non-wetland plants? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
	2-20"	10YR 4/2-4/3			Wetland hydrology present:	
					hydric soil	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
					other indicators	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
3. Other					SAMPLE PLOT IS IN A BVW <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	
Is soil hydric? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No						

Applicant: Prepared by: Brad Holmes, Environmental Consulting & Restoration, LLC Project Location: 124 Cochituate Road Wayland, MA

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only  
☒ Vegetation and other indications of hydrology used to delineate BVW boundary: fill out sections I and II  
☐ Method other than dominance test used (attach additional information)

Section I. Vegetation			Transect B		Plot 2		Date: 1/7/23	
A. Sample Layer and Plant Species			B. Basal Area (or percent cover)		C. Percent Dominance		D. Dominant Plant	
							Wetland Indicator Status	
Trees	White Pine	<i>Pinus strobus</i>	10,14=232.3		65.0%		Yes	
	Red Maple	<i>Acer rubrum</i>	5,6,10=126.5		35.0%		Yes	
Saplings	White Pine	<i>Pinus strobus</i>	5.0%		100.0%		Yes	
Shrubs	Glossy Buckthorn	<i>Rhamnus frangula</i>	70.0%		93.8%		Yes	
	Burning Bush	<i>Euonymus atropurpureus</i>	5.0%		6.2%		No	
Herbaceous	Glossy Buckthorn	<i>Rhamnus frangula</i>	25.0%		33.0%		Yes	
	Hayscent Fern	<i>Dennstaedtia punctilobula</i>	10.0%		13.0%		No	
	Cinnamon Fern	<i>Osmunda cinnamomeum</i>	5.0%		7.0%		No	
	White Pine	<i>Pinus strobus</i>	5.0%		7.0%		No	
	Bittersweet	<i>Celastrus orbiculatus</i>	30.0%		40.0%		Yes	
Vines	Bittersweet	<i>Celastrus orbiculatus</i>	20.0%		100.0%		Yes	
** Use to identify plants that are acting as Hydrophytes (buttress roots, adventitious buds, etc.)								
<b>Vegetation Conclusion</b> Number of dominant wetland indicator plants: 3 Number of dominant non-wetland indicator plants: 4 <b>Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants? No</b> <small>If vegetation alone is presumed adequate to delineate the BVW boundary, submit this form with the Request for Determination of Applicability or Notice of Intent.</small>								
<b>Section II. Indicators of Hydrology</b>					Other Indicators of Hydrology (check all that apply)			
Hydric Soil Interpretation					Site inundated? No			
1. Soil Survey					Depth to free water in observation hole: None			
Is there a published soil survey for this site? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No					Depth to soil saturation in observation hole: None			
title/date: <a href="http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx">http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx</a>					Water lines: No			
map number: MA 017					Drift Marks: No			
soil type map: Freetown muck, Hinckley loamy sand, Narragansett silt loam					Sediment Deposits: No			
hydric soil inclusions: Yes, Freetown					Drainage Patterns in BVW: No			
Are field observations consistent with soil survey? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No					Oxidized Rhizospheres: No			
Remarks:					Water Stained Leaves: No			
2. Soil Description					Recorded data (stream, tidal gauge; aerial photo; other)			
Horizon	Depth	Matrix	Texture	Redoximorphic Features	Other: Plot is in upland above wetland flag #B15			
	1-0 0-1" 1-4" 4-20"	Fibric 10YR3/2 10YR 4/3 10YR 5/4-5/3			Number of wetland plants > than number of non-wetland plants? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
					Wetland hydrology present:			
					hydric soil <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
					other indicators <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
3. Other					SAMPLE PLOT IS IN A BVW <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO			
Is soil hydric? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No								