

**CHERENZIA  
& ASSOCIATES, LTD.**

Civil Engineers • Land Surveyors  
Land Use Planners • Environmental Engineers

Raymond F. Cherenzia, P.E., L.S., Founder

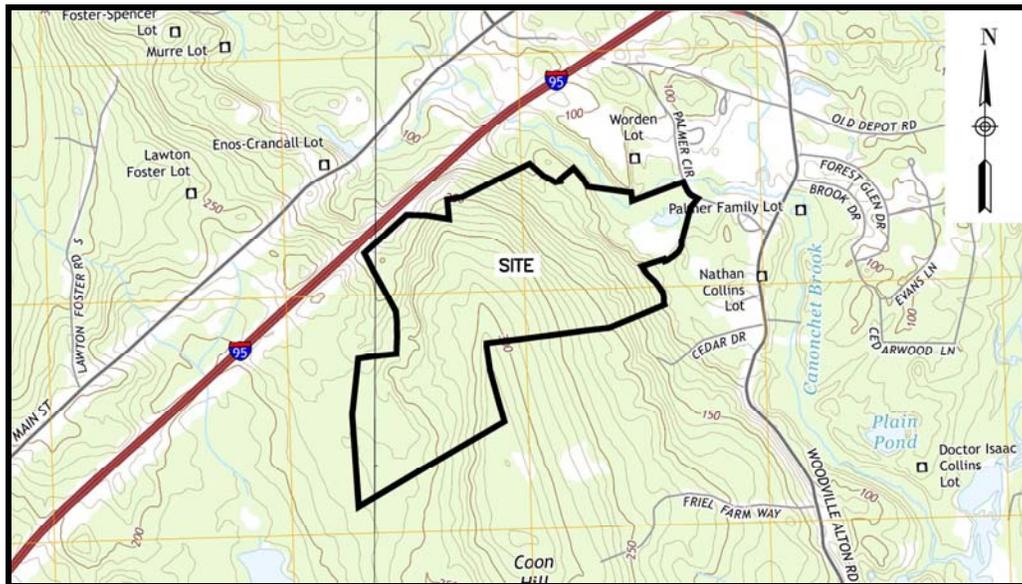
## PROJECT NARRATIVE

### STONE RIDGE AT HOPKINTON

### AUGUST 2020

#### Introduction

On behalf of RI-95 LLC (owner/applicant), Cherenzia & Associates, Ltd has prepared this Project Narrative in support of the Proposed Stone Ridge at Hopkinton (“Project” or “Site”). The project is located on a 252.0± acre lot on Palmer Circle in Hopkinton, Rhode Island (Tax Assessor’s Map 11 Lot 47A). The Site Location Map is included as Appendix A and shown below.



The property was previously permitted as the “Brae Bern Country Club” in 1993 which consisted of an 18-hole golf course with a club house. (RIDEM #93-0031F)

Per town permitting requirements, a Zoning Certificate, proof of up-to-date taxes, Farm, Forest, and Open Space Form, and certificates of authorization for Land Surveying and Engineering are included as Appendix B.

#### Natural/Existing Site Conditions

The property is currently an undeveloped wooded lot with an overgrown gravel area around a small pond on the east side of the lot. The pond appears to have been constructed as an irrigation reservoir as part of a previously permitted project. Grades on the property generally slope west, north, and east



away from a high point near the center of the lot. Slopes range from 2 to 20 percent. The property is abutted by undeveloped lots to the north, west, and south, residential lots to the east/southeast, and farmland to the northeast. Palmer Circle provides access to the Site to the east.

### SOILS

Based on NRCS Soils Mapping (Appendix C), soils within the development are as follows:

- AfA – Agawam fine sandy loam, 0 to 3 percent slopes,  
Hydrologic Soil Group B,  
Prime Farmland,
- CeC – Canton and Charlton fine sandy loams, 3 to 15 percent slopes, very rocky,  
Hydrologic Soil Group B,
- ChD – Canton and Charlton very stony sandy loams, 15 to 25 percent slopes,  
Hydrologic Soil Group B,
- CkC – Canton and Charlton fine sandy loams, 3 to 15 percent slopes, extremely stony,  
Hydrologic Soil Group B,
- HkC – Hinckley loamy sand, 8 to 15 percent slopes,  
Hydrologic Soil Group A,  
Farmland of Statewide Importance,
- PcC – Paxton fine sandy loam, 3 to 15 percent slopes, extremely stony,  
Hydrologic Soil Group C,
- Pg – Pits, gravel,  
Hydrologic Soil Group Not Rated,
- Rf – Ridgebury, Leicester, and Whitman soils, 0 to 8 percent slopes, extremely stony,  
Hydrologic Soil Group D,
- SwA – Swansea muck, 0 to 1 percent slopes  
Hydrologic Soil Group B/D,
- WrB – Woodbridge fine sandy loam, 0 to 8 percent slopes, extremely stony,  
Hydrologic Soil Group C/D,

According to NRCS, AfA is considered prime farmland and Ru is considered farmland of statewide importance.

### FEMA

The majority of the property is located within "Zone X (Other Areas)" as shown on the FEMA Flood Insurance Rate Map Numbers 44009C0135H, 44009C0153H, & 44009C0151H, Effective Date October 19, 2010. Zone X (Other Areas) is defined as "areas determined to be outside the 0.2% annual chance floodplain." Canonchet Brook is present along the northeast property line. The area in the vicinity of the brook is in within "Zone AE" with a Base Flood Elevation (BFE) of 75. Zone AE is defined as special flood hazard area subject to flooding by the 1% annual chance storm with a Base Flood Elevation determined. FEMA maps are included in Appendix D.

### WETLANDS/GROUNDWATER

Multiple wetland complexes exist on and in the vicinity of the property. Wetlands were flagged on the property by Natural Resource Services, Inc. and their Freshwater Wetland Delineation report is included as Appendix E. Their findings are summarized in the table below and shown on the plan.



Flag Series	Wetland Type	Regulatory Setback
A1 – A59	Swamp	50' Perimeter Wetland
B1 – B8	Forested Wetland	None
C1 – C85	Swamp	50' Perimeter Wetland
D1 – D51	Swamp	50' Perimeter Wetland
E1 – E46	Pond	50' Perimeter Wetland
F1 – F90	Swamp	50' Perimeter Wetland
G1 – G13	Forested Wetland	None
H1 – H91	Swamp	50' Perimeter Wetland
I1 – I68	Swamp	50' Perimeter Wetland
J1 – J23	Swamp	50' Perimeter Wetland
K1 – K18	Forested Wetland	None
L1 – L11	Forested Wetland	None
M1 – M12	Swamp	50' Perimeter Wetland
Not Flagged	ASSF	None
Not Flagged	Intermittent Stream (multiple)	100' Riverbank Wetland
Not Flagged	River (Canonchet Brook)	200' Riverbank Wetland

A portion of the south east side of the property is located within the Groundwater and Wellhead Primary Protection Zone as delineated by the Town of Hopkinton. An area on the eastern portion of the property also contains both Community and Non-community Wellhead Protection Areas (CWHPA and NCWHPA) as delineated by Rhode Island Department of Environmental Management (RIDEM). Figures showing the Town Groundwater Protection Zone and the RIDEM Wellhead Protection Areas are included as Appendix F.

**IMPAIRMENTS/TMDLs**

Stormwater from this project will discharge to Canonchet Brook & Tributaries (RI0008040R-04B) to the east and Tomaquag Brook and Tributaries (RI0008039R-24) to the west. The “*State of Rhode Island 2016 Impaired Waters Report*” identifies Canonchet Brook as having impairments of Cadmium, Copper, Lead, & Enterococcus and a TMDL for Enterococcus. The report identifies Tomaquag Brook as having impairment and TMDL for Enterococcus.

**HISTORICAL OR UNIQUE NATURAL FEATURES**

The Rhode Island Historical Cemetery Commission identifies a cemetery on the property. The commission names the cemetery as “Worden Lot” and numbers it HP043. Stone walls and trails exist on the property. The subject property is not located within a Natural Heritage Area, scenic road corridor, or state-designated scenic area. There are no biking or bridle trails within or adjacent to the property. There are no playfields, playgrounds, or other recreational resource areas adjacent to the property.

The 2001 USGS map identifies several trails on the property, one of which is identified as Narragansett Trail. A figure included as Appendix G shows the property line overlaid on the USGS maps.

**Proposed Site Conditions**

The Applicant is proposing to develop the property with a solar facility. The facility shall consist of a 102.6± acre fenced solar area and a 50,000 square foot building. The building shall include parking, utilities, well, Onsite Wastewater Treatment Systems (OWTS), and stormwater management area. The fenced solar area shall be developed with access drives and stormwater management areas. The



development shall comply with the Town of Hopkinton's Land Development and Subdivision Regulations.

A memorandum regarding the Legal Ruling on Acceptable Uses in a Commercial Special District from the Town Solicitor is included as Appendix H. This memorandum concludes that the Planning Board should read the Commercial Special district as allowing all current commercial uses, including use 486 PSES.

The proposed development meets all the dimensional requirements for Commercial Special (CS) zone. According to the zoning certificate, the proposed building may be used for any of the following uses: self-storage (465 general warehousing), hotel/motel (05), assisted housing & nursing homes (06), medical (67), other commercial office use (1691, 601, 602, 603, 604, 605, 606, 607, 608, 681, 682, 683) or Non-residential Photovoltaic Solar Energy Systems (PSES). These uses are either by right for the zone or will require a special use permit. The solar facility is a by right use for the zone. The proposed solar facility shall meet the requirements of the town's "Non-residential Photovoltaic Solar Energy Systems (PSES)" ordinance. The development will have a coverage less than the 75% coverage requirement for the zone. No open space is proposed as part of this project.

Stormwater management and the onsite waste water treatment system (OWTS) shall be designed to meet all Town and State standards. RIDEM Freshwater Wetlands and RI Pollution Discharge Elimination System (RIPDES) permits are required for the proposed project due to the presence of wetlands on the property and the proposed project will result in greater than one acre of disturbance. Construction phasing, groundwater/soil investigations, and stormwater/septic designs shall be provided at preliminary plan and shall be consistent with RIDEM Stormwater, OWTS, Wetlands, and RIPDES regulations and approvals. The building and solar array shall be generally constructed at the same time.

Proposed site topography will be largely unchanged with the exception of the stormwater areas, roadways, building, and areas with existing slopes greater than 25% to minimize cut/fill and import/export of material from the project. Areas with existing slopes greater than 25% are shaded on the plan. Where grade changes are required, changes shall be the minimum required for installation of the proposed site improvements only. Most of the solar facility will require minimal or no grade changes for the installation of the solar panels. Full grading shall be provided at Preliminary Plan. The proposed development is commercial in nature and does not include any residences; therefore, there will be no increase in population or school-aged children from the proposed project. The proposed project will not involve any potential neighborhood impacts.

Architectural, landscaping, lighting, and other plans shall be provided at Preliminary Plan. Site lighting shall be minimal required along roadway/building and shall be downfacing, low level, and dark sky compliant meeting town requirements.

### **Stormwater Analysis**

Stormwater management shall be designed to meet all Town and State standards. Stormwater management shall consist of various stormwater areas around the perimeter of the development. Based on previous solar facility projects with RIDEM, the surface under the solar panels is used for stormwater analysis and the crushed stone drives within the solar array are considered pervious due to their low use; therefore, most of the stormwater areas will be sized to manage stormwater peak discharges to the project's design points. Stormwater water quality treatment will be provided for all new impervious surfaces.



For existing conditions, the property discharges stormwater to four (4) design points. Stormwater discharges to the southwestern wetland complex (DP-1), northwestern wetland complex (DP-2), southeastern property line (DP-3) and to the northern property line / Canonchet Brook wetlands (DP-4). Under proposed conditions, peak discharges shall be maintained to each of the design points by the proposed stormwater areas. Based on similar projects, capturing approximately 50% of the area developed as solar and providing at least 5,000 cubic feet of storage (including 1 foot of freeboard) per disturbed acre contributing runoff to the design point is sufficient to provide peak flow mitigation of stormwater. The stormwater management areas have been sized by these criteria. Stormwater areas will vary from 3-5 feet deep including 1 foot of freeboard. Predevelopment and Postdevelopment Drainage Area figures are included as Appendix I.

### **Traffic Analysis**

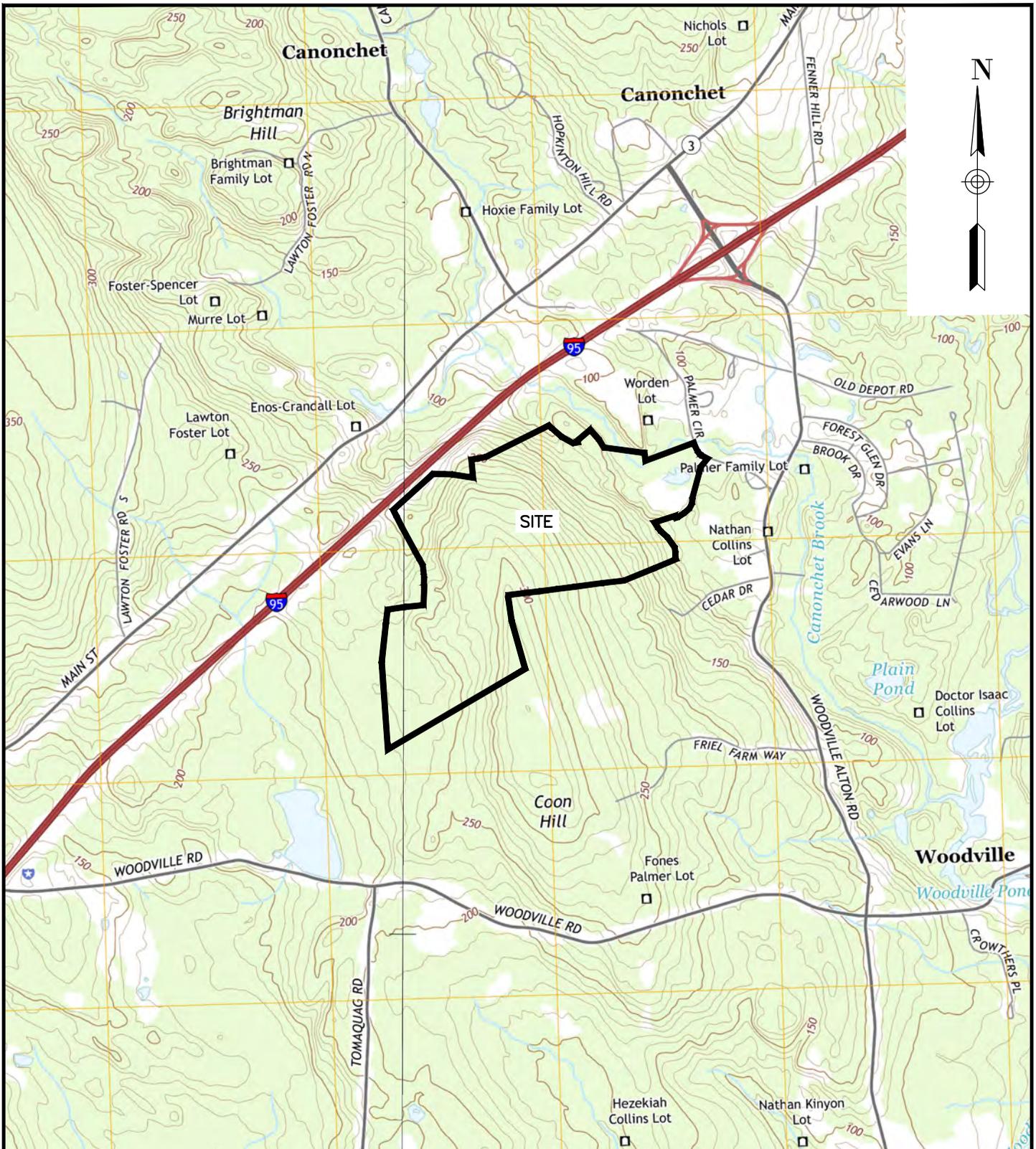
Traffic impacts are expected to be minimal from the proposed project. Five parking spaces and one ADA space is provided at the building to provided parking for approximately five employees. Several loading spaces and building loading bays are also provided. Signage or other traffic control devices shall be located as necessary for traffic safety prior to Preliminary Plan. Minimal signage shall be proposed consisting of no trespassing signs and an entrance sign with solar lighting.

Based on other solar facilities, 4-5 vehicles are anticipated to enter and exit the site on a yearly basis for the solar array. This traffic is limited to maintenance and service of the solar facility only. The building shall be used as storage and have a minimal number of employees generating only a small number of trips to and from the project each day.



**APPENDIX A:**  
**Site Location Map**





**CHERENZIA  
& ASSOCIATES, LTD.**

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Pawcatuck, CT 06379  
Tel: 860.629.6500  
Fax: 860.599.6090

P.O. Box 513  
Westerly, RI 02891  
Tel: 401.596.7747

www.cherenzia.com

CA JOB # 219008  
DECEMBER 10, 2019

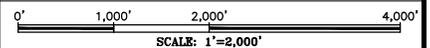
DRAWN BY: AKG  
CHECK BY: SFC

**STONE RIDGE AT HOPKINTON**

PALMER CIRCLE  
PLAT 11 LOT 47A  
HOPKINTON, RHODE ISLAND

PREPARED FOR  
**RI-95 LLC**

**SITE LOCATION MAP**





**APPENDIX B:**

**Town Supplemental Information:**

**Zoning Certificate, Proof of Up To Date Taxes, Farm, Forest, and Open Space Form, and  
Certificates of Authorization for Land Surveying and Engineering**





**Town of Hopkinton**  
**Building & Zoning Department**  
Hopkinton, Rhode Island 02833

**MEMO**

August 25, 2020

Dear Sergio,

In regards to your recent email regarding the Stone Ridge project, as I stated in my July 22, 2020 response regarding determination of aquifer protection areas present on map 11 lot 47, there is an area of that parcel that is within the primary protection and wellhead recharge area. Without having a site map with the proposed structures/uses and their relevance and location to the primary protection area on that parcel, I am unable to determine which uses will require the petition of an aquifer protection permit at this time. However, I can provide you with the following table that references the use categories represented on the zoning certificate issued on 12/27/19 (attached). This table reflects the requirement for Aquifer Protection Permits based whether the proposed use will be located within that portion of the lot that is in the primary/wellhead recharge area or secondary protection zone.

“A” = Aquifer Protection Permit

“P” = Permitted

<u>Use Category</u>	<u>Aquifer Primary</u>	<u>Overlay Secondary</u>
<b><u>0-Residential</u></b>		
05 Hotels & Motels	A	P
06 Assisted Housing & Nursing Homes	A	P
<b><u>16- Construction and General Contractors</u></b>		
160 General Contracting- Office and Equipment Storage	A	P
161 Heavy Construction, inc. excavation equipment	A	P
162 Plumbing, Heating & A/C	A	P
163 Painting, Paper Hanging & Decorating	A	P
164 Electrical Work	P	P
165 Masonry & Stonework	A	P
166 Carpentering & Wood Floorwork	A	P
167 Roofing & Sheetmetal Work	A	P
168 Concrete work	A	P
169 Water Well drilling	A	P
1691 Office for Above Uses #'s 160-169, Not including storage or supplies	P	P

**6 –Personal, Business, and Professional Services**

*60 Finance, Insurance & Real Estate*

601-608 P P

67 *Medical, Health & Legal Services* A P

*Other Professional services*

681 Engineering & architectural Services P P

682 Non Profit Educational & Scientific Research Agencies P P

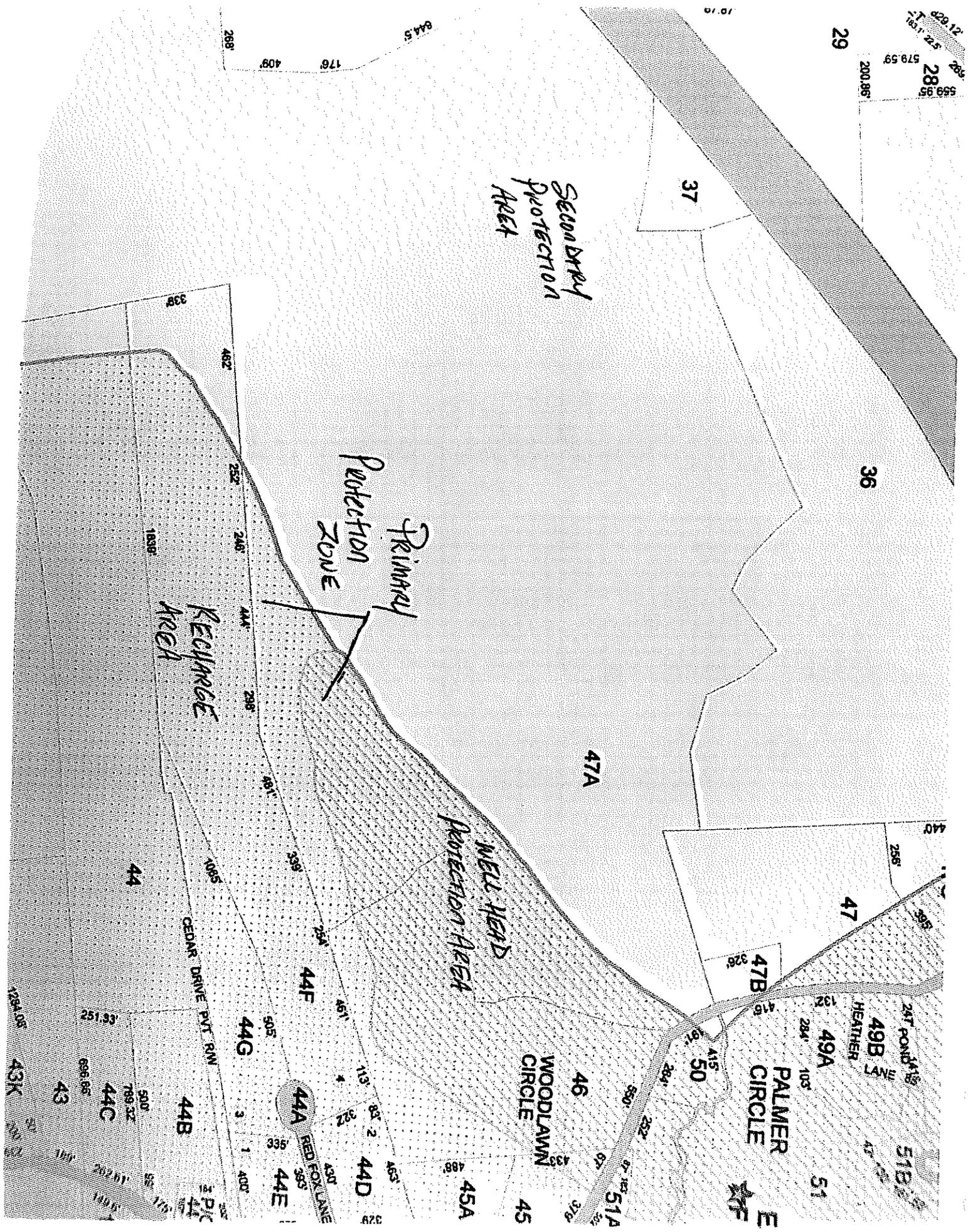
683 Accounting, Auditing, and Bookkeeping Services P P

**4-Transporation, Communication & Utilities**

*48 Utilities, Communications & Sanitary Services*

486 PSES (Solar) P P

I would suggest you overlay the groundwater and wellhead protection map with the proposed project to see if and where any structures/uses may fall within the primary protection zone and refer to the above accordingly. Please don't hesitate to contact me if you have any additional questions or concerns.



629.12  
579.59  
559.99  
28  
200.86  
29

Secondary  
Protection  
Area

Primary  
Protection  
Zone

Well Head  
Protection Area

Recharge  
Area

36

37

47A

47

47B

49B

49A

PALMER  
CIRCLE

WOODLAWN  
CIRCLE

46

45

45A

44D

44A

44G

44F

44B

44C

43

43K

51

51B

247 POND

HEATHER

132

415

50

284

350

97

83

92

93

1

3

500

696.66

1284.05

288

408

176

644.5

10.10



**Town of Hopkinton**  
**Building & Zoning Department**  
Hopkinton, Rhode Island 02833

December 27, 2019

Sergio Cherenzia, PE  
Cherenzia and Associates, LTD.  
99 Mechanic st.  
Pawcatuck, CT 06379

Re: Zoning Certificate Application for Stone Ridge

Dear Sergio,

I am in receipt of your zoning certificate application for the Stone Ridge project proposed for Palmer Circle, Plat 11 Lot 47A. As there were multiple uses listed on the application, I wanted to respond to the individual proposed uses.

**Self Storage, Use code 465-** is permitted within the commercial zoning district with the approval of a Special Use Permit granted by the Zoning Board.

**Assisted Housing & Nursing Homes- Use category 06-** also permitted in commercial district with the granting of a Special Use Permit by the Zoning Board.

**Hotel/ Motel- Use Category 05-** this use is permitted as per the district use table in a commercial zone.

**Medical, Health and Legal Services- Use Category 67-** also permitted as per the district use table in a commercial zone.

**Subcategory 6-Personal, Business & Professional Services**  
**Use Categories 601 thru 608 and 681-682**

The above referenced categories are permitted as per the District Use Table.

**Office for Use #'s 160-169, not including storage & supplies- Use Category 1691-** As detailed, this provides in accordance with the district use table, office space only for construction, general contractors and tradespeople with no storage of supplies, materials or equipment.

Please note in addition to the Special Use Permits required as noted, all the above will require Development Plan Review by the Planning Board.

Should you have any questions or concerns, please do not hesitate to contact me at 377-7771.

Sherri Desjardins  
Zoning Official  
Town of Hopkinton

NUMBER  
 Plat 11  
 Lot 47A

**ZONING CERTIFICATE**  
**TOWN OF HOPKINTON**  
 BUILDING / ZONING DEPARTMENT  
 ONE TOWN HOUSE ROAD  
 HOPKINTON, RI 02833

FEE PAID  
 \$5.00  
 Cash  
 Check  
 No. 200409

DATE RECEIVED 12/27 2019

APPLICANT'S NAME RI-95 LLC c/o WALTER S. MANON JR

APPLICANT'S ADDRESS 320 Central Ave. 3204ST  
Warwick, RI 02880

PHONE (201 ) 280-9599 LOCATION ADDRESS Palmer Circle

INTENDED USE     EXISTING USE    (Check One)

Describe. Please Be Specific.  
 The property is currently vacant. The applicant is proposing to develop the lot with multiple commercial/medical buildings and a solar facility.

- BUILDING USES INCLUDE - SELF STORAGE - 465  
 - HOTEL/MOTEL - 05  
 - ASSISTED HOUSING + NURSING HOMES - 06  
 - MEDICAL - 67  
 - COMMERCIAL OFFICE - 1691, 601, 602, 603, 604, 605  
 606, 607, 608, 681, 682, 683

(Continue on back if necessary)  
 \* ZONING OFFICIALS COMMENTS ATTACHED

	REQUIRED:		STATUS:	
	YES	NO	APPLIED FOR	GRANTED
Special Use Permit	_____	<u>✓</u>	_____	_____
Use Variance	_____	_____	_____	_____
Dimensional Variance Modification	_____	_____	_____	_____
Development Plan Review	<u>✓</u>	_____	_____	_____

PROPERTY IS LOCATED IN ZONING DISTRICT     R-1     RFR-80     NB     C     M     CS

IS  INTENDED,  EXISTING USE PERMITTED IN THIS DISTRICT? (Check One)  YES

I certify that the  intended  existing (check one) use of the property is fully described and agree it is the only use for which certification is requested.

The  intended  existing (check one) use of the property is in accordance with provisions of the Hopkinton Zoning Ordinance.

Walter S. Manon Jr  
 APPLICANT'S SIGNATURE  
 WALTER S. MANON JR

Shirley S. Jordan  
 ZONING OFFICIAL'S SIGNATURE

DATE 12/27 2019

**Hopkinton Building & Zoning Department**

**377-7771**

One Townhouse Rd  
Hopkinton, RI 02833

# Memo

**To:** Sergio Cherenzia

**From:** Sherri Desjardins



**Date:** December 31, 2019

**Re:** Stone Ridge Zoning Certificate

Please note the zoning certificate application for the above referenced property, Plat 11 Lot 47A, permits the installation of a commercial solar facility, Use category 486, within the commercial district boundaries as per our PSES Ordinance.

TOWN OF HOPKINTON  
 Account Level History  
 Receivable Group: ALL  
 Printed on 05/29/2020 at 10:55:15 AM

HOPKINTON TAX COLLECTOR  
 PO BOX 154  
 HOPKINTON, RI 02833-0154  
 MARYLYNN@HOPKINTONRI.ORG  
 (401) 377-7781

To: RI-95 LLC  
 305 SANCTUARY DR  
 EAST GREENWICH RI 02818

Account : 18-3099-45  
 Penalty as of: 05/29/2020

Receivable	Principal	Penalty	Date	Batch	Trans#	Pay Method	Comments
2019 RP Tax Roll	21192.86						
Payment	-10596.42	-142.74	05/29/2020	10610	388857	Check #: 000122	
Payment	-5298.21	-33.07	12/30/2019	10495	382212	Check #: 000111	ATTY WALTER MANNING
Payment	-5298.23	0.00	09/12/2019	10396	376737	Check #: 000103	
Balance	<u>0.00</u>						
Penalty Due	<u>0.00</u>						
Total Due	<u>0.00</u>						
<hr/>							
Total Principal Due	<u>0.00</u>						
Total Penalty Due	<u>0.00</u>						
Total Due on Account	<u>0.00</u>						



**Hopkinton**  
RHODE ISLAND

**Office of the Tax Assessor**

**18.12 FARM, FOREST AND OPEN SPACE FORM**

Office of the Tax Assessor  
One Town House Road  
Hopkinton, RI 02833  
Phone 401-377-7781  
Fax 401-377-7788

Date 5/21/2020

This certifies that property identified as Assessor's Map 11 and Lot(s) 47A

Current Owner RI-95 LLC is NOT designated as

Farm, Forest or Open Space as of the date on this form.

*Jane M. Monty, RICA*  
Assessor's Office  
TAX ASSESSOR



*State of Rhode Island and Providence Plantations  
Board of Registration for Professional Engineers*



BE IT KNOWN THAT

***CHERENZIA & ASSOCIATES LTD.***

*having given satisfactory evidence of having the  
qualifications required by law is hereby authorized to practice*

**Engineering as a  
Corporation**

***IN THE STATE OF RHODE ISLAND***

Certificate of Authorization No.: PE.0005011-COA

Issued: 7/1/2020

Expires: 6/30/2022

*Patricia K Walker*

Chairperson

*Patricia D Steere*

Secretary



## Lookup Detail View

### Name and Address

Name	City/Town	State	Zip Code	Country
SERGIO F. CHERENZIA	PAWCATUCK	CT	06379	United States

### Registration Information

License	License Type	First Issuance Date	Expiration Date	Status
PE.0009238	Professional Engineer	08/14/2009	06/30/2021	ACTIVE

Generated on: 8/28/2020 11:16:35 AM



## Lookup Detail View

### Name and Address

Name	City/Town	State	Zip Code	Country
ANDREW K. GARDINER	HOPE VALLEY	RI	02832	United States

### Registration Information

License	License Type	First Issuance Date	Expiration Date	Status
PE.0009829	Professional Engineer	03/12/2012	06/30/2021	ACTIVE

Generated on: 8/28/2020 11:17:22 AM



*State of Rhode Island and Providence Plantations  
Board of Registration for Professional Land Surveyors*



BE IT KNOWN THAT

***CHERENZIA & ASSOCIATES LTD.***

*having given satisfactory evidence of having the  
qualifications required by law is hereby authorized to practice  
Land Surveying as a  
Corporation*

*IN THE STATE OF RHODE ISLAND*

Certificate of Authorization No.: A133

Issued: 06/01/2020

Expires: 05/31/2022

Chairperson

Secretary



## Lookup Detail View

### Name and Address

Name	City/Town	State	Zip Code	Country
Mark A. Castellanos	Stonington	CT	06379	United States

### Registration Information

License	License Type	First Issuance Date	Expiration Date	Status
LS.0002511	Professional Land Surveyor	06/16/2017	06/30/2021	ACTIVE

Generated on: 8/28/2020 12:19:43 PM



## Lookup Detail View

### Name and Address

Name	City/Town	State	Zip Code	Country
NATHAN D. LAUDER	Pawcatuck	CT	06379	United States

### Registration Information

License	License Type	First Issuance Date	Expiration Date	Status
LS.0001842	Professional Land Surveyor	01/22/1991	06/30/2021	ACTIVE

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*State of Rhode Island and Providence Plantations  
Board of Examiners of Landscape Architects*



BE IT KNOWN THAT

*Traverse Landscape Architects, LLC*

*having given satisfactory evidence of having the  
qualifications required by law is hereby authorized to practice*

*Landscape Architecture as a  
Limited Liability Company*

*IN THE STATE OF RHODE ISLAND*

Certificate of Authorization No.: LLC23

Issued: 07/01/2020

Expires: 06/30/2022

Chairperson

Secretary



*State of Rhode Island and Providence Plantations  
Board of Examiners of Landscape Architects*



BE IT KNOWN THAT

**ASHLEY IANNUCCILLI**

*has met the requirements of the law and has been granted this certificate of  
registration as a*

**Landscape Architect**

***IN THE STATE OF RHODE ISLAND***

**Registration No.:** LA.0000447

**Issued:** 7/1/2019

**Expires:** 6/30/2021

Chairperson

Secretary



**State of Rhode Island and Providence Plantations  
DEPARTMENT OF BUSINESS REGULATION  
1511 Pontiac Avenue, Bldg. 68-2  
Cranston, Rhode Island 02920**

**Division of  
Design  
Professionals**

April 16, 2019

ASHLEY IANNUCCILLI

Dear ASHLEY IANNUCCILLI:

Please find below your pocket license. This pocket license may be carried on your person as verification of registration.

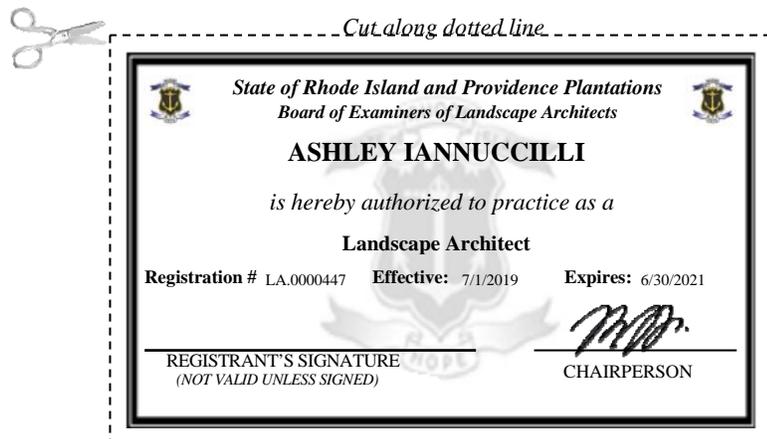
If this is lost or destroyed, notify in writing **via mail or email, [dbr.DesignProf@dbr.ri.gov](mailto:dbr.DesignProf@dbr.ri.gov), Board of Examiners of Landscape Architects**. If name or email address is changed, notify your Board **in writing via mail or email**, of your correct name or email address to insure proper mailing of the next Renewal Notification.

**Always reference your credential number.**

Registration is subject to the provisions of the General Laws as amended. It is a personal privilege and must not be loaned or assigned to any other person. Keep this registration on person or posted as required by law.

Sincerely,

BOARD OF EXAMINERS  
OF LANDSCAPE ARCHITECTS

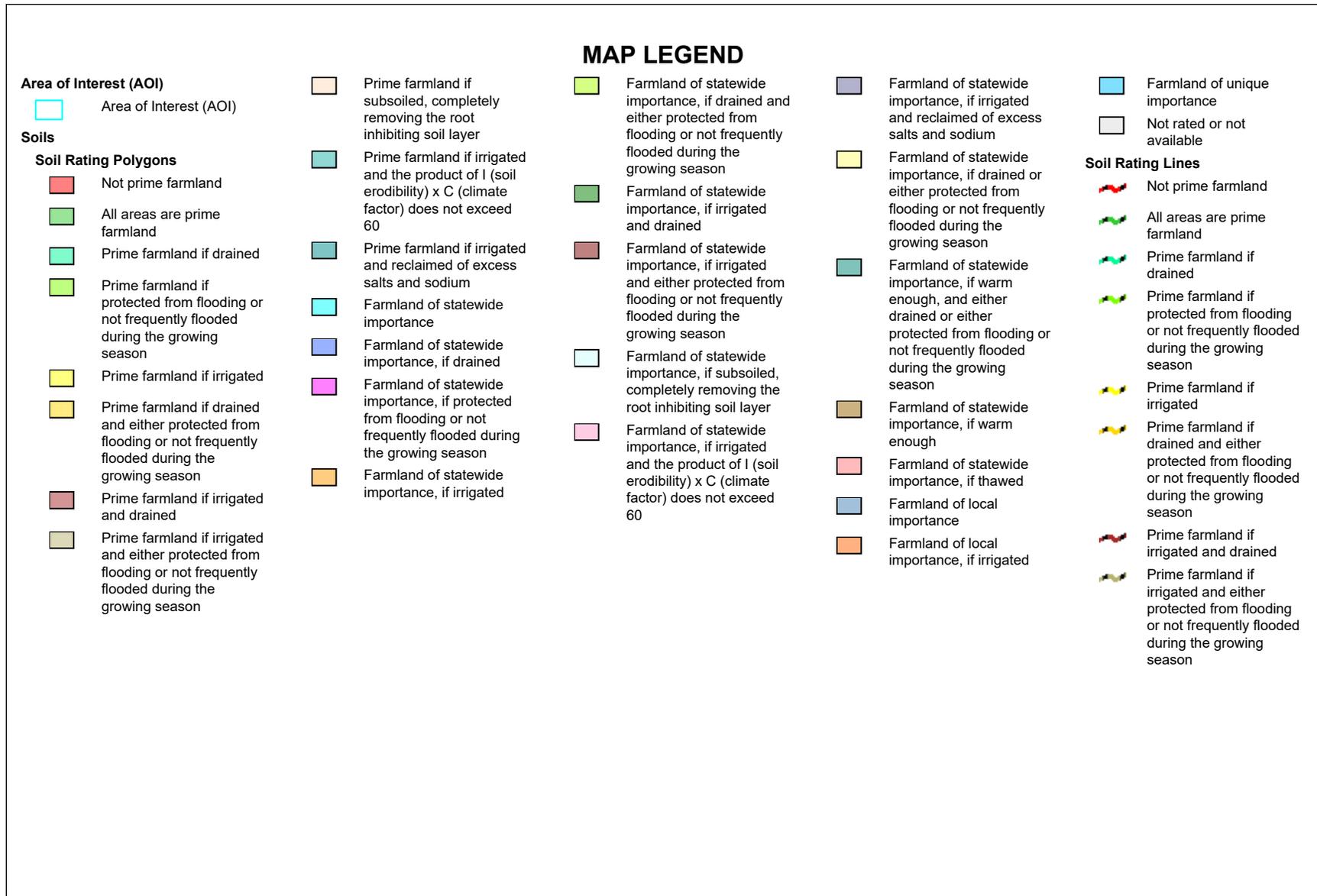




**APPENDIX C:**  
**NRCS Soils Map**







Farmland Classification—State of Rhode Island: Bristol, Kent, Newport, Providence, and Washington Counties

	Prime farmland if subsoiled, completely removing the root inhibiting soil layer		Farmland of statewide importance, if drained and either protected from flooding or not frequently flooded during the growing season		Farmland of statewide importance, if irrigated and reclaimed of excess salts and sodium		Farmland of unique importance		Prime farmland if subsoiled, completely removing the root inhibiting soil layer
	Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60		Farmland of statewide importance, if irrigated and drained		Farmland of statewide importance, if drained or either protected from flooding or not frequently flooded during the growing season		<b>Soil Rating Points</b> Not prime farmland		Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
	Prime farmland if irrigated and reclaimed of excess salts and sodium		Farmland of statewide importance, if irrigated and either protected from flooding or not frequently flooded during the growing season		Farmland of statewide importance, if warm enough, and either drained or either protected from flooding or not frequently flooded during the growing season		Prime farmland if drained		Prime farmland if irrigated and reclaimed of excess salts and sodium
	Farmland of statewide importance		Farmland of statewide importance, if subsoiled, completely removing the root inhibiting soil layer		Farmland of statewide importance, if warm enough		Prime farmland if protected from flooding or not frequently flooded during the growing season		Farmland of statewide importance
	Farmland of statewide importance, if protected from flooding or not frequently flooded during the growing season		Farmland of statewide importance, if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60		Farmland of statewide importance, if thawed		Prime farmland if irrigated		Farmland of statewide importance, if drained
	Farmland of statewide importance, if irrigated				Farmland of local importance		Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season		Farmland of statewide importance, if protected from flooding or not frequently flooded during the growing season
					Farmland of local importance, if irrigated		Prime farmland if irrigated and drained		Farmland of statewide importance, if irrigated
							Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season		

Farmland Classification—State of Rhode Island: Bristol, Kent, Newport, Providence, and Washington Counties

<p> Farmland of statewide importance, if drained and either protected from flooding or not frequently flooded during the growing season</p> <p> Farmland of statewide importance, if irrigated and drained</p> <p> Farmland of statewide importance, if irrigated and either protected from flooding or not frequently flooded during the growing season</p> <p> Farmland of statewide importance, if subsoiled, completely removing the root inhibiting soil layer</p> <p> Farmland of statewide importance, if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60</p>	<p> Farmland of statewide importance, if irrigated and reclaimed of excess salts and sodium</p> <p> Farmland of statewide importance, if drained or either protected from flooding or not frequently flooded during the growing season</p> <p> Farmland of statewide importance, if warm enough, and either drained or either protected from flooding or not frequently flooded during the growing season</p> <p> Farmland of statewide importance, if warm enough</p> <p> Farmland of statewide importance, if thawed</p> <p> Farmland of local importance</p> <p> Farmland of local importance, if irrigated</p>	<p> Farmland of unique importance</p> <p> Not rated or not available</p> <p><b>Water Features</b></p> <p> Streams and Canals</p> <p><b>Transportation</b></p> <p> Rails</p> <p> Interstate Highways</p> <p> US Routes</p> <p> Major Roads</p> <p> Local Roads</p> <p><b>Background</b></p> <p> Aerial Photography</p>	<p>The soil surveys that comprise your AOI were mapped at 1:12,000.</p> <p>Please rely on the bar scale on each map sheet for map measurements.</p> <p>Source of Map: Natural Resources Conservation Service Web Soil Survey URL: Coordinate System: Web Mercator (EPSG:3857)</p> <p>Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.</p> <p>This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.</p> <p>Soil Survey Area: State of Rhode Island: Bristol, Kent, Newport, Providence, and Washington Counties Survey Area Data: Version 19, Sep 12, 2019</p> <p>Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.</p> <p>Date(s) aerial images were photographed: Mar 30, 2011—May 1, 2011</p> <p>The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.</p>
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## Farmland Classification

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
AfA	Agawam fine sandy loam, 0 to 3 percent slopes	All areas are prime farmland	24.9	3.2%
AfB	Agawam fine sandy loam, 3 to 8 percent slopes	All areas are prime farmland	15.3	2.0%
CaC	Canton-Charlton-Rock outcrop complex, 3 to 15 percent slopes	Not prime farmland	6.3	0.8%
CaD	Canton-Charlton-Rock outcrop complex, 15 to 35 percent slopes, very stony	Not prime farmland	10.2	1.3%
CeC	Canton and Charlton fine sandy loams, 3 to 15 percent slopes, very rocky	Not prime farmland	6.5	0.8%
ChB	Canton and Charlton fine sandy loams, 0 to 8 percent slopes, very stony	Not prime farmland	27.4	3.5%
ChD	Canton and Charlton very stony fine sandy loams, 15 to 25 percent slopes	Not prime farmland	4.2	0.5%
CkC	Canton and Charlton fine sandy loams, 3 to 15 percent slopes, extremely stony	Not prime farmland	65.5	8.4%
EfB	Enfield silt loam, 3 to 8 percent slopes	Farmland of statewide importance	11.3	1.4%
HkC	Hinckley loamy sand, 8 to 15 percent slopes	Farmland of statewide importance	6.6	0.8%
HnC	Hinckley-Enfield complex, 3 to 15 percent slopes	Farmland of statewide importance	0.1	0.0%
MmA	Merrimac fine sandy loam, 0 to 3 percent slopes	All areas are prime farmland	0.0	0.0%
PbB	Paxton fine sandy loam, 0 to 8 percent slopes, very stony	Not prime farmland	41.8	5.4%
PcC	Paxton fine sandy loam, 3 to 15 percent slopes, extremely stony	Not prime farmland	163.9	21.0%
Pg	Pits, gravel	Not prime farmland	13.9	1.8%

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
Rc	Raypol silt loam	Farmland of statewide importance	3.1	0.4%
Rf	Ridgebury, Leicester, and Whitman soils, 0 to 8 percent slopes, extremely stony	Not prime farmland	87.4	11.2%
Ru	Rippowam fine sandy loam	Farmland of statewide importance	4.6	0.6%
SwA	Swansea muck, 0 to 1 percent slopes	Not prime farmland	17.8	2.3%
UD	Udorthents-Urban land complex	Not prime farmland	17.3	2.2%
W	Water	Not prime farmland	2.1	0.3%
WoB	Woodbridge fine sandy loam, 0 to 8 percent slopes, very stony	Not prime farmland	65.6	8.4%
WrB	Woodbridge fine sandy loam, 0 to 8 percent slopes, extremely stony	Not prime farmland	185.0	23.7%
<b>Totals for Area of Interest</b>			<b>780.9</b>	<b>100.0%</b>

## Rating Options

*Aggregation Method:* No Aggregation Necessary

*Tie-break Rule:* Lower

## State of Rhode Island: Bristol, Kent, Newport, Providence, and Washington Counties

### AfA—Agawam fine sandy loam, 0 to 3 percent slopes

#### Map Unit Setting

- *National map unit symbol:* 2tyqw
- *Elevation:* 0 to 1,040 feet
- *Mean annual precipitation:* 36 to 71 inches
- *Mean annual air temperature:* 39 to 55 degrees F
- *Frost-free period:* 140 to 250 days
- *Farmland classification:* All areas are prime farmland

#### Map Unit Composition

- *Agawam and similar soils:* 85 percent
- *Minor components:* 15 percent
- *Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Agawam

#### Setting

- *Landform:* Outwash plains, kame terraces, moraines, outwash terraces, kames
- *Landform position (two-dimensional):* Backslope, shoulder, footslope, summit
- *Landform position (three-dimensional):* Side slope, crest, tread, riser, rise, dip
- *Down-slope shape:* Convex
- *Across-slope shape:* Convex
- *Parent material:* Coarse-loamy eolian deposits over sandy and gravelly glaciofluvial deposits derived from gneiss, granite, schist, and/or phyllite

#### Typical profile

- *Ap - 0 to 11 inches:* fine sandy loam
- *Bw1 - 11 to 16 inches:* fine sandy loam
- *Bw2 - 16 to 26 inches:* fine sandy loam
- *2C1 - 26 to 39 inches:* loamy fine sand
- *2C2 - 39 to 55 inches:* loamy fine sand
- *2C3 - 55 to 65 inches:* loamy sand

#### Properties and qualities

- *Slope:* 0 to 3 percent
- *Depth to restrictive feature:* 15 to 35 inches to strongly contrasting textural stratification
- *Natural drainage class:* Well drained
- *Runoff class:* Very low
- *Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to high (0.14 to 14.17 in/hr)
- *Depth to water table:* More than 80 inches
- *Frequency of flooding:* None
- *Frequency of ponding:* None
- *Salinity, maximum in profile:* Nonsaline (0.0 to 1.9 mmhos/cm)
- *Available water storage in profile:* Low (about 3.4 inches)

#### Interpretive groups

- *Land capability classification (irrigated):* None specified
- *Land capability classification (nonirrigated):* 2s
- *Hydrologic Soil Group:* B
- *Hydric soil rating:* No

### Minor Components

#### Ninigret

- *Percent of map unit:* 5 percent
- *Landform:* Terraces
- *Down-slope shape:* Linear
- *Across-slope shape:* Concave
- *Hydric soil rating:* No

#### Windsor

- *Percent of map unit:* 4 percent
- *Landform:* Outwash plains, outwash terraces, deltas, dunes
- *Landform position (three-dimensional):* Tread, riser
- *Down-slope shape:* Linear, convex
- *Across-slope shape:* Linear, convex

- *Hydric soil rating:* No

#### **Walpole**

- *Percent of map unit:* 3 percent
- *Landform:* Outwash plains, depressions, depressions, outwash terraces, deltas
- *Landform position (two-dimensional):* Toeslope
- *Landform position (three-dimensional):* Tread, dip, talf
- *Down-slope shape:* Concave
- *Across-slope shape:* Concave
- *Hydric soil rating:* Yes

#### **Hinckley**

- *Percent of map unit:* 3 percent
- *Landform:* Outwash plains, eskers, deltas, kames
- *Landform position (two-dimensional):* Summit, shoulder, backslope
- *Landform position (three-dimensional):* Nose slope, side slope, crest, head slope, rise
- *Down-slope shape:* Convex
- *Across-slope shape:* Linear, convex
- *Hydric soil rating:* No

### **CeC—Canton and Charlton fine sandy loams, 3 to 15 percent slopes, very rocky**

#### **Map Unit Setting**

- *National map unit symbol:* 2w81y
- *Elevation:* 0 to 820 feet
- *Mean annual precipitation:* 36 to 71 inches
- *Mean annual air temperature:* 39 to 55 degrees F
- *Frost-free period:* 145 to 240 days
- *Farmland classification:* Not prime farmland

#### **Map Unit Composition**

- *Canton, very stony, and similar soils:* 55 percent
- *Charlton, very stony, and similar soils:* 30 percent
- *Minor components:* 15 percent
- *Estimates are based on observations, descriptions, and transects of the mapunit.*

#### **Description of Canton, Very Stony**

##### **Setting**

- *Landform:* Moraines, ridges, hills
- *Landform position (two-dimensional):* Summit, shoulder, backslope
- *Landform position (three-dimensional):* Side slope, crest, nose slope
- *Down-slope shape:* Convex, linear
- *Across-slope shape:* Convex
- *Parent material:* Coarse-loamy over sandy melt-out till derived from gneiss, granite, and/or schist

##### **Typical profile**

- *O<sub>i</sub> - 0 to 2 inches:* slightly decomposed plant material
- *A - 2 to 5 inches:* fine sandy loam
- *Bw<sub>1</sub> - 5 to 16 inches:* fine sandy loam
- *Bw<sub>2</sub> - 16 to 22 inches:* gravelly fine sandy loam
- *2C - 22 to 67 inches:* gravelly loamy sand

##### **Properties and qualities**

- *Slope:* 3 to 15 percent
- *Percent of area covered with surface fragments:* 1.6 percent
- *Depth to restrictive feature:* 19 to 39 inches to strongly contrasting textural stratification
- *Natural drainage class:* Well drained
- *Runoff class:* Low
- *Capacity of the most limiting layer to transmit water (K<sub>sat</sub>):* Moderately low to high (0.14 to 14.17 in/hr)
- *Depth to water table:* More than 80 inches
- *Frequency of flooding:* None
- *Frequency of ponding:* None
- *Salinity, maximum in profile:* Nonsaline (0.0 to 1.9 mmhos/cm)
- *Available water storage in profile:* Low (about 3.4 inches)

### Interpretive groups

- *Land capability classification (irrigated)*: None specified
- *Land capability classification (nonirrigated)*: 6s
- *Hydrologic Soil Group*: B
- *Hydric soil rating*: No

### Description of Charlton, Very Stony

#### Setting

- *Landform*: Ground moraines, hills, ridges
- *Landform position (two-dimensional)*: Backslope, shoulder, summit
- *Landform position (three-dimensional)*: Side slope, crest
- *Down-slope shape*: Linear, convex
- *Across-slope shape*: Convex
- *Parent material*: Coarse-loamy melt-out till derived from granite, gneiss, and/or schist

#### Typical profile

- *Oe - 0 to 2 inches*: moderately decomposed plant material
- *A - 2 to 4 inches*: fine sandy loam
- *Bw - 4 to 27 inches*: gravelly fine sandy loam
- *C - 27 to 65 inches*: gravelly fine sandy loam

#### Properties and qualities

- *Slope*: 3 to 15 percent
- *Percent of area covered with surface fragments*: 1.6 percent
- *Depth to restrictive feature*: More than 80 inches
- *Natural drainage class*: Well drained
- *Runoff class*: Low
- *Capacity of the most limiting layer to transmit water (Ksat)*: Moderately low to high (0.14 to 14.17 in/hr)
- *Depth to water table*: More than 80 inches
- *Frequency of flooding*: None
- *Frequency of ponding*: None
- *Salinity, maximum in profile*: Nonsaline (0.0 to 1.9 mmhos/cm)
- *Available water storage in profile*: Moderate (about 8.7 inches)

### Interpretive groups

- *Land capability classification (irrigated)*: None specified
- *Land capability classification (nonirrigated)*: 6s
- *Hydrologic Soil Group*: B
- *Hydric soil rating*: No

### Minor Components

#### Rock outcrop

- *Percent of map unit*: 5 percent
- *Landform*: Hills, ridges
- *Hydric soil rating*: Unranked

#### Sutton, very stony

- *Percent of map unit*: 4 percent
- *Landform*: Ground moraines, hills
- *Landform position (two-dimensional)*: Footslope
- *Landform position (three-dimensional)*: Base slope
- *Down-slope shape*: Concave
- *Across-slope shape*: Linear
- *Hydric soil rating*: No

#### Gloucester, very stony

- *Percent of map unit*: 4 percent
- *Landform*: Moraines, ridges, hills
- *Landform position (two-dimensional)*: Backslope, shoulder, summit
- *Landform position (three-dimensional)*: Side slope, crest
- *Down-slope shape*: Convex, linear
- *Across-slope shape*: Convex
- *Hydric soil rating*: No

#### Chatfield, very stony

- *Percent of map unit*: 2 percent

- *Landform*: Hills, ridges
- *Landform position (two-dimensional)*: Backslope, shoulder, summit
- *Landform position (three-dimensional)*: Crest, side slope, nose slope
- *Down-slope shape*: Convex
- *Across-slope shape*: Linear, convex
- *Hydric soil rating*: No

#### ChD—Canton and Charlton very stony fine sandy loams, 15 to 25 percent slopes

##### Map Unit Setting

- *National map unit symbol*: 9lv5
- *Elevation*: 0 to 810 feet
- *Mean annual precipitation*: 44 to 50 inches
- *Mean annual air temperature*: 48 to 50 degrees F
- *Frost-free period*: 115 to 190 days
- *Farmland classification*: Not prime farmland

##### Map Unit Composition

- *Canton and similar soils*: 60 percent
- *Charlton and similar soils*: 30 percent
- *Minor components*: 10 percent
- *Estimates are based on observations, descriptions, and transects of the mapunit.*

##### Description of Canton

###### Setting

- *Landform*: Hills
- *Down-slope shape*: Convex
- *Across-slope shape*: Convex
- *Parent material*: Coarse-loamy over sandy and gravelly melt-out till derived from granite and/or schist and/or gneiss

###### Typical profile

- *Oe - 0 to 1 inches*: moderately decomposed plant material
- *A - 1 to 3 inches*: gravelly fine sandy loam
- *Bw1 - 3 to 15 inches*: gravelly loam
- *Bw2 - 15 to 24 inches*: gravelly loam
- *Bw3 - 24 to 30 inches*: gravelly loam
- *2C - 30 to 60 inches*: very gravelly loamy sand

###### Properties and qualities

- *Slope*: 15 to 25 percent
- *Percent of area covered with surface fragments*: 1.6 percent
- *Depth to restrictive feature*: More than 80 inches
- *Natural drainage class*: Well drained
- *Runoff class*: Medium
- *Capacity of the most limiting layer to transmit water (Ksat)*: Moderately high to high (0.57 to 5.95 in/hr)
- *Depth to water table*: More than 80 inches
- *Frequency of flooding*: None
- *Frequency of ponding*: None
- *Available water storage in profile*: Low (about 5.6 inches)

###### Interpretive groups

- *Land capability classification (irrigated)*: None specified
- *Land capability classification (nonirrigated)*: 6s
- *Hydrologic Soil Group*: B
- *Hydric soil rating*: No

##### Description of Charlton

###### Setting

- *Landform*: Hills
- *Down-slope shape*: Linear
- *Across-slope shape*: Convex
- *Parent material*: Coarse-loamy melt-out till derived from granite and/or schist and/or gneiss

###### Typical profile

- *Ap - 0 to 4 inches*: fine sandy loam

- *Bw1 - 4 to 7 inches*: fine sandy loam
- *Bw2 - 7 to 19 inches*: fine sandy loam
- *Bw3 - 19 to 27 inches*: gravelly fine sandy loam
- *C - 27 to 65 inches*: gravelly fine sandy loam

#### Properties and qualities

- *Slope*: 15 to 25 percent
- *Percent of area covered with surface fragments*: 1.6 percent
- *Depth to restrictive feature*: More than 80 inches
- *Natural drainage class*: Well drained
- *Runoff class*: Medium
- *Capacity of the most limiting layer to transmit water (Ksat)*: Moderately high to high (0.57 to 5.95 in/hr)
- *Depth to water table*: More than 80 inches
- *Frequency of flooding*: None
- *Frequency of ponding*: None
- *Available water storage in profile*: Low (about 5.9 inches)

#### Interpretive groups

- *Land capability classification (irrigated)*: None specified
- *Land capability classification (nonirrigated)*: 6s
- *Hydrologic Soil Group*: B
- *Hydric soil rating*: No

#### Minor Components

##### Narragansett

- *Percent of map unit*: 4 percent
- *Landform*: Till plains, hills
- *Down-slope shape*: Linear
- *Across-slope shape*: Convex
- *Hydric soil rating*: No

##### Sutton

- *Percent of map unit*: 2 percent
- *Landform*: Depressions, drainageways
- *Down-slope shape*: Linear, concave
- *Across-slope shape*: Concave
- *Hydric soil rating*: No

##### Paxton

- *Percent of map unit*: 2 percent
- *Landform*: Drumlins, hills
- *Down-slope shape*: Linear
- *Across-slope shape*: Convex
- *Hydric soil rating*: No

##### Gloucester

- *Percent of map unit*: 2 percent
- *Landform*: Hills
- *Down-slope shape*: Convex
- *Across-slope shape*: Convex
- *Hydric soil rating*: No

#### CkC—Canton and Charlton fine sandy loams, 3 to 15 percent slopes, extremely stony

##### Map Unit Setting

- *National map unit symbol*: 2wks7
- *Elevation*: 0 to 1,310 feet
- *Mean annual precipitation*: 36 to 71 inches
- *Mean annual air temperature*: 39 to 55 degrees F
- *Frost-free period*: 140 to 240 days
- *Farmland classification*: Not prime farmland

##### Map Unit Composition

- *Canton, extremely stony, and similar soils*: 50 percent
- *Charlton, extremely stony, and similar soils*: 35 percent
- *Minor components*: 15 percent

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

### Description of Canton, Extremely Stony

#### Setting

- *Landform:* Moraines, ridges, hills
- *Landform position (two-dimensional):* Backslope, shoulder, summit
- *Landform position (three-dimensional):* Side slope, crest, nose slope
- *Down-slope shape:* Convex, linear
- *Across-slope shape:* Convex
- *Parent material:* Coarse-loamy over sandy melt-out till derived from gneiss, granite, and/or schist

#### Typical profile

- *O<sub>i</sub> - 0 to 2 inches:* slightly decomposed plant material
- *A - 2 to 5 inches:* fine sandy loam
- *Bw<sub>1</sub> - 5 to 16 inches:* fine sandy loam
- *Bw<sub>2</sub> - 16 to 22 inches:* gravelly fine sandy loam
- *2C - 22 to 67 inches:* gravelly loamy sand

#### Properties and qualities

- *Slope:* 3 to 15 percent
- *Percent of area covered with surface fragments:* 9.0 percent
- *Depth to restrictive feature:* 19 to 39 inches to strongly contrasting textural stratification
- *Natural drainage class:* Well drained
- *Runoff class:* Low
- *Capacity of the most limiting layer to transmit water (K<sub>sat</sub>):* Moderately low to high (0.14 to 14.17 in/hr)
- *Depth to water table:* More than 80 inches
- *Frequency of flooding:* None
- *Frequency of ponding:* None
- *Salinity, maximum in profile:* Nonsaline (0.0 to 1.9 mmhos/cm)
- *Available water storage in profile:* Low (about 3.4 inches)

#### Interpretive groups

- *Land capability classification (irrigated):* None specified
- *Land capability classification (nonirrigated):* 7s
- *Hydrologic Soil Group:* B
- *Hydric soil rating:* No

### Description of Charlton, Extremely Stony

#### Setting

- *Landform:* Ground moraines, hills, ridges
- *Landform position (two-dimensional):* Backslope, shoulder, summit
- *Landform position (three-dimensional):* Side slope, crest
- *Down-slope shape:* Linear, convex
- *Across-slope shape:* Convex
- *Parent material:* Coarse-loamy melt-out till derived from granite, gneiss, and/or schist

#### Typical profile

- *O<sub>e</sub> - 0 to 2 inches:* moderately decomposed plant material
- *A - 2 to 4 inches:* fine sandy loam
- *Bw - 4 to 27 inches:* gravelly fine sandy loam
- *C - 27 to 65 inches:* gravelly fine sandy loam

#### Properties and qualities

- *Slope:* 3 to 15 percent
- *Percent of area covered with surface fragments:* 9.0 percent
- *Depth to restrictive feature:* More than 80 inches
- *Natural drainage class:* Well drained
- *Runoff class:* Low
- *Capacity of the most limiting layer to transmit water (K<sub>sat</sub>):* Moderately low to high (0.14 to 14.17 in/hr)
- *Depth to water table:* More than 80 inches
- *Frequency of flooding:* None
- *Frequency of ponding:* None
- *Salinity, maximum in profile:* Nonsaline (0.0 to 1.9 mmhos/cm)
- *Available water storage in profile:* Moderate (about 8.7 inches)

### Interpretive groups

- *Land capability classification (irrigated)*: None specified
- *Land capability classification (nonirrigated)*: 7s
- *Hydrologic Soil Group*: B
- *Hydric soil rating*: No

### Minor Components

#### Sutton, extremely stony

- *Percent of map unit*: 5 percent
- *Landform*: Ground moraines, hills
- *Landform position (two-dimensional)*: Footslope
- *Landform position (three-dimensional)*: Base slope
- *Down-slope shape*: Concave
- *Across-slope shape*: Linear
- *Hydric soil rating*: No

#### Leicester, extremely stony

- *Percent of map unit*: 5 percent
- *Landform*: Depressions, ground moraines, drainageways, hills
- *Landform position (two-dimensional)*: Toeslope, footslope
- *Landform position (three-dimensional)*: Base slope
- *Down-slope shape*: Linear, concave
- *Across-slope shape*: Concave
- *Hydric soil rating*: Yes

#### Chatfield, extremely stony

- *Percent of map unit*: 5 percent
- *Landform*: Hills, ridges
- *Landform position (two-dimensional)*: Backslope, shoulder, summit
- *Landform position (three-dimensional)*: Crest, side slope, nose slope
- *Down-slope shape*: Convex
- *Across-slope shape*: Linear, convex
- *Hydric soil rating*: No

### HKC—Hinckley loamy sand, 8 to 15 percent slopes

#### Map Unit Setting

- *National map unit symbol*: 2svm9
- *Elevation*: 0 to 1,480 feet
- *Mean annual precipitation*: 36 to 71 inches
- *Mean annual air temperature*: 39 to 55 degrees F
- *Frost-free period*: 140 to 240 days
- *Farmland classification*: Farmland of statewide importance

#### Map Unit Composition

- *Hinckley and similar soils*: 85 percent
- *Minor components*: 15 percent
- *Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Description of Hinckley

##### Setting

- *Landform*: Kame terraces, outwash plains, moraines, outwash deltas, eskers, outwash terraces, kames
- *Landform position (two-dimensional)*: Shoulder, toeslope, footslope, backslope
- *Landform position (three-dimensional)*: Nose slope, side slope, crest, head slope, riser
- *Down-slope shape*: Linear, convex, concave
- *Across-slope shape*: Convex, linear, concave
- *Parent material*: Sandy and gravelly glaciofluvial deposits derived from gneiss and/or granite and/or schist

##### Typical profile

- *Oe - 0 to 1 inches*: moderately decomposed plant material
- *A - 1 to 8 inches*: loamy sand
- *Bw1 - 8 to 11 inches*: gravelly loamy sand
- *Bw2 - 11 to 16 inches*: gravelly loamy sand
- *BC - 16 to 19 inches*: very gravelly loamy sand
- *C - 19 to 65 inches*: very gravelly sand

### Properties and qualities

- *Slope*: 8 to 15 percent
- *Depth to restrictive feature*: More than 80 inches
- *Natural drainage class*: Excessively drained
- *Runoff class*: Very low
- *Capacity of the most limiting layer to transmit water (Ksat)*: Moderately high to very high (1.42 to 99.90 in/hr)
- *Depth to water table*: More than 80 inches
- *Frequency of flooding*: None
- *Frequency of ponding*: None
- *Salinity, maximum in profile*: Nonsaline (0.0 to 1.9 mmhos/cm)
- *Available water storage in profile*: Low (about 3.1 inches)

### Interpretive groups

- *Land capability classification (irrigated)*: None specified
- *Land capability classification (nonirrigated)*: 4e
- *Hydrologic Soil Group*: A
- *Hydric soil rating*: No

### Minor Components

#### Windsor

- *Percent of map unit*: 5 percent
- *Landform*: Kame terraces, outwash plains, outwash deltas, moraines, outwash terraces, eskers, kames
- *Landform position (two-dimensional)*: Shoulder, backslope, footslope, toeslope
- *Landform position (three-dimensional)*: Nose slope, side slope, crest, head slope, riser
- *Down-slope shape*: Linear, convex, concave
- *Across-slope shape*: Convex, linear, concave
- *Hydric soil rating*: No

#### Merrimac

- *Percent of map unit*: 5 percent
- *Landform*: Moraines, outwash plains, eskers, outwash terraces, kames
- *Landform position (two-dimensional)*: Shoulder, backslope, footslope, toeslope
- *Landform position (three-dimensional)*: Side slope, crest, head slope, nose slope, riser
- *Down-slope shape*: Convex
- *Across-slope shape*: Convex
- *Hydric soil rating*: No

#### Sudbury

- *Percent of map unit*: 5 percent
- *Landform*: Kame terraces, outwash plains, moraines, outwash deltas, outwash terraces
- *Landform position (two-dimensional)*: Backslope, footslope
- *Landform position (three-dimensional)*: Base slope, tread
- *Down-slope shape*: Concave, linear
- *Across-slope shape*: Linear, concave
- *Hydric soil rating*: No

### PcC—Paxton fine sandy loam, 3 to 15 percent slopes, extremely stony

#### Map Unit Setting

- *National map unit symbol*: 2w67y
- *Elevation*: 130 to 720 feet
- *Mean annual precipitation*: 36 to 71 inches
- *Mean annual air temperature*: 39 to 55 degrees F
- *Frost-free period*: 145 to 240 days
- *Farmland classification*: Not prime farmland

#### Map Unit Composition

- *Paxton, extremely stony, and similar soils*: 90 percent
- *Minor components*: 10 percent
- *Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Description of Paxton, Extremely Stony

##### Setting

- *Landform*: Hills, drumlins, ground moraines

- *Landform position (two-dimensional)*: Summit, shoulder, backslope
- *Landform position (three-dimensional)*: Crest, side slope
- *Down-slope shape*: Linear, convex
- *Across-slope shape*: Convex, linear
- *Parent material*: Coarse-loamy lodgment till derived from gneiss, granite, and/or schist

#### Typical profile

- *Oe - 0 to 2 inches*: moderately decomposed plant material
- *A - 2 to 10 inches*: fine sandy loam
- *Bw1 - 10 to 17 inches*: fine sandy loam
- *Bw2 - 17 to 28 inches*: fine sandy loam
- *Cd - 28 to 67 inches*: gravelly fine sandy loam

#### Properties and qualities

- *Slope*: 3 to 15 percent
- *Percent of area covered with surface fragments*: 9.0 percent
- *Depth to restrictive feature*: 20 to 43 inches to densic material
- *Natural drainage class*: Well drained
- *Runoff class*: Medium
- *Capacity of the most limiting layer to transmit water (Ksat)*: Very low to moderately low (0.00 to 0.14 in/hr)
- *Depth to water table*: About 18 to 37 inches
- *Frequency of flooding*: None
- *Frequency of ponding*: None
- *Salinity, maximum in profile*: Nonsaline (0.0 to 1.9 mmhos/cm)
- *Available water storage in profile*: Low (about 4.7 inches)

#### Interpretive groups

- *Land capability classification (irrigated)*: None specified
- *Land capability classification (nonirrigated)*: 7s
- *Hydrologic Soil Group*: C
- *Hydric soil rating*: No

#### Minor Components

##### Woodbridge, extremely stony

- *Percent of map unit*: 6 percent
- *Landform*: Hills, ground moraines, drumlins
- *Landform position (two-dimensional)*: Summit, backslope, footslope
- *Landform position (three-dimensional)*: Side slope, crest
- *Down-slope shape*: Concave
- *Across-slope shape*: Linear
- *Hydric soil rating*: No

##### Charlton, extremely stony

- *Percent of map unit*: 2 percent
- *Landform*: Hills
- *Landform position (two-dimensional)*: Summit, shoulder, backslope
- *Landform position (three-dimensional)*: Crest, side slope
- *Down-slope shape*: Convex
- *Across-slope shape*: Convex
- *Hydric soil rating*: No

##### Ridgebury, extremely stony

- *Percent of map unit*: 2 percent
- *Landform*: Ground moraines, depressions, hills, drainageways, drumlins
- *Landform position (two-dimensional)*: Toeslope, footslope
- *Landform position (three-dimensional)*: Head slope, base slope
- *Down-slope shape*: Concave
- *Across-slope shape*: Concave
- *Hydric soil rating*: Yes

#### Pg—Pits, gravel

##### Map Unit Setting

- *National map unit symbol*: 9lwh
- *Elevation*: 0 to 810 feet

- *Mean annual precipitation:* 44 to 50 inches
- *Mean annual air temperature:* 48 to 50 degrees F
- *Frost-free period:* 140 to 200 days
- *Farmland classification:* Not prime farmland

#### **Map Unit Composition**

- *Pits:* 95 percent
- *Minor components:* 5 percent
- *Estimates are based on observations, descriptions, and transects of the mapunit.*

#### **Description of Pits**

##### **Setting**

- *Parent material:* Sandy and gravelly glaciofluvial deposits derived from granite and gneiss

#### **Minor Components**

##### **Water**

- *Percent of map unit:* 2 percent
- *Hydric soil rating:* Unranked

##### **Hinckley**

- *Percent of map unit:* 1 percent
- *Landform:* Outwash plains, kames, eskers, terraces
- *Down-slope shape:* Convex
- *Across-slope shape:* Convex
- *Hydric soil rating:* No

##### **Urban land**

- *Percent of map unit:* 1 percent
- *Hydric soil rating:* No

##### **Rock outcrop**

- *Percent of map unit:* 1 percent
- *Hydric soil rating:* No

### **Rf—Ridgebury, Leicester, and Whitman soils, 0 to 8 percent slopes, extremely stony**

#### **Map Unit Setting**

- *National map unit symbol:* 2t2qt
- *Elevation:* 0 to 1,480 feet
- *Mean annual precipitation:* 36 to 71 inches
- *Mean annual air temperature:* 39 to 55 degrees F
- *Frost-free period:* 140 to 240 days
- *Farmland classification:* Not prime farmland

#### **Map Unit Composition**

- *Ridgebury, extremely stony, and similar soils:* 40 percent
- *Leicester, extremely stony, and similar soils:* 35 percent
- *Whitman, extremely stony, and similar soils:* 17 percent
- *Minor components:* 8 percent
- *Estimates are based on observations, descriptions, and transects of the mapunit.*

#### **Description of Ridgebury, Extremely Stony**

##### **Setting**

- *Landform:* Depressions, drainageways, hills, ground moraines, drumlins
- *Landform position (two-dimensional):* Toeslope, footslope
- *Landform position (three-dimensional):* Base slope, head slope
- *Down-slope shape:* Concave
- *Across-slope shape:* Concave
- *Parent material:* Coarse-loamy lodgment till derived from gneiss, granite, and/or schist

##### **Typical profile**

- *Oe - 0 to 1 inches:* moderately decomposed plant material
- *A - 1 to 6 inches:* fine sandy loam
- *Bw - 6 to 10 inches:* sandy loam
- *Bg - 10 to 19 inches:* gravelly sandy loam
- *Cd - 19 to 66 inches:* gravelly sandy loam

### Properties and qualities

- *Slope*: 0 to 8 percent
- *Percent of area covered with surface fragments*: 9.0 percent
- *Depth to restrictive feature*: 15 to 35 inches to densic material
- *Natural drainage class*: Poorly drained
- *Runoff class*: Very high
- *Capacity of the most limiting layer to transmit water (Ksat)*: Very low to moderately low (0.00 to 0.14 in/hr)
- *Depth to water table*: About 0 to 6 inches
- *Frequency of flooding*: None
- *Frequency of ponding*: None
- *Salinity, maximum in profile*: Nonsaline (0.0 to 1.9 mmhos/cm)
- *Available water storage in profile*: Low (about 3.0 inches)

### Interpretive groups

- *Land capability classification (irrigated)*: None specified
- *Land capability classification (nonirrigated)*: 7s
- *Hydrologic Soil Group*: D
- *Hydric soil rating*: Yes

### Description of Leicester, Extremely Stony

#### Setting

- *Landform*: Depressions, drainageways, hills, ground moraines
- *Landform position (two-dimensional)*: Footslope, toeslope
- *Landform position (three-dimensional)*: Base slope
- *Down-slope shape*: Linear, concave
- *Across-slope shape*: Concave
- *Parent material*: Coarse-loamy melt-out till derived from gneiss, granite, and/or schist

#### Typical profile

- *Oe - 0 to 1 inches*: moderately decomposed plant material
- *A - 1 to 7 inches*: fine sandy loam
- *Bg - 7 to 18 inches*: fine sandy loam
- *BC - 18 to 24 inches*: fine sandy loam
- *C1 - 24 to 39 inches*: gravelly fine sandy loam
- *C2 - 39 to 65 inches*: gravelly fine sandy loam

### Properties and qualities

- *Slope*: 0 to 8 percent
- *Percent of area covered with surface fragments*: 9.0 percent
- *Depth to restrictive feature*: More than 80 inches
- *Natural drainage class*: Poorly drained
- *Runoff class*: Very high
- *Capacity of the most limiting layer to transmit water (Ksat)*: Moderately low to high (0.14 to 14.17 in/hr)
- *Depth to water table*: About 0 to 6 inches
- *Frequency of flooding*: None
- *Frequency of ponding*: None
- *Salinity, maximum in profile*: Nonsaline (0.0 to 1.9 mmhos/cm)
- *Available water storage in profile*: High (about 9.0 inches)

### Interpretive groups

- *Land capability classification (irrigated)*: None specified
- *Land capability classification (nonirrigated)*: 7s
- *Hydrologic Soil Group*: B/D
- *Hydric soil rating*: Yes

### Description of Whitman, Extremely Stony

#### Setting

- *Landform*: Depressions, drainageways, hills, ground moraines, drumlins
- *Landform position (two-dimensional)*: Toeslope
- *Landform position (three-dimensional)*: Base slope
- *Down-slope shape*: Concave
- *Across-slope shape*: Concave
- *Parent material*: Coarse-loamy lodgment till derived from gneiss, granite, and/or schist

### Typical profile

- *O<sub>i</sub>* - 0 to 1 inches: peat
- *A* - 1 to 10 inches: fine sandy loam
- *B<sub>g</sub>* - 10 to 17 inches: gravelly fine sandy loam
- *C<sub>dg</sub>* - 17 to 61 inches: fine sandy loam

### Properties and qualities

- *Slope*: 0 to 3 percent
- *Percent of area covered with surface fragments*: 9.0 percent
- *Depth to restrictive feature*: 7 to 38 inches to densic material
- *Natural drainage class*: Very poorly drained
- *Runoff class*: Negligible
- *Capacity of the most limiting layer to transmit water (K<sub>sat</sub>)*: Very low to moderately low (0.00 to 0.14 in/hr)
- *Depth to water table*: About 0 to 6 inches
- *Frequency of flooding*: None
- *Frequency of ponding*: Frequent
- *Salinity, maximum in profile*: Nonsaline (0.0 to 1.9 mmhos/cm)
- *Available water storage in profile*: Low (about 3.0 inches)

### Interpretive groups

- *Land capability classification (irrigated)*: None specified
- *Land capability classification (nonirrigated)*: 7s
- *Hydrologic Soil Group*: D
- *Hydric soil rating*: Yes

### Minor Components

#### Woodbridge, extremely stony

- *Percent of map unit*: 6 percent
- *Landform*: Hills, ground moraines, drumlins
- *Landform position (two-dimensional)*: Backslope, footslope, summit
- *Landform position (three-dimensional)*: Side slope, crest
- *Down-slope shape*: Concave
- *Across-slope shape*: Linear
- *Hydric soil rating*: No

#### Swansea

- *Percent of map unit*: 2 percent
- *Landform*: Bogs, swamps
- *Down-slope shape*: Concave
- *Across-slope shape*: Concave
- *Hydric soil rating*: Yes

### SwA—Swansea muck, 0 to 1 percent slopes

#### Map Unit Setting

- *National map unit symbol*: 2tr12
- *Elevation*: 0 to 1,140 feet
- *Mean annual precipitation*: 36 to 71 inches
- *Mean annual air temperature*: 39 to 55 degrees F
- *Frost-free period*: 140 to 240 days
- *Farmland classification*: Not prime farmland

#### Map Unit Composition

- *Swansea and similar soils*: 80 percent
- *Minor components*: 20 percent
- *Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Description of Swansea

##### Setting

- *Landform*: Swamps, bogs
- *Landform position (three-dimensional)*: Dip
- *Down-slope shape*: Concave
- *Across-slope shape*: Concave
- *Parent material*: Highly decomposed organic material over loose sandy and gravelly glaciofluvial deposits

#### Typical profile

- *Oa1 - 0 to 24 inches:* muck
- *Oa2 - 24 to 34 inches:* muck
- *Cg - 34 to 79 inches:* coarse sand

#### Properties and qualities

- *Slope:* 0 to 1 percent
- *Depth to restrictive feature:* More than 80 inches
- *Natural drainage class:* Very poorly drained
- *Runoff class:* Negligible
- *Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to high (0.14 to 14.17 in/hr)
- *Depth to water table:* About 0 to 6 inches
- *Frequency of flooding:* Rare
- *Frequency of ponding:* Frequent
- *Available water storage in profile:* Very high (about 16.5 inches)

#### Interpretive groups

- *Land capability classification (irrigated):* None specified
- *Land capability classification (nonirrigated):* 8w
- *Hydrologic Soil Group:* B/D
- *Hydric soil rating:* Yes

#### Minor Components

##### Freetown

- *Percent of map unit:* 10 percent
- *Landform:* Swamps, bogs
- *Landform position (three-dimensional):* Dip
- *Down-slope shape:* Concave
- *Across-slope shape:* Concave
- *Hydric soil rating:* Yes

##### Whitman

- *Percent of map unit:* 5 percent
- *Landform:* Drainageways, depressions
- *Landform position (two-dimensional):* Toeslope
- *Landform position (three-dimensional):* Base slope
- *Down-slope shape:* Concave
- *Across-slope shape:* Concave
- *Hydric soil rating:* Yes

##### Scarboro

- *Percent of map unit:* 5 percent
- *Landform:* Drainageways, depressions
- *Landform position (two-dimensional):* Toeslope
- *Landform position (three-dimensional):* Base slope, tread, dip
- *Down-slope shape:* Concave
- *Across-slope shape:* Concave
- *Hydric soil rating:* Yes

#### WrB—Woodbridge fine sandy loam, 0 to 8 percent slopes, extremely stony

##### Map Unit Setting

- *National map unit symbol:* 2t2qs
- *Elevation:* 0 to 1,580 feet
- *Mean annual precipitation:* 36 to 71 inches
- *Mean annual air temperature:* 39 to 55 degrees F
- *Frost-free period:* 140 to 240 days
- *Farmland classification:* Not prime farmland

##### Map Unit Composition

- *Woodbridge, extremely stony, and similar soils:* 82 percent
- *Minor components:* 18 percent
- *Estimates are based on observations, descriptions, and transects of the mapunit.*

## Description of Woodbridge, Extremely Stony

### Setting

- *Landform*: Hills, drumlins, ground moraines
- *Landform position (two-dimensional)*: Backslope, footslope, summit
- *Landform position (three-dimensional)*: Side slope
- *Down-slope shape*: Concave
- *Across-slope shape*: Linear
- *Parent material*: Coarse-loamy lodgment till derived from gneiss, granite, and/or schist

### Typical profile

- *Oe - 0 to 2 inches*: moderately decomposed plant material
- *A - 2 to 9 inches*: fine sandy loam
- *Bw1 - 9 to 20 inches*: fine sandy loam
- *Bw2 - 20 to 32 inches*: fine sandy loam
- *Cd - 32 to 67 inches*: gravelly fine sandy loam

### Properties and qualities

- *Slope*: 0 to 8 percent
- *Percent of area covered with surface fragments*: 9.0 percent
- *Depth to restrictive feature*: 20 to 43 inches to densic material
- *Natural drainage class*: Moderately well drained
- *Runoff class*: Medium
- *Capacity of the most limiting layer to transmit water (Ksat)*: Very low to moderately low (0.00 to 0.14 in/hr)
- *Depth to water table*: About 19 to 27 inches
- *Frequency of flooding*: None
- *Frequency of ponding*: None
- *Salinity, maximum in profile*: Nonsaline (0.0 to 1.9 mmhos/cm)
- *Available water storage in profile*: Low (about 4.0 inches)

### Interpretive groups

- *Land capability classification (irrigated)*: None specified
- *Land capability classification (nonirrigated)*: 7s
- *Hydrologic Soil Group*: C/D
- *Hydric soil rating*: No

## Minor Components

### Paxton, extremely stony

- *Percent of map unit*: 10 percent
- *Landform*: Hills, drumlins, ground moraines
- *Landform position (two-dimensional)*: Shoulder, backslope, summit
- *Landform position (three-dimensional)*: Crest, side slope
- *Down-slope shape*: Linear, convex
- *Across-slope shape*: Convex, linear
- *Hydric soil rating*: No

### Ridgebury, extremely stony

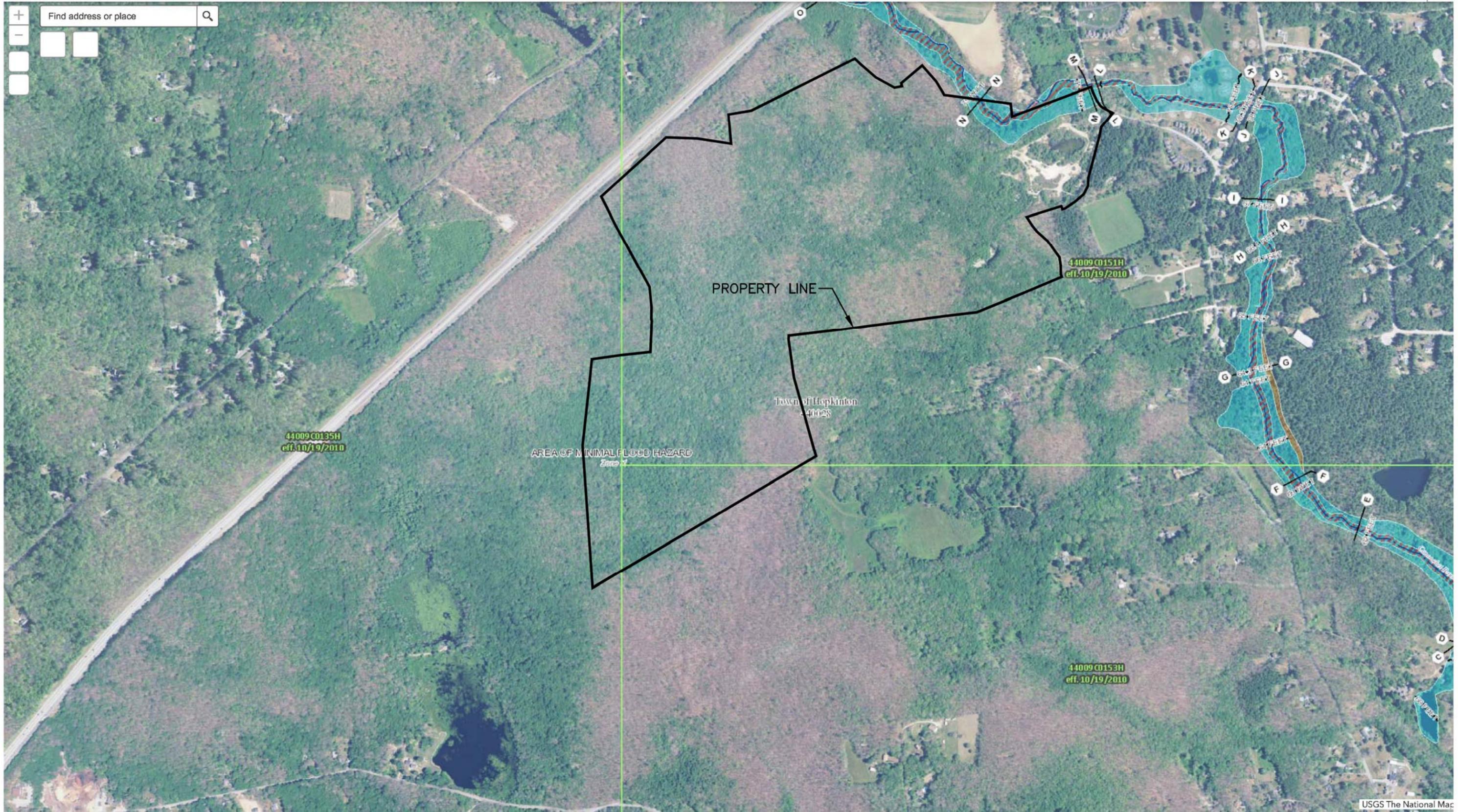
- *Percent of map unit*: 8 percent
- *Landform*: Hills, drainageways, depressions, ground moraines, drumlins
- *Landform position (two-dimensional)*: Toeslope
- *Landform position (three-dimensional)*: Base slope, head slope
- *Down-slope shape*: Concave
- *Across-slope shape*: Concave
- *Hydric soil rating*: Yes

**APPENDIX D:**  
**FEMA Flood Insurance Rate Maps**



Find address or place

+





**NOTES TO USERS**

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The community map repository should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where Base Flood Elevations (BFEs) and/or floodways have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations tables in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations tables should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by flood control structures. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The projection used in the preparation of this map was Rhode Island State Plane FIPSZONE 3800. The horizontal datum was NAD 83, GRS80 spheroid. Differences in datum, spheroid, projection or State Plane zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same vertical datum. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at <http://www.ngs.noaa.gov> or contact the National Geodetic Survey at the following address:

NGS Information Services  
NOAA, NNGS12  
National Geodetic Survey  
SSM-C-3, #2012  
1315 East-West Highway  
Silver Spring, Maryland 20910-3282  
(301) 713-3242

To obtain current elevation, description, and/or location information for bench marks shown on this map, please contact the Information Services Branch of the National Geodetic Survey at (301) 713-3242, or visit its website at <http://www.ngs.noaa.gov>.

Base map information shown on this FIRM was provided in digital format by Rhode Island Geographic Information System (RI GIS). This information was derived from digital orthophotos produced at a scale of 1:5,000 with two-foot Ground Sample Distance (GSD) from photography dated 2003 and 2004.

This map reflects more detailed and up-to-date stream channel configurations than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study Report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed Map Index for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

Contact the FEMA Map Service Center at 1-800-358-9516 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, a Flood Insurance Study report, and/or digital versions of this map. The FEMA Map Service Center may also be reached by Fax at 1-800-358-9520 and its website at <http://www.msc.fema.gov>.

If you have questions about this map or questions concerning the National Flood Insurance Program in general, please call 1-877-FEMA MAP (1-877-336-2627) or visit the FEMA website at <http://www.fema.gov/business/info>.



**LEGEND**

**SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD**

The 1% annual flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, AV, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

**ZONE A** No Base Flood Elevations determined.

**ZONE AE** Base Flood Elevations determined.

**ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.

**ZONE AO** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.

**ZONE AR** Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently identified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.

**ZONE AV** Area to be protected from 1% annual chance flood by a Federal Flood protection system under construction; no Base Flood Elevations determined.

**ZONE VE** Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.

**ZONE VE** Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

**FLOODWAY AREAS IN ZONE AE**

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

**OTHER FLOOD AREAS**

**ZONE X** Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

**OTHER AREAS**

**ZONE X** Areas determined to be outside the 0.2% annual chance floodplain.

**ZONE D** Areas in which flood hazards are undetermined, but possible.

**COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS**

**OTHERWISE PROTECTED AREAS (OPAs)**

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

- 1% annual chance floodplain boundary
- 0.2% annual chance floodplain boundary
- Floodway boundary
- Zone boundary
- Zone D boundary
- CBRS and OPA boundary
- Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
- Limit of Moderate Wave Action
- Base Flood Elevation line and value; elevation in feet\* (EL 987)
- Base Flood Elevation value where uniform within zone; elevation in feet\*
- \* Referenced to the North American Vertical Datum of 1988
- Cross section line
- Transsect line
- 87°07'45", 32°22'30" Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere
- 76°N 1000-meter Universal Transverse Mercator grid values, zone 19
- 600000 FT 5000-foot grid values: Rhode Island State Plane coordinate system (FIPSZONE 3800), Transverse Mercator projection
- DX5510 x Bench mark (see explanation in Notes to Users section of this FIRM panel)
- M1.5 River Mile

MAP REPOSITORY  
Refer to Listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTY-WIDE FLOOD INSURANCE RATE MAP  
October 19, 2010

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'

250 500 1000 FEET  
0 150 300 METERS

**NFIP**

**PANEL 0151H**

**FIRM**

**FLOOD INSURANCE RATE MAP**

**WASHINGTON COUNTY, RHODE ISLAND (ALL JURISDICTIONS)**

**PANEL 151 OF 368**  
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS

COMMUNITY	NUMBER	PANEL	SUFFIX
HOPKINTON, TOWN OF	440029	0151	H
RICHMOND, TOWN OF	440031	0151	H

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.

**MAP NUMBER 44009C0151H**

**EFFECTIVE DATE OCTOBER 19, 2010**

Federal Emergency Management Agency



**APPENDIX E:**

**Natural Resource Services, Inc. Freshwater Wetland Delineation Letter**





## **Natural Resource Services, Inc.**

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December 23, 2019

Teresa Transue  
Cherenzia & Associates LTD  
99 Mechanic Street  
Pawcatuck, CT 06379

RE: Freshwater wetland delineation  
A.P. 11, Lot 47A; Palmer Circle  
Hopkinton, Rhode Island

Dear Ms. Transue,

Natural Resource Services, Inc. (NRS) has completed its freshwater wetland delineations within the above referenced property. This field work was performed in accordance with the delineation standards outlined in Appendix 2 of the Rules and Regulations Governing the Administration and Enforcement of the Freshwater Wetlands Act (250 RICR 150-15-1). Section 1.8(C)(4) of the wetland regulations states that all delineations performed by wetland consultants, including NRS, are not considered valid for regulatory purposes until the work is reviewed and approved by the RI Department of Environmental Management, Office of Water Resources (DEM, OWR).

NRS staff biologist Edward J. Avizinis, CPSS, PWS completed this field work on multiple days in December 2019 (6<sup>th</sup>, 11<sup>th</sup>, 12<sup>th</sup>, 13<sup>th</sup>, and 18<sup>th</sup>). The regulatory section of this report will detail the classification of each wetland and the jurisdictional limits that may be applied to these features under the regulations.

Geographic Information System (GIS) graphics are included as appendices to this report. Wetland features were GPS located using a Trimble GeoXH 6000 handheld unit. GPS data has been overlain onto an accompanying GIS graphic for reference. Although this is not to be considered a survey, it is a reasonable approximation of the resource areas for preliminary planning purposes.

The property is bounded by interstate highway 95 to the north and Palmer Circle to the east. Vacant forested land borders the property to the west and south. A portion of the lot adjacent to Palmer Circle on the east has been significantly historically altered. A review of historic aerial photographs (DEM) shows that there was significant earthwork undertaken on the property in the 80's and 90's. It appears that after the late 90's the property was left to revegetate. The historic work on the property includes material excavation, creation of drainage ditches, the creation of the pond and other wetland features, and deposition of fill piles. The creation of wetland features on this part of the property was likely inadvertent and resulted from material excavation that intersected the

seasonally high water table. Since these site changes took place after the institution of wetland protection legislation, any work that was done within DEM jurisdiction without a permit may be construed as an unauthorized activity upon DEM review.

A blue-lined perennial river called the Canonchet River flows through the northeast corner of the lot. It is important to note that associated with this river is an identified flood zone (AE). The remainder of the lot is forested and consists of upland and wetland areas. There is a significant grade change on the property rising up to 320 feet in elevation in the central part. This hill is locally known as Coon Hill and is labeled as such on the USGS topographic map. There are multiple drainageways along the hill slopes and some contain wetlands that follow along the slopes. Many of the wetlands on the property are considered hill slope seeps and reside in these very stony and bouldery drainageways. This is reflected in the USDA-NRCS soil survey maps which list the soils as very stony to extremely stony. Most of the upland soils on the site are variations of Canton-Charlton, Paxton, and Woodbridge. These are similar upland soils deposited by glaciers as ablation till material. The wetlands on site are mapped by the soil survey primarily as the Ridgebury, Whitman, and Leicester complex. This is a very stony soil found in drainageways and comprised of till material. This map unit is generally indicative of wetland soils. NRS findings were fairly consistent with the findings of the soil survey.

The NRS delineation work on-site identified many wetland features including swamps, forested wetlands, areas subject to storm flowage (ASSF), rivers, and intermittent streams. Some of these features require a regulatory setback as identified in the table below.

<i>Flag Series</i>	<i>Wetland Type</i>	<i>Regulatory Setback</i>
A1 – A59	Swamp	50' Perimeter Wetland
B1 – B8	Forested Wetland	None
C1 – C85	Swamp	50' Perimeter Wetland
D1 – D51	Swamp	50' Perimeter Wetland
E1 – E46	Pond	50' Perimeter Wetland
F1 – F90	Swamp	50' Perimeter Wetland
G1 – G13	Forested Wetland	None
H1 – H91	Swamp	50' Perimeter Wetland
I1 – I68	Swamp	50' Perimeter Wetland
J1 – J23	Swamp	50' Perimeter Wetland
K1 – K18	Forested Wetland	None
L1 – L11	Forested Wetland	None
M1 – M12	Swamp	50' Perimeter Wetland
Not Flagged	ASSF	None
Not Flagged	Intermittent Stream (multiple)	100' riverbank wetland
Not Flagged	River (Canonchet Brook)	200' riverbank wetland

The 50-foot perimeter wetland and 100 and 200-foot riverbank wetlands are regulated resources and a permit is required for any work that may alter these areas.

It is also important to note that a new state freshwater wetlands law was enacted in July of 2015. This law made changes to the jurisdictional limits currently utilized in the regulations. The DEM, OWR is writing new regulations which will require buffer zones for all freshwater wetlands. While a comprehensive timeline has not been established for the enactment of these rules, it is anticipated that they will be in effect at some point in 2019. If you submit an application prior to the promulgation of these rules, your project would then be grandfathered under the current setback standards.

Please do not hesitate to contact NRS if you have any questions or if you require elaboration on the findings of this report.

Truly yours,

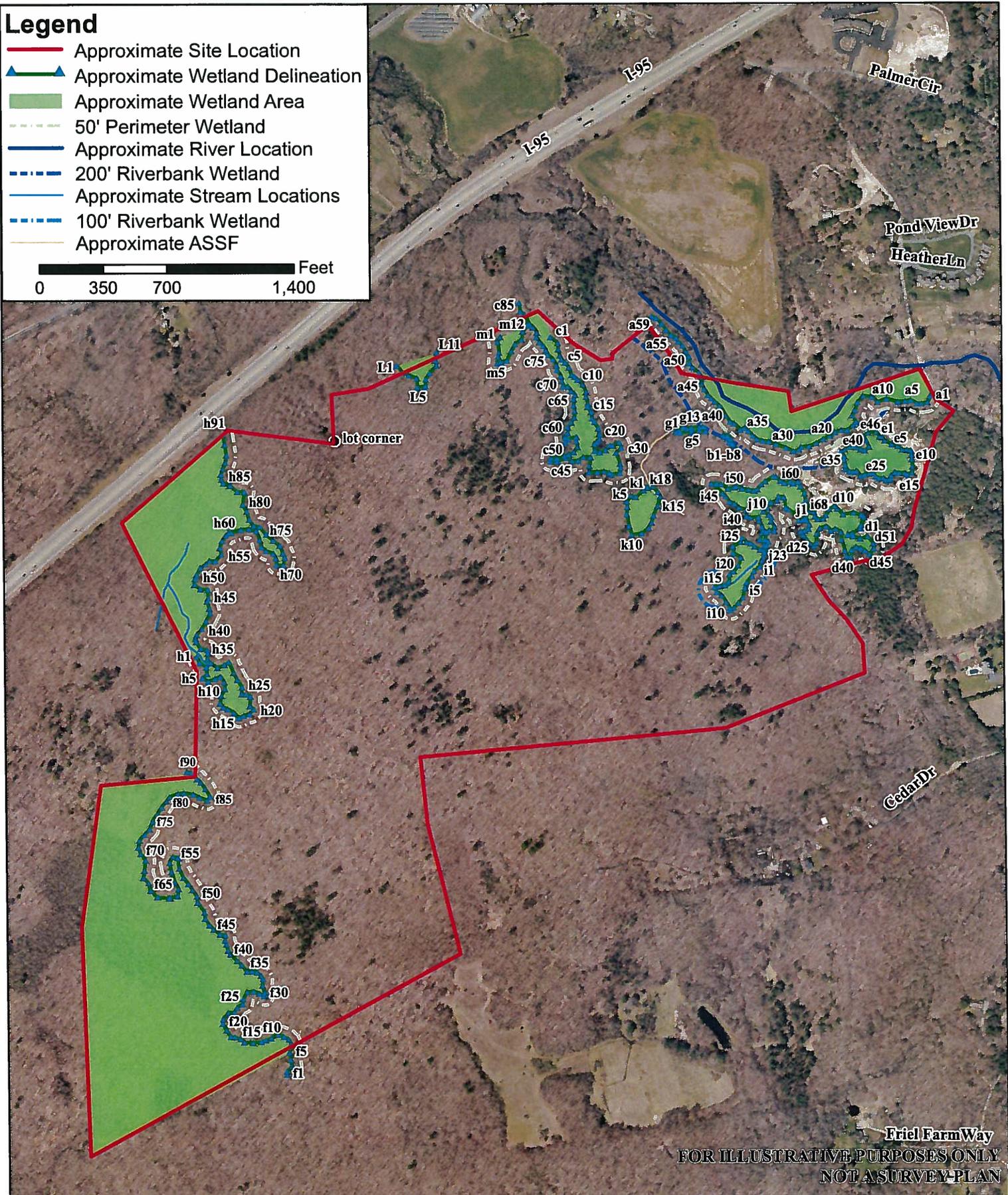
A handwritten signature in black ink, appearing to read 'Edward J. Avizinis', written over a horizontal line.

Edward J. Avizinis, CPSS, PWS

enclosure

# Legend

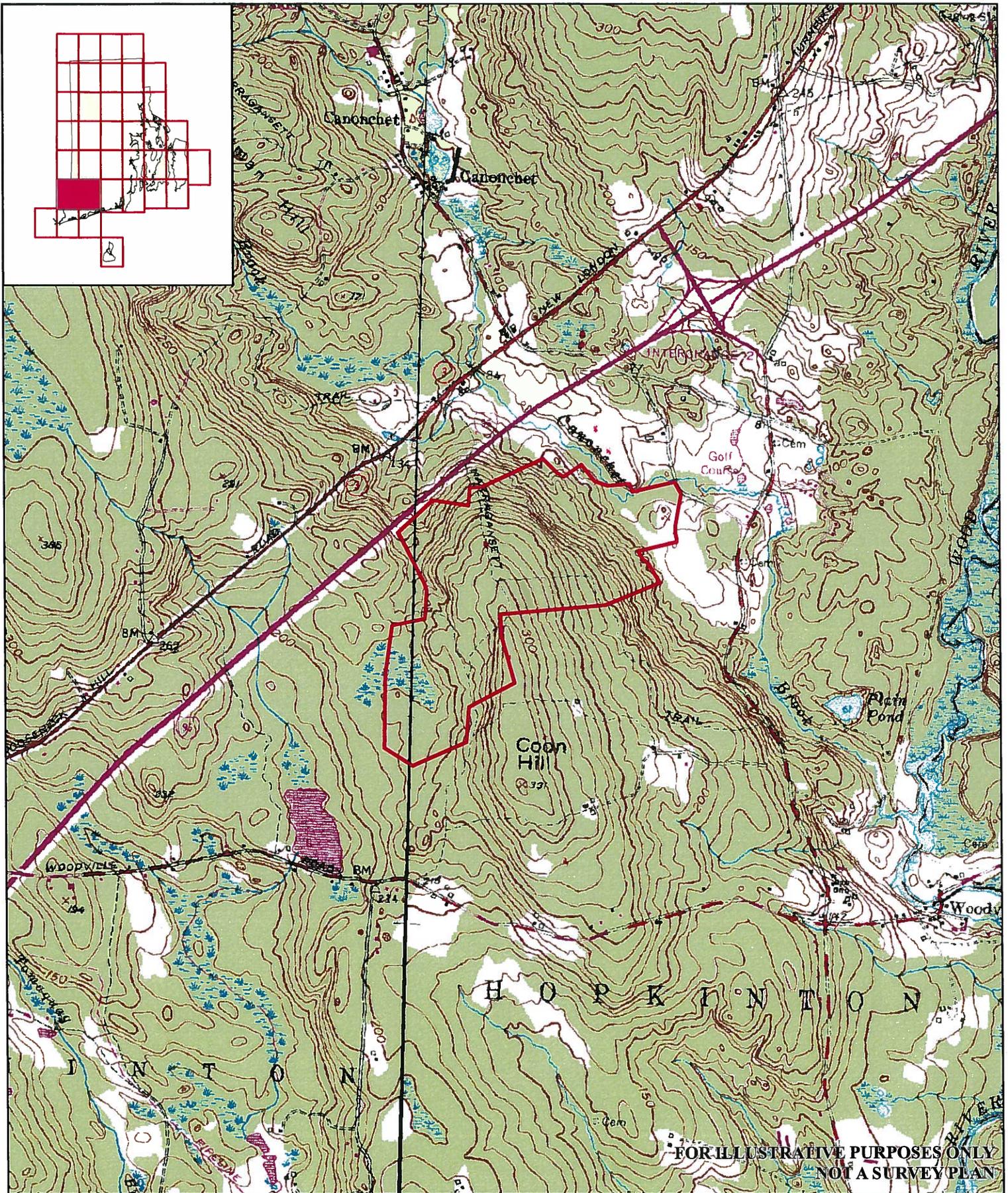
- Approximate Site Location
- ▲ Approximate Wetland Delineation
- Approximate Wetland Area
- 50' Perimeter Wetland
- Approximate River Location
- 200' Riverbank Wetland
- Approximate Stream Locations
- 100' Riverbank Wetland
- Approximate ASSF



**Site Sketch Depicting Approximate  
Wetland Delineation  
Palmer Circle  
A.P. 11, Lot 47A  
Hopkinton, RI**

Performed by  
Edward J. Avizinis, PWS, CPSS  
Dec. 6, 11, 12, 13, 18, 2019  
Located using hand-held  
Trimble GeoXH

  
 April 2019 aerial  
 RI DEM Mapping  
**RIGIS**  
 Natural Resource Services, Inc.  
 PO Box 311  
 180 Tinkham Lane  
 Harrisville, RI 02830  
 p: (401) 568-7390  
 f: (401) 568-7490  
 (c) RIGIS



**USGS Topographic Map**  
**Palmer Circle**  
**A.P. 11, Lot 47A**  
 Hopkinton, RI  
 Carolina & Ashaway Quad Maps

 **Approximate Site Location**

USGS Topographic Series  
 Contour Interval 10 Feet  
 National Geodetic Vertical Datum of 1929



**RIGIS**  
**Natural Resource Services, Inc.**  
 PO Box 311  
 180 Tinkham Lane  
 Harrisville, RI 02830  
 p. (401) 568-7390  
 f. (401) 568-7490  
 (c) RIGIS



**Wetland Edge Delineation Data Form (Wetland)**

Applicant:  
 Project: Palmer Circle (A.P. 11, Lot 47A)  
 City/Town: Hopkinton, RI

Wetland No.: 1  
 Flag No. Sequence: A1 – A59  
 Date: December 6, 2019

Vegetation: List the three dominant species in each vegetative strata along with their NWI status.

<u>Tree</u>	<u>Indicator Status</u>	<u>Herbs</u>	<u>Indicator Status</u>
1. <i>Fraxinus pennsylvanica</i>	FACW	1.	
2. <i>Nyssa sylvatica</i>	FAC	2.	
3. <i>Acer rubrum</i>	FAC	3.	
<u>Saplings/Shrubs</u>		<u>Woody Vines</u>	
1. <i>Clethra alnifolia</i>	FAC	1. <i>Smilax rotundifolia</i>	FAC
2. <i>Lindera benzoin</i>	FACW	2.	
3. <i>Fagus grandifolia</i>	FACU	3.	

List other vegetative species noted which may have affected determination of the wetland edge: *Liriodendron tulipifera*

Soil: SCS Soil Survey Mapping Unit: Rf  
 On Hydric Soils List (Y / N) Y

Soil Profile: (Note wetland flag no. nearest soil test pit): A30

Horizon	Depth	Matrix Color	Mottling Description	Depth to Saturation	Depth to Free Water
Oi	0-8"	-	-	-	-
A	8-13"	10YR 2/1	-	-	-
Restricted bouldery, very stony	13"	-	-	-	-

Other indicators of wetland hydrology (eg. water marks, drainage patterns, root Rhizospheres, etc): Patches of Sphag., Pockets of water, saturated  
 Landscape Position: Toeslope  
 Altered / atypical situation? (describe) \_\_\_\_\_  
 Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

### Wetland Edge Delineation Data Form (Upland)

Applicant:  
 Project: Palmer Circle (A.P. 11, Lot 47A)  
 City/Town: Hopkinton, RI

Wetland No.: 1  
 Flag No. Sequence: A1 – A59  
 Date: December 6, 2019

Vegetation: List the three dominant species in each vegetative strata along with their NWI status.

<u>Tree</u>	<u>Indicator Status</u>	<u>Herbs</u>	<u>Indicator Status</u>
1. <i>Quercus rubra</i>	FACU	1.	
2. <i>Fagus grandifolia</i>	FACU	2.	
3. <i>Betula lenta</i>	FACU	3.	

<u>Saplings/Shrubs</u>		<u>Woody Vines</u>	
1. <i>Clethra alnifolia</i>	FAC	1. <i>Smilax rotundifolia</i>	FAC
2.		2.	
3.		3.	

List other vegetative species noted which may have affected determination of the wetland Edge: \_\_\_\_\_

Soil: SCS Soil Survey Mapping Unit: ChD  
 On Hydric Soils List (Y / N) N

Soil Profile: (Note wetland flag no. nearest soil test pit): A30

Horizon	Depth	Matrix Color	Mottling Description	Depth to Saturation	Depth to Free Water
Oi	0-3"	-	-	-	-
A	3-6"	10YR 3/1	-	-	-
Bw	6-8"	10YR 5/4	-	-	-
Restricted bouldery, very stony	8"	-	-	-	-

Other indicators of wetland hydrology (eg. water marks, drainage patterns, root Rhizospheres, etc.): \_\_\_\_\_  
 Landscape Position: Backslope  
 Altered / atypical situation? (describe) \_\_\_\_\_  
 Comments: \_\_\_\_\_

### Wetland Edge Delineation Data Form (Wetland)

Applicant:  
 Project: Palmer Circle (A.P. 11, Lot 47A)  
 City/Town: Hopkinton, RI

Wetland No.: 1  
 Flag No. Sequence: E1 – E46  
 Date: December 11, 2019

Vegetation: List the three dominant species in each vegetative strata along with their NWI status.

<u>Tree</u>	<u>Indicator Status</u>	<u>Herbs</u>	<u>Indicator Status</u>
1. <i>Pinus rigida</i>	FACU	1.	
2. <i>Populus tremuloides</i>	FACU	2.	
3.		3.	
 <u>Saplings/Shrubs</u>		 <u>Woody Vines</u>	
1. <i>Vaccinium corymbosum</i>	FACW	1. <i>Rubus hispidus</i>	FACW
2. <i>Elaeagnus angustifolia</i>	FACU	2.	
3. <i>Vaccinium macrocarpon</i>	OBL	3.	

List other vegetative species noted which may have affected determination of the wetland edge: \_\_\_\_\_ *Comptonia peregrina* \_\_\_\_\_

Soil: SCS Soil Survey Mapping Unit: \_\_\_\_\_ Pg \_\_\_\_\_  
 On Hydric Soils List (Y / N) \_\_\_\_\_ N \_\_\_\_\_

Soil Profile: (Note wetland flag no. nearest soil test pit): \_\_\_\_\_ E11 \_\_\_\_\_

Horizon	Depth	Matrix Color	Mottling Description	Depth to Saturation	Depth to Free Water
C	0-12"	2.5Y 7/2	c:10YR 5/8 d:10YR 6/1	-	-

Other indicators of wetland hydrology (eg. water marks, drainage patterns, root Rhizospheres, etc): \_\_\_\_\_  
 Landscape Position: Toeslope \_\_\_\_\_  
 Altered / atypical situation? (describe) \_\_\_\_\_  
 Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

### Wetland Edge Delineation Data Form (Upland)

Applicant:  
 Project: Palmer Circle (A.P. 11, Lot 47A)  
 City/Town: Hopkinton, RI

Wetland No.: 1  
 Flag No. Sequence: E1 – E46  
 Date: December 11, 2019

Vegetation: List the three dominant species in each vegetative strata along with their NWI status.

<u>Tree</u>	<u>Indicator Status</u>	<u>Herbs</u>	<u>Indicator Status</u>
1. <i>Pinus rigida</i>	FACU	1. <i>Dendrolycopodium obscurum</i>	FACU
2. <i>Pinus strobus</i>	FACU	2.	
3. <i>Quercua alba</i>	FACU	3.	
 <u>Saplings/Shrubs</u>		 <u>Woody Vines</u>	
1. <i>Elaeagnus angustifolia</i>	FACU	1. <i>Rosa multiflora</i>	FACU
2.		2.	
3.		3.	

List other vegetative species noted which may have affected determination of the wetland Edge: *Populus tremuloides*

Soil: SCS Soil Survey Mapping Unit: Pg  
 On Hydric Soils List (Y / N) N

Soil Profile: (Note wetland flag no. nearest soil test pit): E11

Horizon	Depth	Matrix Color	Mottling Description	Depth to Saturation	Depth to Free Water
C	0-12"	2.5Y 7/3	-	-	-

Other indicators of wetland hydrology (eg. water marks, drainage patterns, root Rhizospheres, etc.): \_\_\_\_\_  
 Landscape Position: Footslope  
 Altered / atypical situation? (describe) \_\_\_\_\_  
 Comments: \_\_\_\_\_

**Wetland Edge Delineation Data Form (Wetland)**

Applicant:  
 Project: Palmer Circle (A.P. 11, Lot 47A)  
 City/Town: Hopkinton, RI

Wetland No.: 1  
 Flag No. Sequence: H1 – H91  
 Date: December 11, 2019

Vegetation: List the three dominant species in each vegetative strata along with their NWI status.

<u>Tree</u>	<u>Indicator Status</u>	<u>Herbs</u>	<u>Indicator Status</u>
1. <i>Fagus grandifolia</i>	FACU	1. <i>Osmundastrum cinnamomeum</i>	FACW
2. <i>Tsuga canadensis</i>	FACU	2.	
3. <i>Acer rubrum</i>	FAC	3.	

<u>Saplings/Shrubs</u>	<u>Woody Vines</u>
1.	1.
2.	2.
3.	3.

List other vegetative species noted which may have affected determination of the wetland edge: *Liriodendron tulipifera*

Soil: SCS Soil Survey Mapping Unit: Rf  
 On Hydric Soils List (Y / N) Y

Soil Profile: (Note wetland flag no. nearest soil test pit): H39

Horizon	Depth	Matrix Color	Mottling Description	Depth to Saturation	Depth to Free Water
Oa	0-8"	-	-	-	-
Restricted (bust)	8"	-	-	-	-

Other indicators of wetland hydrology (eg. water marks, drainage patterns, root Rhizospheres, etc): Saturated organic horizon  
 Landscape Position: Footslope  
 Altered / atypical situation? (describe) \_\_\_\_\_  
 Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Wetland Edge Delineation Data Form (Upland)**

Applicant:  
 Project: Palmer Circle (A.P. 11, Lot 47A)  
 City/Town: Hopkinton, RI

Wetland No.: 1  
 Flag No. Sequence: H1 – H91  
 Date: December 11, 2019

Vegetation: List the three dominant species in each vegetative strata along with their NWI status.

<u>Tree</u>	<u>Indicator Status</u>	<u>Herbs</u>	<u>Indicator Status</u>
1. <i>Acer rubrum</i>	FAC	1.	
2. <i>Fagus grandifolia</i>	FACU	2.	
3. <i>Betula lenta</i>	FACU	3.	

<u>Saplings/Shrubs</u>	<u>Woody Vines</u>
1.	1.
2.	2.
3.	3.

List other vegetative species noted which may have affected determination of the wetland Edge: \_\_\_\_\_

Soil: SCS Soil Survey Mapping Unit: WrB  
 On Hydric Soils List (Y / N) N

Soil Profile: (Note wetland flag no. nearest soil test pit): H39

Horizon	Depth	Matrix Color	Mottling Description	Depth to Saturation	Depth to Free Water
Oe	0-4"	-	-	-	-
A	4-8"	10YR 3/1	-	-	-
Bw	8-15"	10YR 5/4 (bust)	-	-	-

Other indicators of wetland hydrology (eg. water marks, drainage patterns, root Rhizospheres, etc.): \_\_\_\_\_

Landscape Position: Backslope

Altered / atypical situation? (describe) \_\_\_\_\_

Comments: \_\_\_\_\_

**Wetland Edge Delineation Data Form (Wetland)**

Applicant:  
 Project: Palmer Circle (A.P. 11, Lot 47A)  
 City/Town: Hopkinton, RI

Wetland No.: 1  
 Flag No. Sequence: I1 – I68  
 Date: December 11, 2019

Vegetation: List the three dominant species in each vegetative strata along with their NWI status.

<u>Tree</u>	<u>Indicator Status</u>	<u>Herbs</u>	<u>Indicator Status</u>
1. <i>Betula lenta</i>	FACU	1. <i>Osmundastrum cinnamomeum</i>	FACW
2. <i>Acer rubrum</i>	FAC	2. <i>Athyrium angustum</i>	FAC
3.		3.	

<u>Saplings/Shrubs</u>	<u>Woody Vines</u>
1.	1. <i>Vitis labrusca</i> FACU
2.	2.
3.	3.

List other vegetative species noted which may have affected determination of the wetland edge: \_\_\_\_\_

Soil: SCS Soil Survey Mapping Unit: CkC  
 On Hydric Soils List (Y / N) N

Soil Profile: (Note wetland flag no. nearest soil test pit): I14

Horizon	Depth	Matrix Color	Mottling Description	Depth to Saturation	Depth to Free Water
Oi	0-10"	-	-	-	-
A	10-12"	10YR 2/1	-	-	-
Restricted	12"	-	-	-	-

Other indicators of wetland hydrology (eg. water marks, drainage patterns, root Rhizospheres, etc): Saturated, patched of sphag, fringe of intermittent stream  
 Landscape Position: Backslope drainageway  
 Altered / atypical situation? (describe) \_\_\_\_\_  
 Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

### Wetland Edge Delineation Data Form (Upland)

Applicant:  
 Project: Palmer Circle (A.P. 11, Lot 47A)  
 City/Town: Hopkinton, RI

Wetland No.: 1  
 Flag No. Sequence: I1 – I68  
 Date: December 11, 2019

Vegetation: List the three dominant species in each vegetative strata along with their NWI status.

<u>Tree</u>	<u>Indicator Status</u>	<u>Herbs</u>	<u>Indicator Status</u>
1. <i>Acer rubrum</i>	FAC	1. <i>Athyrium angustum</i>	FAC
2. <i>Pinus strobus</i>	FACU	2.	
3. <i>Betula lenta</i>	FACU	3.	
 <u>Saplings/Shrubs</u>		 <u>Woody Vines</u>	
1.		1. <i>Smilax rotundifolia</i>	FAC
2.		2. <i>Vitis labrusca</i>	FACU
3.		3.	

List other vegetative species noted which may have affected determination of the wetland Edge: \_\_\_\_\_

Soil: SCS Soil Survey Mapping Unit: CkC  
 On Hydric Soils List (Y / N) N

Soil Profile: (Note wetland flag no. nearest soil test pit): I14

Horizon	Depth	Matrix Color	Mottling Description	Depth to Saturation	Depth to Free Water
Oi	0-2"	-	-	-	-
A	2-6"	10YR 3/1	-	-	-
Bw	6-18"	10YR 5/6	-	-	-

Other indicators of wetland hydrology (eg. water marks, drainage patterns, root Rhizospheres, etc.): \_\_\_\_\_  
 Landscape Position: Backslope  
 Altered / atypical situation? (describe) \_\_\_\_\_  
 Comments: \_\_\_\_\_



**APPENDIX F:**  
**Groundwater & Wellhead Figures**



# GROUNDWATER AND WELLHEAD PROTECTION AREAS MAP

## TOWN OF HOPKINTON RHODE ISLAND

### Map Legend

#### 2016-Wells

- Community
- Non Community Non Transient
- Non Community Non Transient-In Active

#### Features

- Highways
- Roads
- Water
- rivers and streams

#### Boundaries

- Hopkinton
- RI Municipal
- Other States
- Groundwater Recharge Areas
- Wellhead Protection Areas within Primary Protection Zone

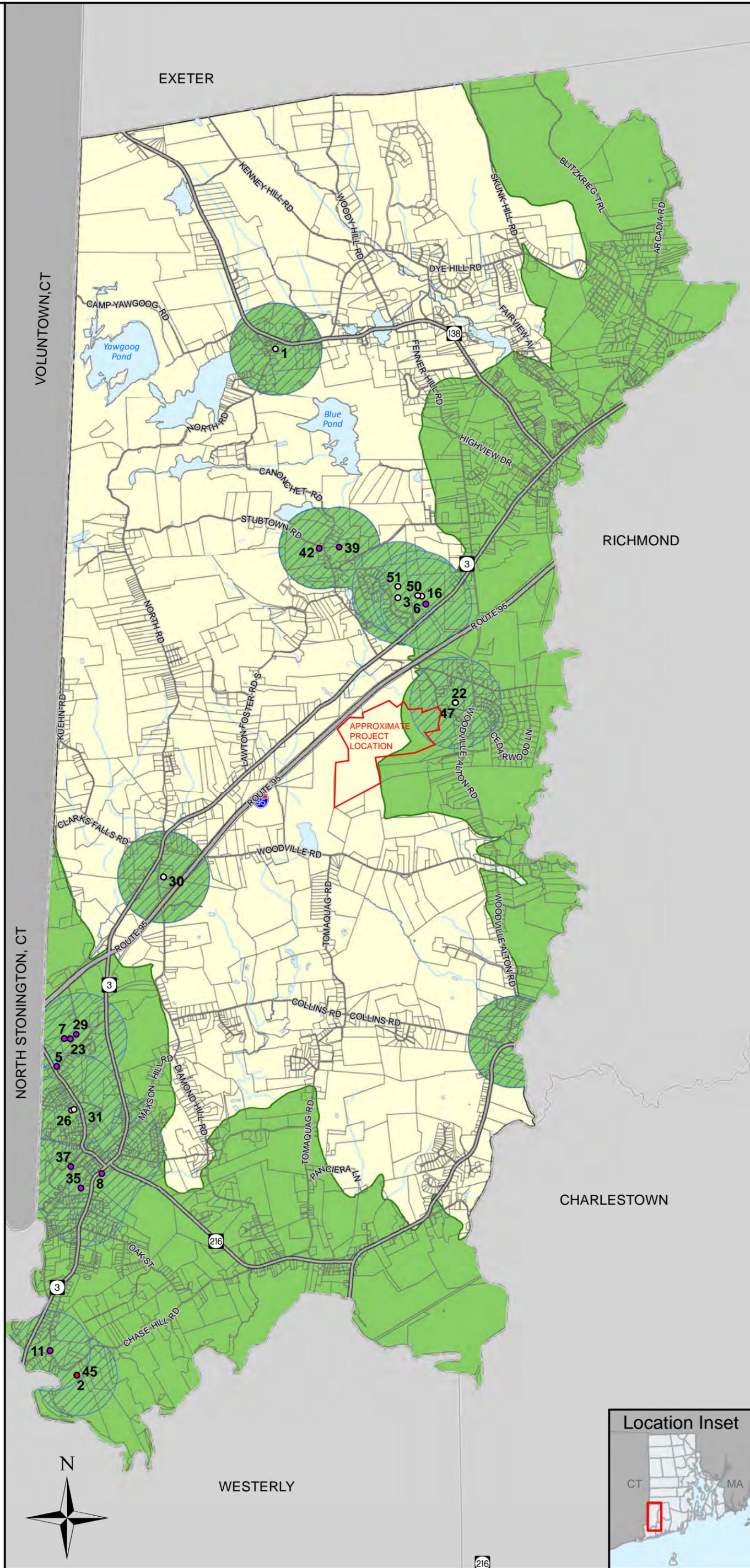
Well #	Well Name
1	Rockville Mill Community Water System
2	Garrity Industries - Inactive
3	Canonchet Cliffs Water Assoc.
5	Trinity Lutheran Preschool
6	Wood River Health Services
7	Hopkinton Industrial Park
8	Crandall House Sr Citizens' Center
11	The Pilgrims Baptist Church
16	Canonchet Cliffs Water Assoc.
22	Lindbrook Water Company
23	Hopkinton Industrial Park
26	Bethel Village Water Assoc.
29	Hopkinton Industrial Park
30	Saugatucket Springs
31	Bethel Village Water Assoc.
35	Ashaway Elementary School
37	Ashaway Line & Twine - Lower Mill
39	The Beadery Warehouse
42	The Beadery Industrial
45	Garrity Industries - Inactive
47	Lindbrook Water Company
50	Canonchet Cliffs Water Assoc.
51	Canonchet Cliffs Water Assoc.



This map is not the product of a Professional Land Survey. It was created by (Ed Vazquez) for general reference, informational, planning or guidance use, and is not a legally authoritative source as to location of natural or manmade features. Proper interpretation of this map may require the assistance of appropriate professional services. The Town of Hopkinton makes no warranty, express or implied, related to the spatial accuracy, reliability, completeness, or currentness of this map.

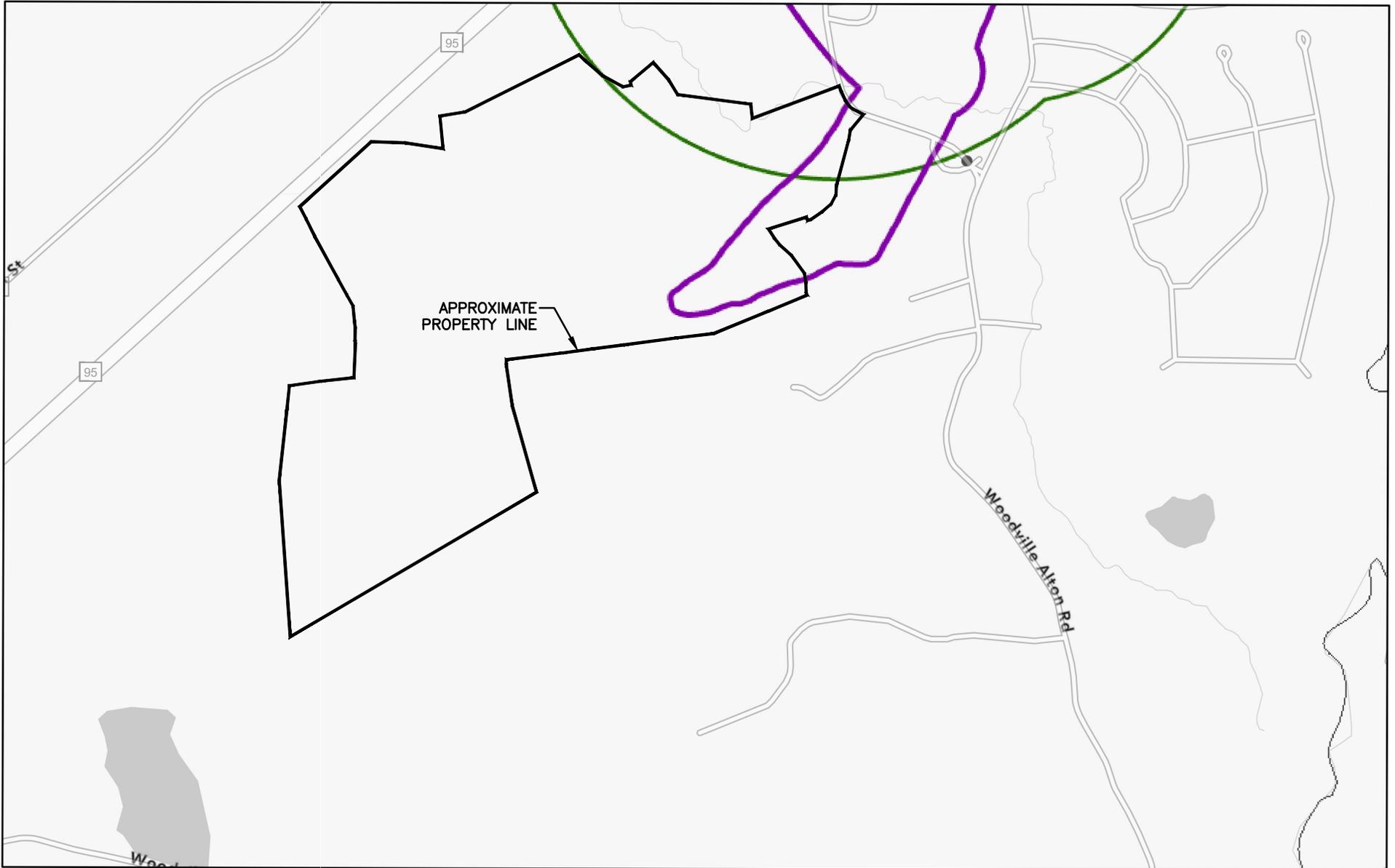


Ed Vazquez  
Updated Groundwater Map For Zoning rev 1  
Date Created: 9/2/2016



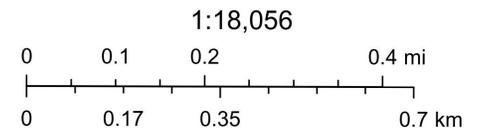


# RIDEM Environmental Resource Map



12/6/2019, 11:07:35 AM

-  NCWHPA
-  Rhode Island Boundaries
-  CWHPA

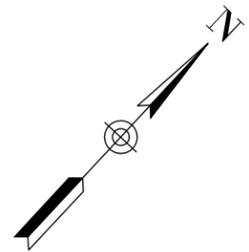
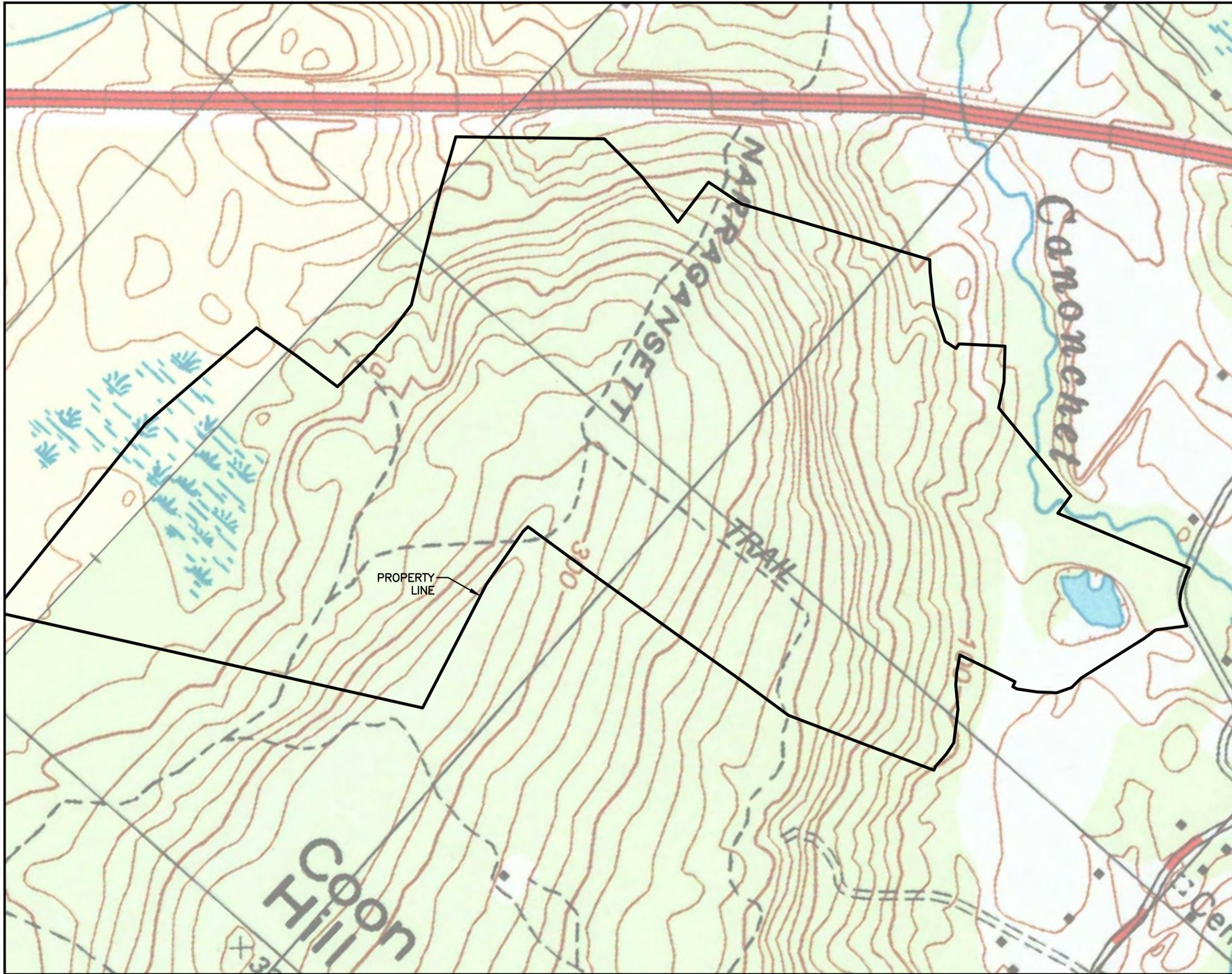


RIDEM, RIGIS, Sources: Esri, HERE, Garmin, FAO, NOAA, USGS, ©



**APPENDIX G:**  
**USGS Map Overlay Figure**





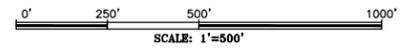
**NOTES:**  
 1. USGS MAPS SHOWN ARE TITLED ASHAWAY RI-CT 2001 AND CAROLINA RI 2001.

SCALE: 1" = 500' CA JOB # 219008 MAY 13, 2020	DRAWN BY: AKG CHECK BY: SFC
---	--------------------------------

**USGS MAP OVERLAY FIGURE**

**STONE RIDGE AT HOPKINTON  
 PALMER CIRCLE  
 MAP 11 LOT 47A  
 HOPKINTON, RHODE ISLAND**

PREPARED FOR  
**RI-95LLC**





**APPENDIX H:**

**Legal Ruling on Acceptable Uses in a Commercial Special District**



**CONFIDENTIAL LEGAL MEMORANDUM**

To: Town of Hopkinton Planning Board

From: Office of Hopkinton Town Solicitor (Kevin McAllister, Esq. and Sean Clough, Esq.)

Date: March 30, 2020

Re: Legal Ruling on Acceptable Uses in a Commercial Special District

---

Planning Board Members: On the evening of Wednesday February 5, 2020, the Planning Board (the Board) held its regularly scheduled meeting. During the meeting the Board held a pre-application hearing on a major land development project entitled Stone Ridge at Hopkinton. During that discussion a question arose regarding the applicable uses in a commercial special district. The following memorandum provides an overview of the history of this zone, the pertinent law, and legal analysis supporting this ruling. The determination of the Hopkinton Town Solicitor is that a commercial special district allows for all current commercial uses, including use 486 allowing PSES installations.

**I**

**HISTORY OF COMMERCIAL SPECIAL ZONE AND PALMER CIRCLE**

Prior to the July 2, 1990 Zoning Amendment, Article II, § 3 of the Hopkinton Zoning Code provided for a Commercial zone. *See Exhibit A* (Zoning Code § 3). Subsection A of that code, provided for a number of permitted uses, numerated 1 – 15. Some uses are very specific while others are very broad, particularly item 15 which allows “other uses as the zoning board of review may determine to be similar, not more objectionable and not specifically listed in items 1 to 12 above.”

On July 2, 1990 the Hopkinton Town Council (Town Council) entertained a Zoning Amendment to facilitate the proposed Brae Bern project of Palmer Circle. That amendment sought to create a Commercial Special District, adopt by reference the Commercial permitted uses, and create additional permitted uses. Permitted Use 16 allows for a “[m]ixed-use planned development combining any of the permitted uses listed in items 1 through 15 above and . . .” other commercial, recreational, and water distribution/treatment facilities. *See Exhibit B* (Zoning Amendment). It further states that “dimensional regulations otherwise set forth in this chapter shall not be applicable to the construction of” the planned development”. *Id.* The Amendment also requires that “[a]t least forty (40%) of the total area of the planned development, exclusive of wetlands, ponds, marshes, protected natural areas, but inclusive of golf courses and similar open outdoor recreation areas shall be set aside as open space.” *Id.*

During the hearing on the Zoning Amendment, the Town Council discussed and debated several aspects of the project. One item of debate was the Planning Board’s recommendation that the applicants be subject to a not yet adopted Planned Unit Development Ordinance if the application was granted. *See Exhibit C* at ¶ 6 (July 2, 1990 Town Council Hr’g Transcript). A motion was made to include this requirement, but then was subsequently removed along with other language in the ordinance expressly referring to Planned Unit Development. *Id.* at ¶ 11. The final

motion permitted a maximum number of structures and uses in connection with the project. *Id.* at ¶ 11(b) (one hotel and on conference center having a combined total of 200 rooms; one country club; 165 units of residential housing; one 18 hole golf course). Additionally, it adopted by reference the Zoning Amendment establishing Commercial Special for the tract. *Id.* at ¶ 11(d). The amended motion and ordinance by reference was adopted by a majority of the Town Council.

Subsequently, in 2011, the Hopkinton Building and Zoning Official requested an opinion from the Assistant Town Solicitor regarding what uses would be permitted on property classified as a Commercial Special District. The Assistant Town Solicitor rendered a decision allowing that a property classified as Commercial Special District could be used by right or by special use permit in any manner permitted by the current [2011] District Use Table for tracts in a Commercial District unless limited by the Town Council. *See Exhibit D* at 2 (2011 Assistant Solicitor's Opinion). In his opinion he goes on to say that the Town Council did create certain use limitations, conditions and/or restrictions for Plat 11, Lot 47D, if the intended use was for a "Mixed-use planned development as the term is used in the amendment." *Id.* This opinion was then relied on by the Building & Zoning Department when providing an opinion to Roy Dubs who was seeking to develop properties located on Palmer Circle.

Currently, in connection with a pre-application hearing, the Planning Board has requested the Solicitor's opinion regarding the use by right in any manner permitted by the current District Use Table as it relates to this property.

## II

### ANALYSIS

To determine what uses are permitted in a Commercial Special District the Planning Board must first look to the Zoning Ordinance to understand how special districts are governed. The Zoning Ordinance, Section 4, *Division into districts*, provides the following language:

The . . . Commercial Special . . . zoning districts are composed of parcels of property which heretofore were the subject of a zoning map boundary change or amendment to the text of the prior zoning ordinance and in connection with which the town council imposed use limitations, conditions, and/or restrictions. The terms of such limitations, conditions, and/or restrictions shall continue to be applicable to each said property and shall be deemed readopted and incorporated herein. Except as the limitations, conditions, and/or restrictions as individually applicable to the property within each said zoning district are controlling the use and dimensional regulations of [the zoning code] from the . . . Commercial district [shall apply] to the Commercial Special district.

Hopkinton Zoning Code, App. A § 4 (editing and abbreviations made for clarification purposes).

When analyzing the meaning or intent of an ordinance the Court will look to the language of the ordinance and when such language “is clear and unambiguous, the Court must interpret the [ordinance] literally and must give the words of the [ordinance] their plain and ordinary meaning.” *Mancini v. City of Providence*, 155 A.3d 159, 162 – 63 (R.I. 2017). However, the plain meaning approach does not require “myopic literalism, and it is entirely proper for [the Planning Board] to look to the sense and meaning fairly deducible from the context.” *Id.* Accordingly, a plain reading of Section 4 of the Zoning Ordinance allows for all commercial district uses to apply in a commercial special district, subject to any express limitations, conditions, and/or restrictions as applied to any individual property. Therefore, the Planning Board must next look to the applicable ordinance to discern if there are express limitations, conditions, and/or restrictions as applied to the property at hand.

Turning to the Zoning Ordinance Amendment, there is an adoption by reference of all permitted uses in a commercial zone. Further, there is the creation of a 16<sup>th</sup> use, that will be referred to as “mixed-use planned development.” The mixed-use planned development states in part, “mixed-use planned development combining any of the permitted uses listed in items 1 through 15 above and hotels or motels, conference centers, golf courses, swimming areas, country clubs and central facilities for water distribution and waste treatment.” Ex. B. At first, a literal reading of this portion of the ordinance may lead a reader to assume that only permitted uses are those as detailed within the ordinance and some mix of commercial uses 1 through 15, as defined as the commercial use table in existence in the year 1990. However, the overall context of the amendment and applicable zoning code provides a more natural and fair reading of the ordinance.

Incorporation into the ordinance of the entirety of the commercial use table indicates an intent to allow any commercial use on the property, as defined by the commercial use table. Certainly, the Council could have used more obvious language such as “any commercial use as defined in the commercial use table,” nevertheless it does not follow that absent that particular language the Council intended to restrict commercial use to the commercial use table of the 1990s. If the ordinance had specified uses, such as commercial use 1, 5, or 7, as opposed to the entirety of the commercial use table, the ordinance could perhaps be interpreted to restrict commercial use to those explicit uses. However, the ordinance does not do this. Similarly, the Council could have specifically allowed for “any of the current permitted uses listed in items 1 through 15” or “any of the permitted uses listed in items 1 through 15 of the 1990 zoning code.” Again, this was not the language chosen by the Council.

As a matter of interpretation, it is assumed that the Council at the time, as do all councils, understood that use tables and dimensional regulations are periodically amended. Therefore, the Planning Board can infer from the lack of express language cementing in place the 1990 zoning code within the zoning amendment that there was no intent to do so. If the Council had such an intent it would have acted much like it did in the second paragraph of the ordinance which explicitly states that the “dimensional regulations otherwise set forth in this chapter shall not be applicable to the construction of said planned development . . . .” Nowhere within the ordinance are commercial uses set forth in the zoning code explicitly written to not apply. Instead, the

Council incorporated the entire commercial use table suggesting that they wished to incorporate all commercial uses plus other specific uses as delineated within the Amendment.

While it is true that the Town Council adopted a maximum number of structures and uses in connection with the Brae Bern project, it does not follow that those limitations exist for any new application seeking to utilize that particular tracts under the commercial special district. If it were the case that the limitations of paragraph 11(b) were controlling on this particular tract for all future applications, it would directly conflict with the adopted ordinance language. 11(b) states, that

The maximum number of structures and the uses in this zone permitted in connection with this project shall be as proposed:

- i. One hotel and one conference center having a combined total of 200 rooms;
- ii. One country club;
- iii. 165 unites of residential housing;
- iv. One 18 hole golf course.

Ex. C at ¶ 11(b) (emphasis added). Conversely, the Zoning Amendment as adopted in paragraph 11(d) states that Commercial Zone 16 permitted uses are:

Mixed-use planned development combining any of the permitted uses listed in items 1 through 15 above and hotels or motels, conference centers, golf course, swimming areas, country clubs and central facilities for water distribution and waste treatment.

Ex. B at ¶ 11(d).

If paragraph 11(b) were to be controlling for any project on this tract then the language of paragraph 11(d) of the zoning ordinance would be superfluous. Courts will presume that the Town Council “intended each word or provision” of its ordinance “to express a significant meaning, and the Court will give effect to every word, clause or sentence, whenever possible.” *Rhode Island American Federation of Teachers/Retired Local 8037 v. Johnston School Committee*, 212 A.3d 516, 159 (R.I. 2019). Therefore, under this common method of interpretation any conflict in the ordinance provisions should be read to reduce superfluous language and give effect to both 11(b) and 11(d). Accordingly, it is natural to read 11(b) as restrictions “in connection with” the particular Brae Bern project and 11(d) as allowing additional uses under the commercial zone use 16 for future applicants.

Moreover, to the extent there is any doubt or ambiguity as to the intent of zoning ordinance provisions, it is to be resolved in favor of the landowner. *Earl v. Zoning Board of Review of City of Warwick*, 191 A.2d 161, 96 R.I. 321 (R.I. 1963); *City of Providence v. O’Neill*, 445 A.2d 290 (R.I. 1982). As such, a Court, out of respect for property rights, will likely resolve this question

of ambiguity, to the extent one exists, in favor of the landowner so that land uses for the property are not restricted to the four uses in 11(b).

Further, in this particular case, a Court will likely resolve any ambiguities regarding uses in favor of the landowner under the doctrine of equitable estoppel. The doctrine of equitable estoppel prevents a municipality or board from reversing an action or determination to the detriment of others who have relied upon that original action or determination. *Ferrelli v. Department of Employment Security*, 106 R.I. 588, 592 (R.I. 1970) (the R.I. Supreme Court recognizing that the doctrine of estoppel may in a proper case be invoked against a public body to prevent injustice or a loss would result). In essence, a municipality or board cannot make a decision, have others trust and rely upon that decision, including the investment of money and resources based on that decision, and then subsequently change that decision causing those who relied upon that decision harm.

Here, there have been previous determinations as to the appropriate uses within a commercial special zone. That previous determination in 2011, made by the Hopkinton Town Solicitor at the time, emphatically determined that other commercial uses were available in this commercial special zone. The town zoning officer and landowner at the time relied upon that opinion. That opinion has not been contested or altered since its initial determination. In fact, no changes have occurred to the material provisions in question. Further, in 2019 another zoning officer made a determination, which was provided to the current applicant, confirming that the intended use of the property is in accordance with provisions of the Hopkinton Zoning Ordinance including use category 486 PSES. As such, the applicant's reliance interest on this reaffirmation of the 2011 determination is understandable and likely easy to document. Moreover, the landowner has already invested large sums of money with reliance upon this determination. Accordingly, a reversal of this 2011 determination would likely be estopped (or barred) by the Courts and the previous determination allowing other commercial uses within the commercial special zone likely will be found controlling.

### III

#### CONCLUSION

If the Planning Board were to determine that commercial uses, such as category 486 PSES, were not a use by right it would trigger a court challenge that would result in an overruling of the Board. As explained above, this is because the Courts attempt to give every ordinance a fair and natural reading that gives the meaning of the words of the ordinance their plain and ordinary meaning while giving affect to each word and provision without reading provisions in a way that renders them superfluous. Further, the Courts tend to defer to landowners in cases of ambiguity.

Here, language adopted by the Town Council in § 11(b) should be read to apply to the Brae Bern project specifically. Section 11(d), incorporating the zoning ordinance amendment, is naturally read to include all current commercial uses. To read the incorporation of commercial

uses as limited to 1990 commercial uses is to read words into the ordinance that simply do not exist. Whereas, to read the incorporation of the entire commercial use table into the ordinance as incorporating the entire commercial use table with future changes is a more natural interpretation, particularly when it is considered that the Town Council understands that commercial use tables are amended from time to time and the Town Council chose not to expressly cement the 1990 commercial use table into the amendment.

Accordingly, given the language of the ordinance before the Board and the fact that courts tend to defer to landowners in cases of ambiguity, the Planning Board should read the Commercial Special district as allowing all current commercial uses, including use 486 PSES.

# EXHIBIT 'A

### Section 3. Compliance with this ordinance.

No building, structures or land located within the Town of Hopkinton shall be used and no building, structure or part thereof shall be erected, constructed, reconstructed, moved or structurally altered unless in conformity with the provisions of this ordinance.

(Ch. 134, § 3, 12-19-94)

### Section 4. Division into districts.

For the purposes of this ordinance the Town of Hopkinton is hereby divided into those zoning districts the location and boundaries of which are as shown and depicted on that certain map entitled: "Town of Hopkinton Zoning Map" prepared by Cherenzia & Assoc., Ltd., October 1994, Scale 1"=1200' and that set of maps entitled: "Town of Hopkinton Zoning District Maps," prepared by Cherenzia & Assoc., Ltd., October 1994, sheets 1—31, which maps are on file in the records of the town clerk of the Town of Hopkinton and which are adopted and made a part of this ordinance. The boundary lines of said districts are intended and are to be interpreted to follow the boundary lines of existing lots of record and the centerline of roadways, except as is clearly depicted to the contrary.

The Residential Special, Neighborhood Business Special, Commercial Special and Manufacturing Special zoning districts are composed of parcels of property which heretofore were the subject of a zoning map boundary change or amendment to the text of the prior zoning ordinance and in connection with which the town council imposed use limitations, conditions, and/or restrictions. The terms of such limitations, conditions, and/or restrictions shall continue to be applicable to each said property and shall be deemed readopted and incorporated herein. Except as the limitations, conditions, and/or restrictions as individually applicable to the property within each said zoning district are controlling the use and dimensional regulations of this ordinance from the Rural Farming Residential - 80 district shall apply to the Residential Special district, the Neighborhood Business district shall apply to the

Neighborhood Business Special district, the Commercial district to the Commercial Special district, and the Manufacturing district to the Manufacturing Special district.  
(ch. 134, § 4, 12-19-94)

**Section 5. District use regulations.**

The following District Use Table establishes in each district those uses permitted and those uses permitted by special-use permit. All uses not so permitted in a district are prohibited therein. Any accessory use customarily incident to a use permitted in a district and located on the same lot shall be permitted; any accessory use customarily incident to a use permitted in a district by special use permit and located on the same lot shall be permitted upon the grant of the special-use permit unless limited by a special condition attached to the grant of the special-use permit. It shall be the responsibility of the zoning enforcement officer to determine which use classification a proposed use is governed by.  
(Ch. 134, § 4, 12-19-94)

# EXHIBIT "B"

*Use Zone*

TOWN OF HOPKINTON  
RHODE ISLAND

CHAPTER 110

AN ORDINANCE IN AMENDMENT OF CHAPTER 28 OF THE ORDINANCE OF THE TOWN OF HOPKINTON ENTITLED "ZONING AMENDMENT", AS AMENDED;

The Town of Hopkinton hereby ordains the following:

Section 1: Chapter 28 of the Ordinance of the Town of Hopkinton Entitled "Zoning Ordinance", as amended, is further amended as follows:

ARTICLE II - District Use Regulations

Section 3. Commercial Zone

A. Permitted Uses:

16. Mixed-use planned development combining any of the permitted uses listed in items 1 through 15 above and hotels or motels, conference centers, golf courses, swimming areas, country clubs and central facilities for water distribution and waste treatment.

The dimensional regulations otherwise set forth in this chapter shall not be applicable to the construction of said planned development provided that within the tract described below there shall be no more than one hundred and sixty five (165) residential units, in any combination of single family housing units, two family (duplex) housing units, and four family (quadruplex) housing units, and that such housing units may be served by a central water distribution system and/or a conventional or packaged waste treatment facilities, where appropriate.

At least forty (40%) of the total area of the planned development, exclusive of wetlands, ponds, marshes, protected natural areas, but inclusive of golf courses and similar open outdoor recreation areas shall be set aside as open space. Such open space shall remain in private ownership, either through an association of private owners of housing or retained in single ownership, and shall be restricted from any future building or use except where it is consistent with the provision of landscaped open space for aesthetic and recreational satisfaction of the surrounding residences.

The hotel and conference center shall be sized to accommodate no more than two hundred (200) rooms or suites and no more than fifteen thousand (15,000) square feet of meeting space and support facilities consisting of commercial, retail, recreational and dining components and may be served by an approved central water supply and/or central sewage disposal system.

Building permits shall be issued for any of the herein mentioned uses only after the Hopkinton Planning Board conducts a site plan review of the preliminary and final development plan and approves same in accordance criteria of the Hopkinton Cluster Ordinance, Article II, 5.1N and O.

Regulations of the State of Rhode Island Department of Environmental Management regarding septic systems sewer treatment facilities and wetlands protection, and the State of Rhode Island Department of Health regarding water supply shall apply to said tract (s)

or parcel (s) which are bounded and described as follows:

Those certain tracts or parcels of land with all buildings and improvements thereon, located on the westerly side of Palmer Circle, so-called, in the Town of Hopkinton, County of Washington and State of Rhode Island, described as follows:

First Tract: That certain tract or parcel of land described in Deed from Mary E. Palmer, et als to Brae Bern, L.P. recorded in Book 181 at Page 120.

Second Tract: Those certain tracts or parcels of land described in two Deeds to James Romanella & Sons, Inc., recorded in Book 86 at Page 11 and Book 86, Page 14.

Third Tract: That certain tract or parcel of land bounded and described as follows:  
A certain parcel of land located on Palmer Circle Road in the Town of Hopkinton, Washington County and State of Rhode Island is bounded as described as follows:

Beginning at a monument on the westerly streetline of Palmer Circle Road, said monument being the point and place of beginning for herein described parcel; thence running N 79-31'-57" W along land now or formerly of Wilcox, a distance of 465.69' to a drillhole; thence running N 61-36'53" W a distance of 83.80' to a point; thence running N 61-11'-15" W a distance of 190.57' to a drillhole; thence running N 09-37'-27" E a distance of 83.23' to a point; thence running N 09-56'-08" E a distance of 157.32' to a point; thence running N 04-08'-30" E a distance of 19.67' to a point; thence running N 09-47'-57" E a distance of 55.36' to a point; thence running N 06-22'-37" E a distance of 68.44' to a point; thence running N 06-05'-15" E a distance of 32.04' to a point; thence running N 65-09'-15" W a distance of 11.66' to a point; the last nine mentioned courses being along land now or formerly of Reynolds; Thence running N 71-55'-31" E along land now or formerly of State of Rhode Island, a distance of 105.72' to a R.I. Highway bound; thence running S 08-17'-22" E a distance of 99.96' to a R.I. Highway bound; thence running S 52-36'-03" E a distance of 59.93' to a R.I. Highway bound; thence running N 72-58'-26" E a distance of 85.98' to a R.I. Highway bound; thence running S 52-39'-53" E a distance of 202.64' to a R.I. Highway bound; thence running S 47-14'-03" E a distance of 207.92' to a R.I. Highway bound; thence running N 58-58'-56" E a distance of 6.43' to a point; thence running S 23-40'-17" E a distance of 47.27' to a point; thence running S 16-20'36" E a distance of 80.42' to a point; thence running S 12-57'-36 E a distance of 43.09' to a point; thence running S 11-54'-16" a distance of 80.72' to a point; thence running S 15-16'-15" E a distance of 54.65' to a monument, said monument being the point and place of beginning for herein described parcel, the last eleven mentioned courses being along the westerly streetline of Canonchet Road and Palmer Circle respectfully.

ADOPTED: July 2, 1990

ATTEST: *Jenarita F. Aldrich*  
Jenarita F. Aldrich  
Town Clerk

# EXHIBIT “C”

Town Council Meeting - July 2, 1990 - continued

for five year terms; the authorization for the Town Clerk to advertise for bank run gravel, overlaying sections of town roads, washed sand for oiling of town roads, winter sand for salt delivered to the Highway Department, five 30 yard dumpsters, removal of paper & tires containers for recycling, monitoring of wells, and survey of landfill; authorization for the Town Clerk to advertise for a clerk for the Planning Board; set July 16, 1990 as a date to meet with John Loiselle of Fleet National Bank as requested by the Town Treasurer. UNANIMOUS

SO VOTED

The Council opened bids for the Hope Valley and Ashaway Tennis Courts as follows:

Cit Cape & Island Tennis

Copeland

Joyce Construction Co.

Jerry Coffee Com.

A motion was made by Councilor McGiveney and seconded by Councilor Henson to refer the bids to the Recreation Commission for a recommendation. UNANIMOUS

SO VOTED

↙  
A motion was made by Councilor Henson and seconded by Councilor Corrigan, In accordance with our authority under 45-24-5 of the General Laws, I move that we approve the application of Brae Bern Limited Partnership and Mary Palmer and James Romanella Son, Inc. for a change of zoning district for lots 47, 47A, 47D, 38, and 39 on Assessor's Plat 11 from Light Industrial and RFR, to a mixed-use zone as requested for the following reasons and with the following restrictions and/or conditions:

1. The developer, Hal Henry, testified that he proposed

Town Council Meeting - July 2, 1990 - continued

to construct on this almost 300 acres of land just off Routes 95 and 3, a "destination resort" comprised of a golf course, a hotel and conference center with a combined maximum of 200 rooms, a country club, and 165 units of cluster residential housing. Mr. Henry provided the demographic and economic statistics that indicate the need for these services and their excellent likelihood of success in this location.

2. The proposed uses will be in accordance with the Town's comprehensive plan in that they are appropriate to the area, will not have any detrimental impact on the surrounding properties as testified to by Petitioner's expert Stephen McAndrew, and will be constructed in such a way as to preserve the rural flavor of the area. Mr. McAndrew further testified that the proposed use is more in harmony with the surrounding area than a light industrial use, and that the proposed uses would merely be expanding on current uses, not introducing entirely new uses.
3. The proposed uses will be a less intensive drain on the land, and will pose far less of an environmental risk than the currently permitted light industrial use to areas of critical concern to the town: the nearby ground water aquifer, glacial outwash and wetlands. The project's Manager, John Hart testified that approximately 90% of the site is outside any protected areas or zones of concern and that the proposed site plan was created in such a way that development

Town Council Meeting - July 2, 1990 - continued

has been directed away from these areas of concern.

4. Raymond Schwab, a civil engineer with over 30 years experience, testified with respect to the care taken to develop appropriate ISDS systems for the project, which systems have been designed in cooperation with DEM personnel who have approved the concepts. He further testified to the attention given to surface water run-off issues and intended water recirculation.
5. C. Richard Sgogle, a turf grass agronomist for 30 years, testified that the types of pesticides, fungicides, insecticides, and herbicides necessary for maintenance of the golf course would pose no danger to either the ground water supply or other environmental concerns. John J. Kupa, the Director of graduate curriculum in Community Planning and the Environment at URI, similarly testified that the use of the land in this planned and considerate way would pose no hazards to the environment, and was sufficiently removed from the aquifer to pose no threat at all.
6. The Planning Board, while not specifically approving the project at this stage, did state that the Board approved of the concept and its application to this site, but wished the Council to adopt and subject the applicants to a Planned Unit Development Ordinance if the application is granted so that the Planning Board will have the tools necessary to appropriately evaluate and manage this project. The Board stated that if the Council

Town Council Meeting - July 2, 1990 - continued

so acted, it would have no objections to the applicants' requested zone change.

7. The Conservation Commission expressed concern with the use by the applicants of the golf course to meet their open space requirements and suggested that there may be more wetlands on the site than is shown on the applicants' diagrams. Sarah Porter stated that the Commission was not opposed but had strong reservations. The Planning Board assured the Council that an ERT would be a necessary requirement of their consideration of the specifics of this project.
8. The applicant further presented an unnotarized petition containing approximately 250 names in support of the project.
9. It is clearly in the best interest of the Town to attract beneficial and clean businesses to appropriate locations in Town. This project when completed will boost tourism in the entire South County area, will provide approximately \$720,000.00 in various types of tax revenue and add approximately 53 million dollars, and 46%, to Hopkinton tax base. It will further create 283 new jobs.
10. The project as proposed bears a reasonable relationship to the public health, welfare, and safety by promoting growth in an area ideally suited to this project without offering any associated problems for either the surrounding community or the balance of Hopkinton.

Town Council Meeting - July 2, 1990 - continued

11. This application is granted subject to the following restrictions:

a. The applicants recognize that the Town is in the process of adopting a Planned Unit Development and a Site Plan Ordinance. If a Planned Unity Development and a Site Review Ordinance is adopted by the Town at any time during the course of this project, the applicants will be subject to all of the design and placement criteria and procedural requirements thereto contained therein.

Notwithstanding the above, the applicants shall not be required to appear before this Council again for the zone change or design aspects of this application.

b. The maximum number of structures and the uses in this zone permitted in connection with this project shall be as proposed:

- i. one hotel and one conference center having a combined total of 200 rooms;
- ii one country club;
- iii 165 units of residential housing;
- iv one 18 hole golf course.

c. The Planning Board, pursuant to ordinance, shall be responsible for all final decisions regarding the proposed placement, design, and implementation of the various aspects of this project in accordance with the requirements established in subsection b above. No building permits are to be issued until final detailed site plans, building layouts, traffic control plan,

Town Council Meeting - July 2, 1990 - continued

water run-off control plans, building plans, and other documentation shall be presented to the Planning Board for their consideration and approval.

- d. The text of the amendment to the zoning ordinance shall be in the form attached hereto and incorporated as Exhibit A.

Hal Henry and Attorney Naccarato expressed concern about being made subject to a PUD Ordinance, yet to be reviewed and adopted. They stated they felt comfortable with being subject to the Cluster Subdivision Ordinance and felt their compliance with that ordinance would afford the town protection and the Planning Board tools with which to work.

A motion was made by Councilor Henson and seconded by Councilor McGiveney to amend the motion and delete item 11.a. and add to item c. An ERT shall be required. The text of the Ordinance to be changed to delete the underlined portion 16, paragraph 5, to delete from the words, "or if a Planned Unit Development etc".

Councilor Corrigan stated he was being forced to vote against something he was very much in favor of since the project would not be required to comply with the proposed PUD and Site Review Ordinances. He said he had serious concerns about the Boards and Commissions not having the elements in place to control a project of this magnitude.

IN FAVOR OF THE AMENDMENT: Johanson, Henson, McGiveney

OPPOSED: Corrigan

AMENDMENT SO VOTED

Town Council Meeting - July 2, 1990 - continued

IN FAVOR OF THE MOTION AS AMENDED: Johanson, Henson,  
McGivney

OPPOSED: Corrigan

AMENDED MOTION SO VOTED

The record is to note that Councilor Devin was not present  
for the Brae Bern decision.

The Council opened a hearing on Sub-division Ordinance  
102 recommended by the Planning Board and the subject  
of a previous workshop.

A motion was made by Councilor McGivney and seconded  
by Councilor Henson to adopt Chapter 102 as presented.

UNANIMOUS

SO VOTED

A motion was made by Councilor Henson and seconded by  
Councilor Corrigan to grant the request of the Chief  
of Police for use of 9 MM Semi-Automatic weapons by  
the Police Department subject to them being purchased  
by the individual members of the Police Department.

Councilor Henson explained that the request had the  
approval of the Police Commission, that it is done in  
other departments, the chief has all intentions of being  
sure the officers qualify with the weapons and the town  
would not be liable.

Councilor McGivney stated that he did not feel weapons  
of this nature were required in a town the size of  
Hopkinton.

Joseph Fish of Evans Lane, a town resident questioned  
why they would buy 9 MM weapons when 10 MM is better  
and safer. He stated that new automatic weapons are

# EXHIBIT “D”

**CONFIDENTIAL AND LEGALLY PRIVILEGED  
ATTORNEY/CLIENT COMMUNICATION**

To: Brad Ward, Building and Zoning Official  
From: Todd J. Romano, Assistant Town Solicitor  
Re: Commercial Special Zone -  
Permitted Uses Generally and at Plat 11, Lot 47D  
Date: January 18, 2011

---

You recently requested an opinion as to what uses were permitted in a Commercial Special district and what uses were permitted at Plat 11, Lot 47D, a Commercial Special parcel.

As to uses permitted in a Commercial Special district, Section 4, Division into Districts, governs. The Commercial Special district is composed of parcels of property which were previously the subject of a zoning map boundary change or amendment to the text of the prior zoning ordinance and for which the Town Council imposed use limitations, conditions or restrictions. The terms of the Town Council imposed use limitations, conditions or restrictions shall continue to apply to parcels in the Commercial Special district. Otherwise, the use and dimensional regulations of the present Zoning Ordinance for the Commercial District shall apply to parcels in the Commercial Special district.

Plat 11, Lot 47D, has been represented to me to be in part the subject of the July 2, 1990 amendment to Article II – District Use Regulations, Section 3 Commercial Uses. Further, there have been no other amendments to the Zoning Ordinances that affect this lot.

Because this lot was the subject of an amendment to the Commercial Zone section of the prior Zoning Ordinance, and the Town Council imposed certain limitations, conditions and/or restrictions on the lot, the lot is properly classified as Commercial Special. This is also how the lot is listed on the current Zoning Map. Therefore, the lot can be used (by right or by special use permit) in any manner permitted by the current District Use Table for lots in a Commercial District unless limited by the Town Council when it amended the Zoning Ordinance in July 1990.

As to Plat 11, Lot 47D, the Town Council amendment created certain use limitations, conditions and/or restrictions if the intended use was for a "Mixed-use planned development" as that term is used in the amendment. In the event that the lots were used for this "Mixed-use planned development" then there were certain size limitations imposed by the Town Council. The clear inference from the amendment is that each of the lots identified would be combined to create this mixed use planned development that included hotels, conference centers, golf courses, swimming areas, country clubs and central facilities for water distribution and waste treatment. Nonetheless, the Town Council did not require, and I don't believe that it could, that the lots be used for the singular purpose of the "Mixed-use planned development."

Thus, any of the uses permitted by right or by special use permit in a Commercial District are applicable to Plat 11, Lot 47D. The only restrictions are those imposed by the Aquifer Protection Ordinance or if Plat 11, Lot 47D is to be used for a "Mixed-use planned development", as the term is used in the July 2, 1990 amendment to the prior Zoning Ordinance.

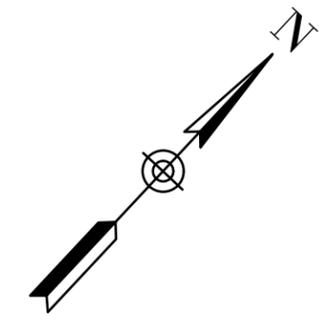
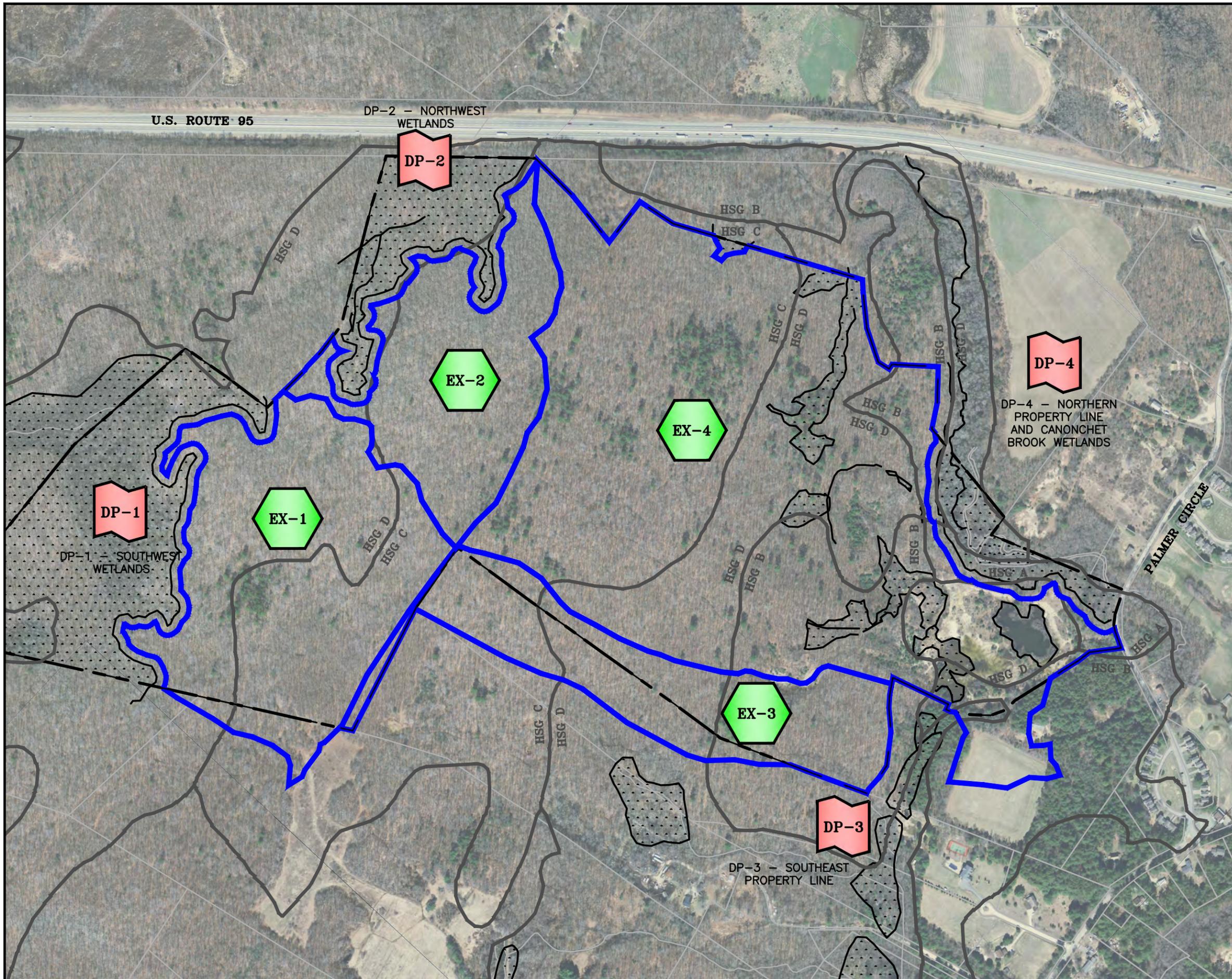
Please contact me if you have any questions concerning this issue.



**APPENDIX I:**

**Predevelopment and Postdevelopment Drainage Area Figures**





- LEGEND**
- PROPERTY LINE
  - SUBCATCHMENT BOUNDARY
  - SOIL CATEGORY
  - SUBCATCHMENT AREA
  - DESIGN POINT

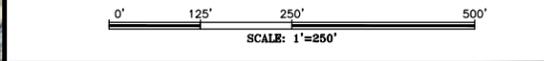
SCALE: 1" = 500'  
 CA JOB # 219008  
 AUGUST 26, 2020

DRAWN BY: AKG  
 CHECK BY: SFC

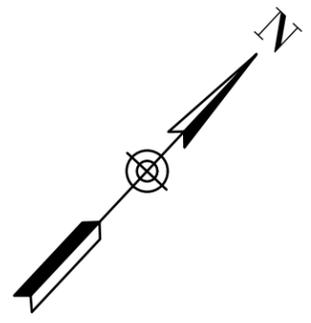
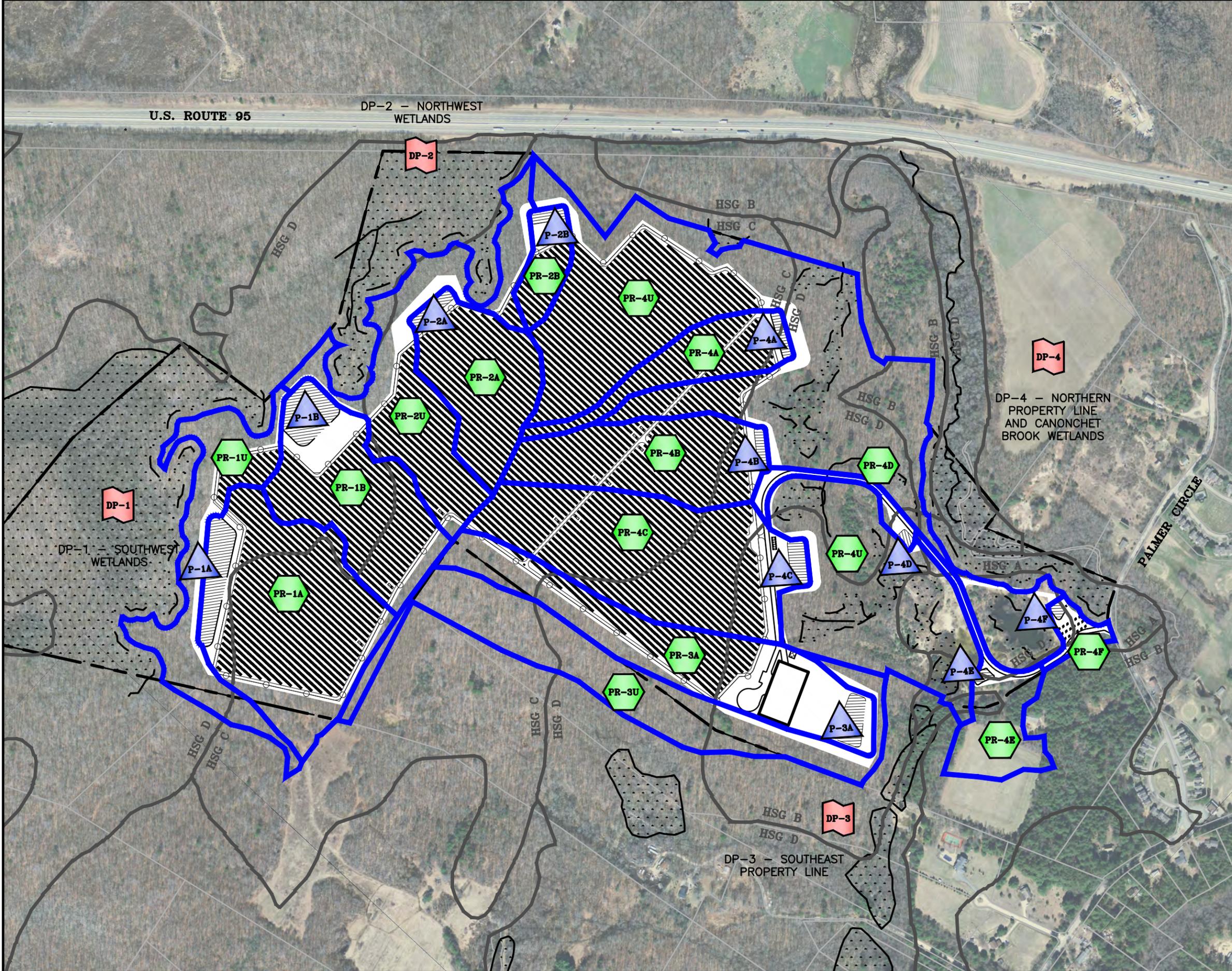
**PREDEVELOPMENT DRAINAGE AREAS**

**STONE RIDGE AT HOPKINTON**  
 PALMER CIRCLE  
 MAP 11 LOT 47A  
 HOPKINTON, RHODE ISLAND

PREPARED FOR  
**RI-95LLC**







- LEGEND**
- PROPERTY LINE
  - SUBCATCHMENT BOUNDARY
  - SOIL CATEGORY
  - EX-1 SUBCATCHMENT AREA
  - DP-1 DESIGN POINT
  - P-1 STORMWATER MANAGEMENT AREAS

SCALE: 1" = 500'  
 CA JOB # 219008  
 AUGUST 26, 2020

DRAWN BY: AKG  
 CHECK BY: SFC

**POSTDEVELOPMENT DRAINAGE AREAS**

**STONE RIDGE AT HOPKINTON**  
 PALMER CIRCLE  
 MAP 11 LOT 47A  
 HOPKINTON, RHODE ISLAND

PREPARED FOR  
**RI-95LLC**

