State of Rhode Island and Providence Plantations
Coastal Resources Management Council
Oliver H. Stedman Government Center
4808 Tower Hill Road, Suite 3
Wakefield, RI 02879-1900

(401) 783-3370
Fax (401) 783-2069

APPLICATION FOR STATE ASSENT

To perform work regulated by the provisions of Chapter 279 of the Public Laws of 1971 Amended.

Project Location 4772 Old Post Road Charlestown (No. Street City/Town)	File No. (CRMC USE ONLY) 2022-06-127
Owner's Name 4772 Old Post Road LLC	Plat: 7 Lot(s): 51
Mailing Address P.O. Box 233 Charlestown RI 02813 (Address City/Town, State Zip Code)	Owner's Contact: c/o Doug DeSimone Number: 401 218-7669 George 401 419-6993 Doug Email Address: douglaspropertiesri@gmail.com
Contractor RI Reg. # TBD Address	Email address: Tel. No. TBD
Designer Crossman Engineering Address 151 Centerville Rd, Warwick RI	Tel. No. 401-738-5660
Name of Waterway Long Pond - Ninigret Pond (RI0010043E-04A)	Estimated Project Cost (EPC): 2,782,960.00 Application Fee: $ 29,414.80

Provide Below a Description of Work As Proposed (*required*).

Proposed 36 lot subdivision with new roadway, stormwater management systems and landscaping. The roadway will have bituminous berm, catch basins and pipe to collect runoff. Runoff will be treated in the stormwater management systems for WQ pretreatment, WQ, recharge and peak flow attenuation. Each proposed lot will have an on-site wastewater treatment system and well. Underground electrical and communications are proposed.

Have you or any previous owner filed an application for and/or received an assent for any activity on this property?
(If so please provide the file and/or assent numbers): 2020-08-005

Is this site within a designated historic district? ⊙ YES ○ NO

Is this application being submitted in response to a coastal violation? ○ YES ⊙ NO

If YES, you must indicate NOV or C&D Number: _____

Name/mailing addresses of adjacent property owners whose property adjoins the project site. Accurate mailing addresses will insure proper notification. _____Applicant must initial to certify accuracy of adjacent property owners and accuracy of mailing addresses.

attached

STORMTOOLS (Http://www.beachsamp.org/resources/stormtools/) is a planning tool to help applicants evaluate the impacts of sea level rise and storm surge on their projects. The Council encourages applicants to use STORMTOOLS to help them understand the risk that may be present at their site and make appropriate adjustments to the project design.

NOTE: The applicant acknowledges by evidence of their signature that they have reviewed the Rhode Island Coastal Resources Management Program, and have, where possible, adhered to the policies and standards of the program. Where variances or special exceptions are requested by the applicant, the applicant will be prepared to meet and present testimony on the criteria and burdens of proof for each of these relief provisions. The applicant also acknowledges by evidence of their signature that to the best of their knowledge the information contained in the application is true and valid. If the information provided to the CRMC for this review is inaccurate or did not reveal all necessary information or data, then the permit granted under this application may be found to be null and void. Applicant requires that as a condition to the granting of this assent, members of the CRMC or its staff shall have access to the applicant's property to make on-site inspections to insure compliance with the assent. This application is made under oath and subject to the penalties of perjury. 08/04

George F. Lenihan, Sr.
Owner Name (PRINT)

George F. Lenihan Jr
Owner's Signature (SIGN)

PLEASE REVIEW REVERSE SIDE OF APPLICATION FORM

RECEIVED
JUN 22 2022
COASTAL RESOURCES MANAGEMENT COUNCIL

CROSSMAN ENGINEERING
Consulting Engineers & Surveyors
Civil • Transportation • Environmental • Site Planning • Surveying • Permitting

June 21, 2022

Ms. Amy Silva, Supervising Environmental Scientist
Coastal Resources Management Council
Oliver H. Stedman Government Center
4808 Tower Hill Road, Suite 3, Wakefield, RI 02879

Re: Application for State Assent, Category A
Proposed Summer Winds Subdivision - A.P. 7, Lots 51
4772 Old Post Road, Charlestown, Rhode Island
Previous Filings: 2020-03-063, 2020-08-005

Dear Ms. Silva:

On behalf of the applicant/owner, 4772 Old Post Road, LLC, we are submitting the below information for the CRMC State Assent and Freshwater Wetlands review. From our discussions with RIDEM, we understand that this CRMC review includes the Stormwater Construction Permit and the Water Quality Permit (RIPDES and UIC permits), therefore those filings with RIDEM are not warranted.

(4) CRMC Application for State Assent, Checklist and Application Fee ($29,414.80)
(4) Project Narrative – June 2022
(4) Site Plan Set, including Existing Conditions Surveys- Dated June 2022
(4) Drainage Narrative and Assessment - June 2022
(4) Soil Erosion and Sediment Control Manual
(4) Long Term Operation and Maintenance Plan
(4) Proof of Ownership-Municipal Lien Certificate
(4) Letter from the Building Official and Charlestown Master Plan Approval letter
(4) Abutter's list and Radius Map
(4) Copy of RIDEM Approved Soil Evaluations and Subdivision Suitability submittal letter
(1) Copy of CD with PDF of Site Plans and Application Material

With this submittal we are requesting this application be recognized as being accepted on June 22, 2022. If you need additional information or have any questions, please contact me (brian.king@crossmaneng.com) or Steven Cabral (steven.cabral@crossmaneng.com) or at 401-738-5770, extension 26. Thank you for your attention to this matter.

Sincerely
CROSSMAN ENGINEERING

Brian R. King
Brian R. King PE
Senior Project Manager

Enclosures

STATEMENT OF DISCLOSURE AND APPLICANT AGREEMENT AS TO FEES

The fees which must be submitted to the Coastal Resources Management Council are based upon representations made to the Coastal Resources Management Council by the applicant. If after submission of this fee the Coastal Resources Management Council determines that an error has been made either in the applicant's submission or in determining the fee to be paid, the applicant understands that additional fees may be assessed by the Coastal Resources Management Council. These fees must be paid prior to the issuance of any assent by the Coastal Resources Management Council.

The applicant understands the above conditions and agrees to comply with them.

George F Lenihan Jr
Owner Signature

6-19-22
Date

George F. Lenihan, Jr. 31 Oakdell St. South Kingstown RI 02879
Print Name and Mailing Address

/ajt 03-2020

RECEIVED
JUN 22 2022
COASTAL RESOURCES MANAGEMENT COUNCIL

Municipal Lien Certificate - Charlestown, RI

Per RIGL § 44-7-11(a); valid for recording through: 08/15/2022

Date of certificate: 06/15/2022
Penalty as of: 08/15/2022
Location: 4772ABC OLD POST ROAD
Parcel: 007-051-000
Unit:

Tax

4772 OLD POST RD LLC
PO BOX 233
CHARLESTOWN RI 02813

Place Recording stamp here

Receivable	Account #	Type	Detail	Original Bill	Amount Due	Penalty Due	Total Due
2021 RP Tax Roll	06-0505-29	real	007-051-000 at 4772ABC OLD POST ROAD	$10,023.77	$0.00	$0.00	$0.00
2020 RP Tax Roll	06-0505-29	real	007-051-000 at 4772ABC OLD POST ROAD	$10,085.04	$0.00	$0.00	$0.00
2019 RP Tax Roll	06-0505-29	real	007-051-000 at 4772ABC OLD POST ROAD	$8,814.65	$0.00	$0.00	$0.00
2018 RP Tax Roll	09-0004-30	real	007-051-000 at 4772ABC OLD POST ROAD	$9,206.20	$0.00	$0.00	$0.00
2017 RP Tax Roll	09-0004-30	real	007-051-000 at 4772ABC OLD POST ROAD	$9,158.45	$0.00	$0.00	$0.00
					Total:		$0.00

XX Contact the Charlestown Fire District @ 401-364-9963.
Contact the Dunn's Corner Fire District @ 401-322-1340.
Contact the Central Beach Fire District @ 401-315-8077.
Contact the Shady Harbor Fire District @ 401-322-1949.

PER 44-7-11, MV TAXES ARE TO BE PAID IN FULL AND COLLECTED AT THE CLOSING. THANK YOU!!

Are there any Tax Sales scheduled which would affect the real estate noted in this certificate? Yes( ) No(XX)
Were any taxes or other assessments noted on this certificate as Paid In Full a result of a Tax Sale held within twelve months of the date of this certificate? Yes( ) No(XX)

CERTIFICATION

This is to certify that the above is true and correct. Said certification is given in accordance with 44-7-11 of the General Laws of Rhode Island 1956.

Jo Anne Santos

Jo Anne Santos, RICC Tax Collector, Town of Charlestown

MLC Requested By: Crossman Engineering
Paid CK # 22964 06/15/2022

Joseph L. Warner Jr.
Building Official
Zoning Official
Minimum Housing Inspector

TOWN OF CHARLESTOWN

4540 South County Trail
Charlestown, RI 02813
Tel (401) 364-1215
Fax (401) 365-1238
Hearing/Speech Impaired,
Dial 711-364-1210

June 16, 2022
Building/Zoning 013-22

Brian R. King, PE
Crossman Engineering
151 Centerville Road
Warwick, RI 02886

RE: Physical Alteration Permit Application; Plat 7, Lot 51; Old Post Road, Charlestown, RI

Dear Mr. King:

I have reviewed your application for a Physical Alteration Permit to install a new curb cut along the State Right-of-Way on Old Post Road, Assessor's Map 7, Lot 51 as delineated on the site plan entitled "Proposed Master Plan Summer Winds Lot 51 on AP 7 in Charlestown, RI" dated September 7, 2021. This letter is to confirm to the RIDOT that I have been apprised of the applicant's intention, as required in submittal item #4 of the Physical Alteration Permit Application Requirements for the State of Rhode Island.

Should you have any questions, feel free to contact me at 364-1215.

Yours truly,

Joseph L. Warner Jr., CBO, CFM
Building/Zoning Official

Cc: Alan Arsenault, Public Works Director

PLANNING COMMISSION

TOWN OF CHARLESTOWN

4540 SO. COUNTY TRAIL
CHARLESTOWN,
RHODE ISLAND 02813

Tel (401) 364-1225
Fax (401) 364-1238

October 8, 2021

Mr. Donald W. Jackson
4772 Old Post Road, LLC
PO Box 233
Charlestown, RI 02813

RE: Summer Winds Major Cluster Subdivision; Master Plan Approval
4772 Old Post Road, Plat 7 Lot 51

Dear Mr. Jackson:

At their special meeting of October 6, 2021, the Charlestown Planning Commission completed review of the master plan application for the proposed 36 lot major subdivision off Old Post Road also designed as a cluster subdivision. The Planning Commission voted 5 to 0 to approve the master plan submission for Summer Winds, prepared by Jackson Surveying, Inc. dated November 2020, revisions date of September 7, 2021, based on the findings of fact and conditions of approval, as listed below.

Findings

A. The proposed subdivision is consistent with the Charlestown Comprehensive Plan which was in effect at the date the application was submitted and accepted as complete;

B. The proposed subdivision, designed as a cluster, is consistent with the Charlestown Zoning Ordinance;

C. There will be no significant negative environmental impacts from the proposed subdivision based on the plans and information submitted, and sworn to by the applicant, with all required conditions for approval, and assuming that all required permits from the appropriate state agencies will be obtained;

D. The proposed subdivision will not result in the creation of individual lots with physical constraints to development such that building on such lots will be impossible or impractical;

E. All proposed lots will have adequate and permanent physical access to a public street, to be accepted into the town road system by the Charlestown Town Council;

F. The proposed subdivision will preserve the natural terrain and drainage flow patterns to the maximum extent practicable, and will utilize stormwater management techniques that mimic natural hydrology consistent with Section 11.8 of the Charlestown Subdivision and Land Development Regulations;

G. No individual lot is located or designed in a manner that will result in flooding on that lot;

H. The proposed subdivision has been designed with the most economical and efficient road, utilities and land usage, assuming that all required permits will be obtained from the appropriate state agencies;

I. The special requirements of the Charlestown Zoning Ordinance and the Charlestown Subdivision Regulations, and any rules of the RI DEM and RI CRMC, and/or any other appropriate state or federal agencies have or will be met; and

J. Based on the information submitted, adequate public services exist to serve the proposed subdivision.

Conditions of Approval

1. The dimensions of Plat 7 Lot 47, including final lot area and road frontage, shall be included on the preliminary and final plans for Summer Winds;

2. The emergency road access shown at the end of the cul-de-sac in the southern field shall be removed from the preliminary and final plans for Summer Winds;

3. There shall be an updated open space plan submitted at the preliminary plan phase that shows in shading, with total areas included, of all upland used in the calculation of the protected open space, for visualization and management plan purposes, and confirmation that the protected open space remains in compliance with the cluster ordinance;

4. The landscaping plans shall include a staggered row of large evergreen trees in the proposed fifty-foot buffer between the new development and the lots bordering on South Arnolda Road, and similar buffering with evergreen trees shall be provided to screen other residential lots adjacent to the subdivision, including Plat 7 Lots 49 and 50, and any other lot that is not fully screened by existing natural vegetation;

5. The existing screened corridor of vegetation along Old Post Road shall be maintained;

6. Remediation shall be done as needed on individual lots to meet required depths of top soil;

7. When determining the limit of disturbance (LOD) on each lot, the specifications of Section 11.9 C.6 of the Charlestown Subdivision Regulations shall be adhered to, so as to protect existing forested and shrub areas within lots;

8. The LOD on each lot shall be marked permanently in the field, the details of which are to be finalized at the preliminary plan phase, including the method to ensure that the land areas beyond the LODs are permanently protected;

9. All trails to be abandoned shall be so marked in the field;

10. The applicant shall install permanent monuments, as necessary, at lot corners and angle points of the subdivision boundary lines;

11. The applicant shall confer with the Charlestown Public Works Department regarding road width, with consideration given to reducing the width to 22 feet, and regarding placement and construction of the road drainage facilities; and

12. The distance between the edge of the new public roads that intersect with Old Post Road and the edge of any existing or any new driveways shall be at least 25 feet.

Further approval is conditioned upon the receipt of all necessary state permits, including those for access from Old Post Road (RI DOT physical alteration permit); on-site septic disposal (DEM OWTS approval), stormwater management (DEM RIPDES permit), and an Assent from the Coastal Resources Management Council (CRMC). If state permitting results in the loss of any lots, a revised yield plan and a revised master plan shall be submitted.

Please contact the Planning Department with any questions.

Sincerely,

Jane Weidman

Jane Weidman, AICP
Town Planner

cc Michael Kelly, Esq.
Planning Commission
David Petrarca, Jr., Esq.

Rhode Island Department of Environmental Management

Onsite Wastewater Treatment System Program

Phone: 401-222-6820
Fax: 401-222-6177

INSPECTION REPORT

APPLICATION NUMBER:

STREET: 2105-1787 Old Post Road

CITY/TOWN: Charlestown

PLAT/LOT: 7 51 POLE NO:

OWTS INSTALLER: No Installer/Unknown XXXXX Designer: D4030

PHONE NO: INSPECTION NUMBER: 0

TYPE OF INSPECTION: Dry Season Inspection for Soil

INSPECTOR: Sutter

INSPECTION DATE: 12/09/2021

ARRIVAL TIME: 12:00

WEATHER CONDITIONS: Clear.

FINDINGS/COMMENTS

	FILL	ESHWT	TD
1A	—	12'	13'
2A	—	10'	11'
3A	—	10'	11'
4A	—	10'	12'
5A	—	10'	12'
5B	—	10'	11'
6A	—	10'	11'
6B	—	10'	11'
7A	—	10'	12' TBDD
8A	—	10'	12'
8B	—	10'	12'
8C	60"	7'	12'
9A	—	10'	14'
10A	—	10'	12'
11A	—	10'	12'
12A	—	10'	12'
13A	—	10'	12'
14A	—	10'	12'
15A	—	10'	12'

A = UPHILL TH

RESULTS OF INSPECTION/ACTION REQUIRED

☐ **CONSTRUCTION - DESIGNER MUST INSPECT/APPROVE PRIOR TO DEM INSPECTION**

- ☐ Bottom inspected
- ☐ Cover inspected
- ☐ Correct items listed
- ☐ (RFA) Address items listed and call for re-inspection.
- ☐ (ASB) Designer must submit As-Builts
- ☐ (RPREQ) Redesign required. Submit new application.
- ☐ (RFAD) Stop Construction. Contact OWTS office. DO NOT CONTINUE.
- ☐ (COC) Designer submit COC
- ☐ (O&M) O&M agreement and permit must be recorded in Land Evidence Records.
- ☐ (Fee) A $100.00 fee is required before re-inspection.
- ☐ Inspection waived

Signature of Inspector

☑ **SITE TESTING**

- ☑ Soil Evaluation - Concur
- ☐ Soil Evaluation - Do not concur
- ☐ Soil Evaluation - Inconclusive
- ☐ Alteration Test Hole - Verified
- ☐ Alteration Test Hole - Unacceptable
- ☐ Ledge Test
- ☐ Fill Tests
- ☐ Repair Test Hole

RECEIVED
JUN 22 2022
COASTAL RESOURCES MANAGEMENT COUNCIL

Rhode Island Department of Environmental Management

Onsite Wastewater Treatment System Program

Phone: 401-222-6820
Fax: 401-222-6177

INSPECTION REPORT

APPLICATION NUMBER: 2105-1787

STREET: Old Post Road

CITY/TOWN: Charlestown

PLAT/LOT: 7 51 POLE NO:

OWTS INSTALLER: No Installer/Unknown XXXXX Designer: D40

PHONE NO: 0 INSPECTION NUMBER:

INSPECTOR: Sutter

INSPECTION DATE: 12/10/2021

ARRIVAL TIME: 11:00

WEATHER CONDITIONS:

TYPE OF INSPECTION: Dry Season Inspection for Soil

FINDINGS/COMMENTS

	Fill	Estmt	TD	
16A	—	10'	11'	
17A	—	10'	11'	
17B	—	10'	11'	
18A	—	9'	10'	
18B	12"	7'	10'	scrap @ 9' from E.G.
20A	30"	10'	11'	
20B	30"	10'	10'	

	Fill	Estmt	TD
22A	—	10'	11'
23A	—	10'	11'
24A	—	9'	9'
25A	—	11'	12'
26A	—	9'	10'
27A	—	10'	12'

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RECEIVED
JUN 22 2022
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DESIGNER COPY

Rhode Island Department of Environmental Management

Onsite Wastewater Treatment System Program

Phone: 401-222-6820
Fax: 401-222-6177

INSPECTION REPORT

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STREET: Old Post Road

CITY/TOWN: Charlestown

PLAT/LOT: 7 51 POLE NO:

OWTS INSTALLER: No Installer/Unknown XXXXX Designer: D40

PHONE NO: INSPECTION NUMBER: 0

INSPECTOR: Sutter

INSPECTION DATE: 12/13/2021

ARRIVAL TIME: 12:00

WEATHER CONDITIONS: Sunny, 40's

TYPE OF INSPECTION:

Dry Season Inspection for Soil

FINDINGS/COMMENTS

	Fill	Effluent	TD		Fill	Effluent	TD
1RA	2'	10'	12'	35A	/	10'	12'
2UA	/	9'	9'	36A	/	10'	12'
28A	/	9'	9'	37A	/	10'	12'
29A	/	10'	12'				
30A	/	10'	12'				
31A	/	10'	12'				
32A	/	10'	12'				
33A	/	10'	12'				
34A	/	10'	12'				

- Eolian over outwash/I.C.

- Cat 1 M

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RECEIVED
JUN 22 2022
COASTAL RESOURCES MANAGEMENT COUNCIL

DESIGNER COPY

2022-06-127

PLANNING COMMISSION

TOWN OF CHARLESTOWN

4540 SO. COUNTY TRAIL
CHARLESTOWN,
RHODE ISLAND 02813

Tel (401) 364-1225
Fax (401) 364-1238

October 8, 2021

Mr. Donald W. Jackson
4772 Old Post Road, LLC
PO Box 233
Charlestown, RI 02813

RE: Summer Winds Major Cluster Subdivision; Master Plan Approval
4772 Old Post Road, Plat 7 Lot 51

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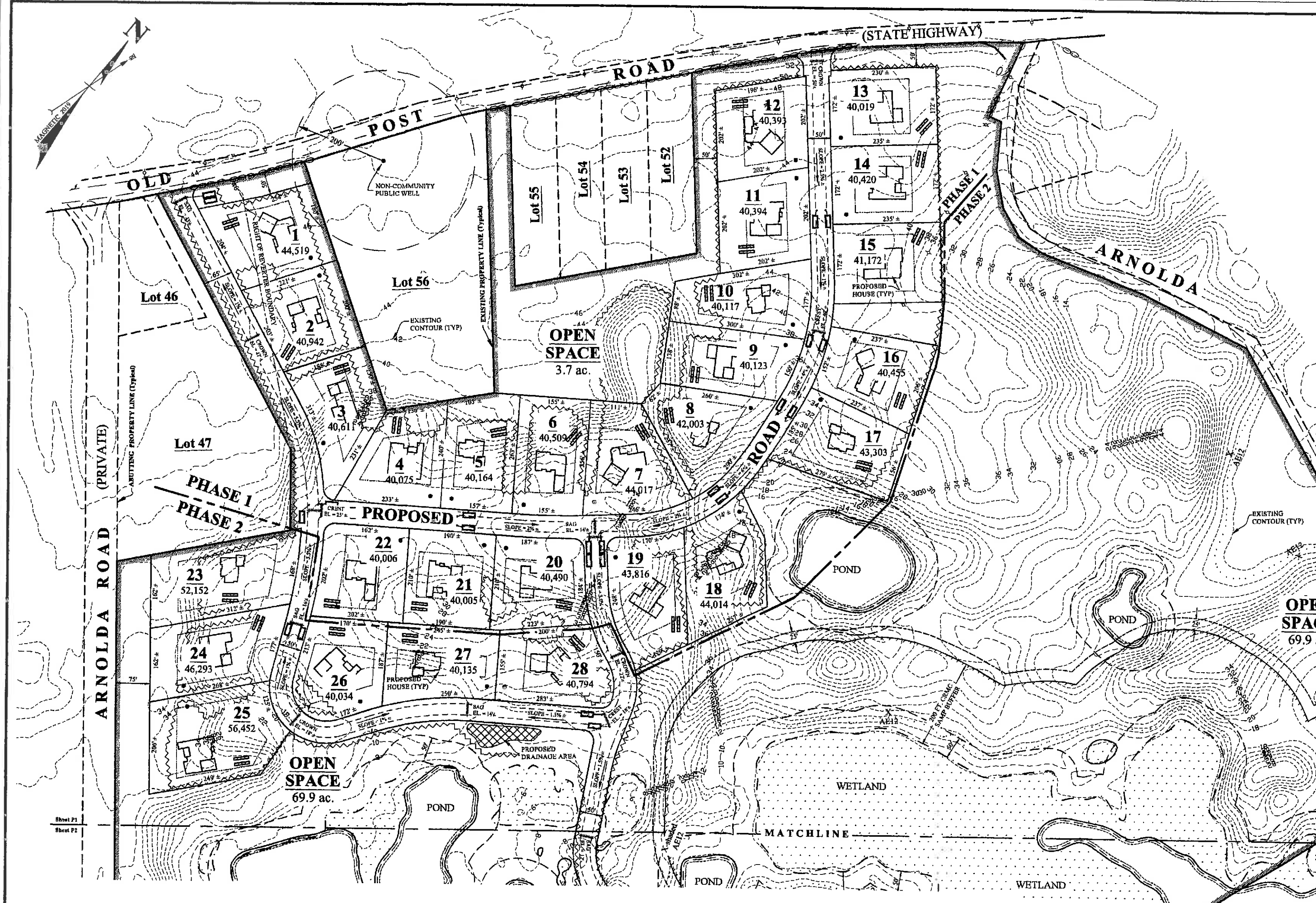
Please contact the Planning Department with any questions.

Sincerely,

Jane Weidman

Jane Weidman, AICP
Town Planner

cc Michael Kelly, Esq.
Planning Commission
David Petrarca, Jr., Esq.



NOTES:

1. TOTAL AREA IS 116.563 AC.
2. THIS PARCEL IS LOCATED WITHIN ZONING CLASSIFICATION R-2A RESIDENTIAL ZONE.
3. THIS PARCEL IS LOCATED WITHIN THE HISTORIC OVERLAY DISTRICT.
4. PROPOSED CLUSTER BUILDING SETBACKS ARE:
   FRONT = 50', SIDE = 25', REAR = 60'
5. MINIMUM FRONTAGE CLUSTER REQUIREMENT IS 125 FT.
6. MINIMUM CLUSTER LOT AREA IS 40,000 SQ. FT.
7. THE PROPOSED LOTS WILL BE SERVICED WITH UNDERGROUND UTILITIES, DE-NITRIFICATION ON-SITE WASTE WATER SYSTEMS, AND ONSITE PRIVATE WELLS.
8. IMPERVIOUS SURFACE AREAS:
   EXISTING = 0.12 ac. 0.11%
   PROPOSED = 4.86 ac. 4.17%
9. TOTAL LENGTH OF PROPOSED ROAD SYSTEM IS 5,826 FT.

CONSTRAINTS TO DEVELOPMENT	TOTAL AREAS
1.) Resource Areas (i.e. wetlands, coastal features)	16.378 ac.
2.) V Zone or Floodways	0
3.) Street, Common Private Way and/or Utility R.O.W.	6.935 ac.
4.) Unique Sites Historical, Archaeological Value or Protected Species	0
5.) Any Other Land/Public Health	0
6.) Ledge or Rock Outcrop at/or Within 4' of Surface	0
7.) Slopes Exceed Fifteen Percent	N/A
TOTAL	23.313 ac.
(TA) TOTAL PARCEL AREA	116.563 ac.
(CD) MINUS CONSTRAINTS	23.313 ac.
UNCONSTRAINED AREA	93.250 ac.
Total Area of "AE" Floodplain minus item 1 above	5.807 ac.

OPEN SPACE:

NOTE: The computations below include subtraction of the "AE" floodplain for density purposes along with the constraints to development.

REQUIRED

Total Unconstrained Area = 87.443 ac.
Cluster Ordinance Requires
40% of Unconstrained Area = 34.977 ac.
(40% x 87.443 ac = 34.977 ac.)

PROPOSED

Total Proposed Open Space = 73.667 ac.
Comprised of:
Upland = 45.058 ac.
Perimeter Wetland = 6.424 ac. *(excluding floodplain)*
Wetland = 16.378 ac.
AE Floodplain = 5.807 ac.

LEGEND:

- EDGE OF PAVEMENT OR DRIVEWAY
- EXIST. BOUND
- EXIST. DRILL HOLE
- PROPOSED 2,000 SQ. FT. HOUSE
- EDGE OF WETLAND
- EDGE OF POND
- PROPOSED CROWN OR SAG LOCATION FOR ROAD SYSTEM
- PROPOSED CATCH BASIN & STORMWATER INFILTRATION AREAS
- PROPOSED LIMIT OF DISTURBANCE
- 200 FT. CRMC SAMP BUFFER
- SOIL TEST PIT
- PROPOSED WELL
- PROPOSED LEACHFIELD AREA
- PROPOSED SLOPE/GRADING CONCEPT
- EXISTING STONE WALL
- APPROXIMATE FEMA BOUNDARY
- EXISTING UTILITY POLE
- PROPOSED BUILDING SETBACK

JACKSON SURVEYING, Inc.
SURVEYING & ENGINEERING
P.O. BOX 484 CHARLESTOWN, RI 02813

DONALD W. JACKSON No. 1689 PROFESSIONAL LAND SURVEYOR

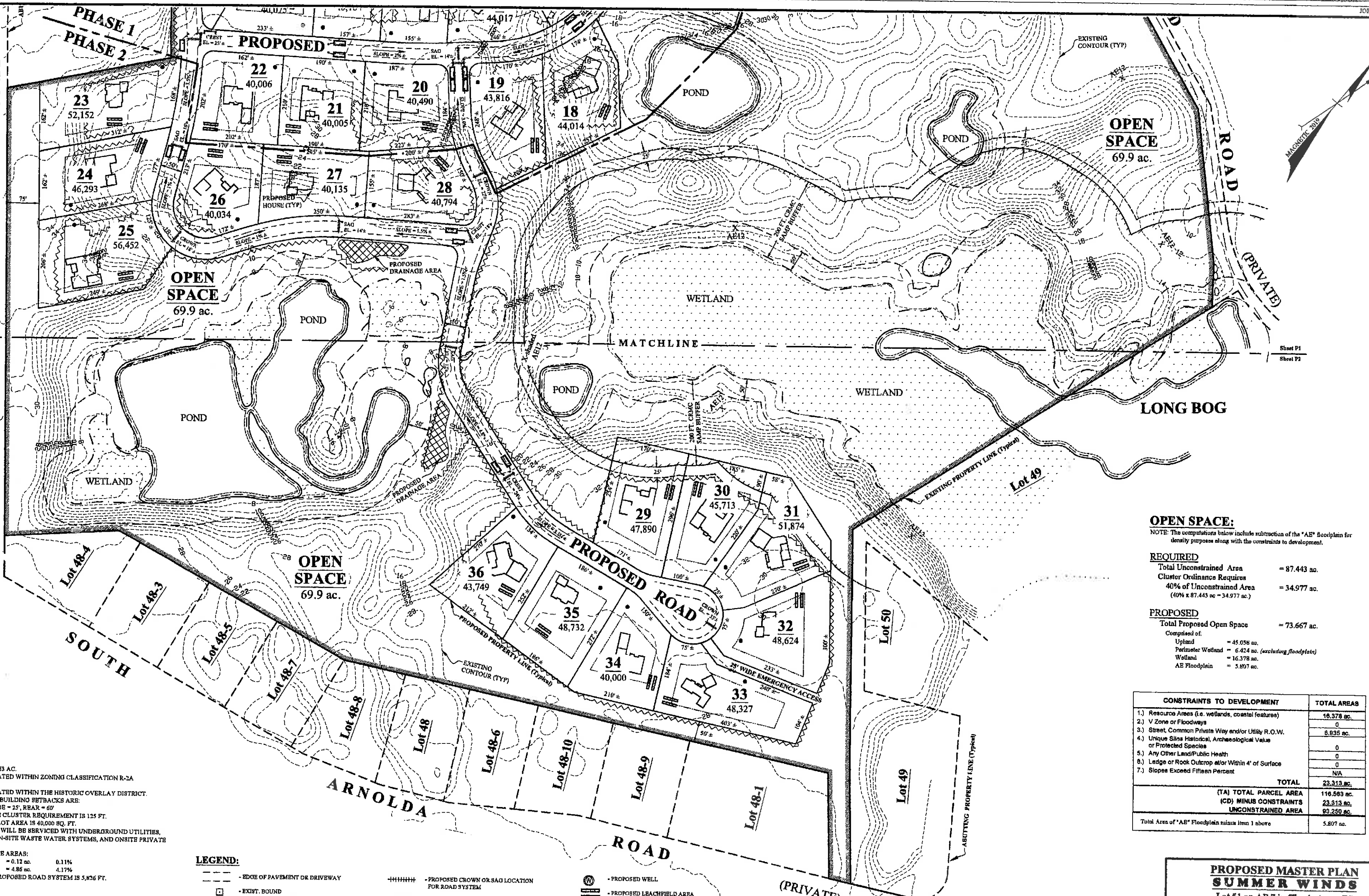
PROPOSED MASTER PLAN
SUMMER WINDS
Lot 51 on AP 7 in Charlestown, RI
Zoned Residential R-2

OWNER & APPLICANT
4772 Old Post Road, LLC
P.O. Box 233, Charlestown, RI 02813

NOVEMBER 2020
REV.: JAN. 25, 2021, JUL. 14, 2021, SEPT. 7, 2021

SCALE : 1" = 100'

Sheet: P1



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Comprised of:
- Upland = 45.058 ac.
- Perimeter Wetland = 6.424 ac. *(excluding floodplain)*
- Wetland = 16.378 ac.
- AE Floodplain = 5.807 ac.

CONSTRAINTS TO DEVELOPMENT	TOTAL AREAS
1.) Resource Areas (i.e. wetlands, coastal features)	16.378 ac.
2.) V Zone or Floodways	0
3.) Street, Common Private Way and/or Utility R.O.W.	6.935 ac.
4.) Unique Sites Historical, Archeological Value or Protected Species	0
5.) Any Other Land/Public Health	0
6.) Ledge or Rock Outcrop at/or Within 4' of Surface	0
7.) Slopes Exceed Fifteen Percent	N/A
TOTAL	23.313 ac.
(TA) TOTAL PARCEL AREA	116.563 ac.
(CD) MINUS CONSTRAINTS	23.313 ac.
UNCONSTRAINED AREA	93.250 ac.
Total Area of "AE" Floodplain minus item 1 above	5.807 ac.

NOTES:

1. TOTAL AREA IS 116.563 AC.
2. THIS PARCEL IS LOCATED WITHIN ZONING CLASSIFICATION R-2A RESIDENTIAL ZONE.
3. THIS PARCEL IS LOCATED WITHIN THE HISTORIC OVERLAY DISTRICT.
4. PROPOSED CLUSTER BUILDING SETBACKS ARE:
   FRONT = 50', SIDE = 25', REAR = 60'
5. MINIMUM FRONTAGE CLUSTER REQUIREMENT IS 125 FT.
6. MINIMUM CLUSTER LOT AREA IS 40,000 SQ. FT.
7. THE PROPOSED LOTS WILL BE SERVICED WITH UNDERGROUND UTILITIES, DE-NITRIFICATION ON-SITE WASTE WATER SYSTEMS, AND ONSITE PRIVATE WELLS.
8. IMPERVIOUS SURFACE AREAS:
   EXISTING = 0.12 ac. 0.11%
   PROPOSED = 4.86 ac. 4.17%
9. TOTAL LENGTH OF PROPOSED ROAD SYSTEM IS 5,826 FT.

LEGEND:

- EDGE OF PAVEMENT OR DRIVEWAY
- EXIST. BOUND
- EXIST. DRILL HOLE
- PROPOSED 3,000 SQ. FT. HOUSE
- EDGE OF WETLAND
- EDGE OF POND
- PROPOSED CROWN OR SAG LOCATION FOR ROAD SYSTEM
- PROPOSED CATCH BASIN & STORMWATER INFILTRATION AREAS
- PROPOSED LIMIT OF DISTURBANCE
- 200 FT. CRMC SAMP BUFFER
- SOIL TEST PIT
- PROPOSED WELL
- PROPOSED LEACHFIELD AREA
- PROPOSED SLOPE/GRADING CONCEPT
- EXISTING STONE WALL
- APPROXIMATE FEMA BOUNDARY
- EXISTING UTILITY POLE
- PROPOSED BUILDING SETBACK

JACKSON SURVEYING, Inc.
SURVEYING & ENGINEERING
P.O. BOX 656 CHARLESTOWN, RI 02813 PH. (401) 364-3130

DONALD W. JACKSON
No. 1689
PROFESSIONAL LAND SURVEYOR

PROPOSED MASTER PLAN
SUMMER WINDS
Lot 51 on AP 7 in Charlestown, RI
Zoned Residential R-2

OWNER & APPLICANT
4772 Old Post Road, LLC
P.O. Box 233, Charlestown, RI 02813

NOVEMBER 2020
REV.: JAN. 25, 2021, JUL. 14, 2021, SEPT. 7, 2021

SCALE : 1" = 100'
0' 50' 100' 200' 300' 400' 500'

Sheet: **P2**

Department of Transportation
Division of Highway and Bridge Maintenance
360 Lincoln Avenue
Warwick, RI 02888

October 24, 2022

George Lenihan
PO Box 233
Charlestown RI 02813

Subject: Physical Alteration Permit Application No. **22-88**
Location: 4772 Old Post Road Charlestown RI 02813

Dear George Lenihan:

In reference to the subject Physical Alteration Permit Application (PAPA) Number 22-88 for the proposed work in Charlestown, the application package received on October 21, 2022 has been reviewed and found to meet our design requirements. The Physical Alteration Permit authorizing construction of the work within or impacting the State Highway Right-of-Way will be issued upon receipt and acceptance of the following:

- Original Insurance Certificate (Section 4.8 Insurance Requirements of the Department's Rules and Regulations for PAPA)
- Original bond in the amount of $7,650.00 for the proposed work within or impacting the State Highway Right-of-Way (Section 4.7 Bond Requirements of the Department's Rules and Regulations for PAPA)

Please note that if all these documents are not received within three (3) years of the date of this letter, the permit application will expire and no longer be valid, requiring re-submission of the application. Please be advised that pursuant to Section 4.6 Part A of the Department's Rules and Regulations regarding Physical Alteration Permits (PAPA Manual), the collection of a new application fee with a re-submittal is required.

If you have any questions, please contact Arlene Nelson at (401) 734-4842.

THIS LETTER SHALL NOT BE CONSTRUED AS A PHYSICAL ALTERATION PERMIT AUTHORIZING CONSTRUCTION WITHIN OR IMPACTING THE STATE HIGHWAY RIGHT-OF-WAY. A PERMIT WILL NOT BE GRANTED UNTIL ALL OF THE DOCUMENTATION REQUESTED ABOVE HAS BEEN RECEIVED AND ACCEPTED.

Sincerely,

Joseph A. Bucci, P.E.
State Highway Maintenance Operations Engineer

For additional information, please see the PAPA Manual at this URL:
http://www.dot.ri.gov/documents/doingbusiness/permits/PAPA_Manual.pdf

IDENTIFICATION NUMBER: 2105 - 1787

PRELIMINARY SUBDIVISION SUITABILITY

DETERMINATION BY THE DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

SUBDIVISION: SUMMER WINDS

TOWN: CHARLESTOWN

This report pertains to lots numbered 1 to 36.

Based upon the Percolation Tests, Soil Exploration Tests, and Ground Water Table Determinations and other data furnished with this report, it is the opinion of this office that subdivision lots 1 to 36 inclusive, on plans entitled "Summer Winds Subdivision," 4772 Old Post Road, Charlestown, Rhode Island for 4772 Old Post Road, LLC. by Crossman Engineering dated: July 15, 2022 appears suitable for the use of onsite wastewater treatment systems provided:

1. Any private well on this site must meet the current State and local regulations at the time of installation.

2. The size of the proposed leachfields must be based on the loading rate in the area of the system per Rule 6.33-B-1 and 6.33-B-2 but not less than 10 minutes/inch (.70 gals/sf/day).

3. The leachfield must be located in the area shown and designed on the water table depth listed in item 7 below.

4. All other requirements of the rules and regulations pertaining to onsite wastewater treatment systems (OWTS) in effect at the time of the individual lot application must be met.

5. The specific details of the proposed leachfields are not part of the review but have been considered for planning purposes only.

6. The site falls within Coastal Resource Management Council (CRMC) jurisdiction. All proposed construction must be reviewed by CRMC before undertaking any construction on this site.

7. DESIGN CRITERIA IS AS FOLLOWS:

Lot Number	Design Depth
1	12' 0" in the indicated area
2	10' 0" in the indicated area
3	10' 0" in the indicated area
4	10' 0" in the indicated area
5	10' 0" in the indicated area
6	7' 0" in the indicated area
7	10' 0" in the indicated area
8	10' 0" in the indicated area
9	10' 0" in the indicated area
10	10' 0" in the indicated area
11	10' 0" in the indicated area
12	10' 0" in the indicated area
13	10' 0" in the indicated area
14	10' 0" in the indicated area
15	10' 0" in the indicated area

The above action is a preliminary determination only. It does not guarantee or constitute current or future approval in whole or in part of onsite wastewater treatment systems required for each lot. Specific approval will be required by the Department of Environmental Management for each system on each lot, which will be based on the onsite wastewater treatment rules and regulations in effect at the time of the submission of the individual application.

Official Signature _____
Department of Environmental Management

Title: Senior Environmental Scientist
Date: August 10, 2022

Lot Number	Design Depth
16	10' 0" in the indicated area
17	10' 0" in the indicated area
18	7' 0" in the indicated area
19	10' 0" in the indicated area
20	10' 0" in the indicated area
21	9' 0" in the indicated area
22	10' 0" in the indicated area
23	10' 0" in the indicated area
24	9' 0" in the indicated area
25	10' 0" in the indicated area
26	9' 0" in the indicated area
27	10' 0" in the indicated area
28	9' 0" in the indicated area
29	10' 0" in the indicated area
30	10' 0" in the indicated area
31	10' 0" in the indicated area
32	10' 0" in the indicated area
33	10' 0" in the indicated area
34	10' 0" in the indicated area
35	10' 0" in the indicated area
36	10' 0" in the indicated area

8. The bottom of all systems must be designed to be 5 ft above a restrictive layer or bedrock per 6.33-I of the current regulations.

9. Additional test holes may be required within 25 ft of proposed leachfields for individual OWTS submittals.

10. The subdivision is located in an area designated as a critical resource as specified in Rule 6.42 of the current regulations. Maintain a minimum 4 ft separation distance between bottom of leachfield and SHWT per Rule 6.43 (E).

11. Existing wells adjacent to Lot 17 must be properly abandoned per State and local regulations.

12. All wells must be located 150 ft from OWTS leachfield's or utilize a BSF or PSND per Rule 6.23 (E) (4).

13. Any existing OWTS servicing buildings that are to be razed must be properly abandoned per Rule 6.56 (B).

The above action is a preliminary determination only. It does not guarantee or constitute current or future approval in whole or in part of onsite wastewater treatment systems required for each lot. Specific approval will be required by the Department of Environmental Management for each system on each lot, which will be based on the onsite wastewater treatment rules and regulations in effect at the time of the submission of the individual application.

Official Signature _____
Department of Environmental Management

Title: Senior Environmental Scientist
Date: August 10, 2022

STATE OF RHODE ISLAND

HISTORICAL PRESERVATION & HERITAGE COMMISSION

Old State House 150 Benefit Street Providence, RI 02903

Telephone 401-222-2678
TTY 401-222-3700

Fax 401-222-2968
www.preservation.ri.gov

Mr. Raymond Coia, Chair
Coastal Resources Management Council
Stedman Government Center, 4808 Tower Hill Road
Wakefield, RI 02879

CRMC File Number: 2022-06-127

Applicant: 4772 Old Post Road LLC

Town: Charlestown

Response Date: 8/15/22

Dear Mr. Coia,

The Rhode Island Historical Preservation & Heritage Commission has reviewed the above- referenced project. It is our conclusion that this project will have no effect on any significant cultural resources (those listed on or eligible for listing on the National Register of Historic Places).

These comments are provided in accordance with 650-RICR-20-00-1.2.3 Areas of Historic and Archaeological Significance of the Coastal Resources Management Council. If you have any questions, please contact Charlotte Taylor, Senior Archaeologist, or Elizabeth Totten, Project Review Coordinator, at this office.

Sincerely,

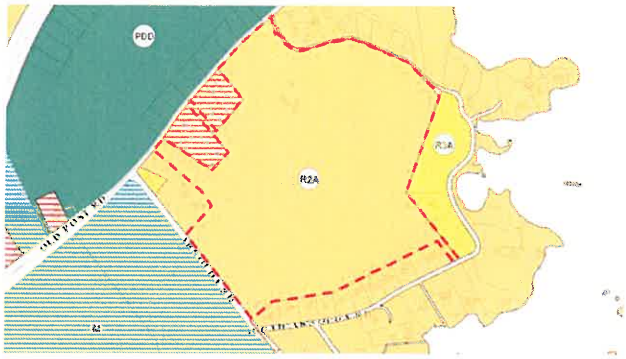
Charlotte Taylor (for)

Jeffrey D. Emidy
Acting Executive Director
Acting State Historic Preservation Officer

App. Narrative

PROJECT DESCRIPTION

This Narrative has been prepared for the proposed Summer Winds Cluster Subdivision of 36 single-family homes. This analysis assesses potential short-term and long-term impacts of the proposed development, as outlined in the Town of Charlestown, RI Subdivision and Land Development Regulations, Section 4.4 Environmental Analysis, the RICRMP/SAMP Requirements and Rule 2.9 of the Freshwater Wetlands in the Vicinity of the Coast.



Parcel Location & Zoning

The site is located at 4772 Old Post Road, Charlestown, RI and is identified as Assessor's Plat 7, Lot 51. The land is within the Town's R-2A Zoning District and the Historic Village Overlay District. The easterly segment of the 116-acre property was an old homestead that contained approximately 72 acres. The homestead has three residential dwellings and a barn with associated clearings and lawn areas.

Old Homestead Area

There are two hay fields located on the parcel. One field is located at the southern border of the property in the vicinity of South Arnolda Road and contains approximately 10 acres. The second field is located at the northern boundary near Old Post Road and contains approximately 6 acres. The remainder of the easterly side of the homestead property is vegetated with a mixture of deciduous trees and associated undergrowth. There are several small freshwater ponds and a larger freshwater wetland complex associated

with Long Bog in the central easterly side of the property. The westerly side of the property is predominately an old quarried gravel bank that was in use until the mid-1970's. Over the years man-made and natural reclamation has occurred. There is a man-made pond from the quarry operation near the southern border of the parcel. There are also a series of wetlands adjoining or near the pond. Many of the smaller wetland areas evolved in depressions that were created from the previous quarry operation. The northerly portion of the parcel and the westerly portion along Arnolda Road are now woodland. The central portion of the former gravel pit area is now maintained, mowed areas. These mowed areas have poor growth capability due to the lack of topsoil that was previously stripped away. Currently, the area only has a 1-inch to 2-inch layer of suitable topsoil.

Aerial View of Parcel

The proposed cluster subdivision will consist of 36 single-family house lots that will be approximately 1 acre in size. The new lots will have frontage on a proposed town road which will have curbing, underground utilities and landscaping. Access into the development will be from two (2) new entrances from Old Post Road. The overall parcel design was configured to create large tracts of open space buffers near environmentally sensitive lands and most abutting residential properties. The new lots will be serviced by individual onsite wastewater treatment systems with nitrogen reducing technology and individual private wells. The goal of the development is to create an upscale, residential community with premier homes which will have access to future hiking trails and recreational activities within the proposed 73+/- acre open space area. This open space has been designed to maintain both upland and wetland wildlife corridors. The proposed cluster layout has been designed based upon guidelines within the Rhode Island Conservation Development Manual.

SECTION 1: AESTHETICS

1.1 Lighting

The proposed street lighting is limited to ornamental fixtures at the proposed entryways from Old Post Road. The ornamental entrance lighting will utilize "Dark Sky" compliant fixtures to reduce light pollution and will be designed to minimize glare in the night sky and light trespass to adjacent properties and wetland areas. In accordance with Town requirements, lighting shall be full cut-off fixtures, casting light directly downward at 90 degrees and shall use energy efficient LED bulbs. No other street lighting is proposed within the development. This lighting concept has been selected to ensure that there will be no adverse impact to natural and surrounding developed areas.

1.2 Landscaping

The proposed site landscaping will be designed to achieve the following goals:

- **Preserve scenic character of Old Post Road:** Stone walls along Old Post Road will be rebuilt (if permitted) and the frontage along the stone walls will be cleared, grubbed and revegetated with trees and shrubs. Each intersection onto Old Post Road will have stonewall entryways with ornamental lighting and open style gates with low floral landscaping.
- **Preserve natural vegetation where feasible:** Wooded areas along the proposed roadways will retain existing trees greater than 8 inches in caliber. Hiking and exercise trail construction will involve pruning and clearing of low vegetation only as needed. Trails within regulated buffers zones will be part of a separate CRMC Assent filing and will conform to CRMC policies.
- **Enhance development with proposed landscaping:** Street trees in accordance with Town Ordinances will be planted along proposed roadways to supplement mature trees to remain. Interior intersections will be landscaped with trees and shrubs to be placed in areas of utility boxes.

SECTION 2: MAN MADE ENVIRONMENT

2.1 Existing Neighborhood Land Use

The site is approximately 116 acres in area and is south of Old Post Road and U.S. Rte. 1. This corridor houses the Fantastic Umbrella Factory, Ninigret Park, Charlestown Police Department, South County Sand & Gravel, Ocean House Marina facility and various landmarks and businesses. The parcel is bounded on the east, south and west by Arnolda, a residential neighborhood in an exclusive, private homeowner's association. The parcel is also bounded on the northwest partly by land in the Commercial 2 Zone and on the north by segments of Old Post Road along with several residential properties and one commercial use. The existing adjacent homes are predominately on parcels that are 1 acre in area. Upon consideration of the surrounding Zoning Districts and land uses, it is evident that the proposed single-family homes on 1-acre parcels is consistent with surrounding uses and will not alter the character of the neighborhood.

2.2 Zoning

As previously noted, the site is located in the Residence R-2A Residential Zone and the Historic Overlay District. Residential Cluster Developments are specifically an allowed use by right in the R-2A Zone and the Subdivision/Land Development Regulations clearly state that "Residential Cluster is required for any major subdivision". Upon granting Master Plan approval, the Town Planning Board reached the following conclusions:

- The project is consistent with the Charlestown Comprehensive Plan
- The project is consistent with the Charlestown Zoning Ordinance
- There will be no significant negative environmental impacts
- The development will not create any individual lots with physical constraints that would impact construction
- The proposed will preserve the natural terrain and drainage patters to the maximum extent practicable and will utilize stormwater management techniques that mimic natural hydrology

2.3 Historic/Archaeological Sites

The site is located within the Town Historic Village Overlay District but research of the National Register, Rhode Island Properties, has determined that there are no historic properties listed at the project location; however, several historic properties are located within surrounding areas. A review of Chapter 218, Article VIII, Section 218-45 of the Zoning Ordinance also indicates that the ordinance requires review of non-residential structures but has no residential review component.

Research at the Historical Preservation & Heritage Commission revealed that the westerly side of the property (Old Lot 47 (48 acres)) was previously reviewed by the Commission during the period of 1989 to 1990. Results from that archaeological survey indicated no presence of prehistoric cultural material that was considered potentially significant and that the proposed project at that time, a residential subdivision, would have no effect on significant historic or archaeological resources. This determination was made partially due to the fact that the parcel had been an active gravel operation for 15-20 years and the visual examination of intact borders around the parcel at that time did not reveal any cultural remains.

It is also important to note that past studies of significant areas of the site's upland were performed by the Public Archaeology Survey Team, Inc. and concluded that there was no presence of potentially significant historic material. Correspondence at that time from the Rhode Island Historic Preservation Commission also stated that due to the lack of prehistoric cultural material which are considered potentially significant, no further archaeology survey work was necessary.

In summary, due to the past quarry activities and the fact that the majority of construction will occur in previously disturbed fields, it is not anticipated that significant impacts to historic or archaeological resources will result from the development. If resources are encountered, they will be identified and protected during site development.

SECTION 3: NATURAL ENVIRONMENT

3.1 Air and Noise Pollution

Short term impacts to air and noise pollution can potentially occur during construction. The Project will generate typical sound levels generated from construction, such as truck movements, heavy equipment operations and general construction activities. Construction activity associated with the project may temporarily increase nearby sound levels due to the use of heavy machinery that will be used intermittently throughout the construction phase but all Noise requirements of Town and State regulations will be a requirement for the contractor. Construction Noise Mitigation measures to be implemented by the Contractor will include:

- Requiring construction equipment to be properly maintained and have properly operating appropriate noise muffler systems.

- All exterior construction activities, such as site excavation/grading and new building construction will be managed and conducted in accordance with the Town requirements.
- Turn off idling equipment as required by Rhode Island General Laws 23-23-29.2 and 31-16.1.
- Scheduling operations to keep average noise levels low and uniform.

Dust generated from earthwork and other construction activities are regulated as part of the RIPDES and CRMC Permits and will be controlled by periodic spraying exposed soils with water. If necessary, other dust suppression methods, such as application of calcium chloride, will be implemented to ensure minimization of the off-site transport of dust. There will also be a crushed stone construction entrance to assist in the removal of debris from truck tires and regular sweeping of adjacent roadways pavement during the construction period will occur. The contractor will establish a water source and supply a "water truck", or other means, to provide moisture for dust control and irrigation. A condition will be that water will not be withdrawn from wetland areas, other than for emergency firefighting purposes. Site specific requirements are outlined in the project's Soil Erosion and Sediment Control Plan (SESC).

All contractors will be required to adhere to applicable regulations regarding control of vehicle and machinery emissions. This will include, but will not be limited to, maintenance of all motor vehicles, machinery and equipment associated with construction activities and proper fitting of equipment with mufflers or other regulatory-required emissions control devices.

In regards to long term impacts to noise and air quality, the proposed project conforms to the Town's Zoning Ordinance and as a residential subdivision of 36 homes on 1-acre parcels, the proposed land use coincides with the surrounding residential parcels and will not create a significant increase in traffic volumes and associated impacts.

3.2 Water Pollution- Surface and Groundwater

The RIDEM Environmental Resource Map classifies groundwater within the subject parcel as GA which are groundwater resources known or presumed to be suitable for drinking water use without treatment. Groundwater in the GA Classification is considered a resource but is not within any of the three (3) priority areas associated with the higher quality GAA Class. Approximately 70% of the State of Rhode Island overlies groundwater with a GA Classification. The subject parcel is also located within a Non-Community Wellhead Protection Area.

The RIDEM Rules Establishing Minimum Standards Relating to Location, Design, Construction and Maintenance of OWTS identifies the parcel to be within the South Shore Salt Ponds Critical Resource Area. In order to protect groundwater and surface water resources, regulations identify more stringent standards for the placement and design of OWTS systems. It is recognized that advanced de-nitrification systems will be utilized on each single-family house lot.

During construction, soil erosion and sediment control measures will be implemented in accordance with RIPDES and CRMC requirements to protect sensitive features and to avoid and minimize short term impacts to water quality. In accordance with the SESC, the project will have a designated Operator who shall be responsible for inspection, maintenance and reporting until project completion.

To protect from potential long-term water quality impacts associated with runoff, a stormwater management system was designed in accordance with the State of Rhode Island Stormwater Management, Design, and Installation Rules (250-RICR-150-10-8), previously referred to as the State of Rhode Island Stormwater Manual, CRMC Standards and Town requirements. The stormwater management system was designed to address each design standard, including but not limited to, recharge, water quality, channel protection and

peak flow attenuation standards. In general, the design will maintain pre-development hydrology and provide proper pretreatment prior to recharge in accordance with current standards.

As noted in the State Standards, when a project's stormwater management system is designed, installed and maintained in accordance with the requirements, its runoff impact will be presumed to be in compliance with applicable state regulatory standards and requirements.

3.3 Stormwater Management

EXISTING CONDITIONS

The majority of the parcel is vacant except for the main dwelling and several cottages located in the northeast corner of the property. These buildings and associated lawn and garden areas sit on approximately 3 acres of the 116-acre parcel. Three distinct non-wooded areas can be observed on site and consist of two hay fields and a reclaimed gravel bank. The rest of the parcel is heavily wooded and has been left in its natural state. The wooded areas on the east and southwest are considered a deciduous Oak forest type habitat that is approximately 40 acres in size. Stands of mixed deciduous/coniferous forest habitats are located throughout the westerly side of the property. The remainder of the property surrounding the cleared areas are classified as grassland/shrubland. Also noteworthy is the existence of dense stands of Autumn Olive, considered an invasive species, along the perimeters of the fields and cleared areas.

Wetland flagging was recently performed for the entire site by Ecotones, Inc. and later verified by CRMC. The wetland areas consist of several isolated freshwater ponds, both natural and manmade, forested wetlands, emergent plant communities and a larger wetland complex associated with Long Bog, a freshwater pond that is considered a tributary wetland to Ninigret Pond through a series of existing poorly-functioning culverts under the Arnolda Road system.

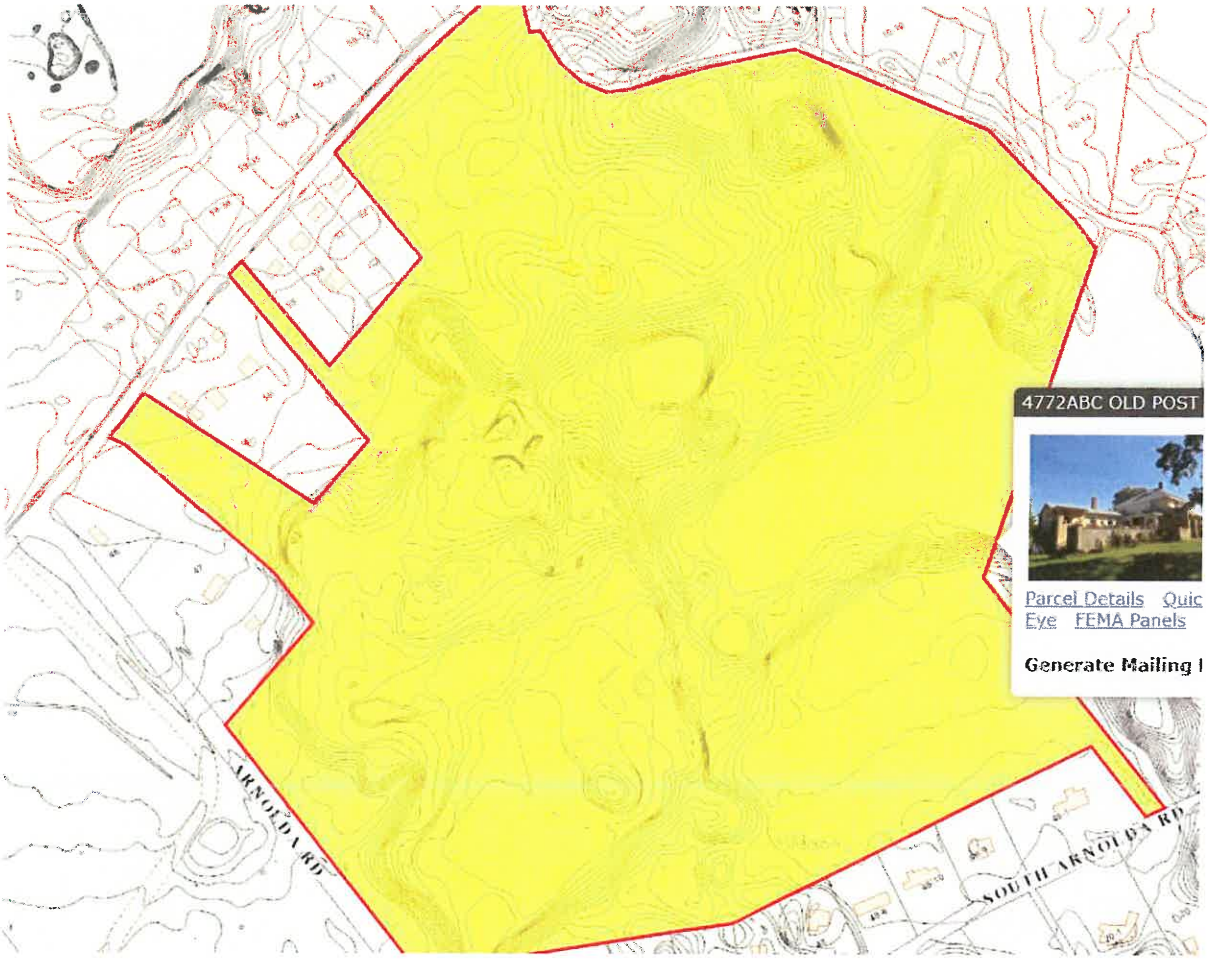
Schematic Location of Primary Wetland Areas
(Note: Wetland areas shown are approximate. Refer to Plans for actual wetland delineations.)

The size of the various wetland systems dictates if there are associated regulatory buffers and as depicted on the Plans most of the ponds do have regulated 50-foot perimeter wetlands. The wetland complex contiguous to Long Bog has both a 50-foot perimeter wetland and a 200-foot CRMC SAMP buffer. The 200-foot CRMC SAMP buffer is only triggered under certain development criteria as outlined in the SAMP (i.e. subdivisions greater than 6 lots, one acre or more of impervious surface, etc.). These wetland areas are mostly located in the southerly end of the property towards South Arnolda Road. However, there is a 10-acre field between the wetland areas and several existing dwellings along South Arnolda Road.

The field in the northeast corner of the property near Old Post Road and the existing buildings is approximately 7 acres in size. A large non-wooded area approximately 40 acres in size is located in the westerly segment of the property. This area was once a gravel bank operation that was in operation until 1970 +/-. Since that time, the area has been slowly re-claimed both naturally and man-made. Several soil evaluations were performed in this area to determine the suitability of the soils for OWTS and stormwater systems.

The soil evaluations, verified by RIDEM, demonstrated that sufficient depth to the groundwater table is available on each parcel. This area has been classified as Pits gravel by the Natural Resources Conservation Service (NRCS) RI Soil Survey. The soils in other upland areas are classified as Enfield and Hinkley soils by the RI Soil Survey. These soils are considered by NRCS to be suitable for development. The Enfield soils are hydrologic soil group B with negligible to low surface runoff characteristics and are considered well drained soils. The Hinkley soils are hydrologic soil group A with slow to moderate runoff characteristics and well-draining.

The parcel sits in the outwash plain of South County with a localized area of kame topography in the wooded northeast portion of the property. The northerly quarter of the property slopes southeasterly gently with slopes ranging from 2 to 3 percent. As the land transitions into the rolling and hilly areas of the parcel, areas of steep slopes can be found but most of the land slopes in various directions towards low lying depressions, ponds and wetland areas at ranges of 6 to 8 percent. The field in the southeast slopes generally southerly at a 2 percent slope. The abandoned gravel bank area is surrounded with steep slopes on the west. The middle is gently rolling with a few remaining hills but the entire area eventually slopes southerly towards the man made pond and wetlands. A natural ridge runs down the center of the property separating the gravel bank area from the fields, natural uplands and Long Bog wetland complex. The elevation near Old Post Road is roughly 44 to 50 feet above sea level. The southern field is approximately 30 feet above sea level and the elevations of the existing wetland areas ranges from 8 to 10 feet. The general topography is depicted in the following figure.



General Topographic Conditions

According to the RI DEM Stormwater Impacted database, there are no impaired waters on the parcel and there are no designated cold-water fisheries discharging to or from the parcel.

Existing stormwater runoff characteristics consist of sheet flow across large fields and sheet flow and shallow concentrated flow occurs within the wooded upland areas. Due to the vegetation and well-draining soils, most stormwater runoff is infiltrated through the soil profile, thereby promoting good groundwater recharge under current conditions. In areas of rolling hills runoff eventually reaches low lying areas and wetlands. Due to the existing topography, existing ponds and wetland areas are mostly in depressions which allow for water ponding. Therefore, observations conclude that a considerable volume of stormwater runoff generated on-site remains and infiltrates on site with minimal off-site discharge.

PROPOSED CONDITIONS

During the early design stages, the designers utilized the Rhode Island Conservation Development Manual to assist in establishing the location of the cluster development and open space areas, while maintaining conformance with local ordinances. This process is in keeping with the Rhode Island Stormwater Design Manuals LID site planning and design strategies. Some of the key LID strategies incorporated into the design included:

- Protecting large areas of woodland within the hillier areas of the property, thereby reducing clearing and grading
- Placing road systems at or near natural grades to minimize disturbance
- Locating development in less sensitive areas, avoiding wetlands and uplands draining towards wetlands and avoiding wetland buffers
- Breaking the development into three distinct areas to disconnect impervious areas, and maintain runoff at the source to promote groundwater recharge

Due to the well-draining soils and exceptional depth to groundwater levels in most areas, areas of the site are suitable for underground infiltration systems. Infiltration practices are a recommended practice for meeting recharge, water quality, channel protection and overbank flood control standards. Also, in accordance with the Charlestown subdivision regulations, catch basins will be placed along the road system and directly connected to underground chamber systems. Pretreatment of the water quality volume is expected to be handled with a proprietary treatment unit or a mixture of sediment forebays and/or bio-retention filters. More detail of each stormwater system is provided in the project's Stormwater Report.

Stormwater runoff from each house lot will be mitigated with a mixture of drywells, qualifying pervious areas and bio-retention filters. The system for each lot will conform to the State of Rhode Island Stormwater Management Guidance for Individual Single-Family Residential Lot Development.

As previously noted, the stormwater management system was designed to address each design standard of the Rhode Island Stormwater Design and Installation Standards Manual, including but not limited to, recharge, water quality, channel protection and peak flow attenuation standards. In general, the design will maintain pre-development hydrology and provide proper pretreatment prior to recharge in accordance with current standards.

In addition to a comprehensive stormwater analysis, a site-specific Stormwater Operation and Maintenance (O&M) Plan and Agreement and a Soil Erosion and Sediment Control (SESC) Plan have been prepared and enclosed with the CRMC filing. These plans will assist construction crews, future homeowners and town staff to thoroughly inspect and maintain the stormwater facilities to increase the longevity of the systems and its functioning capability.

3.4 Soils

Existing soils within the development area consist of primarily of Bridgehampton silt loam (BhA), Enfield silt loam (EfA and EfB), Hinckley-Enfield Complex (HnC), and Pits gravel (Pg). These soils are suitable for development. Other soils adjacent to the wetland areas outside of the limit of disturbance include Matunuck mucky peat (Mk) and Raypol silt loam (Rc). Provided below is a summary of the soil properties;

Table 1. Soil Summary

Soil Name	Hydrologic Soil Group	Estimated Depth to Water Table
Bridgehampton silt loam, 0-3% slopes (BhA)	B	>80"
Enfield silt loam, 0-3% slopes (EfA)	B	>80"
Enfield silt loam, 3-8% slopes (EfB)	B	>80"
Hinckley-Enfield Complex, 3-15% slopes (HnC)	A	>80"
Matunuck mucky peat, 0-2% slopes, frequently flooded (Mk)	A/D	0"
Pits, gravel (Pg)	NA	NA
Raypol silt loam (Rc)	C/D	0-12"

During construction, site material from excavation and re-grading will be re-used on-site as fill to the greatest extent practicable. All of the onsite topsoil will be re-used for the proposed landscaping. Landscape and grass areas will receive a minimum of 4 inches of topsoil and will be planted with an appropriate seed mix or groundcover.

3.5 Wetlands and Coastal Features

Wetland areas onsite were flagged by Ecotones, Inc., field located by Jackson Surveying, Inc., and field verified by CRMC (Permit No. 2020-03-063). Ecotones, Inc. completed the delineation of wetlands on the site on January 4, 2018 and June 24, 2019. The work was performed in accordance with the State of Rhode Island Coastal Resources Management Council (CRMC) Rules and Regulations Governing the Protection and Management of the Freshwater Wetlands in the Vicinity of the Coast (Rules) and the US army Corps of Engineers Programmatic General Permit (PGP).

Wetlands identified include the following:

- A-Series Tributary Wetland (flags A-100 to A-160), 50-foot Perimeter Wetland and 200' CRMC SAMP Buffer
- B-Series Open Standing Water complex (flags B-100 to B-116)
- C-Series Pond complex (C-100 to C-121) and 50-foot Perimeter Wetland
- D-Series Emergent Plant Community (flags D-100 to D-105)
- E-Series Open Standing Water complex (E-100 to E-111)
- T-Series Emergent Plant Community (T-100 to T-108)
- U-Series Forested Wetland (U-100 to U-103)
- V-Series Forested Wetland (V-100 to V-106)
- W-Series Forested Wetland (W-100 to W-108)
- X-Series Emergent Plant Community complex (X-100 to X-122)
- Y-Series Swamp complex (Y-100 to Y-183) and 50-foot Perimeter Wetland
- Z-Series Forested Wetland complex (Z-100 to Z-115)

The A-Series Tributary Wetland complex consists of a Pond, Marsh, and fringe of Shrub/Forested wetland. Species observed in wetlands and adjacent uplands are listed in Tables 2 and 3, respectively. The A-Series Wetland has a 200' Buffer as required by the Salt Pond Management Plan. Soil within the wetland is classified as 100% hydric Matunuck mucky peat, 0 to 2% slopes, very frequently flooded (Mk). The adjacent upland is classified (USDA/NRCS, 2018) as non-hydric Hinckley-Enfield complex, 3 to 15 percent slopes (HnC). Hydric soil features included characteristics consistent with NEHSTC (2017) and USDA NRCS (2010) Field Indicator A11 – Depleted Below Dark Surface. Other hydrologic wetland indicators observed included stained leaves and soil saturation within 12" of the surface. In general, the wetland edge was at the base of a steep slope.

The B-Series Open Standing Water complex consists of Open Standing Water and a fringe of Shrub/Forested Wetland. If the open water area were determined to be greater than ¼ acre, the complex would include a Pond and, in turn, have an associated 50-foot Perimeter Wetland. The wetland is a steep-sided kettle depression within otherwise upland area mapped (USDA/NRCS, 2018) as non-hydric HnC soil. Hydric soil features included characteristics consistent with NEHSTC (2017) and USDA NRCS (2010) Field Indicator A11 – Depleted Below Dark Surface. Hydrologic wetland indicators observed included strained leaves and soil saturation within 12" of the surface. The western and southern portions of the edge are predominately cobble and boulder extending into the water.

The C-Series Pond complex consists of more than a ¼ acre of open water (Pond), areas of emergent vegetation (Emergent Plant Community), and a fringe of Shrub/Forested Wetland. The wetland has an associated 50-foot Perimeter Wetland. The wetland is a kettle pond within HnC soil (USDA/NRCS, 2018). Hydric soil characteristics observed include indicator A11 – Depleted Below Dark Surface (NEHSTC, 2017 and USDA NRCS, 2010) Hydrologic wetland indicators observed included stained leaves and soil saturation with 12" of the surface.

The D-Series Emergent Plant Community is a small shallow depression comprised primarily of cattail and sedge species with shrubs along the edge. This area is mapped as 100% hydric Mk soil (USDA/NRCS, 2018). A histic epipedon (NEHSTC, 2017 and USDA NRCS, 2010 Indicator A2) was observed above a depleted horizon. Other hydrologic indicators included surface inundation, stained leaves, and mound and pool topography.

The E-Series consists of Open Standing Water, Emergent Plant Community, and a fringe of Shrub/Forested Wetland. If the open water area is determined to be greater than ¼ acre, the complex will include a Pond as defined in the Rules. In turn, a 50-foot Perimeter Wetland would extend upland from the delineated edge. This area is mapped as 100% hydric Matunuck mucky peat, 0 to 2% slopes, very frequently flooded (Mk) with adjacent non-hydric Hinckley-Enfield complex, 3 to 15 percent slopes (HnC) uplands (USDA/NRCS, 2018). Hydric soil features included characteristics consistent with NEHSTC (2017) and USDA NRCS (2010) Field Indicator A11 – Depleted Below Dark Surface. Soil saturation near the surface and stained leaves were also observed.

The T-Series Emergent Plant Community is a small isolated depression that appears to flood early in the growing season and dries out as the water table drops through the summer. It is within the non-hydric Pits, gravel (Pg) mapped area (USDA/NRCS, 2018). This area is routinely mowed. Surface inundation, soil saturation, and stained leaves were observed. Depleted anthropogenic soil horizons consistent with NEHSTC (2017) and USDA NRCS (2010) hydric Field Indicator A11-Depleted Below Dark Surface were observed.

Series U, V and W are small depressions in close proximity to each other that appear to have been excavated within otherwise upland area. Outside of the mowed areas, there are isolated Forested Wetlands. Piles of fill are near or adjacent to these wetlands. This area is also within the Pg unit (USDA/NRCS, 2018). Surface inundation, soil saturation, and stained leaves were observed. Depleted anthropogenic sub-horizons consistent with NEHSTC (2017) and USDA NRCS (2010) hydric Field Indicator A11 – Depleted Below Dark Surface were observed. No egg masses or other direct indicators were observed.

The X-Series is a complex consisting of Open Standing Water (at least in the spring), Emergent Plant Community, and isolated and fringing Shrub/Forested Wetland. The open water area appears to be less than ¼ acre at its maximum. Shrub and forested areas are isolated within or along the edges of the larger area of emergent vegetation. This wetland is also within the non-hydric Pg mapped unit (USDA/NRCS, 2018). Surface inundation, soil saturation, and stained leaves were observed. Depleted anthropogenic sub-horizons consistent with NEHSTC (2017) and USDA NRCS (2010) hydric Field Indicator A11 – Depleted Below Dark Surface were observed.

The Y-Series is a large Swamp complex consisting of open water, forested wetland, and areas of emergent vegetation. There is more than ¼ acre of open water (a Pond as defined in the Rules). A 50-foot Perimeter Wetland extends upland from the delineated edge. Also, within the Pg soil unit, surface inundation, soil saturation, and stained leaves were observed. Due to the amount of disturbance hydric soil characteristics were not apparent. The edge was based primarily upon direct observation of hydrology and predominance of wetland vegetation.

The Z-Series is a Forested Wetland complex that includes less than ¼ acre of open standing water. This wetland is also within the Pg unit (USDA/NRCS, 2018). Surface inundation, soil saturation, and stained leaves were observed. Depleted anthropogenic sub-horizons consistent with NEHSTC (2017) and USDA NRCS (2010) hydric Field Indicator A11 – Depleted Below Dark Surface were observed. No egg masses or other direct indicators were observed.

The development has been designed to avoid construction impacts to wetland areas and their associated buffers.

Mitigation measures include a stormwater management system, a Soil Erosion and Sediment Control Plan, and a Long-Term Operations and Maintenance Plan. Sedimentation control measures will be established along the limits of disturbance associated with this project and will remain in place and be monitored on a regular basis until all construction activity has ceased and the surrounding grade has stabilized. Strict utilization of this measure ensures that neither erosion nor sedimentation potentially occurring during the initial construction process will adversely impact the overall water quality of the surrounding freshwater wetlands.

3.6 Vegetation

Vegetation observed by Ecotones in the wetland and upland area included, but was not limited to the species listed in Table 2 and Table 3, respectively.

Table 2. Species Observed in Wetland

Strata	Common Name	Scientific Name	Indicator Status	Series
Vine	Asian Bittersweet	*Celastrus orbiculatus*	UPL	A, V, Z
Vine	Japanese Honeysuckle	*Lonicera japonica*	FACU	A, D
Vine	Virginia-Creeper	*Parthenocissus quinquefolia*	FACU	D
Vine	Horsebrier	*Smilax rotundifolia*	FAC	B, C, E
Vine	Fox Grape	*Vitis labrusca*	FACU	B
Tree	Red Maple	*Acer rubrum*	FAC	B, E, U, V, W, Z
Tree	Gray Birch	*Betula populifolia*	FAC	Z
Tree	Northern White Oak	*Quercus alba*	FACU	C
Tree	Gray Willow	*Salix bebbiana*	FACW	D, V, X, Y
Tree	American Elm	*Ulmus americana*	FACW	Z
Sapling/Shrub	Brookside Alder	*Alnus serrulata*	OBL	X, Y
Sapling/Shrub	Gray Birch	*Betula populifolia*	FAC	Y
Sapling/Shrub	Common Buttonbush	*Cephalanthus occidentalis*	OBL	C
Sapling/Shrub	Glossy False Buckthorn	*Frangula alnus*	FAC	X
Sapling/Shrub	Common Winterberry	*Ilex verticillata*	FACW	U
Sapling/Shrub	Northern Spicebush	*Lindera benzoin*	FACW	B
Sapling/Shrub	Morrow's Honeysuckle	*Lonicera morrowwii*	FACU	D
Sapling/Shrub	Rambler Rose	*Rosa multiflora*	FACU	C, E, V
Sapling/Shrub	Swamp Rose	*Rosa palustris*	OBL	D
Sapling/Shrub	Gray Willow	*Salix bebbiana*	FACW	X, Y
Sapling/Shrub	Highbush Blueberry	*Vaccinium corymbosum*	FACW	A, B, C, E, U, W, X, Z

Strata	Common Name	Scientific Name	Indicator Status	Series
Sapling/Shrub	Southern Arrow-Wood	*Viburnum dentatum*	FAC	A, C, E, U, V, X, Z
Herb	Winter Bent	*Agrostis hyemalis*	FAC	T
Herb	Swamp Milkweed	*Asclepias incarnata*	OBL	C
Herb	Devil's Pitchfork	*Bidens frondosa*	FACW	D
Herb	Fringed Sedge	*Carex crinita*	OBL	B, D
Herb	Straw- Color Flat Sedge	*Cyperus stigosus*	FACW	X
Herb	Deer-Tongue Rosette Grass	*Dichanthelium clandestinum*	FACW	Y
Herb	Seven-Angle Pipewort	*Eriocaulon aquaticum*	OBL	T, X
Herb	Canadian Rush	*Juncus canadensis*	OBL	X
Herb	Lamp Rush	*Juncus effusus*	OBL	A, X, Z
Herb	Sensitive Fern	*Onoclea sensibilis*	FACW	B, D, E
Herb	Cinnamon Fern	*Osmundastrum cinnamomeum*	FACW	B, E
Herb	Virginia Creeper	*Parthenocissus quinquefolia*	FACU	V
Herb	Common Reed	*Phragmites australis*	FACW	A
Herb	Brownish Break Sedge	*Rhynchospora capitellata*	OBL	T, X
Herb	Gray Willow	*Salix bebbiana*	FACW	T
Herb	Wrinkle-Leaf Goldenrod	*Solidago rugosa*	FAC	V
Herb	Eastern Poison Ivy	*Toxicodendron radicans*	FAC	U, V, W, Y
Herb	Broad-Leaf Cat-Tail	*Typha latifolia*	OBL	D
Herb	Highbush Blueberry	*Vaccinium corymbosum*	FACW	W
Herb	Southern Arrow-Wood	*Viburnum dentatum*	FAC	U

Table 3. Species Observed in Upland

Strata	Common Name	Scientific Name	Indicator Status	Series
Vine	Asian Bittersweet	*Celastrus orbiculatus*	UPL	A, E, Y
Vine	Black Swallow-Wort	*Cynanchum louiseae*	UPL	Y
Vine	Japanese Honeysuckle	*Lonicera japonica*	FACU	A, D, Z
Vine	Virginia-Creeper	*Parthenocissus quinquefolia*	FACU	D
Vine	Horsebrier	*Smilax rotundifolia*	FAC	B, C, D
Vine	Fox Grape	*Vitis labrusca*	FACU	A, B, C
Tree	Red Maple	*Acer rubrum*	FAC	B
Tree	Red Maple	*Acer rubrum*	UPL	U
Tree	Gray Birch	*Betula populifolia*	FAC	T, V, W, X, Y, Z
Tree	Eastern Red Cedar	*Juniperus virginiana*	FACU	A, C, E, Z
Tree	Pitch Pine	*Pinus rigida*	FACU	T, X
Tree	Quaking Aspen	*Populus tremuloides*	FACU	U, V, W, X, Y
Tree	Black Cherry	*Prunus serotina*	FACU	A, D, E, U, V, Z
Tree	Northern White Oak	*Quercus alba*	FACU	C, E
Tree	Northern Red Oak	*Quercus rubra*	FACU	B, C, W
Tree	Black Oak	*Quercus velutina*	UPL	T, V, W, X

Strata	Common Name	Scientific Name	Indicator Status	Series
Tree	Sassafras	*Sassafras albidum*	FACU	W
Sapling/Shrub	Autumn Olive	*Elaeagnus umbellata*	UPL	T, V, Y, X, Z
Sapling/Shrub	Glossy False Buckthorn	*Frangula alnus*	FAC	T
Sapling/Shrub	Mountain- Laurel	*Kalmia latifolia*	FACU	C
Sapling/Shrub	Northern Spicebush	*Lindera benzoin*	FACW	B, E
Sapling/Shrub	Morrow's Honeysuckle	*Lonicera morrowii*	FACU	A, E, V
Sapling/Shrub	Northern Bayberry	*Morella pensylvanica*	FAC	T
Sapling/Shrub	Pitch Pine	*Pinus rigida*	FACU	T
Sapling/Shrub	Black Cherry	*Prunus serotina*	FACU	X
Sapling/Shrub	Scrub Oak	*Quercus ilicifolia*	UPL	V, Z
Sapling/Shrub	Bear Oak	*Quercus ilicifolia*	UPL	D
Sapling/Shrub	Rambler Rose	*Rosa multiflora*	FACU	A, B, D, E, T, U, V, W, X, Y, Z
Sapling/Shrub	Variable Blackberry	*Rubus occidentalis*	FAC	D
Sapling/Shrub	Gray Willow	*Salix bebbiana*	FACW	Y
Sapling/Shrub	Highbush Blueberry	*Vaccinium corymbosum*	FACW	B, C, E, U, W, X, Z
Sapling/Shrub	Southern Arrow-Wood	*Viburnum dentatum*	FAC	C, U, W
Herb	Spotted Wintergreen	*Chimaphila maculata*	UPL	C
Herb	Queen Anne's Lace	*Daucus carota*	UPL	A
Herb	Princess-Pine	*Dendrolycopodium obscurum*	FACU	C
Herb	Hay Scented Fern	*Dennstaedtia punctilobula*	UPL	V, W
Herb	Deer-Tongue Rosette Grass	*Dichanthelium clandestinum*	FACW	A
Herb	Sheep Fescue	*Festuca ovina*	UPL	C, T
Herb	Cinnamon Fern	*Osmundastrum cinnamomeum*	FACW	B
Herb	Virginia Creeper	*Parthenocissus quinquefolia*	FACU	U, X, Y
Herb	Canadian Goldenrod	*Solidago canadensis*	FACU	A, B, E, Y
Herb	Rambler Rose	*Rosa multiflora*	FACU	V
Herb	Common Dandelion	*Taraxacum officinale*	FACU	T
Herb	Eastern Poison Ivy	*Toxicodendron radicans*	FAC	T, U, V, X

3.7 Wildlife

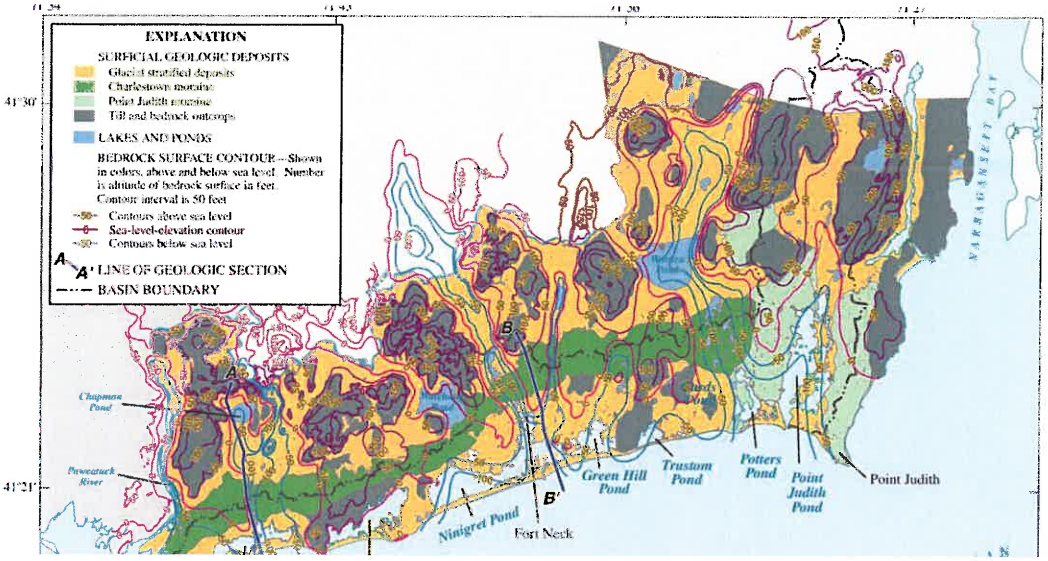
The parcel is not located within a Natural Heritage Area, as designated on the RIDEM Environmental Resource Map; however, various wetland and forested areas are located within the site with habitat value. The majority of land disturbance associated with the proposed project is within already disturbed agricultural fields. In addition to preserving natural vegetation to the maximum extent practicable, open space areas have been designed to maintain both upland and wetland wildlife corridors and an area of 73 acres of the total site will remain as designated open space. With this dedicated open space area, it is reasonable to conclude that the project allows for significant wildlife habitat and wildlife corridors to remain.

3.8 Water Supply

Public water is not available to the site, therefore onsite private wells are proposed for each lot. The installation of private wells throughout New England has proven to be a dependable water source and to demonstrate the feasibility of this 116-acre site in supporting 36 private wells, an annualized groundwater recharge versus withdrawal assessment was performed.

The estimated water demand for domestic use is based upon the 250-RICR-150-10-6 Rules Establishing Minimum Standards Relating to Location, Design, Construction and Maintenance of Onsite Wastewater Treatment Systems which estimates a maximum daily flow of 115 gallons per day per bedroom. Therefore, 36 homes with an average of 4 bedrooms is forecasted to utilize 16,560.00 gallons per day on a maximum day. A common multiplier between an average day and maximum day is 1.5, therefore the average day is estimated to utilize 11,040.00 gallons per day. On an annual basis, this equates to approximately 4,029,600 gallons per year.

To assess the existing groundwater recharge on the site, the geologic conditions were reviewed and as depicted below, the site is predominately underlain by glacial stratified deposits and near the southerly edge of the Charlestown moraine.



Geologic Conditions: USGS Report 2006-5271

USGS reports have estimated groundwater recharge rates in southern Rhode Island to range from 25 to 28 inches per year, with lower rates of 9 to 14 inches per year in wetlands and ponds due to increased evapotranspiration. Utilizing a conservatively low recharge rate of 9 inches per year for the entire 116-acre site, it is estimated that approximately 28,349,074.00 gallons per year recharge groundwater onsite. Ignoring the credit that will result from infiltrating treated on-site wastewater system effluent, there is a net annualized surplus of 24,319,474.00 gallons per year. Therefore, it can be concluded that on an annualized basis, the water withdrawal for domestic use can be supported from on-site wells.

3.9 Sewage Disposal

Public sewer is not available to the site, therefore soil evaluations were performed and approved by RIDEM throughout the site. These soil evaluations confirm that the soils are suitable for on-site septic systems. The proposed onsite wastewater management systems (OWTS) will all utilize nitrogen reducing technology for

each lot. Each OWTS will be designed in accordance with 250-RICR-150-10-6 Rules Establishing Minimum Standards Relating to Location, Design, Construction and Maintenance of Onsite Wastewater Treatment Systems and will require approval from RIDEM.

3.10 Open Space

The development proposes approximately 73 acres of open space which has been located to maintain both upland and wetland wildlife corridors. The open space allows the potential for future trail systems for pedestrian and bicycle use, natural high knoll view vistas for overlooks, playing fields (tennis, soccer, softball, basketball, etc.), swimming, community gardens, and either a rebuilt existing barn or new barn. Any future recreational activity within regulated areas will require coordination with CRMC and must follow CRMC Buffer Zone Guidelines. The open space will be owned by the individual land owners through a Homeowners Association. A declaration of Covenants, Conditions, and Restrictions will be filed at final plat recording with a conservation easement in favor of the Town of Charlestown and an Open Space Management Plan.

SECTION 4: FRESHWATER WETLANDS

In accordance with Section 2.9 of Title 650 Chapter 20 Part 2, Rules and Regulations Governing the Protection of Freshwater Wetlands in the Vicinity of the Coast, the following narrative was prepared to address the Preliminary Determination "Avoidance and Minimization" and "Engineering" requirements.

4.1 Avoidance and Minimization Requirement

(1) Avoidance

a.) *Is the primary proposed activity water dependent or require access to freshwater wetlands?*

No. The activity is not water dependent and does not require access to wetlands.

b.) *Are there other areas on the Owner's property or other properties owned or controlled by the applicant, which could be used to achieve the project purpose without altering the natural character of the freshwater wetlands?*

No. The proposed residential subdivision has been designed to prevent house lot construction within wetland areas and to avoid wetland alterations.

c.) *Are there other properties that are not currently owned or controlled by the Applicant, which are reasonably available to achieve the same purpose?*

No. The proposed residential subdivision has been designed to prevent house lot construction within wetland areas and to avoid wetland alterations, and no other reasonably available parcels exist which can achieve the purpose of the project.

d.) *Are alternative designs, layouts or technologies available to avoid freshwater wetlands or impacts on wetland functions and values on the same property or other property?*

No. As previously summarized, the development has been designed in a Cluster style development that maximizes natural open space areas. All locations on the property were examined for potential house lot placement and the specific size and orientation of the

parcels were specifically sized to accommodate the needs while minimizing impacts to regulated areas. The original road alignment was selected based upon practical engineering considerations and placed along a ridge bordering wetland areas. Unfortunately, the road would have been approximately 175 feet from the wetland edge. Therefore, to conform to CRMC buffers standards the alignment was shifted from the ridge and beyond the 200 ft buffer. Overall, the extent of improvements and disturbance represent the minimum necessary to satisfy the project's needs and is concentrated in upland areas.

e.) *Description of attempts to avoid alterations to freshwater wetlands by overcoming or removing constraints imposed by zoning.*

The attempts to avoid alterations to freshwater wetlands are evident throughout the design Plans. For example, the Cluster Style design allows for the concentration of homes in upland areas and the avoidance of freshwater wetland areas. Attempts to avoid impacts are also reflected in the design of the access road to the rear (southern) portion of the land which was aligned to avoid the isolated freshwater wetlands.

f.) *Impact of feasible alternatives, which would not alter the natural character of the wetland?*

As previously noted, the design represents the preferred alternative because the proposal avoids freshwater wetlands and incorporates best management standards during and post construction and with the abundance of open space provided, maximizes protection of the character of all wetlands.

2. Minimization

a.) *Can the project's scale be reduced or the scale of wetland alterations be reduced?*

No. The proposed Cluster Style residential development represents a considerable effort to reduce the scale of the project to a level below the density allowed by CRMC and to place construction within upland areas only. With the proposed alignment and best management practices, no wetland alterations are proposed.

b.) *Is the project's location necessary or are other locations available that would result in less impacts?*

There are no other locations available to accommodate the proposed development which could provide less impacts. As previously described, the residential development has been designed as a cluster style housing development that allows for all homes and roadways to be constructed in upland areas which avoid wetland impacts.

c.) *Are there feasible alternative designs, layouts, densities, or technologies that are feasible which would result in less impacts?*

No. The proposed design represents the final product of a comprehensive evaluation of all available alternatives and represents the preferred option due to its concentration in upland areas and its avoidance of wetland areas.

d.) *Will reduction in the project's scale or relocation of the project to minimize impacts result in significant consequences?*

As previously noted, the scale of the project represents a reduction in scope to a level below the allowed CRMC housing density and the layout of the project, supplemented with best management practices for soil and sediment control and stormwater mitigation, avoids wetland impacts.

3. Mitigation Measures

a.) *Preserving natural areas in and around wetlands:*

The proposed layout allows for the dedication of approximately 73 acres of open space. Of the 73 acres, approximately 69 acres encompasses wetland areas and allows for the preservation of natural areas around wetlands.

b.) *Minimizing the extent of disturbed areas and encouraging the preservation of land in its natural state:*

During the design process, the scale and alignment of the project evolved in a manner which concentrated construction in upland areas and avoided disturbance to wetlands. The design also represents the applicants desire to preserve natural lands with the significant dedication of open space surrounding wetlands.

c.) *Designing dense plantings of shrubs and trees between the developed areas and the remaining natural areas (i) to "buffer" impacts from loss of wildlife habitat and loss of natural areas and (ii) to reduce the impacts of noise, lighting and other disturbances upon wildlife and the remaining natural areas:*

The design approach reflected in the Plans is to avoid disturbance within regulated perimeter wetlands and buffers to allow for natural buffering to human activities in upland areas.

d.) *Maintaining unrestricted fish and wildlife passage:*

Since construction is limited to upland areas, fish passage is not applicable to the project and a precast box culvert has been provided to allow for wildlife passage beneath Roadway C as the roadway crosses in upland areas adjacent to existing isolated wetland areas.

e.) *Designing structures and alterations so that they are located outside of flood plain, floodway, areas subject to flooding, flowing bodies of water or other freshwater wetlands:*

The site improvements do not alter any floodplain or flow path. It is important to note that a Letter of Map Revision (LOMR) was authorized by the Federal Emergency Management Agency (FEMA). The LOMR became effective on October 29, 2021 and as depicted on the Site Plans, the AE Elevation 12 does not extend into areas to be altered.

f.) *Using best management practices for the stabilization of disturbed areas and the selection, use, and maintenance of temporary soil erosion and sediment controls in accordance with or equivalent to the latest version of the Rhode Island Soil Erosion and Sediment Control Handbook and the Rhode Island Stormwater Design and Installation Standards Manual:*

Erosion and sedimentation control measures are proposed as part of the project and are defined in the Soil Erosion and Sediment Control Document. Once established, such

measures would remain in place until all construction activity has ceased and the site has stabilized. Strict utilization of such measures will ensure that neither erosion nor sedimentation adversely impacts the overall water quality of freshwater wetlands. The referenced Handbook is also identified on the Plan set for the contractor to use as a guide.

g.) *Using best management practice selection and design criteria in accordance with or equivalent to the Rhode Island Stormwater Design and Installation Standards Manual to maximize the control, treatment and maintenance of stormwater flows:*

The site's stormwater systems for the residential roadways have been designed to meet the recharge, water quality, peak flow attenuation and each standard within the State of Rhode Island Stormwater Manual. The design incorporates a variety of pretreatment and infiltration practices which are addressed in detail in the accompanying Stormwater Report. For individual house lots, rooftop runoff will be intercepted with on-site infiltration areas that must be built on a house specific basis and in full conformance with "The State of Rhode Island Stormwater Management Guidance for Individual Single-Family Residential Lot Development".

h.) *Minimizing impervious surface areas such as roads, parking, paving or other surfaces:*

As previously noted, the cluster style housing development allows for the minimization of impervious surfaces to the least amount necessary.

i.) *Incorporating compensatory flood storage area(s) where necessary and in compliance with these Rules:*

There are no impacts to the 100-year flood zones and compensatory storage is not required.

j.) *Encouraging infiltration of non-contaminated run-off into uncontaminated soils:*

The project-wide stormwater program, as described in the Stormwater Report, maximizes infiltration on each individual parcel and in the best management practices selected for the capture and treatment of the roadway runoff.

k.) *Preventing channelization or piping run-off and encouraging sheet flow:*

The site has been graded to minimize channelization and to maximize infiltration.

l.) *Landscaping with gradual slopes to maximize sheet flow and infiltration while minimizing channelization:*

Grade alterations were kept to the minimum necessary to allow for road, OWTS and house construction and while avoiding wetlands.

m.) *Minimizing or eliminating the use or increase of any pollutants, fertilizers, pesticides, herbicides, or any other chemical or organic application which increase pollutant and nutrient loadings:*

Use of fertilizers will be limited to minimum required and allowed by CRMC and the community to establish lawns.

n.) *Maximizing setbacks of septic systems and other land disturbances from wetlands:*

The upland soils and seasonal high water tables on the proposed house lots are supportive of the installation of OWTSs and allowed for the design to maximize setback distances and land disturbance separation from wetlands.

o.) *Minimizing the withdrawal of surface water or groundwater from wetlands or uplands adjacent to wetlands, especially dry periods, and minimizing any reduction in river or stream flow*

On a typical daily basis, there will be no surface water withdrawals. The only potential withdrawal of surface water would be limited to an extreme fire/emergency condition which would force the local fire department to obtain fire fighting water from open ponds. In regards to groundwater withdrawal in upland areas, the annual water budget confirmed that the impact of withdrawal is minimal and each house lot drinking water well has been placed to maximize offset to wetlands.

4.2 Engineering Requirements

The accompanying Stormwater Report demonstrates that the project has been designed in accordance with the State of Rhode Island Stormwater Manual and has been designed to maintain existing hydrologic conditions with the use of infiltration systems and to conform to the water quality and stormwater runoff standards. The project was also designed in a manner that does not result in flood zone impacts, an increase in runoff flows or stream diversions. It is important to note that a Letter of Map Revision (LOMR) was authorized by the Federal Emergency Management Agency (FEMA). The LOMR became effective on October 29, 2021 and as depicted on the Site Plans, the AE Elevation 12 does not extend into areas to be altered.

To demonstrate conformance, the Stormwater Report addresses in detail the required Recharge and Water Quality Volumes and provides Existing and Proposed Hydrographs for the Water Quality Storm and the 1-, 10- and 100-year NRCS Type III, 24-hour rainfall events. Each element of the Stormwater Manual is addressed in the accompanying report and as noted in the Manual, "when a project's stormwater management system is designed, installed and maintained in accordance with the requirements of this Manual, its runoff impacts will be presumed to be in compliance with applicable state regulatory standards and requirements. To address future maintenance, a long term Operations and Maintenance Manual has also been prepared and included with this application.

SECTION 5: SALT POND SAMP 650-RICR-20-00-3 LANDS OF CRITICAL CONCERN

As noted in the CRMC Report of Findings-Preliminary Determination, the site is within the Salt Pond SAMP Lands of Critical Concern, therefore the proposed development was designed to meet the following CRMC standards and policies:

- CRMC File 2020-08-005 confirms that the proposed number of homes, 36, meets the requirements of the allowed density of Section 3.4.3.B.
- Nitrogen reducing technologies will be utilized for all single-family home OWTSs, in accordance with Section 3.4.2.E.
- A 200 ft coastal buffers plus a 25 ft construction setback will be provided, in accordance with Section 3.4.2.E.

SECTION 6: CONCLUSIONS

The proposal represents a 36 lot, cluster style single-family home development that dedicates approximately 73 acres of land as open space and has been designed in accordance with the Town's Zoning Ordinance, the Charlestown Subdivision/Land Development Regulations and RIDEM/CRMC Rules and Regulations. The outcome is an environmentally friendly development that avoids and minimizes impacts to freshwater and coastal wetlands, is consistent with the Town's Comprehensive Plan and incorporates best management practices during construction and post construction to ensure proper long term maintenance and performance.

Since project conception, the design goal has been to adhere to applicable Local, State and Federal regulations to ensure that negligible impacts will result and each design element was selected to avoid and mitigate impacts, in accordance with CRMC's Red Book and the Salt Pond Regional Special Area Management Plan, primarily through the use of advanced treatment OWTSs, stormwater infiltration systems, minimization of land alterations and a development alignment that focuses on buffer zone avoidance.

RHODE ISLAND COASTAL RESOURCES MANAGEMENT COUNCIL
REPORT OF FINDINGS -- PRELIMINARY DETERMINATION

STATEMENT OF LIMITATIONS – Re-Issue for revised design

The contents of this staff determination report shall be valid only for the period on and preceding the date of this report. This report is neither an approval nor denial of the subject proposal. It is an evaluation of CRMC regulations in effect as of **January 21, 2021** as they pertain to the below stated proposal, including preliminary staff recommendations.

Modifications to the below stated proposal may, upon the discretion of the CRMC, render this determination null and void.

APPLICANT INFORMATION

NAME: 4772 Old Post Rd, LLC
LOCATION/POLE: 4772 Old Post Rd
CITY/TOWN: Charlestown

CRMC FILE NO. 2020-08-005

PLAT: 7 **LOT:** 51

CONTACT PERSON(S) & ADDRESS:

Donald Jackson
4772 Old Post Rd, LLC
PO Box 233
Charlestown RI 02813

Charee Jackson
Jackson Surveying Inc.
PO Box 454
Charlestown RI 02813

PRELIMINARY REVIEW INFORMATION

PROPOSAL: Residential Subdivision of 42 units, development of roads, OWTS and all other associated

PLAN(S) REVIEWED: ***"MASTER PLAN FOR "SUMMER WINDS"..." 8 sheets including cover sheet, dated November 2020 by Jackson Surveying Inc.**

INVESTIGATOR	DATE	TIME
Amy Silva	var.	
Ross Singer	var.	

MEASUREMENTS & OBSERVATIONS: office review

PREVIOUS CRMC ACTIONS FOR SITE:
Wetland Edge Verification 2020-06-063
Initial PD Review 2020-08-005

NAME: **4772 Old Post Road, LLC.**
CRMC FILE NUMBER: **D2020-08-055**

Preliminary Buffer and Setback Requirements:

SETBACK (ref. Section 1.1.7 Red Book) Ref. initial PD
BUFFER (ref. Section 1.1.9 Red Book) Ref. initial PD

Note: **Setbacks** apply to "construction related activities" including filling, removing, and grading (ref: Section 1.3.1(B) Red Book). The coastal program requires a minimum setback of either 50', or the buffer zone width plus 25' (whichever is greater). Work within this minimum setback will require a variance per Section 1.1.5 of the Red Book. All variances must be requested in writing. No construction or construction related work shall occur within the required setback (exemptions include structural shoreline protection, outfalls and water dependant uses). Work within the required setback may require a Category "B" review (public notice and decision by the full coastal council) and would likely result in adverse CRMC staff recommendations to the Coastal Council during the review process.
Buffer zones are areas that must be retained in, or allowed to revert to, "an undisturbed natural condition." All structures (excluding accessory structures) should be setback a minimum of 25' from the buffer zone to allow for access, fire protection and maintenance without infringement into the buffer.
If applicable, the plan must show "area of land within 50 feet" in accordance with Rule 5.04 of The Rules and Regulations Governing the Protection and Management of Freshwater Wetlands in the Vicinity of the Coast (the Rules), and label this area as a "buffer zone" in accordance with Rule 5.14. In addition, no activities (such as: drainage, grading, filling, etc.) may affect the freshwater wetland or the buffer zone. Where such alterations occur, or are proposed, an application shall be submitted in accordance with CRMC's Freshwater Wetland Rules.
Coastal Hazard: In accordance with Section 1.1.10, the applicant is encouraged to utilize CRMC's "STORMTOOLS" mapping feature to better understand the impact of current and future Sea Level Rise and Storms on the subject property. Also, in accordance with Section 1.1.6(I), the applicant is required to complete a "Coastal Hazards Worksheet" to further understand the impact of climate change on a proposal (http://www.crmc.ri.gov/coastalhazardapp.html). While the RICRMP does not yet require structures to be designed for SLR scenarios, the applicant should consider SLR, Climate Change, and design life expectations in design planning.

Coastal feature verification shall be valid for one-year from the date of this Determination or until an erosion event (e.g., due to storm event, landslide, man-induced alteration, etc.) occurs that alters the coastal feature.

SUMMARY OF FINDINGS

Reference September 8 Preliminary Determination – no changes

STAFF CONCERNS/COMMENTS/INFORMATION REQUIREMENTS:

As discussed, the proposed development of 42 units meets the density requirements.

The "*hiking trails, clubhouse and recreational uses and facilities*" as noted in the submitted Project Overview document are not shown on submitted plans. CRMC Requested that at a minimum the structures be shown. The narrative goes further on to note "*trails, observation areas and education*", "*hiking trails, bicycle trails, view vistas, swimming, fishing and community center*" again, none of which are depicted on submitted plans.

There is still no proposed grading associated with any of the structures/roads. In locations the anticipated grading is very close to, and likely within identified Buffer Areas.

It does not appear that the 10' Freshwater Wetland Buffers around the smaller isolated wetlands are depicted.

The 225' CRMC Setback is not depicted. It appears as though lot 33 does not meet the setback and that lots 35 and 36 may not meet the setback.

NAME: **4772 Old Post Road, LLC.**
CRMC FILE NUMBER: **D2020-08-055**

Provide a stormwater management report and Appendix A checklist identifying compliance with the minimum standards outlined in the Stormwater Manual. Provide all BMP sizing calculations, including separation to groundwater, and soil conditions. In addition, please submit a separate bound Operations and Maintenance Plan and a Soil Erosion and Sediment Control Plan"

In addition to RICRMP/SAMP requirements and narrative, a written Impact Avoidance and Minimization statement in accordance with Rule 2.9 of the Freshwater Wetlands in the Vicinity of the Coast Program will be required for any impacts to identified freshwater wetlands on the subject property.

SIGNATURE: _____ **STAFF BIOLOGIST**

SIGNATURE: _____ **STAFF ENGINEER**

RHODE ISLAND COASTAL RESOURCES MANAGEMENT COUNCIL

REPORT OF FINDINGS - PRELIMINARY DETERMINATION

STATEMENT OF LIMITATIONS

The contents of this staff determination report shall be valid only for the period on and preceding the date of this report. This report is neither an approval nor denial of the subject proposal. It is an evaluation of CRMC regulations in effect as of **September 8, 2020** as they pertain to the below stated proposal, including preliminary staff recommendations.

Modifications to the below stated proposal may, upon the discretion of the CRMC, render this determination null and void.

APPLICANT INFORMATION

NAME: 4772 Old Post Rd LLC **CRMC FILE NO. 2020-08-005**
LOCATION/POLE: 7447 Old Post Rd
CITY/TOWN: Charlestown
PLAT(S): 7 **LOT(S):** 51

CONTACT PERSON(S) & ADDRESS:

Donald W Jackson
4772 Old Post Rd LLC
Po Box 233
Charlestown RI 02813

PRELIMINARY REVIEW INFORMATION

PROPOSAL: 43 Unit Subdivision with associated roadways, stormwater and OWTS systems.

PLAN(S) REVIEWED: "Pre-Application Plan for Summer Winds……" 8 Sheets including cover, dated April 2020/last revised July 2020, by Jackson Surveying Inc.

INVESTIGATOR	DATE	TIME
Amy Silva	9/2&9/8/2020	var.

MEASUREMENTS & OBSERVATIONS: General site observations.

PREVIOUS CRMC ACTIONS FOR SITE: Wetland Edge Verification 2020-03-063

SIGNATURE _____ **STAFF BIOLOGIST**

RECEIVED
JUN 22 2022
COASTAL RESOURCES MANAGEMENT COUNCIL

Name: 4772 Old Post Rd LLC
CRMC File No. 2020-08-005

SUMMARY OF FINDINGS

CRMC JURISDICTION: (Y) **TYPE WATER:** 2; Low Intensity Use/Ninigret Pond/Tautaug Cove

For the purpose of this review the coastal feature(s) shall be: Coastal Pond backed by, Coastal Wetland and Coastal bluff
and the inland edge of coastal(s) feature shall be: The top of the Coastal Bluff .

Applicability of CRMP and SAM Plans (as amended):
CRMP Sections:

SAM PLAN: Salt Pond SAMP 650-RICR-20-00-3 – Lands of Critical Concern

Freshwater Wetland Jurisdiction-
Wetland features: Reference CRMC Wetland edge Verification 2020-03-063 for wetland identification and suggested Buffer Zones.

PRELIMINARY BUFFER AND SETBACK REQUIREMENTS:

SETBACK (ref.: Section CRMP): 225' as measured from the edge of the Tributary Wetland
BUFFER (ref.: Section CRMP): 200' as measured from the edge of the Tributary Wetland
NOTE:

Setbacks apply to "construction related activities" including filling, removing and grading (ref: Section 300.2 CRMP). The coastal program requires a **minimum** setback of 50 feet, or 25 feet beyond (landward of) the required buffer zone, whichever is greater. Work within the minimum setback will require a variance per Section 120 of the CRMP.
Buffer zones are areas that must be retained in, restored to, or allowed to revert to, a natural condition "vegetated with native shoreline species". As with setbacks, work within the required buffer zone will require a variance. All variances must be requested in writing, and may require Category "B" review (public notice and review by the full Coastal Council) and may result in adverse CRMC staff recommendations to the Council during the review process.

ENVIRONMENTAL CONCERNS/COMMENTS/INFORMATION REQUIREMENTS:

Please be advised that the SAMP Land Use is Lands of Critical Concern. The "Land suitable for development" as defined in 650-RICR-20-00-3.3.(A)(6) is **93.307 acres** as stated on the submitted plans. The minimum density requirement is **one unit per 120,000 ft²** pursuant to § 3.4.3(B)(1)(c). Therefore, in accordance with CRMC regulations the maximum allowable number of units on the parcel is **33 units.** **As currently proposed, the 43 unit subdivision exceeds the CRMC SAMP Density Requirements.**

Relief from the density requirement requires a special exception as defined in 650-RICR-20-00-1.1.8. Based on the submission reviewed, it appears that meeting the Special Exception criteria could prove challenging.

SIGNATURE _____ **STAFF BIOLOGIST**

RECEIVED
JUN 22 2022
COASTAL RESOURCES MANAGEMENT COUNCIL

Name: 4772 Old Post Rd LLC
CRMC File No. 2020-08-005

Sheets Y1 and Y2 show a different subdivision layout than Sheets P1, P2 and P3. Staff has proceeded with review as though sheets P1-P3 are the intended proposal. Please ensure that future submission is clear and consistent.

The proposed road will alter the Z Series wetland, as shown on page Y1, and appears to alter the wetland as shown on sheet P1 and P2. Staff suggests revision of the road to avoid alteration to wetlands.

Several proposed structures do not meet the 225' setback associated with the 200'Buffer Zone/Tributary wetland (including but not limited to: Lots 29, 34-37). Staff strongly suggests reducing the number of units to meet the Density requirement of 33 and revising so that each unit meets the required Buffer and setback requirements. Please be advised that these Buffer will have to be marked with Permanent Markers.

It is unclear if all the suggested Freshwater Wetland Buffer Zones were implemented. It appears that several of the 10' Buffer Zones were not implemented, and the 50' Buffer Zones are not labeled as such.

There is no proposed grading associated with any of the development – residential or roadways.

There are no proposed OWTS systems depicted.

There is no proposed stormwater shown for either the residential or the roads.

The submitted narrative states that there is an intention to create "*…large homes with hiking trails, club house and recreational uses and facilities…..within… the open space*". No trails, recreational uses/clubhouse or facilities have been depicted. Please be advised that hiking trails will likely be required to follow CRMC Buffer Zone guidelines. Disturbance within CRMC Required Buffer Zones is encouraged to be kept to a minimum.

In addition to RICRMP/SAMP requirements and narrative, a written Impact Avoidance & Minimization Statement in accordance with Rule 2.9 of the Freshwater Wetlands in the Vicinity of the Coast Program would be required for any impacts to identified freshwater wetlands on the subject property

Based on this submission, CRMC can only offer that the proposal does not meet the SAMP Density Requirements, likely will alter identified freshwater wetlands, does not include recreational structures, and does not appear to meet the suggested Freshwater Buffer Zones. Staff strongly suggests revision to meet the Density requirement and include at a minimum stormwater management and proposed OWTS.

SIGNATURE _____ **STAFF BIOLOGIST**

RECEIVED
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COASTAL RESOURCES MANAGEMENT COUNCIL

Section 1: Project Narrative

This Drainage Narrative and Assessment has been prepared for the proposed Summer Winds Subdivision located at 4772 Old Post Road, Charlestown, RI. The parcel is identified as Assessor's Plat 7, Lot 51 and is within the Town's R-2A Zoning District and the Historic Village Overlay District.

Existing Conditions

Existing conditions onsite consist of an old homestead, wooded and grass areas, hay fields, wetlands and ponds. The easterly segment of the 116-acre property was an old homestead that contained approximately 72 acres. The homestead has three residential dwellings and a barn with associated clearings and lawn areas.

Old Homestead Area

There are two hay fields located on the parcel. One field is located at the southern border of the property in the vicinity of South Arnold Road and contains approximately 10 acres. The second field is located at the northern boundary near Old Post Road and contains approximately 6 acres. The remainder of the easterly side of the homestead property is vegetated with a mixture of deciduous trees and associated undergrowth. There are several small freshwater ponds and a larger freshwater wetland complex associated with Long Bog in the central easterly side of the property. The westerly side of the property is predominately an old quarried gravel bank that was in use until the mid-1970's. Over the years man-made and natural reclamation has occurred. There is a man-made pond from the quarry operation near the southern border of the parcel. There are also a series of wetlands adjoining or near the pond. Many of the smaller wetland areas evolved in depressions that were created from the previous quarry operation. The northerly portion of the parcel and the westerly portion along Arnolda Road are now woodland. The central portion of the former gravel pit area is now maintained, mowed areas.

Wetland flagging has been performed for the entire site by Ecotones, Inc. and verified by CRMC. The wetland areas consist of several isolated freshwater ponds, both natural and manmade, forested wetlands, emergent plant communities and a larger wetland complex associated with Long Bog, a freshwater pond that is considered a tributary wetland to Ninigret Pond through a series of existing poorly-functioning culverts under the Arnolda Road system. The size of the various wetland systems dictates if there are associated regulatory buffers. As depicted on the Plans most of the ponds have regulated 50-foot perimeter wetlands. The wetland complex contiguous to Long Bog has both a 50-foot perimeter wetland and a 200-foot CRMC SAMP buffer.

The northerly quarter of the property slopes southeasterly gently with slopes ranging from 2 to 3 percent. As the land transitions into the rolling and hilly areas of the parcel, areas of steep slopes can be found but most of the land slopes in various directions towards low lying depressions, ponds and wetland areas at ranges of 6 to 8 percent. The field in the southeast slopes generally southerly at a 2 percent slope. The abandoned gravel bank area is surrounded with steep slopes on the west. The middle is gently rolling with a few remaining hills but the entire area eventually slopes southerly towards the manmade pond and wetlands. A natural ridge runs down the center of the property separating the gravel bank area from the fields, natural uplands and Long Bog wetland complex.

Aerial View of Parcel

Post Development Conditions

The proposed subdivision will consist of 36 single-family house lots that will be approximately 1 acre in size per lot. The new lots will have frontage on a proposed town road which will have curbing, underground utilities and landscaping. Access into the development will be from two

(2) new entrances from Old Post Road. The overall parcel design was configured to create large tracts of open space buffers near most abutting residential properties. The new lots will be serviced by individual onsite wastewater treatment systems with nitrogen reducing technology and individual private wells. The goal of the development is to create an upscale, residential community with premier homes which will have access to hiking trails and recreational activities within the proposed 67+/- acre open space area. This open space has been designed to maintain both upland and wetland wildlife corridors.

The proposed stormwater management system includes a closed drainage system with catch basins, manholes, and pipe, underground infiltration systems, sediment forebays, and Stormceptors. Stormwater runoff from each house lot will be mitigated with underground infiltration systems sized to infiltrate the 100-year storm event. The stormwater management system is designed in full conformance with State and Town Standards.

On the Site Plans and within this report, there is an Operation and Maintenance Schedule provided for maintenance of the Stormwater Management System BMP's after construction. The following sections provide calculations supporting the design of this site's drainage system.

According to the RIDEM Stormwater Impacted database, there are no impaired waters on the parcel and there are no designated cold-water fisheries discharging to or from the parcel.

Section 2: Minimum Standard 2: Groundwater Recharge

The proposed site improvements have been designed to meet the groundwater recharge requirements as outlined in the Rhode Island Stormwater Management, Design, and Installation Rules (250-RICR-150-10-8).

The catchment areas within and surrounding the site have been delineated into five (5) design points. The design points and contributing watershed areas are identified as Watersheds A, B, C, D, and E. The descriptions of each design point are summarized below:

Watershed A – Flow to Wetland Series A and E
Watershed B – Flow to existing depression between site and Arnolda Road
Watershed C – Flow to Wetland Series C
Watershed D – Flow to Wetland Series U, W, X, Y, and Z
Watershed E – Flow to southerly property line

Watershed A evaluates the combined flowage to Wetland Series A and E because the two wetland areas are hydraulically connected with shared stormwater storage. Similarly, to Watershed A, Watershed D evaluates the combined flowage to Wetland Series U, W, X, Y, and Z because all these wetland series are hydraulically connected with shared stormwater storage. All runoff from the site's watersheds ultimately flow to Ninigret Pond (RI0010043E-04A). The site's new impervious surfaces are limited to single-family rooftops and new pavement for the proposed driveways and roadways. BMP's have been proposed to provide groundwater recharge and meet requirements outlined in 250-RICR-150-10-8.

All proposed roofs shall be connected to their own underground infiltration systems sized to recharge up to the 100-year storm event. These underground infiltration systems satisfy the recharge requirements for the proposed roof impervious areas throughout the site. The proposed driveways and roadways shall drain to six (6) underground infiltration systems (UIS) to recharge runoff from those impervious areas. Refer to Table 1 for the impervious areas draining to the larger BMPs.

Table 1 – Design Impervious Areas

BMP	Proposed Impervious Area (acres)
UIS1	1.293
UIS2	1.698
UIS3	0.321
UIS4	0.443
UIS5	1.014
UIS6	0.458
Total	5.227

The groundwater recharge volume calculations are provided below:

Required Recharge Volume (RRv):

RRv = 1" x F x I /12

Where: RRv = Required Recharge Volume
F = Recharge Factor (Rhode Island Stormwater Design and Installation Standards Manual) Note: The Rhode Island Soil Survey identifies existing soils within the site's upland areas as Bridgehampton silt loam (BhA), Enfield silt loam (EfA and EfB), Hinckley-Enfield complex (HnC), and Pits gravel (PG). The vast majority of the soils on site are within the Hydrologic Group B, thus the Hydrologic Soil Group B was utilized for sizing the post development recharge requirement (F= 0.35).
I = Impervious Areas draining to each BMP

Provided Recharge Volume (PRv):

The provided recharge volume represents the static storage volume within each infiltration BMP below the outlet elevation. The stage-storage-volume tables for each BMP are provided in the Stormwater Runoff Calculations (HydroCAD) section of the Appendix. Refer to Table 2 for the required and provided recharge volumes for each of the proposed BMPs.

Table 2 – Required and Provided Recharge Volumes

BMP	Proposed Impervious Area (acres)	Required Recharge Volume (cf)	Provided Recharge Volume (cf)
UIS1	1.293	1,642.8	4,742
UIS2	1.698	2,157.3	6,460
UIS3	0.321	407.8	1,791
UIS4	0.443	562.8	2,468
UIS5	1.014	1,288.3	5,878
UIS6	0.458	581.9	6,827
Total	5.227	6,640.9	28,166

Drawdown within 48 hours:

Water within the proposed drainage facilities will infiltrate (drawdown) into the soils below the system. Soil evaluations have been conducted within the footprint of the proposed infiltration systems to determine the appropriate infiltration design rates using the soil textures. The restrictive subsoils beneath each of the proposed infiltration BMPs has been identified as sand and sandy loam with design infiltration rates of 8.27 and 1.02 in/hr, respectively. The drawdown calculations are provided below.

T_D = PRv/(k x bottom area)

Where:
- T_D = Drawdown Time
- PRv = Provided Recharge Volume
- K = Infiltration Rate (Table 5-3, Design Infiltration Rates for Different Soil Textures, Pg 5-27, RISDISM)
- Bottom Area = Bottom Surface Area of Infiltration BMP

Table 3 – Provided Drawdown Times

BMP	Provided Recharge Volume (cf)	Bottom Surface Area (sf)	Infiltration Rate, K (in/hr)	Provided Drawdown Time (hours)
UIS1	4,742	6,311	8.27	1.09
UIS2	6,460	6,488	8.27	1.44
UIS3	1,791	1,853	8.27	1.40
UIS4	2,468	2,514	1.02	11.55
UIS5	5,878	5,153	8.27	1.66
UIS6	24,655	3,076	8.27	3.22

Section 3: Minimum Standard 3: Water Quality Improvements

All proposed roofs shall be connected to their own underground infiltration systems sized to infiltrate the entire 100-year storm event. These underground infiltration systems satisfy the water quality requirements for the proposed roof impervious areas throughout the site. The proposed driveways and roadways shall drain to six (6) underground infiltration systems (UIS) to treat runoff from those impervious areas. Refer to the calculations and tables below for the water quality requirements and provisions for the site.

Required Water Quality Volume (RWQv):

RWQv = 1" x I /12

Where: RWQv = Required Water Quality Volume
I = Impervious Areas draining to each BMP

Provided Water Quality Volume (PWQv):

The provided water quality volume represents the static storage volume within each infiltration BMP below the outlet elevation. The stage-storage-volume tables for each BMP are provided in the Stormwater Runoff Calculations (HydroCAD) section of the Appendix. Refer to Table 4 for the required and provided water quality volumes for each of the proposed BMPs.

Table 4 – Required and Provided Recharge Volumes

BMP	Proposed Impervious Area (acres)	Required Water Quality Volume (cf)	Provided Water Quality Volume (cf)
UIS1	1.293	4,693.6	4,742
UIS2	1.698	6,163.7	6,460
UIS3	0.321	1,165.2	1,791
UIS4	0.443	1,608.1	2,468
UIS5	1.014	3,680.8	5,878
UIS6	0.458	1,662.5	6,827
Total	5.227	18,974.0	28,166

Pretreatment

Prior to entering the proposed infiltration facilities, stormwater runoff requires pretreatment. Pretreatment is provided on site with sediment forebays and Stormceptors (proprietary pretreatment chambers). There are four (4) Stormceptors proposed on the inlet pipes to Underground Infiltration Systems 1, 4, 5, and 6. Sediment forebays are proposed upstream of Underground Infiltration Systems 2 and 3.

The Stormceptors have been sized for the Water Quality Flow rates computed to each system for the 1.2"-storm event using the split pervious/impervious calculations method in HydroCAD. Refer to Table 5 for the Stormceptor STC Model treatment flow rates, and Table 6 for the Water

Quality Flow Rates to each of the proposed Stormceptors. Refer to the HydroCAD calculations in the Appendix for Water Quality Flow Rate computations.

Table 5 – Stormceptor STC Model Design Treatment Flow Rates

Stormceptor STC Model	Settling Chamber Diameter in	Settling Chamber Surface Area ft²	Treatment Flow Rate cfs(gpm)	Hydraulic Loading Rate gpm/ft²
STC 450	48	12.6	0.28 (127)	10.1
STC 900	72	28.3	0.64 (285)	10.1
STC 1200	72	28.3	0.64 (285)	10.1
STC 1800	72	28.3	0.64 (285)	10.1
STC 2400	96	50.3	1.13 (507)	10.1
STC 3600	96	50.3	1.13 (507)	10.1
STC 4800	120	78.5	1.77 (793)	10.1
STC 6000	120	78.5	1.77 (793)	10.1
STC 7200	144	113.1	2.54 (1141)	10.1
STC 11000	2X 120	157.1	3.53 (1585)	10.1
STC 13000	2X 120	157.1	3.53 (1585)	10.1
STC 16000	2X 144	226.2	5.09 (2282)	10.1

Table 6 – Provided Water Quality Flow Rates

BMP	Water Quality Flow Rate to BMP (cfs)	Pretreatment DMH	Stormceptor STC Model
UIS1	1.37	DMH11	STC-4800
UIS4	0.44	DMH 12B	STC-900
UIS5	0.67	DMH 12A	STC-2400
UIS6	0.41	DMH22	STC-900

Diversion structures are proposed upstream of all three Stormceptors. The stormwater runoff calculations show that 100% of inflows are directed to the Stormceptors and Underground Infiltration Systems during the Water Quality storm event.

The sediment forebays have been sized to hold 25% of the required water quality volume prior to entering the proposed underground infiltration systems. The required and provided pretreatment volumes for the sediment forebays are provided below and in Table 7.

Required Pretreatment Volume (RPv):

RPv = 25% x 1" x I /12

Where: RPv = Required Pretreatment Volume
I = Impervious Areas draining to each BMP

Table 7 – Provided Pretreatment Volumes

BMP	Proposed Impervious Area (acres)	Required Pretreatment Volume (cf)	Forebay Bottom Elevation and Surface Area (sf)	Forebay Outlet Elevation and Surface Area (sf)	Provided Pretreatment Volume (cf)
UIS2	1.698	1,540.9	Elev. 8.00 270 sf + 288 sf	Elev. 9.50 1,073 sf + 756 sf	1,790
UIS3	0.321	291.3	Elev. 12.00 448 sf	Elev. 13.00 760 sf	604

Section 4: Minimum Standard 4: Conveyance and Natural Channel Protection (CP_v)

The channel protection volume (CP_v) is the 24-hour extended detention of the post-development runoff volume from the 1 year, 24-hour, Type III storm event. This requirement is met for the site by fully infiltrating the runoff generated from the 1 year, 24 hour, Type III design storm event.

Section 5: Minimum Standard 5: Overbank Flood Protection (Runoff Calculations)

Reducing the peak flow rates for the 10-year and 100- year storm event provides overbank Flood Protection. The purpose of this criterion is to protect downstream structures and properties from increased runoff flows and velocities from upstream development. The proposed drainage systems have been designed to reduce peak flows for all storm events up to the 100-year storm event.

Hydrograph Methodology

Existing and post-development hydrographs have been analyzed to compare runoff for existing and post development conditions. Runoff from the existing and post development hydrographs has been computed utilizing "HydroCAD" Version 10.0 software. Generally, the methodology encompasses the Soil Conservation Service's unit hydrograph method used in TR-20, which provided a basis for TR-55. The hydrologic data is the same information required for TR-55 and includes watershed areas, SCS runoff curve numbers, and the travel length from the most remote watershed point. With this data, complete SCS hydrographs can be developed for a 24 hour Type III storm. The watershed time of concentration is computed internally using the velocity method shown in SCS/NCRS Methodologies. The velocity method assumes that time of concentration is the sum of travel times for segments along the hydraulically most distant flow path.

The hydraulically most distant point is the point with the longest time to the watershed outlet and not necessarily the point with the longest flow distance to the outlet. The site is analyzed by modeling stage/storage/discharge relationships within the "HydroCAD" program. The "HydroCAD" program automatically routes hydrographs through BMP to determine the resulting outflow and also can combine hydrographs to determine cumulative subwatershed flows.

Watersheds

This section compares runoff conditions generated on-site for the existing condition watershed and post-development watershed areas. The catchment areas within and surrounding the site have been delineated into five (5) design points. The design points and contributing watershed areas are identified as Watersheds A, B, C, D, and E. The descriptions of each design point are summarized below:

Watershed A – Flow to Wetland Series A and E
Watershed B – Flow to existing depression between site and Arnolda Road
Watershed C – Flow to Wetland Series C
Watershed D – Flow to Wetland Series U, W, X, Y, and Z
Watershed E – Flow to southerly property line

Watershed A evaluates the combined flowage to Wetland Series A and E because the two wetland areas are hydraulically connected with shared stormwater storage. Similarly, to Watershed A, Watershed D evaluates the combined flowage to Wetland Series U, W, X, Y, and Z because all these wetland series are hydraulically connected with shared stormwater storage. All runoff from the site's watersheds ultimately flow to Ninigret Pond (RI0010043E-04A).

All proposed roofs shall be connected to their own underground infiltration systems sized to infiltrate up to the 100-year storm event, thus the proposed rooftop areas are excluded from the watershed analyses. Refer to Table 8 for the existing and proposed peak flow comparison tables to all design points. The complete HydroCAD stormwater runoff calculations are provided in Appendix C.

The proposed single-family dwellings are depicted in the site plans with four different layout types. The largest rooftop area of the various types is 4,472 square-feet (0.11 acres). The 100-year storm event generates a total runoff volume from 4,472 square-feet of roof to be 0.076 acre-feet. One type of underground infiltration systems is proposed for all lots, which is sized for the largest of the home layout types, and the system has been designed to infiltrate the entire 100-year storm event without any discharge. Refer to the end of Appendix C for the HydroCAD stormwater runoff calculations for the rooftop underground infiltration systems to be constructed on each lot.

Table 8 – Existing Conditions vs. Post-Development Peak Flow Comparisons

Watershed A	Water Quality Storm (1.2")	1-Year	10-Year	100-Year
Existing Conditions (Node EA)	0.00	0.01	0.63	4.90
Post-Development (Node PA)	0.00	0.01	0.54	3.84
Change (+/-)	--	--	-0.09	-1.06
Watershed B	Water Quality Storm (1.2")	1-Year	10-Year	100-Year
Existing Conditions (Node EB)	0.47	1.26	8.19	25.44
Post-Development (Node PB)	0.11	0.29	4.79	25.39
Change (+/-)	-0.36	-0.97	-3.40	-0.05
Watershed C	Water Quality Storm (1.2")	1-Year	10-Year	100-Year
Existing Conditions (Node EC)	0.20	0.10	3.05	14.10
Post-Development (Node PC)	0.00	0.01	2.49	13.81
Change (+/-)	-0.20	-0.09	-0.56	-0.29
Watershed D	Water Quality Storm (1.2")	1-Year	10-Year	100-Year
Existing Conditions (Node ED)	3.63	5.62	39.50	127.10
Post-Development (Node PD)	2.85	4.07	30.55	106.40
Change (+/-)	-0.78	-1.55	-8.95	-20.70
Watershed E	Water Quality Storm (1.2")	1-Year	10-Year	100-Year
Existing Conditions (Node EE)	0.00	0.94	7.54	25.07
Post-Development (Node PE)	0.00	0.17	3.74	18.82
Change (+/-)	--	-0.77	-3.80	-6.25

Section 6: Minimum Standard 6: Redevelopment and Infill Projects

This Minimum Standard is not applicable to the project.

Section 7: Minimum Standard 7: Pollution Prevention

The proposed stormwater pollution prevention practices to be implemented during construction are described and outlined in the accompanying site plans and the Soil Erosion and Sediment Control Plan (SESCP).

Section 8: Minimum Standard 8: Land Uses with Higher Potential Pollutant Loads

The proposed stormwater management system for this site is not designed as a LUHPPL site. This Minimum Standard is not applicable to the project.

Section 9: Minimum Standard 9: Illicit Discharges

This Minimum Standard is not applicable to the project.

Section 10: Minimum Standard 10: Construction Erosion and Sediment Control

The proposed vegetative and structural practices to be implemented during construction are described and outlined in the accompanying site plans. In addition, the operator should initiate appropriate permanent stabilization practices on all disturbed areas as soon as possible but not more than fourteen (14) days after the construction activity in that area has temporarily or permanently ceased, unless the activity is to resume within twenty-one (21) days. If construction cannot begin within twenty-one (21) days of completing site preparation activities, all disturbed areas shall be stabilized with loam and seeding.

Additional Controls

- Install perimeter erosion controls, install a crushed stone construction entrance will be located at the site's only access point.
- Review SESC Plan and site plans soil erosion control notes
- The Contractor is required to notify local authorities and the Rhode Island Department of Environmental Management, Office of Waste Management, of any hazardous material spill.
- The Contractor is required to maintain the site in an orderly and clean state. All construction waste shall be stored in appropriate containers prior to removal and contact with precipitation shall be kept to a minimum.
- General Maintenance procedures are outlined in the accompanying Site Plans. In addition, the Operator and Contractor are required to inspect all erosion controls on the site at least once every seven (7) calendar days and within twenty-four (24) hours after a rain event, which generates 0.25 inches of rain in a twenty-four (24) hour period and/or after a significant amount of runoff.

Section 11: Minimum Standard 11: Stormwater Management System – Maintenance Operation

The proposed stormwater management system maintenance and inspection requirements shall be implemented by the owner after construction is described and outlined in the accompanying Operation and Maintenance Plan (OMP).

Section 12: Appendix

Appendix A - RISDISM Appendix A: Stormwater Management Checklist

Appendix B- Watershed Maps

Appendix C - Stormwater Runoff Calculations (HydroCAD)

Appendix D – Soil Evaluations

Appendix E – Soil Survey Map

Appendix F – FEMA Flood Map

LONG TERM OPERATIONS & MAINTENANCE PLAN
SUMMER WINDS
ASSESSOR'S PLAT 7, LOT 51
4772 OLD POST ROAD
CHARLESTOWN, RHODE ISLAND

JUNE 2022

This Operation and Maintenance Plan is the maintenance plan to be followed by the owner for their stormwater systems, as noted. In order to minimize the stormwater management system deterioration, the owner shall adhere to the following Operation and Maintenance Plan as well as any additional requirements pertaining to inspection and maintenance measures for this site provided in Appendices E and G of the Rhode Island Stormwater Design and Installation Standards Manual. Upon project completion, the site owner shall adhere to the following maintenance recommendations.

1. Catch Basins, Manholes, and Drain Lines

An inspection shall occur on an annual basis by qualified personnel to ensure proper operation. The inspection shall, as a minimum, concentrate on the following:

- Damage to grate/cover
- Evidence of standing water
- Presence of debris
- Debris removal
- Structural alignment/integrity

2. Sediment Removal

Following construction, sediment removal shall be conducted as deemed necessary by the system inspections. All removed sediment is to be tested to determine pollutant content. The sediment is to be properly disposed in upland areas based upon the test results and local, state, and federal regulations.

3. Underground Infiltration Systems

Underground infiltration facilities shall be inspected annually or as needed to ensure that design infiltration rates are being met. If sediment, litter, or organic debris build-up has limited the infiltration capabilities or clogged the outlet structures, the accumulated material shall be disposed of at an approved and permitted upland location. Any oil or grease found at the time of the inspection shall be cleaned with oil absorption pads and disposed of in an approved location. The underground infiltration system shall also be inspected annually for structural integrity. If unclogging debris and litter from the infiltration systems does not restore design infiltration rates, the infiltration system must be repaired and/or replaced.

4. Stormceptor Chambers

Regular inspections and maintenance of the Stormceptor devices are required to minimize stormwater pollution and flooding. Inspections shall occur following post-construction, after every storm event with greater than one inch of rainfall, and immediately after oil, fuel or other chemical spills. Inspections shall be conducted every other month for the first year of operation, and a minimum of two times per year for the following years. The Stormceptors are required to be cleaned annually and whenever sediment depths reach 15% of the unit's total storage capacity.

If the system is not maintained regularly, sediment removal efficiency may be reduced, oil spills may not be properly captured, and clogging (resulting in flooding) may occur. The Stormceptor devices shall be inspected and maintained by professional vacuum cleaning service providers with experience in the maintenance of underground tanks, sewers, and catchbasins. Typically, maintenance cleaning of accumulated sediment is performed with a vacuum truck. If oil is present, oil is typically pumped into a separate containment using a small pump and tubing. The disposal of sediment or recovered pollutants shall be at an approved and permitted upland location. If any parts or pieces of the Stormceptor devices break or become damaged, the local supplier of authentic Stormceptor components must be contacted to replace broken parts. The "Stormceptor® STC Inspection and Maintenance Information" shall be followed to insure proper function and performance.

5. Sediment Forebays

The Sediment Forebay shall be inspected annually and after storm events greater than or equal to the 1-year, 24-hour Type III precipitation event. All oil, sludge, sediment, solids, trash, debris and floatable material should be removed from the forebay. Materials deposited on the surface of the forebay (e.g., trash and litter) should be removed manually. Oil and sludge removal should be accomplished via catch vac or vactor truck and the sediment forebay bottom shall be restored to its original design criteria. After cleaning, all resulting waste including oil, sludge, sediment, and water should be disposed of in accordance with all applicable federal and local regulations.

A fixed vertical sediment depth marker should be installed in each sediment forebay to measure sediment deposits and indicate when maintenance is required. The depth marker shall include a horizontal line located halfway between the bottom of forebay elevation and forebay outlet elevation (pipe invert or stone check dam height) which will indicate when sediment removal and maintenance is required.

6. Street Sweeping

Annual street sweeping shall be conducted during the spring of every year. Some debris collected from streets may be regulated as a hazardous waste. For these cases, debris must be disposed of in accordance with appropriate practice and applicable regulatory

standards. Appendix A of the *Rules and Regulations for Composting Facilities and Solid Waste Management Facilities,* which is entitled "Management of Street Sweepings in Rhode Island," shall be reviewed. For further information, contact the DEM Office of Waste Management.

7. Deicing and Salt Storage

Deicing and sanding operations are often necessary for safety during winter storms; however, the materials used create water quality problems. Use deicing chemicals and sand judiciously. The information in Table G-1 from Appendix G of the RISDISM shall be utilized when selecting a deicer.

8. Snow Disposal

Improper snow disposal can be a threat to public health and the environment. Disposal shall consider site selection, site preparation and maintenance, and emergency snow disposal locations and procedures. Refer to DEM's Snow Disposal Policy for more details on these topics. Snow storage in the infiltration basin is not allowed.

9. Appendix

A. Stormwater Management Systems Inspection and Maintenance Log

B. Infiltration System Operation, Maintenance, and Management Inspection Checklist

C. Stormceptor® STC Operation and Maintenance Guide

D. BMP Location Plan

E. Stormwater Facility Maintenance Agreement