DOCKET

NAME: JOAN M. MOONEY AAD NO. 20-003/WRA
APPLICATION APPEAL 19-0107

DATE	DESCRIPTION
3/27/2020	REQUEST & PAYMENT RECEIVED
4/27/2020	STATUS CONFERENCE ORDER 5/27/2020 AT 9:30 AM
5/22/2020	ENTRY OF APPEARANCE CHRISTINA A. HOEFSMIT, ESQ.
5/26/2020	PER EMAIL STATUS CONFERENCE CONTINUED TO 6/26/2020 AT 10:30 A.M. VIA CONFERENCE CALL
6/12/2020	ENTRY OF APPEARANCE SCOTT J. PARTINGTON, ESQ.
6/26/2020	PER EMAIL STATUS CONFERENCE CONTINUED 7/27/2020 AT 12:00 P.M. VIA CONFERENCE CALL
8/4/2020	WITHDRAWAL OF APPEAL RECEIVED; CASE CLOSED.

BIGOS & PARTINGTON, LTD.
Attorneys at Law
2176 Mendon Road
Suite 2000
Cumberland, RI 02864-3805
Phone: [redacted]
FAX: [redacted]

JAMES A. BIGOS
SCOTT J. PARTINGTON

July 31, 2020

Rhode Island Department
of Environmental Management
Administrative Adjudication Division
235 Promenade Street, Room 350
Providence, RI 02908
Attention: Catherine R. Warren
Hearing Officer

Re: Joan M. Mooney
Application Appeal 19-0107
AAD No.: 20-003/WRA

Dear Hearing Officer Warren:

Please allow this correspondence to serve as a request for formal withdrawal of the above-referenced Application Appeal on behalf of my client, Joan M. Mooney.

It is my understanding that my client will be filing a new Application in this regard. If you have any further questions, please contact my office at your earliest convenience.

Thank you.

Very truly yours,

Scott J. Partington, Esq.

SJP:lh

cc: Joseph J. LoBianco, Sr. Legal Counsel

RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF ADMINISTRATIVE ADJUDICATION
235 Promenade Street, Room 350
Providence, Rhode Island 02908

REPORT OF BILLINGS MADE BY STATE AGENCIES

Department: *Environmental Management* **Date:** *April 27, 2020*

Division/Section: *Administrative Adjudication*

Receipt Account No.: 1074.36159841.422900.0000

Description: JOAN M. MOONEY
Water Resources Permit Appeal 19-0107
AAD No. 20-003/WRA
Check # 515929593-9

HOLD DOCUMENT UP TO THE LIGHT TO VIEW TRUE WATERMARK

OFFICIAL CHECK

HOLD DOCUMENT UP TO THE LIGHT TO VIEW TRUE WATERMARK

Citizens Bank

057-0012
0115

515929593-9

March 26 2020

PAY **** $2,500.00 **** DOLLARS

TO THE ORDER OF * RI TREASURER-DEM *

Drawer: Citizens Bank, N.A.

MEMO: RIDEM Office of Water Resources Application 19-0107

AUTHORIZED SIGNATURE

⑈515929593⑈ ⑆[redacted]0⑆201⑆ [redacted]2164⑈

Warren, Catherine (DOA)

From: Warren, Catherine (DOA)
Sent: Friday, June 26, 2020 10:51 AM
To: Hoefsmit, Christina (DEM); Scott Partington
Cc: Gousie, Sarah (DEM); Dalton, Mary (DEM); LoBianco, Joseph (DEM)
Subject: RE: [EXTERNAL] : RE: Mooney; ADD No. 20-003

Dear Attorneys:

At today's telephonic status conference, Mr. Partington did not dial in. Mr. LoBianco indicated that he would telephone Mr. Partington about this matter. Another telephone status conference is schedule for **July 27, 2020 at noon** using the same telephone numbers below. If the parties speak and reach a resolution that makes the telephone conference not needed, please advise.

Thank you.
Catherine R. Warren

From: Warren, Catherine (DOA)
Sent: Wednesday, May 27, 2020 9:58 AM
To: Hoefsmit, Christina (DEM) <[redacted]>; Scott Partington <[redacted]>
Cc: Gousie, Sarah (DEM) <[redacted]>; Dalton, Mary (DEM) <[redacted]>; LoBianco, Joseph (DEM) <[redacted]>
Subject: RE: [EXTERNAL] : RE: Mooney; ADD No. 20-003

Dear Attorneys:

A telephone conference in this matter shall be held on June 26, 2020 at 10:30 a.m.

The call in number is

[redacted]
Participant access number: 80132369#

From: Hoefsmit, Christina (DEM) <[redacted]>
Sent: Tuesday, May 26, 2020 4:25 PM
To: Scott Partington <[redacted]>; Warren, Catherine (DOA) <[redacted]>
Cc: Gousie, Sarah (DEM) <[redacted]>; Dalton, Mary (DEM) <[redacted]>; LoBianco, Joseph (DEM) <[redacted]>
Subject: RE: [EXTERNAL] : RE: Mooney; ADD No. 20-003

Either works

From: Scott Partington [redacted]>
Sent: Tuesday, May 26, 2020 3:58 PM
To: Warren, Catherine (DOA) <[redacted]>; Hoefsmit, Christina (DEM)

Warren, Catherine (DOA)

From: Warren, Catherine (DOA)
Sent: Wednesday, May 27, 2020 9:58 AM
To: Hoefsmit, Christina (DEM); Scott Partington
Cc: Gousie, Sarah (DEM); Dalton, Mary (DEM); LoBianco, Joseph (DEM)
Subject: RE: [EXTERNAL] : RE: Mooney; ADD No. 20-003

Dear Attorneys:

A telephone conference in this matter shall be held on June 26, 2020 at 10:30 a.m.

The call in number is

[redacted]
Participant access number: 80132369#

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Sent: Tuesday, May 26, 2020 4:25 PM
To: Scott Partington <[redacted]>; Warren, Catherine (DOA) <[redacted]>
Cc: Gousie, Sarah (DEM) <[redacted]>; Dalton, Mary (DEM) <[redacted]>; LoBianco, Joseph (DEM) <[redacted]>
Subject: RE: [EXTERNAL] : RE: Mooney; ADD No. 20-003

Either works

From: Scott Partington <[redacted]>
Sent: Tuesday, May 26, 2020 3:58 PM
To: Warren, Catherine (DOA) <[redacted]>; Hoefsmit, Christina (DEM) <[redacted]>
Cc: Gousie, Sarah (DEM) <[redacted]>; Dalton, Mary (DEM) <[redacted]>
Subject: [EXTERNAL] : RE: Mooney; ADD No. 20-003

Good afternoon. I could do either date.

Scott J. Partington, Esq.
Bigos & Partington, Ltd.
2176 Mendon Road
Suite 2000
Cumberland, RI 02864
Tel: [redacted]
fax: [redacted]
e-mail: [redacted]

From: Warren, Catherine (DOA) <[redacted]>
Sent: Tuesday, May 26, 2020 3:43 PM
To: Hoefsmit, Christina (DEM) <[redacted]>

Dalton, Mary (DEM)

From: Warren, Catherine (DOA)
Sent: Tuesday, May 26, 2020 3:43 PM
To: Hoefsmit, Christina (DEM)
Cc: Gousie, Sarah (DEM); Dalton, Mary (DEM); Scott Partington
Subject: RE: Mooney; ADD No. 20-003

Dear Attorneys:

Tomorrow's status conference is continued. I could schedule a status conference on either June 26th or 29th?

Thank you.
Catherine R. Warren

From: Hoefsmit, Christina (DEM) <[redacted]>
Sent: Tuesday, May 26, 2020 3:21 PM
To: Warren, Catherine (DOA) <[redacted]>
Cc: Gousie, Sarah (DEM) <[redacted]; Dalton, Mary (DEM) <[redacted]>; Scott Partington <[redacted]>
Subject: Mooney; ADD No. 20-003

Dear Ms. Warren:

The parties have agreed to continue the status conference scheduled for tomorrow, May 27th, for 30 days to give the parties time to sort out some of the procedural issues in this matter.

Should you have any questions, do not hesitate to contact me.

Best regards,

Christina Hoefsmit

Christina Hoefsmit, Esq.
Senior Legal Counsel | Rhode Island Department of Environmental Management
Office of Legal Services
235 Promenade St., 4th Floor, Suite 425 | Providence, RI 02908
[redacted] | Fax [redacted] | [redacted]

STATE OF RHODE ISLAND AND PROVIDENCED PLANTATIONS
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
ADMINISTRATIVE ADJUDICATION DIVISION

RE: JOAN M. MOONEY **AAD NO. 20-003/WRA**
APPLICATION APPEAL 19-0107

ENTRY OF APPEARANCE

Now comes the undersigned and hereby enters his appearance on behalf of JOAN M. MOONEY, in the above captioned matter.

Scott J. Partington, Esq. #3168
BIGOS & PARTINGTON, LTD.
2176 Mendon Road, Ste. 2000
Cumberland, RI 02864
Tel: [redacted]
Fax: [redacted]
Email: [redacted]

CERTIFICATION

I hereby certify that I caused a true and accurate copy of this Entry of Appearance to be forwarded, via e-mail to Catherine D. Warren, Hearing Officer, RIDEM, at [redacted] and [redacted] and to [redacted] and by regular mail at 235 Promenade Street, Room 350, Providence RI 02908.

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
ADMINISTRATIVE ADJUDICATION DIVISION

RE: JOAN M. MOONEY **AAD No. 20-003/WRA**
APPLICATION APPEAL 19-0107

ENTRY OF APPEARANCE

NOW COMES Attorney Christina A. Hoefsmit and hereby enters her appearance as counsel on behalf of the Rhode Island Department of Environmental Management, Office of Water Resources, in the above entitled matter.

Respectfully Submitted,

Rhode Island Department of Environmental Management, Office of Water Resources
By its attorney,

/s/ Christina Hoefsmit
Christina A. Hoefsmit, Esq. (# 8979)
Office of Legal Services
235 Promenade St., Fourth Floor
Providence, RI 02908
[redacted] / Fax: [redacted]

Dated: May 21, 2020

CERTIFICATE OF SERVICE

I hereby certify that on May 21, 2020, I caused a true copy of the foregoing document to be sent first class mail, postage prepaid to:

Joan M. Mooney
[redacted]

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
ADMINISTRATIVE ADJUDICATION DIVISION

RE: JOAN M. MOONEY
APPLICATION APPEAL 19-0107

AAD NO. 20-003/WRA

STATUS CONFERENCE ORDER

Pursuant to R.I.G.L. § 42-17.7-2 all contested proceedings shall be heard by the Administrative Adjudication Division for Environmental Matters.

A status conference for the above-entitled matter has been scheduled for **May 27, 2020 at 9:30 a.m. PLEASE NOTE: Due to the current COVID-19 situation, this status conference will be conducted telephonically**.

Please use the following information to call in:

[redacted] OR [redacted]
Participant ID 80132369#

At this status conference, the parties are expected to inform the Hearing Officer of the following:

1. Whether the parties have met prior to the status conference to discuss settlement.
2. The results, if any, of those discussions and whether this matter is ready to proceed to prehearing conference and hearing.
3. The estimated length of each party's case, including the anticipated number of witnesses and the length of the testimony of each witness.
4. Counsel are required to file an Entry of Appearance with the Adjudication Division.

If either party fails to appear at the status conference, the Hearing Officer will issue a Seven (7) Day Conditional Order of Dismissal/Default against the non-attending party.

If a consent order has already entered in this case, the parties may inform the Hearing Officer prior to the conference date and the case will be deleted from the conference schedule.

Any questions regarding the denial of the permit shall be addressed to: Mary Kay, Executive Counsel, Esquire, DEM Office of Legal Services, and 235 Promenade Street, Providence, RI 02908 at 222-6607.

Applicant has the right to engage counsel should Applicant desire to do so.

Entered as an Administrative Order this 27 day of April, 2020.

Catherine R. Warren/md

Catherine Warren
Hearing Officer
Department of Environmental Management
Administrative Adjudication Division
235 Promenade Street, Room 350
Providence, RI 02908
[redacted]

CERTIFICATION

I hereby certify that I caused a true copy of the within Status Conference Order to be forwarded, via regular mail, postage prepaid to: Joan M. Mooney, [redacted] and via interoffice mail to Mary Kay, Esquire, DEM Office of Legal Services, and Joseph Haberek, Office of Water Resources, 235 Promenade Street, Providence, RI 02908 on this 27 day of April, 2019.

Mary Dalton

Joan M. Mooney
[redacted]

March 6, 2020

Martin D. Wencek
Program Supervisor - Freshwater Wetlands Program
RI Department of Environmental Management
Office of Water Resources
235 Promenade Street
Providence, RI 02908-5767

RE: APPLICATION NO. 19-0107

Dear Mr. Wencek,

Per your certified letter (dated February 14, 2020 to the undersigned), please accept this letter as my authorization to proceed.

Sincerely,

Joan M. Mooney

Joan M. Mooney

Joan M. Mooney
[redacted]

March 6, 2020

Martin D. Wencek
Program Supervisor - Freshwater Wetlands Program
RI Department of Environmental Management
Office of Water Resources
235 Promenade Street
Providence, RI 02908-5767

RE: APPLICATION NO. 19-0107

Dear Mr. Wencek,

Per your certified letter (dated February 14, 2020 to the undersigned), please accept this letter as my authorization to proceed.

Sincerely, Joan M. Mooney

Joan M. Mooney

HOLD DOCUMENT UP TO THE LIGHT TO VIEW TRUE WATERMARK

OFFICIAL CHECK

HOLD DOCUMENT UP TO THE LIGHT TO VIEW TRUE WATERMARK

Citizens Bank

057-0012
0115 515929593-9

March 26 2020

PAY **** $2,500.00 **** DOLLARS

TO THE ORDER OF * RI TREASURER-DEM *

Drawer: Citizens Bank, N.A.

MEMO: RIDEM office of Water Resources
Application 19-0107

AUTHORIZED SIGNATURE

⑈515929593⑈ [redacted] 0120⑆ [redacted] 2164⑈

RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
235 Promenade Street, Providence, Rhode Island 02908

August 9, 2018

Joan M.Mooney
[redacted]

RE: Application No. 18-0153 in reference to the location below:

Approximately 50 feet southeast of Canning Street, opposite utility pole no. 4; approximately 390 feet northeast of the intersection of Woodrow and Canning Streets; Assessor's Plat 37, Lot 186, Cumberland, RI.

Dear Ms. Mooney:

The Department of Environmental Management's ("DEM") Freshwater Wetlands Program ("Program") has completed its review of your **Request for Preliminary Determination application.** This review included a site inspection of the above referenced property ("subject property") and an evaluation of the proposed construction of a dwelling with garage, drive, vegetated swales, utilities, and landscape plantings, as illustrated and detailed on site plans submitted with your application. These site plans were received by the DEM on June 22, 2018.

Our observations of the subject property, review of the site plans and evaluation of the proposed project reveals that alterations of freshwater wetlands including at least a swamp and its associated 50 foot perimeter wetland will result from this proposed project.

The proposed alterations affecting freshwater wetlands include at least: dwelling construction, soil disturbance, excavation, utility installations, grading, filling, and plant installations within the above-noted freshwater wetlands.

It is the Program's determination pursuant to the Rules and Regulations Governing the Administration and Enforcement of the Freshwater Wetlands Act (Rules) that the proposed project:

a. appears to represent more than a minimal change or modification to the natural characteristics, functions and/or values of the freshwater wetlands noted herein, may be detrimental to the basic natural capabilities or values associated with the freshwater wetlands to be altered, and appears to be undesirable;

b. does not satisfactorily avoid, minimize or mitigate impacts to the freshwater wetlands;

c. and falls within one or more of the general categories of Significant Alterations as outlined in Rule 9.03(B), and specifically B(1), B(2), B(3a), B(3b), and B(3c).

Therefore, as proposed, this project represents a **significant alteration** to freshwater wetlands and may proceed only following submission of an **Application to Alter a Freshwater Wetland** and **receipt of a permit from this Program.** Upon receipt of your application, this Program will proceed with its processing pursuant to the Rules.

Please note that this Department has not verified the wetland edges that are illustrated on the submitted site plan. The swamp has been determined to extend further upslope into the interior of the subject property than is shown on the site plan.

If you are interested in further details relative to the review of this project by this Program, you are welcome to review this file at our office. Please call in advance to arrange an appointment. If you have any questions relative to this determination, you may contact either me or Daniel Kowal at this Program (telephone: [redacted]).

Sincerely,

Martin D. Wencek

Martin D. Wencek, Permitting Supervisor
Freshwater Wetlands Program
Office of Water Resources

MDW/DMK/dmk

ec: Timothy Behan, P.E., Commonwealth Engineers & Consultants, Inc.

RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
FRESHWATER WETLANDS PROGRAM

FRESHWATER WETLANDS REVIEW SHEET

Application No: 18-0153

Applicant/Project Names: Joan M Mooney

Reviewer's Initials: DMK

The following dates must be provided for on the front of this form.

Date received by Program: 6/22/18
Response to Technical Deficiency? No
Date received by Biologist: 6/28/18
Date Review Completed: 8/9/18
Date sent to Supervisor: 8/9/18

DEFICIENCIES
Deficiency Identified by (please check):
Biologist
Engineer
Phone Call (please indicate)
Date

SITE LOCATION (Please Update if Necessary)

Approximately 50 feet southeast of Canning Street, opposite utility pole no. 4; approximately 390 feet northeast of the intersection of Woodrow and Canning Streets; Assessor's Plat 37, Lot 186, Cumberland, RI.

R.I. DEPARTMENT OF ENVIRONMENTAL MANAGEMENT (RIDEM)
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM (FWP)

APPLICATION INSPECTION REPORT No. 1

Application No.: 18-0153 **Applicant Name:** Joan M Mooney

Biologist: Daniel M. Kowal **Response to Technical Deficiency:** No

Field Review Dates: 7/24/18 & 8/8/18 **Times:** 2:11 pm & 1:31 pm **Aerial Photo Nos.:** ArcGIS 1939/1962/1972/1981/1988/1997 B&W aerials, ArcGIS Spring 2003/2004/2008/2011/2014/2016 color aerials, 24-2757/58 (1985), 21-781/782/783 (1992), Google Earth aerials, and Pictometry aerials.

3.05(B) Wetlands Gain/Loss (*for reporting purposes only*): 0.0 acres (gain/loss)

I. FRESHWATER WETLANDS IDENTIFIED (Attach BIR-Forms as Necessary):

Swamp with 50 foot perimeter wetland and an area subject to storm flowage (assf).

II. PROJECT PURPOSE AND PROPOSED ALTERATIONS:

Project purpose is for the construction of a dwelling with garage, drive, vegetated swales, utilities, and landscape plantings.

The proposed alterations affecting freshwater wetlands include at least: dwelling construction, soil disturbance, excavation, utility installations, grading, filling, and plant installations.

III. REVIEW COMMENTS FOR SITE PLANS AND INFORMATION RECEIVED ON JUNE 22, 2018:

Communications

Permit Supervisor, Mr. Charles Horbert has determined on June 28, 2018 that an engineering review is not required for this application.

This application was discussed with Permit Supervisor, Mr. Martin D. Wencek on August 9, 2018.

General Site Comments

The subject site is forested. An existing residence borders the subject site on the northeast side; two existing residences border the subject site on the southwest side.

Marked LOD flags were observed on the subject site.

Subject Wetlands

Swamp and 50 Foot Perimeter Wetland

The swamp edge has not been flagged on or adjacent to the subject site. Site plans depict an approximate wetland edge offsite. Hydrophytic vegetation [Appendix 2A of the **Rules And Regulations Governing The Administrative And Enforcement Of The Fresh Water Wetlands Act, July 16, 2014] (Rules)** observed on the subject site within the approximate depicted proposed limit of disturbance includes but not limited to: red maple (*Acer rubrum*), ash sp. (*Fraxinus* sp.), elm sp. (*Ulmus* sp.), arrowwood (*Viburnum dentatum*), dogwood (*Cornus* sp.), elderberry (*Sambucus canadensis*), grape sp. (*Vitis* sp.), poison ivy (*Toxicodendron radicans*), jewelweed (*Impatiens capensis*), and jack-in-the-pulpit (*Arisaema triphyllum*).

Hydrologic indicators [Appendix 2(A)4 of the **Rules**] observed on the subject site within the approximate depicted proposed limit of disturbance include: exposed tree roots, surface soil cracks, and absence of leaf litter. Also, soil saturation within the swamp on the subject site is visible on some aerial imagery. Soil augering revealed the presence of a restrictive layer at a depth of about eight inches within the swamp on site. Rocks are present within the swamp on the subject site. It is estimated that the swamp extends further upslope into the interior of the subject property than shown on the site plan.

Deciduous trees, deciduous saplings, shrubs, vines, herbaceous plants, and other vegetation along with patches of exposed soil were observed within the 50 foot perimeter wetland. The depicted 50 foot perimeter wetland edge is considered inaccurate due to the swamp edge extending further upslope into the interior of the subject property than shown.

Area Subject To Storm Flowage (ASSF)
An ASSF is present that originates at Canning Street and extends into the interior of the subject site to the swamp edge. The ASSF is demarcated by a deposit of sediment in/along a swale/channel. This ASSF appears to convey local stormwater runoff to the subject swamp.

Other Comments
Ms. Jane Kelly of the Freshwater Wetlands Program accompanied me on the August 8, 2108 site visit.

While at the subject site on August 8, 2018, I was informed by two residents (one adjacent and one across the street) that there are local flooding issues.

Anticipated Effects On The Natural Characteristics, Functions, or Values Of The Subject Freshwater Wetlands
The proposed activities will eliminate a portion of a swamp, possibly undesirably affecting the hydrology of the remaining swamp, and permanently change the characteristic of the 50 foot perimeter wetland; thereby reducing the natural values associated with the wetlands.

Therefore, it appears that this proposed project would more than minimally change or modify the existing characteristics of the subject wetland areas.

RECOMMENDATION:
Issue a significant alteration letter.

Signed: Daniel M. Kowal

RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
DIVISION OF FRESHWATER WETLANDS

WETLAND APPLICATION REVIEW COVER SHEET

FILE NO: 18-0153

TYPE OF APPLICATION: PREDET

RENEWALS REMAINING:

RENEWAL EXPIRATION:

APPLICANT: Mooney, Joan M.

CROSS REFERENCE FILES:

SITE LOCATION:

Canning Street, AP 37, Lot 186, UP 4, Canning Street and Woodrow Street is located 370 feet southwest, Cumberland, RI

APPLICATION ASSIGNED TO: DMK 6/28

REASON FOR SUBMISSION: Preliminary Determination Application 06/22/2018

No Engr Req'd

Prepared: 06/25/2018
Covershe.prg

COMMONWEALTH Engineers & Consultants, Inc.
▶400 Smith Street
Providence, RI 02908
▶Tele. 401·273·6600
Fax: 401·273·6674

45 Canning Street
Cumberland, RI
A.P. 37 Lot 186
June 2018

PROJECT NARRATIVE

RIDEM Freshwater Wetlands
Request for Preliminary Determination

General description/purpose: The applicant is proposing to construct a dwelling on A.P. 37 Lot 186, Cumberland, RI. The project consists of the following major components:

- construct new dwellings, paved driveways, and utility services including underground sewer and potable water.
- construct stormwater BMPs for treatment of runoff generated from the proposed impervious surfaces

Location of project: The project is situated on the south side of Canning Street, Cumberland, Rhode Island as depicted on the aerial photo below.

History of project area: The subject property is the last remaining property in the immediate area not to be developed as indicated on the aerial photo.

COMMONWEALTH Engineers & Consultants, Inc.
▶400 Smith Street
Providence, RI 02908
▶Tele. 401·273·6600
Fax: 401·273·6674

45 Canning Street
Cumberland, RI
A.P. 37 Lot 186
June 2018

Size of project: The subject property is 0.13 acres in size and the limit of disturbance and extent of work is shown on attached site plans prepared by Commonwealth Engineers & Consultants, Inc.".

Existing wetland resources: Subject site abuts a freshwater wetland complex and associated 50-foot perimeter wetland and is depicted on site plan.

Stormwater system: The proposed stormwater system has been designed in accordance with the R.I. Stormwater Management Guidance for Individual Single Family Residential Lot Development. Swales are proposed with locations, details and maintenance notes provided on the site plans. Refer to the Stormwater Design Report for additional details.

How potential wetland impacts have been avoided:

1. Construction activities have been proposed outside regulated wetland areas to the maximum extent possible by locating the house and driveway along the front building setback line and selecting a small house footprint.
2. Soil erosion and sediment control devices will be utilized to control soil erosion from the disturbed areas, including perimeter silt fence and construction entrance for vehicles.
3. Stormwater impacts will be mitigated by use of vegetated swales designed in accordance with the R.I. Stormwater Management Guidance for Individual Single Family Residential Lot Development.

Impact Avoidance (as per 9.02D):
The primary intent of the project is to construct a new dwelling on an existing lot. The primary activity (residential dwelling) is not water-dependent.

The applicant is proposing to avoid impact to the wetlands by keeping structures, uses and construction activities outside regulated wetland areas to the maximum extent possible by placing this items as far away from the regulated wetlands as possible. The applicant will also mitigate stormwater impacts from impervious surfaces by constructing vegetated swales in accordance with RIDEM standards.

There are no areas within the same property or other property owned or controlled by the applicant that could be used to achieve the same project without unnecessarily disturbing freshwater wetlands. There are no other properties reasonably available to the applicants, which could be used to achieve the same project purpose.

All design, layout and technology options have been researched and the design proposed will have the least impact to the surrounding natural area and avoid impacts to the freshwater wetlands and the functions and values associated with these wetlands.

COMMONWEALTH Engineers & Consultants, Inc.
▶400 Smith Street
Providence, RI 02908
▶Tele. 401·273·6600
Fax: 401·273·6674

The proposed activities have been designed outside of the freshwater wetlands to the maximum extent possible.

A Limit of Disturbance (LOD) has been established along the perimeter of the proposed construction areas to protect the freshwater wetlands. A continuous row of silt fence is proposed for installation along the downslope portion of the LOD with other soil erosion control measures specified on the attached drawings.

As proposed, the project will not significantly alter the natural character of the freshwater wetlands on property since the project activities were designed outside the freshwater wetlands to the maximum extent possible, soil erosion control will be used during construction, and the proposed stormwater system is designed in accordance with RIDEM standards.

IMPACT MINIMIZATION (as per 9.02D):
The proposed project is necessary at the scale proposed in order to create the desired development. Reduction in the scale of the proposal will not achieve the same primary project purpose.

The project is proposed at the chosen location in order to create the desired project with minimal disturbance to freshwater wetlands. There is no other location within the site which could achieve the same primary project purpose and result in less impact to the wetlands.

The proposed stormwater system has been designed in accordance with RIDEM standards.

The proposed project has been designed to meet the municipal minimum standard setback requirements and to minimize impacts to the regulated wetland areas. The proposed design has been determined to be the most efficient in addressing concerns regarding the best protection and impact minimization of the freshwater wetland ecosystems on and adjacent to, the subject property.

Due to these efforts taken to minimize impacts to the wetlands, no significant adverse impacts to public health, safety, and/or the environment are foreseen as a direct result of this project.

Erosion and sediment control:

Construction impacts will be minimized by installation of Erosion and Sedimentation (E&S) controls along the down slope sections of the LOD and throughout the site. The disturbed areas will be restored with loam and seeded once the construction is complete. Best management practices in accordance with the Rhode Island Soil Erosion and Sediment Control Handbook are being used. Erosion and sedimentation controls consisting of a continuous row silt fence along down-slope sections of the LOD will be installed prior to any ground disturbance and monitored throughout construction. All E&S controls will be monitored daily, inspected weekly, and repaired or replaced as necessary. Erosion

COMMONWEALTH Engineers & Consultants, Inc.
▶400 Smith Street
Providence, RI 02908
▶Tele. 401·273·6600
Fax: 401·273·6674

controls will be reset or replaced if sediment accumulates to within half the height of any control. E&S controls will remain in operating condition until all ground surfaces are permanently stabilized. Disturbed areas will be loamed and seeded with a suitable grass seed mixture.

End of Narrative

Report for:

Stormwater BMP Narrative Report for
AP 37 Lot 186
45 Canning Street
Cumberland, Rhode Island

Prepared for:

Anthony Silva

[redacted]

June 2018

COMMONWEALTH ENGINEERS & CONSULTANTS, INC.
400 SMITH STREET
RHODE ISLAND, 02908
401-273-6600

Stormwater Narrative:

1.0 Introduction:

This report was prepared to document the stormwater best management practices (BMPs) for the activities proposed at 45 Canning Street, Cumberland, RI (A.P. 37 Lot 186).

2.0 General Description/Purpose:

The applicant is proposing to develop an existing undeveloped lot with single family dwelling and associated amenities.

The project consists of the following major components:

- construct new dwellings, paved driveways, and utility services including underground sewer and potable water.
- construct stormwater BMPs for treatment of runoff generated from the proposed impervious surfaces

3.0 Basis of Stormwater BMP Design:

BMP sizing and design is based on the *'State of Rhode Island Stormwater Management Guidance for Individual Single-Family Residential Lot Development'* guidance document prepared by the RIDEM/CRMC. Note: due to site constraints the system has been designed to the 'maximum extent possible' in accordance with this document.

4.0 Stormwater BMP Design:

The five (5) design steps detailed in this section were taken from the *'State of Rhode Island Stormwater Management Guidance for Individual Single-Family Residential Lot Development'* guidance document:

Step 1: Determine the surface area (ft^2) of new impervious surfaces:

Dwelling Roof = 1,212 ft^2
Driveway = 620 ft^2
Total = 1,832 ft^2

Step 2: Choose potential storm water management practice locations based on required regulatory setbacks. If you plan to install infiltration trenches or dry wells, it is in your interest to have a professional determine the depth to the Seasonal High Groundwater Table (SHGWT) to ensure proper functioning of the stormwater practice. The depth to SHGWT is not required when the selected practice is a Qualifying Pervious Area (QPA), vegetated swale, rain garden or permeable surface construction.

The stormwater management practices must meet the required minimum separation distances, or

setbacks, listed in Table 1 below.

Table 1. Minimum Setback Distances for Rain Gardens, Infiltration Trenches, Dry Wells and Permeable Pavement Practices on Single-Family Residential Lots

Landscape Feature	Required Setback (ft) for Infiltration Trenches and Dry Wells	Required Setback (ft) for Rain Gardens and Permeable Paving Practices
Public Drinking Water Supply Well – Drilled (rock), Driven, or Dug	200	200
Public Drinking Water Supply Well – Gravel Packed, Gravel Developed	400	400
Private Drinking Water Wells	50	25
Surface Water Drinking Water Supply Impoundment with Supply Intake	100	100
Tributaries that Discharge to the Surface Drinking Water Supply Impoundment	50	50
All Other Surface Waters	50	50
Up-gradient from Natural slopes > %15	25	25
Down-gradient from Building Structures	10	10
Up-gradient from Building Structures	10	10
Onsite Wastewater Treatment Systems (OWTS)	15	15
Coastal features, coastal buffer zones, regulated freshwater wetlands	As applicable	As applicable

The site has the following constraints:

1. high water table
2. building structures
3. regulated freshwater wetlands and perimeter wetlands

The site has limited areas suitable for stormwater BMPs due to site constraints. The proposed BMPs have been designed to the 'maximum extent possible' in accordance with the *'State of Rhode Island Stormwater Management Guidance for Individual Single-Family Residential Lot Development'* using sound engineering judgement.

Step 3: Select appropriate storm water treatment practice(s) based on your site conditions and required elements for each practice. You may have to install more than one practice to meet your stormwater management requirements;

The checked box indicates which BMPs were selected:

	Type of BMP	Justification
☐	Infiltration trench	(not used)
☐	Drywell	(not used)
☐	Qualified pervious area	(no qualified areas)
☒	Vegetated swale	(proposed for driveway and roof runoff)
☐	Rain garden	(not used)

☐ Permeable surface (not used)

Step 4: Size the selected stormwater treatment practice(s) to meet the water quality volume (WQv) requirement using drainage area and soil texture information:

Selected BMP = vegetated swale for driveway & roof runoff
Soil texture = silty

Sizing table is taken from the *'State of Rhode Island Stormwater Management Guidance for Individual Single-Family Residential Lot Development'* guidance document:

Table 5. Vegetated Swale Sizing Guidance

Drainage Area (in square feet)	Bottom surface Area (in square feet) for an 8 in. deep swale	
	Sandy Soils*	Silty Soils*
200	16	32
400	32	64
600	48	96
800	64	128
1000	80	160

*In lieu of a soil texture determination, use the calculated surface areas for silty soils

Summary of impervious surface areas: driveway = 1,212 ft^2 (New Lot)
roof = 620 ft^2 (New Lot)

Size vegetated swale for NEW LOT driveway area:

The required size for silty soils with a 8" depth = (1,832/1,000) x 160 = 293 sq. ft. required

Length of swale = 80 feet
Width of swale = 2 feet
Area of swale = 80 x 2 = 160 sq. ft. / each
# of swales provided = 2
Total area provided = 160 x 2 = 320 sq. ft.

We are providing 320 sq. ft. > 293; therefore, size is OK

Step 5: A site plan depicting location of all proposed stormwater treatment practices, drainage areas, stormwater flow paths to each practice and other required elements detailed in the checklist is provided on the attached full size drawings.

Design checklist is taken from the *'State of Rhode Island Stormwater Management Guidance for Individual Single-Family Residential Lot Development'* guidance document:

Table 4. Required Elements for Vegetated Swales on Single-Family Residential Lots	
Conveyance	☐ Vegetated swales shall be designed with moderate side slopes flatter than 3:1 for most conditions. ☐ Vegetated swales shall have a maximum longitudinal slope of 4% (e.g. 4 foot drop over a horizontal distance of 100 feet).
Treatment	☐ The average surface ponding depth shall be no more than a 8 inches deep. ☐ The bottom width shall be no less than 2 feet and no greater than 8 feet wide ☐ A maximum ponding depth of 1 ft should be maintained at the longitudinal midpoint of the vegetated swale and a maximum depth of 18 inches at the end point. ☐ Swales should contain a 2 – 4 inch amended soil layer and a 2 – 3 inch mulch layer. ☐ The amended soil layer of a vegetated swale should be a 50/50 mixture of the excavated native soils and mature organic compost.
Vegetation	☐ Grasses or sedges are typically used in vegetated swales, but other native plants can be used as well. Please refer to the RI Coastal Plant Guide (www.uri.edu/ceis/ceoc/coastalPlants/CoastalPlantGuide.htm) and modify the selection for native plants suited to rain gardens.
Maintenance	☐ Vegetated swales shall be inspected annually and should be inspected after large storm events. ☐ Eroded side slopes and channel bottoms shall be stabilized as necessary. ☐ If the surface of the dry swale becomes clogged to the point that standing water is observed on the surface 48 hours after precipitation events, the bottom shall be roto-tilled or cultivated to break up any hard-packed sediment, and then reseeded. ☐ Vegetation in dry swales shall be mowed as required to maintain minimum grass heights in the 4-6 inch range. ☐ Every five years, the channel bottom of dry swales should be scraped to remove sediment and to restore original cross section and infiltration rate, and should be seeded to restore ground cover, where necessary.

The proposed attached drawing(s) have been designed with a BMP which exceeds the area requirement and designed in accordance with the above checklist to the 'maximum extent possible'; therefore, the design meets the minimum requirements.

5.0 How potential wetland impacts have been avoided (pertaining to stormwater BMPs):

1. Post project water quality impacts will be mitigated by constructing BMPs for the impervious surface runoff, all of which were designed and constructed in accordance with the *'State of Rhode Island Stormwater Management Guidance for Individual Single-Family Residential Lot Development'* guidance document to the 'maximum extent possible'.

End of Report

RIDEM USE ONLY: Wetlands Application Number_____

RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
Office of Water Resources / Freshwater Wetlands Program
235 Promenade Street, Providence, RI 02908-5767

SITE WORK AFFIDAVIT

This affidavit is to be used by Freshwater Wetland Professionals to attest to the completion and certification of all Site Work **at the time an application is submitted** to the RIDEM Freshwater Wetlands Program. Affidavits must be accompanied by a complete Freshwater Wetlands permit application submittal.

In accordance with Rule 7.05, an applicant must perform site work to clearly identify and label site activities and features. Incomplete site work results in the issuance of deficiency letters and the need for multiple RIDEM inspections, causing unnecessary permitting delays. Applicants are encouraged to refer to *Avoid these Common Preventable Site Work Delays!* to learn more about facilitating quicker permit reviews.

Applicant Name: JOAN M. MOONEY

Note: Applicant must be the owner of property or easement or a government agency or entity with power of condemnation over such property or easement that is the subject of this application.

Please initial that all applicable site work listed below have been performed and certified at the time of application submission and sign the certification statement.

X Wetland Flags are present on site, and are correctly and legibly labeled; (OFFSITE)

X Wetland Flag numbers on site correspond to those depicted on the plans; (OFFSITE)

X Wetland Flags have been accurately surveyed and depicted on the plans; (OFFSITE)

✓ The proposed Limit of Disturbance (LOD) and other applicable proposed activities and features (See Rule 7.05) have been staked and labeled on site.

CERTIFICATION OF PROFESSIONAL(S)

I certify that I have inspected the subject property and its surroundings and do hereby attest that to the best of my knowledge, all site work specified above has been accurately completed and certified at the time of application submission and prior to RIDEM inspection, in accordance with the Rules and Regulations Governing the Administration and Enforcement of the Freshwater Wetlands Act.

Professional's Name: TIMOTHY BEHAN

Note: The professional (e.g. engineer, biologist, landscape architect, surveyor, etc.) responsible for the submission and/or preparation of this Application, on behalf of the Applicant, must sign below.

Signature: _____ **Date:** 6/21/18

RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES\FRESHWATER WETLANDS PROGRAM

235 Promenade Street, Providence, RI 02908
Telephone: [redacted], Telecommunication Device for the Deaf: [redacted]

GENERAL APPLICATION FORM

Please type or print

PART A **Purpose of Application**

- ☐ Request to Determine Presence of Wetlands only (Rule 8.02)
- ☐ Request to Verify Delineated Edge of Wetlands (Rule 8.03)
- X Request for Preliminary Determination (Rule 9.00)
- ☐ Application to Alter a Freshwater Wetland (Rule 10.00)
- ☐ Application for Renewal (Rule 11.02) **Complete Only Parts B, D & H**
- ☐ Application for Permit Modification (Rule 11.03)
- ☐ Application for Permit Transfer (Rule 11.04) **Complete Only Parts B, E & H**
- ☐ Change in Owner during review -- (Rule 7.02(E)) **Complete Only Parts B, F & H**

AGENCY USE ONLY
Application No: 18-0153
Application Received:

PART B **Applicant Information:**

Applicant's Name (see Rules 7.02): JOAN M MOONEY

Note: The applicant must be the owner of the property or easement which is the subject of this application or must be the government agency or entity with power of condemnation over such property or easement.

Applicant's Mailing Address: [redacted] (Street/Road) (P.O. Box)

[redacted] (City/Town) (State) (Zip Code) (Telephone No.)

Applicant's Email Address: (print legibly): N/A

Property Location subject to this Application:

CUMBERLAND (City/Town) CANNING STREET (Street Abutting Site) 45 (Street address number (if applicable))

Nearest street intersection and its distance and direction from site Canning St. & Woodrow St is located 370' SW

Nearest utility pole number(s): #4 Direction to site from abutting street: N ___ S ___ E X W ___

Tax Assessor's Plat(s) and Lot No(s): A.P. 37 Lot 186

Recorded Plat(s) and Lot No(s) (*if Assessor's are not available*): N/A

PART C **General Information:**

Any previous application for this site? Yes ___ No X Provide Application No(s) ___

Any previous enforcement action for this site? Yes ___ No X Provide File No(s) ___

Amount of wetland area to be altered, if any:

Palustrine wetland: 0 *square feet*
Riverbank or perimeter wetland: 1,175 *square feet*
Watercourse: 0 *linear feet*

☐ *Check here if any floodplain alteration is proposed.*

- Fee category per Rule 7.11 (example 7.11(D)(6) 2- lots sub Pre-Det - $900) 7.11.D.(2) house lot $450 Check No. 6302

☐ Check here if the project has a Certificate of Critical Economic Concern (CEC) and attach copy of certification.

PART D **For Application Renewal** (if applicable):

Name of Original or Subsequent Permittee: ___

Application/Permit No. ___ Permit Expiration Date: ___

Number of previous renewals issued (if applicable): ___

Applicant's Statement: I hereby state that I am requesting renewal of the original or subsequently modified permitted project under Application/Permit No. ___. I fully understand the permit limitations and will comply with any and all conditions of the permit.

Applicant's name: (*print*) ___ (*signature*) ___

☐ Check here if actual site work has commenced on the project for which renewal is requested.

PART E **For Permit Transfer Application** (if applicable):

Original Permittee's Name: _____

Application/Permit No.: _____ Permit Expiration Date: _____

Note: A certified copy of the deed of transfer must be enclosed with application.

Applicant's Statement: I hereby certify that I have reviewed the permit letter issued under Application/Permit No. _____ and hereby agree to comply with all conditions of the permit, including any time limitations imposed.

Applicant's Name (*print*): _____ (*signature*): _____ Date: _____

PART F **For Change in Owner During Application Processing** (if applicable):

Original Applicant's Name: _____ Application No. _____

Note: A certified copy of the deed of transfer must be enclosed for Applications to Alter only.

PART G **Certification of Professional(s)** (if applicable):

Note: Any professional (e.g. engineer, biologist, landscape architect, etc.) who participated in the submission and/or preparation of this Application and supporting documentation must sign below.

I hereby certify that I have been authorized by the applicant to prepare documentation to be submitted in support of this Application; that such documentation is in accordance with the *Rules and Regulations Governing the Administration and Enforcement of the Freshwater Wetlands Act*; and that such documentation is true, accurate and complete to the best of my knowledge.

Professional's Name (*print*): Timothy Behan, P.E. Title: Engineer

Email (print legibly): [redacted] d/b/a: Commonwealth Engineers & Consultants, Inc.

Address: 400 Smith St. Providence, RI 02908

Professional's Signature: _____ Date: 6-21-18

☒ **Check this box if the above named is the project manager or project lead for the applicant.**

☒ **I've completed and attached the Site Work Affidavit.**

If more than one professional:

Professional's Name (*print*): _____ Title: _____

Email (print legibly): _____ d/b/a: _____

Address: _____

Professional's Signature: _____ Date: _____

☐ **I've completed and attached the Site Work Affidavit.**

Professional's Name (*print*): _____ Title: _____

Email (print legibly): _____ d/b/a: _____

Address: _____

Professional's Signature: _____ Date: _____

☐ **I've completed and attached the Site Work Affidavit.**

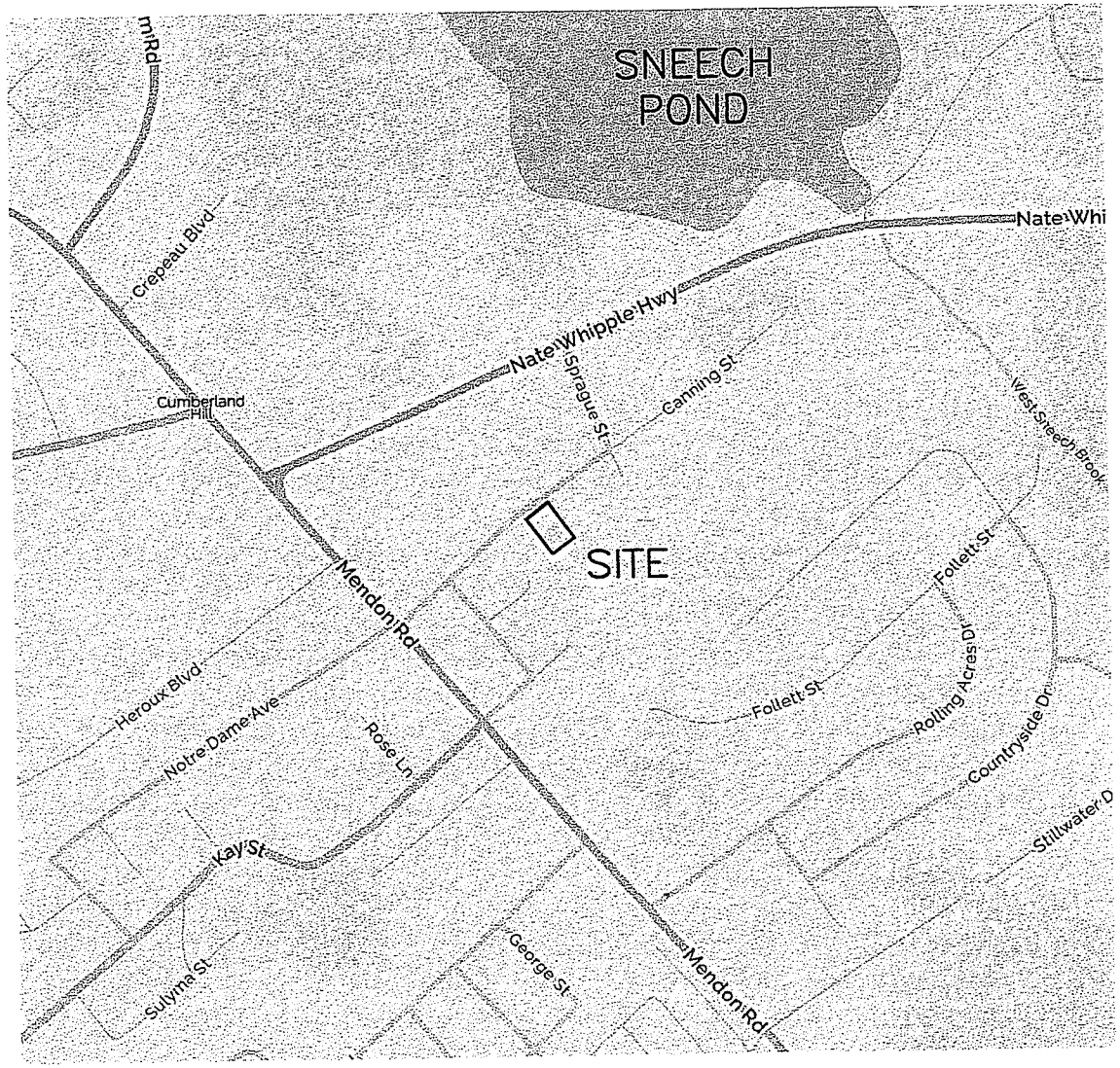
PART H **Certification/Authorization of Applicant:**

I hereby certify that I have requested and authorized the investigation, compilation, and submission of all the information, in whatever form, contained in this Application; that I have personally examined and am familiar with the information submitted herein; and that such information is true, accurate and complete to the best of my knowledge. I hereby authorize RIDEM personnel access to the property for purposes of observing conditions pertinent to this application and assessing compliance with any permit or determination resulting from this application, including any sampling, monitoring or surveying that may be deemed appropriate, consistent with the RIDEM Administrative Inspection Guidelines. (See DEM website - Office of Compliance and Inspection for copy).
Note any special concerns for access here:

Applicant's Signature: Joan M. Mooney **Title** (if applicable): owner

See Rule 7.02 regarding Signatures

Print Name Signed Above: JOAN M. MOONEY **Date:** 6/13/18



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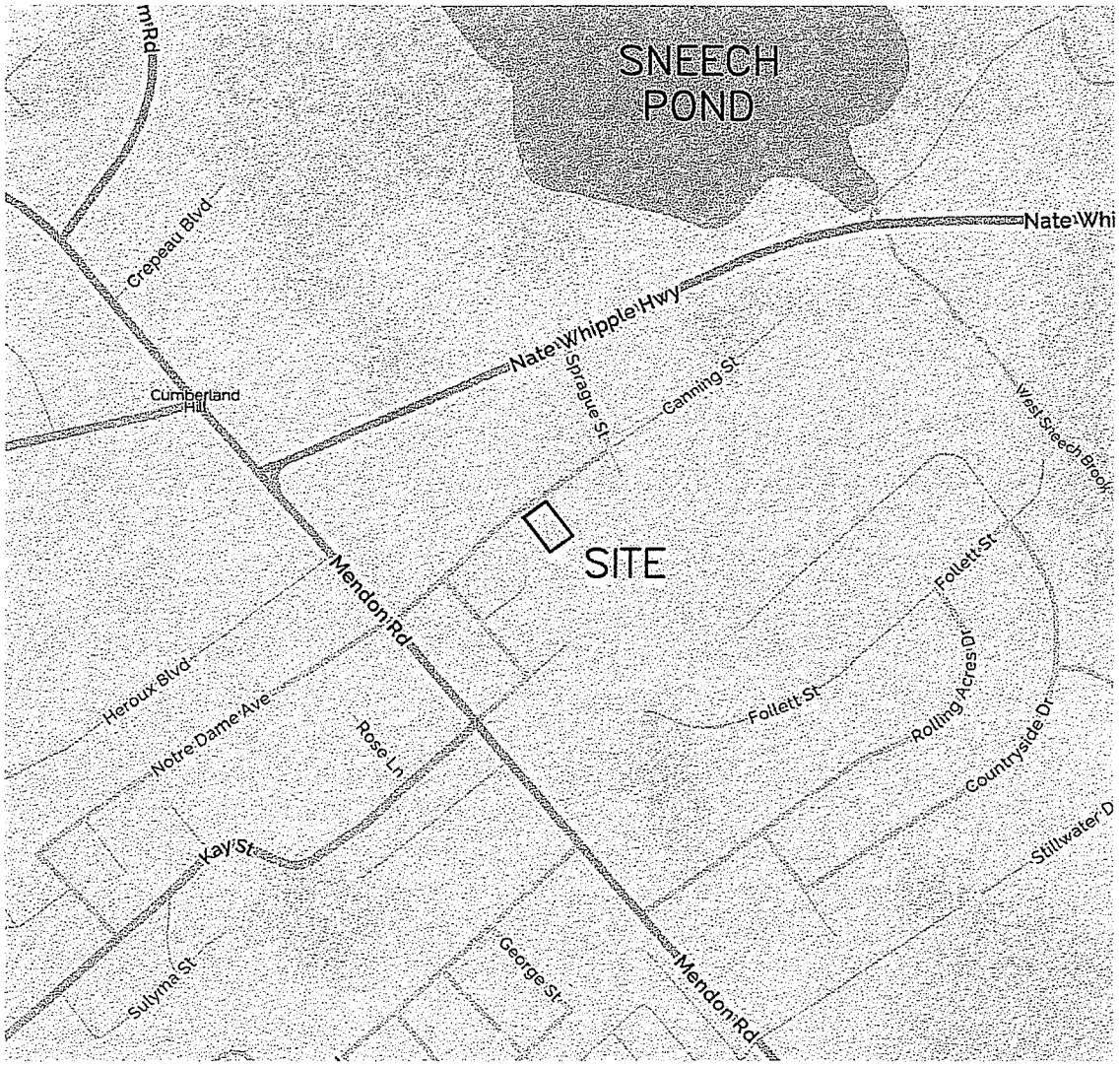
NOTES:

1. WETLAND EDGE DETERMINATION BY COMMONWEALTH ENGINEERS & CONSULTANTS, INC. MARCH 2018.
2. SITE IS SITUATED IN AN 'AREA OF MINIMAL FLOOD HAZARD, ZONE X' AS DEPICTED ON FEMA'S FLOOD INSURANCE RATE MAP, 44007C0177G, TOWN OF CUMBERLAND, 440016, EFFECTIVE DATE MARCH 2, 2009.



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3. REFERENCE IS MADE TO TOWN PLAT MAPS FOR PROPERTY LINE AND ASSESSORS PLAT AND LOT NUMBERS. THIS IS NOT A PROPERTY LINE SURVEY PLAN

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RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
235 Promenade Street, Providence, Rhode Island 02908-5767

CERTIFIED MAIL

February 14, 2020

Joan M. Mooney
[redacted]

Notification of Receipt of an Objection of a Substantive Nature

RE: Application No. 19-0107 in reference to the location below:

Approximately 50 feet southeast of Canning Street opposite Utility Pole No. 4, and approximately 390 feet northeast of its intersection of Woodrow and Canning Streets, Assessor's Plat 37, Lot 186, Cumberland, RI.

Dear Ms. Mooney,

The Department of Environmental Management's ("DEM") Freshwater Wetlands Program ("Program") has completed its review of seven (7) letters of comment that were submitted to the Program during the 45-day Notice period for public comment related to the above-referenced application. This notification is to inform you that this review has determined that several of these comments are considered *objections of a substantive nature* as defined by Rule 250-RIRC-150-15-1.10(D3c) of the Rules and Regulations Governing the Administration and Enforcement of the Freshwater Wetlands Act (Rules). Accordingly, before the DEM can issue a decision on your application, a Public Hearing pursuant to Section 2-1-22 (R.I.G.L.) of the RI Fresh Water Wetlands Act ("Act") and Rule 250-RIRC-150-15-1.10(D4) may be necessary and must be authorized by you and held by DEM to elicit comments from the public regarding the impacts of proposed alterations on the functions and values of the subject wetlands.

Pursuant to Rule 250-RIRC-150-15-1.10(D)(3)(d), you have the following options:

1. You may withdraw your application in writing, in which case the DEM will close the application and proceed no further in its review.

2. If you wish to proceed, you must authorize the scheduling of a public hearing in writing **within 30 days of your receipt of this notification and include a certified bank check in the amount of $2,500,** otherwise the application is considered withdrawn. We will terminate any further action on the application and will not re-open the application at a later date.

Additionally, pursuant to Rule 250-RIRC-150-15-1.10(C), the Department will entertain additional information demonstrating that the current design will adequately accommodate and facilitate the stormwater runoff that accumulates on the subject property, and that the current design will not worsen the existing flooding issues experienced at the subject property and surrounding properties. This information

must include appropriate calculations and any additional supportive data to validate the current design and demonstrate that additional flooding on the surrounding properties will not occur resulting from this proposal. Upon receipt of the information, this Program will evaluate the data and determine if the submission adequately addresses the *objections of a substantive nature* received during the initial Public Notice period. If the Program finds that the information submitted as requested herein does not satisfactorily address the concerns raised by the comments received during the initial Public Notice period, the application may be denied. If the Department finds that information provided appears to address the concerns raised during the initial Public Notice period, the proposal and the additional information will be re-noticed for 45 days to allow for additional comments from any abutters and any additional interested parties.

If you have any questions with respect to this notification, you may contact me directly at [redacted],
[redacted]

Sincerely,

Martin D. Wencek

Martin D. Wencek, Program Supervisor
Office of Water Resources
Freshwater Wetlands Program

MDW/MDW/cam

xc: Eric A. Beck, P.E., Chief, Office of Water Resources, Permitting
Mary Kay, Executive Counsel, DEM Office of Legal Services
Christina Hoefsmit, DEM Office of Legal Services
Tim Behan, Commonwealth Engineering and Consulting, Inc.

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FAQs >

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Tracking Number: 9171082133393955612071

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Your item was delivered at 9:49 am on February 25, 2020 in NORTH KINGSTOWN, RI 02852.

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February 25, 2020 at 9:49 am
Delivered
NORTH KINGSTOWN, RI 02852

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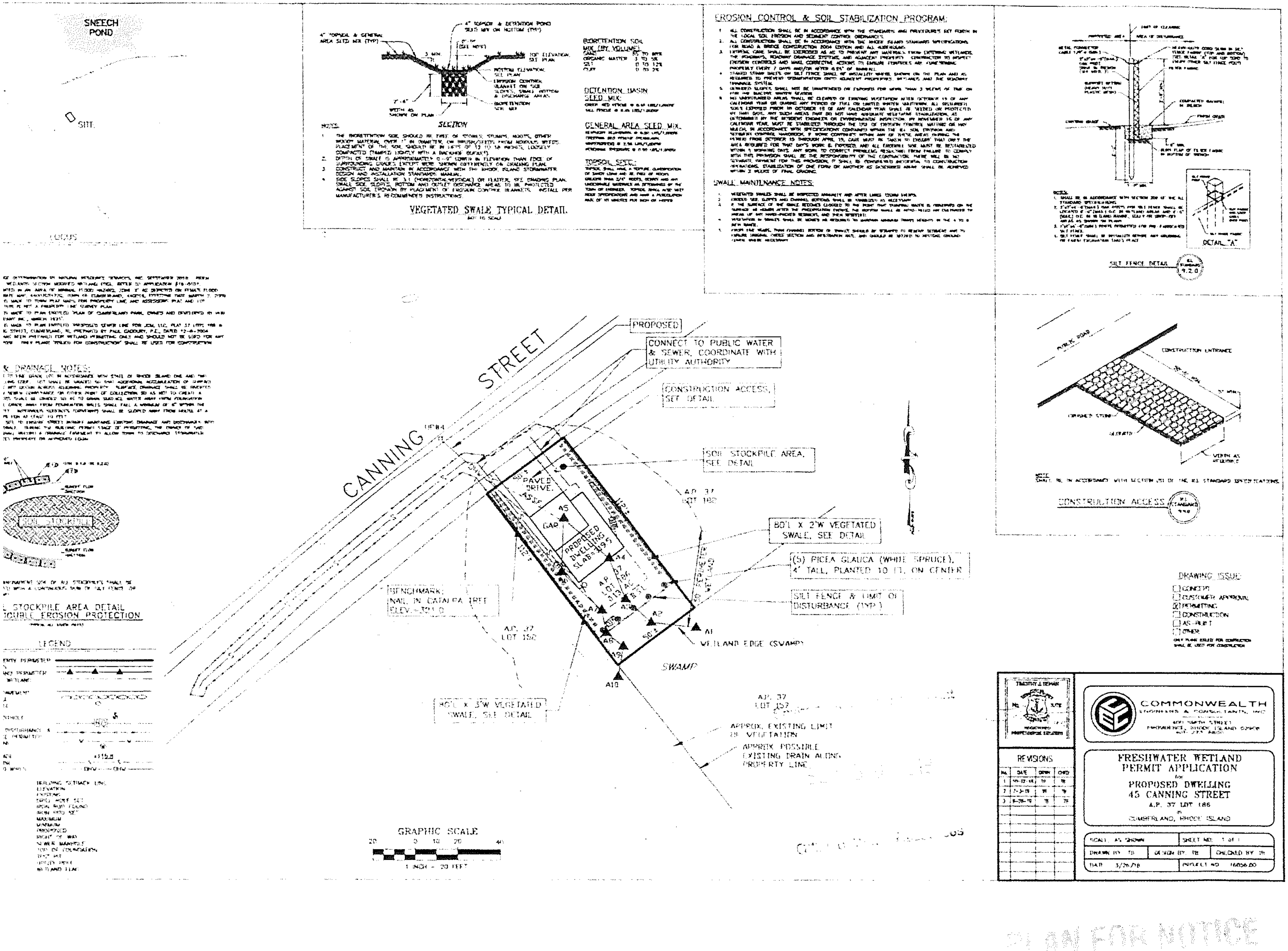
FAQs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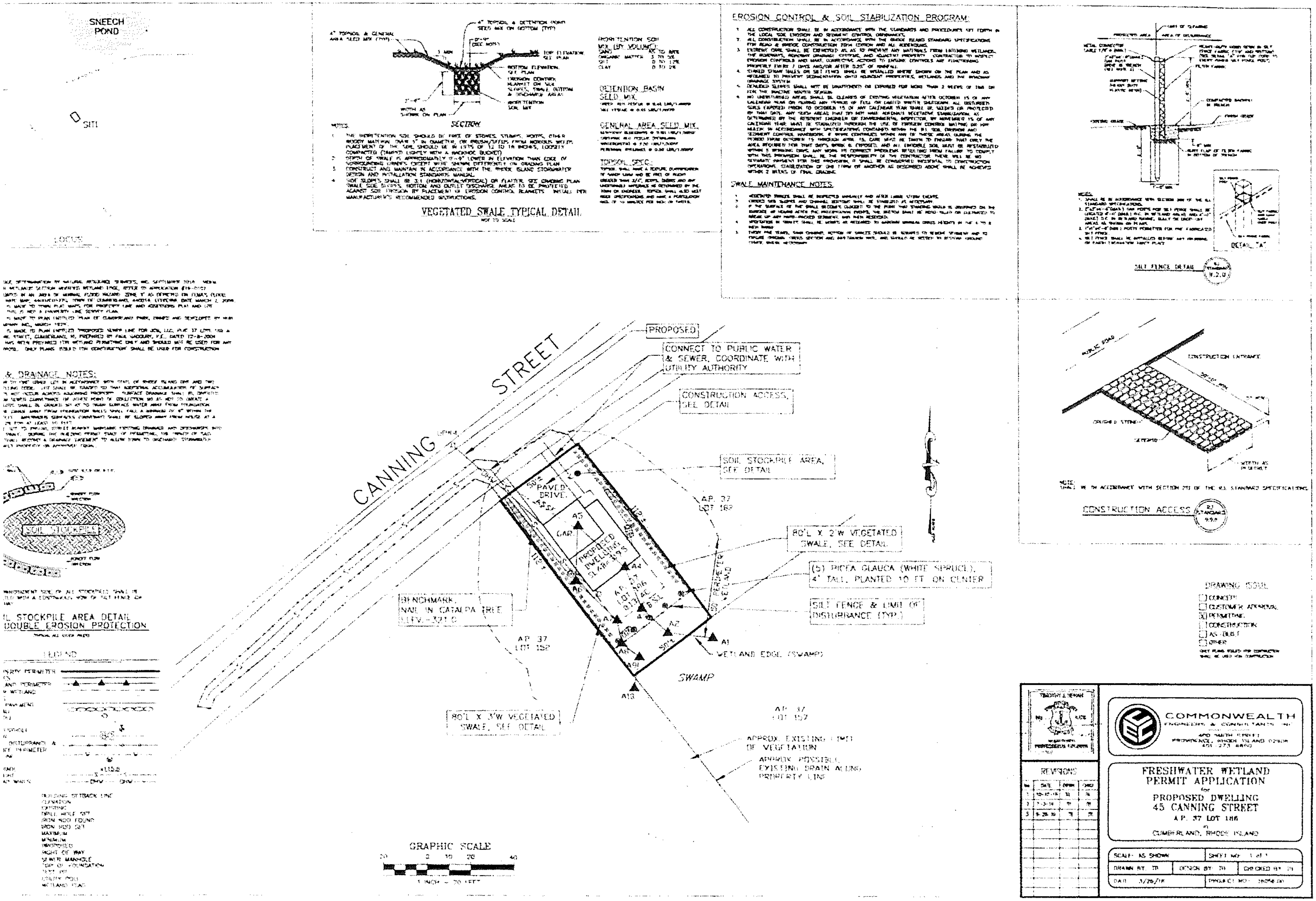
LOCUS
VEGETATED SWALE TYPICAL DETAIL
SECTION
BIORETENTION SOIL MIX (BY VOLUME)
DETENTION BASIN SEED MIX
GENERAL AREA SEED MIX
TOPSOIL SPEC.
EROSION CONTROL & SOIL STABILIZATION PROGRAM
SWALE MAINTENANCE NOTES
SILT FENCE DETAIL
DETAIL "A"
CONSTRUCTION ACCESS
PUBLIC ROAD
CONSTRUCTION ENTRANCE
SOIL STOCKPILE
STOCKPILE AREA DETAIL
DOUBLE EROSION PROTECTION
LEGEND
CANNING STREET
PROPOSED
CONNECT TO PUBLIC WATER & SEWER, COORDINATE WITH UTILITY AUTHORITY
CONSTRUCTION ACCESS, SEE DETAIL
SOIL STOCKPILE AREA, SEE DETAIL
PAVED DRIVE
GAR.
PROPOSED DWELLING
A.P. 37 LOT 186
A.P. 37 LOT 182
A.P. 37 LOT 152
A.P. 37 LOT 157
80'L X 2'W VEGETATED SWALE, SEE DETAIL
(5) PICEA GLAUCA (WHITE SPRUCE), 4' TALL, PLANTED 10 FT. ON CENTER
SILT FENCE & LIMIT OF DISTURBANCE (TYP.)
BENCHMARK: NAIL IN CATALPA TREE
WETLAND EDGE (SWAMP)
SWAMP
80'L X 3'W VEGETATED SWALE, SEE DETAIL
APPROX. EXISTING LIMIT OF VEGETATION
APPROX. POSSIBLE EXISTING DRAIN ALONG PROPERTY LINE
GRAPHIC SCALE
1 INCH = 20 FEET
DRAWING ISSUE
CONCEPT
CUSTOMER APPROVAL
PERMITTING
CONSTRUCTION
AS-BUILT
OTHER
TIMOTHY J. BEHAN
REVISIONS
COMMONWEALTH ENGINEERS & CONSULTANTS, INC.
FRESHWATER WETLAND PERMIT APPLICATION
for
PROPOSED DWELLING
45 CANNING STREET
A.P. 37 LOT 186
in
CUMBERLAND, RHODE ISLAND
SCALE: AS SHOWN
SHEET NO. 1 OF 1
PROJECT NO. 16056.00
PLAN FOR NOTICE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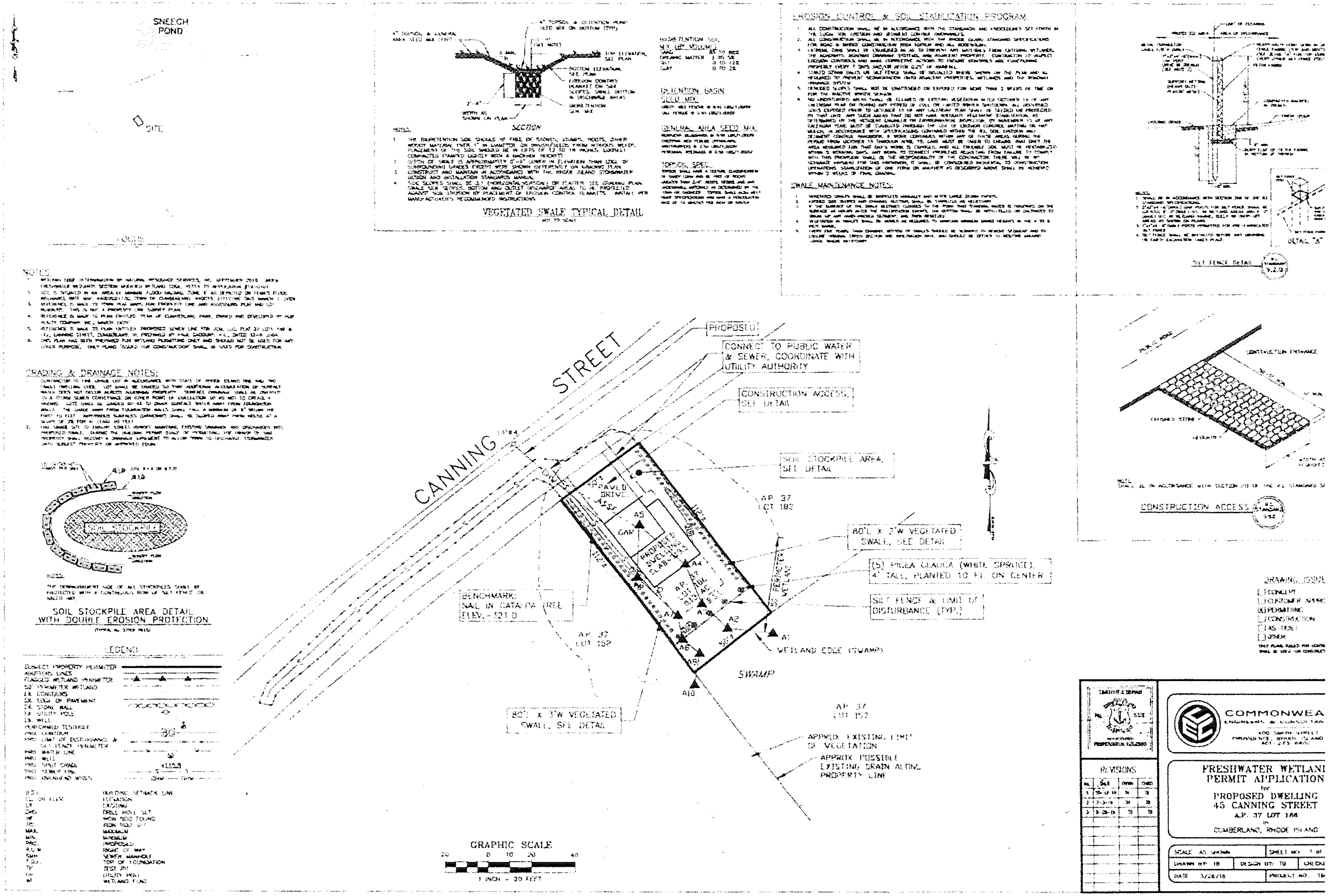
CONNECT TO PUBLIC WATER & SEWER, COORDINATE WITH UTILITY AUTHORITY
CONSTRUCTION ACCESS, SEE DETAIL
SOIL STOCKPILE AREA, SEE DETAIL
PAVED DRIVE
PROPOSED DWELLING
A.P. 37 LOT 187
80'L X 2'W VEGETATED SWALE, SEE DETAIL
(5) PICEA GLAUCA (WHITE SPRUCE), 4' TALL, PLANTED 10 FT. ON CENTER
SILT FENCE & LIMIT OF DISTURBANCE (TYP.)
BENCHMARK, NAIL IN CATALPA TREE
A.P. 37 LOT 152
WETLAND EDGE (SWAMP)
SWAMP
80'L X 3'W VEGETATED SWALE, SEE DETAIL
APPROX. EXISTING LIMIT OF VEGETATION
APPROX. POSSIBLE EXISTING DRAIN ALONG PROPERTY LINE
SOIL STOCKPILE AREA DETAIL DOUBLE EROSION PROTECTION
LEGEND
& DRAINAGE NOTES:
GRAPHIC SCALE
1 INCH = 20 FEET
DRAWING ISSUE
REVISIONS
COMMONWEALTH ENGINEERS & CONSULTANTS, INC.
FRESHWATER WETLAND PERMIT APPLICATION for PROPOSED DWELLING 45 CANNING STREET A.P. 37 LOT 186 in CUMBERLAND, RHODE ISLAND
SCALE: AS SHOWN
SHEET NO. 1 of 1



SNEECH POND
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NOTES:
GRADING & DRAINAGE NOTES:
SOIL STOCKPILE
SOIL STOCKPILE AREA DETAIL WITH DOUBLE EROSION PROTECTION
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CONNECT TO PUBLIC WATER & SEWER, COORDINATE WITH UTILITY AUTHORITY
CONSTRUCTION ACCESS, SEE DETAIL
SOIL STOCKPILE AREA, SEE DETAIL
PAVED DRIVE
GAR
PROPOSED DWELLING SLAB
A.P. 37 LOT 182
80'L X 3'W VEGETATED SWALE, SEE DETAIL
(5) PICEA GLAUCA (WHITE SPRUCE), 4' TALL, PLANTED 10 FT. ON CENTER
SILT FENCE & LIMIT OF DISTURBANCE (TYP.)
BENCHMARK: NAIL IN CATALPA TREE ELEV.=121.0
A.P. 37 LOT 152
WETLAND EDGE (SWAMP)
SWAMP
A1
A2
A4
A5
A6
A7
A10
A.P. 37 LOT 157
80'L X 3'W VEGETATED SWALE, SEE DETAIL
APPROX. EXISTING LIMIT OF VEGETATION
APPROX. POSSIBLE EXISTING DRAIN ALONG PROPERTY LINE
GRAPHIC SCALE
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1 INCH = 20 FEET
DRAWING ISSUE
CONCEPT
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AS-BUILT
OTHER
REVISIONS
COMMONWEALTH ENGINEERS & CONSULTANTS
FRESHWATER WETLANDS PERMIT APPLICATION
for
PROPOSED DWELLING
45 CANNING STREET
A.P. 37 LOT 186
in
CUMBERLAND, RHODE ISLAND
SCALE: AS SHOWN
SHEET NO. 1 of
DATE 3/28/18

Natural Resource Services, Inc.

Project Narrative in Support of Application to Alter a Freshwater Wetland

45 Canning Street
A.P. 37, Lot 186
Cumberland, Rhode Island

Prepared for:

Anthony Silva
[redacted]

Project Narrative Prepared by:

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Introduction

Natural Resource Services, Inc. (NRS) was retained by Anthony Silva (hereafter the applicant) to assist with the preparation and submission of an Application to Alter a Freshwater Wetland at 45 Canning Street in Cumberland (A.P. 37, Lot 186). This application is being submitted to the RI Department of Environmental Management, Office of Water Resources (DEM, OWR). The subject property (hereafter the site) features regulated resource areas in the form of a swamp and its perimeter wetland.

The applicant is proposing a single family dwelling on this undeveloped lot. This work shall include construction of the house and a garage totaling 1,212 square feet, with a driveway in front of the garage. The proposed dwelling shall be connected to existing public water and sewer lines.

The applicant shall utilize best management practices to minimize and mitigate swamp and perimeter wetland impacts to the greatest extent practicable. Stormwater management for the new impervious features shall be installed on-site in accordance with state standards. Vegetated swales along the sides of the property shall direct storm flow within the lot. Screen vegetation in the form of five (5) northern white cedar (*Thuja occidentalis*) shall be planted along the authorized limit of work in the rear of the lot. Additionally, appropriate erosion controls shall be maintained around this limit of disturbance and surrounding the designated stockpile locations.

The design plans referenced throughout this report have been prepared by Commonwealth Engineers & Consultants, Inc. These plans are considered to be standalone documents that have been included in the application package as required.

This narrative is being submitted to fulfill the requirements of the Rules and Regulations Governing the Administration and Enforcement of the Freshwater Wetlands Act (effective July 16, 2014). These regulations require an applicant seeking a permit for a significant alteration through an Application to Alter a Freshwater Wetland to submit a written evaluation addressing the applicable sections of the regulations (Section 1.10(B)(1-5) and 1.10(E)(3)).

Section 1.10(B) Project Scope

Section 1.10(B) requires the Project Narrative for an application to alter to include and describe the entire project proposed or contemplated by the applicant. The following is the applicant's written articulation of the existing site conditions and the proposed scope of development.

Existing Conditions

The tax assessor's database for the Town of Cumberland lists the site at 0.13 acres. The property lies south of Canning Street opposite pole #4 approximately 390 feet northeast of its intersection with Woodrow Street. The property is located within the R1 zoning district for low density residential housing. The property is currently vacant and predominately forested. The

property is surrounded by existing residential properties along Canning Street. Undeveloped forested lots are present to the south and east, several of which are owned by the Town as the "Sneech Brook Site." These Town-owned properties are set aside as publically accessible habitat protection areas.

The property contains wetland resource areas within the jurisdiction of the DEM. The delineated wetland in the southern half of the lot is considered a swamp. The 50 foot perimeter wetland associated with this swamp occupies the majority of the remainder of the lot. The off-site portions of the swamp contain a branch of the river known as Sneech Brook (Waterbody ID: RI0001003R-06) and its tributaries. These waterbodies lie off-site to the south and east; no waterbodies are present on the subject property. The swamp is generally vegetated with white ash *(Fraxinus americana)*, swamp white oak (*Quercus bicolor*), red maple (*Acer rubrum*), American elm (*Ulmus americana*), winterberry (*Ilex verticillata*), sensitive fern (*Onoclea sensibilis*), jewelweed (*Impatiens capensis)*, Asiatic bittersweet (*Celastrus orbiculatus*) and grapevine (*Vitis labrusca*), among other species.

The upland areas on-site are dominated by Norway maple (*Acer platanoides*), red oak (*Quercus rubra),* white ash (*Fraxinus americana*), multiflora rose (*Rosa multiflora*), arrowwood (*Viburnum dentatum*), poison ivy (*Toxicodendron radicans*), grapevine (*Vitis labrusca*), goldenrod (*Solidago sp*), Asiatic bittersweet (*Celastrus orbiculatus*), American burnweed (*Erechtites hieraciifolius)* and smartweed (*Persicaria sp*), among other species.

Project Scope

The applicant is proposing to build a single family dwelling with a garage and driveway. The footprint of the dwelling and garage total 1,212 square feet. The driveway (22' x 22') shall be composed of crushed stone and lie between Canning Street and the proposed garage. The proposed dwelling shall connect to existing public sewer and water lines. This project contemplates 485 square feet of impact to the swamp and 3,690 square feet of impact to the perimeter wetland on-site. These features are depicted on the project site plans.

Screening vegetation shall be planted at the southern limit of disturbance, just inside of the limit of the proposed filter sock erosion control line. This screen shall take the form of five (5) northern white cedar (*Thuja occidentalis*), each of which shall be planted at a height of five to six feet (5-6') and spaced approximately ten feet (10') on-center. The cedars shall help to buffer the anthropogenic disturbances from noise and lighting. These plants have been selected pursuant to Section 10 of the RI Wetland BMP Manual (2010).

Stormwater runoff shall be managed on-site through the construction of two vegetated swales along the east and west property lines. As depicted on the site plans, this design has been configured to meet or exceed the requirements of the RI Stormwater Design and Installation Standards Manual (2015).

The applicant shall also install appropriate erosion controls around the authorized limits of disturbance. The erosion control barrier shall remain in place until the project has concluded and the surrounding grade has stabilized. The inspection, repairs and maintenance of the erosion

control barrier shall be performed in accordance with the RI Soil Erosion and Sediment Control Handbook (2016).

Section 1.10(B)(4) Avoidance, Minimization and Mitigation Requirements

Avoidance: All applicants are required to satisfactorily demonstrate to the Department in the form of a written narrative that all probable impacts to freshwater wetlands functions and values have been avoided to the maximum extent possible. The written narrative must describe what steps were taken to avoid impacts to freshwater wetlands. At a minimum, the applicant must consider and address the following issues:

a) Whether the primary proposed activity is water-dependent or whether it requires access to freshwater wetlands as a central element of its primary purpose (e.g., a pier);

The project is not water dependent nor does it require access to the wetlands as any element of its primary purpose. The proposal to work within the swamp and perimeter wetland is a result of the configuration of the lot and the wetland, given the limited size of the lot.

b) Whether any areas within the same property or other properties owned or controlled by the applicant could be used to achieve the project purpose without altering the natural character of any freshwater wetlands;

There are no other areas of the property that would support the construction of single family dwelling while enabling complete avoidance of the swamp or perimeter wetland. As referenced in the accompanying site plans, the perimeter wetland extends throughout the parcel except for a small area along the frontage (less than 600 square feet). Therefore, any work within the property will require work within these jurisdictional limits.

c) Whether any other properties reasonably available to, but not currently owned or controlled by, the applicant could be used to achieve the project purpose while avoiding wetland alterations. A property is reasonably available if, in whole or in part, it can be acquired without excessive cost, taking individual circumstance into account, or, in the case of property owned or controlled by the same family, entity, group of affiliated entities, or local, state or federal government, may be obtained without excessive hardship;

There are no such properties available to the applicant that would allow for complete avoidance of the swamp or perimeter wetland. The primary purpose of this project is to create a single family dwelling. Given the extent to which the swamp and perimeter wetland occupies the subject lot, complete avoidance is not possible for the applicant.

d) Whether alternative designs, layouts or technologies could be used to avoid freshwater wetlands or impacts on functions and values on the subject property or whether the project purpose could be achieved on another property that is reasonably available would avoid wetlands;

Given the small size of the lot (5,600 square feet), the applicant cannot achieve complete avoidance of the swamp or perimeter wetland through alternate designs, layouts and technologies. The primary purpose of the project is to construct a single family dwelling. Given the amount of space required for such an endeavor, it would not be possible for the applicant to avoid the swamp or perimeter wetland in their entirety.

e) Whether the applicant has made any attempts (and if so what they were) to avoid alterations to freshwater wetlands by overcoming or removing constraints imposed by zoning, infrastructure, parcel size or the like; and

There are no such zoning or infrastructure constraints which, if alleviated, would result in complete avoidance of the regulated features. The proposal to work within a portion of the swamp and perimeter wetland is not the result of any zoning or infrastructure requirements imposed on the project; rather, the proposed disturbance is a reflection of the physical conditions of the site relative to these regulated resource areas.

Zoning relief along the frontage of the lot in order to move the limit of disturbance further northward (and therefore avoid a greater square footage of swamp and perimeter wetland disturbance) would deny the applicant's ability to have reasonable area for a driveway along the lot frontage.

f) Whether the feasible alternatives that would not alter the natural character of any freshwater wetlands on the subject property or on property that is reasonably available, if incorporated into the proposed project, would adversely affect public health, safety or the environment.

There are no such feasible alternatives that would avoid the swamp or perimeter wetland while also resulting in adverse impacts to public health, safety or the environment.

Minimization: For any impact that cannot be avoided, the applicant must satisfactorily demonstrate to the Department in the written narrative that the impact to wetland functions and values have been reduced to the maximum extent possible. At a minimum, applicants must consider and address the following issues:

a) Whether the proposed project is necessary at the proposed scale or whether the scale of the wetland alteration could be reduced and still achieve the project purpose;

The scale of the project has been designed based on the size of the lot and the extent to which it can support a modest-sized single family dwelling and garage (1,212 square feet) and an effort to minimize disturbances to the swamp and perimeter wetland to the extent practicable. Any further reduction to the proposed limit of disturbance would undermine the purpose of project.

b) Whether the proposed project is necessary at the proposed location or whether another location within the site could achieve the project purpose while resulting in less impact to the wetland;

Given the limited size of the lot (0.13 ac), there are no alternate locations or configurations that would enable a greater level of impact minimization than what is currently proposed.

c) Whether there are feasible alternative designs, layouts, densities or technologies, that would result in less impact to the wetland while still achieving the project purpose; and

There are no such alternate designs, layouts, densities or technologies that would result in less impact to the wetland while still maintaining the primary purpose of the project. The proposed house, garage, driveway, and stormwater management features (vegetated swales) have been configured to minimize the impacts to wetland resource areas on-site.

d) Whether reduction in the scale or relocation of the proposed project to minimize impact to the wetland would result in adverse consequences to public health, safety, or the environment.

A reduction to the scale or relocation of the proposed project would not result in adverse consequences to public health, safety or the environment. However, such a reduction could undermine the primary purpose of the application.

Mitigation Measures: The applicant must demonstrate to the department that measures, methods or best management practices have been used to avoid alterations and minimize impacts to wetlands as described in Section 1.9(B)(1)(d)(3). This section requires the applicant to meet criteria a-o listed within the Rules. The following is the applicant's written response to the mitigation criteria.

Screening vegetation shall be established at the southern limit of disturbance and the erosion control barrier as depicted on the accompanying site plans. This screen shall take the form of five (5) northern white cedars (*Thuja occidentalis*), each of which shall be approximately five to six feet (5-6') in height after planting. These shrubs will be spaced approximately ten feet (10') on-center. The species selection and planting configuration have been proposed in accordance with Section 10 of the RI Wetland BMP Manual (2010).

Stormwater management shall be provided on-site in the form of a vegetated swales. These stormwater management measures have been configured to meet the standards of the RI Stormwater Design and Installation Standards Manual (2015) for commercial land use.

The applicant shall install appropriate erosion and sediment controls along the authorized limit of disturbance and surrounding the designated stockpile location. This erosion control barrier shall be installed prior to commencement of development activities and it shall remain in place until construction has been complete and the disturbed areas have stabilized. Frequent inspection of the erosion control barrier shall prevent breaches from occurring. The installation, maintenance and repair of the erosion control barrier shall be completed in accordance with the RI Soil Erosion and Sediment Control Handbook (2016).

Section 1.10(B)(5) Evaluation of Wetland Functions, Values and Impacts

Section 1.10(B)(5) of the regulations requires all applicants to describe in full detail the functions and values provided and maintained by the subject freshwater wetland.

Evaluation Methodology

Natural Resource Services, Inc. (NRS) performed an inspection of the subject property for the purposes of assessing habitat features. This habitat assessment was performed on September 11, 2018.

In fulfillment of Rule Section 1.10(B)(5) this assessment was conducted to inventory and evaluate important wildlife habitat features and to assist in the preparation and submission of the Application package. Wildlife habitat evaluations were performed through both direct site inspections and the review of any existing data to identify, characterize and inventory important habitat features and indicators of wildlife usage. This section details those species that were directly observed, indicated through physical evidence (tracks, scat, etc.), and/or identified by unique signature traits (call). In addition, those species which could potentially utilize the assessed habitats given the presence of specific features have been identified.

This assessment also included examining USGS topographic maps for the depiction of perennial (i.e. blue-line) streams, water bodies and depressed areas. The Soil Survey of Rhode Island (Rector, 1981) was also examined for the presence of hydric soils, perennial waterways, as well as any hydrologic connection to known public water supplies.

NRS also used the online DEM Environmental Resource Map to review many of the Rhode Island Geographic Information System (RIGIS) data layers, including historical aerial imagery and those pertaining to natural heritage areas, critical habitat, flood hazard areas, surface water status, soils, surface water protection areas and wetlands. Additional GIS data layers not available for viewing through the online viewers were obtained directly from RIGIS for review.

During the habitat assessment, NRS staff utilized direct site inspections to identify and characterize exiting habitats, including important habitat features, as well as to determine existing and potential wildlife use as indicated by direct observation, unique signature traits (e.g. call), or physical evidence (e.g. tracks scat, burrows, cavities, bones, etc.).

Off-site high intensity mapping was used to augment the value of the direct survey data by identifying the available habitat types within the assessment area. RIGIS aerial photographs were obtained and analyzed for the assessment area. By pairing digital interpretation of information in the aerial images with on-site field observations and habitat data collection, the habitats within the assessment area were mapped and classified.

Qualifications

Natural Resource Services, Inc. personnel involved in the evaluation of the subject property and preparation of this application include:

- Scott P. Rabideau, PWS
- Carolyn Decker, Wetland Biologist

Detailed statements of qualification are included in Appendix B of this narrative, which present all relevant experience.

Freshwater Wetland Characteristics

The swamp is dominated by white ash *(Fraxinus americana)*, swamp white oak (*Quercus bicolor*), red maple (*Acer rubrum*), American elm (*Ulmus americana*), winterberry (*Ilex verticillata*), multiflora rose *(Rosa multiflora)*, sensitive fern (*Onoclea sensibilis*), jewelweed (*Impatiens capensis),* Asiatic bittersweet (*Celastrus orbiculatus*) and grapevine (*Vitis labrusca*), among other species. Hydric soils, buttressed roots, and drainage patterns served as additional wetland indicators on the subject property. The wetland slopes down to the south and east. The on-site portion of the swamp is saturated; it is drier than the wetland areas off-site to the south and east. The wetland is extremely stony.

Many trees in the wetland display buttressed roots. Small cavities in the upper boughs and bases of trees were observed in the swamp and perimeter wetland, particularly in the ash snags. The understory in the swamp and perimeter wetland are moderately to extremely dense. Woody debris is abundant in the wetland. Invasive species (i.e. *Rosa multiflora, Celastrus orbiculatus*) are present within the swamp and perimeter wetland, but are concentrated in the perimeter wetland. Wildlife movement within the wetland resource areas on-site occur in meandering patterns among the dense vegetation. Observed wildlife were concentrated in the southern half of the lot as well as in the adjacent off-site wetland and upland habitat.

Wildlife & Wildlife Habitat

Wetland Indicators

NRS performed a habitat assessment in which an overall evaluation of the property was conducted. The purpose of this assessment was to determine which, if any, wildlife species currently use the available habitat for feeding, breeding, or other related activities. This study details both those wildlife species observed, as well as any identified by unique signature traits (signs/vocalizations). Further evidence of wildlife inhabitation or utilization of the area (tracks, scat, burrows, tree cavities, trails, nests) has also been identified.

The following table has been prepared to depict the wildlife species that were observed either directly or indirectly at the time of the assessment.

OBSERVED WILDLIFE SPECIES	
BIRDS	**Observed Bird Species (6)**
American Crow	*Corvus brachyrhynchos*
Blue Jay	*Cyanocitta cristata*
Black-capped Chickadee	*Poecile atricapilla*
White-breasted Nuthatch	*Sitta carolinensis*
American Robin	*Turdus migratorius*
Mourning Dove	*Zenaida macroura*
MAMMALS	**Observed Mammal Species (3)**
White-tailed Deer	*Odocoileus virginianus*
Gray Squirrel	*Sciurus carolinensis*
Eastern Chipmunk	*Tamias striatus*

Wetland Values

The freshwater wetlands on the subject property exhibit a variety of habitat values for the above-listed species and other common wildlife. The interior of the swamp maintains an abundant cover of mast and berry/seed producing vegetation for avians and mammals (e.g., *Fraxinus, Quercus, Ulmus, Swida, Prunus, Viburnum, Ilex, Rosa, Toxicodendron, Vitis, etc.).* Portions of the resource area maintain a dense canopy and understory, providing escape cover, nesting sites and feeding opportunities for small mammals and birds. The abundant woody debris and numerous small cavities in the snags and live trees in the wetland resource areas provide additional wildlife habitat. The stoniness of the wetland supports sunning locations as well as escape cover for wildlife. The vegetation is densest and displays the greatest number of cavities (i.e. nest sites) toward the southern end of the property.

The subject property is mapped within an area of minimal flood hazard (Zone X) according to the FEMA flood insurance rate map "44007C0177G, Town of Cumberland, 440016, effective date March 2, 2009." Drainage patterns visible in the wetland direct flow from Canning Street through the property off-site to south and southeast. The on-site portion of the wetland is a toeslope and has limited flood storage capacity or other wetland values related to holding water. The site is mapped within a large area of glacial till (RIGIS).

While only a small number of wildlife species were directly observed, including a lack of herptile species, the on-site wetlands have the capacity to support wildlife typical of freshwater wetlands in Rhode Island, including species not observed directly during the site inspection. The on-site portion of the wetland does not contain any watercourses or standing water, and therefore is limited in its capacity to support aquatic or semi-aquatic species.

The swamp on-site extends off-site where it contains waterbodies such as intermittent streams, rivers, and ponded areas in the off-site portions of this swamp. For instance, Sneech Brook (Waterbody ID: RI0001003R-06) and its tributaries are identified by the DEM within the wetland system of which the delineated portion of the subject property is a part. The west branch of the Sneech Brook (the nearest to the subject property) is listed by the DEM as a cold water fishery.

Proposed Impacts

This project contemplates 485 square feet of impact to the swamp and 3,690 square feet of impact to the perimeter wetland on-site. Approximately 24 square feet within the swamp shall be covered by the impervious surface of the proposed dwelling and other features. The alteration of these areas within the swamp and perimeter wetland shall result in the loss of existing vegetation, changes in grading of the soil, and construction of the proposed structures. However, the screening vegetation shall replace some of the impacted vegetation. The areas of swamp and perimeter wetland on-site beyond the limit of disturbance (approximately 850 square feet) shall remain undisturbed.

Post-construction Functions and Values

The alteration of the perimeter wetland and swamp portions on-site shall result in some loss of wildlife habitat functions and values through the associated loss of vegetated cover and the feeding, nesting, and escape cover opportunities provided under pre-construction conditions. The loss of habitat functions and values will be minimized and mitigated by the proposed strategies in order to maintain the wetland/wildlife functions and values post-construction. The screening vegetation and vegetated swales shall act to maintain the wetland values of the site to the greatest extent practicable while still achieving the project purpose.

The establishment of evergreen screening vegetation along the edges of the project area will provide year-round separation and screening between the development and the identified wetland resources. The proposed stormwater features will also mitigate impacts associated with stormwater flow, allowing water to infiltrate before reaching the wetlands as required under the RI Stormwater Design and Installation Standards Manual (2015).

Upon completion of the proposed project, the functions and values of the swamp and stream will be maintained to the greatest degree practicable by these mitigating measures. The functions and values of the remaining wetlands on-site and the contiguous off-site wetlands shall remain as under pre-construction conditions.

Recreation and Aesthetics

Wetland Characteristics and Values

Currently, public access to this site is restricted due to the private nature of the property. Hunting would be strictly prohibited given the fact that the proposed limit of disturbance is in close proximity to established residential structures. No waterbodies or waterways capable of supporting fish will be altered by this project. Publically accessible lands owned by the Town known as the "Sneech Brook Site" for habitat protection augment the recreational and aesthetic values of the site by their proximity to the subject property.

Proposed Impacts

The proposed features will maintain the capacity for recreational and aesthetic values at pre-project levels. Hunting will be restricted within this site due to the residential nature of the project; however, hunting is already restricted on the lot given its private ownership and close proximity of existing structures. The public access to the Town's properties to the south and east of the subject property shall remain as under pre-project conditions. The recreation and aesthetic values of these properties shall not be significantly impacted by the proposed construction of the single family dwelling on the subject property.

Flood Protection

Pursuant to the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Map (FIRM), the property is not currently mapped within the 100-year flood zone. Rather, the site is mapped in Flood Zone X as mapped on the FEMA flood insurance rate map "44007C0177G, Town of Cumberland, 440016, effective date March 2, 2009." Management of stormwater runoff in accordance with state standards shall ensure that the project will not impact the ability of the wetland to adequately provide flood protection at pre-disturbance conditions. The proposed vegetated swales along the sides of the subject property shall direct storm flow within the site to compensate for changes from the proposed impervious features.

Groundwater and Surface Water Supplies

The proposed project has been configured so that it shall not divert or constrict groundwater or surface flows within the site. The site is in an area of glacial till. The on-site portion of the swamp is saturated and does not hold standing water. The project will not disrupt the capacity of the property to recharge groundwater supplies nor shall it divert groundwater flows to any freshwater wetland beyond pre-project levels.

Water Quality

This project contemplates the construction of a single family dwelling on the subject property. As such, the project engineer has configured the vegetated swales, other stormwater management and erosion control features to provide water quality treatment in accordance with the requirements of the RI Stormwater Design and Installation Standards Manual (2015).

Soil Erosion and Sediment Control

The applicant shall install and maintain appropriate erosion and sediment controls along the authorized limit of disturbance and surrounding the designated stockpile area. This barrier shall be installed prior to the commencement of development activities and shall remain in place until the work has concluded and the surrounding grade has stabilized. Installation methods of the erosion control barrier shall be tailored to the specific BMP proposed with the project (e.g. silt fence, straw wattle, etc.). Frequent inspection of the erosion control barrier shall ensure that breaches do not occur. All work associated with the installation, inspection and maintenance of the erosion controls shall conform to the definitions and standards of the RI Soil Erosion and Sediment Control Handbook (2016).

Screening vegetation is to be planted along the limit of disturbance in order to mitigate noise, light, and other wildlife impacts, as well as contribute to the stabilization of the soil at the limit of disturbance surrounding the new paved area. The screening vegetation shall consist of five (5) northern white cedars (*Thuja occidentalis*) planted as described in the preceding section of this report.

Section 1.10(E)(3) Review Criteria

Before issuing a permit, the applicant must satisfactorily demonstrate that the proposed project will not result in:

1) Significant reduction in the overall wildlife production or diversity of a wetland;

The identified freshwater wetlands and undeveloped uplands on- and immediately off-site provide habitat values for a variety of wildlife species. The on-site and off-site portions of the wetland resource areas are similar in species composition, with greater biodiversity off-site (see habitat assessment datasheets in Appendix A). The proposed single family dwelling is not expected to significantly reduce the overall wildlife production or diversity of the swamp or perimeter wetland.

2) Significant reduction in the ability of a wetland to satisfy the needs of a particular wildlife species;

The applicant's project has been designed to satisfy the needs of wildlife species to the greatest extent practicable. The structural components of this project shall not reduce the ability of the resource areas to satisfy the needs of any particular wildlife species. Portions of the property shall remain forested upon completion of this project; such forested areas shall continue to satisfy the needs of various wildlife species, including habitat functions, such as nesting and feeding opportunities. The snags on-site where nest-hole cavities are concentrated are located in the southern part of the site outside the proposed limit of disturbance. These habitat features will remain under post-construction conditions and continue to act as wildlife habitat. The proposed screening vegetation shall also provide some mitigation for the loss of vegetation from the proposed project.

3) Significant displacement or extirpation of any wildlife species from a wetland or surrounding areas due to the alteration of the wetland;

Any wildlife that may be impacted by the construction of the single family dwelling and other on-site features may continue to use the remainder of the property for habitat. Screening vegetation in the form of northern white cedar (*Thuja occidentalis*) will mitigate some of the loss of vegetation during construction of the project while simultaneously providing habitat for small mammals and birds. Given the existing neighboring residential properties and the tendency of the observed wildlife species (see Observed Wildlife Species table in Section 1.10(B)(5)) to be tolerant of human proximity, wildlife are not expected to be significantly impacted by the proposed project. Significant displacement or extirpation of any wildlife species from the on-site wetland resource areas or surrounding areas is not expected to occur as a result of the proposed project.

4) Any reduction in the ability of the wetland to ensure the long-term viability of any rare animal or rare plant species;

This project shall not result in the reduction in the ability of the wetland to ensure the long-term viability of any rare animal or rare plant species. The project is not mapped within any natural heritage area. No rare or endangered species were observed during the habitat assessment. The site is not mapped within any natural heritage area as mapped by the DEM.

5) Any degradation in the natural characteristic(s) of any rare wetland type;

The proposed alteration shall not result in the degradation of any rare wetland type. The on-site portions of the swamp and perimeter wetland are representative of common habitats in Rhode Island such as red maple swamps and ruderal forests (see Habitat Assessment Sketch in Appendix A). No rare wetlands or rare/endangered, species of special interest, or species of special concern are known or expected on-site.

6) Significant reduction in the suitability of any wetland for use by any resident, migratory, seasonal, transient, facultative, or obligate wildlife species, in either the short- or long-term as a travel corridor; feeding site; nesting site; escape cover; seasonal breeding or spawning area;

The freshwater wetlands shall continue to support the use of resident, migratory, seasonal, transient, facultative or obligate wildlife species. The site lies at the northwestern limit of a contiguous area of forested land (uplands and wetlands) in a complex of residential properties. While the site is used for the above-listed functions and values (travel corridor, feeding site, etc.), it is at the outer edge of a habitat area that provides a broader range of these functions and values for wildlife. The proposed project represents some reduction in these functions and values due to the associated loss of vegetation that provide some feeding, nesting, and escape cover opportunities on-site. However, the project site is not expected to significantly reduce the suitability for the wetland to provide these features for wildlife.

7) Any more than a minimal intrusion of, or increase in, less valuable, invasive or exotic plant or animal species in a wetland;

The project shall not result in the introduction of any invasive or exotic species. Invasive species such as multiflora rose *(Rosa multiflora)* and Asiatic bittersweet *(Celastrus orbiculatus)* are present on the site under pre-construction conditions. These species are concentrated in the front of the lot in the upland and perimeter wetland. The development of these areas for the proposed dwelling, garage, and driveway will remove the majority of the existing invasive growth on-site. Care shall be taken during construction and following construction to avoid spread of these or other invasive species.

8) Significant reduction in the wildlife habitat functions and values of any wetland which could disrupt the management program for any game or non-game wildlife species carried out by state or federal fish, game or wildlife agencies;

There are no such management programs that may be adversely impacted by the proposed development.

9) Significant reduction in overall current or potential ability of a wetland to provide active or passive recreational activities to the public;

The lot is privately owned by the applicant and thus public recreational use of the wetland resource areas is limited. The recreational values of the off-site Town-owned "Sneech Brook Site" habitat protection lands that are publicly accessible shall remain at pre-construction conditions. There shall not be any significant reduction in overall current or potential ability of a wetland to provide active or passive recreational activities to the public.

10) Significant disruption of any on-going scientific studies or observations;

There are no such scientific studies or observations occurring on the applicant's land.

11) Elimination of, or severe limitation to traditional human access to, along the bank of, up or down, or through any rivers, streams, ponds or other freshwater wetlands;

Access to the on-site wetland features is currently limited due to the property's private ownership. As such, the development of this site by its owners will have no impact on current levels of human access to the biological wetlands. The project will not impede traditional access to the publically accessible properties off-site to the south and east that are associated with Sneech Brook.

12) Any reduction in water quality functions and values or negative impacts to natural water quality characteristics, either in the short- or long-term, by modifying or changing: water elevations, temperature regimes, volumes, velocity of flow regimes of water; increasing turbidity; decreasing oxygen; causing any form of pollution; or modifying the amount of flow nutrients so as to negatively impact wetland functions and values.

The proposed alterations are not anticipated to impact such conditions. The project will not adversely impact the ability of the wetland to store and retain stormwater. Stormflow generated from the new impervious features will be directed to the stormwater BMPs to ensure that runoff is stored and treated in accordance with the RI Stormwater Design and Installation Standards Manual (2015).

13) Any placement of any matter or material beneath surface water elevations or erection of any barriers within any ponds or flowing bodies of water which could cause any hazards to safety;

There shall be no such placements of matter or materials beneath the surface that would compromise the features or cause hazards to public safety. No ponds or flowing bodies of water exist on the subject property.

14) Significant loss of important open space or significant modification of any uncommon geologic or archaeological features;

A review of the data layers available on the RIGIS database indicated that no such rare geological or archaeological features are present within the proposed areas for development.

15) Significant modification to the natural characteristics of any wetland area of unusually high visual quality;

As detailed in the NRS habitat assessment, the freshwater wetland is comprised of hydrophytic vegetation common to the wetlands of Rhode Island (see habitat assessment datasheets in Appendix A). Thus, the proposed disturbances shall not compromise the natural characteristics of any wetland of unusually high visual quality.

16) Any decrease in the flood storage capacity of any freshwater wetland which could impair the wetland's ability to protect life or property from flooding or flood flows;

The flood storage capacities of the freshwater wetlands shall be neither hindered nor taxed by the proposed development. The subject property is mapped within an area of minimal flood hazard (Zone X) according to the FEMA flood insurance rate map "44007C0177G, Town of Cumberland, 440016, effective date March 2, 2009." The glacial till conditions of the site further indicate that the proposed project will not decrease flood storage capacity of the site.

17) Significant reduction of the rate at which flood water is stored by any freshwater wetland during any flood event;

The project shall not adversely impact the rate or capacity of the wetland to retain flood water. The wetland shall continue to store floodwater at pre-development levels.

18) Restriction or significant modification of the path or velocities of flood flows for the 1-year, 10-year, or 100-year frequency, 24-hour, Type III storm events so as to cause harm to life, property, or other functions and values provided by freshwater wetlands;

The path of flood flows or such velocities will not be restricted or altered by the construction of the proposed single-family dwelling and the associated features.

19) Placement of any structure or obstruction within a floodway so as to cause harm to life, property, or other functions and values provided by freshwater wetlands;

There shall be no structures or obstructions of floodways that would cause harm to life, property or other functions and values provided by the resource areas.

20) Any increase in run-off rates over pre-project levels or any increase in receiving water/wetlands peak flood elevations for the 1-year, 10-year, or 100-year frequency, 24-hour, Type III storm events which could impair the wetland's ability to protect life or property from flooding or flood flows;

This standard is not applicable to the construction of a single-family dwelling.

21) Any increase in run-off volumes and discharge rates which could, in any way, exacerbate flooding conditions in flood-prone areas;

The applicant's project shall not result in an increase to the run-off volumes and discharge rates that may adversely impact the wetland.

22) Significant changes in the quantities and flow rates of surface or groundwater to or from isolated wetlands (e.g., those wetlands without inflow or outflow channels);

There are no such isolated wetlands on the project site. The subject swamp is associated with Sneech Brook and its tributaries off-site from the subject property.

23) Placement of any structural best management practices within wetlands, or proposal to utilize wetlands as a detention or retention facility;

The applicant is not proposing any structural BMPs within any wetlands nor does this project call for the use of the swamp as a detention or retention facility. Stormwater shall be managed within the property in accordance with state standards.

24) Any more than a short-term decrease in surface water or groundwater elevations within any wetland;

The project shall not result in a decrease to the surface water or groundwater elevations within the freshwater wetlands.

25) Non-compliance with the Rhode Island Department of Environmental Management Water Regulations; or

This project has been designed to be in compliance with the pertinent regulations of the DEM, OWR.

26) Any detrimental modification of the wetland's ability to retain or remove nutrients or act as natural pollution filter.

The project, as proposed, shall not result in a detrimental modification of the wetland's ability to retain or remove nutrients or act as a natural pollution filter.

Conclusion

The applicant is seeking permission to pursue development of a single family dwelling on the 0.13 acre subject property at 45 Canning Street in Cumberland. This project shall require the establishment of impervious cover and other features in the swamp and perimeter wetland on-site. This project contemplates 485 square feet of impact to the swamp and 3,690 square feet of impact to the perimeter wetland on-site. Stormwater management in the form of vegetated swales shall be created on-site in accordance with state standards for this activity.

Although complete avoidance of the swamp and perimeter wetland cannot be achieved, the applicant has attempted to minimize and mitigate impacts to the greatest extent practicable. Appropriate erosion controls shall be established along the authorized limits of disturbance to prevent sediment migration into the resource areas. Furthermore, screening vegetation consistent with the design standards of the RI Wetland BMP Manual (Section 10) shall be installed to mitigate the anthropogenic impacts of noise and lighting. Based on the project's ability to satisfy the criteria of the regulations, NRS maintains that the project may be permitted through an Application to Alter a Freshwater Wetland.

References

DeGraaf, R. M. and Yamasaki, M. 2001. *New England Wildlife: Habitat, Natural History, and Distribution.* University Press of New England, Hanover and London. Print.

Enser, R., D. Gregg, C. Sparks, P. August, P. Jordan, J. Coit, C. Raithel, B. Tefft, B. Payton, C. Brown, C. LaBash, S. Comings, and K. Ruddock. 2011. Rhode Island Ecological Communities Classification. Technical Report. Rhode Island Natural History Survey, Kingston, RI. (available at: www.rinhs.org)

Martin, A.C., Zim, H. S., Nelson, A.L., 1951. *American Wildlife & Plants A Guide To Wildlife Food Habits (The use of trees, shrubs, weeds and herbs by birds and mammals of the United States).* Dover Publications. New York, NY. Print.

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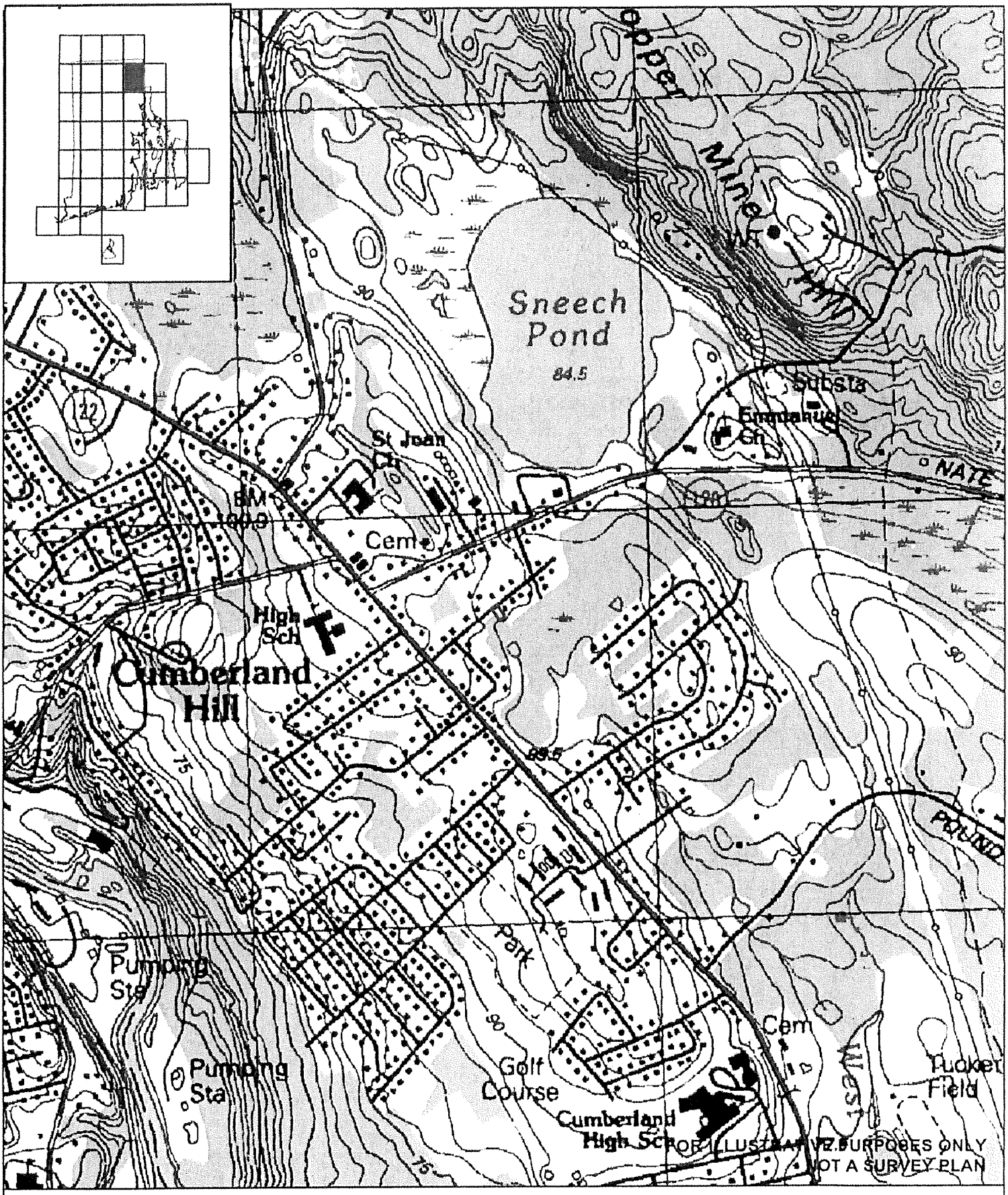
RI Soil Erosion and Sedimentation Control Handbook. 2016. *Rhode Island State Conservation Committee with the Support from Rhode Island Department of Environmental Management Rhode Island Coastal Resources Management Council Rhode Island Department of Transportation The University of Rhode Island.* Retrieved from: http://www.dem.ri.gov/programs/bnatres/water/pdf/riesc-handbook16.pdf.

Appendix A

USGS Topographic Map
USDA Soil Map
Land Use Map
Habitat Assessment Sketch
Habitat Assessment Datasheets



USGS Topographic Map
45 Canning St
A.P. 37, Lot 186
Cumberland, RI

Approximate Site Location

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

Feet

RIGIS

Natural Resource Services, Inc.

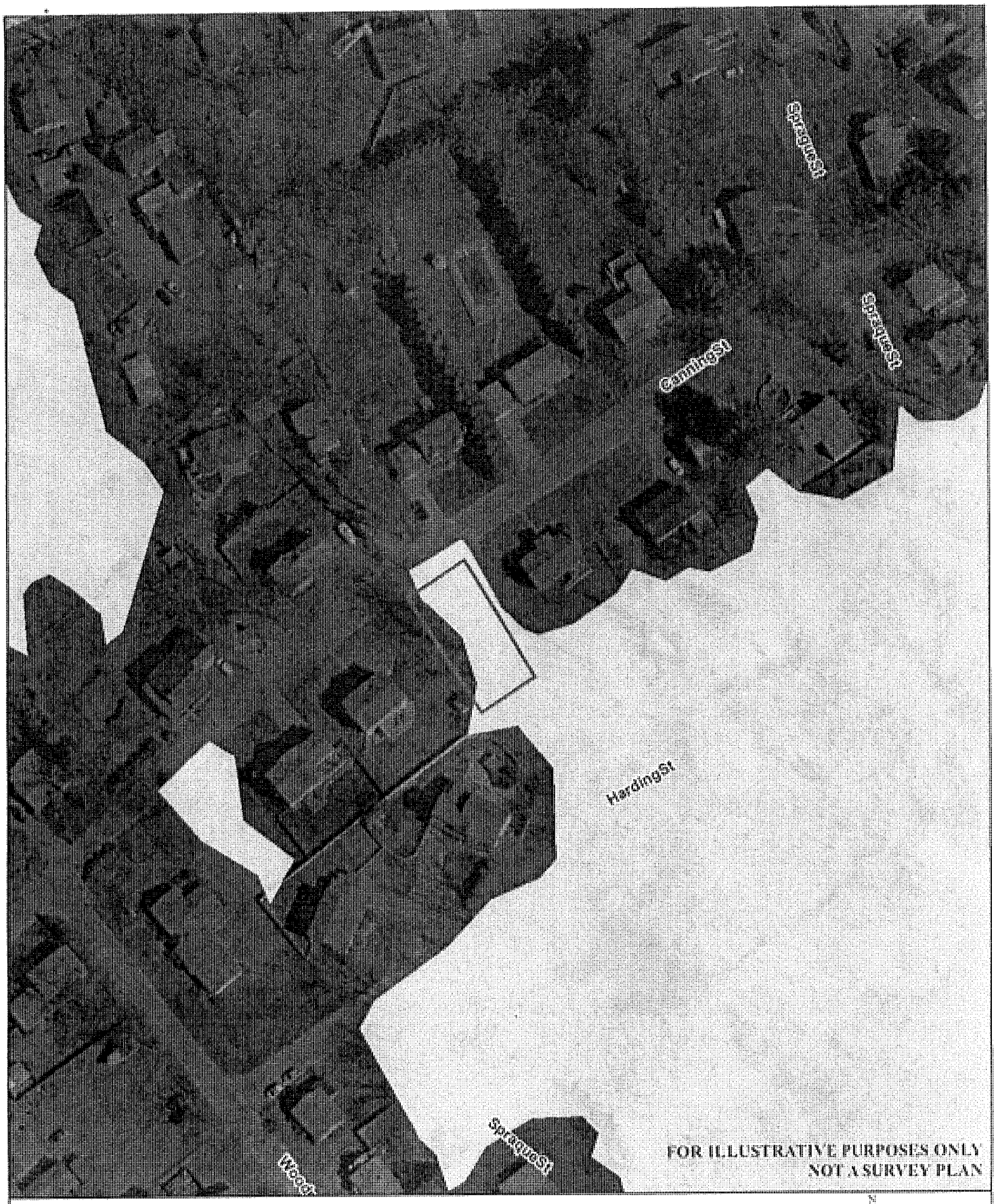
USDA Soil Survey Map
45 Canning St
A.P. 37, Lot 186

Cumberland, RI

Approximate Site Location

Feet

April 2018 aerial
RI DEM Mapping
Natural Resource Services, Inc.



FOR ILLUSTRATIVE PURPOSES ONLY
NOT A SURVEY PLAN

Landuse Map
45 Canning St
A.P. 37, Lot 186

Cumberland, RI

Approximate Site Location
Medium Density Residential (1 to 1/4 acre lots)
Deciduous Forest (>80% hardwood)

0 Feet

RIGIS

* April 2018 aerial
RI DEM Mapping
Natural Resource Services, Inc.

Vegetative Communities classified per Rhode Island Ecological Communities System (RIECC, 2011): Enser, R. et al. 2011. Rhode Island Ecological Communities Classification. Technical Report. Rhode Island Natural History Survey, Kingston, RI. (available at: www.rinhs.org)

Approximate Wetland Delineation & Habitat Assessment Site Sketch
45 Canning St
A.P. 37, Lot 186

Performed by Carolyn Decker, 9/11/18
Located using hand-held Trimble Geo7x

2014 USGS Digital True Color Orthophotography
Natural Resource Services, Inc.

NRS File No. 17-261	45 Canning Street	Site Visit: 9/11/18	Weather: overcast, ~70F
HABITAT ASSESSMENT FIELD DATA	Cumberland, RI		

Habitat Assessment Point (sample)	Species Common Name	Species Scientific Name	Tree	Shrub/ Sapling	Emergent/ Fern	Vine	Herb	Relative Abundance within Sample Layer	Relative Abundance within Sample Total
			Species % Cover	Species % Cover	Species % Cover	Species % Cover	Species % Cover	(Species as % of Physiognomic Layer)	(Species as % of all Layers)

How To Interpret this Datasheet

At each habitat assessment (HA) point, plant species percent cover is categorized by physiognomic layer (e.g. tree, vine) organized from most to least. Relative abundance by layer is given at each HA point per species as a percentage of the respective layer (color coded). Total percent cover of each layer is given below the layer lists. Relative abundance of the HA point as a whole is given in the far right column. Total percent cover of all species in the HA point is given as a whole number below the relative abundance within sample total list. Qualititative information denotes observations made at each HA point. Relative abundance tables are also provided for each habitat type as a whole. These tables list all species observed in the respective habitat type in order from most to least abundant. Percent cover is averaged across the habitat type and relative abundance is projected for the habitat type in general.

HA0									
EXAMPLE	Tree 1	*Genus species*	25					25/50=50%	25/105=24%
	Tree 2	*Genus species*		25				25/50=50%	25/105=24%
	Vine 1	*Genus species*				20		20/20=100%	20/105=19%
	Herb 1	*Genus species*					15	15/35=43%	15/105=15%
	Herb 2	*Genus species*					20	20/35=57%	20/105=19%
Layer Total % Cover			25	25		20	35		105
Notes: qualitative information									

HA1									
Forested Swamp	**Elm**	***Ulmus spp***	**20**					**33%**	**7%**
(off-site)	**Ash**	***Fraxinus spp***	**15**					**25%**	**5%**
	Red Maple	***Acer rubrum***	**15**					**25%**	**5%**
	Swamp White Oak	***Quercus bicolor***	**10**					**17%**	**3%**
	Gray Dogwood	***Swida racemosa***		**30**				**33%**	**10%**
	Pin Cherry	***Prunus pensylvanica***		**20**				**22%**	**7%**
	Arrowwood	***Viburnum dentatum***		**20**				**22%**	**7%**
	Winterberry	***Ilex verticillata***		**10**				**11%**	**3%**
	Multiflora Rose	***Rosa multiflora***		**10**				**11%**	**3%**
	Sensitive Fern	***Onoclea sensiblis***			**10**			**100%**	**3%**
	Grapevine	***Vitis labrusca***				**40**		**44%**	**14%**
	Asiatic Bittersweet	***Celastrus orbiculatus***				**25**		**28%**	**8%**
	Virginia Creeper	***Parthenocissus quinquefolia***				**15**		**17%**	**5%**
	Poison Ivy	***Toxicodendron radicans***				**10**		**11%**	**3%**
	Jewelweed	***Impatiens capensis***					**30**	**67%**	**10%**
	Canada Goldenrod	***Solidago canadensis***					**10**	**22%**	**3%**
	Downy Willow Herb	***Epilobium strictum***					**5**	**11%**	**2%**
Layer Total % Cover:			*60*	*90*	*10*	*90*	*45*		*295*
Notes: buttress roots, stony, drainage patterns, abundant woody debris, extremely dense understory, abundant small cavities in ash snags and other canopy boughs									

NRS File No. 17-261	45 Canning Street	Site Visit: 9/11/18	Weather: overcast, ~70F
HABITAT ASSESSMENT FIELD DATA	Cumberland, RI		

Habitat Assessment Point (sample)	Species Common Name	Species Scientific Name	Tree	Shrub/ Sapling	Emergent/ Fern	Vine	Herb	Relative Abundance within Sample Layer	Relative Abundance within Sample Total
			Species % Cover	Species % Cover	Species % Cover	Species % Cover	Species % Cover	(Species as % of Physiognomic Layer)	(Species as % of all Layers)
HA2	Norway Maple	*Acer platanoides*	25					42%	13%
Forested Swamp	Ash	*Fraxinus spp*	25					42%	13%
	Catalpa	*Catalpa spp*	10					17%	5%
	Arrowwood	*Viburnum dentatum*		60				75%	31%
	Pin Cherry	*Prunus pensylvanica*		10				13%	5%
	Multiflora Rose	*Rosa multiflora*		10				13%	5%
	Grapevine	*Vitis labrusca*				25		56%	13%
	Virginia Creeper	*Parthenocissus quinquefolia*				20		44%	10%
	Jack in the Pulpit	*Arisaema triphyllum*					10	100%	5%
Layer Total % Cover:			*60*	*80*		*45*	*10*		*195*
Notes: buttress roots, stony, drainage patterns, minor small cavities in canopy and understory in ash snags, extremely dense understory									

HA3	Norway Maple	*Acer platanoides*	25					36%	11%
Ruderal Forest	Butternut	*Juglans cinerea*	15					21%	7%
	White Ash	*Fraxinus americana*	15					21%	7%
	Choke Cherry	*Prunus virginiana*	15					21%	7%
	Multiflora Rose	*Rosa multiflora*		30				46%	13%
	Arrowwood	*Viburnum dentatum*		30				46%	13%
	Red Oak (sapling)	*Quercus rubra*		5				8%	2%
	Grapevine	*Vitis labrusca*				15		43%	7%
	Poison Ivy	*Toxicodendron radicans*				10		29%	4%
	Asiatic Bittersweet	*Celastrus orbiculatus*				10		29%	4%
	Rhubarb	*Rheum rhabarbarum*					15	27%	7%
	Pokeweed	*Phytolacca americana*					10	18%	4%
	Wood Sorrel	*Oxalis spp*					5	9%	2%
	Smartweed	*Persicaria spp*					5	9%	2%
	American Burnweed	*Erechtites hieraciifolius*					5	9%	2%
	Queen Anne's Lace	*Daucus carota*					5	9%	2%
	Wood Violet	*Viola palmata*					5	9%	2%
	English Plantain	*Plantago lanceolata*					5	9%	2%
Layer Total % Cover:			*70*	*65*		*35*	*55*		*225*
Notes: drainage from road flows into site, extremely stony, dense herbaceous layer along road shoulder, dense understory interior of lot									

Appendix B

Statement of Qualifications

Natural Resource Services, Inc.

SCOTT P. RABIDEAU, PWS
President and Principal Biologist

EXPERIENCE

President/Principal Biologist 1987–Present

Natural Resource Services, Inc., Harrisville, RI

- NRS is a private environmental consulting firm specializing in freshwater and coastal wetland studies in Rhode Island and Massachusetts. The company was started in 1987 and has been in continuous operation since that time. Experience within the company includes wetland delineations, designing replacement wetlands, restoring wetlands, wildlife habitat evaluations, permitting alterations through state and federal agencies, representation at public hearing and expert testimony.

Soil Scientist 1989–1990

Project Earth Team, Middlebridge, MA

- Project Earth Team was a volunteer program sponsored by the University of Massachusetts and the USDA, Natural Resource Conservation Service. The project required individuals to classify 1,000 acres of soils in Wareham, Massachusetts for the US Soil Conservation Service. Experience included both field work and aerial photo interpretation.

Wetlands Consultant 1986–1987

Drown and Rabideau Wetland Consulting

- This partnership was formed in 1986 as a Massachusetts entity. The private environmental consulting firm specialized in wetland delineations, wetland evaluations, septic system designs and perc tests. Experience with the partnership included wetland delineations and evaluations.

Manager of Faxon Farm 1982–1985

Lincoln School, Providence, RI

- The Lincoln School is a private K-12 girls school in Providence, RI. Faxon Farm is the urban school's off-site center for athletics. Experience at the school included managing a 32 acre environmental education center and athletic facility. Responsibilities included developing nature programs and managing wetland and upland habitat.

EDUCATION

M.S. Business Management Jan. 1986

Lesley College, Cambridge, MA

B.S. Natural Resource Science May 1982

University of Rhode Island, Kingston, RI

Graduate Credit, Soil Science Jan. 1991

University of Massachusetts, Amherst, MA

CERTIFICATIONS

Professional Wetland Scientist #1410
Society of Wetland Scientists
Technical Service Provider, Wildlife Habitat Improvements
US Department of Agriculture
Environmental Sub-Consultant, Wetlands
RI Department of Transportation

ELECTED POSITIONS

State Representative, District 60 1995-2002
RI General Assembly, Burrillville, RI

- Ranking minority member of House Committee on Environmental
- Accountability
- Ranking minority member of Committee on Judiciary
- Ranking minority member, Joint Committee on Energy and the Environment

PUBLIC APPOINTMENTS

Judicial Nominating Commission 2014–Present
State of Rhode Island

- Appointed by Governor Lincoln Chafee. The JNC is responsible for vetting candidates seeking appointments to all state courts (Supreme, Superior, District, Family, Workers Compensation and Traffic). The commission meets a minimum of quarterly and as required during the year to fulfill the statutory mandate for providing the governor with qualified candidates for judicial vacancies.

Special Master, Superior Court 2009–Present
Tillinghast v. RI Dept. of Environmental Management
State of Rhode Island

- The court appointed the special master to act on its behalf to seek resolution of all matters in dispute between the defendant and the plaintiff. These matters are all of a technical nature related to freshwater wetland alterations.

Legislative Commission 2013–2015
Freshwater Wetlands Act Review

- Appointed to the commission as a small business representative. The commission held hearings and heard testimony on changes to the R.I. Freshwater Wetlands Act. The commission prepared a final draft of a bill to replace the current statute. The act was passed by the General Assembly and signed into law by Governor Raimondo in July 2015.

Vice Chairman, Conservation Commission 1983–1985
Town of Rehoboth, MA
Board of Sewer Commissioners 2004–2008
Town of Burrillville, RI
Chairman 2006–2007

PROFESSIONAL ORGANIZATIONS

The Wildlife Society 1985–Present
Investment Review Committee Member 2013–Present

- The IRC meets on a quarterly basis to review the TWS Endowment Accounts and is responsible for adjusting the account allocations in conformance with the TWS Executive Committee's guidelines.

RI Association of Wetland Scientists
Charter Member
President/Member of Board of Directors 1993–1994
Treasurer/Member of Board of Directors 1992–1993
Soil Science Society of America
Society of Wetland Scientists

PHILANTHROPIC ORGANIZATIONS

Member, Burrillville Land Trust 2000–2008
RI Forest Conservators Organization 2001–2002
Board of Directors
Ocean State Power Scholarship Foundation 1995–2002
Board of Directors
Ocean State Power Community Grant Foundation 2001–2002
Board of Directors

EXPERT QUALIFICATIONS

Wetland Delineations, Habitat Evaluations, Wetland Permitting

- RI Department of Environmental Management
- Administrative Adjudication Division

Wetland Delineations, Habitat Evaluations, Soil Science, Coastal Permitting

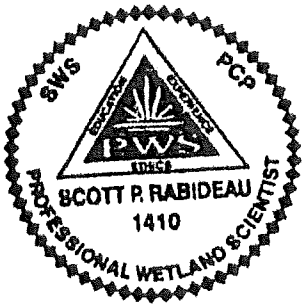
- RI Coastal Resources Management Council

Wetland Delineations, Habitat Evaluations, Soil Science

- Superior Court, Worcester County, Massachusetts
- Superior Court, Bristol County, Massachusetts
- Superior Court, Fall River, Massachusetts

Wetland Delineations, Habitat Evaluations, Soil Science, Wetland Permitting

- Superior Court, Providence County, Rhode Island
- Superior Court, Kent County, Rhode Island
- Superior Court, Newport County, Rhode Island



Natural Resource Services, Inc.

CAROLYN DECKER
Wetland Biologist

EXPERIENCE

NATURAL RESOURCE SERVICES, INC. June 2016 - present

A wetland consulting business serving Rhode Island, Massachusetts, and Connecticut since 1987.

Wetland Biologist

- **Perform wetland delineations:** Delineate wetland edges according to local, state, and federal regulations (RI DEM, CRMC, CTDEEP, MA DEP, USACE), assess soils, botanical communities, and hydrology on project sites
- **Perform habitat assessments:** Gather habitat assessment field data, prepare GIS habitat maps and narratives, perform rare plant and wildlife species surveys, assess habitat functions and values for regulatory requirements
- **Perform site inspections:** Inspect client properties for wetlands, wildlife habitat, restoration project monitoring
- **Perform SAV surveys:** conduct submerged aquatic vegetation surveys for protected habitats in coastal waters
- **Prepare GIS maps and plans:** Collect field GPS data and create digital GIS maps using ArcMap and Pathfinder software depicting wetland and site specific field data, prepare GIS habitat analyses, overlay regulatory datalayers
- **Write consulting letters & reports:** Develop detailed site specific reports and narratives with scientific field data to guide and supplement local, state, and federal regulatory permit applications for client projects

LARGESS FORESTRY, INC. Oct. 2015 – June 2016

A tree service and forestry consulting business serving Rhode Island since 1986.

Office Manager

- **Developed forest management reports:** Authored tree appraisal/forest management reports offering clients maps, assessments, & recommendations based on RI DEM and CRMC coastal and freshwater wetland regulations
- **Coordinated client relations and daily office/field operations:** Implemented QuickBooks database and scheduling system to streamline office and field efficiency, improve customer service, and organize client base
- **Performed data collection:** Recorded data for forestry/tree-care projects on urban, suburban, and rural residential and undeveloped properties for use in consulting reports or daily worksite/field operations

WATSON FOUNDATION March 2014 – August 2015

A charitable trust founded in 1961 that awards fellowships to develop "more humane and effective leaders."

Thomas J. Watson Fellow

Designed and implemented one-year independent international study of intersections in nature conservation and creative writing across ecosystems and cultures of Dominica, Botswana, Australia, Tuvalu, and China.

EDUCATION

Bachelor of Arts in Environmental Science (Biology) ***cum laude*** Sept. 2010 – May 2014

Wheaton College (Norton, MA)

- *Academic Honors:* Balfour Scholar, Tri-Beta Biological Honors Society Member, Dean's List, Consulate General of the Federal Republic of Germany Award Recipient
- *Leadership Roles:* Outdoor Education House (President), Wheaton Woods Conservation Society (President), Outdoors Club Leader, Rushlight Literary Magazine Core Reader

Wheaton in Bhutan Program (Environmental Studies) Feb. 2013 – July 2013

Royal Thimphu College (Ngabiphu, Thimphu, Bhutan)

- *Leadership Roles:* Career Services representative and English language writing tutor

OTHER RELEVANT INFORMATION

Technical skills: Microsoft Office, ArcGIS, Pathfinder, QuickBooks, GPS mapping, technical writing, photography, videography, projection, microscopy, dissection, rare species monitoring
Certificates: PADI Open Water Certified SCUBA Diver, OSHA 10 Hour Construction Safety Certification
Memberships: The Wildlife Society, New England Wildflower Society, Rhode Island Natural History Survey

Natural Resource Services, Inc.

Project Narrative in Support of Application to Alter a Freshwater Wetland

45 Canning Street
A.P. 37, Lot 186
Cumberland, Rhode Island

Prepared for:

Anthony Silva
[redacted]

Project Narrative Prepared by:

Scott P. Rabidcau, PWS
Principal

February 20, 2019

Revised September 18, 2019

P.O. Box 311 Harrisville, RI 02830 [redacted] FAX [redacted]

Table of Contents

Appendix A

USGS Topographic Map
USDA Soil Map
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Habitat Assessment Sketch
Habitat Assessment Datasheets

Appendix B

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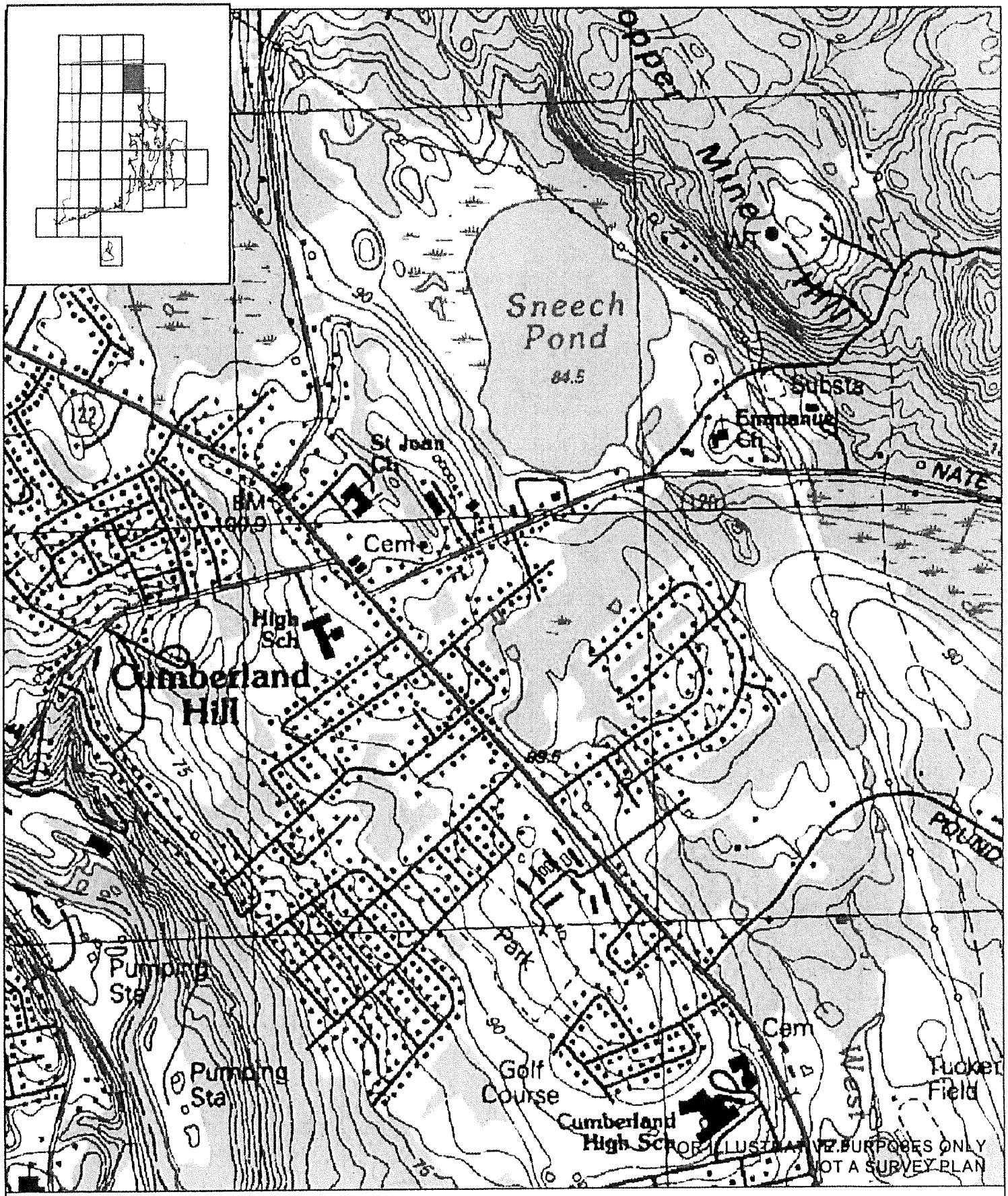

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45 Canning St

Approximate Site Location

USGS Topographic Series
Contour Interval 10 Feet

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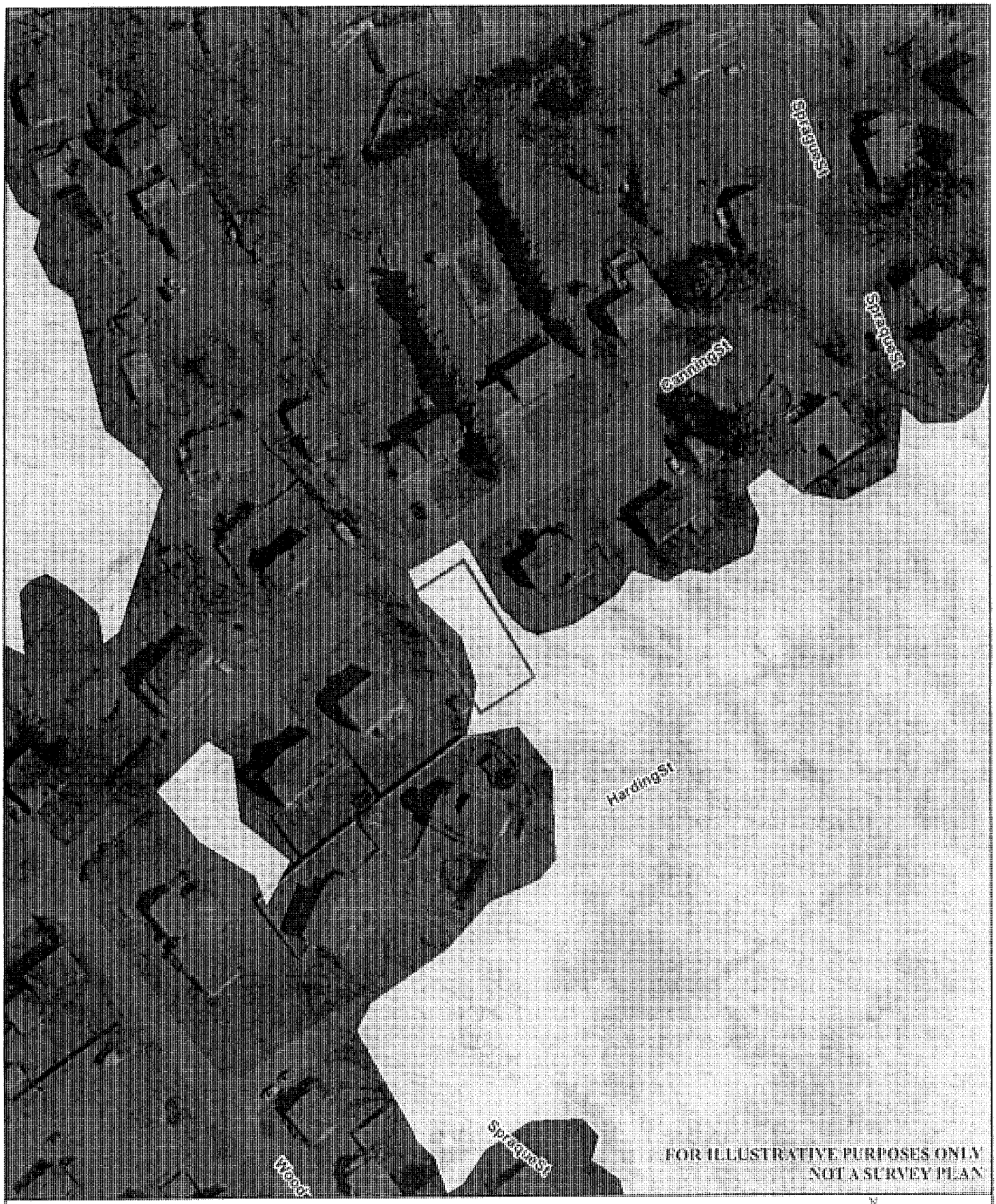
A.P. 37, Lot 186

Approximate Site Location

April 2018 aerial
RI DEM Mapping



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NOT A SURVEY PLAN

Landuse Map
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Approximate Site Location
Medium Density Residential (1 to 1/4 acre lots)
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AO									
XAMPLE	Tree 1	*Genus species*	25					25/50=50%	25/105=24%
	Tree 2	*Genus species*		25				25/50=50%	25/105=24%
	Vine 1	*Genus species*				20		20/20=100%	20/105=19%
	Herb 1	*Genus species*					15	15/35=43%	15/105=15%
	Herb 2	*Genus species*					20	20/35=57%	20/105=19%
ayer Total % Cover			25	25		20	35		105
lotes: qualitative information									

[illegible]									
[illegible]	Elm	*Ulmus spp*	20					33%	7%
[illegible]	Ash	*Fraxinus spp*	15					25%	5%
	Red Maple	*Acer rubrum*	15					25%	5%
	Swamp White Oak	*Quercus bicolor*	10					17%	3%
	Grey Dogwood	*Swida racemosa*		30				33%	10%
	Pin Cherry	*Prunus pensylvanica*		20				22%	7%
	Arrowwood	*Viburnum dentatum*		20				22%	7%
	Winterberry	*Ilex verticillata*		10				11%	3%
	Multiflora Rose	*Rosa multiflora*		10				11%	3%
	Sensitive Fern	*Onoclea sensibilis*			10			100%	3%
	Grapevine	*Vitis labrusca*				60		44%	14%
	Asiatic Bittersweet	*Celastrus orbiculatus*				25		28%	8%
	Virginia Creeper	*Parthenocissus quinquefolia*				15		17%	5%
	Poison Ivy	*Toxicodendron radicans*				10		11%	3%
	Jewelweed	*Impatiens capensis*					30	67%	10%
	Canada Goldenrod	*Solidago canadensis*					10	17%	3%
	Downy Willow Herb	*Epilobium strictum*					5	11%	2%
Layer Total % Cover:			60	90	10	90	45		295

Notes: buttress roots, stony, drainage patterns, abundant woody debris, extremely dense understory, abundant small cavities in ash snags and other canopy boughs

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HABITAT ASSESSMENT FIELD DATA	Cumberland, RI		

Habitat Assessment Point (sample)	Species Common Name	Species Scientific Name	Tree	Shrub/ Sapling	Emergent/ Fern	Vine	Herb	Relative Abundance within Sample Layer	Relative Abundance within Sample Total
			Species % Cover	Species % Cover	Species % Cover	Species % Cover	Species % Cover	(Species as % of Physiognomic Layer)	(Species as % of all Layers)
HA2	Norway Maple	*Acer platanoides*	25					42%	13%
Forested Swamp	Ash	*Fraxinus spp*	25					42%	13%
	Catalpa	*Catalpa spp*	10					17%	5%
	Arrowwood	*Viburnum dentatum*		60				75%	31%
	Pin Cherry	*Prunus pensylvanica*		10				13%	5%
	Multiflora Rose	*Rosa multiflora*		10				13%	5%
	Grapevine	*Vitis labrusca*				25		56%	13%
	Virginia Creeper	*Parthenocissus quinquefolia*				20		44%	10%
	Jack in the Pulpit	*Arisaema triphyllum*					10	100%	5%
Layer Total % Cover:			*60*	*80*		*45*	*10*		*195*
Notes: buttress roots, stony, drainage patterns, minor small cavities in canopy and understory in ash snags, extremely dense understory									

HA1	Norway Maple	*Acer platanoides*	15					38%	11%
Ruderal Forest	Butternut	*Juglans cinerea*	15					21%	7%
	White Ash	*Fraxinus americana*	15					21%	7%
	Choke Cherry	*Prunus virginiana*	15					21%	7%
	Multiflora Rose	*Rosa multiflora*		10				46%	13%
	Arrowwood	*Viburnum dentatum*		10				46%	13%
	Red Oak (sapling)	*Quercus rubra*		5				8%	3%
	Grapevine	*Vitis labrusca*				15		43%	7%
	Poison Ivy	*Toxicodendron radicans*				10		29%	4%
	Asiatic Bittersweet	*Celastrus orbiculatus*				10		29%	4%
	Rhubarb	*Rheum rhabarbarum*					15	27%	7%
	Pokeweed	*Phytolacca americana*					10	18%	4%
	Wood Sorrel	*Oxalis spp*					5	9%	2%
	Smartweed	*Persicaria spp*					5	9%	2%
	American Burreed	*Sparganium hierarchicum*					5	9%	2%
	Queen Anne's Lace	*Daucus carota*					5	9%	2%
	Wood Violet	*Viola palmata*					5	9%	2%
	English Plantain	*Plantago lanceolata*					5	9%	2%
Layer Total % Cover:			*70*	*65*		*35*	*55*		*225*
Notes: drainage from road flows into site, extremely stony, dense herbaceous layer along road shoulder, dense understory interior of lot									

Appendix B

Statement of Qualifications

Natural Resource Services, Inc.

SCOTT P. RABIDEAU, PWS
President and Principal Biologist

EXPERIENCE

President/Principal Biologist 1987–Present

Natural Resource Services, Inc., Harrisville, RI

- NRS is a private environmental consulting firm specializing in freshwater and coastal wetland studies in Rhode Island and Massachusetts. The company was started in 1987 and has been in continuous operation since that time. Experience within the company includes wetland delineations, designing replacement wetlands, restoring wetlands, wildlife habitat evaluations, permitting alterations through state and federal agencies, representation at public hearing and expert testimony.

Soil Scientist 1989–1990

Project Earth Team, Middlebridge, MA

- Project Earth Team was a volunteer program sponsored by the University of Massachusetts and the USDA, Natural Resource Conservation Service. The project required individuals to classify 1,000 acres of soils in Wareham, Massachusetts for the US Soil Conservation Service. Experience included both field work and aerial photo interpretation.

Wetlands Consultant 1986–1987

Drown and Rabideau Wetland Consulting

- This partnership was formed in 1986 as a Massachusetts entity. The private environmental consulting firm specialized in wetland delineations, wetland evaluations, septic system designs and perc tests. Experience with the partnership included wetland delineations and evaluations.

Manager of Faxon Farm 1982–1985

Lincoln School, Providence, RI

- The Lincoln School is a private K-12 girls school in Providence, RI. Faxon Farm is the urban school's off-site center for athletics. Experience at the school included managing a 32 acre environmental education center and athletic facility. Responsibilities included developing nature programs and managing wetland and upland habitat.

EDUCATION

M.S. Business Management Jan. 1986

Lesley College, Cambridge, MA

B.S. Natural Resource Science May 1982

University of Rhode Island, Kingston, RI

Graduate Credit, Soil Science Jan. 1991

University of Massachusetts, Amherst, MA

CERTIFICATIONS

Professional Wetland Scientist #1410
Society of Wetland Scientists
Technical Service Provider, Wildlife Habitat Improvements
US Department of Agriculture
Environmental Sub-Consultant, Wetlands
RI Department of Transportation

ELECTED POSITIONS

State Representative, District 60 1995-2002
RI General Assembly, Burrillville, RI

- Ranking minority member of House Committee on Environmental
- Accountability
- Ranking minority member of Committee on Judiciary
- Ranking minority member, Joint Committee on Energy and the Environment

PUBLIC APPOINTMENTS

Judicial Nominating Commission 2014–Present
State of Rhode Island

- Appointed by Governor Lincoln Chafee. The JNC Is responsible for vetting candidates seeking appointments to all state courts (Supreme, Superior, District, Family, Workers Compensation and Traffic). The commission meets a minimum of quarterly and as required during the year to fulfill the statutory mandate for providing the governor with qualified candidates for judicial vacancies.

Special Master, Superior Court 2009–Present
Tillinghast v. RI Dept. of Environmental Management
State of Rhode Island

- The court appointed the special master to act on its behalf to seek resolution of all matters in dispute between the defendant and the plaintiff. These matters are all of a technical nature related to freshwater wetland alterations.

Legislative Commission 2013–2015
Freshwater Wetlands Act Review

- Appointed to the commission as a small business representative. The commission held hearings and heard testimony on changes to the R.I. Freshwater Wetlands Act. The commission prepared a final draft of a bill to replace the current statute. The act was passed by the General Assembly and signed into law by Governor Raimondo in July 2015.

Vice Chairman, Conservation Commission 1983–1985
Town of Rehoboth, MA
Board of Sewer Commissioners 2004–2008
Town of Burrillville, RI
Chairman 2006–2007

PROFESSIONAL ORGANIZATIONS

The Wildlife Society 1985–Present
Investment Review Committee Member 2013–Present

- The IRC meets on a quarterly basis to review the TWS Endowment Accounts and is responsible for adjusting the account allocations in conformance with the TWS Executive Committee's guidelines.

RI Association of Wetland Scientists
Charter Member
President/Member of Board of Directors 1993–1994
Treasurer/Member of Board of Directors 1992–1993
Soil Science Society of America
Society of Wetland Scientists

PHILANTHROPIC ORGANIZATIONS

Member, Burrillville Land Trust 2000–2008
RI Forest Conservators Organization 2001–2002
Board of Directors
Ocean State Power Scholarship Foundation 1995–2002
Board of Directors
Ocean State Power Community Grant Foundation 2001–2002
Board of Directors

EXPERT QUALIFICATIONS

Wetland Delineations, Habitat Evaluations, Wetland Permitting

- RI Department of Environmental Management
- Administrative Adjudication Division

Wetland Delineations, Habitat Evaluations, Soil Science, Coastal Permitting

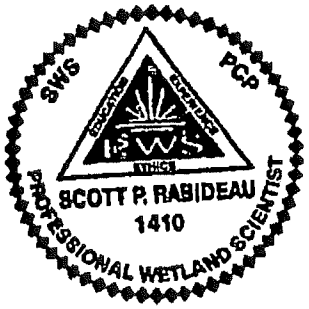
- RI Coastal Resources Management Council

Wetland Delineations, Habitat Evaluations, Soil Science

- Superior Court, Worcester County, Massachusetts
- Superior Court, Bristol County, Massachusetts
- Superior Court, Fall River, Massachusetts

Wetland Delineations, Habitat Evaluations, Soil Science, Wetland Permitting

- Superior Court, Providence County, Rhode Island
- Superior Court, Kent County, Rhode Island
- Superior Court, Newport County, Rhode Island



Natural Resource Services, Inc.

CAROLYN DECKER
Wetland Biologist

EXPERIENCE

NATURAL RESOURCE SERVICES, INC. June 2016 - present

A wetland consulting business serving Rhode Island, Massachusetts, and Connecticut since 1987.

Wetland Biologist

- **Perform wetland delineations:** Delineate wetland edges according to local, state, and federal regulations (RI DEM, CRMC, CTDEEP, MA DEP, USACE), assess soils, botanical communities, and hydrology on project sites
- **Perform habitat assessments:** Gather habitat assessment field data, prepare GIS habitat maps and narratives, perform rare plant and wildlife species surveys, assess habitat functions and values for regulatory requirements
- **Perform site inspections:** inspect client properties for wetlands, wildlife habitat, restoration project monitoring
- **Perform SAV surveys:** conduct submerged aquatic vegetation surveys for protected habitats in coastal waters
- **Prepare GIS maps and plans:** Collect field GPS data and create digital GIS maps using ArcMap and Pathfinder software depicting wetland and site specific field data, prepare GIS habitat analyses, overlay regulatory datalayers
- **Write consulting letters & reports:** Develop detailed site specific reports and narratives with scientific field data to guide and supplement local, state, and federal regulatory permit applications for client projects

LARGESS FORESTRY, INC. Oct. 2015 – June 2016

A tree service and forestry consulting business serving Rhode Island since 1986.

Office Manager

- **Developed forest management reports:** Authored tree appraisal/forest management reports offering clients maps, assessments, & recommendations based on RI DEM and CRMC coastal and freshwater wetland regulations
- **Coordinated client relations and daily office/field operations:** Implemented QuickBooks database and scheduling system to streamline office and field efficiency, improve customer service, and organize client base
- **Performed data collection:** Recorded data for forestry/tree-care projects on urban, suburban, and rural residential and undeveloped properties for use in consulting reports or daily worksite/field operations

WATSON FOUNDATION March 2014 – August 2015

A charitable trust founded in 1961 that awards fellowships to develop "more humane and effective leaders."

Thomas J. Watson Fellow

Designed and implemented one-year independent international study of intersections in nature conservation and creative writing across ecosystems and cultures of Dominica, Botswana, Australia, Tuvalu, and China.

EDUCATION

Bachelor of Arts in Environmental Science (Biology) ***cum laude*** Sept. 2010 – May 2014

Wheaton College (Norton, MA)

- *Academic Honors:* Balfour Scholar, Tri-Beta Biological Honors Society Member, Dean's List, Consulate General of the Federal Republic of Germany Award Recipient
- *Leadership Roles:* Outdoor Education House (President), Wheaton Woods Conservation Society (President), Outdoors Club Leader, Rushlight Literary Magazine Core Reader

Wheaton in Bhutan Program (Environmental Studies) Feb. 2013 – July 2013

Royal Thimphu College (Ngabiphu, Thimphu, Bhutan)

- *Leadership Roles:* Career Services representative and English language writing tutor

OTHER RELEVANT INFORMATION

Technical skills: Microsoft Office, ArcGIS, Pathfinder, QuickBooks, wetland delineation, GPS mapping, technical writing, photography, videography, projection, microscopy, dissection, rare species monitoring
Certificates: PADI Open Water Certified SCUBA Diver, OSHA 10 Hour Construction Safety Certification
Memberships: The Wildlife Society, New England Wildflower Society, Rhode Island Natural History Survey

Introduction

Natural Resource Services, Inc. (NRS) was retained by Anthony Silva (hereafter the applicant) to assist with the preparation and submission of an Application to Alter a Freshwater Wetland at 45 Canning Street in Cumberland (A.P. 37, Lot 186). This application is being submitted to the RI Department of Environmental Management, Office of Water Resources (DEM, OWR). The subject property (hereafter the site) features regulated resource areas in the form of a swamp and its perimeter wetland.

The applicant is proposing a single family dwelling on this undeveloped lot. This work shall include construction of the house and a garage totaling 1,212 square feet, with a paved driveway in front of the garage. The proposed dwelling shall be connected to existing public water and sewer lines.

The applicant shall utilize best management practices to minimize and mitigate swamp and perimeter wetland impacts to the greatest extent practicable. Stormwater management for the new impervious features shall be installed on-site in accordance with state standards. Vegetated swales along the sides of the property shall direct storm flow within the lot. Screen vegetation in the form of five (5) northern white cedar (*Thuja occidentalis*) shall be planted along the authorized limit of work in the rear of the lot. Additionally, appropriate erosion controls shall be maintained around this limit of disturbance and surrounding the designated stockpile locations.

The design plans referenced throughout this report have been prepared by Commonwealth Engineers & Consultants, Inc. These plans are considered to be standalone documents that have been included in the application package as required.

This narrative is being submitted to fulfill the requirements of the Rules and Regulations Governing the Administration and Enforcement of the Freshwater Wetlands Act (effective July 16, 2014). These regulations require an applicant seeking a permit for a significant alteration through an Application to Alter a Freshwater Wetland to submit a written evaluation addressing the applicable sections of the regulations (Section 1.10(B)(1-5) and 1.10(E)(3)).

Section 1.10(B) Project Scope

Section 1.10(B) requires the Project Narrative for an application to alter to include and describe the entire project proposed or contemplated by the applicant. The following is the applicant's written articulation of the existing site conditions and the proposed scope of development.

Existing Conditions

The tax assessor's database for the Town of Cumberland lists the site at 0.13 acres. The property lies south of Canning Street opposite pole #4 approximately 390 feet northeast of its intersection with Woodrow Street. The property is located within the R1 zoning district for low density residential housing. The property is currently vacant and predominately forested. The property is surrounded by existing residential properties along Canning Street. Undevelop

forested lots are present to the south and east, several of which are owned by the Town as the "Sneech Brook Site." These Town-owned properties are set aside as publically accessible habitat protection areas.

The property contains wetland resource areas within the jurisdiction of the DEM. The delineated wetland in the southern half of the lot is considered a swamp. The 50 foot perimeter wetland associated with this swamp occupies the majority of the remainder of the lot. The off-site portions of the swamp contain a branch of the river known as Sneech Brook (Waterbody ID: RI0001003R-06) and its tributaries. These waterbodies lie off-site to the south and east; no waterbodies are present on the subject property. The swamp is generally vegetated with white ash *(Fraxinus americana)*, swamp white oak (*Quercus bicolor*), red maple (*Acer rubrum*), American elm (*Ulmus americana*), winterberry (*Ilex verticillata*), sensitive fern (*Onoclea sensibilis*), jewelweed (*Impatiens capensis),* Asiatic bittersweet (*Celastrus orbiculatus*) and grapevine (*Vitis labrusca*), among other species.

The upland areas on-site are dominated by Norway maple (*Acer platanoides*), red oak (*Quercus rubra),* white ash (*Fraxinus americana*), multiflora rose (*Rosa multiflora*), arrowwood (*Viburnum dentatum*), poison ivy (*Toxicodendron radicans*), grapevine (*Vitis labrusca*), goldenrod (*Solidago sp*), Asiatic bittersweet (*Celastrus orbiculatus*), American burnweed (*Erechtites hieraciifolius)* and smartweed (*Persicaria sp*), among other species.

Project Scope

The applicant is proposing to build a single family dwelling with a garage and driveway. The footprint of the dwelling and garage total 1,212 square feet. The driveway shall be comprised of a paved surface and will be situated between Canning Street and the proposed garage. The proposed dwelling shall connect to existing public sewer and water lines. This project contemplates 485 square feet of impact to the swamp and 3,690 square feet of impact to the perimeter wetland on-site. These features are depicted on the project site plans.

Screening vegetation shall be planted at the southern limit of disturbance, just inside of the limit of the proposed filter sock erosion control line. This screen shall take the form of five (5) northern white cedar (*Thuja occidentalis*), each of which shall be planted at a height of five to six feet (5-6') and spaced approximately ten feet (10') on-center. The cedars shall help to buffer the anthropogenic disturbances from noise and lighting. These plants have been selected pursuant to Section 10 of the RI Wetland BMP Manual (2010).

Stormwater runoff shall be managed on-site through the construction of two vegetated swales along the east and west property lines. As depicted on the site plans, this design has been configured to meet or exceed the requirements of the RI Stormwater Design and Installation Standards Manual (2015).

The applicant shall also install appropriate erosion controls around the authorized limits of disturbance. The erosion control barrier shall remain in place until the project has concluded and the surrounding grade has stabilized. The inspection, repairs and maintenance of the erosion

control barrier shall be performed in accordance with the RI Soil Erosion and Sediment Control Handbook (2016).

Section 1.10(B)(4) Avoidance, Minimization and Mitigation Requirements

Avoidance: All applicants are required to satisfactorily demonstrate to the Department in the form of a written narrative that all probable impacts to freshwater wetlands functions and values have been avoided to the maximum extent possible. The written narrative must describe what steps were taken to avoid impacts to freshwater wetlands. At a minimum, the applicant must consider and address the following issues:

a) Whether the primary proposed activity is water-dependent or whether it requires access to freshwater wetlands as a central element of its primary purpose (e.g., a pier);

The project is not water dependent nor does it require access to the wetlands as any element of its primary purpose. The proposal to work within the swamp and perimeter wetland is a result of the configuration of the lot and the wetland, given the limited size of the lot.

b) Whether any areas within the same property or other properties owned or controlled by the applicant could be used to achieve the project purpose without altering the natural character of any freshwater wetlands;

There are no other areas of the property that would support the construction of a single family dwelling while enabling complete avoidance of the swamp or perimeter wetland. As referenced in the accompanying site plans, the perimeter wetland extends throughout the parcel except for a small area along the frontage (less than 600 square feet). Therefore, any work within the property will require work within these jurisdictional limits.

c) Whether any other properties reasonably available to, but not currently owned or controlled by, the applicant could be used to achieve the project purpose while avoiding wetland alterations. A property is reasonably available if, in whole or in part, it can be acquired without excessive cost, taking individual circumstance into account, or, in the case of property owned or controlled by the same family, entity, group of affiliated entities, or local, state or federal government, may be obtained without excessive hardship;

There are no such properties available to the applicant that would allow for complete avoidance of the swamp or perimeter wetland. The primary purpose of this project is to create a single family dwelling. Given the extent to which the swamp and perimeter wetland occupies the subject lot, complete avoidance is not possible for the applicant.

d) Whether alternative designs, layouts or technologies could be used to avoid freshwater wetlands or impacts on functions and values on the subject property or whether the project purpose could be achieved on another property that is reasonably available would avoid wetlands;

Given the small size of the lot (5,600 square feet), the applicant cannot achieve complete avoidance of the swamp or perimeter wetland through alternate designs, layouts and technologies. The primary purpose of the project is to construct a single family dwelling. Given the amount of space required for such an endeavor, it would not be possible for the applicant to avoid the swamp or perimeter wetland in their entirety.

e) Whether the applicant has made any attempts (and if so what they were) to avoid alterations to freshwater wetlands by overcoming or removing constraints imposed by zoning, infrastructure, parcel size or the like; and

There are no such zoning or infrastructure constraints which, if alleviated, would result in complete avoidance of the regulated features. The proposal to work within a portion of the swamp and perimeter wetland is not the result of any zoning or infrastructure requirements imposed on the project; rather, the proposed disturbance is a reflection of the physical conditions of the site relative to these regulated resource areas.

Zoning relief along the frontage of the lot in order to move the limit of disturbance further northward (and therefore avoid a greater square footage of swamp and perimeter wetland disturbance) would deny the applicant's ability to have reasonable area for a driveway along the lot frontage.

f) Whether the feasible alternatives that would not alter the natural character of any freshwater wetlands on the subject property or on property that is reasonably available, if incorporated into the proposed project, would adversely affect public health, safety or the environment.

There are no such feasible alternatives that would avoid the swamp or perimeter wetland while also resulting in adverse impacts to public health, safety or the environment.

Minimization: For any impact that cannot be avoided, the applicant must satisfactorily demonstrate to the Department in the written narrative that the impact to wetland functions and values have been reduced to the maximum extent possible. At a minimum, applicants must consider and address the following issues:

a) Whether the proposed project is necessary at the proposed scale or whether the scale of the wetland alteration could be reduced and still achieve the project purpose;

The scale of the project has been designed based on the size of the lot and the extent to which it can support a modest-sized single family dwelling and garage (1,212 square feet) and an effort to minimize disturbances to the swamp and perimeter wetland to the extent practicable. Any further reduction to the proposed limit of disturbance would undermine the purpose of project.

b) Whether the proposed project is necessary at the proposed location or whether another location within the site could achieve the project purpose while resulting in less impact to the wetland;

Given the limited size of the lot (0.13 ac), there are no alternate locations or configurations that would enable a greater level of impact minimization than what is currently proposed.

c) Whether there are feasible alternative designs, layouts, densities or technologies, that would result in less impact to the wetland while still achieving the project purpose; and

There are no such alternate designs, layouts, densities or technologies that would result in less impact to the wetland while still maintaining the primary purpose of the project. The proposed house, garage, driveway, and stormwater management features (vegetated swales) have been configured to minimize the impacts to wetland resource areas on-site.

d) Whether reduction in the scale or relocation of the proposed project to minimize impact to the wetland would result in adverse consequences to public health, safety, or the environment.

A reduction to the scale or relocation of the proposed project would not result in adverse consequences to public health, safety or the environment. However, such a reduction could undermine the primary purpose of the application.

Mitigation Measures: The applicant must demonstrate to the department that measures, methods or best management practices have been used to avoid alterations and minimize impacts to wetlands as described in Section 1.9(B)(1)(d)(3). This section requires the applicant to meet criteria a-o listed within the Rules. The following is the applicant's written response to the mitigation criteria.

Screening vegetation shall be established at the southern limit of disturbance and the erosion control barrier as depicted on the accompanying site plans. This screen shall take the form of five (5) northern white cedars (*Thuja occidentalis*), each of which shall be approximately five to six feet (5-6') in height after planting. These shrubs will be spaced approximately ten feet (10') on-center. The species selection and planting configuration have been proposed in accordance with Section 10 of the RI Wetland BMP Manual (2010).

Stormwater management shall be provided on-site in the form of vegetated swales. These stormwater management measures have been configured to meet the standards of the RI Stormwater Design and Installation Standards Manual (2015) for commercial land use.

The applicant shall install appropriate erosion and sediment controls along the authorized limit of disturbance and surrounding the designated stockpile location. This erosion control barrier shall be installed prior to commencement of development activities and it shall remain in place until construction has been complete and the disturbed areas have stabilized. Frequent inspection of the erosion control barrier shall prevent breaches from occurring. The installation, maintenance and repair of the erosion control barrier shall be completed in accordance with the RI Soil Erosion and Sediment Control Handbook (2016).

Section 1.10(B)(5) Evaluation of Wetland Functions, Values and Impacts

Section 1.10(B)(5) of the regulations requires all applicants to describe in full detail the functions and values provided and maintained by the subject freshwater wetland.

Evaluation Methodology

Natural Resource Services, Inc. (NRS) performed an inspection of the subject property for the purposes of assessing habitat features. This habitat assessment was performed on September 11, 2018.

In fulfillment of Rule Section 1.10(B)(5) this assessment was conducted to inventory and evaluate important wildlife habitat features and to assist in the preparation and submission of the Application package. Wildlife habitat evaluations were performed through both direct site inspections and the review of any existing data to identify, characterize and inventory important habitat features and indicators of wildlife usage. This section details those species that were directly observed, indicated through physical evidence (tracks, scat, etc.), and/or identified by unique signature traits (call). In addition, those species which could potentially utilize the assessed habitats given the presence of specific features have been identified.

This assessment also included examining USGS topographic maps for the depiction of perennial (i.e. blue-line) streams, water bodies and depressed areas. The Soil Survey of Rhode Island (Rector, 1981) was also examined for the presence of hydric soils, perennial waterways, as well as any hydrologic connection to known public water supplies.

NRS also used the online DEM Environmental Resource Map to review many of the Rhode Island Geographic Information System (RIGIS) data layers, including historical aerial imagery and those pertaining to natural heritage areas, critical habitat, flood hazard areas, surface water status, soils, surface water protection areas and wetlands. Additional GIS data layers not available for viewing through the online viewers were obtained directly from RIGIS for review.

During the habitat assessment, NRS staff utilized direct site inspections to identify and characterize exiting habitats, including important habitat features, as well as to determine existing and potential wildlife use as indicated by direct observation, unique signature traits (e.g. call), or physical evidence (e.g. tracks scat, burrows, cavities, bones, etc.).

Off-site high intensity mapping was used to augment the value of the direct survey data by identifying the available habitat types within the assessment area. RIGIS aerial photographs were obtained and analyzed for the assessment area. By pairing digital interpretation of information in the aerial images with on-site field observations and habitat data collection, the habitats within the assessment area were mapped and classified.

Qualifications

Natural Resource Services, Inc. personnel involved in the evaluation of the subject property and preparation of this application include:

- Scott P. Rabideau, PWS
- Carolyn Decker, Wetland Biologist

Detailed statements of qualification are included in Appendix B of this narrative, which present all relevant experience.

Freshwater Wetland Characteristics

The swamp is dominated by white ash *(Fraxinus americana)*, swamp white oak (*Quercus bicolor*), red maple (*Acer rubrum*), American elm (*Ulmus americana*), winterberry (*Ilex verticillata*), multiflora rose *(Rosa multiflora)*, sensitive fern (*Onoclea sensibilis*), jewelweed (*Impatiens capensis),* Asiatic bittersweet (*Celastrus orbiculatus*) and grapevine (*Vitis labrusca*), among other species. Hydric soils, buttressed roots, and drainage patterns served as additional wetland indicators on the subject property. The wetland slopes down to the south and east. The on-site portion of the swamp is saturated; it is drier than the wetland areas off-site to the south and east. The wetland is extremely stony.

Many trees in the wetland display buttressed roots. Small cavities in the upper boughs and bases of trees were observed in the swamp and perimeter wetland, particularly in the ash snags. The understory in the swamp and perimeter wetland are moderately to extremely dense. Woody debris is abundant in the wetland. Invasive species (i.e. *Rosa multiflora, Celastrus orbiculatus*) are present within the swamp and perimeter wetland, but are concentrated in the perimeter wetland. Wildlife movement within the wetland resource areas on-site occur in meandering patterns among the dense vegetation. Observed wildlife were concentrated in the southern half of the lot as well as in the adjacent off-site wetland and upland habitat.

Wildlife & Wildlife Habitat

Wetland Indicators

NRS performed a habitat assessment in which an overall evaluation of the property was conducted. The purpose of this assessment was to determine which, if any, wildlife species currently use the available habitat for feeding, breeding, or other related activities. This study details both those wildlife species observed, as well as any identified by unique signature traits (signs/vocalizations). Further evidence of wildlife inhabitation or utilization of the area (tracks, scat, burrows, tree cavities, trails, nests) has also been identified.

The following table has been prepared to depict the wildlife species that were observed either directly or indirectly at the time of the assessment.

OBSERVED WILDLIFE SPECIES	
BIRDS	**Observed Bird Species (6)**
American Crow	*Corvus brachyrhynchos*
Blue Jay	*Cyanocitta cristata*
Black-capped Chickadee	*Poecile atricapilla*
White-breasted Nuthatch	*Sitta carolinensis*
American Robin	*Turdus migratorius*
Mourning Dove	*Zenaida macroura*
MAMMALS	**Observed Mammal Species (3)**
White-tailed Deer	*Odocoileus virginianus*
Gray Squirrel	*Sciurus carolinensis*
Eastern Chipmunk	*Tamias striatus*

Wetland Values

The freshwater wetlands on the subject property exhibit a variety of habitat values for the above-listed species and other common wildlife. The interior of the swamp maintains an abundant cover of mast and berry/seed producing vegetation for avians and mammals (e.g., *Fraxinus, Quercus, Ulmus, Swida, Prunus, Viburnum, Ilex, Rosa, Toxicodendron, Vitis, etc.).* Portions of the resource area maintain a dense canopy and understory, providing escape cover, nesting sites and feeding opportunities for small mammals and birds. The abundant woody debris and numerous small cavities in the snags and live trees in the wetland resource areas provide additional wildlife habitat. The stoniness of the wetland supports sunning locations as well as escape cover for wildlife. The vegetation is densest and displays the greatest number of cavities (i.e. nest sites) toward the southern end of the property.

The subject property is mapped within an area of minimal flood hazard (Zone X) according to the FEMA flood insurance rate map "44007C0177G, Town of Cumberland, 440016, effective date March 2, 2009." Drainage patterns visible in the wetland direct flow from Canning Street through the property off-site to south and southeast. The on-site portion of the wetland is a toeslope and has limited flood storage capacity or other wetland values related to holding water. The site is mapped within a large area of glacial till (RIGIS).

While only a small number of wildlife species were directly observed, including a lack of herptile species, the on-site wetlands have the capacity to support wildlife typical of freshwater wetlands in Rhode Island, including species not observed directly during the site inspection. The on-site portion of the wetland does not contain any watercourses or standing water, and therefore is limited in its capacity to support aquatic or semi-aquatic species.

The swamp on-site extends off-site where it contains waterbodies such as intermittent streams, rivers, and ponded areas in the off-site portions of this swamp. For instance, Sneech Brook (Waterbody ID: RI0001003R-06) and its tributaries are identified by the DEM within the wetland system of which the delineated portion of the subject property is a part. The west branch of the Sneech Brook (the nearest to the subject property) is listed by the DEM as a cold water fishery.

Proposed Impacts

This project contemplates 485 square feet of impact to the swamp and 3,690 square feet of impact to the perimeter wetland on-site. Approximately 24 square feet within the swamp shall be covered by the impervious surface of the proposed dwelling and other features. The alteration of these areas within the swamp and perimeter wetland shall result in the loss of existing vegetation, changes in grading of the soil, and construction of the proposed structures. However, the screening vegetation shall replace some of the impacted vegetation. The areas of swamp and perimeter wetland on-site beyond the limit of disturbance (approximately 850 square feet) shall remain undisturbed.

Post-construction Functions and Values

The alteration of the perimeter wetland and swamp portions on-site shall result in some loss of wildlife habitat functions and values through the associated loss of vegetated cover and the feeding, nesting, and escape cover opportunities provided under pre-construction conditions. The loss of habitat functions and values will be minimized and mitigated by the proposed strategies in order to maintain the wetland/wildlife functions and values post-construction. The screening vegetation and vegetated swales shall act to maintain the wetland values of the site to the greatest extent practicable while still achieving the project purpose.

The establishment of evergreen screening vegetation along the edges of the project area, will provide year-round separation and screening between the development and the identified wetland resources. The proposed stormwater features will also mitigate impacts associated with stormwater flow, allowing water to infiltrate before reaching the wetlands as required under the RI Stormwater Design and Installation Standards Manual (2015).

Upon completion of the proposed project, the functions and values of the swamp and stream will be maintained to the greatest degree practicable by these mitigating measures. The functions and values of the remaining wetlands on-site and the contiguous off-site wetlands shall remain as under pre-construction conditions.

Recreation and Aesthetics

Wetland Characteristics and Values

Currently, public access to this site is restricted due to the private nature of the property. Hunting would be strictly prohibited given the fact that the proposed limit of disturbance is in close proximity to established residential structures. No waterbodies or waterways capable of supporting fish will be altered by this project. Publically accessible lands owned by the Town known as the "Sneech Brook Site" for habitat protection augment the recreational and aesthetic values of the site by their proximity to the subject property.

Proposed Impacts

The proposed features will maintain the capacity for recreational and aesthetic values at pre-project levels. Hunting will be restricted within this site due to the residential nature of the project; however, hunting is already restricted on the lot given its private ownership and close proximity of existing structures. The public access to the Town's properties to the south and east of the subject property shall remain as under pre-project conditions. The recreation and aesthetic values of these properties shall not be significantly impacted by the proposed construction of the single family dwelling on the subject property.

Flood Protection

Pursuant to the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Map (FIRM), the property is not currently mapped within the 100-year flood zone. Rather, the site is mapped in Flood Zone X as mapped on the FEMA flood insurance rate map "44007C0177G, Town of Cumberland, 440016, effective date March 2, 2009." Management of stormwater runoff in accordance with state standards shall ensure that the project will not impact the ability of the wetland to adequately provide flood protection at pre-disturbance conditions. The proposed vegetated swales along the sides of the subject property shall direct storm flow within the site to compensate for changes from the proposed impervious features.

Groundwater and Surface Water Supplies

The proposed project has been configured so that it shall not divert or constrict groundwater or surface flows within the site. The site is in an area of glacial till. The on-site portion of the swamp is saturated and does not hold standing water. The project will not disrupt the capacity of the property to recharge groundwater supplies nor shall it divert groundwater flows to any freshwater wetland beyond pre-project levels.

Water Quality

This project contemplates the construction of a single family dwelling on the subject property. As such, the project engineer has configured the vegetated swales, other stormwater management and erosion control features to provide water quality treatment in accordance with the requirements of the RI Stormwater Design and Installation Standards Manual (2015).

Soil Erosion and Sediment Control

The applicant shall install and maintain appropriate erosion and sediment controls along the authorized limit of disturbance and surrounding the designated stockpile area. This barrier shall be installed prior to the commencement of development activities and shall remain in place until the work has concluded and the surrounding grade has stabilized. Installation methods of the erosion control barrier shall be tailored to the specific BMP proposed with the project (e.g. silt fence, straw wattle, etc.). Frequent inspection of the erosion control barrier shall ensure that breaches do not occur. All work associated with the installation, inspection and maintenance of

the erosion controls shall conform to the definitions and standards of the RI Soil Erosion and Sediment Control Handbook (2016).

Screening vegetation is to be planted along the limit of disturbance in order to mitigate noise, light, and other wildlife impacts, as well as contribute to the stabilization of the soil at the limit of disturbance surrounding the new paved area. The screening vegetation shall consist of five (5) northern white cedars (*Thuja occidentalis*) planted as described in the preceding section of this report.

Section 1.10(E)(3) Review Criteria

Before issuing a permit, the applicant must satisfactorily demonstrate that the proposed project will not result in:

1) Significant reduction in the overall wildlife production or diversity of a wetland;

The identified freshwater wetlands and undeveloped uplands on- and immediately off-site provide habitat values for a variety of wildlife species. The on-site and off-site portions of the wetland resource areas are similar in species composition, with greater biodiversity off-site (see habitat assessment datasheets in Appendix A). The proposed single family dwelling is not expected to significantly reduce the overall wildlife production or diversity of the swamp or perimeter wetland.

2) Significant reduction in the ability of a wetland to satisfy the needs of a particular wildlife species;

The applicant's project has been designed to satisfy the needs of wildlife species to the greatest extent practicable. The structural components of this project shall not reduce the ability of the resource areas to satisfy the needs of any particular wildlife species. Portions of the property shall remain forested upon completion of this project; such forested areas shall continue to satisfy the needs of various wildlife species, including habitat functions, such as nesting and feeding opportunities. The snags on-site where nest-hole cavities are concentrated are located in the southern part of the site outside the proposed limit of disturbance. These habitat features will remain under post-construction conditions and continue to act as wildlife habitat. The proposed screening vegetation shall also provide some mitigation for the loss of vegetation from the proposed project.

3) Significant displacement or extirpation of any wildlife species from a wetland or surrounding areas due to the alteration of the wetland;

Any wildlife that may be impacted by the construction of the single family dwelling and other on-site features may continue to use the remainder of the property for habitat. Screening vegetation in the form of northern white cedar (*Thuja occidentalis*) will mitigate some of the loss of vegetation during construction of the project while simultaneously providing habitat for small mammals and birds. Given the existing neighboring residential properties and the tendency of the observed wildlife species (see Observed Wildlife Species table in Section 1.10(B)(5)) to be tolerant of human proximity, wildlife are not expected to be significantly impacted by the proposed project.

Significant displacement or extirpation of any wildlife species from the on-site wetland resource areas or surrounding areas is not expected to occur as a result of the proposed project.

4) Any reduction in the ability of the wetland to ensure the long-term viability of any rare animal or rare plant species;

This project shall not result in the reduction in the ability of the wetland to ensure the long-term viability of any rare animal or rare plant species. The project is not mapped within any natural heritage area. No rare or endangered species were observed during the habitat assessment. The site is not within any natural heritage area as mapped by the DEM.

5) Any degradation in the natural characteristic(s) of any rare wetland type;

The proposed alteration shall not result in the degradation of any rare wetland type. The on-site portions of the swamp and perimeter wetland are representative of common habitats in Rhode Island such as red maple swamps and ruderal forests (see Habitat Assessment Sketch in Appendix A). No rare wetlands or rare/endangered, species of special interest, or species of special concern are known or expected on-site.

6) Significant reduction in the suitability of any wetland for use by any resident, migratory, seasonal, transient, facultative, or obligate wildlife species, in either the short- or long-term as a travel corridor; feeding site; nesting site; escape cover; seasonal breeding or spawning area;

The freshwater wetlands shall continue to support the use of resident, migratory, seasonal, transient, facultative or obligate wildlife species. The site lies at the northwestern limit of a contiguous area of forested land (uplands and wetlands) in a complex of residential properties. While the site is used for the above-listed functions and values (travel corridor, feeding site, etc.), it is at the outer edge of a habitat area that provides a broader range of these functions and values for wildlife. The proposed project represents some reduction in these functions and values due to the associated loss of vegetation that provide some feeding, nesting, and escape cover opportunities on-site. However, the project site is not expected to significantly reduce the suitability for the wetland to provide these features for wildlife.

7) Any more than a minimal intrusion of, or increase in, less valuable, invasive or exotic plant or animal species in a wetland;

The project shall not result in the introduction of any invasive or exotic species. Invasive species such as multiflora rose *(Rosa multiflora)* and Asiatic bittersweet *(Celastrus orbiculatus)* are present on the site under pre-construction conditions. These species are concentrated in the front of the lot in the upland and perimeter wetland. The development of these areas for the proposed dwelling, garage, and driveway will remove the majority of the existing invasive growth on-site. Care shall be taken during construction and following construction to avoid spread of these or other invasive species.

8) Significant reduction in the wildlife habitat functions and values of any wetland which could disrupt the management program for any game or non-game wildlife species carried out by state or federal fish, game or wildlife agencies;

There are no such management programs that may be adversely impacted by the proposed development.

9) Significant reduction in overall current or potential ability of a wetland to provide active or passive recreational activities to the public;

The lot is privately owned by the applicant and thus public recreational use of the wetland resource areas is limited. The recreational values of the off-site Town-owned "Sneech Brook Site" habitat protection lands that are publicly accessible shall remain at pre-construction conditions. There shall not be any significant reduction in overall current or potential ability of a wetland to provide active or passive recreational activities to the public.

10) Significant disruption of any on-going scientific studies or observations;

There are no such scientific studies or observations occurring on the applicant's land.

11) Elimination of, or severe limitation to traditional human access to, along the bank of, up or down, or through any rivers, streams, ponds or other freshwater wetlands;

Access to the on-site wetland features is currently limited due to the property's private ownership. As such, the development of this site by its owners will have no impact on current levels of human access to the biological wetlands. The project will not impede traditional access to the publically accessible properties off-site to the south and east that are associated with Sneech Brook.

12) Any reduction in water quality functions and values or negative impacts to natural water quality characteristics, either in the short- or long-term, by modifying or changing: water elevations, temperature regimes, volumes, velocity of flow regimes of water; increasing turbidity; decreasing oxygen; causing any form of pollution; or modifying the amount of flow nutrients so as to negatively impact wetland functions and values.

The proposed alterations are not anticipated to impact such conditions. The project will not adversely impact the ability of the wetland to store and retain stormwater. Stormflow generated from the new impervious features will be directed to the stormwater BMPs to ensure that runoff is stored and treated in accordance with the RI Stormwater Design and Installation Standards Manual (2015).

13) Any placement of any matter or material beneath surface water elevations or erection of any barriers within any ponds or flowing bodies of water which could cause any hazards to safety;

There shall be no such placements of matter or materials beneath the surface that would compromise the features or cause hazards to public safety. No ponds or flowing bodies of water exist on the subject property;

14) Significant loss of important open space or significant modification of any uncommon geologic or archaeological features;

A review of the data layers available on the RIGIS database indicated that no such rare geological or archaeological features are present within the proposed areas for development.

15) Significant modification to the natural characteristics of any wetland area of unusually high visual quality;

As detailed in the NRS habitat assessment, the freshwater wetland is comprised of hydrophytic vegetation common to the wetlands of Rhode Island (see habitat assessment datasheets in Appendix A). Thus, the proposed disturbances shall not compromise the natural characteristics of any wetland of unusually high visual quality.

16) Any decrease in the flood storage capacity of any freshwater wetland which could impair the wetland's ability to protect life or property from flooding or flood flows;

The flood storage capacities of the freshwater wetlands shall be neither hindered nor taxed by the proposed development. The subject property is mapped within an area of minimal flood hazard (Zone X) according to the FEMA flood insurance rate map "44007C0177G, Town of Cumberland, 440016, effective date March 2, 2009." The glacial till conditions of the site further indicate that the proposed project will not decrease flood storage capacity of the site.

17) Significant reduction of the rate at which flood water is stored by any freshwater wetland during any flood event;

The project shall not adversely impact the rate or capacity of the wetland to retain flood water. The wetland shall continue to store floodwater at pre-development levels.

18) Restriction or significant modification of the path or velocities of flood flows for the 1-year, 10-year, or 100-year frequency, 24-hour, Type III storm events so as to cause harm to life, property, or other functions and values provided by freshwater wetlands;

The path of flood flows or such velocities will not be restricted or altered by the construction of the proposed single-family dwelling and the associated features.

19) Placement of any structure or obstruction within a floodway so as to cause harm to life, property, or other functions and values provided by freshwater wetlands;

There shall be no structures or obstructions of floodways that would cause harm to life, property or other functions and values provided by the resource areas.

20) Any increase in run-off rates over pre-project levels or any increase in receiving water/wetlands peak flood elevations for the 1-year, 10-year, or 100-year frequency, 24-hour, Type III storm events which could impair the wetland's ability to protect life or property from flooding or flood flows;

This standard is not applicable to the construction of a single-family dwelling.

21) Any increase in run-off volumes and discharge rates which could, in any way, exacerbate flooding conditions in flood-prone areas;

The applicant's project shall not result in an increase to the run-off volumes and discharge rates that may adversely impact the wetland.

22) Significant changes in the quantities and flow rates of surface or groundwater to or from isolated wetlands (e.g., those wetlands without inflow or outflow channels);

There are no such isolated wetlands on the project site. The subject swamp is associated with Sneech Brook and its tributaries off-site from the subject property.

23) Placement of any structural best management practices within wetlands, or proposal to utilize wetlands as a detention or retention facility;

The applicant is not proposing any structural BMPs within any wetlands nor does this project call for the use of the swamp as a detention or retention facility. Stormwater shall be managed within the property in accordance with state standards.

24) Any more than a short-term decrease in surface water or groundwater elevations within any wetland;

The project shall not result in a decrease to the surface water or groundwater elevations within the freshwater wetlands.

25) Non-compliance with the Rhode Island Department of Environmental Management Water Regulations; or

This project has been designed to be in compliance with the pertinent regulations of the DEM, OWR.

26) Any detrimental modification of the wetland's ability to retain or remove nutrients or act as natural pollution filter.

The project, as proposed, shall not result in a detrimental modification of the wetland's ability to retain or remove nutrients or act as a natural pollution filter.

Conclusion

The applicant is seeking permission to pursue development of a single family dwelling on the 0.13 acre subject property at 45 Canning Street in Cumberland. This project shall require the establishment of impervious cover and other features in the swamp and perimeter wetland on-site. This project contemplates 485 square feet of impact to the swamp and 3,690 square feet of impact

to the perimeter wetland on-site. Stormwater management in the form of vegetated swales shall be created on-site in accordance with state standards for this activity.

Although complete avoidance of the swamp and perimeter wetland cannot be achieved, the applicant has attempted to minimize and mitigate impacts to the greatest extent practicable. Appropriate erosion controls shall be established along the authorized limits of disturbance to prevent sediment migration into the resource areas. Furthermore, screening vegetation consistent with the design standards of the RI Wetland BMP Manual (Section 10) shall be installed to mitigate the anthropogenic impacts of noise and lighting. Based on the project's ability to satisfy the criteria of the regulations, NRS maintains that the project may be permitted through an Application to Alter a Freshwater Wetland.

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Appendix A

USGS Topographic Map
USDA Soil Map
Land Use Map
Habitat Assessment Sketch
Habitat Assessment Datasheets

Report for:

Stormwater BMP Narrative Report for AP 37 Lot 186 45 Canning Street Cumberland, Rhode Island

Prepared for:

Anthony Silva

[redacted]

February 2018

COMMONWEALTH ENGINEERS & CONSULTANTS, INC.
400 SMITH STREET
RHODE ISLAND, 02908
401-273-6600

No. 6278
3/15/19
REGISTERED

Stormwater Narrative:

1.0 Introduction:

This report was prepared to document the stormwater best management practices (BMPs) for the activities proposed at 45 Canning Street, Cumberland, RI (A.P. 37 Lot 186).

2.0 General Description/Purpose:

The applicant is proposing to develop an existing undeveloped lot with single family dwelling and associated amenities.

The project consists of the following major components:

- construct new dwellings, paved driveways, and utility services including underground sewer and potable water.
- construct stormwater BMPs for treatment of runoff generated from the proposed impervious surfaces

3.0 Basis of Stormwater BMP Design:

BMP sizing and design is based on the *'State of Rhode Island Stormwater Management Guidance for Individual Single-Family Residential Lot Development'* guidance document prepared by the RIDEM/CRMC. Note: due to site constraints the system has been designed to the 'maximum extent possible' in accordance with this document.

4.0 Stormwater BMP Design:

The five (5) design steps detailed in this section were taken from the *'State of Rhode Island Stormwater Management Guidance for Individual Single-Family Residential Lot Development'* guidance document:

Step 1: Determine the surface area (ft^2) of new impervious surfaces:

Dwelling Roof = 1,212 ft^2
Driveway = 620 ft^2
Total = 1,832 ft^2

Step 2: Choose potential storm water management practice locations based on required regulatory setbacks. The depth to SHGWT is not required when the selected practice is a Qualifying Pervious Area (QPA), vegetated swale, rain garden or permeable surface construction.

The stormwater management practices must meet the required minimum separation distances, or setbacks, listed in Table 1 below.

Table 1. Minimum Setback Distances for Rain Gardens, Infiltration Trenches, Dry Wells and Permeable Pavement Practices on Single-Family Residential Lots

Landscape Feature	Required Setback (ft) for Infiltration Trenches and Dry Wells	Required Setback (ft) for Rain Gardens and Permeable Paving Practices
Public Drinking Water Supply Well – Drilled (rock), Driven, or Dug	200	200
Public Drinking Water Supply Well – Gravel Packed, Gravel Developed	400	400
Private Drinking Water Wells	50	25
Surface Water Drinking Water Supply Impoundment with Supply Intake	100	100
Tributaries that Discharge to the Surface Drinking Water Supply Impoundment	50	50
All Other Surface Waters	50	50
Up-gradient from Natural slopes > %15	25	25
Down-gradient from Building Structures	10	10
Up-gradient from Building Structures	10	10
Onsite Wastewater Treatment Systems (OWTS)	15	15
Coastal features, coastal buffer zones, regulated freshwater wetlands	As applicable	As applicable

The site has the following constraints:

1. high water table
2. building structures
3. regulated freshwater wetlands and perimeter wetlands

The site has limited areas suitable for stormwater BMPs due to site constraints. The proposed BMPs have been designed to the 'maximum extent possible' in accordance with the *'State of Rhode Island Stormwater Management Guidance for Individual Single-Family Residential Lot Development'* using sound engineering judgement.

Step 3: Select appropriate storm water treatment practice(s) based on your site conditions and required elements for each practice. You may have to install more than one practice to meet your stormwater management requirements;

The checked box indicates which BMPs were selected:

	Type of BMP	Justification
☐	Infiltration trench	(not used)
☐	Drywell	(not used)
☐	Qualified pervious area	(no qualified areas)
☒	Vegetated swale	(proposed for driveway and roof runoff)
☐	Rain garden	(not used)
☐	Permeable surface	(not used)

Step 4: Size the selected stormwater treatment practice(s) to meet the water quality volume (WQv) requirement using drainage area and soil texture information:

Selected BMP = vegetated swale for driveway & roof runoff
Soil texture = silty

Sizing table is taken from the *'State of Rhode Island Stormwater Management Guidance for Individual Single-Family Residential Lot Development'* guidance document:

Table 5. Vegetated Swale Sizing Guidance

Drainage Area (in square feet)	Bottom surface Area (in square feet) for an 8 in. deep swale	
	Sandy Soils*	Silty Soils*
200	16	32
400	32	64
600	48	96
800	64	128
1000	80	160

*In lieu of a soil texture determination, use the calculated surface areas for silty soils

Summary of impervious surface areas: driveway = 1,212 ft^2 (New Lot)
roof = 620 ft^2 (New Lot)

Size vegetated swale for NEW LOT driveway area:

The required size for silty soils with a 8" depth = (1,832/1,000) x 160 = 293 sq. ft. required

Length of swale = 80 feet
Width of swale = 2 feet
Area of swale = 80 x 2 = 160 sq. ft. / each
# of swales provided = 2
Total area provided = 160 x 2 = 320 sq. ft.

We are providing 320 sq. ft. > 293; therefore, size is OK

Step 5: A site plan depicting location of all proposed stormwater treatment practices, drainage areas, stormwater flow paths to each practice and other required elements detailed in the checklist is provided on the attached full size drawings.

Design checklist is taken from the *'State of Rhode Island Stormwater Management Guidance for Individual Single-Family Residential Lot Development'* guidance document:

Table 4. Required Elements for Vegetated Swales on Single-Family Residential Lots	
Conveyance	☐ Vegetated swales shall be designed with moderate side slopes flatter than 3:1 for most conditions. ☐ Vegetated swales shall have a maximum longitudinal slope of 4% (e.g. 4 foot drop over a horizontal distance of 100 feet).
Treatment	☐ The average surface ponding depth shall be no more than a 8 inches deep. ☐ The bottom width shall be no less than 2 feet and no greater than 8 feet wide ☐ A maximum ponding depth of 1 ft should be maintained at the longitudinal midpoint of the vegetated swale and a maximum depth of 18 inches at the end point. ☐ Swales should contain a 2 – 4 inch amended soil layer and a 2 – 3 inch mulch layer. ☐ The amended soil layer of a vegetated swale should be a 50/50 mixture of the excavated native soils and mature organic compost.
Vegetation	☐ Grasses or sedges are typically used in vegetated swales, but other native plants can be used as well. Please refer to the RI Coastal Plant Guide (www.uri.edu/cels/ceoc/coastalPlants/CoastalPlantGuide.htm) and modify the selection for native plants suited to rain gardens.
Maintenance	☐ Vegetated swales shall be inspected annually and should be inspected after large storm events. ☐ Eroded side slopes and channel bottoms shall be stabilized as necessary. ☐ If the surface of the dry swale becomes clogged to the point that standing water is observed on the surface 48 hours after precipitation events, the bottom shall be roto-tilled or cultivated to break up any hard-packed sediment, and then reseeded. ☐ Vegetation in dry swales shall be mowed as required to maintain minimum grass heights in the 4-6 inch range. ☐ Every five years, the channel bottom of dry swales should be scraped to remove sediment and to restore original cross section and infiltration rate, and should be seeded to restore ground cover, where necessary.

The proposed attached drawing(s) have been designed with a BMP which exceeds the area requirement and designed in accordance with the above checklist to the 'maximum extent possible'; therefore, the design meets the minimum requirements.

5.0 How potential wetland impacts have been avoided (pertaining to stormwater BMPs):

1. Post project water quality impacts will be mitigated by constructing BMPs for the impervious surface runoff, all of which were designed and constructed in accordance with the *'State of Rhode Island Stormwater Management Guidance for Individual Single-Family Residential Lot Development'* guidance document to the 'maximum extent possible'.

End of Report

RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
235 Promenade Street, Providence, Rhode Island 02908-5767

CERTIFIED MAIL

February 14, 2020

Joan M. Mooney [redacted]

[redacted]

Notification of Receipt of an Objection of a Substantive Nature

RE: Application No. 19-0107 in reference to the location below:

Approximately 50 feet southeast of Canning Street opposite Utility Pole No. 4, and approximately 390 feet northeast of its intersection of Woodrow and Canning Streets, Assessor's Plat 37, Lot 186, Cumberland, RI.

Dear Ms. Mooney,

The Department of Environmental Management's ("DEM") Freshwater Wetlands Program ("Program") has completed its review of seven (7) letters of comment that were submitted to the Program during the 45-day Notice period for public comment related to the above-referenced application. This notification is to inform you that this review has determined that several of these comments are considered *objections of a substantive nature* as defined by Rule 250-RIRC-150-15-1.10(D3c) of the Rules and Regulations Governing the Administration and Enforcement of the Freshwater Wetlands Act (Rules). Accordingly, before the DEM can issue a decision on your application, a Public Hearing pursuant to Section 2-1-22 (R.I.G.L.) of the RI Fresh Water Wetlands Act ("Act") and Rule 250-RIRC-150-15-1.10(D4) may be necessary and must be authorized by you and held by DEM to elicit comments from the public regarding the impacts of proposed alterations on the functions and values of the subject wetlands.

Pursuant to Rule 250-RIRC-150-15-1.10(D)(3)(d), you have the following options:

1. You may withdraw your application in writing, in which case the DEM will close the application and proceed no further in its review.

2. If you wish to proceed, you must authorize the scheduling of a public hearing in writing **within 30 days of your receipt of this notification and include a certified bank check in the amount of $2,500,** otherwise the application is considered withdrawn. We will terminate any further action on the application and will not re-open the application at a later date.

Additionally, pursuant to Rule 250-RIRC-150-15-1.10(C), the Department will entertain additional information demonstrating that the current design will adequately accommodate and facilitate the stormwater runoff that accumulates on the subject property, and that the current design will not worsen the existing flooding issues experienced at the subject property and surrounding properties. This information

must include appropriate calculations and any additional supportive data to validate the current design and demonstrate that additional flooding on the surrounding properties will not occur resulting from this proposal. Upon receipt of the information, this Program will evaluate the data and determine if the submission adequately addresses the *objections of a substantive nature* received during the initial Public Notice period. If the Program finds that the information submitted as requested herein does not satisfactorily address the concerns raised by the comments received during the initial Public Notice period, the application may be denied. If the Department finds that information provided appears to address the concerns raised during the initial Public Notice period, the proposal and the additional information will be re-noticed for 45 days to allow for additional comments from any abutters and any additional interested parties.

If you have any questions with respect to this notification, you may contact me directly at [redacted].

Sincerely,

Martin D. Wencek

Martin D. Wencek, Program Supervisor
Office of Water Resources
Freshwater Wetlands Program

MDW/MDW/cam

xc: Eric A. Beck, P.E., Chief, Office of Water Resources, Permitting
Mary Kay, Executive Counsel, DEM Office of Legal Services
Christina Hoefsmit, DEM Office of Legal Services
Tim Behan, Commonwealth Engineering and Consulting, Inc.

Kowal, Daniel (DEM)

From: Tim Behan <[redacted]>
Sent: Friday, November 15, 2019 8:26 AM
To: Kowal, Daniel (DEM)
Subject: [EXTERNAL] : #19-0107 - Canning Street, Cumberland

Hi Dan,

Sorry for the delay. To the best of my clients belief, Joan Mooney lives at [redacted],
[redacted]

Timothy Behan, P.E.
Commonwealth Engineers & Consultants, Inc.
400 Smith Street, Providence, RI 02908
[redacted]

RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
235 Promenade Street
Providence, Rhode Island 02908

October 11, 2019
Application No. 19-0107

NOTICE

The Department of Environmental Management's ("DEM") Freshwater Wetlands Program ("Program") has under consideration the application of Joan M. Mooney, [redacted] requesting permission to alter freshwater wetlands in the Town of Cumberland.

The proposed project is located approximately 50 feet southeast of Canning Street, opposite utility pole no. 4; approximately 390 feet northeast of the intersection of Woodrow and Canning Streets; Assessor's Plat 37, Lot 186, Cumberland, RI.

The freshwater wetlands affected by the proposed project include a swamp and the associated 50 foot perimeter wetland, and an area subject to storm flowage.

The purpose of the proposed wetland alterations is for the construction of a single family dwelling with a garage, driveway area, vegetated swales, utilities, and landscape plantings.

The proposed alterations to freshwater wetlands consist of at least vegetative clearing, soil disturbance, excavation, grading, filling, paving, house and garage construction, utility installations, vegetated swale installations, and landscaping.

The project, as proposed will result in the alteration and/or disturbance of at least 5,196 square feet (0.12 acres) of freshwater wetlands.

Full-sized site plans illustrating the proposed project and detailing freshwater wetlands to be altered have been furnished to the Cumberland Town Council and the Cumberland Town Clerk's Office and may be viewed at the Town offices or at our Offices. A reduced copy of the site plan has been provided with this **NOTICE.**

This NOTICE is <u>not</u> authorization to do any work or to proceed with the project.

The purpose of this **NOTICE** is to inform all landowners whose properties are within two hundred feet (200') of the proposed project, the Town/City Council, the Conservation Commission, the Planning Board, the Zoning Board, and any other interested individuals and agencies of the proposal and to provide for a period of forty-five (45) days (NOTICE Period) within which concerns or comments may be received. Any comments and/or objections received during the NOTICE period shall be used to evaluate the proposed project and its impacts upon freshwater wetland functions and values.

You are advised that if you desire to submit a statement or have a good reason to enter a protest against the proposed project, it is your privilege to do so. Objections to the proposed project must relate to the proposed project's impacts on the functions and values provided by the freshwater wetlands to be altered.

Such functions and values include but are not limited to:

1) Protection of life and/or property from flooding or flood flows by retaining, storing, metering, or slowing flood waters from storm events;
2) Providing and maintaining surface and/or groundwater supplies by acting as a recharge or discharge area;
3) Providing and maintaining valuable wildlife habitats;
4) Providing and maintaining high value recreation areas; and
5) Protecting and maintaining water quality.

Information regarding the Program's practices and procedures for evaluating such comments, any definitions, or further information on wetland functions and values may be obtained by consulting the Rules and Regulations Governing the Administration and Enforcement of the Freshwater Wetlands Act, 250-RICR-150-15-1.

In accordance with 250-RICR-150-15-1.10(D)(3)(a), comments filed with the DEM will be considered if they are in writing, are legible, contain a discernable name and address, are signed and are received during the NOTICE period. The application number appearing in this NOTICE or other information which will identify the comments to the proposed project is also required. The NOTICE period for this application ends at 4:00 p.m. on November 25, 2019. This Program cannot extend this NOTICE period.

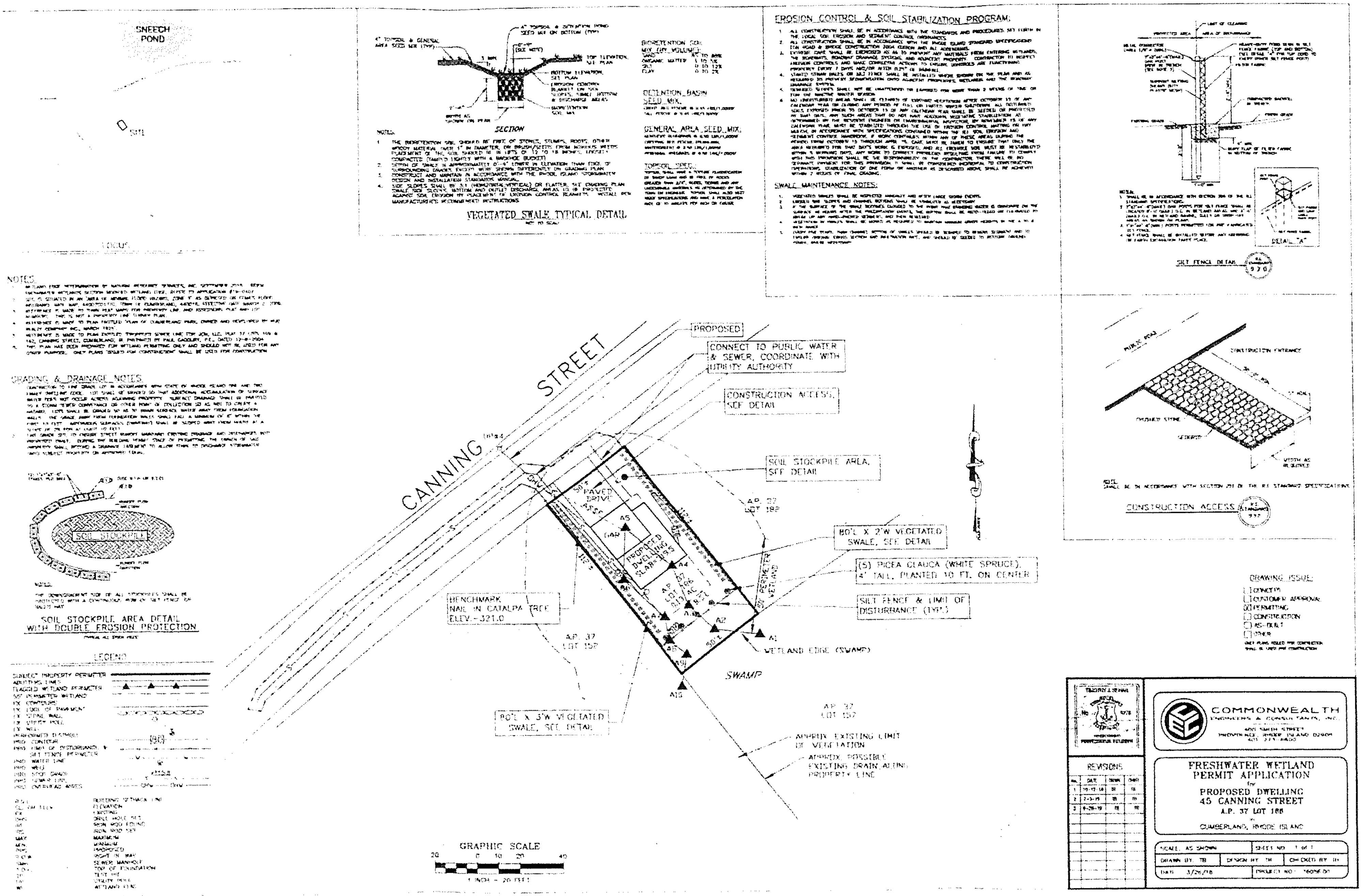
Anyone wishing to review the file in this matter should contact the Office of Customer and Technical Assistance in advance (telephone: [redacted] ext. [redacted] or Email: [redacted] to arrange an appointment.

Sincerely,

Martin D. Wencek

Martin D. Wencek, Program Supervisor
Freshwater Wetlands Program
Office of Water Resources

MDW/DMK/dmk


SNEECH POND
SITE
LOCUS
NOTES:
GRADING & DRAINAGE NOTES:
SOIL STOCKPILE
SOIL STOCKPILE AREA DETAIL WITH DOUBLE EROSION PROTECTION
LEGEND
SECTION
VEGETATED SWALE TYPICAL DETAIL
BIORETENTION SOIL MIX (BY VOLUME):
DETENTION BASIN SEED MIX:
GENERAL AREA SEED MIX:
TOPSOIL SPEC.:
EROSION CONTROL & SOIL STABILIZATION PROGRAM:
SWALE MAINTENANCE NOTES:
SILT FENCE DETAIL
DETAIL "A"
CONSTRUCTION ENTRANCE
CONSTRUCTION ACCESS
CANNING STREET
PROPOSED
CONNECT TO PUBLIC WATER & SEWER, COORDINATE WITH UTILITY AUTHORITY
CONSTRUCTION ACCESS, SEE DETAIL
SOIL STOCKPILE AREA, SEE DETAIL
A.P. 37 LOT 187
80'L X 2'W VEGETATED SWALE, SEE DETAIL
(5) PICEA GLAUCA (WHITE SPRUCE), 4' TALL, PLANTED 10 FT. ON CENTER
SILT FENCE & LIMIT OF DISTURBANCE (TYP.)
PAVED DRIVE
GAR
PROPOSED DWELLING
A.P. 37 LOT 186
BENCHMARK NAIL IN CATALPA TREE ELEV.=321.0
A.P. 37 LOT 157
WETLAND EDGE (SWAMP)
SWAMP
80'L X 3'W VEGETATED SWALE, SEE DETAIL
APPROX. EXISTING LIMIT OF VEGETATION
APPROX. POSSIBLE EXISTING DRAIN ALONG PROPERTY LINE
GRAPHIC SCALE
20 0 10 20 40
1 INCH = 20 FEET
DRAWING ISSUE:
CONCEPT
CUSTOMER APPROVAL
PERMITTING
CONSTRUCTION
AS-BUILT
OTHER
COMMONWEALTH ENGINEERS & CONSULTANTS, INC.
FRESHWATER WETLAND PERMIT APPLICATION for PROPOSED DWELLING 45 CANNING STREET A.P. 37 LOT 186 in CUMBERLAND, RHODE ISLAND
REVISIONS
SCALE: AS SHOWN
SHEET NO. 1 of 1
DRAWN BY: TB
DESIGN BY: TH
CHECKED BY: TH
DATE: 3/26/18

RIDEM
Office of W... Resources
235 Prom... Street
Providence ... 02908-8767

PRESORTED
FIRST CLASS

Joan M. Mooney
[redacted]

NIXIE 015 FE 1260 0010/22/19
RETURN TO SENDER
NOT DELIVERABLE AS ADDRESSED
UNABLE TO FORWARD

BC: 02908576799 *1669-01440-22-22

RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
DIVISION OF FRESHWATER WETLANDS

WETLAND APPLICATION REVIEW COVER SHEET

FILE NO: 19-0107

PGP I

TYPE OF APPLICATION: ALTER

RENEWALS REMAINING:

RENEWAL EXPIRATION:

APPLICANT: Mooney, Joan M.

CROSS REFERENCE FILES: 18-0153

SITE LOCATION:

Approximately 50 feet southeast of Canning Street, opposite utility pole no. 4; approximately 390 feet northeast of the intersection of Woodrow and Canning Streets; Assessor's Plat 37, Lot 186, Cumberland, RI

APPLICATION ASSIGNED TO: DMK

REASON FOR SUBMISSION: Public Notice End Date 11/25/2019

Prepared: 12/05/2019
Covershe.prg

RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
235 Promenade Street
Providence, Rhode Island 02908

October 11, 2019
Application No. 19-0107

NOTICE

The Department of Environmental Management's ("DEM") Freshwater Wetlands Program ("Program") has under consideration the application of Joan M. Mooney, [redacted] requesting permission to alter freshwater wetlands in the Town of Cumberland.

The proposed project is located approximately 50 feet southeast of Canning Street, opposite utility pole no. 4; approximately 390 feet northeast of the intersection of Woodrow and Canning Streets; Assessor's Plat 37, Lot 186, Cumberland, RI.

The freshwater wetlands affected by the proposed project include a swamp and the associated 50 foot perimeter wetland, and an area subject to storm flowage.

The purpose of the proposed wetland alterations is for the construction of a single family dwelling with a garage, driveway area, vegetated swales, utilities, and landscape plantings.

The proposed alterations to freshwater wetlands consist of at least vegetative clearing, soil disturbance, excavation, grading, filling, paving, house and garage construction, utility installations, vegetated swale installations, and landscaping.

The project, as proposed will result in the alteration and/or disturbance of at least 5,196 square feet (0.12 acres) of freshwater wetlands.

Full-sized site plans illustrating the proposed project and detailing freshwater wetlands to be altered have been furnished to the Cumberland Town Council and the Cumberland Town Clerk's Office and may be viewed at the Town offices or at our Offices. A reduced copy of the site plan has been provided with this **NOTICE**.

This NOTICE is <u>not</u> authorization to do any work or to proceed with the project.

The purpose of this **NOTICE** is to inform all landowners whose properties are within two hundred feet (200') of the proposed project, the Town/City Council, the Conservation Commission, the Planning Board, the Zoning Board, and any other interested individuals and agencies of the proposal and to provide for a period of forty-five (45) days (NOTICE Period) within which concerns or comments may be received. Any comments and/or objections received during the NOTICE period shall be used to evaluate the proposed project and its impacts upon freshwater wetland functions and values.

You are advised that if you desire to submit a statement or have a good reason to enter a protest against the proposed project, it is your privilege to do so. Objections to the proposed project must relate to the proposed project's impacts on the functions and values provided by the freshwater wetlands to be altered.

Such functions and values include but are not limited to:

1) Protection of life and/or property from flooding or flood flows by retaining, storing, metering, or slowing flood waters from storm events;
2) Providing and maintaining surface and/or groundwater supplies by acting as a recharge or discharge area;
3) Providing and maintaining valuable wildlife habitats;
4) Providing and maintaining high value recreation areas; and
5) Protecting and maintaining water quality.

Information regarding the Program's practices and procedures for evaluating such comments, any definitions, or further information on wetland functions and values may be obtained by consulting the Rules and Regulations Governing the Administration and Enforcement of the Freshwater Wetlands Act, 250-RICR-150-15-1.

In accordance with 250-RICR-150-15-1.10(D)(3)(a), comments filed with the DEM will be considered if they are in writing, are legible, contain a discernable name and address, are signed and are received during the NOTICE period. The application number appearing in this NOTICE or other information which will identify the comments to the proposed project is also required. The NOTICE period for this application ends at 4:00 p.m. on November 25, 2019. This Program cannot extend this NOTICE period.

Anyone wishing to review the file in this matter should contact the Office of Customer and Technical Assistance in advance (telephone: [redacted], ext. [redacted] or Email: [redacted]) to arrange an appointment.

Sincerely,

Martin D. Wencek

Martin D. Wencek, Program Supervisor
Freshwater Wetlands Program
Office of Water Resources

MDW/DMK/dmk

RHODE ISLAND DEPARTMENT OF ENVIRONMENT MANAGEMENT
DIVISION OF FRESHWATER WETLANDS

WETLAND APPLICATION REVIEW COVER SHEET

FILE NO: 19-0107

PGP I

TYPE OF APPLICATION: ALTER

RENEWALS REMAINING:

RENEWAL EXPIRATION:

APPLICANT: Mooney, Joan M.

CROSS REFERENCE FILES: 18-0153

SITE LOCATION:

Approximately 50 feet southeast of Canning Street, opposite utility pole no. 4; approximately 390 feet northeast of the intersection of Woodrow and Canning Streets; Assessor's Plat 37, Lot 186, Cumberland, RI

APPLICATION ASSIGNED TO: DMK

REASON FOR SUBMISSION: Plans Received for Public Notice 09/30/2019

COMMONWEALTH
ENGINEERS & CONSULTANTS, INC.
400 Smith Street
Providence, RI 02908
Tel. (401) 273-6600. Fax (401) 273-6674
www.commonwealth-eng.com

SEPTEMBER 28, 2019

MR. MARTIN WENCEK, PERMITTING SUPERVISOR
RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
FRESHWATER WETLANDS PROGRAM
OFFICE OF WATER RESOURCES
235 PROMENADE STREET
PROVIDENCE, RI 02908

RE: APPLICATION TO ALTER A FRESHWATER WETLAND
CANNING STREET, CUMBERLAND, RI
RIDEM PD#19-0107

Dear Mr. Wencek:

Commonwealth Engineers & Consultants, Inc. (CE&C) has received your letter dated September 11, 2019 and offer the following response to comments:

1. (6) Six full size 24" x 36" plans are attached.
2. (31) Thirty-one reduced size 8-1/2" x 11" plans are attached.
3. The overhead wire was labeled 'proposed' on the plans.
4. (2) Two copies of the Project Narrative are attached. This narrative states the proposed driveway is 'paved' in paragraph 2 of page 3.
5. Updated radius map.
6. Please note the plan scale was changed from 1"=30' to 1"=20' to make the 8 x 11 reduced size plans easier to read as discussed on the phone.

Should you require additional information please call.

Sincerely yours
COMMONWEALTH ENGINEERS & CONSULTANTS, INC.

Timothy Behan, P.E.

Cc: Mr. Scott Rabideau, NRS
Enclosure

RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
235 Promenade Street
Providence, Rhode Island 02908

September 11, 2019

Joan M. Mooney
[redacted]

RE: Wetland Application No. 19-0107 in reference to the property and proposed project located:

Approximately 50 feet southeast of Canning Street, opposite utility pole no. 4; approximately 390 feet northeast of the intersection of Woodrow and Canning Streets; Assessor's Plat 37, Lot 186; Cumberland, RI.

Dear Ms. Mooney:

The Department of Environmental Management's ("DEM") Freshwater Wetlands Program ("Program") has completed its initial review of your Application to Alter a Freshwater Wetland. This initial review has determined that your application is complete and adequate for Notice for public comment in accordance with the Rules and Regulations Governing the Administration and Enforcement of the Freshwater Wetlands Act, 250-RICR-150-15-1. In order to carry out the Notice pursuant to the Rules, you are required to submit 6 full size copies of your site plan and 31 reduced-size (8½" x 11") copies of your site plan. These site plans must be identical, except as noted below, to the site plan recently reviewed by the Program and entitled:

"FRESHWATER WETLAND PERMIT APPLICATION for PROPOSED DWELLING 45 CANNING STREET, A.P. 37 LOT 186, CUMBERLAND, RHODE ISLAND ...," Sheet 1 of 1, most recently revised on 7-3-19; received by this Department on July 3, 2019.

Please be advised that prior to preparing the copies of the site plans requested, you must in accordance with 250-RICR-150-15-1.7(A)(3)(g): label the depicted overhead electric wire (OHW) as proposed.

Further, submit two copies of a revised **Project Narrative in Support of an Application to Alter a Freshwater Wetland that reflects the proposed paved driveway depicted on the most recent site plan.**

You are responsible for reviewing the list of abutters provided to this Program for purposes of the public Notice and ensuring that it is accurate and up to date. If necessary, please provide an updated list to reflect any recent land transactions or changes in ownership.

Please provide this information as soon as possible so that we may continue to process your application. Upon receipt, this Program will review this material for completeness in accordance with this letter and promptly Notice your application in accordance with the Rules. Please ensure that your site plan(s), both full and reduced, are legible and bear the stamp, signature and date of signing of all licensed professionals that are responsible for plan preparation pursuant to state law (see 250-RICR-150-15-1.7(A)(3)(m)).

Please reference the Application No. above in all communications regarding your application. If you have any questions, please contact Daniel Kowal of this Office at ([redacted] ext. [redacted]

Sincerely,

Martin D. Wencek

Martin D. Wencek, Program Supervisor
Freshwater Wetlands Program
Office of Water Resources

MDW/DMK/dmk

ec: Timothy Behan, PE, Commonwealth Engineers & Consultants, Inc.
Scott P. Rabideau, Natural Resource Services, Inc.

RHODE ISLAND DEPARTMENT OF ENVIRONMENT MANAGEMENT
DIVISION OF FRESHWATER WETLANDS

WETLAND APPLICATION REVIEW COVER SHEET

FILE NO: 19-0107

PGP I

TYPE OF APPLICATION: ALTER

RENEWALS REMAINING:

RENEWAL EXPIRATION:

APPLICANT: Mooney, Joan M.

CROSS REFERENCE FILES: 18-0153

SITE LOCATION:

Approximately 50 feet southeast of Canning Street, opposite utility pole no. 4; approximately 390 feet northeast of the intersection of Woodrow and Canning Streets; Assessor's Plat 37, Lot 186, Cumberland, RI

APPLICATION ASSIGNED TO: DMK

REASON FOR SUBMISSION: Applicant Response to Tech. Deficiency 07/03/2019

Prepared: 07/08/2019
Covershe.prg

COMMONWEALTH
ENGINEERS & CONSULTANTS, INC.
400 Smith Street
Providence, RI 02908
Tel. (401) 273-6600, Fax (401) 273-6674
www.commonwealth-eng.com

JULY 3, 2019

MR. DANIEL KOWAL
RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
FRESHWATER WETLANDS PROGRAM
OFFICE OF WATER RESOURCES
235 PROMENADE STREET
PROVIDENCE, RI 02908

RE: APPLICATION TO ALTER A FRESHWATER WETLAND
CANNING STREET, CUMBERLAND, RI
RIDEM PD#19-0107

Dear Mr. Kowal:

Commonwealth Engineers & Consultants, Inc. (CE&C) has received review comments dated May 17, 2019 and offer the following response to comments:

1. Flag A5 location corrected. Flag numbers indicated on plan.
2. Flags A4 and A5 relocated. 50' perimeter wetland revised accordingly.
3. Swamp is labeled.
4. Area subject to storm flowage added.
5. Proposed overhead electric wire added to plan.
6. Driveway to be paved and indicated on drawing.
7. Height of plantings indicated. Plantings revised to white spruce.

Should you require additional information please call.

Sincerely yours
COMMONWEALTH ENGINEERS & CONSULTANTS, INC.

Timothy Behan, P.E.

Enclosure

RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
235 Promenade Street,
Providence, Rhode Island 02908

May 17, 2019

Joan M. Mooney
[redacted]

Re: Wetland Application No. 19-0107 in reference to the property located:

Approximately 50 feet southeast of Canning Street, opposite utility pole no. 4; approximately 390 feet northeast of the intersection of Woodrow and Canning Streets; Assessor's Plat 37, Lot 186, Cumberland, RI.

Dear Ms. Mooney:

Please be advised that the DEM's Freshwater Wetlands Program is unable to complete our review of your Application at this time. The enclosed review comments are intended to obtain additional information and specify what must be revised and/or provided so that we may continue to process your application. Please provide this information as soon as possible. If we do not receive this information within (1) one year of the date of this letter your application will be considered closed pursuant to the Rules and Regulations Governing the Administration and Enforcement of the Freshwater Wetlands Act, 250-RICR-150-15-1.

Thank you in advance for your anticipated cooperation in addressing the enclosed comments. Please reference the application number provided above in all communications regarding your application. If you have any questions, please call Mr. Daniel Kowal at [redacted], ext. [redacted].

Sincerely,

Martin D. Wencek, Permitting Supervisor
Freshwater Wetlands Program
Office of Water Resources

MDW/dmk

Enclosure: Technical review comments

ec: Timothy Behan, PE, Commonwealth Engineers & Consultants, Inc.
Scott P. Rabideau, Natural Resource Services, Inc.

RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT (RIDEM)
FRESHWATER WETLANDS PROGRAM (FWP)
BIOLOGICAL APPLICATION REVIEW SHEET

FILE NO: 19-0107 **FILE NAME:** Joan M. Mooney

REVIEWER: Daniel M. Kowal **DATE:** May 17, 2019

REVIEW STATUS

Incomplete: Biologist
Required Information Per Rules/Regulations (Rules and Regulations Governing The Administration and Enforcement Of The Fresh Water Wetlands Act, 250-RICR-150-15-1) (see review comments below).

REVIEW COMMENTS FOR SITE PLANS AND INFORMATION RECEIVED ON APRIL 4, 2019:

1. Wetland edge flag A5 (not marked on site plan), but is marked onsite, is incorrectly located on the site plan, based on existing, adjacent marked wetland edge flags. Please correct the location of flag A5 on the site plan in accordance with 250-RICR-150-15-1.10(B)(2)(b). Ensure that the site plan depicts the letters/numbers of all the wetland edge flags in accordance with 250-RICR-150-15-1.7(A)(4)(b)(2).

2. Relocate wetland edge flag A4 10 feet to the northeast and relocate wetland edge flag A5 20 feet to the north-northwest in accordance with 250-RICR-150-15-1.10(B)(2)(b). Also revise accordingly on the site plan the 50 foot perimeter wetland edge adjacent to flags A4 and A5 in accordance with 250-RICR-150-15-1.10(B)(2)(b).

3. Label on the site plan the subject swamp in accordance with 250-RICR-150-15-1.10(B)(2)(b).

4. Depict on the site plan the area subject to storm flowage that enters the subject site from Canning Street in accordance with 250-RICR-150-15-1.10(B)(2)(b).

5. Depict on the site plan all proposed overhead electrical wires and/or any proposed underground electrical utilities in accordance with 250-RICR-150-15-1.7(A)(3)(l)(7).

6. Label on the site plan the proposed driveway surface (i.e., crushed stone or paved?) in accordance with 250-RICR-150-15-1.7(A)(3)(g).

7. Provide on the site plan the heights of the proposed white cedar plantings. Note: since white-tailed deer are present in the area, you may want to consider a different tree species other than white cedar to plant (see the list of Deer Resistant Plants on page 10-4 in the **WETLAND BMP MANUAL: TECHNIQUES FOR AVOIDANCE AND MINIMIZATION,** April 2010).

Furnish **two copies of a revised site plan** to this office that incorporate the above comments. Please include a written response to the review comments noted above.

RHODE ISLAND 'ARTMENT OF ENVIRONMENTAL MANAGEMENT
DIVISION OF FRESHWATER WETLANDS

WETLAND APPLICATION REVIEW COVER SHEET

FILE NO: 19-0107

TYPE OF APPLICATION: ALTER

RENEWALS REMAINING:

RENEWAL EXPIRATION:

APPLICANT: Mooney, Joan M.

CROSS REFERENCE FILES: 18-0153

SITE LOCATION:

Canning Street, AP 37, Lot 186, UP 4, and Woodrow Street is located 370 feet southwest, Cumberland, RI

APPLICATION ASSIGNED TO: DMS 4/15

REASON FOR SUBMISSION: Request to Alter Wetland Application 04/04/2019

W/o Engnr Reg'd

RI GP: Eligible as SV.

Prepared: 04/08/2019
Covershe.prg

COMMONWEALTH
ENGINEERS & CONSULTANTS, INC.
400 Smith Street
Providence, RI 02908
Tel. (401) 273-6600, Fax (401) 273-6674
www.commonwealth-eng.com

APRIL 4, 2019

MR. MARTIN D. WENCEK
PERMITTING SUPERVISOR
RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
FRESHWATER WETLANDS PROGRAM
OFFICE OF WATER RESOURCES
235 PROMENADE STREET
PROVIDENCE, RI 02908

RE: APPLICATION TO ALTER A FRESHWATER WETLAND
CANNING STREET, CUMBERLAND, RI
RIDEM PD#18-0153

Dear Mr. Wencek:

Commonwealth Engineers & Consultants, Inc. (CE&C) has prepared an Application to Alter Freshwater Wetland permit application for the above referenced site and the following documents are included:

1. (4) Application form
2. (4) Site plans
3. Fee
4. (4) Proof of ownership (certified deed)
5. (4) Radius map and list of property owners within 200'
6. (4) Project narrative prepared by Natural Resource Services, Inc.
7. (4) Stormwater BMP narrative report prepared by Commonwealth Engineers & Consultants, Inc.
8. (4) Site affidavit for field work

Should you require additional information please call.

Sincerely yours
COMMONWEALTH ENGINEERS & CONSULTANTS, INC.

Timothy Behan, P.E.

Enclosure

BK812 PG327

5510

QUITCLAIM DEED

We, **JOHN A. MOONEY** and **JOAN M. MOONEY**, husband and wife, of the Town of Cumberland, County of Providence, State of Rhode Island, for consideration paid, grant to **JOAN M. MOONEY**, of the Town of Cumberland, County of Providence, State of Rhode Island, with **QUITCLAIM COVENANTS**:

> Those certain lots or parcels of land, with all the buildings and improvements thereon, situated in the Town of Cumberland, County of Providence, State of Rhode Island, laid out and designated as Lots One Hundred Eighty Six (186) and One Hundred Eighty Seven (187), fronting on Canning Street in Section "F" on that plat entitled, "Cumberland Park", Surveyed and Platted by Joseph Wood, C. E., March 1925, which said plat is recorded in the Records of Plats in the Town Clerk's Office in said Town of Cumberland in Plat Book 2 at Page 52, to which plat reference may be had for further description of said premises.

Said premises are conveyed subject to restrictions of record, if any.

There is no monetary consideration for this conveyance and therefore no tax stamps are required. Compliance with RIGL 44-30-71.3 is not required in that the Grantors herein are residents of the State of Rhode Island, and this deed is for estate planning purposes.

Compliance with RIGL 23-28.35-1, the Rhode Island Smoke Detector Law, is not required in that this is not a "sale".

IN WITNESS WHEREOF, the undersigned have hereunto set their hands and seals this 30TH day of JUNE, 1999.

RECEIVED
Town of Cumberland
11:29 AM
JUL 06 1999
Town Clerk

John A. Mooney
JOHN A. MOONEY

Joan M. Mooney
JOAN M. MOONEY

STATE OF RHODE ISLAND
COUNTY OF PROVIDENCE

In Providence on this 30th day of June, 1999, before me personally appeared JOHN A. MOONEY and JOAN M. MOONEY, to me known and known to me to be the parties executing the foregoing instrument, and they acknowledged said instrument by them executed to be their free acts and deeds.

Danielle P. Stoddard
NOTARY PUBLIC

DANIELLE P. STODDARD, Notary Public
State of Rhode Island and Providence Plantations
My Commission Expires: 03/10/03

TOWN OF CUMBERLAND, RI
DATE: APR 04 2019
A true copy,
ATTEST: L. Iannelli
Town Clerk

RIDEM USE ONLY: Wetlands Application Number_____

RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
Office of Water Resources / Freshwater Wetlands Program
235 Promenade Street, Providence, RI 02908-5767

SITE WORK AFFIDAVIT

APR 1 2019

This affidavit is to be used by Freshwater Wetland Professionals to attest to the completion and certification of all Site Work **at the time an application is submitted** to the RIDEM Freshwater Wetlands Program. Affidavits must be accompanied by a complete Freshwater Wetlands permit application submittal.

In accordance with the *Rules and Regulations Governing the Administration and Enforcement of the Freshwater Wetlands Act*, 250-RICR-150-15-1, specifically, 250-RICR-150-15-1.7(A)(5), an applicant must perform site work to clearly identify and label site activities and features. Incomplete site work results in the issuance of deficiency letters and the need for multiple RIDEM inspections, causing unnecessary permitting delays. Applicants are encouraged to read *Avoid these Common Preventable Site Work Delays!* to learn more about facilitating quicker permit reviews.

Applicant Name:_____
Note: Applicant must be the owner of property or easement or a government agency or entity with power of condemnation over such property or easement that is the subject of this application.

Please initial that all applicable site work listed below have been performed and certified at the time of application submission and sign the certification statement.

X Wetland Flags are present on site and are correctly and legibly labeled;

X Wetland Flag numbers on site correspond to those depicted on the plans;

X Wetland Flags have been accurately surveyed and depicted on the plans; and

X The proposed Limit of Disturbance (LOD) and other applicable proposed activities and features (See 250-RICR-150-15-1.7(A)(5)) have been staked and labeled on site.

CERTIFICATION OF PROFESSIONAL(S)
I certify that I have inspected the subject property and its surroundings and do hereby attest that to the best of my knowledge, all site work specified above has been accurately completed and certified at the time of application submission and prior to RIDEM inspection, in accordance with the Rules and Regulations Governing the Administration and Enforcement of the Freshwater Wetlands Act, 250-RICR-150-15-1.

Professional's Name: TIMOTHY BEMAN
Note: The professional (e.g. engineer, biologist, landscape architect, surveyor, etc.) responsible for the submission and/or preparation of this Application, on behalf of the Applicant, must sign below.

Signature:_____ **Date:** 4.2.2019

RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES \ FRESHWATER WETLANDS PROGRAM

235 Promenade Street, Providence, RI 02908
Telephone [redacted], Rhode Island Relay 711

AGENCY USE ONLY
Application No: 19-0107
Application Received:

GENERAL APPLICATION FORM

Please type or print

PART A **Purpose of Application (see 250-RICR-150-15-1)**

- ☐ Request to Determine Presence of Wetlands only (250-RICR-150-15-1.8(B))
- ☐ Request to Verify Delineated Edge of Wetlands (250-RICR-150-15-1.8(C))
- ☐ Request for Preliminary Determination (250-RICR-150-15-1.9)
- X Application to Alter a Freshwater Wetland (250-RICR-150-15-1.10)
- ☐ Application for Permit Renewal (250-RICR-150-15-1.11(B)) **Complete Only Parts B, D & H**
- ☐ Application for Permit Modification (250-RICR-150-15-1.11(C))
- ☐ Application for Permit Transfer (250-RICR-150-15-1.11(D)) **Complete Only Parts B, E & H**
- ☐ Change in Owner during review (250-RICR-150-15-1.7(A)(2)(e)) **Complete Only Parts B, F & H**

APR 4 2019

PART B **Applicant Information:**

Applicant's Name (see 250-RICR-150-15-1.7(A)(2)): Joan M. Mooney

Note: The applicant must be the owner of the property or easement which is the subject of this application or must be the government agency or entity with power of condemnation over such property or easement.

Applicant's Mailing Address: [redacted]
Street/Road P.O. Box

[redacted]
City/Town State Zip Code Telephone No.

Applicant's Email Address: (print legibly): n/a

Property Location subject to this Application:

Cumberland | Canning Street | 45
City/Town | Street Abutting Site | Street address number (if applicable)

Nearest street intersection and its distance and direction from site: Canning St. & Woodrow St. is located 370' SW

Nearest utility pole number(s): #4 Direction to site from abutting street: N___ S___ E X W___

Tax Assessor's Plat(s) and Lot No(s): A.P. 37 Lot 186

Recorded Plat(s) and Lot No(s) (*if Assessor's are not available*): n/a

PART C **General Information:**

Any previous application for this site? Yes X No ___ Provide Application No(s) #18-0153

Any previous enforcement action for this site? Yes ___ No X Provide File No(s) ___

Amount of wetland area to be altered, if any:

Palustrine wetland: 485 *square feet*
Riverbank or perimeter wetland: 3,690 *square feet*
Watercourse: 0 *linear feet*

☐ *Check here if any floodplain alteration is proposed.*

- Fee category per 250-RICR-150-15-1.7(A)(11) (ex. 1.7(A)(11)(d)(6) 2-lots sub. Pre-Det. $900) 1.7(A)(11)(d)(2) $900 Check No. 610

☐ Check here if the project has a Certificate of Critical Economic Concern (CEC) and attach copy of certification.

PART D **For Application for Permit Renewal** (if applicable):

Name of Original or Subsequent Permittee: ___

Application/Permit No. ___ Permit Expiration Date: ___

Number of previous renewals issued (if applicable): ___

Applicant's Statement: I hereby state that I am requesting renewal of the original or subsequently modified permitted project under Application/Permit No. ___. I fully understand the permit limitations and will comply with any and all conditions of the permit.

Applicant's name: (*print*) ___ (*signature*) ___

Check here if actual site work has commenced on the project for which renewal is requested.

PART E **For Application for Permit Transfer** (if applicable):

Original Permittee's Name: _____

Application/Permit No.: _____ Permit Expiration Date: _____

Note: A certified copy of the deed of transfer must be enclosed with application.

Applicant's Statement: I hereby certify that I have reviewed the permit letter issued under Application/Permit No. _____ and hereby agree to comply with all conditions of the permit, including any time limitations imposed.

Applicant's Name (*print*): _____ (*signature*): _____ Date: _____

PART F **For Change in Owner During Application Processing** (if applicable):

Original Applicant's Name: _____ Application No. _____

Note: A certified copy of the deed of transfer must be enclosed for Applications to Alter only.

PART G **Certification of Professional(s)** (if applicable):

Note: Any professional (e.g. engineer, biologist, landscape architect, etc.) who participated in the submission and/or preparation of this Application and supporting documentation must sign below.

I hereby certify that I have been authorized by the applicant to prepare documentation to be submitted in support of this Application; that such documentation is in accordance with the *Rules and Regulations Governing the Administration and Enforcement of the Freshwater Wetlands Act* (250-RICR-150-15-1); and that such documentation is true, accurate and complete to the best of my knowledge.

Professional's Name (*print*): Timothy Behan, P.E. Title: Engineer

Email (print legibly): [redacted] d/b/a: Commonwealth Engineers & Consultants, Inc.

Address: 400 Smith Street, Providence, RI 02908

Professional's Signature: _____ Date: 3-9-19

☒ **Check this box if the above named is the project manager or project lead for the applicant.**

☒ **I've completed and attached the Site Work Affidavit.**

If more than one professional:

Professional's Name (*print*): _____ Title: _____

Email (print legibly): _____ d/b/a: _____

Address: _____

Professional's Signature: _____ Date: _____

☐ **I've completed and attached the Site Work Affidavit.**

Professional's Name (*print*): _____ Title: _____

Email (print legibly): _____ d/b/a: _____

Address: _____

Professional's Signature: _____ Date: _____

☐ **I've completed and attached the Site Work Affidavit.**

PART H **Certification/Authorization of Applicant:**

I hereby certify that I have requested and authorized the investigation, compilation, and submission of all the information, in whatever form, contained in this Application; that I have personally examined and am familiar with the information submitted herein; and that such information is true, accurate and complete to the best of my knowledge. I hereby authorize RIDEM personnel access to the property for purposes of observing conditions pertinent to this application and assessing compliance with any permit or determination resulting from this application, including any sampling, monitoring or surveying that may be deemed appropriate, consistent with the RIDEM Administrative Inspection Guidelines. (See DEM website - Office of Compliance and Inspection for copy).

Note any special concerns for access here:

_____

Applicant's Signature: Joan M. Mooney **Title** (if applicable): _____

See 250-RICR-150-15-1.7(A)(2) regarding Signatures

Print Name Signed Above: JOAN M. MOONEY **Date**: 03-06-19

NOTE: This list is not considered complete for NOTICE purposes unless authorized by the Permitting Supervisor. See reverse side for authorization.

AGENCIES, GROUPS, INDIVIDUALS-RECEIVE COPIES OF THE "NOTICE" AND PLANS

APPLICATION NO. 19-0107

AGENCY/GROUP INDIVIDUAL	REDUCED PLANS	FULL SIZE PLAN
CITY/TOWN COUNCIL (CLERK)		2
PLANNING BOARD	1	
ZONING BOARD	1	
BUILDING INSPECTOR	1	
CITY/TOWN PUBLIC WORKS	1	
CONSERVATION COMMISSION	1	
FILE	1	3
ABUTTORS (LIST ATTACHED)	(18)	
SUPERVISOR		
STAFF BIOLOGIST		1
APPLICANT	1	
PROVIDENCE JOURNAL	1	
HISTORIC PRESERVATION COMM.	1	
SALT PONDS COALITION		
DIVISION OF FISH & WILDLIFE		
PROVIDENCE WATER SUPPLY BOARD (SCITUATE RESERVOIR WATERSHED)		
RI COASTAL RES. MGT. COUNCIL		
NATURAL RESOURCES CONSERVATION SERVICE		
RIDOT DIV. OF MAINTENANCE		
ENVIRONMENT COUNCIL OF RI		
DIV. OF AIR & HAZ. MATERIAL		
SAVE THE BAY		
NARRAGANSETT INDIAN TRIBE	1	
U.S. ARMY CORPS OF ENGINEERS, NEW ENGLAND		
DIVISION OF PLANNING & DEV.		
RI NATURAL HISTORY SURVEY		

AGENCIES, GROUPS, INDIVIDUALS
RECEIVE COPIES OF THE "NOTICE AND PLANS

WOOD PAWCATUCK WATERSHED ASSOC.		
SAUGATUCKET RIVER HERITAGE CORRIDOR COALITION, INC.		
WOONASQUATUCKET RIVER WATERSHED COUNCIL		
KICKEMUIT RIVER COUNCIL		
NARROW RIVER PRES. SOCIETY		
AUDUBON SOCIETY OF RI		
ONSITE WASTEWATER TREATMENT SYSTEM PROGRAM		
SIERRA CLUB; R.I. CHAPTER		
PAWTUXET RIVER AUTHORITY		
BLACKSTONE RIVER WATERSHED COUNCIL PO Box 8068, CUMBERLAND, RI 02864	1	
FRIENDS OF THE MOSHASSUCK 37 Sixth Street Providence, RI 02906		
ADDITIONAL PARTIES TO BE NOTIFIED (INDICATE ADDRESSES BELOW)		

Timothy Behan, PE
Commonwealth Engineers & Consultants, Inc.
400 Smith Street
Providence, RI 02908

1

Scott P. Rabideau
Natural Resource Services, Inc.
P.O. Box 311
Harrisville, RI 02830

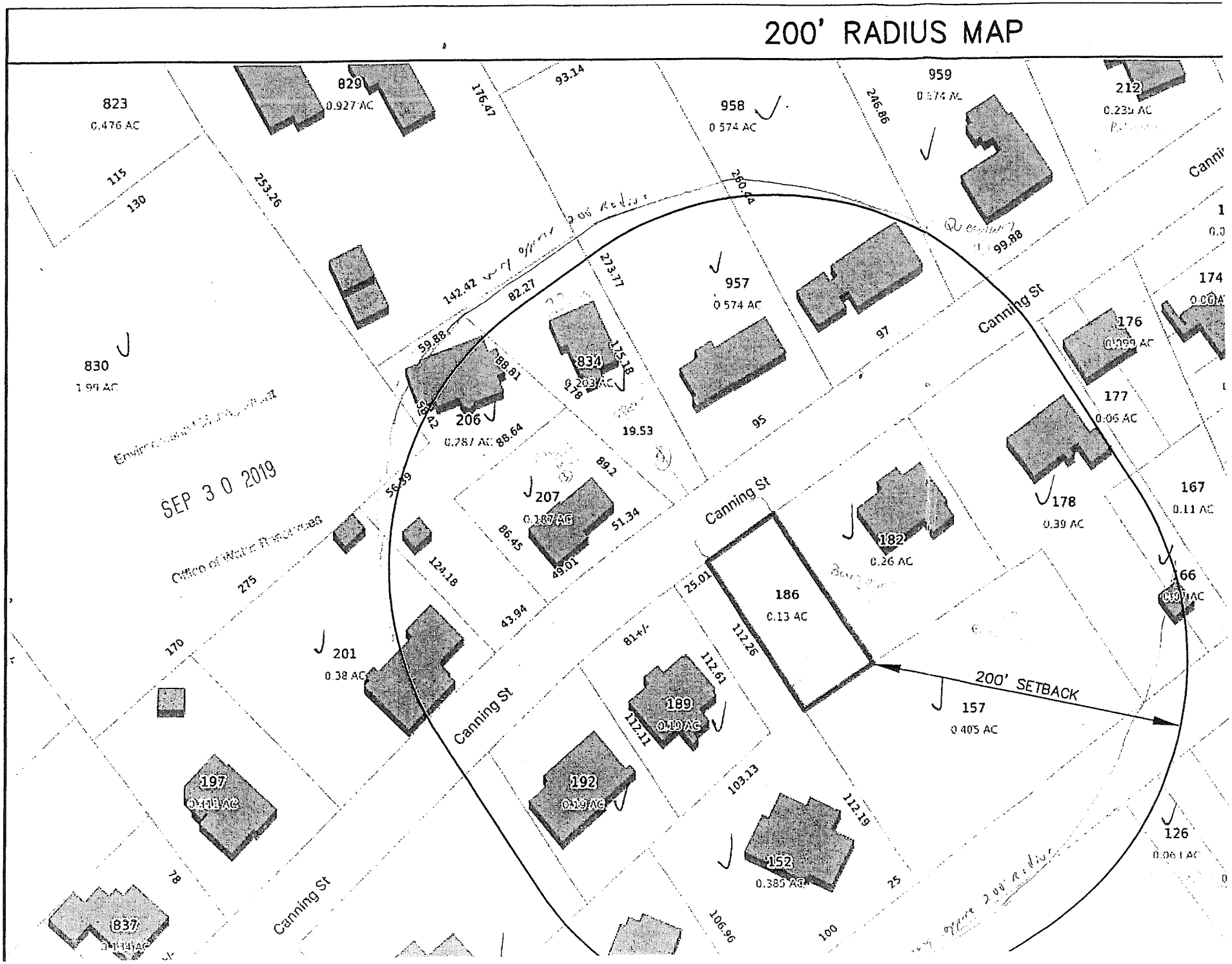
1

TOTAL NO. OF NARRATIVE COPIES	REDUCED PLANS	FULL PLANS
2	31	6

Prepared by: Daniel M. Kowal Date: August 30, 2019

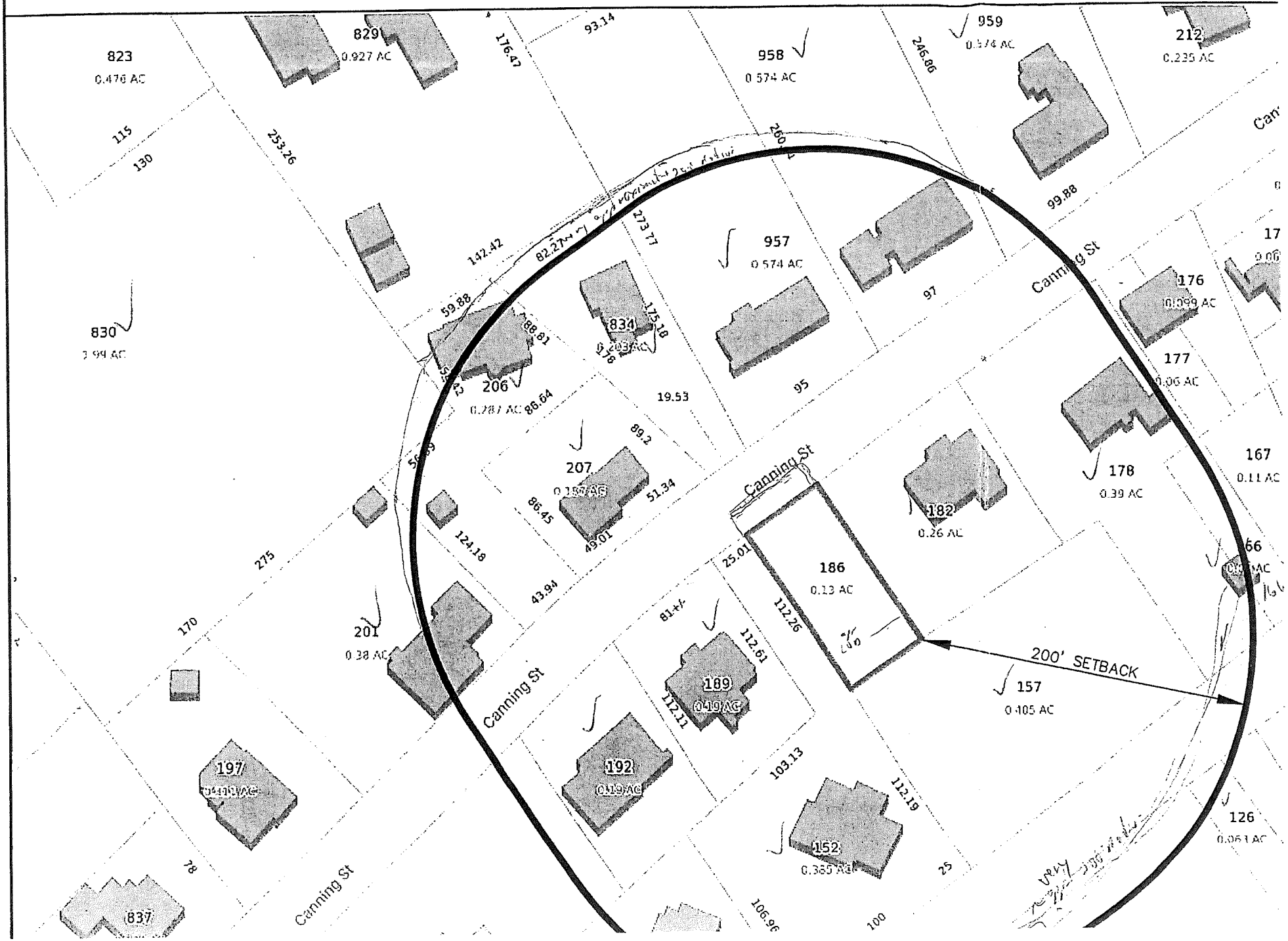
Authorized by: Date: 9/11/2019
Permitting Supervisor

200' RADIUS MAP

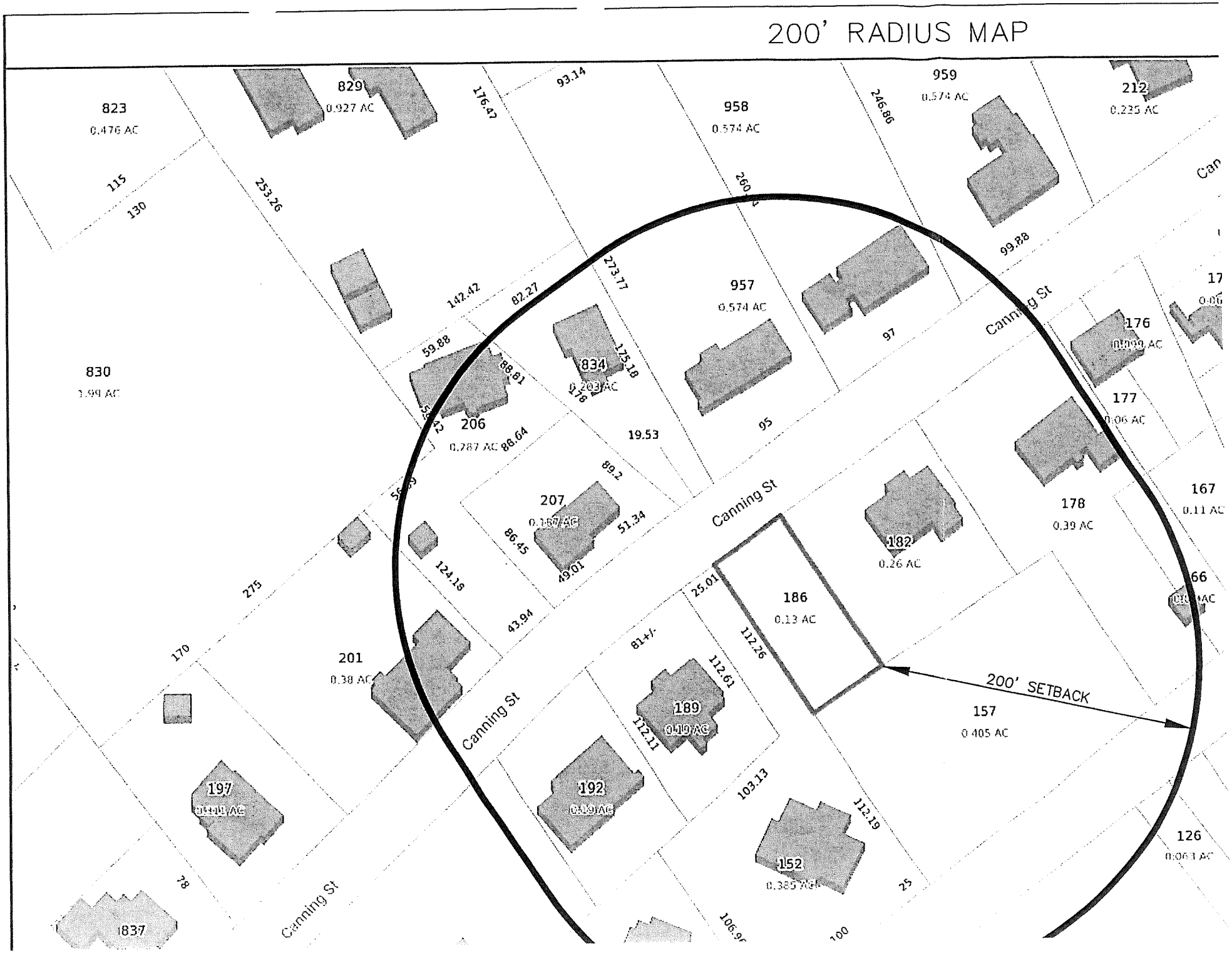


200' RADIUS MAP

200' RADIUS MAP



200' RADIUS MAP



Sandra M. Giovanelli, Town Clerk
Town of Cumberland
45 Broad Street
Cumberland, RI 02864

Kevin Joyce, Building Inspector
Town of Cumberland
45 Broad Street
Cumberland, RI 02864

Joan M. Mooney
[redacted]

Narragansett Indian Tribe
Attn: Doug Harris
4425 South County Trail
Charlestown, RI 02813

Scott P. Rabideau
Natural Resource Services
PO Box 311
Harrisville, RI 02830

Jon Stevens, Town Planner
Town of Cumberland
45 Broad Street
Cumberland, RI 02864

Robert Anderson, PE, DPW
Town of Cumberland
45 Broad Street
Cumberland, RI 02864

The Providence Journal
Attn: Richard Salit
75 Fountain Street
Providence, RI 02902

Blackstone River Watershed Council
Friends of the Blackstone
PO Box 8068
Cumberland, RI 02864

Zoning Board
Town of Cumberland
45 Broad Street
Cumberland, RI 02864

Conservation Commission
Town of Cumberland
45 Broad Street
Cumberland, RI 02864

Historic Preservation Commission
150 Benefit Street
Providence, RI 02903

Timothy Behan, PE
Commonwealth Engineers &
Consultants, Inc.
400 Smith Street
Providence, RI 02908

Town of Cumberland
45 Broad Street
Cumberland, RI 02864

Alice D Richer Life Estate and
Daniel Richer
[redacted]

Mikala E. Matos ETVIR Emanuel
[redacted]

Sarah B Reynolds ETVIR
[redacted]

Michelle L. Burgoyne
[redacted]

Tiffany Pendleton
[redacted]

Brandon M. Travers ETAL
[redacted]

Sharon A. Clapprood ETVIR
Michael B. Clapprood
[redacted]

Charles Doherty ETUX
Lisa Doherty
[redacted]

Roberta K. Charland Trustee
[redacted]

Souliere Travis
[redacted]

Attila Majoros ETUX
Vida Eszier TE
[redacted]

Fakhreddin F. Entezary
Revocable Trustee
[redacted]

William D Spear
[redacted]

Thomas S Bobrowski ETAL
Barbara L Bobrowski
[redacted]

Ernest N. Faucher
[redacted]

James F Queenan, Jr. and
Denise C. Queenan
[redacted]

RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
235 Promenade Street
Providence, Rhode Island 02908

✓ cam 10/11/19 2:58 pm

October 11, 2019
Application No. 19-0107

NOTICE

The Department of Environmental Management's ("DEM") Freshwater Wetlands Program ("Program") has under consideration the application of Joan M. Mooney, [redacted] requesting permission to alter freshwater wetlands in the Town of Cumberland.

The proposed project is located approximately 50 feet southeast of Canning Street, opposite utility pole no. 4; approximately 390 feet northeast of the intersection of Woodrow and Canning Streets; Assessor's Plat 37, Lot 186, Cumberland, RI.

The freshwater wetlands affected by the proposed project include a swamp and the associated 50 foot perimeter wetland, and an area subject to storm flowage.

The purpose of the proposed wetland alterations is for the construction of a single family dwelling with a garage, driveway area, vegetated swales, utilities, and landscape plantings.

The proposed alterations to freshwater wetlands consist of at least vegetative clearing, soil disturbance, excavation, grading, filling, paving, house and garage construction, utility installations, vegetated swale installations, and landscaping.

The project, as proposed will result in the alteration and/or disturbance of at least 5,196 square feet (0.12 acres) of freshwater wetlands.

Full-sized site plans illustrating the proposed project and detailing freshwater wetlands to be altered have been furnished to the Cumberland Town Council and the Cumberland Town Clerk's Office and may be viewed at the Town offices or at our Offices. A reduced copy of the site plan has been provided with this **NOTICE**.

This NOTICE is <u>not</u> authorization to do any work or to proceed with the project.

The purpose of this **NOTICE** is to inform all landowners whose properties are within two hundred feet (200') of the proposed project, the Town/City Council, the Conservation Commission, the Planning Board, the Zoning Board, and any other interested individuals and agencies of the proposal and to provide for a period of forty-five (45) days (NOTICE Period) within which concerns or comments may be received. Any comments and/or objections received during the NOTICE period shall be used to evaluate the proposed project and its impacts upon freshwater wetland functions and values.

You are advised that if you desire to submit a statement or have a good reason to enter a protest against the proposed project, it is your privilege to do so. Objections to the proposed project must relate to the proposed project's impacts on the functions and values provided by the freshwater wetlands to be altered.

Such functions and values include but are not limited to:

1) Protection of life and/or property from flooding or flood flows by retaining, storing, metering, or slowing flood waters from storm events;
2) Providing and maintaining surface and/or groundwater supplies by acting as a recharge or discharge area;
3) Providing and maintaining valuable wildlife habitats;
4) Providing and maintaining high value recreation areas; and
5) Protecting and maintaining water quality.

Information regarding the Program's practices and procedures for evaluating such comments, any definitions, or further information on wetland functions and values may be obtained by consulting the Rules and Regulations Governing the Administration and Enforcement of the Freshwater Wetlands Act, 250-RICR-150-15-1.

In accordance with 250-RICR-150-15-1.10(D)(3)(a), comments filed with the DEM will be considered if they are in writing, are legible, contain a discernable name and address, are signed and are received during the NOTICE period. The application number appearing in this NOTICE or other information which will identify the comments to the proposed project is also required. The NOTICE period for this application ends at 4:00 p.m. on November 25, 2019. This Program cannot extend this NOTICE period.

Anyone wishing to review the file in this matter should contact the Office of Customer and Technical Assistance in advance (telephone: [redacted], ext. [redacted] or Email: [redacted]) to arrange an appointment.

Sincerely,

Martin D. Wencek

Martin D. Wencek, Program Supervisor
Freshwater Wetlands Program
Office of Water Resources

MDW/DMK/dmk

Wencek, Martin (DEM)

From: Amy Brayton <[redacted]>
Sent: Friday, November 29, 2019 10:25 PM
To: Wencek, Martin (DEM)
Subject: Re: [EXTERNAL] : Application no.19-0107
Attachments: dem.pdf

Hello Mr. Wencek,

I rescanned the letter. Hopefully you will be able to open it this time. If not, I will mail you a hard copy.

Thank you,
Amy

-----Original Message-----
From: Wencek, Martin (DEM) <[redacted]>
To: Amy Brayton <[redacted]>
Sent: Tue, Nov 26, 2019 10:56 am
Subject: RE: [EXTERNAL] : Application no.19-0107

Good morning Ms. Brayton,

Please be advised that the Department has received an email from you on Monday, November 25, 2019 with an attachment pertaining to Wetland File Number 19-0107. Unfortunately, we are unable to open the attachment. Please resend the attachment and hopefully we will be able to be open it, read it, and make it part of the subject file.

Thank you,
Martin Wencek, Supervisor
Freshwater Wetlands Program
Office of Water Resources

From: Amy Brayton <[redacted]>
Sent: Monday, November 25, 2019 2:22 PM
To: Wencek, Martin (DEM) <[redacted]>
Subject: [EXTERNAL] : Application no.19-0107

Dear Mr.Wencek,

Please find the attached letter regarding application no.19-0107.

Please contact me with any questions,

Amy Brayton

November 25, 2019

Mr. Martin D. Wencek
Program Supervisor
Freshwater Wetlands Program
Office of Water Resources
235 Promenade Street
Providence, RI 02908

Application No. 19-0107

Dear Mr. Wencek,

We have reviewed the notice for Application No. 19-0107 for the alteration and/or disturbance of over 5,000 square feet of freshwater wetlands for the construction of a single-family home on Canning Street in Cumberland, RI, and we have concerns with the application.

The proposed single-family home would significantly alter the wetlands and 50' perimeter wetland buffer. This area receives stormwater from a significant area to the north and west and we feel that the construction of the single-family home would negatively impact the ability for this area to store and meter the stormwater that eventually discharges to the larger wetland area to the south and east. During previous storms, multiple homes in this area, especially directly across Canning Street, have had flooding on their properties and in their basements, which we feel may be exacerbated.

We are concerned that removal of the pervious area and replacement with impervious area may also impact the larger wetland area. There are several homes on Canning Street and Sprague Street to the east, including ours, and we are concerned that the new single-family home could impact these homes and potentially lead to flooding our home and property. The proposal may also lead to increased stormwater flow down Canning Street, which leads to a drain pipe at the southern end of Sprague Street, which may cause a safety concern with increased water on the roadway and overwhelming the drain pipe.

There is a callout on the plan for a connection for the sewer, however, I believe that there currently is not a sewer pipe in Canning Street adjacent to this parcel, as it ends near the top of the hill to the west. This parcel may not be able to handle an on-site wastewater treatment system and an extension of the sewer within Canning Street may require a pump station due to the grade differences.

Based on our concerns, the proposed application for alterations should not be approved. Please let me know if you have any questions.

Sincerely,

Amy E Brayton

Amy E. Brayton
[redacted]
[redacted]

Wencek, Martin (DEM)

From: Jonathan Stevens <[redacted]>
Sent: Friday, November 22, 2019 3:26 PM
To: Wencek, Martin (DEM)
Cc: Jonathan Stevens; Jeffrey Mutter; Kelley Morris; Robert Anderson; Glenn Modica
Subject: [EXTERNAL] : Cumberland Objects to RIDEM Wetlands Permit 45 Canning St
Attachments: CUMB RIDEM OBJECTION 45 CANNING ST 11.22.19.pdf

Marty:

The Town objects to this Freshwater Wetlands Alteration permit application (see attached).

As the deadline for comments is Monday at 4pm, could you please acknowledge receipt of this email?

THANKS!

Jonathan

November 22, 2019

Mr. Martin Wencek, Program Supervisor
Freshwater Wetlands Program/ Office of Water Resources
Department of Environmental Management
235 Promenade Street
Providence, Rhode Island 02908

Re: Application No. 19-0107 Canning Street Cumberland

Dear Mr. Wencek:

This office is in receipt of your October 11, 2019 Notice regarding application #19-1017, a vacant lot (AP 37, lot 186) located on the south side of Canning Street in Cumberland.

The Town strongly objects to the granting of this permit, for the following reasons:

1. *Excessive disturbance*. According to the Notice, the applicant proposes a wetland disturbance of "at least" 5,196 square feet, or 93% of the entire 5,600 square foot lot. The proposed ratio of disturbance to lot size is extremely excessive and unreasonable.

2. *Chronic flooding*. This area of Canning Street suffers from increasingly chronic local flooding, especially in the last decade since the last FEMA map was completed. Displacing this wetland with additional impervious surfaces stands to adversely affect downstream residential properties. This is inconsistent with "protection of life and/or property from flooding and flood flows by retaining storing, metering or slowing flood waters from storm events" and "providing and maintaining surface and/or groundwater supplies by acting as a recharge or discharge area".

3. *Drainage pipe*. An existing drainage piping system crosses Canning Street and continues off road generally along the westerly property line of Lot 186. This drainage pipe continues to an unknown point of discharge into the existing wetlands area. The drainage pipe's overall condition is not known, and it is located in close proximity to the proposed vegetated swale which runs parallel to this drain. The consultant has noted that it is an approximate location, but it is very possible that this drainpipe will be encountered during the trench excavation for the sanitary sewer and/or the overall earthwork associated with this small site.

The condition of this existing pipe in conjunction with the possible disturbance of this pipe due to construction operations, may warrant repair or replacement work that could be cost prohibitive to the town or the applicant, and another amended wetlands application may also be required for this site due to this additional work.

As the drainage pipe is partially located within the Canning Street Right-of-Way, the applicant will still be required to obtain written permission from the Public Works Director whereupon existing storm drainage modifications are required for this application to be fully considered by the RIDEM.

The Town requests the RIDEM Director issue a denial consistent with RIGL 2-1-21 (ii) 2, as granting approval will not be in the best public interest.

I am sending this letter on behalf of the Cumberland Planning Department and Department of Public Works.

Sincerely,

Jonathan Stevens
Planning Director

Cc: Mayor Mutter, DPW Director Anderson, Solicitor Salvatore

Re: Application # 19-0107

November 13, 2019

NOV 20 2019

To whom it may concern,

My name is William Spear, I am the owner of the house at [redacted], in [redacted]. I am writing this letter to express my concerns about the proposed building site at the bottom of the Canning St hill. I am fearful that developing that property could potentially endanger my home.

A few years before I purchased [redacted], a storm caused flooding so severe that the first floor of the house needed to be gutted and rebuilt. The owner at the time had a French drain installed to help protect the home in the future. However, when I bought the property, I was warned by my insurance company that if the house sustained any further flood damage, it would no longer be insurable.

In the almost 8 years I have owned the house there has been no serious flooding. However, as the entrance of the house is level with the ground outside (see picture 1) a few storms have delivered enough rainfall for water to pour over the threshold and puddle in the front hallway. If more water starts coming into my yard, it stands to reason that more water will find its way into my house. This could damage my home and one of my largest financial investments.

I have several reasons to feel that a building across the street could cause water problems for my house.

-I live at the bottom of the Canning St hill. Currently, during storms a good deal of the rainwater coming down the hill flows into the vacant property directly across the street. If that land is built up to discourage water from troubling the new home, it seems likely that more water will end up in my yard.

-The neighbors on my left and right already have problems with water during storms. Each gets water in their basements that needs to be pumped out. One yard ends up with a 30x10 foot puddle that can last for weeks. The other house, that is directly up the hill from me pumps the water from his basement into his yard and it flows down, across the street into the proposed building site. If that water cannot go across the street, my yard is its most likely next destination.

-This point is based on neighborhood gossip, but it seems valid. After my family moved into the neighborhood we heard from multiple homeowners that an ill advised building project (that was only allowed because the builder's brother was the mayor of Cumberland at the time) caused considerable drainage problems for a number of homes around the proposed building site. I have made an effort to discuss my concerns with ever professional inspecting the land (DEM, engineers,etc) and not one has been able to to explain where all the water that would typically go into that piece of land will go after the property is developed.

-Finally, the letter states that animal habitats should be considered. I have seen at least one spotted turtle (see photo 2) coming from the property in question. According to Wikipedia, the species is endangered.

Thank you for taking my concerns into consideration as you make this decision. If you have any questions, please feel free to contact me at [redacted].

Sincerely,

William Spear

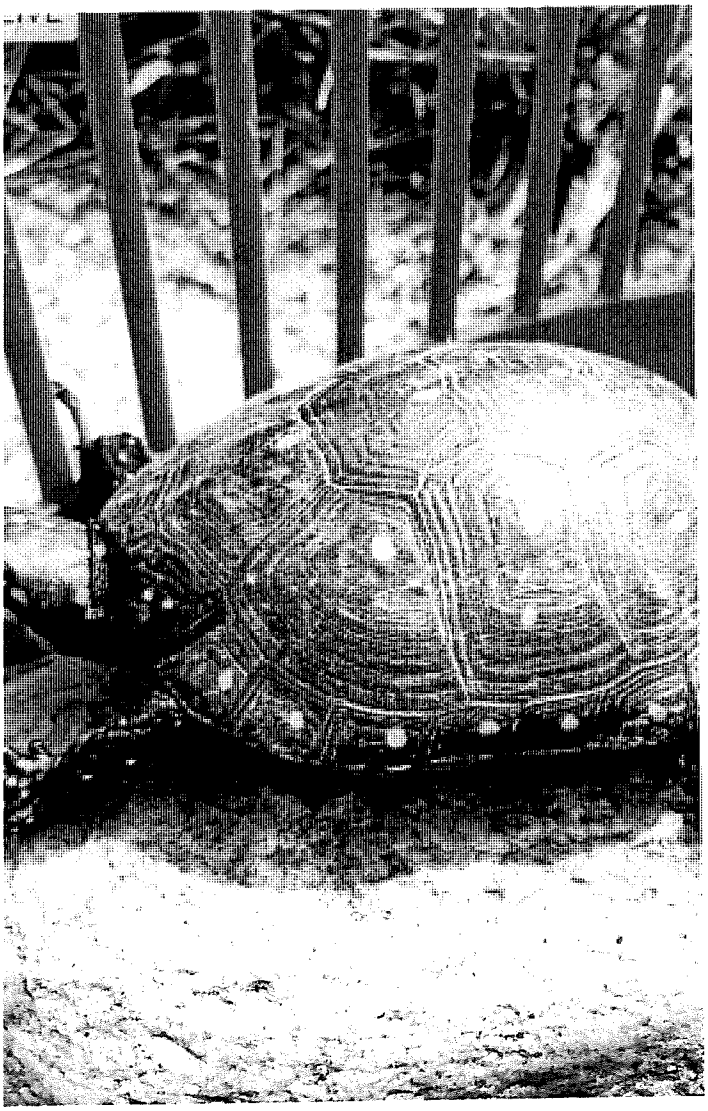
[redacted]

PROVIDENCE RI 029

18 NOV 2016 PM 3 L

RI DEM Wetlands Division
235 Promenade St
Providence RI
02908

02908-576799



October 31, 2019

RI Department of Environmental Management
Office of Water Resources
235 Promenade Street
Providence, RI 02908

NOV - 4 2019

Dear Mr. Weneck,

Recently I learned that several neighbors were notified that a request to alter existing wetlands located on Canning Street opposite utility pole no.4, Assessor's Plat 37, Lot 186, Cumberland, RI. I am submitting this in support of them and in support of you denying the request submitted by Ms. Mooney.

This property is at the base of a steep grade which runs easterly and a lesser grade, which runs westerly. This property contributes to absorption of large amounts of water that run down Canning Street, and under Canning Street via a pipe. The purpose of the pipe is to provide drainage for water runoff originating from properties located along the east side of Nate Whipple Highway which are significantly higher in elevation. Prior to the installation of the drainage pipe, which drains into the area being considered in the application, water during the normally wetter periods of the year would accumulate to depths not just in inches but in feet in the yards on the opposite side of the street in proximity to utility pole no.4. During March 2010, runoff water from land higher in elevation to the north, caused significate damage to several homes on Canning Street.

It appears from looking at the plot plan provided, little consideration has been given to issues of groundwater runoff and sewerage requirements. There are no municipal connections available beyond that which exist at the top of the hill on Canning Street. All homes below the hill have individual septic systems. To date, there has been no municipal interest to extend sewers down Canning street due to the projected costs of such a project. In addition, as indicated above, there doesn't appear to be any consideration given for remediation of groundwater runoff.

This lot, even though small when considered in a vacuum, is part of a much larger ecosystem that separates two large residential developments consisting of those structures directly and indirectly abutting it, as well as those located in the area known as Rolling Acres. Given the elevation of properties located to the north and west of it, the entire area, of which this parcel is a piece, serves as a **protection of properties** from flooding or flood flows by retaining, and storing water runoff. It also provides a valuable area that acts as a **recharge and discharge area** for water that eventually drains into wetland areas located to the east of Rolling Acres. It also heavily vegetated and serves as a piece of **valuable wildlife habitat** populated by numerous wildlife such as deer, groundhogs, bats, turkeys, coyotes and fox.

Although this parcel of land doesn't abut my property, I have concerns that should this request be approved, future requests to alter wetlands directly behind and to the southeast of that particular parcel will in fact open the door to development that over the years has not been allowed because of the central premise that these lands are considered

"wetlands" by RI DEM regulations. That potential for development should it occur, will impact my property in that I will be an abutter.

I ask that you please do not allow these wetlands to be altered by a house being built on it.

Sincerely,

Craig Polucha

[redacted]

[redacted] (L)

[redacted]

RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
235 Promenade Street
Providence, Rhode Island 02908

October 11, 2019
Application No. 19-0107

NOTICE

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The purpose of the proposed wetland alterations is for the construction of a single family dwelling with a garage, driveway area, vegetated swales, utilities, and landscape plantings.

The proposed alterations to freshwater wetlands consist of at least vegetative clearing, soil disturbance, excavation, grading, filling, paving, house and garage construction, utility installations, vegetated swale installations, and landscaping.

The project, as proposed will result in the alteration and/or disturbance of at least 5,196 square feet (0.12 acres) of freshwater wetlands.

Full-sized site plans illustrating the proposed project and detailing freshwater wetlands to be altered have been furnished to the Cumberland Town Council and the Cumberland Town Clerk's Office and may be viewed at the Town offices or at our Offices. A reduced copy of the site plan has been provided with this **NOTICE.**

This NOTICE is <u>not</u> authorization to do any work or to proceed with the project.

The purpose of this **NOTICE** is to inform all landowners whose properties are within two hundred feet (200') of the proposed project, the Town/City Council, the Conservation Commission, the Planning Board, the Zoning Board, and any other interested individuals and agencies of the proposal and to provide for a period of forty-five (45) days (NOTICE Period) within which concerns or comments may be received. Any comments and/or objections received during the NOTICE period shall be used to evaluate the proposed project and its impacts upon freshwater wetland functions and values.

You are advised that if you desire to submit a statement or have a good reason to enter a protest against the proposed project, it is your privilege to do so. Objections to the proposed project must relate to the proposed project's impacts on the functions and values provided by the freshwater wetlands to be altered.

Such functions and values include but are not limited to:

1) Protection of life and/or property from flooding or flood flows by retaining, storing, metering, or slowing flood waters from storm events;
2) Providing and maintaining surface and/or groundwater supplies by acting as a recharge or discharge area;
3) Providing and maintaining valuable wildlife habitats;
4) Providing and maintaining high value recreation areas; and
5) Protecting and maintaining water quality.

Information regarding the Program's practices and procedures for evaluating such comments, any definitions, or further information on wetland functions and values may be obtained by consulting the Rules and Regulations Governing the Administration and Enforcement of the Freshwater Wetlands Act, 250-RICR-150-15-1.

~~In accordance with 250-RICR-150-15-1.10(D)(3)(a),~~ comments filed with the DEM will be considered if they are in writing, are legible, contain a discernable name and address, are signed and are received during the NOTICE period. The application number appearing in this NOTICE or other information which will identify the comments to the proposed project is also required. The NOTICE period for this application ends at 4:00 p.m. on November 25, 2019. This Program cannot extend this NOTICE period.

Anyone wishing to review the file in this matter should contact the Office of Customer and Technical Assistance in advance (telephone [redacted] ext. [redacted] or Email [redacted]) to arrange an appointment.

Sincerely,

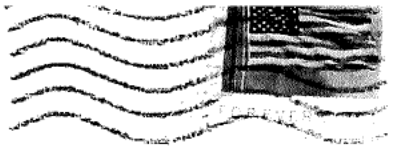
Martin D. Wencek

Martin D. Wencek, Program Supervisor
Freshwater Wetlands Program
Office of Water Resources

MDW/DMK/dmk

Craig Polucha
[redacted]

PROVIDENCE RI 028
31 OCT 2019 PM 5 L



R.I. Dept of Environmental Mgt
OFFICE of Water Resources
235 Promenade Street
Providence, R.I. 02908
ATT. Martin Wencek

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ATTILA MAJORES

[redacted]

PROVIDENCE RI 029

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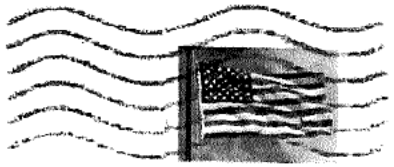


RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

235 PROMENADE STREET

PROVIDENCE, RI 02908

02908-572503

Rhode Island Department of Environmental Management

Office of Water Resources, 235 Promenade Street, Providence, RI 02908

Re: Application No. 19-0107

Proposed dwelling at 45 Canning St, Cumberland, RI

OCT 30 2019

To Whom It May Concern:

I would like to file a protest/objection against this proposed development. My property lies directly across this wetland.

Since this wetland is the lowest point in the surrounding area, it currently acts as natural drain for all properties around us. This functionality is already stretched to the limit, especially in the Spring, but numerous other times also throughout the year.

This is the results of previous developments.

My property is surrounded by other properties, and lots of water comes through my property and continues its progression to the wetland.

I have been already forced to implement several expensive remedies to save my property from water damage:

- create a pool, filled with crushed stone underneath my driveway, to collect excess water.

- install sump pumps to my basement, and garage

This saved my property several times from flood damage.

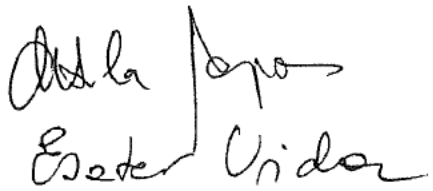
My neighbors at 70 Canning St were not so lucky: their house destroyed, and marriage broken, they have moved out. This has occurred around 6-7 years ago.

I firmly believe that we are the most vulnerable for any impact on the current water table/drainage situation.

I believe a single visual inspection of the site makes this completely clear right away.

I strongly urge you not to make any decisions without it.

Hopefully yours,

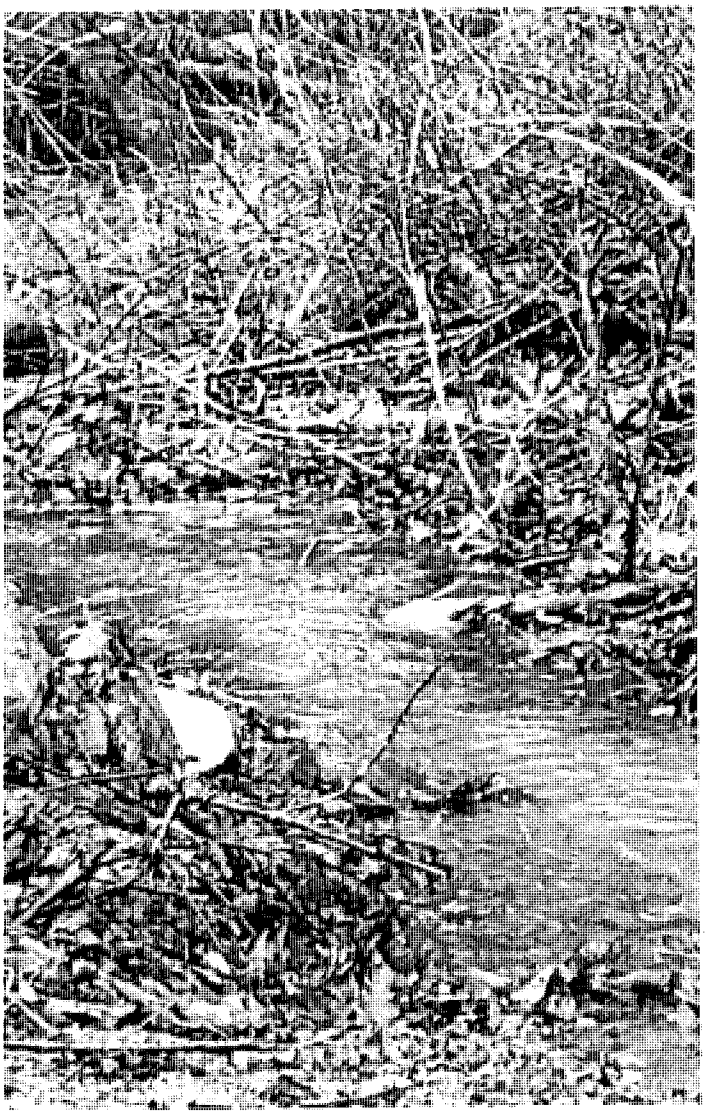


Attila Majoros & Eszter Vida

[redacted]

[redacted]

Cumberland, October 24, 2019

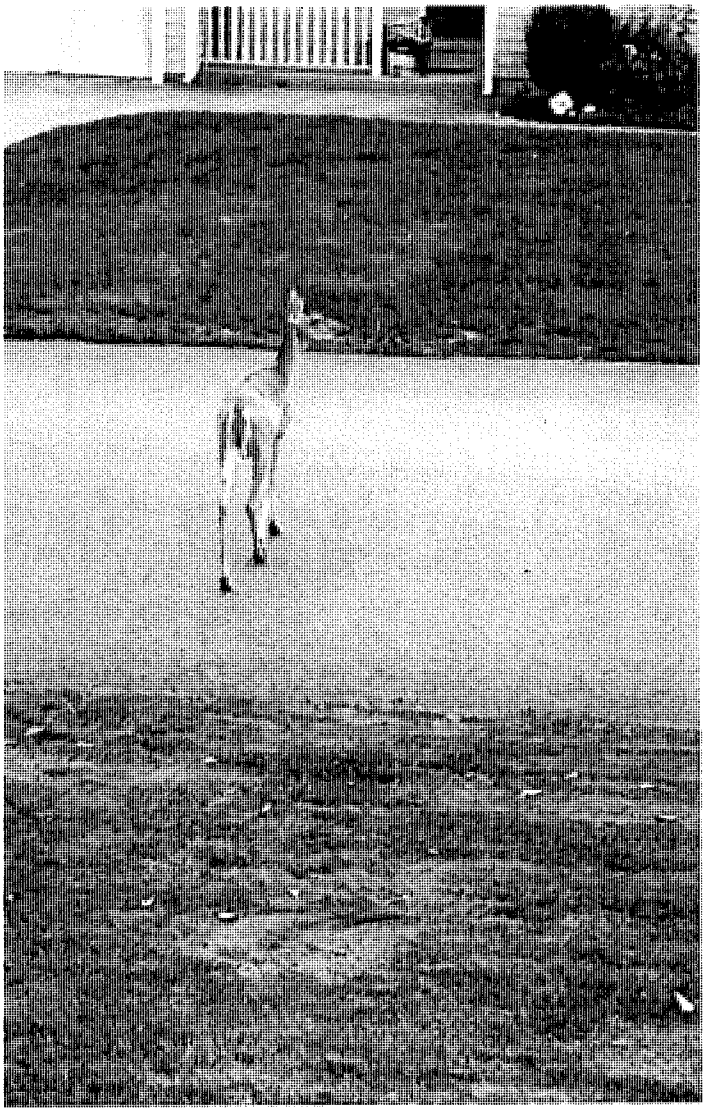


45 Canning St

Proposed lot

water after a

rain storm.



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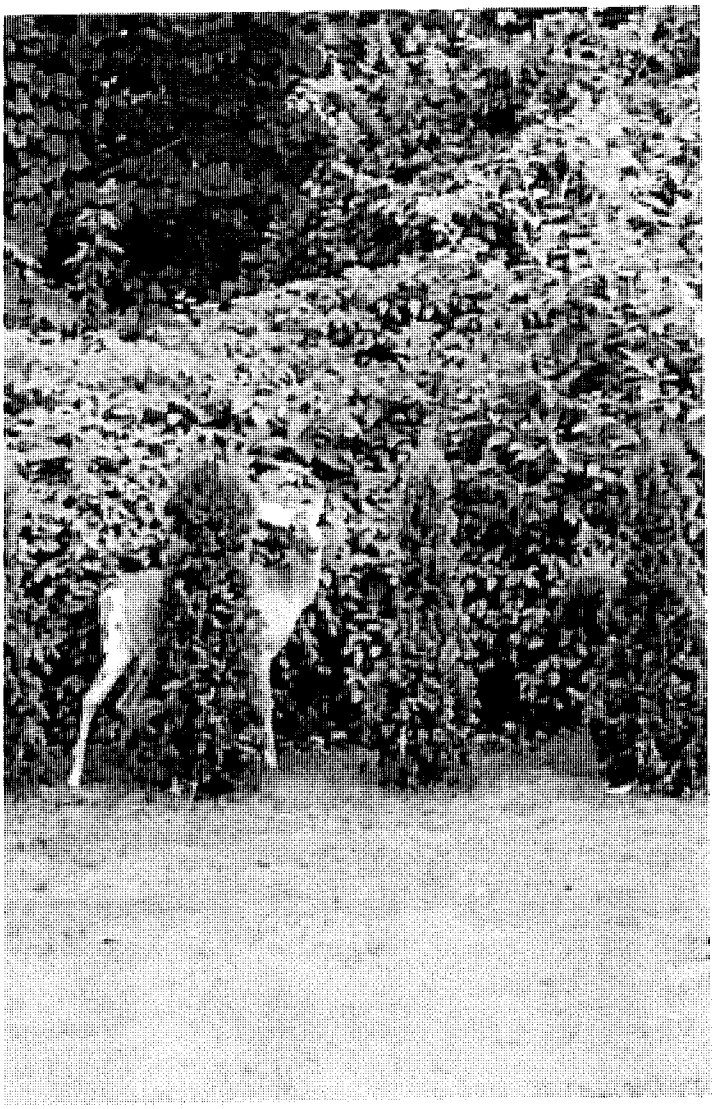

45 Canning

October 24, 2019

RI Department of Environmental Management
Office of Water Resources
235 Promenade Street
Providence, RI 02908
Application No.19-0107 / Joan Mooney Plat 37, Lot 186 Cumberland RI

Dear Mr. Martin Wencek,

On October 18, 2019, I received a notice of a request to alter wetlands on the corner of Canning and Woodrow Streets in Cumberland, RI. 45 Canning Street, Cumberland.

This parcel of land abuts my property and will have serious impacts on my property if the wetlands are allowed to be altered. This property is at the base of a steep grade which runs easterly and a lesser grade, which runs westerly. This property contributes to absorption of large amounts of water running down Canning Street. I have enclosed a picture of the lot after a rain storm. While I have no expertise in wetlands, I have done some research. This parcel of land is only 5000 square feet and if a house were to be built on it, it would take away all of the vegetation that allows for the absorption of the water, therefore leading to water runoff onto my property, which I work very hard to pay for and enjoy. The plan seems to suggest a sewer connection, but I'm not sure if there are any available sewers in that location. It would be a very wet location for an ISDS.

This lot, even though small, provides a valuable part of the ecosystem. It is heavily vegetated and is populated by numerous wildlife such as deer, groundhogs, bats, turkeys, and fox. I have enclosed pictures for you of the wildlife. I ask that you please do not allow this property and it's wetlands to be altered by a house being built on it. It will have adverse affects on my property as well as many of my surrounding neighbors whose homes were flooding in 2010. This lot also serves as a drainage area for these homes.

I appreciate your time and ask that you deny this project and would also ask you think about if you were in my situation and this were your home that this were affecting.

Sincerely,

Michelle Burgoyne

Michelle Burgoyne
[redacted]
[redacted]

Enclosures

OCT 2 9 2019

DURGOYNE

[redacted]

7019 0160 0000 8161 6730

ATTN: Martin D
Rhode Island Departmen
Office of Water
235 Promenad
Providence, RI

Mr. James F. Queen, Jr.
[redacted]

24 OCT 2019 PM 3 L

OCT 28

RI DEM
Office of Water Resources
235 Promenade St.
Providence RI 02908-5767

ATTN: Mr Martin Wenrich 02908-576799

19-0107

James F Queenan, Esq.
[redacted]

RI Department of Environmental management. Office of Water Resources
235 Promenade Street
Providence, RI 02908

Attn: Mr. Martin D. Weneck

October 22, 2019

Dear Mr. Weneck,

On October 18, 2019, I received a notice of a request to alter wetlands on the corner Canning and Woodrow Streets in Cumberland, RI.

While I have no expertise in wetlands, I am concerned about the project. That location is in an area of Canning Street that is heavily developed. It is at the bottom of a steep grade running easterly and a lesser grade running westerly. It is heavily vegetated and is populated by a variety of wildlife ranging from deer and turtles to birds and bats. It seems to be a valuable part of the local ecosystem. Moreover, even though small, it contributes to absorption of large amounts water running down Canning Street in both directions. It serves as a water buffer at the bottom of the easterly hill that minimizes both flooding and ice to the rest of the street and neighborhood. The proposed development includes a garage, slab under the house and a driveway which would cover most of the lot. This would allow little absorption in an area that frequently floods. The plan seems to suggest a sewer connection, but I'm not sure there are any available sewers in that location. It would be a very wet location for an ISDS.

I am sure you have had engineers and experts study the location, but I would suggest another careful look before approving this request.

Sincerely,

James F.Queenan, Esq.
[redacted]

OCT 28 2019

RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT (RIDEM)

FRESHWATER WETLANDS PROGRAM (FWP)

REVIEW OF THE WRITTEN EVALUATION SUBMITTED IN SUPPORT OF AN APPLICATION TO ALTER A FRESHWATER WETLAND RELATIVE TO WILDLIFE, WILDLIFE HABITAT, RECREATION, AND AESTHETICS

Application Number: 19-0107

Applicant: Joan M. Mooney

Reviewer: Daniel M. Kowal, Senior Environmental Scientist

Completion Date: January 31, 2020

APPLICATION DESCRIPTION/PURPOSE

The purpose of the proposed wetland alterations is for the construction of a single family dwelling with garage, drive, vegetated swales, utilities, and landscape plantings.

PROPOSED WETLAND ALTERATIONS

The proposed alterations to the freshwater wetlands consist of at least: vegetative clearing, soil disturbance, excavation, grading, filling, paving, house and garage construction, utility installations, vegetated swale installations, and plant installations.

WETLAND TYPES AFFECTED AND THE AMOUNT OF WETLAND ALTERATION AND/OR DISTURBANCE

The freshwater wetlands affected by the proposed project include the following types: a swamp and the associated 50 foot perimeter wetland and an area subject to storm flowage.

The project, as proposed will result in the alteration and/or disturbance of at least 5,196 sq. ft. (0.12 acres) of freshwater wetlands.

MY EVALUATION METHODOLOGY AND RESOURCES

The following reports/documents submitted in support of this application are collectively referred to as the submitted written narrative, unless otherwise noted:

1) **Project Narrative in Support of Application to Alter a Freshwater Wetland** *45 Canning Street A.P. 37, Lot 186 Cumberland, Rhode Island*; **Revised September 18, 2019**; Prepared By: Scott P. Rabideau, PWS of Natural Resource Services, Inc. (NRS), P. O. Box 311, Harrisville, RI 02830.

2) **Stormwater BMP Narrative Report for AP 37 Lot 186 45 Canning Street Cumberland, Rhode Island,** *Prepared for: Anthony Silva* [redacted] *February 2018; Prepared by* Commonwealth Engineers & Consultants, Inc. 400 Smith Street Rhode Island, 02908.

The following resource was consulted:

1. The RI Natural Heritage Map – [contains various RIGIS layers of Geographic Information, including Orthorectified digital true color aerial photographs]; and

I perused selected published and unpublished literature (see literature cited and/or selected bibliography, not to be considered as all exhausting) related to the topics encountered during my review of the submitted written narrative and the submitted site plans (Plans for Notice).

Wildlife species that I have seen/heard in the vicinity of the subject wetlands are listed in Appendix A.

MY REVIEW COMMENTS OF THE SUBMITTED WRITTEN EVALUATION AND SUBMITTED SITE PLANS FOR APPLICATION NO. 19-0107

Upon completion of my study of the site plans for application no. 19-0107, examination of the subject site, review of the RI Natural Heritage Map layers (last accessed on January 31, 2020), evaluation of the submitted written narrative, and peruse of selected literature, I offer the following comments:

1. NRS has not provided onsite wildlife population studies or any statistical analyses to support their assertions, conclusions, or statements regarding the proposed project's effects on the wildlife and wildlife habitat functions provided and maintained by the subject wetlands.

2. The subject wetland areas (i.e., swamp and 50 foot perimeter wetland) are part of a larger landscape (>286 acres) that provides food, escape cover, shelter, feeding areas, nursery areas, breeding sites, resting sites, brood rearing sites, and travel corridors for a diversity of wildlife species (including invertebrate species) and are not just limited to the species observed by NRS nor to the species observed by me (Appendix A). I would add that the subject wetland areas provide habitat for other nonlisted animal species including amphibians, reptiles, medium to large mammals and invertebrates. Additional wildlife [illegible] needed to ascertain a more complete list of wildlife species utilizing the subject wetlands.

3. The proposed project will eliminate 5,196 square feet of existing wildlife habitat. The proposed project will change the existing forested landscape on the subject site to that of an anthropogenic landscape, which is expected to have some negative effects on the local wildlife (e.g., habitat loss, noise, human presence). The proposed anthropogenic landscape will result in cumulative habitat loss (not declared by NRS) which may have some adverse effects on local wildlife populations. However, wildlife data are lacking to assess the extent of the cumulative effects of habitat loss on the local wildlife community.

4. A public commenter has submitted a photo of a spotted turtle stating "...coming from the property in question." The spotted turtle is a species of greatest conservation need in Rhode Island. There is an open water body located to the southeast of the subject site that maybe supporting a spotted turtle population. This open water body is part of the subject swamp and is situated on land conserved by the Town Of Cumberland (Sneech Brook site).

5. The proposed project will contribute cumulatively to the loss of wildlife habitat of the subject wetlands. NRS does not provide any comments on cumulative loss of wildlife habitat. However, the magnitude of the expected effects of cumulative habitat loss on the local wildlife communities is unknown, as no population data or statistical analyses have been provided.

6. NRS has not provided any wetland recreational assessment maps nor any quantitative data to support their assertions, conclusions, or statements regarding the proposed project's effects on the recreation and aesthetic values provided and maintained by the subject wetlands.

7. NRS does not mention that the subject wetlands provide the opportunity for recreational activities, including but not limited to: hiking, walking, harvesting of natural foods or plant materials, birdwatching and other animal observation, education and nature studies, and photography. NRS fails to mention that the property owner and any other persons that are given permission to access the subject wetlands can enjoy the recreational activities identified above.

8. NRS, also, fails to mention that the subject wetlands can be readily viewed and aesthetically appreciated by the public from Canning Street. The proposed project will eliminate the current natural vegetation patch that disrupts the row of dwellings that border on the southeasterly side of Canning Street.

9. Recreational opportunities to observe, hear, photograph, or study wildlife on the subject site as well as opportunities for harvesting of natural foods or plant materials and conduct nature studies may be reduced, due to the anticipated habitat loss and disturbances associated with the proposed project including the occupancy of the proposed dwelling. However, the magnitude of this potential reduction, is unknown, due to the lack of quantitative recreational data. This contradicts the NRS statement that "The proposed features will maintain the capacity for recreational and aesthetic values at pre-project levels."

MY SUMMARY AND CONCLUSIONS

The conclusions below are based on my own site observations, the existing site characteristics, existing habitat features, surrounding land uses, proposed site alterations, proposed measures to reduce harm, current knowledge, reviewed literature, and the Rules and Regulations in effect at the time of the application submission.

1. NRS's conclusions regarding the proposed project's effects on wildlife and wildlife habitat have not been corroborated with maps, survey data, or studies.

2. The proposed project will eliminate about 5,196 sq. ft. of wetland wildlife habitat, which provides food, feeding sites, escape cover, shelters, breeding sites, nesting sites, resting sites, brood rearing sites, perching sites, and travel corridors for a wide variety of animal species. The magnitude of this habitat loss on local wildlife communities is unknown, as data is lacking.

3. NRS's conclusions regarding the proposed project's effects on the recreation and aesthetic values provided and maintained by the subject wetlands have not been corroborated with maps, quantitative recreational data, or studies.

4. Recreational opportunities within a portion of the subject wetlands may get reduced, but the magnitude of this potential reduction is unknown.

5. The proposed project will result in cumulative habitat loss, although the extent of the effects of this loss is unknown, as data is lacking.

6. There is insufficient information to suggest/indicate that the proposed wetland alterations would substantially change or modify the existing wildlife, wildlife habitat, recreation, and aesthetics functions and values of the subject wetlands.

7. However, there appears to be design changes that if incorporated into the proposed project would further lessen the potential disturbances from the proposed project on wildlife and further reduce wetland wildlife habitat loss. They are:

a) relocate the proposed limit of disturbance about 20 feet northwestward;

b) add additional evergreen trees in between the proposed White Spruce; and

c) add an additional dense row of evergreen tree along the proposed limit of disturbance.

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APPENDIX A

WILDLIFE SEEN/HEARD WITHIN THE VICINITY OF THE SUBJECT WETLANDS OF APPLICATION FILE NOS. 18-0153 AND 19-0107

ildlife Seen/Heard in Vicinity of Application 18-0153

Date	ObservedTime	Site Comments	Species	Count	Comment	habitatName	WildlifeSigns
'24/2018	2:11 pm to 3:28 pm						
			American Goldfinch	1	heard vicinity		
			Carolina Wren	1	heard vicinity		
			Common Grackle	1	heard vicinity		
			Northern Cardinal	2	both heard vicinity		
8/8/2018	1:31 pm to 3:22 pm						
			American Robin	1	heard vicinity		
			Black-capped Chickadee	1	heard vicinity		
			Gray Catbird	1	heard vicinity		
			Red-bellied Woodpecker	1	heard vicinity		
			White-tailed Deer		on site, Impatiens stems		Browsed (herbaceous stems)

ildlife Seen/Heard in Vicinity of Application 19-0107

Date	ObservedTime	Site Comments	Species	Count	Comment	habitatName	WildlifeSigns
10/2019	7:33 am to 10:00 a	At least two dogs heard barking on adjacent site.					
			American Crow	1	heard in distance		
			American Robin	1	heard vicinity		
			Black-capped Chickadee	1	heard vicinity		
			Common Grackle	1	seen & heard on site		
			Gray Catbird	1	heard & seen on site		
			House Finch	1	heard vicinity		
			Mourning Dove	1	heard vicinity		
			Northern Cardinal	1	heard vicinity		
			Northern Flicker	1	heard vicinity		
			Red-shouldered Hawk	1	heard overhead		
			Song Sparrow	1	heard vicinity		
			Star-nosed Mole	1	seen in mud at open water body edge ?		
			Tufted Titmouse	1	heard vicinity		
			White-breasted Nuthatch	1	heard vicinity		
			White-tailed Deer	1	seen in mud in wetland near edge bordering upland island offsite		Tracks

Wencek, Martin (DEM) 12/5/2019

To: Pisani, Nicholas (DEM)
Subject: Formal evaluation for Joan M. Mooney, File 19-0107

Hi Nick,

I'm going to be bringing you a small package containing a Public Notice, site plans for a small single family dwelling, and several comments received during our 45 day Public Notice period which has already ended. These comments pertain to concerns by neighbors and the Town about potential flooding this project may cause. Please give this a look and I'm hoping you can provide me with a written review of the projects potential impacts on wetlands and surrounding properties resulting from flooding. The project biologist is Dan Kowal and feel free to see him or me with any questions. Since we are in the decision period with this application, I'm hoping for a somewhat quick review/turn-around on this as may be possible.

Thanks,
Marty

RHODE I[illegible]ND DEPARTMENT OF ENVIRONMEN[illegible] MANAGEMENT
OFFICE OF WATER RESOURCE[illegible]
WETLANDS ENGINEERING FINAL REVIEW

Mooney Farm

Date: 12/13/2019

Reviewer: Nicholas A. Pisani, P.E.

Application Number:

FWW#: 19-0107 Nicholas A. Pisani P.E.
WQC#: _____
GWD/UIC#: _____
RIPDES#: _____
OTHER: _____

Applicant Name: Joan M. Mooney

Project Name: Proposed Single Family Dwelling

Plans and Analysis Reviewed: Plans and Reports received by DEM 4/04/2019 (reports) and 9/30/2019 (plan sheet).

Recommended Action: Review of Comments on Application to Alter: Not recommended for approval as is currently submitted.

Findings:

1) **Redevelopment Status:** The proposed work is new construction.
2) **Drainage and Water Quality Issues:**
    - No water quality review was requested.
    - Review was requested regarding review of potential impacts on wetlands and surrounding properties resulting from flooding.
    - There are two areas of concern with respect to the proposed development of this site as is proposed.
        - The first area of concern is that of the loss of a "finger" of wetland area by the filling associated with the proposed residential development. At this time this reviewer does not have sufficient information that would support a decision as to whether or not the loss of the area of wetland indentation will or will not adversely impact adjacent properties from any associated increases in flood elevation. The area to be filled represents a relatively small area of wetland with respect to the overall wetland. However, no specific information appears to be present on file with respect to attempting quantify this relatively small loss. Also, there does not appear to be sufficient information on file to demonstrate that even a small increase in peak wetland elevations would not be damaging to any residences and/or businesses that abut this wetland. In order to be able to properly evaluate this issue, the submittal would need to address the existing condition wetland water levels in the events studied (such as the 1, 10, and 100-year 24-hour Type III storm events) and would need to evaluate the volume displaced in each storm event by the proposed filling, and also would need to evaluate the amount of wetland area remaining in the wetland over which this displaced volume

would be distributed. A more precise evaluation would involve modeling the overall inflows and outlet conditions for the entire receiving wetland.

- The second area of concern is the potential loss of conveyance of runoff from up-gradient areas across the site that flow to the down-gradient wetland. This flow is carried by an existing indicated "area subject to storm flow" and an indicated culvert / storm drain outlet. Please note that the size / diameter of the indicated existing culvert was not provided. Also, the exact outfall location of this culvert has not been provided. The submitted design does not sufficiently address the adequacy of the two proposed swales with respect to their ability to accommodate flows that are currently being conveyed by the existing culver / drainage line, especially those flows from north of Canning Street. Also, there is also a question of the adequacy of the existing culvert / drainage line in conveying surface flows in various intensity storm events (such as the Freshwater Wetlands Program-regulated 1, 10, and 100-year 24-hour Type III storm events. The proposed surface swales will not be able to convey flows that would currently be traveling from across Canning Street (from the north) to the receiving wetland. A more appropriate design solution would be for the Town of Cumberland and/or the applicant to construct a closed drainage system which would include appropriately sized catch basins / drainage inlet(s) on the north side of Canning Street, pipe culvert under Canning Street, additional catch basins / drainage inlet(s) on the south side of Canning Street, and a pipe to an outfall to the receiving wetland to the south. The inlets on the north side of the road, especially, would need to be appropriately sized to prevent unacceptable localized flooding on the north side of the road that might be associated with unacceptably high headwater conditions / inadequately sized drainage inlets. The entire drainage system would need to be properly analyzed for the 1, 10, and 100-year 24-hour Type III storm events. Please note that the current submittal does not present any analysis that would demonstrate that the proposed two swales would provide sufficient capacity to alleviate existing drainage problems or even avoid worsening existing drainage problems. Any analysis provided would need to properly evaluate the total contributing area to the drainage features that flow through this site, along with pertinent curve numbers and time of concentration. Any drainage structures or other conveyances need to be situated within an appropriate drainage easement dedicated to the Town of Cumberland.
- It is recommended that the status of the existing drainage system be further investigated. Specifically, the question of whether the existing drainage system was originally designed and or approved by the Town of Cumberland should be

addressed.

3) **Soil Erosion and Sediment Control Issues:** No review requested.
4) **Floodplain and Floodway Issues:** The site of the proposed work does not appear to be located within any area of 100-year riverine floodplain. FEMA has mapped this entire areas as Zone X, "Area of Minimal Flooding".

R.I. DEPARTMENT OF ENVIRONMENTAL MANAGEMENT (RIDEM)
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM (FWP)

APPLICATION INSPECTION REPORT No. 2

Application No.: 19-0107 **Applicant Name:** Joan M. Mooney

Biologist: Daniel M. Kowal **Response to Technical Deficiency:** Yes **Date Received:** 7/3/19

Office Review Date: 8/29/19 **Time:** 2:27 pm **Aerial Photo Nos.:** ArcGIS 1939/1951-1952/1972/1981/1988/1997 B&W aerials, ArcGIS Spring 2003/2004/2008/2011/2014/2016/2018/2019 and color aerials.

Site Location: Approximately 50 feet southeast of Canning Street, opposite utility pole no. 4; approximately 390 feet northeast of the intersection of Woodrow and Canning Streets; Assessor's Plat 37, Lot 186, Cumberland, RI.

RI GP Wetlands Gain/Loss (*for reporting purposes only*): 0.02 acres (gain/loss)

I. FRESHWATER WETLANDS IDENTIFIED (Attach BIR-Forms as Necessary):

Swamp with 50 foot perimeter wetland and an area subject to storm flowage (ASSF).

II. PROJECT PURPOSE AND PROPOSED ALTERATIONS:

Project purpose is for the construction of a single family dwelling with garage, drive, vegetated swales, utilities, and landscape plantings.

Proposed wetland alterations consist of at least: vegetative clearing, soil disturbance, excavation, grading, filling, paving, house and garage construction, utility installations, vegetated swale installations, and plant installations.

The project, as proposed will result in the alteration and/or disturbance of at least 5,196 square feet or 0.12 acres of freshwater wetlands.

III. REVIEW COMMENTS FOR SITE PLANS AND INFORMATION RECEIVED ON JULY 3, 2019:

Commonwealth Engineers & Consultants, Inc. (CEC) has submitted on behalf of the applicant revised site plans and information in response to the biological review comments contained in the technical review comment letter of May 17, 2019.

Communications

Permit Supervisor, Mr. Charles Horbert has previously determined on April 4, 2019 that an engineering review is not required for this application.

Deficiency Response Review Comments

The site plans have been revised in accordance with the review comments contained in the technical review comment letter of May 17, 2019 with one minor exception. The minor exception is the depicted overhead electric wire (OHW) have not been labeled as proposed on the site plan.

RECOMMENDATION:

Adequate for Notice, provided that prior to preparing the copies of the site plan for notice, the site plan is to be revised as follows: 1) label the depicted OHW symbol as proposed.

Also, during the Request for Plans for Notice, request two copies of a revised Written Narrative that incorporates the most recent site plan revisions.

Signed: Daniel M. Kowal

R.I. DEPARTMENT OF ENVIRONMENTAL MANAGEMENT (RIDEM)
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM (FWP)

APPLICATION INSPECTION REPORT No. 1

Application No.: 19-0107 **Applicant Name:** Joan M. Mooney

Biologist: Daniel M. Kowal **Response to Technical Deficiency:** No **Date Received:** 4/4/19

Field Review Date: 5/10/19 **Time:** 7:33 am **Aerial Photo Nos.:** ArcGIS 1939/1951-1952/1972/1981/1988/1997 B&W aerials, ArcGIS Spring 2003/2004/2008/2011/2014/2016/2018 and color aerials.

Site Location: Approximately 50 feet southeast of Canning Street, opposite utility pole no. 4; approximately 390 feet northeast of the intersection of Woodrow and Canning Streets; Assessor's Plat 37, Lot 186, Cumberland, RI.

RI GP Wetlands Gain/Loss (*for reporting purposes only*): 0.0 acres (gain/loss)

I. FRESHWATER WETLANDS IDENTIFIED (Attach BIR-Forms as Necessary):

Swamp with 50 foot perimeter wetland and an area subject to storm flowage (ASSF).

II. PROJECT PURPOSE AND PROPOSED ALTERATIONS:

Project purpose is for the construction of a single family dwelling with garage, drive, vegetated swales, utilities, and landscape plantings.

III. REVIEW COMMENTS FOR SITE PLANS AND INFORMATION RECEIVED ON APRIL 4, 2019:

Cross reference file for the subject site:

18-0153: Significant Alteration to Freshwater Wetlands issued on August 9, 2018.

Communications

Permit Supervisor, Mr. Charles Horbert has determined on April 4, 2019 that an engineering review is not required for this application.

This application was briefly discussed with Permit Supervisor, Mr. Martin D. Wencek on May 15, 2019.

General Site Comments

The subject site is mostly forested. An existing residence borders the subject site on the northeast side; two existing residences border the subject site on the south and southwest sides.

Marked wetland edge flags and LOD flags were observed on the subject site.

Subject Wetlands

Swamp and 50 Foot Perimeter Wetland (A flag series)

The wetland edge that has been delineated by flags A1 to A10 (flag letters/numbers not shown on site plan) was examined on the subject site. The wetland edge at flags A1 to A3, and A6 to A10 is acceptable as demarcated. Flag A4 needs to be relocated 9 feet to the northeast and flag A5 needs to be relocated 20 feet to the north-northwest, both due to the presence of wetland hydrology (e.g., mucky soils, exposed tree roots), and hydrophytic vegetation [e.g., jewelweed (*Impatiens capensis),* green algae]. Red maple (*Acer rubrum*), ash sp. (*Fraxinus* sp.), elm sp. (*Ulmus* sp.), arrowwood (*Viburnum dentatum*), dogwood (*Cornus* sp.), elderberry (*Sambucus canadensis*), grape sp. (*Vitis* sp.), poison ivy (*Toxicodendron radicans*), jewelweed (*Impatiens capensis*), jack-in-the-pulpit (*Arisaema triphyllum*), exposed tree roots, mucky soils, rocks, irregular topography, coarse woody debris, and leaf litter were observed within the swamp.

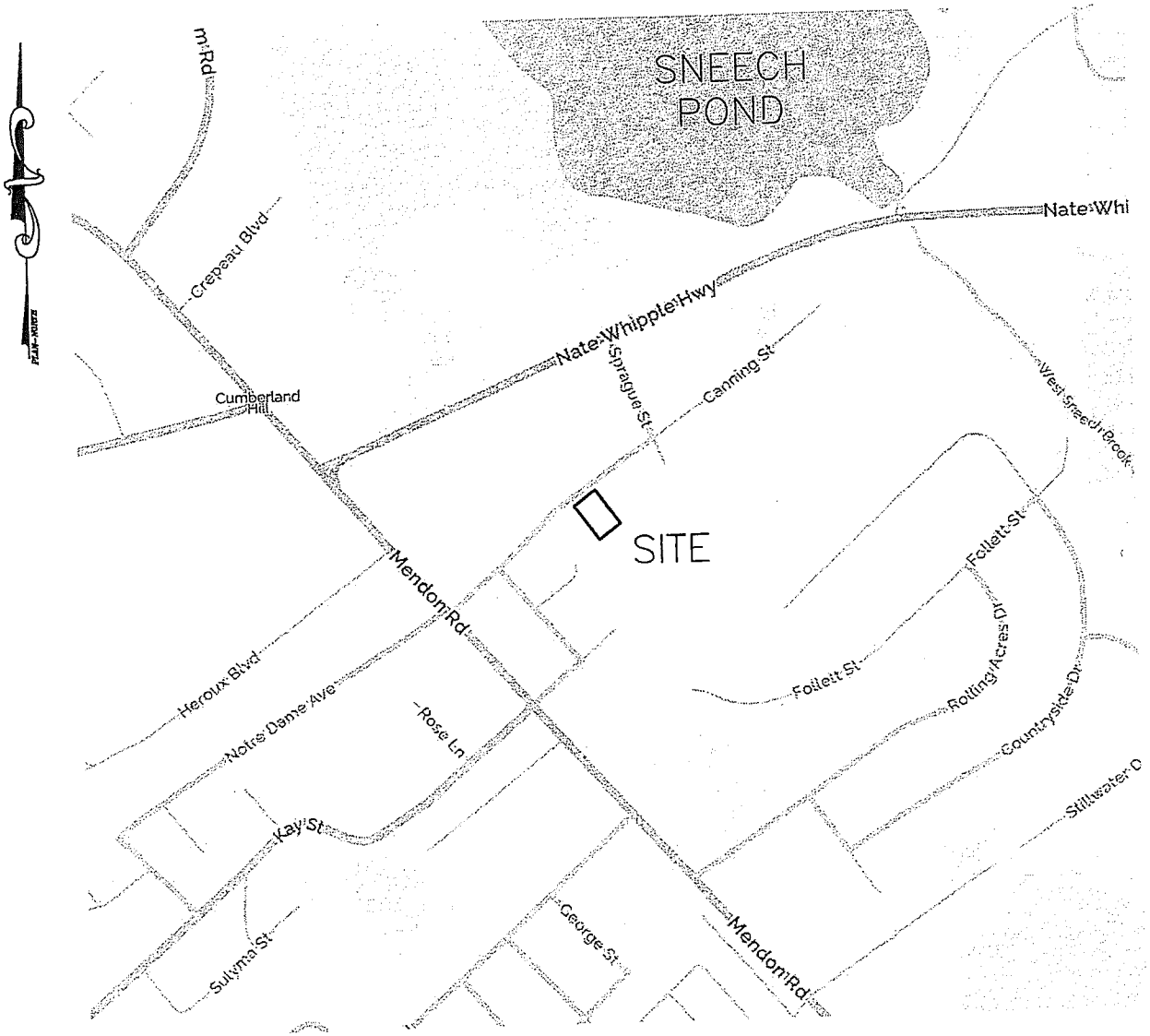
Deciduous trees, deciduous saplings, shrubs, vines, herbaceous plants, and other vegetation along with patches of exposed soil , irregular topography, coarse woody debris, and leaf litter were observed within the 50 foot perimeter wetland.

Area Subject To Storm Flowage (ASSF)
An ASSF is present that originates at Canning Street and extends into the interior of the subject site into the swamp The ASSF is demarcated by a deposit of sediment along a slightly scoured channel. This ASSF appears to convey local stormwater runoff to the subject swamp. This ASSF has not been shown on the site plan.

There are biological review comments. See the Biological Application Review Sheet for the list of review comments.

Decision
Since, there are technical review comments/concerns, a letter with the review comments/concerns attached will be sent to the applicant

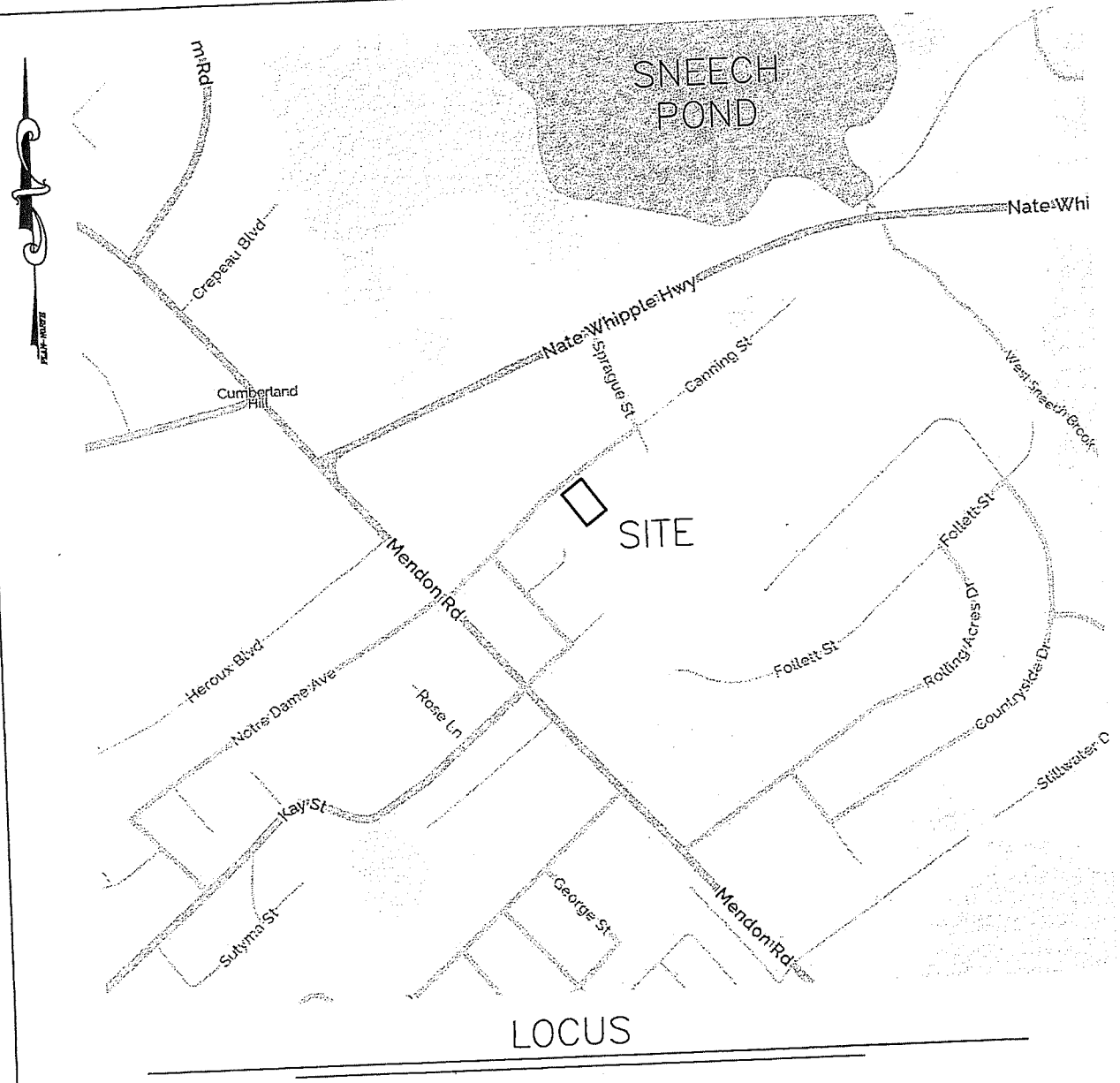
Signed: Daniel M. Kunal



LOCUS

NOTES:

1. WETLAND EDGE DETERMINATION BY NATURAL RESOURCE SERVICES, INC. SEPTEMBER 2018. RIDEM FRESHWATER WETLANDS SECTION MODIFIED WETLAND EDGE, REFER TO APPLICATION #19-0107.
2. SITE IS SITUATED IN AN 'AREA OF MINIMAL FLOOD HAZARD, ZONE X' AS DEPICTED ON FEMA'S FLOOD INSURANCE RATE MAP, 44007C0177G, TOWN OF CUMBERLAND, 440016, EFFECTIVE DATE MARCH 2, 2009.



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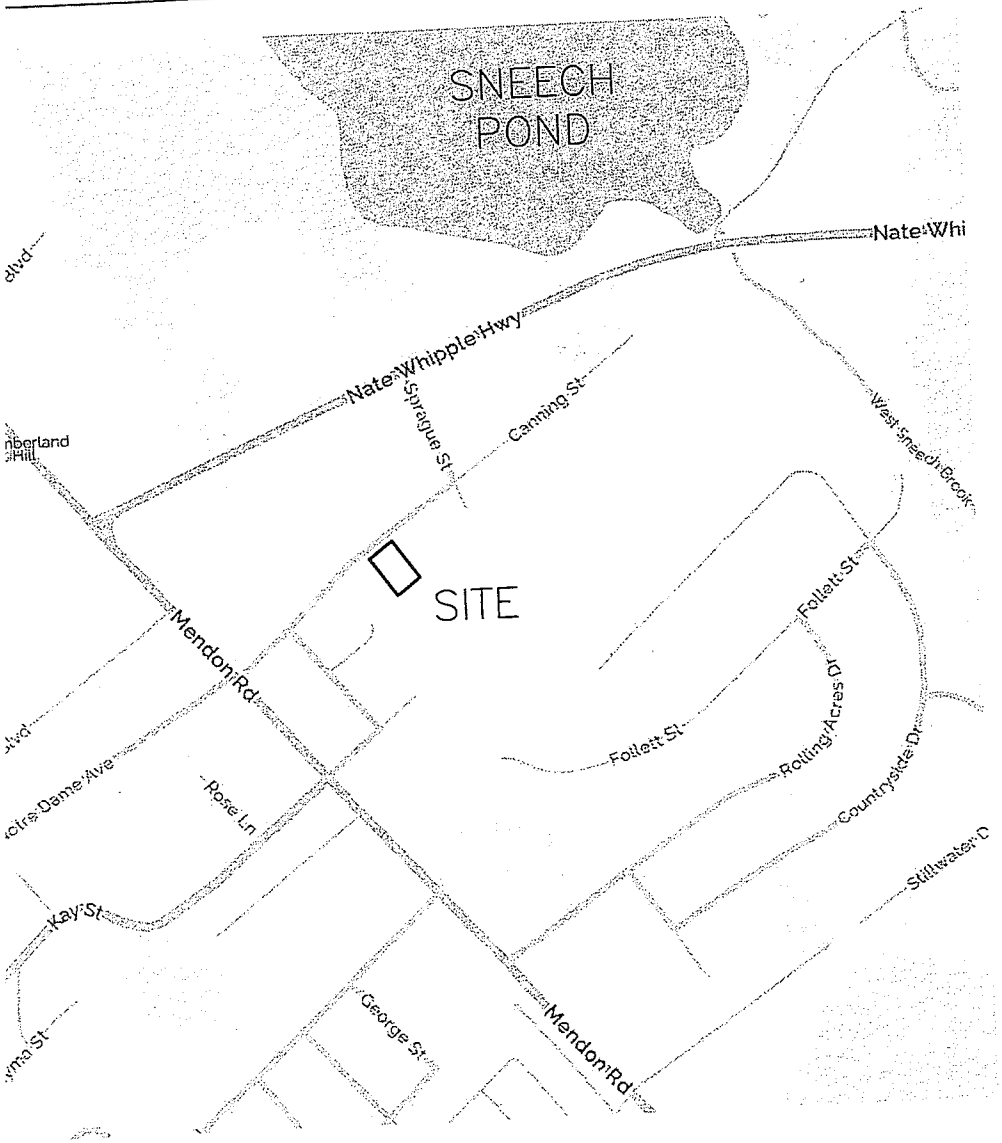

4" TOPSOIL & GENERAL
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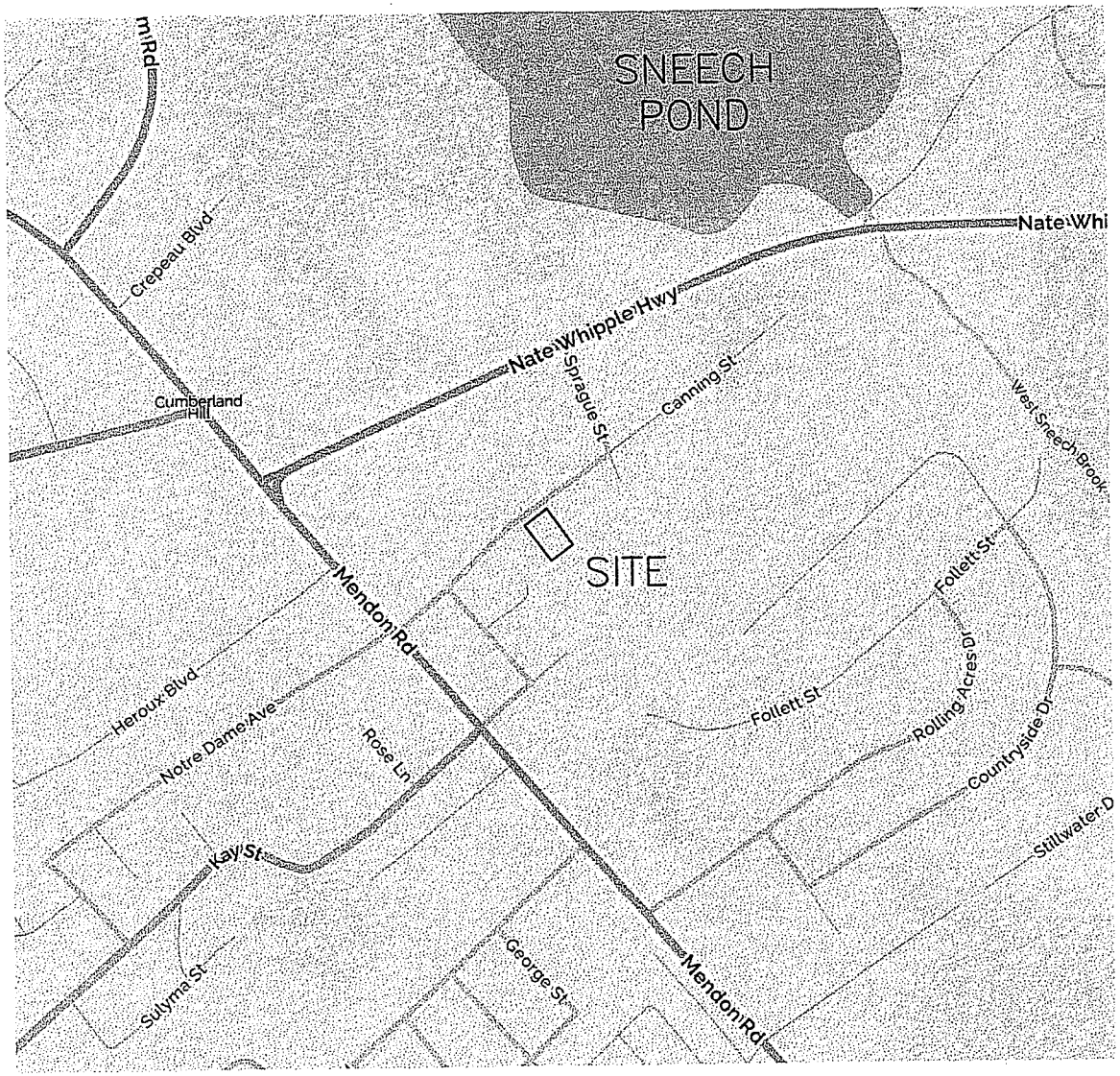
3. REFERENCE IS MADE TO TOWN PLAT MAPS FOR PROPERTY LINE AND ASSESSORS PLAT AND LOT



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9L 7199 [redacted] 7039 8088 8940

Amy E. Brayton

RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
235 Promenade Street
Providence, Rhode Island 02908

CERTIFIED MAIL

June 3, 2021

Joan M. Mooney
[redacted]

PERMIT TO ALTER FRESHWATER WETLANDS

Re: Application No. 20-0254 in reference to the location below:

Approximately 50 feet southeast of Canning Street, opposite Utility Pole No. 4, approximately 390 feet northeast of the intersection of Woodrow Street and Canning Street, Assessors Plat 37, Lot 186, Cumberland, RI.

Dear Ms. Mooney:

The Department of Environmental Management's ("DEM") Freshwater Wetlands Program ("Program") has completed its review of your **Application to Alter a Freshwater Wetland** regarding the proposed construction of a new single-family home, a paved driveway, in-ground utility installations consisting of sewer and public water in addition to an overhead utility line installation, stormwater management features including installation of a twelve inch pipe within the existing drainage easement to replace a portion of an existing culvert, and yard landscaping as described and detailed in the material and information submitted in support of your application and on site plans received by the DEM on November 21, 2019. These site plans describing the project were made available for public comment as part of the forty-five (45) day public notice period required in accordance with the Freshwater Wetlands Act (R.I. Gen. Laws § 2-1-18 et seq.) and the procedures set forth in the Rules and Regulations Governing the Administration and Enforcement of the Freshwater Wetlands Act, 250-RICR-150-15-1, specifically in 250-RICR-150-15-1.10.

This Program received nine letters relating to your application which were submitted *during* the public notice period. These letters expressed concern regarding your project's impacts to freshwater wetland values, especially flooding. With regards to the documentation of localized flooding that exists in and around the vicinity of the subject property, supportive information provided by the design engineer, and subsequent review by the Stormwater Engineering Program has determined that this project as now proposed, is not expected to worsen the flooding conditions known to be occurring. As a result, the Program has determined that the comments contained within these letters noting potential impacts to all freshwater wetland values, do not constitute an objection of a substantive nature per 250-RICR-150-15-1.10(D)(3). Therefore, a public hearing pursuant to R.I.G.L. Section 2-1-22 is not required.

Pursuant to the Program's review and evaluation of your application including all supporting information and material, as well as the record to date, the Program has determined that this project does not represent a random, unnecessary or undesirable alteration of freshwater wetlands. Therefore, this Program hereby issues this permit to alter freshwater wetlands **subject to all controlling Rules and the Terms and Conditions set forth herein.**

Permit Terms and Conditions for Application No. 20-0254:

1. This letter is the DEM's permit for this project under the R.I. Fresh Water Wetlands Act, Rhode Island General Laws (RIGL) Section 2-1-18 et seq.

2. This permit is specifically limited to the project, site alterations and limits of disturbance as detailed on the site plans submitted with your application and received by the DEM on March 25, 2021. A copy of the site plans stamped approved by the DEM is enclosed. Changes or revisions to the project which would alter freshwater wetlands are not authorized without a permit from the DEM.

3. Where the terms and conditions of the permit conflict with the approved site plans, these terms and conditions shall be deemed to supersede the site plans.

4. You must notify this Program in writing immediately prior to the commencement of site alterations and upon completion of the project.

5. A copy of the stamped approved site plans and a copy of this permit must be kept at the site at all times during site preparation, construction, and final stabilization. Copies of this permit and the stamped approved plans must be made available for review by any DEM representative upon request.

6. Within ten (10) days of the receipt of this permit, you must record this permit in the land evidence records of the Town of Cumberland and supply this Program with written documentation obtained from the Town showing this permit was recorded.

7. The effective date of this permit is the date this letter was issued. This permit expires one (1) year from the date of this letter unless renewed pursuant to 250-RICR-150-15-1.10(G)(6).

8. Any material utilized in this project must be clean and free of matter that could pollute any freshwater wetland.

9. Prior to commencement of site alterations, you shall erect or post a sign resistant to the weather and at least twelve (12) inches wide and eighteen (18) inches long, which boldly identifies the initials "DEM" and the application number of this permit. This sign must be maintained at the site in a conspicuous location until such time that the project is complete or the DEM issues a Notice of Completion of Work for the project.

10. Temporary erosion and sediment controls detailed or described on the approved site plans shall be properly installed at the site prior to or commensurate with site alterations. Such controls shall be properly maintained, replaced, supplemented, or modified as necessary throughout the life of this project to minimize soil erosion and to prevent sediment from being deposited in any wetlands not subject to disturbance under this permit.

11. Upon permanent stabilization of all disturbed soils, temporary erosion and/or sediment controls must be removed.

12. The long-term operation and maintenance plan shall be strictly followed. The long-term O & M Plan shall be that dated and received by this Program February 15, 2021 prepared by Commonwealth Engineering.

13. You are responsible for the proper operation, maintenance and stability of any mitigative features, facilities, and systems of treatment and control that are installed or used in compliance with this permit to prevent harm to adjacent wetlands.

14. You are obligated to install, utilize and follow all best management practices detailed or described on the approved site plans in the construction of the project to minimize or prevent adverse impacts to any adjacent freshwater wetlands and the functions and values provided by such wetlands.

15. All plantings of shrubs, trees or other forms of vegetation as shown or detailed on the approved plans, or detailed in this permit, must be installed as soon as possible after completion of final grading; weather and season permitting.

16. Buffer zone plantings of trees and/or shrubs proposed between the project and any adjacent freshwater wetland areas, except for necessary replacement, must be allowed to develop naturally without being subjected to mowing or manicuring.

Pursuant to the provisions in 250-RICR-150-15-1.7(A)(9) and 250-RICR-150-15-1.11(D) of the Rules, as applicable, any properly recorded and valid permit is automatically transferred to the new owner upon sale of the property. Pursuant to the provisions in 250-RICR-150-15-1.7(A)(9)(c), within ten (10) days of any property transfer, the subsequent transferee must notify the Department by forwarding a certified copy of the deed of transfer.

You are required to comply with the terms and conditions of this permit and to carry out this project in compliance with the Rules at all times. Failure to do so may result in an enforcement action against you by the DEM.

In permitting the proposed alterations, the Program assumes no responsibility for damages resulting from faulty design or construction. This permit does not remove your obligation to obtain any local, state, or federal approvals or permits required by ordinance or law and does not relieve you from any duties owed to adjacent landowners with specific reference to any changes in drainage.

If you have not already done so, or in order to check on the status of their review, please contact the U.S. Army Corps of Engineers to determine federal permit requirements on your project. Write the Corps' New England District, Regulatory Branch, 696 Virginia Road, Concord, MA 01742-2751; website: https://www.nae.usace.army.mil/Missions/Regulatory/or email at [redacted]. Please note that the Department of the Army authorization must be obtained before any work is initiated in areas subject to Corps jurisdiction.

If you are aggrieved by this decision, you may, within thirty (30) days of the receipt of this letter, request an adjudicatory hearing in writing. This request must be sent directly to the DEM Administrative Adjudication Division ("AAD"), One Capitol Hill, Second Floor, Providence, RI 02903. A copy of the request should also be forwarded to this Program and to the Office of Legal Services, at the same address. Your written request for an adjudicatory hearing must be timely filed and should conform to the requirements of 250-RICR-10-00-1.7(B) of the DEM Rules and Regulations for the Administrative Adjudication Division, 250-RICR-10-00-1. Section 250-RICR-10-00-1.7(B) provides:

> "The request for a hearing shall state clearly and concisely the specific issues which are in dispute, and the facts in support thereof, the relief sought, if any, the license or permit sought or involved, and any additional information required by applicable statues and regulations."

The written request must be accompanied by an adjudicatory hearing fee of two thousand dollars ($2,000.00); in the form of a certified bank check or money order made payable to the Rhode Island General Treasurer; however, in the event that the cost of the hearing exceeds the fee paid, the Program through the AAD will require an additional fee which the applicant must submit prior to the DEM's issuance of any final decision regarding this application. The adjudicatory hearing will be held before a Hearing Officer from the AAD. Such hearing will be held in compliance with 250-RICR-10-00-1, R.I. Gen. Laws Chapter 42-35-1 et seq., and other governing laws, rules, and regulations adopted by the DEM. Please note that you have the right to be represented by legal counsel in any proceeding which may be held in this matter.

If you have any questions regarding this matter, you may contact me or Jane Kelly of my staff at this office (telephone: [redacted]).

Sincerely,

Martin D. Wencek

Martin D. Wencek, Permitting Supervisor
Office of Water Resources
Freshwater Wetlands Program
MDW/mdw

Enclosure: Approved Site Plans

ec: Mary Dalton, Administrative Adjudication Division
Eric Beck, Chief, Water Resources, Permitting
Brad Ward, Town of Cumberland Building Official
Jonathan Stevens, Town of Cumberland, Planning Director
Leslie Martin, U.S. Army Corps Of Engineers, New England District
Scott P. Rabideau, Natural Resource Services, Inc.
Timothy Behan, Commonwealth Engineering and Consultants, Inc.
Ernest Faucher
Michelle Burgoyne
Michael and Meredith Barry
Micheal and Sharon Clapprood
William Spear
Amy E. Brayton
James F. Queenan
Attila Majoros and Eszter Vida

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FAQs

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Attila Majoros

RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
235 Promenade Street
Providence, Rhode Island 02908

CERTIFIED MAIL

June 3, 2021

Joan M. Mooney
[redacted]

PERMIT TO ALTER FRESHWATER WETLANDS

Re: Application No. 20-0254 in reference to the location below:

Approximately 50 feet southeast of Canning Street, opposite Utility Pole No. 4, approximately 390 feet northeast of the intersection of Woodrow Street and Canning Street, Assessors Plat 37, Lot 186, Cumberland, RI.

Dear Ms. Mooney:

The Department of Environmental Management's ("DEM") Freshwater Wetlands Program ("Program") has completed its review of your **Application to Alter a Freshwater Wetland** regarding the proposed construction of a new single-family home, a paved driveway, in-ground utility installations consisting of sewer and public water in addition to an overhead utility line installation, stormwater management features including installation of a twelve inch pipe within the existing drainage easement to replace a portion of an existing culvert, and yard landscaping as described and detailed in the material and information submitted in support of your application and on site plans received by the DEM on November 21, 2019. These site plans describing the project were made available for public comment as part of the forty-five (45) day public notice period required in accordance with the Freshwater Wetlands Act (R.I. Gen. Laws § 2-1-18 et seq.) and the procedures set forth in the Rules and Regulations Governing the Administration and Enforcement of the Freshwater Wetlands Act, 250-RICR-150-15-1, specifically in 250-RICR-150-15-1.10.

This Program received nine letters relating to your application which were submitted *during* the public notice period. These letters expressed concern regarding your project's impacts to freshwater wetland values, especially flooding. With regards to the documentation of localized flooding that exists in and around the vicinity of the subject property, supportive information provided by the design engineer, and subsequent review by the Stormwater Engineering Program has determined that this project as now proposed, is not expected to worsen the flooding conditions known to be occurring. As a result, the Program has determined that the comments contained within these letters noting potential impacts to all freshwater wetland values, do not constitute an objection of a substantive nature per 250-RICR-150-15-1.10(D)(3). Therefore, a public hearing pursuant to R.I.G.L. Section 2-1-22 is not required.

Pursuant to the Program's review and evaluation of your application including all supporting information and material, as well as the record to date, the Program has determined that this project does not represent a random, unnecessary or undesirable alteration of freshwater wetlands. Therefore, this Program hereby issues this permit to alter freshwater wetlands **subject to all controlling Rules and the Terms and Conditions set forth herein.**

Permit Terms and Conditions for Application No. 20-0254:

1. This letter is the DEM's permit for this project under the R.I. Fresh Water Wetlands Act, Rhode Island General Laws (RIGL) Section 2-1-18 et seq.

2. This permit is specifically limited to the project, site alterations and limits of disturbance as detailed on the site plans submitted with your application and received by the DEM on March 25, 2021. A copy of the site plans stamped approved by the DEM is enclosed. Changes or revisions to the project which would alter freshwater wetlands are not authorized without a permit from the DEM.

3. Where the terms and conditions of the permit conflict with the approved site plans, these terms and conditions shall be deemed to supersede the site plans.

4. You must notify this Program in writing immediately prior to the commencement of site alterations and upon completion of the project.

5. A copy of the stamped approved site plans and a copy of this permit must be kept at the site at all times during site preparation, construction, and final stabilization. Copies of this permit and the stamped approved plans must be made available for review by any DEM representative upon request.

6. Within ten (10) days of the receipt of this permit, you must record this permit in the land evidence records of the Town of Cumberland and supply this Program with written documentation obtained from the Town showing this permit was recorded.

7. The effective date of this permit is the date this letter was issued. This permit expires one (1) year from the date of this letter unless renewed pursuant to 250-RICR-150-15-1.10(G)(6).

8. Any material utilized in this project must be clean and free of matter that could pollute any freshwater wetland.

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11. Upon permanent stabilization of all disturbed soils, temporary erosion and/or sediment controls must be removed.

12. The long-term operation and maintenance plan shall be strictly followed. The long-term O & M Plan shall be that dated and received by this Program February 15, 2021 prepared by Commonwealth Engineering.

13. You are responsible for the proper operation, maintenance and stability of any mitigative features, facilities, and systems of treatment and control that are installed or used in compliance with this permit to prevent harm to adjacent wetlands.

14. You are obligated to install, utilize and follow all best management practices detailed or described on the approved site plans in the construction of the project to minimize or prevent adverse impacts to any adjacent freshwater wetlands and the functions and values provided by such wetlands.

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If you have any questions regarding this matter, you may contact me or Jane Kelly of my staff at this office (telephone: [redacted]).

Sincerely,

Martin D. Wencek

Martin D. Wencek, Permitting Supervisor
Office of Water Resources
Freshwater Wetlands Program
MDW/mdw

Enclosure: Approved Site Plans

ec: Mary Dalton, Administrative Adjudication Division
Eric Beck, Chief, Water Resources, Permitting
Brad Ward, Town of Cumberland Building Official
Jonathan Stevens, Town of Cumberland, Planning Director
Leslie Martin, U.S. Army Corps Of Engineers, New England District
Scott P. Rabideau, Natural Resource Services, Inc.
Timothy Behan, Commonwealth Engineering and Consultants, Inc.
Ernest Faucher
Michelle Burgoyne
Michael and Meredith Barry
Micheal and Sharon Clapprood
William Spear
Amy E. Brayton
James F. Queenan
Attila Majoros and Eszter Vida

91 7199 99 7039 8088 8964

William Spear

RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
235 Promenade Street
Providence, Rhode Island 02908

CERTIFIED MAIL

June 3, 2021

Joan M. Mooney
[redacted]

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This Program received nine letters relating to your application which were submitted *during* the public notice period. These letters expressed concern regarding your project's impacts to freshwater wetland values, especially flooding. With regards to the documentation of localized flooding that exists in and around the vicinity of the subject property, supportive information provided by the design engineer, and subsequent review by the Stormwater Engineering Program has determined that this project as now proposed, is not expected to worsen the flooding conditions known to be occurring. As a result, the Program has determined that the comments contained within these letters noting potential impacts to all freshwater wetland values, do not constitute an objection of a substantive nature per 250-RICR-150-15-1.10(D)(3). Therefore, a public hearing pursuant to R.I.G.L. Section 2-1-22 is not required.

Pursuant to the Program's review and evaluation of your application including all supporting information and material, as well as the record to date, the Program has determined that this project does not represent a random, unnecessary or undesirable alteration of freshwater wetlands. Therefore, this Program hereby issues this permit to alter freshwater wetlands **subject to all controlling Rules and the Terms and Conditions set forth herein.**

Permit Terms and Conditions for Application No. 20-0254:

1. This letter is the DEM's permit for this project under the R.I. Fresh Water Wetlands Act, Rhode Island General Laws (RIGL) Section 2-1-18 et seq.

2. This permit is specifically limited to the project, site alterations and limits of disturbance as detailed on the site plans submitted with your application and received by the DEM on March 25, 2021. A copy of the site plans stamped approved by the DEM is enclosed. Changes or revisions to the project which would alter freshwater wetlands are not authorized without a permit from the DEM.

3. Where the terms and conditions of the permit conflict with the approved site plans, these terms and conditions shall be deemed to supersede the site plans.

4. You must notify this Program in writing immediately prior to the commencement of site alterations and upon completion of the project.

5. A copy of the stamped approved site plans and a copy of this permit must be kept at the site at all times during site preparation, construction, and final stabilization. Copies of this permit and the stamped approved plans must be made available for review by any DEM representative upon request.

6. Within ten (10) days of the receipt of this permit, you must record this permit in the land evidence records of the Town of Cumberland and supply this Program with written documentation obtained from the Town showing this permit was recorded.

7. The effective date of this permit is the date this letter was issued. This permit expires one (1) year from the date of this letter unless renewed pursuant to 250-RICR-150-15-1.10(G)(6).

8. Any material utilized in this project must be clean and free of matter that could pollute any freshwater wetland.

9. Prior to commencement of site alterations, you shall erect or post a sign resistant to the weather and at least twelve (12) inches wide and eighteen (18) inches long, which boldly identifies the initials "DEM" and the application number of this permit. This sign must be maintained at the site in a conspicuous location until such time that the project is complete or the DEM issues a Notice of Completion of Work for the project.

10. Temporary erosion and sediment controls detailed or described on the approved site plans shall be properly installed at the site prior to or commensurate with site alterations. Such controls shall be properly maintained, replaced, supplemented, or modified as necessary throughout the life of this project to minimize soil erosion and to prevent sediment from being deposited in any wetlands not subject to disturbance under this permit.

11. Upon permanent stabilization of all disturbed soils, temporary erosion and/or sediment controls must be removed.

12. The long-term operation and maintenance plan shall be strictly followed. The long-term O & M Plan shall be that dated and received by this Program February 15, 2021 prepared by Commonwealth Engineering.

13. You are responsible for the proper operation, maintenance and stability of any mitigative features, facilities, and systems of treatment and control that are installed or used in compliance with this permit to prevent harm to adjacent wetlands.

14. You are obligated to install, utilize and follow all best management practices detailed or described on the approved site plans in the construction of the project to minimize or prevent adverse impacts to any adjacent freshwater wetlands and the functions and values provided by such wetlands.

15. All plantings of shrubs, trees or other forms of vegetation as shown or detailed on the approved plans, or detailed in this permit, must be installed as soon as possible after completion of final grading; weather and season permitting.

16. Buffer zone plantings of trees and/or shrubs proposed between the project and any adjacent freshwater wetland areas, except for necessary replacement, must be allowed to develop naturally without being subjected to mowing or manicuring.

Pursuant to the provisions in 250-RICR-150-15-1.7(A)(9) and 250-RICR-150-15-1.11(D) of the Rules, as applicable, any properly recorded and valid permit is automatically transferred to the new owner upon sale of the property. Pursuant to the provisions in 250-RICR-150-15-1.7(A)(9)(c), within ten (10) days of any property transfer, the subsequent transferee must notify the Department by forwarding a certified copy of the deed of transfer.

You are required to comply with the terms and conditions of this permit and to carry out this project in compliance with the Rules at all times. Failure to do so may result in an enforcement action against you by the DEM.

In permitting the proposed alterations, the Program assumes no responsibility for damages resulting from faulty design or construction. This permit does not remove your obligation to obtain any local, state, or federal approvals or permits required by ordinance or law and does not relieve you from any duties owed to adjacent landowners with specific reference to any changes in drainage.

If you have not already done so, or in order to check on the status of their review, please contact the U.S. Army Corps of Engineers to determine federal permit requirements on your project. Write the Corps' New England District, Regulatory Branch, 696 Virginia Road, Concord, MA 01742-2751; website: https://www.nae.usace.army.mil/Missions/Regulatory/or email at [redacted]. Please note that the Department of the Army authorization must be obtained before any work is initiated in areas subject to Corps jurisdiction.

If you are aggrieved by this decision, you may, within thirty (30) days of the receipt of this letter, request an adjudicatory hearing in writing. This request must be sent directly to the DEM Administrative Adjudication Division ("AAD"), One Capitol Hill, Second Floor, Providence, RI 02903. A copy of the request should also be forwarded to this Program and to the Office of Legal Services, at the same address. Your written request for an adjudicatory hearing must be timely filed and should conform to the requirements of 250-RICR-10-00-1.7(B) of the DEM Rules and Regulations for the Administrative Adjudication Division, 250-RICR-10-00-1. Section 250-RICR-10-00-1.7(B) provides:

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The written request must be accompanied by an adjudicatory hearing fee of two thousand dollars ($2,000.00); in the form of a certified bank check or money order made payable to the Rhode Island General Treasurer; however, in the event that the cost of the hearing exceeds the fee paid, the Program through the AAD will require an additional fee which the applicant must submit prior to the DEM's issuance of any final decision regarding this application. The adjudicatory hearing will be held before a Hearing Officer from the AAD. Such hearing will be held in compliance with 250-RICR-10-00-1, R.I. Gen. Laws Chapter 42-35-1 et seq., and other governing laws, rules, and regulations adopted by the DEM. Please note that you have the right to be represented by legal counsel in any proceeding which may be held in this matter.

If you have any questions regarding this matter, you may contact me or Jane Kelly of my staff at this office (telephone: [redacted]).

Sincerely,

Martin D. Wencek

Martin D. Wencek, Permitting Supervisor
Office of Water Resources
Freshwater Wetlands Program
MDW/mdw

Enclosure: Approved Site Plans

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Eric Beck, Chief, Water Resources, Permitting
Brad Ward, Town of Cumberland Building Official
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Ernest Faucher
Michelle Burgoyne
Michael and Meredith Barry
Micheal and Sharon Clapprood
William Spear
Amy E. Brayton
James F. Queenan
Attila Majoros and Eszter Vida

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RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
235 Promenade Street
Providence, Rhode Island 02908

CERTIFIED MAIL

June 3, 2021

Joan M. Mooney
[redacted]

PERMIT TO ALTER FRESHWATER WETLANDS

Re: Application No. 20-0254 in reference to the location below:

Approximately 50 feet southeast of Canning Street, opposite Utility Pole No. 4, approximately 390 feet northeast of the intersection of Woodrow Street and Canning Street, Assessors Plat 37, Lot 186, Cumberland, RI.

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If you have any questions regarding this matter, you may contact me or Jane Kelly of my staff at this office (telephone: [redacted]).

Sincerely,

Martin D. Wencek

Martin D. Wencek, Permitting Supervisor
Office of Water Resources
Freshwater Wetlands Program
MDW/mdw

Enclosure: Approved Site Plans

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Barry

RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
235 Promenade Street
Providence, Rhode Island 02908

CERTIFIED MAIL

June 3, 2021

Joan M. Mooney
[redacted]

PERMIT TO ALTER FRESHWATER WETLANDS

Re: Application No. 20-0254 in reference to the location below:

Approximately 50 feet southeast of Canning Street, opposite Utility Pole No. 4, approximately 390 feet northeast of the intersection of Woodrow Street and Canning Street, Assessors Plat 37, Lot 186, Cumberland, RI.

Dear Ms. Mooney:

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Queenan

RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
235 Promenade Street
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June 3, 2021

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3. Where the terms and conditions of the permit conflict with the approved site plans, these terms and conditions shall be deemed to supersede the site plans.

4. You must notify this Program in writing immediately prior to the commencement of site alterations and upon completion of the project.

5. A copy of the stamped approved site plans and a copy of this permit must be kept at the site at all times during site preparation, construction, and final stabilization. Copies of this permit and the stamped approved plans must be made available for review by any DEM representative upon request.

6. Within ten (10) days of the receipt of this permit, you must record this permit in the land evidence records of the Town of Cumberland and supply this Program with written documentation obtained from the Town showing this permit was recorded.

7. The effective date of this permit is the date this letter was issued. This permit expires one (1) year from the date of this letter unless renewed pursuant to 250-RICR-150-15-1.10(G)(6).

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11. Upon permanent stabilization of all disturbed soils, temporary erosion and/or sediment controls must be removed.

12. The long-term operation and maintenance plan shall be strictly followed. The long-term O & M Plan shall be that dated and received by this Program February 15, 2021 prepared by Commonwealth Engineering.

13. You are responsible for the proper operation, maintenance and stability of any mitigative features, facilities, and systems of treatment and control that are installed or used in compliance with this permit to prevent harm to adjacent wetlands.

14. You are obligated to install, utilize and follow all best management practices detailed or described on the approved site plans in the construction of the project to minimize or prevent adverse impacts to any adjacent freshwater wetlands and the functions and values provided by such wetlands.

15. All plantings of shrubs, trees or other forms of vegetation as shown or detailed on the approved plans, or detailed in this permit, must be installed as soon as possible after completion of final grading; weather and season permitting.

16. Buffer zone plantings of trees and/or shrubs proposed between the project and any adjacent freshwater wetland areas, except for necessary replacement, must be allowed to develop naturally without being subjected to mowing or manicuring.

Pursuant to the provisions in 250-RICR-150-15-1.7(A)(9) and 250-RICR-150-15-1.11(D) of the Rules, as applicable, any properly recorded and valid permit is automatically transferred to the new owner upon sale of the property. Pursuant to the provisions in 250-RICR-150-15-1.7(A)(9)(c), within ten (10) days of any property transfer, the subsequent transferee must notify the Department by forwarding a certified copy of the deed of transfer.

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In permitting the proposed alterations, the Program assumes no responsibility for damages resulting from faulty design or construction. This permit does not remove your obligation to obtain any local, state, or federal approvals or permits required by ordinance or law and does not relieve you from any duties owed to adjacent landowners with specific reference to any changes in drainage.

If you have not already done so, or in order to check on the status of their review, please contact the U.S. Army Corps of Engineers to determine federal permit requirements on your project. Write the Corps' New England District, Regulatory Branch, 696 Virginia Road, Concord, MA 01742-2751; website: https://www.nae.usace.army.mil/Missions/Regulatory/or email at [redacted]. Please note that the Department of the Army authorization must be obtained before any work is initiated in areas subject to Corps jurisdiction.

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If you have any questions regarding this matter, you may contact me or Jane Kelly of my staff at this office (telephone: [redacted]).

Sincerely,

Martin D. Wencek

Martin D. Wencek, Permitting Supervisor
Office of Water Resources
Freshwater Wetlands Program
MDW/mdw

Enclosure: Approved Site Plans

ec: Mary Dalton, Administrative Adjudication Division
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Michelle Burgoyne
Michael and Meredith Barry
Micheal and Sharon Clapprood
William Spear
Amy E. Brayton
James F. Queenan
Attila Majoros and Eszter Vida

9L 7108 [illegible] 3938 6360 2430

Faucher

RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
235 Promenade Street
Providence, Rhode Island 02908

CERTIFIED MAIL

June 3, 2021

Joan M. Mooney
[redacted]

PERMIT TO ALTER FRESHWATER WETLANDS

Re: Application No. 20-0254 in reference to the location below:

Approximately 50 feet southeast of Canning Street, opposite Utility Pole No. 4, approximately 390 feet northeast of the intersection of Woodrow Street and Canning Street, Assessors Plat 37, Lot 186, Cumberland, RI.

Dear Ms. Mooney:

The Department of Environmental Management's ("DEM") Freshwater Wetlands Program ("Program") has completed its review of your **Application to Alter a Freshwater Wetland** regarding the proposed construction of a new single-family home, a paved driveway, in-ground utility installations consisting of sewer and public water in addition to an overhead utility line installation, stormwater management features including installation of a twelve inch pipe within the existing drainage easement to replace a portion of an existing culvert, and yard landscaping as described and detailed in the material and information submitted in support of your application and on site plans received by the DEM on November 21, 2019. These site plans describing the project were made available for public comment as part of the forty-five (45) day public notice period required in accordance with the Freshwater Wetlands Act (R.I. Gen. Laws § 2-1-18 et seq.) and the procedures set forth in the Rules and Regulations Governing the Administration and Enforcement of the Freshwater Wetlands Act, 250-RICR-150-15-1, specifically in 250-RICR-150-15-1.10.

This Program received nine letters relating to your application which were submitted *during* the public notice period. These letters expressed concern regarding your project's impacts to freshwater wetland values, especially flooding. With regards to the documentation of localized flooding that exists in and around the vicinity of the subject property, supportive information provided by the design engineer, and subsequent review by the Stormwater Engineering Program has determined that this project as now proposed, is not expected to worsen the flooding conditions known to be occurring. As a result, the Program has determined that the comments contained within these letters noting potential impacts to all freshwater wetland values, do not constitute an objection of a substantive nature per 250-RICR-150-15-1.10(D)(3). Therefore, a public hearing pursuant to R.I.G.L. Section 2-1-22 is not required.

Pursuant to the Program's review and evaluation of your application including all supporting information and material, as well as the record to date, the Program has determined that this project does not represent a random, unnecessary or undesirable alteration of freshwater wetlands. Therefore, this Program hereby issues this permit to alter freshwater wetlands **subject to all controlling Rules and the Terms and Conditions set forth herein.**

Permit Terms and Conditions for Application No. 20-0254:

1. This letter is the DEM's permit for this project under the R.I. Fresh Water Wetlands Act, Rhode Island General Laws (RIGL) Section 2-1-18 et seq.

2. This permit is specifically limited to the project, site alterations and limits of disturbance as detailed on the site plans submitted with your application and received by the DEM on March 25, 2021. A copy of the site plans stamped approved by the DEM is enclosed. Changes or revisions to the project which would alter freshwater wetlands are not authorized without a permit from the DEM.

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RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
235 Promenade Street
Providence, Rhode Island 02908

CERTIFIED MAIL

June 3, 2021

Joan M. Mooney
[redacted]

PERMIT TO ALTER FRESHWATER WETLANDS

Re: Application No. 20-0254 in reference to the location below:

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(1) ~~Ernest Faucher~~
(2) ~~Michelle Burgoyne~~ m – burgoyne@hotmail.com
(3) ~~Michael and Meredith Barry~~ NO email
(4) NO ~~Micheal and Sharon Clapprood~~
(5) NO ~~William Spear~~
(6) NO ~~Amy E. Brayton~~
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June 3, 2021

Joan M. Mooney
[redacted]

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11. Upon permanent stabilization of all disturbed soils, temporary erosion and/or sediment controls must be removed.

12. The long-term operation and maintenance plan shall be strictly followed. The long-term O & M Plan shall be that dated and received by this Program February 15, 2021 prepared by Commonwealth Engineering.

13. You are responsible for the proper operation, maintenance and stability of any mitigative features, facilities, and systems of treatment and control that are installed or used in compliance with this permit to prevent harm to adjacent wetlands.

14. You are obligated to install, utilize and follow all best management practices detailed or described on the approved site plans in the construction of the project to minimize or prevent adverse impacts to any adjacent freshwater wetlands and the functions and values provided by such wetlands.

15. All plantings of shrubs, trees or other forms of vegetation as shown or detailed on the approved plans, or detailed in this permit, must be installed as soon as possible after completion of final grading; weather and season permitting.

16. Buffer zone plantings of trees and/or shrubs proposed between the project and any adjacent freshwater wetland areas, except for necessary replacement, must be allowed to develop naturally without being subjected to mowing or manicuring.

Pursuant to the provisions in 250-RICR-150-15-1.7(A)(9) and 250-RICR-150-15-1.11(D) of the Rules, as applicable, any properly recorded and valid permit is automatically transferred to the new owner upon sale of the property. Pursuant to the provisions in 250-RICR-150-15-1.7(A)(9)(c), within ten (10) days of any property transfer, the subsequent transferee must notify the Department by forwarding a certified copy of the deed of transfer.

You are required to comply with the terms and conditions of this permit and to carry out this project in compliance with the Rules at all times. Failure to do so may result in an enforcement action against you by the DEM.

In permitting the proposed alterations, the Program assumes no responsibility for damages resulting from faulty design or construction. This permit does not remove your obligation to obtain any local, state, or federal approvals or permits required by ordinance or law and does not relieve you from any duties owed to adjacent landowners with specific reference to any changes in drainage.

If you have not already done so, or in order to check on the status of their review, please contact the U.S. Army Corps of Engineers to determine federal permit requirements on your project. Write the Corps' New England District, Regulatory Branch, 696 Virginia Road, Concord, MA 01742-2751; website: https://www.nae.usace.army.mil/Missions/Regulatory/or email at [redacted]. Please note that the Department of the Army authorization must be obtained before any work is initiated in areas subject to Corps jurisdiction.

If you are aggrieved by this decision, you may, within thirty (30) days of the receipt of this letter, request an adjudicatory hearing in writing. This request must be sent directly to the DEM Administrative Adjudication Division ("AAD"), One Capitol Hill, Second Floor, Providence, RI 02903. A copy of the request should also be forwarded to this Program and to the Office of Legal Services, at the same address. Your written request for an adjudicatory hearing must be timely filed and should conform to the requirements of 250-RICR-10-00-1.7(B) of the DEM Rules and Regulations for the Administrative Adjudication Division, 250-RICR-10-00-1. Section 250-RICR-10-00-1.7(B) provides:

> "The request for a hearing shall state clearly and concisely the specific issues which are in dispute, and the facts in support thereof, the relief sought, if any, the license or permit sought or involved, and any additional information required by applicable statues and regulations."

The written request must be accompanied by an adjudicatory hearing fee of two thousand dollars ($2,000.00); in the form of a certified bank check or money order made payable to the Rhode Island General Treasurer; however, in the event that the cost of the hearing exceeds the fee paid, the Program through the AAD will require an additional fee which the applicant must submit prior to the DEM's issuance of any final decision regarding this application. The adjudicatory hearing will be held before a Hearing Officer from the AAD. Such hearing will be held in compliance with 250-RICR-10-00-1, R.I. Gen. Laws Chapter 42-35-1 et seq., and other governing laws, rules, and regulations adopted by the DEM. Please note that you have the right to be represented by legal counsel in any proceeding which may be held in this matter.

If you have any questions regarding this matter, you may contact me or Jane Kelly of my staff at this office (telephone: [redacted]).

Sincerely,

Martin D. Wencek

Martin D. Wencek, Permitting Supervisor
Office of Water Resources
Freshwater Wetlands Program
MDW/mdw

Enclosure: Approved Site Plans

ec: Mary Dalton, Administrative Adjudication Division
Eric Beck, Chief, Water Resources, Permitting
Brad Ward, Town of Cumberland Building Official
Jonathan Stevens, Town of Cumberland, Planning Director
Leslie Martin, U.S. Army Corps Of Engineers, New England District
Scott P. Rabideau, Natural Resource Services, Inc.
Timothy Behan, Commonwealth Engineering and Consultants, Inc.
Ernest Faucher
Michelle Burgoyne
Michael and Meredith Barry
Micheal and Sharon Clapprood
William Spear
Amy E. Brayton
James F. Queenan
Attila Majoros and Eszter Vida

RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
FRESHWATER WETLANDS SECTON

SUPERVISOR'S DETERMINATION

SUPERVISOR: Martin Wencek

DATE: June, 2021

SUBJECT: Application To Alter for Joan Mooney, Cumberland, Rhode Island; Wetland file number 20-0254.

I have reviewed the reports and findings of the appropriate technical staff at this Program, and the materials submitted by the applicant in support of the application noted above. I have also met with the Associate Chief for Water Resources, permitting sections, to discuss the findings of the Wetlands Program and to discuss the letters received during the 45-day Public Notice period. It has been determined by this Program's technical staff that there will be no serious adverse impacts to the functions and values of the subject wetlands as a result of this proposal, despite several comments from abutting neighbors concerned about the potential for additional flooding as a result of this proposal.

This Program received nine letters relating to this application which were submitted during the 45-day public notice period. This Program reviewed these letters together with any supporting documents and evaluated the potential impacts from the project upon the values mentioned in the letters. With regards to the comments by abutting property owners and the Town Planner highlighting localized flooding that exists in and around the vicinity of the subject property, supportive information provided by the design engineer and consequently reviewed by the DEM Stormwater Engineering Program has determined that this project as now proposed, is not expected to worsen the flooding conditions known to be occurring at this site. Based on these findings by the DEM Stormwater Program engineer and the findings resulting from this Program's evaluation, it has been determined that the comments contained within these letters do not constitute an objection of a substantive nature. Therefore, a public hearing pursuant to R.I.G.L. Section 2-1-22 is not required.

No rare or endangered species were identified on the subject property. This parcel was also not identified as containing any significant archeological components.

Based upon this design, and in accordance with the findings of this Program's technical staff, it is determination of this Program that this proposal can be approved with appropriate conditions to safeguard wetland functions and values.

April 5, 2021

RI Department of Environmental Management
Office of Water Resources
235 Promenade Street
Providence, RI 02908

APR 19 2021

Dear Mr. Weneck,

Recently I once again learned that several neighbors were notified that a request to alter existing wetlands located on Canning Street opposite utility pole no.4, Assessor's Plat 37, Lot 186, Cumberland, RI., was received. I am submitting this in support of them and in support of you denying the request submitted by Ms. Mooney.

This property is at the base of a steep grade which runs easterly and a lesser grade, which runs westerly. This property contributes to absorption of large amounts of water that run down Canning Street, and under Canning Street via a pipe that was installed by the Town. The purpose of the pipe is to provide drainage for water runoff originating from properties located along the east side of Nate Whipple Highway which are significantly higher in elevation. Prior to the installation of the drainage pipe by the Town, which drains into the area being considered in the application, water during the normally wetter periods of the year would accumulate to depths not just in inches but in feet in the yards on the opposite side of the street in proximity to utility pole number 4 as well as the lot in question. During March 2010, runoff water from land higher in elevation to the north, caused significate damage to several homes on Canning Street.

It appears from looking at the current recently resubmitted plot plan provided by the Ms. Mooney, the so-called consideration given to issues of groundwater runoff seems to be installing a pipe from the street running the length of the subject lot, and onto property owned by Ms. Burgoyne, which at that point is considered by DEM to be wetlands. Further, my understanding relative to wetlands is, there is a DEM requirement of a "setback" of some distance, (100FT?) from the area considered by DEM to be wetlands, to serve as a buffer from any development. Perhaps DEM could clarify that for the abutting property owners. If in fact this is the case, there is no viable way for a home to be built on this property.. In addition, this revised proposal doesn't contain any serious consideration for sewerage requirements. At previously stated, there are no municipal connections available beyond that which exist at the top of the hill on Canning Street. All homes below the hill have individual septic systems. To date, there has been no municipal interest to extend sewers down Canning street due to the projected costs of such a project.

This lot, even though small when considered in a vacuum, is part of a much larger eco-system that separates two large residential developments consisting of those structures directly and indirectly abutting it, as well as those located in the area known as Rolling Acres. Given the elevation of properties located to the north and west of it, the entire area, of which this parcel is the piece lowest in elevation, serves as a **protection of properties** from flooding or flood flows by retaining, and storing water runoff. It also provides a valuable area that acts as a **recharge and discharge area** for water that

eventually drains into wetland areas located to the east of Rolling Acres. During a recent walk through of the property it was obvious that even though we have been in drought like conditions, the water table was just below the surface of the ground seeping into the footprints left by myself and others. It also heavily vegetated and serves as a piece of **valuable wildlife habitat** populated by numerous wildlife such as deer, groundhogs, bats, turkeys, coyotes and fox.

Although this parcel of land doesn't abut my property, I have concerns that should this request be approved, future requests to alter wetlands directly behind and to the southeast of that particular parcel will in fact open the door to development that over the years has not been allowed because of the central premise that these lands are considered "wetlands" by RI DEM regulations. That potential for development should it occur, will impact my property in that I will be an abutter.

I ask that you not allow these wetlands to be altered by a house being built on it.

Sincerely,

Craig Polucha

[redacted]

April 7, 2021

RI Department of Environmental Management
Office of Water Resources
235 Promenade Street
Providence, RI 02908
APPLICATION No. 20-0254

Dear Mr. Wenceck,

On April 2, 2021, I received a notice of a request to alter wetlands on the corner of Canning and Woodrow Streets in Cumberland, RI. (45 Canning Street, Assessor's Plat 37, Lot 186). This is the second application from the same person in the past two years to alter the wetlands as well as my second notice in two years.

This property is at the base of a steep grade which runs easterly and a lesser grade, which runs westerly. This property contributes to the absorption of large amounts of water running down Canning Street. While I have no expertise in wetlands, I have done some research. This parcel of land is only roughly 5000 square feet and if a house were to be built on it, it would take away all of the vegetation that allows for the absorption of the water, therefore leading to water runoff onto surrounding properties, which were heavily flooded in the March 2010 storm. This is an area of constant flooding and altering the wetlands would have an adverse affect on downstream properties, mine being one of them. This is inconsistent with, "protection of life and/or property from flooding or flood flows by retaining, storing, metering, or slowing flood waters from storm events" and "providing and maintaining surface and/or groundwater supplies by acting as a recharge or discharge area". The plan seems to suggest a sewer connection, but I'm not sure if there are any available sewers in that location. It would also be a very wet location for an ISDS.

This lot, even though small, provides a valuable part of the ecosystem. It is heavily vegetated and is populated by numerous wildlife such as deer, groundhogs, bats, turkeys, and foxes. I have also enclosed pictures of the wildlife for you. I ask that you please do not allow this property and it's wetlands to be altered by a house being built on it. It will have adverse affects on my property as well as many of my surrounding neighbors whose homes were flooded in 2010 as this lot serves as a drainage area for these homes.

I appreciate your time and ask that you deny this project and would also ask you think about if this were your home that this were affecting.

Sincerely,

Ernest Faucher

[redacted]

Environmental Management
APR 14 2021
Office of Water Resources

[redacted]

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UNITED STATES POSTAL SERVICE

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ATTN: Martin D Wencek
Rhode Island Department of Environmental Management
Office of Water Resources
235 Promenade Street
Providence, RI 02908

APR 1 3 2021

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April 7, 2021

RI Department of Environmental Management
Office of Water Resources
235 Promenade Street
Providence, RI 02908
APPLICATION No. 20-0254

APR 19 2021

Dear Mr. Wencek,

On April 2, 2021, I received a notice of a request to alter wetlands on the corner of Canning and Woodrow Streets in Cumberland, RI. (45 Canning Street, Assessor's Plat 37, Lot 186). This is the second application in the past two years to alter the wetlands as well as my second notice in two years.

This parcel of land abuts my property and will have serious impacts on my property if the wetlands are allowed to be altered. This property is at the base of a steep grade which runs easterly and a lesser grade, which runs westerly. This property contributes to the absorption of large amounts of water running down Canning Street. I have enclosed a picture of the lot after a rain storm.

While I have no expertise in wetlands, I have done some research. This parcel of land is only 5000 square feet and if a house were to be built on it, it would take away all of the vegetation that allows for the absorption of the water, therefore leading to water runoff onto my property, which I work very hard to pay for and enjoy.

This is an area of constant flooding and altering the wetlands would have an adverse affect on downstream properties, mine being one of them. This is inconsistent with, "protection of life and/or property from flooding or flood flows by retaining, storing, metering, or slowing flood waters from storm events" and "providing and maintaining surface and/or groundwater supplies by acting as a recharge or discharge area". The plan also seems to suggest a sewer connection, but I'm not sure if there are any available sewers in that location. In addition, it would be a very wet location for an ISDS. The plan also seems to suggest running a drainage pipe towards the back of the property. I own the lot directly behind this, 0 Harding Street, and I will not allow this pipe to drain onto my property.

This lot, even though small, provides a valuable part of the ecosystem. It is heavily vegetated and is populated by numerous wildlife such as deer, groundhogs, bats, turkeys, and foxes. This is inconsistent with "providing and maintaining valuable wildlife habitats". I have enclosed pictures of the wildlife for you.

I ask that you do not allow this property and it's wetlands to be altered by a house being built on it. It will have adverse affects on my property as well as many of my surrounding neighbors whose homes were flooded in 2010. This lot also serves as a drainage area for these homes.

I appreciate your time and ask that you deny this project and would also ask you think about if this were your home that this were affecting.

Sincerely,

Michelle Burgoyne

Michelle Burgoyne
[redacted]
[redacted]

Enclosures

[redacted]

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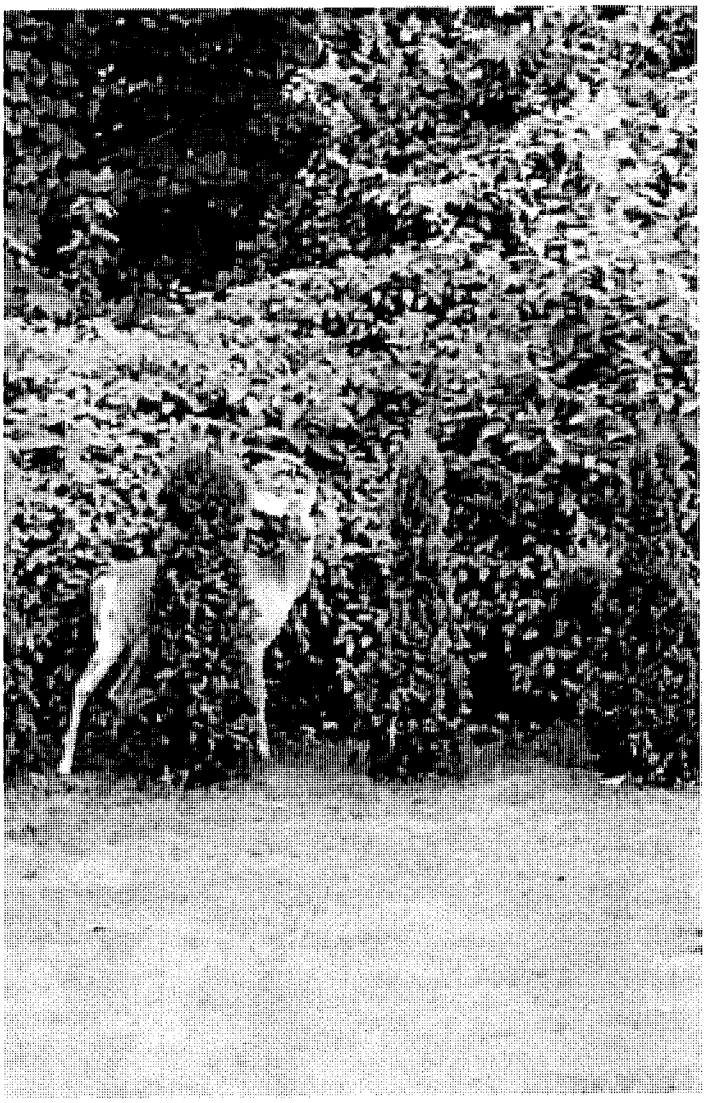
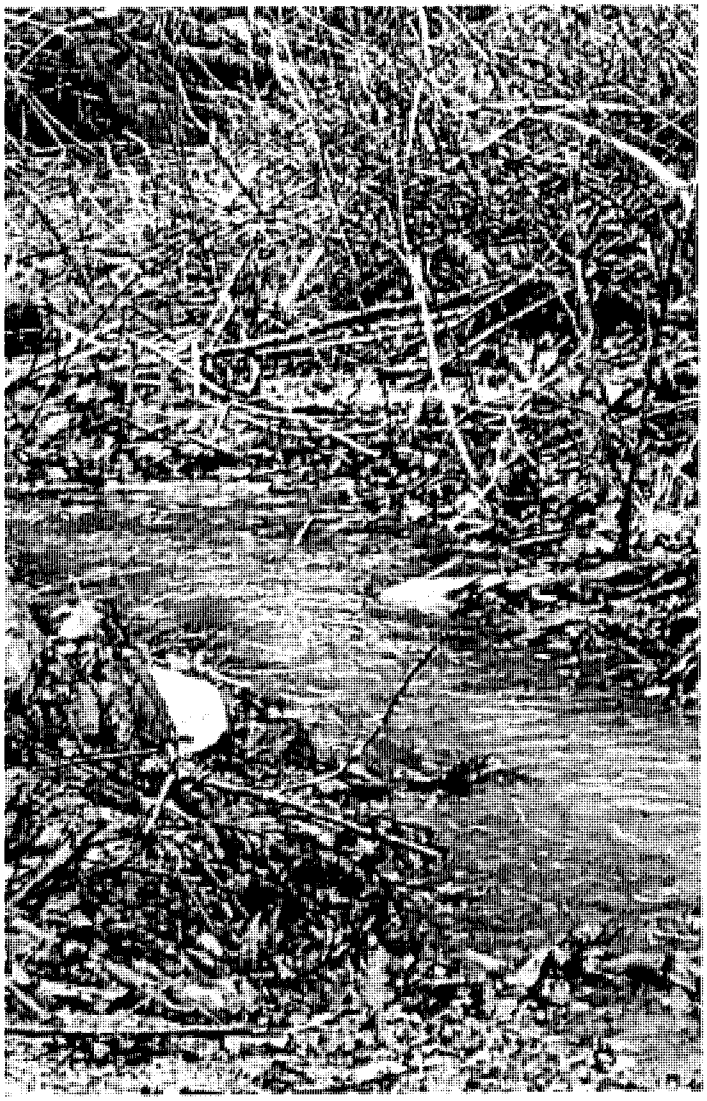
ATTN: Martin D Wencek
Rhode Island Department of Environmental Management
Office of Water Resources
235 Promenade Street
Providence, RI 02908

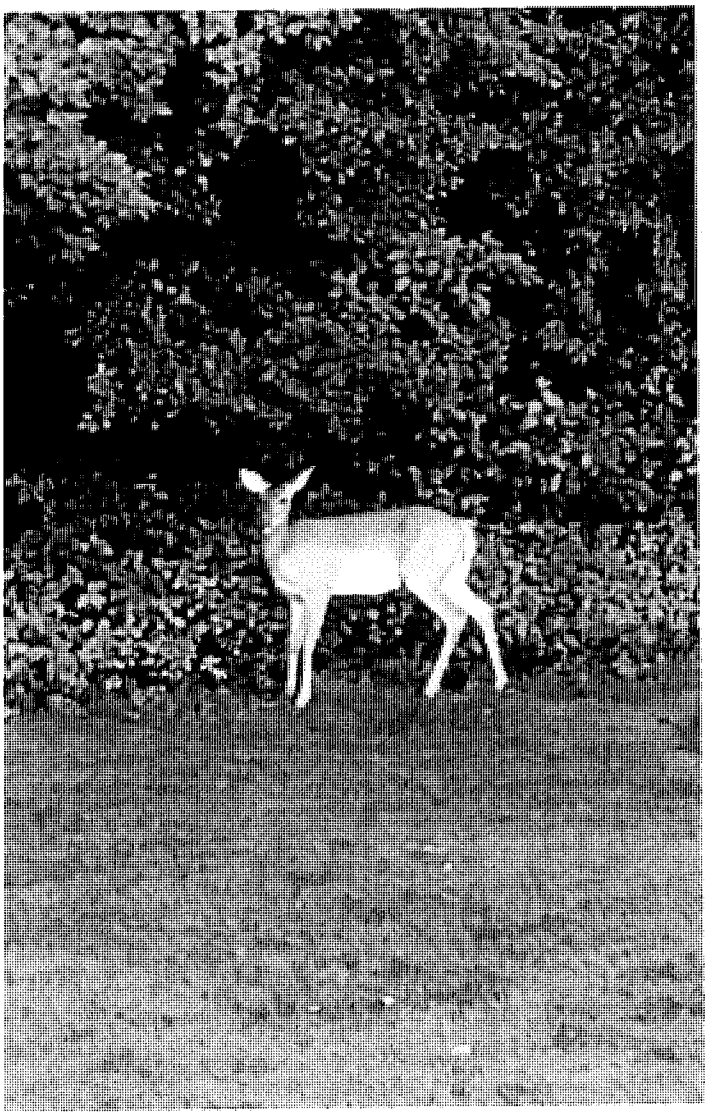
APR 14 2021

DO NOT BEND





lot after Rain
Storm



April 19, 2021

RI Department of Environmental Management
Office of Water Resources
235 Promenade Street
Providence, RI 02908
APPLICATION No. 20-0254

APR 2 0 2021

Dear Mr. Wencek:

On April 2, 2021, my family received a notice of a request to alter wetlands on the corner of Canning and Woodrow Streets in Cumberland, RI. (45 Canning Street, Assessor's Plat 37, Lot 186). In March of 2020 we moved into [redacted], across the street from the lot at 45 Canning Street.

I'm sure you are aware of the location of plat 37. It sits at the base of a steep grade of ledge which runs easterly and a lesser grade, which runs westerly. Water runoff comes from each of these directions. My family's property is also the lowest lot on the opposite side of the street. Our backyard receives water runoff from each of the properties at 70 and 74 Canning street, as well as from a steep grade coming down directly from 29 and 33 Mendon Road.

A pipe runs beneath Canning street from 72 Canning Street to the wetlands at 45 Canning Street. The sole purpose of this pipe is to move the considerable runoff to the appropriate wetlands for absorption. We have a property interest in this parcel of land as this pipe represents an easement by prescription and adverse possession under the laws of Rhode Island as it has been in use as long as Canning Street has been paved. Any proposed building would need to mitigate water damage to our property and the surrounding lots.

The submitted plan appears to suggest a sewer connection. Most of the houses on this street are on septic systems which are already dealing with water issues. I'm concerned with the proposed plans as this system would need to include a pumping ISDS to move septic up the hill and associated ledge, seemingly through the properties on 17 and 15 Canning Street.

The plan also seems to imply that a drainage pipe will be used to move water toward the lot on 0 Harding Street. Regardless of the choice to actively move water to this lot without owner permission, the proposed building on 45 Canning Street would be responsible for moving not only the displaced water from constructing a basement and ISDS, but also for the runoff from the rest of the surrounding lots.

In addition to consistent water issues each spring and fall, and constant sump pump activation even in dry months during the winter and summer, 2010 saw many of the homes on Canning Street flooded above basement level. Adding another home, displacing additional water, and removing land for absorption is a recipe for disaster.

This lot also provides a home for many forms of wildlife. There is an assortment of vegetation, as well as animals, including deer, groundhogs, bats, turkeys, foxes, and hawks. Needlessly removing this wildlife is another reason to stop this proposed building.

I appreciate your time and ask that you think about this project as if you lived in this neighborhood, dealt with these water issues constantly, and saw the wildlife grow and thrive here. These are wetlands for a reason and should be allowed to stay that way.

Sincerely,

Michael and Meredith Barry

[redacted]

April 22, 2021

Mr. Martin Wencek, Program Supervisor
Freshwater Wetlands Program/ Office of Water Resources
Department of Environmental Management
235 Promenade Street
Providence, Rhode Island 02908

APR 26 2021

Re: 45 Canning Street Cumberland, Application No. 20-0254

Dear Mr. Wencek:

This office is in receipt of your March 30, 2021 Notice regarding application #20-0254, a vacant lot (AP 37, lot 186) located on the south side of Canning Street in Cumberland.

On November 22, 2019, the Town strongly objected to the permit application for this parcel. None of the amendments to this revised application justifies the Town changing its objection:

1. The application still proposes to disturb an astonishing *93% of existing wetlands* on the lot ("at least" 5,196 of the 5,600 square feet).

2. Under conventional municipal engineering best practices, a private property owner installing a drainpipe at his/her own expense and conveying a municipal utility easement to allow the more efficient flow of stormwater from an upland area would be considered prudent, as would the construction of a drainage swale (channel) to divert and convey previously existing off-road stormwater flows through the property .

This principle does not apply in this case. The proposed drainage swale channel in conjunction with the pipe replacement only benefits the owner of the lot in question, whose water-saturated lot would be drained and made potentially buildable.

The additional stormwater conveyance efficiency would have a negligible beneficial effect on the stormwater ponding and potential flooding at this Canning Street location, and an inordinately adverse impact on the adjacent lot receiving the stormwater flows at higher rate.

The Town therefore respectfully requests the RIDEM Director consider the Town's objection in her final determination of this matter.

Sincerely,

Jonathan Stevens Planning Director

Cc: Mayor Mutter, DPW Director Anderson, Solicitor Salvatore, Building Director Ward

April 22, 2021

Mr. Martin Wencek, Program Supervisor
Freshwater Wetlands Program/ Office of Water Resources
Department of Environmental Management
235 Promenade Street
Providence, Rhode Island 02908

Re: 45 Canning Street Cumberland, Application No. 20-0254

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The Town therefore respectfully requests the RIDEM Director consider the Town's objection in her final determination of this matter.

Sincerely,

Jonathan Stevens Planning Director

Cc: Mayor Mutter, DPW Director Anderson, Solicitor Salvatore, Building Director Ward

COMMONWEALTH
ENGINEERS & CONSULTANTS, INC.
400 Smith Street
Providence, RI 02908
Tel. (401) 273-6600, Fax (401) 273-6674
www.commonwealth-eng.com

APR 27 2021

April 27, 2021

Mr. Martin D. Wencek
Program Supervisor
Rhode Island Department of Environmental Management
Freshwater Wetlands Program
Office of Water Resources
235 Promenade Street
Providence, RI 02908

RE: Public Notice Comments
RIDEM Wetland Application #20-0254
Canning Street, Cumberland, RI
CE&C #: 16056.00

Dear Mr. Wencek:

Commonwealth Engineers & Consultants, Inc. (CE&C) is in receipt of public notice for the above reference application and offers the following comments in support of the application:

1. On March 19, 2020 CE&C met with Town Department of Public Works to address Town comments pertaining to proposed development plan. At this meeting it was agreed to revise plan to incorporate the following items:

   a. Establish a 10' wide drainage easement on subject property in favor of the Town of Cumberland. This easement will allow offsite stormwater to pass through subject property.
   b. Propose a paved water way from Canning Street to start of drainage swale.
   c. Replace the existing 12" corrugated metal pipe with 12" HDPE pipe on subject property.
   d. The existing low spot on Canning Street will remain.
   e. A split rail fence (or approved equal by Town) will be constructed along the proposed drainage easement.

2. The Town also expressed concern regarding flooding in the Canning Street area; therefore, CE&C prepared a drainage study of the area to determine the cause and location of problematic flooding. A copy of this report is included in the RIDEM Wetland permit application entitled "Stormwater BMP Narrative Report for AP 37 Lot 186, 45

Canning Street, Cumberland, Rhode Island". This study determined the problematic flooding area is located up-gradient of subject property and behind residential dwellings on the opposite side of Canning Street (not on subject property). The proposed development will not adversely affect drainage characteristics in the area.

Sincerely yours
COMMONWEALTH ENGINEERS & CONSULTANTS, INC.

Timothy Behan, P.E.

TB/

April 25, 2021

RI Department of Environmental Management

Office of Water Resources

235 Promenade St

Providence, RI 02908

APR 29 2021

Application No: 20-0254

Dear Mr. Wencek,

We are writing to you in response to a letter we recently received pertaining to the second request for application to build a single-family home on assessor's plat 37, lot 186 otherwise referred to as 45 Canning Street in Cumberland RI. We live to the immediate right of this plat and have been here for the past 15 years. This construction proposal is very concerning to us because over the past 15 years we have witnessed the excessive flooding due to lack of drainage at this location. We understand you are addressing the drainage issue for the construction of the proposed new property, however, it will have an adverse effect on our abutting property which relies on this area for water run off during heavy rain and storms. Please note this is not consistent with "protection of life and/or property from flooding or flood flows by retaining, storing, metering, or slowing flood waters from storm events". This parcel of wetlands serves an extremely important water drainage for many surrounding homeowners – over the years, we have seen its impact during heavy rainstorms.

We also feel that by disturbing the wetlands area it will disturb valuable wildlife habitats; we often see deer, bunnies, groundhogs, turkeys and many other animals in this particular location (plat 37, lot 186).

We ask that you please deny this request for construction of a single-family home on this parcel of land as it will have many adverse effects on my home, as well as, many of my neighbors' homes.

We ask you please give very careful consideration to our request for denial to this application.

Sincerely,

Michael Clapprood Sharon Clapprood

Michael Clapprood & Sharon Clapprood

[redacted]

Michael & Sharon Clapprood

[redacted]

7020 0640 0000 4725 5666

APR 29 2021

RI Department of Environmental Management
Office of Water Resources
235 Promenade St.
Providence, RI 02908

Att: Martin Wencek App# 20-0254

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Application # 20-0254
Plat 37
Lot 186

May 9, 2021

To whom it may concern,

My name is William Spear, I am the owner of the house at [redacted]. in [redacted]. I am writing this letter to express my concerns about the new proposed building site at the bottom of the Canning St hill. I am fearful that developing that property could potentially endanger my home.

A few years before I purchased [redacted], a storm caused flooding so severe that the first floor of the house needed to be gutted and rebuilt. The owner at the time had a French drain installed to help protect the home in the future. However, when I bought the property, I was warned by my insurance company that if the house sustained any further flood damage, it would no longer be insurable.

In the almost 10 years I have owned the house there has been no serious flooding. However, as the entrance of the house is level with the ground outside a few storms have delivered enough rainfall for water to pour over the threshold and puddle in the front hallway. If more water starts coming into my yard, it stands to reason that more water will find its way into my house. This could damage my home and one of my largest financial investments.

I have several reasons to feel that a building across the street could cause water problems for my house.

-I live at the bottom of the Canning St hill. Currently, during storms a good deal of the rainwater coming down the hill flows into the vacant property directly across the street. If that land is built up to discourage water from troubling the new home, it seems likely that more water will end up in my yard.

-The neighbors on my left and right already have problems with water during storms. Each gets water in their basements that needs to be pumped out. One yard ends up with a 80x20 foot puddle that can last for weeks. The other house, that is directly up the hill from me pumps the water from his basement into his yard and it flows down, across the street into the proposed building site. If that water cannot go across the street, my yard is its most likely next destination.

-This point is based on neighborhood gossip, but it seems valid. After my family moved into the neighborhood we heard from multiple homeowners that an ill-advised building project (that was only allowed because the builder's brother was the mayor of Cumberland at the time) caused considerable drainage problems for a number of homes around the proposed building site. I have made an effort to discuss my concerns with ever professional inspecting the land (DEM, engineers, etc.) and not one has been able to explain where all the water that would typically go into that piece of land will go after the property is developed.

-Finally, the letter states that animal habitats should be considered. I have seen at least one spotted turtle (see photo 2) coming from the property in question. According to Wikipedia, the species is endangered.

Thank you for taking my concerns into consideration as you make this decision. If you have any questions, please feel free to contact me at [redacted].

Sincerely,

William Spear

J. Speck

[redacted]

PROVIDENCE RI 028
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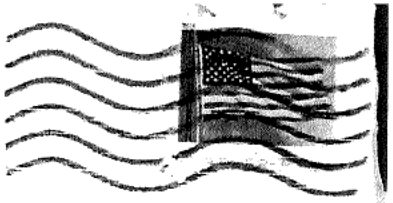
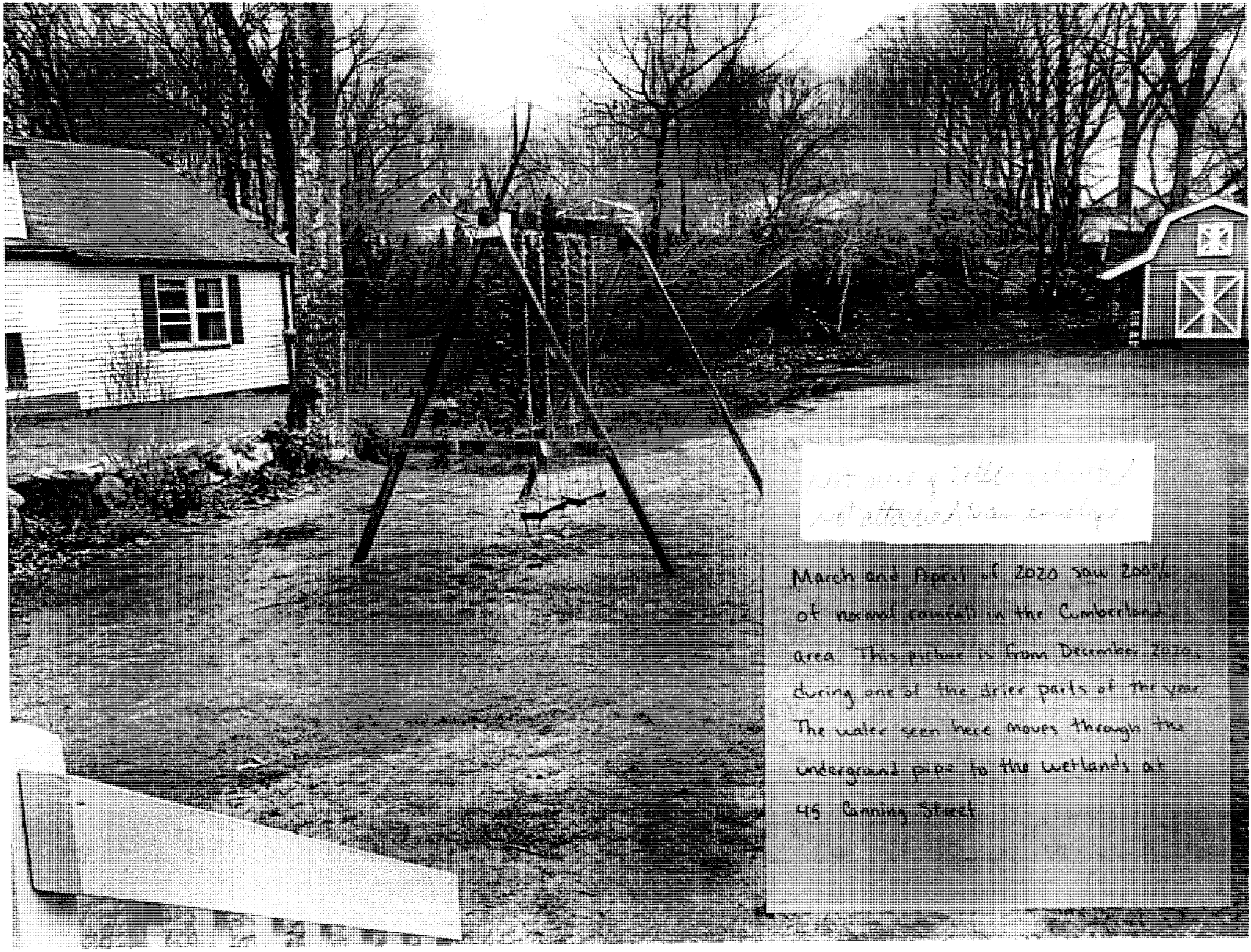


RI DEM office of Water Resources
Attn Jane Kelly / Freshwater Wetlands
235 Promenade St
Providence, RI
02908

02908-576799



March and April of 2020 saw 200% of normal rainfall in the Cumberland area. This picture is from December 2020, during one of the drier parts of the year. The water seen here moves through the underground pipe to the wetlands at 45 Canning Street

May 13, 2021

Mr. Martin D. Wencek
Program Supervisor
Freshwater Wetlands Program
Office of Water Resources
235 Promenade Street
Providence, RI 02908

Application No. 20-0254

Dear Mr. Wencek,

I have reviewed the Notice for Application No. 20-0254 for the alteration and/or disturbance of over 5,000 square feet of freshwater wetlands for the construction of a single-family home on Canning Street in Cumberland, RI, and I have concerns with the application.

This application is almost identical to a previous application (No. 19-0107) for this parcel of land and does not appear to have addressed any of the concerns that I shared with you at that time in November of 2019. In fact, the area of alteration and/or disturbance has actually increased from 5,196 square feet to 5,600 square feet. I will repeat the concerns that I sent to you then.

The proposed single-family home would significantly alter the wetlands and the 50' perimeter wetland buffer. This area receives stormwater from a significant area to the north and west and the construction of the single-family home would negatively impact the ability for this area to store and meter the stormwater that eventually discharges to the larger wetland area to the south and east. During previous storms, multiple homes in this area, especially directly across Canning Street, have had flooding on their properties and in their basements, which may be exacerbated by the proposed project.

There is concern that the removal of the pervious area and replacement with impervious area may also impact the larger wetland area. There are several homes on Canning Street and Sprague Street to the east, including my home, and I am concerned that the new single-family home would impact these homes and potentially lead to flooding of my home and property. The proposed project may also lead to increased stormwater flow down Canning Street, which leads to a drain pipe at the southern end of Sprague Street, causing a safety concern with increased water on the roadway and overwhelming of the drain pipe.

The plan continues to call for a connection for sewer, however, I do not belive there is a sewer pipe in Canning Street adjacent to this parcel, as it ends near the top of the hill to the west. It is unlikley that this parcel would be able to accommodate an on-site wastewater treatment system and an extension of the sewer within Canning Street would likely require a pump station due to the grade differences.

Based on these concerns, the proposed application for alterations should not be approved. Please let me know if you have any questions.

Sincerely,

Amy E Brayton

Amy E. Brayton

[redacted]

James F Queenan, Esq
[redacted]

May 13,2021

Re:application no.20-0254

To whom it may concern:

On March 30,2021 I received a notice of a request to alter wetlands on the corner Canning and Woodrow St in Cumberland.

While I have no expertise in wetlands, I am concerned about the project. That location is in an area of Canning St that is heavily developed. It is at the bottom of a steep grade running easterly and a lesser grade running westerly. It is heavily vegetated and is populated by a variety of wildlife ranging from deer and turkeys to birds and bats. It seems to be a valuable part of the local ecosystem. Moreover even though small, it contributes to absorption of large amounts water running down Canning St in both directions. It serves as a water buffer at the bottom of the easterly hill that minimizes both flooding and ice to the rest of the street and neighborhood. The proposed improvements include a garage, slab under the house and a driveway which would cover most of the lot. There would be little absorption in an area that frequently floods.
The plan seems to suggest a sewer connection, but I'm not sure there are any available sewers in that location. It would be a very wet location for an ISDS.
I'm sure you have had engineers and experts study the location but I would suggest another careful look before approving this request.
Sincerely,

James F. Queenan Jr

Received & Logged In
5/14/21

Rhode Island Department of Environmental Management

Office of Water Resources

235 Promenade St

Providence, RI 02908

RE: Application No. 20-0254

To Whom It May Concern:

I am submitting my objection against this application.

The area in question serves as discharge / recharge collector for the surrounding properties.

There is a natural stream that will not completely dry out for long periods after a rain, and it does not have to be a once in 10 years event either.

However, we get those also, all three my closest neighbors suffered catastrophic, life altering flood in the 20 years since I'm living here.

I would very much like to avoid their fate.

Please do not approve altering the existing wetlands .

Thankfully yours,

Attila Majoros

Eszter Vida

Homeowners,

[redacted]

Dated 2021-05-10

RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
235 Promenade Street
Providence, Rhode Island 02908

March 30, 2021
Application No. 20-0254

NOTICE

The Department of Environmental Management's ("DEM") Freshwater Wetlands Program ("Program") has under consideration the application of Joan M. Mooney of [redacted], requesting permission to alter freshwater wetlands in the Town of Cumberland, RI.

The proposed project is located approximately 50 feet southeast of Canning Street, opposite Utility Pole No. 4, approximately 390 feet northeast of the intersection of Woodrow and Canning Streets, Assessor's Plat 37, Lot 186, Cumberland, RI.

The freshwater wetlands affected by the proposed project include a Swamp, Perimeter Wetland and an Area Subject to Storm Flowage.

The purpose of the proposed alterations is for the construction of a single-family dwelling, with a garage, paved driveway, stormwater control features, utilities, and landscape plantings.

The proposed alterations to freshwater wetlands consist of at least clearing, soil disturbance, filling, grading, excavation, paving, house construction and utility installations, vegetated swale installations, and landscaping.

The project, as proposed, will result in the alteration and/or disturbance of approximately 5,600 square feet (~0.13 acres) of freshwater wetlands as well as approximately 36 linear feet of an Area Subject to Storm Flowage as noted above.

Full-sized site plans illustrating the proposed project and detailing freshwater wetlands to be altered have been furnished to the Cumberland Town Council and the Town Clerk's Office and may be viewed at the Town offices or at our Offices. A reduced-size set of site plans has been provided with this **NOTICE**.

This NOTICE is <u>not</u> authorization to do any work or to proceed with the project.

The purpose of this **NOTICE** is to inform all landowners whose properties are within two hundred feet (200') of the proposed project, the Town/City Council, the Conservation Commission, the Planning Board, the Zoning Board, and any other interested individuals and agencies of the proposal and to provide for a period of forty-five (45) days (NOTICE Period) within which concerns or comments may be received. Any comments and/or objections received during the NOTICE period shall be used to evaluate the proposed project and its impacts upon freshwater wetland functions and values.

You are advised that if you desire to submit a statement or have a good reason to enter a protest against the proposed project, it is your privilege to do so. Objections to the proposed project must relate to the proposed project's impacts on the functions and values provided by the freshwater wetlands to be altered.

Such functions and values include but are not limited to:

1) Protection of life and/or property from flooding or flood flows by retaining, storing, metering, or slowing flood waters from storm events;
2) Providing and maintaining surface and/or groundwater supplies by acting as a recharge or discharge area;
3) Providing and maintaining valuable wildlife habitats;
4) Providing and maintaining high value recreation areas; and
5) Protecting and maintaining water quality.

Information regarding the Program's practices and procedures for evaluating such comments, any definitions, or further information on wetland functions and values may be obtained by consulting the Rules and Regulations Governing the Administration and Enforcement of the Freshwater Wetlands Act, 250-RICR-150-15-1.

In accordance with 250-RICR-150-15-1.10(D)(3)(a), comments filed with the DEM will be considered if they are in writing, are legible, contain a discernable name and address, are signed and are received during the NOTICE period. The application number appearing in this NOTICE or other information which will identify the comments to the proposed project is also required. The NOTICE period for this application ends at 4:00 p.m. on May 14, 2021. This Program cannot extend this NOTICE period.

Anyone wishing to review the file in this matter should contact the Office of Customer and Technical Assistance in advance (telephone: [redacted] or Email: [redacted]) to arrange an appointment.

Sincerely,

Martin D. Wencek

Martin D. Wencek, Program Supervisor
Freshwater Wetlands Program
Office of Water Resources
MDW/JEK /jek

RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
235 Promenade Street
Providence, Rhode Island 02908

March 10, 2021

Joan M. Mooney
[redacted]

RE: Application No. 20-0254 in reference to the location below:

At 45 Canning Street, approximately 50 feet south of Canning Street, utility no. 4, approximately 390 feet northeast of the intersection of Woodrow and Canning Streets, Assessor's Plat 37, Lot 186, Cumberland, RI.

Dear Ms. Mooney:

The Department of Environmental Management's ("DEM") Freshwater Wetlands Program ("Program") has completed its initial review of your Application to Alter a Freshwater Wetland. This initial review has determined that your application is complete and adequate for Notice for public comment in accordance with the Rules and Regulations Governing the Administration and Enforcement of the Freshwater Wetlands Act, 250-RICR-150-15-1. In order to carry out the Notice pursuant to the Rules, you are required to submit six (6) full size copies of your site plans and twenty-nine (29) reduced-size (8½" x 11") copies of your site plan(s). These site plans must be identical to the site plans recently reviewed by the Program, **with the exception that the plan sheets must be revised to be numbered consecutively (i.e., 1 of 2 and 2 of 2),** and entitled:

"Freshwater Wetland Permit Application for Proposed Dwelling at 45 Canning Street, A.P. 37, Lot 186 in Cumberland Rhode Island", dated August 24, 2020 and received by this Program on November 4, 2020.

In addition to the site plans required, please provide two (2) copies of the written material or documents submitted in support of your application.

You are responsible for reviewing the list of abutters provided to this Program for purposes of the public Notice and ensuring that it is accurate and up to date. If necessary, please provide an updated list to reflect any recent land transactions or changes in ownership.

Please provide this information as soon as possible so that we may continue to process your application. Upon receipt, this Program will review this material for completeness in accordance with this letter and promptly Notice your application in accordance with the Rules. Please ensure that your site plan(s), both full and reduced, are legible and bear the stamp, signature and date of signing of all licensed professionals that are responsible for plan preparation pursuant to state law (see 250-RICR-150-15-1.7(A)(3)(m)).

Please reference the Application Number above in all communications regarding your application. If you have any questions, please contact Jane Kelly of this Office at [redacted].

Sincerely,

Martin D. Wencek

Martin D. Wencek, Program Supervisor
Freshwater Wetlands Program
Office of Water Resources

MDW/JEK/jek

ec: Timothy Behan, PE, Commonwealth Engineers and Consultants, Inc.
Scott Rabideau, Natural Resource Services, Inc.

R.I. DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
FRESHWATER WETLANDS PROGRAM

APPLICATION INSPECTION REPORT

Application No.: 20-0254
Biologist: Jane Kelly
Date Received: 2/25/2021
Inspection/Review Date: February 17, 2021

Applicant Name: Joan M. Mooney
Response to Deficiency: Yes (Engineering)

Time: 3:00 P.M.

X-Ref: 18-0153 & 19-0107
RI GP Wetlands Gain/Loss Reporting: **acres (gain/loss)**
Site Location:
At 45 Canning Street, approximately 50 feet south of Canning Street, utility no. 4, approximately 390 feet northeast of the intersection of Woodrow and Canning Streets, Assessor's Plat 37, Lot 186, Cumberland, RI

I. **FRESHWATER WETLANDS IDENTIFIED:**
Swamp, Perimeter Wetland, Area Subject to Storm Flowage.

II. **PROJECT PURPOSE AND PROPOSED ALTERATIONS:**
Construct a single-family dwelling, paved driveway with associated stormwater controls, utilities and grading.

III. **REVIEW COMMENTS:**
Refer to the AIR dated 12/04/2020 for initial bio review comments.
A response to engineering review comments dated 12/04/2020 has been submitted and the reviewing engineer has cleared the project for public notice.

APPLICATION RECOMMENDATION:
Adequate for Public Notice.

Signed: _____

RHODE I\ND DEPARTMENT OF ENVIRONMEN\ MANAGEMENT
OFFICE OF WATER RESOURCE_
WETLANDS ENGINEERING FINAL REVIEW

Date: 2/17/2021

Reviewer: Nicholas A. Pisani, P.E.

Application Number:

FWW#: 20-0254 Nicholas A. Pisani P.E.
WQC#: _____
GWD/UIC#: _____
RIPDES#: _____
OTHER: _____

Applicant Name: Joan Mooney

Project Name: Proposed Dwelling 45 Canning Street

Plans and Analysis Reviewed: Plans and Reports received by DEM on 11/04/2020, along with revised analysis dated received 2/15/2021, and O & M Plan sheet dated received 2/15/2021.

Engineering Review conducted with Checklist rev. date: 2/20/2014.

Recommended Action: Adequate for public notice.

Findings:

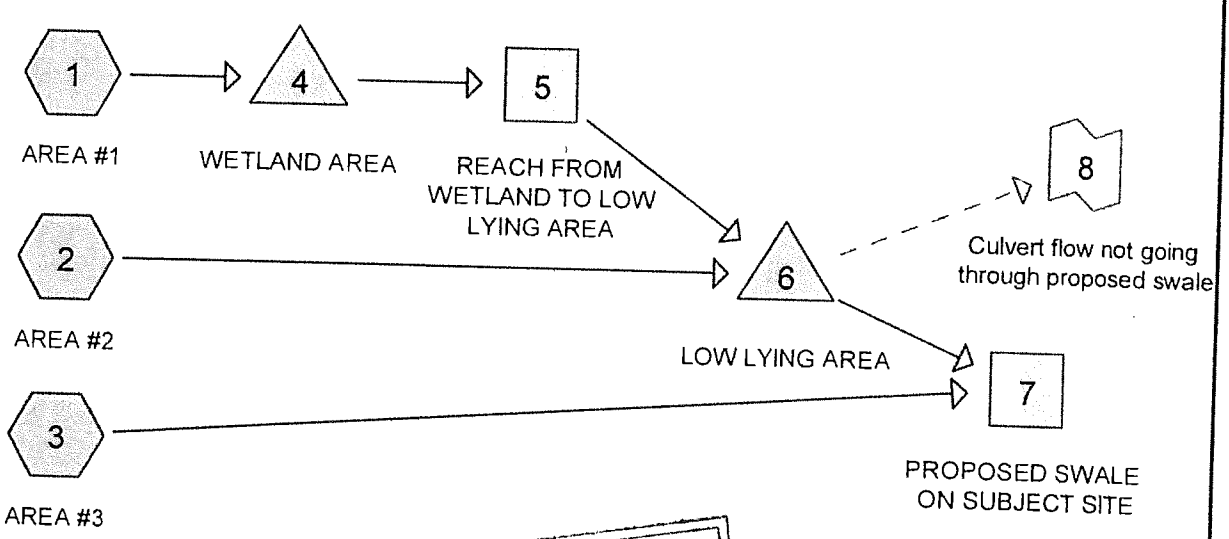
1) **Redevelopment Status:** The proposed project is new development.
2) **Drainage and Water Quality Issues:** Given that this project is a single family residence this engineering review is confined to the issue of floodplain and conveyance of the flow carried by an area subject to storm flow.
    - Please note that the proposed plan now includes a proposed replacement segment of 12" diameter HDPE pipe through the area of proposed work and to be located in a strip of land to be protected by a drainage easement. The plan indicates that existing inverts will be matched.
    - The design includes a proposed surface swale to carry local flow and overflow from the pipe culvert in storm events that exceed a 10-year storm event. This swale is to be 1.0' deep and the submitted analysis shows that is has the capacity to convey flows to it in up to the 100-year storm event.
    - The design also includes a 0.5' deep secondary swale which should help proposed some water quality treatment for runoff from the proposed impervious areas of the site.
3) **Floodplain and Floodway Issues:** The site of the proposed is not located within any area of 100-year floodplain.

Technical Justification(s): If the site plans for the proposed development include a BMP that does not fully comply with all the applicable design requirements of the RISDISM, then please note below:

- NA

Permit Conditions:

1) The long-term operation and maintenance plan shall be strictly followed. The long-term O & M Plan shall be that dated received 2/15/2021 prepared by Commonwealth Engineering.



TIMOTHY J. BEHAN
No 6278
REGISTERED
PROFESSIONAL ENGINEER

COMMONWEALTH ENGINEERS & CONSULTANTS, INC

Subcat Reach Pond Link

Routing Diagram for 16056 MODEL rev Aug dem comments
Prepared by HP Inc.

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
121,097	61	>75% Grass cover, Good, HSG B (1, 2)
44,867	74	>75% Grass cover, Good, HSG C (1, 2, 3)
45,302	80	>75% Grass cover, Good, HSG D (1, 2, 3)
104,108	98	Impervious, HSG B, C, D (1, 2, 3)
42,253	55	Woods, Good, HSG B (1, 2)
4,356	70	Woods, Good, HSG C (1, 2)
52,708	77	Woods, Good, HSG D (1)

Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
267,458	HSG B	1, 2, 3
49,223	HSG C	1, 2, 3
98,010	HSG D	1, 2, 3
0	Other	

Ground Covers (all nodes)

HSG-A (sq-ft)	HSG-B (sq-ft)	HSG-C (sq-ft)	HSG-D (sq-ft)	Other (sq-ft)	Total (sq-ft)	Ground Cover	Subc Numl
0	121,097	44,867	45,302	0	211,266	>75% Grass cover, Good	
0	104,108	0	0	0	104,108	Impervious	
0	42,253	4,356	52,708	0	99,317	Woods, Good	

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	6	318.00	312.00	400.0	0.0150	0.025	12.0	0.0	0.0

Summary for Subcatchment 1: AREA #1

Runoff = 2.69 cfs @ 12.41 hrs, Volume= 17,628 cf, Depth= 0.85"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-32.00 hrs, dt= 0.01
Type III 24-hr 1-YR TYPE III Rainfall=2.70"

	Area (ac)	CN	Description
*	1.220	98	Impervious, HSG B, C, D
	1.780	61	>75% Grass cover, Good, HSG B
	0.270	74	>75% Grass cover, Good, HSG C
	0.250	80	>75% Grass cover, Good, HSG D
	0.950	55	Woods, Good, HSG B
	0.050	70	Woods, Good, HSG C
	1.210	77	Woods, Good, HSG D
	5.730	73	Weighted Average
	4.510	66	78.71% Pervious Area
	1.220	98	21.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.4	100	0.0500	0.07		**Sheet Flow, Sheet** Woods: Dense underbrush n= 0.800 P2= 3.33"
2.3	65	0.0350	0.47		**Shallow Concentrated Flow, Shallow Concentrated** Forest w/Heavy Litter Kv= 2.5 fps
27.7	165	Total			

Summary for Subcatchment 2: AREA #2

Runoff = 1.68 cfs @ 12.32 hrs, Volume= 9,541 cf, Depth= 0.97"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-32.00 hrs, dt= 0.01
Type III 24-hr 1-YR TYPE III Rainfall=2.70"

	Area (ac)	CN	Description
*	0.630	98	Impervious, HSG B, C, D
	1.000	61	>75% Grass cover, Good, HSG B
	0.620	74	>75% Grass cover, Good, HSG C
	0.390	80	>75% Grass cover, Good, HSG D
	0.020	55	Woods, Good, HSG B
	0.050	70	Woods, Good, HSG C
	2.710	75	Weighted Average
	2.080	69	76.75% Pervious Area
	0.630	98	23.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.1	100	0.0800	0.08		**Sheet Flow, Sheet** Woods: Dense underbrush n= 0.800 P2= 3.33"
0.2	30	0.0400	3.00		**Shallow Concentrated Flow, Shallow Concentrated** Grassed Waterway Kv= 15.0 fps
0.9	120	0.0120	2.22		**Shallow Concentrated Flow, Shallow Concentrated** Paved Kv= 20.3 fps
0.2	190	0.0700	13.11	131.05	**Channel Flow, Channel flow** Area= 10.0 sf Perim= 10.0' r= 1.00' n= 0.030 Earth, grassed & winding
22.4	440	Total			

Summary for Subcatchment 3: AREA #3

Runoff = 2.02 cfs @ 12.08 hrs, Volume= 6,645 cf, Depth= 1.70"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-32.00 hrs, dt= 0.01 hr
Type III 24-hr 1-YR TYPE III Rainfall=2.70"

	Area (ac)	CN	Description
*	0.540	98	Impervious, HSG B, C, D
	0.140	74	>75% Grass cover, Good, HSG C
	0.400	80	>75% Grass cover, Good, HSG D
	1.080	88	Weighted Average
	0.540	78	50.00% Pervious Area
	0.540	98	50.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	50	0.1000	0.20		**Sheet Flow, Sheet** Grass: Dense n= 0.240 P2= 3.33"
0.5	100	0.0600	3.67		**Shallow Concentrated Flow, Shallow Concentrated** Grassed Waterway Kv= 15.0 fps
0.5	75	0.0130	2.31		**Shallow Concentrated Flow, Shallow Concentrated** Paved Kv= 20.3 fps
5.2	225	Total			

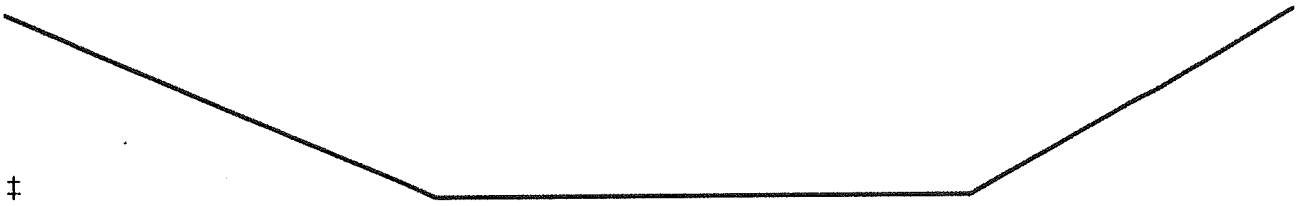
Summary for Reach 5: REACH FROM WETLAND TO LOW LYING AREA

Inflow Area = 249,599 sf, 21.29% Impervious, Inflow Depth = 0.00" for 1-YR TYPE III event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 1.00' Flow Area= 8.5 sf, Capacity= 71.68 cfs

Custom cross-section, Length= 190.0' Slope= 0.0474 '/'
Constant n= 0.030 Earth, grassed & winding
Inlet Invert= 327.00', Outlet Invert= 318.00'



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Offset (feet)	Elevation (feet)	Chan.Depth (feet)
0.00	2.00	0.00
4.00	1.00	1.00
9.00	1.00	1.00
12.00	2.00	0.00

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	5.0	0	0.00
1.00	8.5	12.3	1,615	71.68

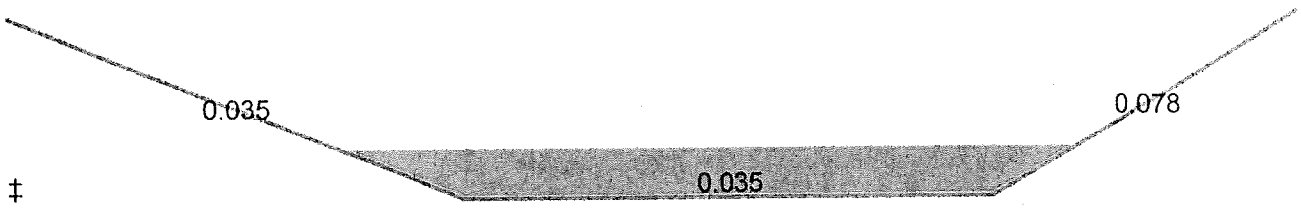
Summary for Reach 7: PROPOSED SWALE ON SUBJECT SITE

Inflow Area = 414,691 sf, 25.11% Impervious, Inflow Depth = 0.19" for 1-YR TYPE III event
Inflow = 2.02 cfs @ 12.08 hrs, Volume= 6,645 cf
Outflow = 2.02 cfs @ 12.08 hrs, Volume= 6,645 cf, Atten= 0%, Lag= 0.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 1.77 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 0.45 fps, Avg. Travel Time= 1.5 min

Peak Storage= 46 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.27'
Bank-Full Depth= 1.00' Flow Area= 6.0 sf, Capacity= 20.85 cfs

Custom cross-section, Length= 40.0' Slope= 0.0125 '/'
Flow calculated by Manning's Subdivision method
Inlet Invert= 317.00', Outlet Invert= 316.50'



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Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	2.00	0.00		
3.00	1.00	1.00	0.035	Earth, dense weeds
6.50	1.00	1.00	0.035	Earth, dense weeds
8.50	2.00	0.00	0.078	Riprap, 12-inch

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	3.5	0	0.00
1.00	6.0	8.9	240	20.85

Summary for Pond 4: WETLAND AREA

Inflow Area = 249,599 sf, 21.29% Impervious, Inflow Depth = 0.85" for 1-YR TYPE III event
Inflow = 2.69 cfs @ 12.41 hrs, Volume= 17,628 cf
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 327.59' @ 25.56 hrs Surf.Area= 29,936 sf Storage= 17,628 cf

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

Volume	Invert	Avail.Storage	Storage Description
#1	325.00'	85,391 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
325.00	10	0	0
325.50	80	23	23
326.25	1,755	688	711
327.00	11,000	4,783	5,494
327.50	27,210	9,553	15,046
328.00	42,295	17,376	32,423
328.50	54,790	24,271	56,694
329.00	60,000	28,698	85,391

Device	Routing	Invert	Outlet Devices
#1	Primary	327.75'	**8.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=325.00' TW=327.00' (Dynamic Tailwater)
↑**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 6: LOW LYING AREA

[62] Hint: Exceeded Reach 5 OUTLET depth by 0.55' @ 12.72 hrs

Inflow Area = 367,646 sf, 21.92% Impervious, Inflow Depth = 0.31" for 1-YR TYPE III event
Inflow = 1.68 cfs @ 12.32 hrs, Volume= 9,541 cf
Outflow = 0.81 cfs @ 12.72 hrs, Volume= 8,922 cf, Atten= 52%, Lag= 23.9 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Secondary = 0.81 cfs @ 12.72 hrs, Volume= 8,922 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 318.55' @ 12.72 hrs Surf.Area= 7,033 sf Storage= 3,099 cf

Plug-Flow detention time= 131.0 min calculated for 8,922 cf (94% of inflow)
Center-of-Mass det. time= 95.4 min (925.5 - 830.1)

Volume	Invert	Avail.Storage	Storage Description
#1	317.50'	29,474 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
317.50	5	0	0
318.00	2,180	546	546
318.50	6,640	2,205	2,751
319.50	14,370	10,505	13,256
320.00	16,200	7,643	20,899
320.50	18,100	8,575	29,474

Device	Routing	Invert	Outlet Devices
#1	Primary	319.40'	**4.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Secondary	318.00'	**12.0" Round Culvert** L= 400.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 318.00' / 312.00' S= 0.0150 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=317.50' TW=317.00' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Secondary OutFlow Max=0.81 cfs @ 12.72 hrs HW=318.55' TW=0.00' (Dynamic Tailwater)
↑—**2=Culvert** (Barrel Controls 0.81 cfs @ 2.64 fps)

Summary for Link 8: Culvert flow not going through proposed swale

Inflow = 0.81 cfs @ 12.72 hrs, Volume= 8,922 cf
Primary = 0.81 cfs @ 12.72 hrs, Volume= 8,922 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 1: AREA #1

Runoff = 8.33 cfs @ 12.40 hrs, Volume= 47,827 cf, Depth= 2.30"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-32.00 hrs, dt= 0.01 hr
Type III 24-hr 10-YR TYPE III Rainfall=4.90"

	Area (ac)	CN	Description
*	1.220	98	Impervious, HSG B, C, D
	1.780	61	>75% Grass cover, Good, HSG B
	0.270	74	>75% Grass cover, Good, HSG C
	0.250	80	>75% Grass cover, Good, HSG D
	0.950	55	Woods, Good, HSG B
	0.050	70	Woods, Good, HSG C
	1.210	77	Woods, Good, HSG D
	5.730	73	Weighted Average
	4.510	66	78.71% Pervious Area
	1.220	98	21.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.4	100	0.0500	0.07		**Sheet Flow, Sheet** Woods: Dense underbrush n= 0.800 P2= 3.33"
2.3	65	0.0350	0.47		**Shallow Concentrated Flow, Shallow Concentrated** Forest w/Heavy Litter Kv= 2.5 fps
27.7	165	Total			

Summary for Subcatchment 2: AREA #2

Runoff = 4.82 cfs @ 12.32 hrs, Volume= 24,897 cf, Depth= 2.53"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-32.00 hrs, dt= 0.01 hr
Type III 24-hr 10-YR TYPE III Rainfall=4.90"

	Area (ac)	CN	Description
*	0.630	98	Impervious, HSG B, C, D
	1.000	61	>75% Grass cover, Good, HSG B
	0.620	74	>75% Grass cover, Good, HSG C
	0.390	80	>75% Grass cover, Good, HSG D
	0.020	55	Woods, Good, HSG B
	0.050	70	Woods, Good, HSG C
	2.710	75	Weighted Average
	2.080	69	76.75% Pervious Area
	0.630	98	23.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.1	100	0.0800	0.08		**Sheet Flow, Sheet** Woods: Dense underbrush n= 0.800 P2= 3.33"
0.2	30	0.0400	3.00		**Shallow Concentrated Flow, Shallow Concentrated** Grassed Waterway Kv= 15.0 fps
0.9	120	0.0120	2.22		**Shallow Concentrated Flow, Shallow Concentrated** Paved Kv= 20.3 fps
0.2	190	0.0700	13.11	131.05	**Channel Flow, Channel flow** Area= 10.0 sf Perim= 10.0' r= 1.00' n= 0.030 Earth, grassed & winding
22.4	440	Total			

Summary for Subcatchment 3: AREA #3

Runoff = 4.37 cfs @ 12.07 hrs, Volume= 14,291 cf, Depth= 3.65"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-32.00 hrs, dt= 0.01
Type III 24-hr 10-YR TYPE III Rainfall=4.90"

	Area (ac)	CN	Description
*	0.540	98	Impervious, HSG B, C, D
	0.140	74	>75% Grass cover, Good, HSG C
	0.400	80	>75% Grass cover, Good, HSG D
	1.080	88	Weighted Average
	0.540	78	50.00% Pervious Area
	0.540	98	50.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	50	0.1000	0.20		**Sheet Flow, Sheet** Grass: Dense n= 0.240 P2= 3.33"
0.5	100	0.0600	3.67		**Shallow Concentrated Flow, Shallow Concentrated** Grassed Waterway Kv= 15.0 fps
0.5	75	0.0130	2.31		**Shallow Concentrated Flow, Shallow Concentrated** Paved Kv= 20.3 fps
5.2	225	Total			

Summary for Reach 5: REACH FROM WETLAND TO LOW LYING AREA

Inflow Area = 249,599 sf, 21.29% Impervious, Inflow Depth > 1.19" for 10-YR TYPE III event
Inflow = 1.17 cfs @ 13.92 hrs, Volume= 24,802 cf
Outflow = 1.17 cfs @ 13.93 hrs, Volume= 24,798 cf, Atten= 0%, Lag= 1.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 2.21 fps, Min. Travel Time= 1.4 min
Avg. Velocity = 1.23 fps, Avg. Travel Time= 2.6 min

Peak Storage= 101 cf @ 13.93 hrs
Average Depth at Peak Storage= 0.10'
Bank-Full Depth= 1.00' Flow Area= 8.5 sf, Capacity= 71.68 cfs

Custom cross-section, Length= 190.0' Slope= 0.0474 '/'
Constant n= 0.030 Earth, grassed & winding
Inlet Invert= 327.00', Outlet Invert= 318.00'

‡

Offset (feet)	Elevation (feet)	Chan.Depth (feet)
0.00	2.00	0.00
4.00	1.00	1.00
9.00	1.00	1.00
12.00	2.00	0.00

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	5.0	0	0.00
1.00	8.5	12.3	1,615	71.68

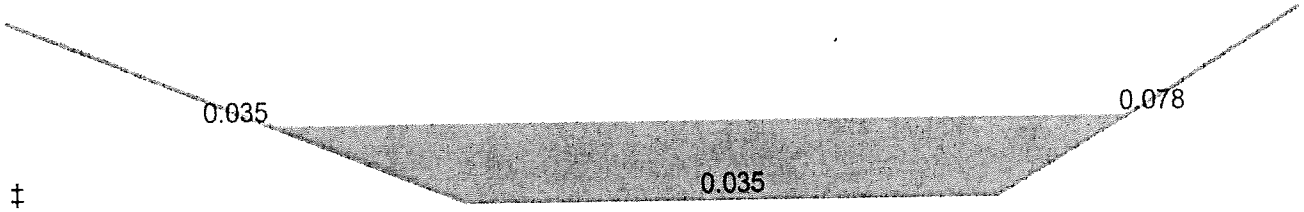
Summary for Reach 7: PROPOSED SWALE ON SUBJECT SITE

Inflow Area = 414,691 sf, 25.11% Impervious, Inflow Depth = 0.41" for 10-YR TYPE III event
Inflow = 4.37 cfs @ 12.07 hrs, Volume= 14,291 cf
Outflow = 4.37 cfs @ 12.08 hrs, Volume= 14,291 cf, Atten= 0%, Lag= 0.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 2.25 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 0.58 fps, Avg. Travel Time= 1.1 min

Peak Storage= 77 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.42'
Bank-Full Depth= 1.00' Flow Area= 6.0 sf, Capacity= 20.85 cfs

Custom cross-section, Length= 40.0' Slope= 0.0125 '/'
Flow calculated by Manning's Subdivision method
Inlet Invert= 317.00', Outlet Invert= 316.50'



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Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	2.00	0.00		
3.00	1.00	1.00	0.035	Earth, dense weeds
6.50	1.00	1.00	0.035	Earth, dense weeds
8.50	2.00	0.00	0.078	Riprap, 12-inch

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	3.5	0	0.00
1.00	6.0	8.9	240	20.85

Summary for Pond 4: WETLAND AREA

Inflow Area = 249,599 sf, 21.29% Impervious, Inflow Depth = 2.30" for 10-YR TYPE III event
Inflow = 8.33 cfs @ 12.40 hrs, Volume= 47,827 cf
Outflow = 1.17 cfs @ 13.92 hrs, Volume= 24,802 cf, Atten= 86%, Lag= 90.9 min
Primary = 1.17 cfs @ 13.92 hrs, Volume= 24,802 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 327.90' @ 13.92 hrs Surf.Area= 39,304 sf Storage= 28,377 cf

Plug-Flow detention time= 348.1 min calculated for 24,802 cf (52% of inflow)
Center-of-Mass det. time= 217.7 min (1,049.2 - 831.6)

Volume	Invert	Avail.Storage	Storage Description
#1	325.00'	85,391 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
325.00	10	0	0
325.50	80	23	23
326.25	1,755	688	711
327.00	11,000	4,783	5,494
327.50	27,210	9,553	15,046
328.00	42,295	17,376	32,423
328.50	54,790	24,271	56,694
329.00	60,000	28,698	85,391

Device	Routing	Invert	Outlet Devices
#1	Primary	327.75'	**8.0' long x 10.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=1.17 cfs @ 13.92 hrs HW=327.90' TW=327.10' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 1.17 cfs @ 0.97 fps)

Summary for Pond 6: LOW LYING AREA

[62] Hint: Exceeded Reach 5 OUTLET depth by 1.04' @ 12.71 hrs

Inflow Area = 367,646 sf, 21.92% Impervious, Inflow Depth > 1.62" for 10-YR TYPE III event
Inflow = 4.82 cfs @ 12.32 hrs, Volume= 49,695 cf
Outflow = 2.16 cfs @ 12.72 hrs, Volume= 48,922 cf, Atten= 55%, Lag= 24.1 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Secondary = 2.16 cfs @ 12.72 hrs, Volume= 48,922 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 319.04' @ 12.72 hrs Surf.Area= 10,814 sf Storage= 7,463 cf

Plug-Flow detention time= 70.3 min calculated for 48,907 cf (98% of inflow)
Center-of-Mass det. time= 58.8 min (995.3 - 936.5)

Volume	Invert	Avail.Storage	Storage Description
#1	317.50'	29,474 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
317.50	5	0	0
318.00	2,180	546	546
318.50	6,640	2,205	2,751
319.50	14,370	10,505	13,256
320.00	16,200	7,643	20,899
320.50	18,100	8,575	29,474

Device	Routing	Invert	Outlet Devices
#1	Primary	319.40'	**4.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Secondary	318.00'	**12.0" Round Culvert** L= 400.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 318.00' / 312.00' S= 0.0150 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=317.50' TW=317.00' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Secondary OutFlow Max=2.16 cfs @ 12.72 hrs HW=319.04' TW=0.00' (Dynamic Tailwater)
↑—**2=Culvert** (Barrel Controls 2.16 cfs @ 3.29 fps)

Summary for Link 8: Culvert flow not going through proposed swale

Inflow = 2.16 cfs @ 12.72 hrs, Volume= 48,922 cf
Primary = 2.16 cfs @ 12.72 hrs, Volume= 48,922 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 1: AREA #1

Runoff = 20.34 cfs @ 12.38 hrs, Volume= 112,577 cf, Depth= 5.41"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-32.00 hrs, dt= 0.01
Type III 24-hr 100-YR TYPE III Rainfall=8.70"

	Area (ac)	CN	Description
*	1.220	98	Impervious, HSG B, C, D
	1.780	61	>75% Grass cover, Good, HSG B
	0.270	74	>75% Grass cover, Good, HSG C
	0.250	80	>75% Grass cover, Good, HSG D
	0.950	55	Woods, Good, HSG B
	0.050	70	Woods, Good, HSG C
	1.210	77	Woods, Good, HSG D
	5.730	73	Weighted Average
	4.510	66	78.71% Pervious Area
	1.220	98	21.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.4	100	0.0500	0.07		**Sheet Flow, Sheet** Woods: Dense underbrush n= 0.800 P2= 3.33"
2.3	65	0.0350	0.47		**Shallow Concentrated Flow, Shallow Concentrated** Forest w/Heavy Litter Kv= 2.5 fps
27.7	165	Total			

Summary for Subcatchment 2: AREA #2

Runoff = 11.25 cfs @ 12.31 hrs, Volume= 56,725 cf, Depth= 5.77"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-32.00 hrs, dt= 0.01
Type III 24-hr 100-YR TYPE III Rainfall=8.70"

	Area (ac)	CN	Description
*	0.630	98	Impervious, HSG B, C, D
	1.000	61	>75% Grass cover, Good, HSG B
	0.620	74	>75% Grass cover, Good, HSG C
	0.390	80	>75% Grass cover, Good, HSG D
	0.020	55	Woods, Good, HSG B
	0.050	70	Woods, Good, HSG C
	2.710	75	Weighted Average
	2.080	69	76.75% Pervious Area
	0.630	98	23.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.1	100	0.0800	0.08		**Sheet Flow, Sheet** Woods: Dense underbrush n= 0.800 P2= 3.33"
0.2	30	0.0400	3.00		**Shallow Concentrated Flow, Shallow Concentrated** Grassed Waterway Kv= 15.0 fps
0.9	120	0.0120	2.22		**Shallow Concentrated Flow, Shallow Concentrated** Paved Kv= 20.3 fps
0.2	190	0.0700	13.11	131.05	**Channel Flow, Channel flow** Area= 10.0 sf Perim= 10.0' r= 1.00' n= 0.030 Earth, grassed & winding
22.4	440	Total			

Summary for Subcatchment 3: AREA #3

Runoff = 8.63 cfs @ 12.07 hrs, Volume= 28,425 cf, Depth= 7.25"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-32.00 hrs, dt= 0.01 hr
Type III 24-hr 100-YR TYPE III Rainfall=8.70"

	Area (ac)	CN	Description
*	0.540	98	Impervious, HSG B, C, D
	0.140	74	>75% Grass cover, Good, HSG C
	0.400	80	>75% Grass cover, Good, HSG D
	1.080	88	Weighted Average
	0.540	78	50.00% Pervious Area
	0.540	98	50.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	50	0.1000	0.20		**Sheet Flow, Sheet** Grass: Dense n= 0.240 P2= 3.33"
0.5	100	0.0600	3.67		**Shallow Concentrated Flow, Shallow Concentrated** Grassed Waterway Kv= 15.0 fps
0.5	75	0.0130	2.31		**Shallow Concentrated Flow, Shallow Concentrated** Paved Kv= 20.3 fps
5.2	225	Total			

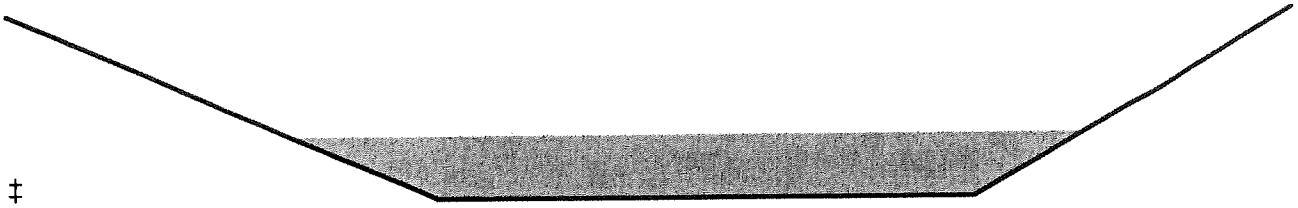
Summary for Reach 5: REACH FROM WETLAND TO LOW LYING AREA

Inflow Area = 249,599 sf, 21.29% Impervious, Inflow Depth > 4.30" for 100-YR TYPE III event
Inflow = 9.75 cfs @ 12.80 hrs, Volume= 89,509 cf
Outflow = 9.74 cfs @ 12.81 hrs, Volume= 89,503 cf, Atten= 0%, Lag= 0.5 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 4.63 fps, Min. Travel Time= 0.7 min
Avg. Velocity = 1.76 fps, Avg. Travel Time= 1.8 min

Peak Storage= 400 cf @ 12.81 hrs
Average Depth at Peak Storage= 0.34'
Bank-Full Depth= 1.00' Flow Area= 8.5 sf, Capacity= 71.68 cfs

Custom cross-section, Length= 190.0' Slope= 0.0474 '/'
Constant n= 0.030 Earth, grassed & winding
Inlet Invert= 327.00', Outlet Invert= 318.00'



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Offset (feet)	Elevation (feet)	Chan.Depth (feet)
0.00	2.00	0.00
4.00	1.00	1.00
9.00	1.00	1.00
12.00	2.00	0.00

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	5.0	0	0.00
1.00	8.5	12.3	1,615	71.68

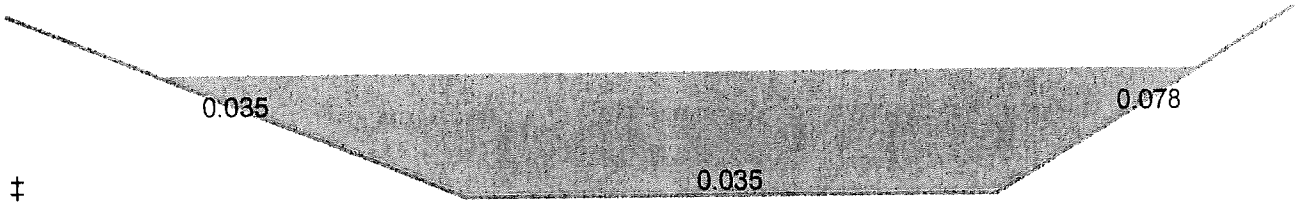
Summary for Reach 7: PROPOSED SWALE ON SUBJECT SITE

Inflow Area = 414,691 sf, 25.11% Impervious, Inflow Depth = 2.46" for 100-YR TYPE III event
Inflow = 10.04 cfs @ 12.95 hrs, Volume= 84,879 cf
Outflow = 10.04 cfs @ 12.96 hrs, Volume= 84,879 cf, Atten= 0%, Lag= 0.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 2.87 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 0.93 fps, Avg. Travel Time= 0.7 min

Peak Storage= 140 cf @ 12.96 hrs
Average Depth at Peak Storage= 0.68'
Bank-Full Depth= 1.00' Flow Area= 6.0 sf, Capacity= 20.85 cfs

Custom cross-section, Length= 40.0' Slope= 0.0125 '/'
Flow calculated by Manning's Subdivision method
Inlet Invert= 317.00', Outlet Invert= 316.50'



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Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	2.00	0.00		
3.00	1.00	1.00	0.035	Earth, dense weeds
6.50	1.00	1.00	0.035	Earth, dense weeds
8.50	2.00	0.00	0.078	Riprap, 12-inch

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	3.5	0	0.00
1.00	6.0	8.9	240	20.85

Summary for Pond 4: WETLAND AREA

Inflow Area = 249,599 sf, 21.29% Impervious, Inflow Depth = 5.41" for 100-YR TYPE III event
Inflow = 20.34 cfs @ 12.38 hrs, Volume= 112,577 cf
Outflow = 9.75 cfs @ 12.80 hrs, Volume= 89,509 cf, Atten= 52%, Lag= 25.0 min
Primary = 9.75 cfs @ 12.80 hrs, Volume= 89,509 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 328.34' @ 12.80 hrs Surf.Area= 50,775 sf Storage= 48,214 cf

Plug-Flow detention time= 192.0 min calculated for 89,481 cf (79% of inflow)
Center-of-Mass det. time= 111.9 min (931.7 - 819.8)

Volume	Invert	Avail.Storage	Storage Description
#1	325.00'	85,391 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
325.00	10	0	0
325.50	80	23	23
326.25	1,755	688	711
327.00	11,000	4,783	5,494
327.50	27,210	9,553	15,046
328.00	42,295	17,376	32,423
328.50	54,790	24,271	56,694
329.00	60,000	28,698	85,391

Device	Routing	Invert	Outlet Devices
#1	Primary	327.75'	**8.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=9.75 cfs @ 12.80 hrs HW=328.34' TW=327.34' (Dynamic Tailwater)
↑**1=Broad-Crested Rectangular Weir** (Weir Controls 9.75 cfs @ 2.07 fps)

Summary for Pond 6: LOW LYING AREA

[62] Hint: Exceeded Reach 5 OUTLET depth by 1.98' @ 13.05 hrs

Inflow Area =	367,646 sf,	21.92% Impervious,	Inflow Depth >	4.77"	for 100-YR TYPE III event
Inflow =	15.21 cfs @	12.56 hrs, Volume=	146,228 cf		
Outflow =	11.75 cfs @	12.98 hrs, Volume=	145,422 cf,	Atten= 23%,	Lag= 25.4 min
Primary =	9.29 cfs @	12.98 hrs, Volume=	56,453 cf		
Secondary =	2.46 cfs @	12.98 hrs, Volume=	88,969 cf		

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 320.31' @ 12.98 hrs Surf.Area= 17,370 sf Storage= 26,067 cf

Plug-Flow detention time= 59.6 min calculated for 145,377 cf (99% of inflow)
Center-of-Mass det. time= 55.1 min (940.3 - 885.2)

Volume	Invert	Avail.Storage	Storage Description
#1	317.50'	29,474 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
317.50	5	0	0
318.00	2,180	546	546
318.50	6,640	2,205	2,751
319.50	14,370	10,505	13,256
320.00	16,200	7,643	20,899
320.50	18,100	8,575	29,474

Device	Routing	Invert	Outlet Devices
#1	Primary	319.40'	**4.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Secondary	318.00'	**12.0" Round Culvert** L= 400.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 318.00' / 312.00' S= 0.0150 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 0.79 sf

Primary OutFlow Max=9.29 cfs @ 12.98 hrs HW=320.31' TW=317.67' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 9.29 cfs @ 2.56 fps)

Secondary OutFlow Max=2.46 cfs @ 12.98 hrs HW=320.31' TW=0.00' (Dynamic Tailwater)
↑—**2=Culvert** (Barrel Controls 2.46 cfs @ 3.13 fps)

Summary for Link 8: Culvert flow not going through proposed swale

Inflow =	2.46 cfs @	12.98 hrs, Volume=	88,969 cf	
Primary =	2.46 cfs @	12.98 hrs, Volume=	88,969 cf,	Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 1: AREA #1

Runoff = 0.79 cfs @ 12.37 hrs, Volume= 4,454 cf, Depth= 0.21"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-32.00 hrs; dt= 0.01 hr
Type III 24-hr WQV Rainfall=1.20"

	Area (ac)	CN	Description
*	1.220	98	Impervious, HSG B, C, D
	1.780	61	>75% Grass cover, Good, HSG B
	0.270	74	>75% Grass cover, Good, HSG C
	0.250	80	>75% Grass cover, Good, HSG D
	0.950	55	Woods, Good, HSG B
	0.050	70	Woods, Good, HSG C
	1.210	77	Woods, Good, HSG D
	5.730	73	Weighted Average
	4.510	66	78.71% Pervious Area
	1.220	98	21.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.4	100	0.0500	0.07		**Sheet Flow, Sheet** Woods: Dense underbrush n= 0.800 P2= 3.33"
2.3	65	0.0350	0.47		**Shallow Concentrated Flow, Shallow Concentrated** Forest w/Heavy Litter Kv= 2.5 fps
27.7	165	Total			

Summary for Subcatchment 2: AREA #2

Runoff = 0.45 cfs @ 12.30 hrs, Volume= 2,397 cf, Depth= 0.24"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-32.00 hrs, dt= 0.01 hr
Type III 24-hr WQV Rainfall=1.20"

	Area (ac)	CN	Description
*	0.630	98	Impervious, HSG B, C, D
	1.000	61	>75% Grass cover, Good, HSG B
	0.620	74	>75% Grass cover, Good, HSG C
	0.390	80	>75% Grass cover, Good, HSG D
	0.020	55	Woods, Good, HSG B
	0.050	70	Woods, Good, HSG C
	2.710	75	Weighted Average
	2.080	69	76.75% Pervious Area
	0.630	98	23.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.1	100	0.0800	0.08		**Sheet Flow, Sheet** Woods: Dense underbrush n= 0.800 P2= 3.33"
0.2	30	0.0400	3.00		**Shallow Concentrated Flow, Shallow Concentrated** Grassed Waterway Kv= 15.0 fps
0.9	120	0.0120	2.22		**Shallow Concentrated Flow, Shallow Concentrated** Paved Kv= 20.3 fps
0.2	190	0.0700	13.11	131.05	**Channel Flow, Channel flow** Area= 10.0 sf Perim= 10.0' r= 1.00' n= 0.030 Earth, grassed & winding
22.4	440	Total			

Summary for Subcatchment 3: AREA #3

Runoff = 0.63 cfs @ 12.08 hrs, Volume= 2,161 cf, Depth= 0.55"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-32.00 hrs, dt= 0.01
Type III 24-hr WQV Rainfall=1.20"

	Area (ac)	CN	Description
*	0.540	98	Impervious, HSG B, C, D
	0.140	74	>75% Grass cover, Good, HSG C
	0.400	80	>75% Grass cover, Good, HSG D
	1.080	88	Weighted Average
	0.540	78	50.00% Pervious Area
	0.540	98	50.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	50	0.1000	0.20		**Sheet Flow, Sheet** Grass: Dense n= 0.240 P2= 3.33"
0.5	100	0.0600	3.67		**Shallow Concentrated Flow, Shallow Concentrated** Grassed Waterway Kv= 15.0 fps
0.5	75	0.0130	2.31		**Shallow Concentrated Flow, Shallow Concentrated** Paved Kv= 20.3 fps
5.2	225	Total			

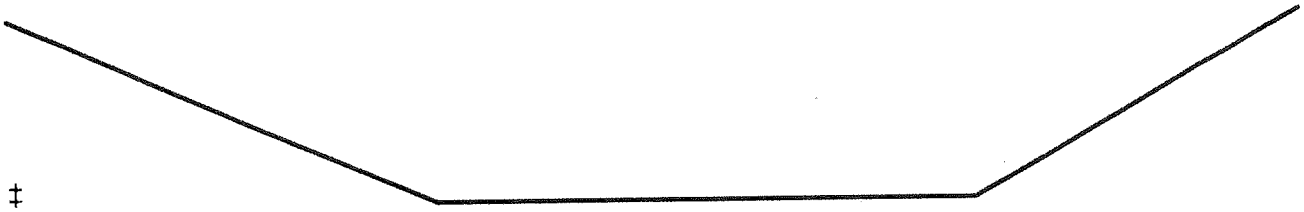
Summary for Reach 5: REACH FROM WETLAND TO LOW LYING AREA

Inflow Area = 249,599 sf, 21.29% Impervious, Inflow Depth = 0.00" for WQV event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 1.00' Flow Area= 8.5 sf, Capacity= 71.68 cfs

Custom cross-section, Length= 190.0' Slope= 0.0474 '/'
Constant n= 0.030 Earth, grassed & winding
Inlet Invert= 327.00', Outlet Invert= 318.00'



‡

Offset (feet)	Elevation (feet)	Chan.Depth (feet)
0.00	2.00	0.00
4.00	1.00	1.00
9.00	1.00	1.00
12.00	2.00	0.00

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	5.0	0	0.00
1.00	8.5	12.3	1,615	71.68

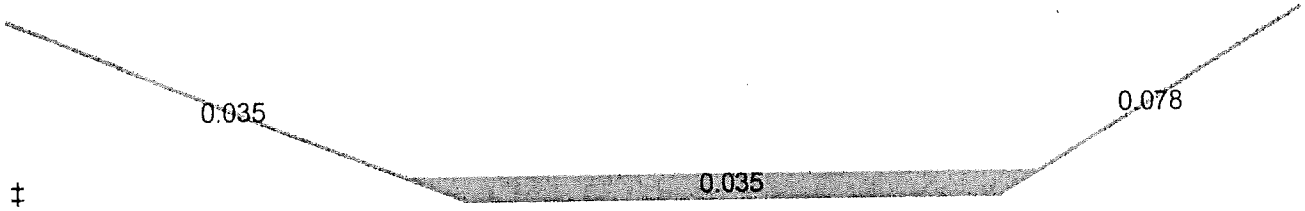
Summary for Reach 7: PROPOSED SWALE ON SUBJECT SITE

Inflow Area = 414,691 sf, 25.11% Impervious, Inflow Depth = 0.06" for WQV event
Inflow = 0.63 cfs @ 12.08 hrs, Volume= 2,161 cf
Outflow = 0.62 cfs @ 12.08 hrs, Volume= 2,161 cf, Atten= 0%, Lag= 0.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 1.18 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 0.32 fps, Avg. Travel Time= 2.1 min

Peak Storage= 21 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.14'
Bank-Full Depth= 1.00' Flow Area= 6.0 sf, Capacity= 20.85 cfs

Custom cross-section, Length= 40.0' Slope= 0.0125 '/'
Flow calculated by Manning's Subdivision method
Inlet Invert= 317.00', Outlet Invert= 316.50'



‡

Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	2.00	0.00		
3.00	1.00	1.00	0.035	Earth, dense weeds
6.50	1.00	1.00	0.035	Earth, dense weeds
8.50	2.00	0.00	0.078	Riprap, 12-inch

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	3.5	0	0.00
1.00	6.0	8.9	240	20.85

Summary for Pond 4: WETLAND AREA

Inflow Area = 249,599 sf, 21.29% Impervious, Inflow Depth = 0.21" for WQV event
Inflow = 0.79 cfs @ 12.37 hrs, Volume= 4,454 cf
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 326.90' @ 25.56 hrs Surf.Area= 9,765 sf Storage= 4,454 cf

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

Volume	Invert	Avail.Storage	Storage Description
#1	325.00'	85,391 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
325.00	10	0	0
325.50	80	23	23
326.25	1,755	688	711
327.00	11,000	4,783	5,494
327.50	27,210	9,553	15,046
328.00	42,295	17,376	32,423
328.50	54,790	24,271	56,694
329.00	60,000	28,698	85,391

Device	Routing	Invert	Outlet Devices
#1	Primary	327.75'	**8.0' long x 10.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=325.00' TW=327.00' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 6: LOW LYING AREA

[62] Hint: Exceeded Reach 5 OUTLET depth by 0.22' @ 12.83 hrs

Inflow Area =	367,646 sf,	21.92% Impervious,	Inflow Depth =	0.08" for WQV event
Inflow =	0.45 cfs @	12.30 hrs, Volume=	2,397 cf	
Outflow =	0.13 cfs @	12.83 hrs, Volume=	1,793 cf,	Atten= 71%, Lag= 32.3 min
Primary =	0.00 cfs @	0.00 hrs, Volume=	0 cf	
Secondary =	0.13 cfs @	12.83 hrs, Volume=	1,793 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 318.22' @ 12.83 hrs Surf.Area= 4,111 sf Storage= 1,227 cf

Plug-Flow detention time= 268.5 min calculated for 1,792 cf (75% of inflow)
Center-of-Mass det. time= 173.6 min (989.4 - 815.9)

Volume	Invert	Avail.Storage	Storage Description
#1	317.50'	29,474 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
317.50	5	0	0
318.00	2,180	546	546
318.50	6,640	2,205	2,751
319.50	14,370	10,505	13,256
320.00	16,200	7,643	20,899
320.50	18,100	8,575	29,474

Device	Routing	Invert	Outlet Devices
#1	Primary	319.40'	**4.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Secondary	318.00'	**12.0" Round Culvert** L= 400.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 318.00' / 312.00' S= 0.0150 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=317.50' TW=317.00' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Secondary OutFlow Max=0.13 cfs @ 12.83 hrs HW=318.22' TW=0.00' (Dynamic Tailwater)
↑—**2=Culvert** (Barrel Controls 0.13 cfs @ 1.56 fps)

Summary for Link 8: Culvert flow not going through proposed swale

Inflow =	0.13 cfs @	12.83 hrs, Volume=	1,793 cf	
Primary =	0.13 cfs @	12.83 hrs, Volume=	1,793 cf,	Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs

RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
235 Promenade Street
Providence, Rhode Island 02908

December 4, 2020

Joan M. Mooney
[redacted]

Re: Wetlands Application No. 20-0254 in reference to the location below:
At 45 Canning Street, approximately 50 feet south of Canning Street, utility no. 4, approximately 390 feet northeast of the intersection of Woodrow and Canning Streets, Assessor's Plat 37, Lot 186, Cumberland, RI.

Dear Ms. Mooney:

Please be advised that the DEM's Freshwater Wetlands Program is unable to complete our review of your Application at the above-referenced site at this time. The enclosed review comments are intended to obtain additional information and specify what must be revised and/or provided so that we may continue to process your application. Also, please be advised that you may wish to consider revising your project to utilize the existing easement containing what may be a failed culvert to capture and convey stormwater underground along the westerly property boundary. It appears that replacement or repair of the potentially nonfunctioning culvert to prevent the known chronic, persistent flooding at the site might be a neighbor-friendly alternative to the currently proposed vegetated swale. Alleviating the local flooding at this location in this manner could also better protect any authorized, proposed development and could benefit future owners of the site as well as abutting properties, sparing them potential harm via flooding caused by large storms currently experienced here.

We ask that you please provide the appropriate information as soon as possible. If we do not receive this information within (1) one year of the date of this letter your application will be considered closed pursuant to the Rules and Regulations Governing the Administration and Enforcement of the Freshwater Wetlands Act, 250-RICR-150-15-1.

Thank you in advance for your anticipated cooperation in addressing the enclosed comments. Please reference the application number provided above in all communications regarding your application. If you have any questions, please call Jane Kelly at [redacted].

Sincerely,

Martin D. Wencek

Martin D. Wencek, Program Supervisor
Office of Water Resources
Freshwater Wetlands Program
MDW/JEK/jek

Enclosure: Technical review comments

ec: Robert Anderson, Cumberland Department of Public Works
Jonathan Stevens, Cumberland Planning and Community Development Director
Timothy Behan, Commonwealth Engineers and Consultants, Inc.
Scott Rabideau, Natural Resource Services, Inc.

RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
STORMWATER ENGINEERING REVIEW
REQUEST FOR ADDITIONAL INFORMATION

Date: 12/04/2020 **Reviewer:** Nicholas A. Pisani, P.E.

Nicholas A. Pisani P.E.

Application Number:

FWW#:	20-0254
WQC#:	
GWD/UIC#:	
RIPDES#:	
OTHER:	

Applicant Name: Joan Mooney

Project Name: Proposed Dwelling 45 Canning Street

Plans and Analysis Reviewed: Plans and Reports received by DEM on 11/04/2020.

Engineering Review conducted with Checklist rev. date: **2/20/2014.**

Interim Review Findings:

1) **Drainage Issues**-Drainage issues appear to have been substantially addressed, except for the two items below.
2) **Floodplain Issues**- The proposed work site is not located within any area of 100-year floodplain.

Interim Technical Justification: If the site plans for the proposed development include a BMP that does not fully comply with all the applicable design requirements of the RIDEM Stormwater Management Design and Installation Rules (250-RICR-150-10-8), then please note below:

1) NA

Review Comments:

(1) Please revise the submitted drainage analysis to use the correct area, curve number, and time of concentration values for subwatershed Area #3. Please note that the values for Area #2 have been entered for Area #3, in what appears to be a "typographical error". Please note that the correction of this error will likely make the submitted analysis slightly more conservative.

(2) Please provide a brief long-term operation and maintenance plan (O & M Plan) for the proposed 112' long x 3.5' wide vegetated swale located in the proposed drainage easement.

SWALE MAINTENANCE NOTES:

1. VEGETATED SWALES SHALL BE INSPECTED ANNUALLY AND AFTER LARGE STORM EVENTS.
2. ERODED SIDE SLOPES AND CHANNEL BOTTOMS SHALL BE STABILIZED AS NECESSARY.
3. IF THE SURFACE OF THE SWALE BECOMES CLOGGED TO THE POINT THAT STANDING WATER IS OBSERVED ON THE SURFACE 48 HOURS AFTER THE PRECIPITATION EVENTS, THE BOTTOM SHALL BE ROTO-TILLED OR CULTIVATED TO BREAK UP ANY HARD-PACKED SEDIMENT, AND THEN RESEEDED.
4. VEGETATION IN SWALES SHALL BE MOWED AS REQUIRED TO MAINTAIN MINIMUM GRASS HEIGHTS IN THE 4 TO 6 INCH RANGE.
5. EVERY FIVE YEARS, THAN CHANNEL BOTTOM OF SWALES SHOULD BE SCRAPED TO REMOVE SEDIMENT AND TO ENSURE ORIGINAL CROSS SECTION AND INFILTRATION RATE, AND SHOULD BE SEEDED TO RESTORE GROUND COVER, WHERE NECESSARY.

THESE NOTES ARE ON SHEET 1 OF 2 OF THE PLAN SET.

TIM

LETTER OF TRANSMITTAL

COMMONWEALTH Engineers & Consultants, Inc.
▶400 Smith Street
Providence, RI 02908
▶Tele. 401·273·6600
Fax: 401·273·6674

DATE: February 12, 2021

CE&C PROJECT NO.: 16056.00

ATTENTION: Ms. Jane Kelly

TO: RIDEM
Freshwater Wetlands Section
235 Promenade Street
Providence, RI 02908

RE: Wetland Permit #20-0254
Canning St, Cumberland

WE ARE SENDING YOU	X **ATTACHED**	_ **VIA SEPARATE COVER**	_ **VIA FED. EXPRESS**
Shop Drawing(s)	Prints	Plans	Computer Disk(s)
Copy of Letter	Report(s)	Mylar	Other

COPIES	**DATE**	**SHEETS**	**DESCRIPTION**
3			HydroCAD report
1			Xerox copy of maintenance notes found on plan set

Environmental Management
FEB 15 2021
Office of Water Resources

THESE ARE TRANSMITTED AS CHECKED BELOW:

For Approval	Returned for Corrections	For Review and Comment
For Your Use as discussed	As Requested	Federal Express
Please Call to Discuss	Prints Returned after Loan to Us	Pick-up

REMARKS:

1. To address comments dated 12-04-2020.
2. Subwatershed Area #3 revised, HydroCAD reports attached. No change to plans required.
3. Long term operation and maintenance notes are located on sheet 1 of 2 of the plan set.

COPY TO: File,

SIGNED: Timothy Behan, P.E.

RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
235 Promenade Street
Providence, Rhode Island 02908

December 4, 2020

Joan M. Mooney
[redacted]

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Martin D. Wencek

Martin D. Wencek, Program Supervisor
Office of Water Resources
Freshwater Wetlands Program
MDW/JEK/jek

Enclosure: Technical review comments

ec: Robert Anderson, Cumberland Department of Public Works
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Scott Rabideau, Natural Resource Services, Inc.

RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
STORMWATER ENGINEERING REVIEW
REQUEST FOR ADDITIONAL INFORMATION

Date: 12/04/2020 **Reviewer:** Nicholas A. Pisani, P.E.

Nicholas A. Pisani P.E.

Application Number:

FWW#: 20-0254
WQC#: _____
GWD/UIC#: _____
RIPDES#: _____
OTHER: _____

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R.I. DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
FRESHWATER WETLANDS PROGRAM

APPLICATION INSPECTION REPORT

Application No.: 20-0254 **Applicant Name:** Joan M. Mooney
Biologist: Jane Kelly **Response to Deficiency:**
Date Received: 11/25/2020
Inspection/Review Date: 12/01/2020 & 12/04/2020 **Time:** 9:00 A.M. & 11:20 A.M.

X-Ref: 18-0153 & 19-0107
RI GP Wetlands Gain/Loss Reporting: **acres (gain/loss)**
Site Location:
At 45 Canning Street, approximately 50 feet south of Canning Street, utility no. 4, approximately 390 feet northeast of the intersection of Woodrow and Canning Streets, Assessor's Plat 37, Lot 186, Cumberland, RI

I. FRESHWATER WETLANDS IDENTIFIED:
Swamp, Perimeter Wetland, Area Subject to Storm Flowage.

II. PROJECT PURPOSE AND PROPOSED ALTERATIONS:
Construct a single-family dwelling, paved driveway with associated stormwater controls, utilities and grading.

III. REVIEW COMMENTS:
The application is the third submitted by the applicant for residential development of the 5,600 ft^2 forested lot. Swamp and Perimeter Wetland extend across the site, and an area subject to storm flowage (ASSF) flows into the swamp from the northwesterly corner of the lot. Previously reviewed applications were for similar projects including:

1. A Request for Preliminary Determination Application No. 18-0153 submitted June 22, 2018. Site inspection revealed the swamp edge depicted on the plan south of the southerly property boundary did not represent observed site conditions, which verified that the swamp edge extended well into the interior of the lot. A determination of significant alteration of freshwater wetlands was issued on August 9, 2018.
2. Application to Alter Freshwater Wetlands No. 19-0107, submitted April 4, 2019. The wetland edge was reflagged into the interior of the lot, and the revised edge was depicted on the submitted site plans. Site inspection revealed that two flags missed portions of the swamp and needed to be relocated. The proposed project was essentially identical to the project proposed under Application No.18-0153. Several substantive objections were received during the Public Notice Period that included an objection from the Town of Cumberland Planning Department and Department of Public Works. A Notification of Receipt of Substantive Objection was issued on February 14, 2020, which informed the applicant that the application could be withdrawn, a public hearing could be authorized, or additional information to address the substantive objections could be submitted. The application was withdrawn.
3. The currently proposed project increases alterations within freshwater wetlands over those previously proposed, including grade changes (fill), extending the westerly vegetated swale into the swamp, and adding rip rap along a portion of the swale's western side.
4. Additional information is required by the reviewing engineer. Refer to the attached comments.

APPLICATION RECOMMENDATION:
Technical deficiencies.

Signed: _____

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
Department of Environmental Management
Office of Water Resources
Freshwater Wetlands Program

MEMO

TO: US Army Corps of Engineers **DATE: November 13, 2020**
Regulatory Division
Attn. Michael S. Wierbonics and Alicia Wilson
[redacted]

FROM: Nancy Freeman, RIDEM Freshwater Wetlands Program ([redacted])

RE: Application No. **20-0254**

Applicant: Joan M. Mooney

SUBJECT: GP 17, SV

Hi Mike and Alicia,

Attached is the application form, and project narrative and site plan for an "Application to Alter" received by RIDEM on November 4, 2020 for a single-family residential development. Approximately 1,033 square feet of fill in swamp is proposed for yard expansion to accommodate the construction of the house footprint. The project has been assigned to Jane Kelly. Marty Wencek will likely be the Project Supervisor. Any questions related to this project can be directed to him at [redacted].

Thanks,
Nancy

COMMONWEALTH
ENGINEERS & CONSULTANTS, INC.
400 Smith Street
Providence, RI 02908
Tel. (401) 273-6600, Fax (401) 273-6674
www.commonwealth-eng.com

NOVEMBER 3, 2020

MR. MARTIN D. WENCEK
PERMITTING SUPERVISOR
RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
FRESHWATER WETLANDS PROGRAM
OFFICE OF WATER RESOURCES
235 PROMENADE STREET
PROVIDENCE, RI 02908

RE: APPLICATION TO ALTER A FRESHWATER WETLAND
CANNING STREET, CUMBERLAND, RI
CE&C #: 16056.00

Dear Mr. Wencek:

Commonwealth Engineers & Consultants, Inc. (CE&C) has prepared an Application to Alter Freshwater Wetland permit application for the above referenced site and the following documents are included:

1. (3) Application form
2. (3) Site plans
3. Fee
4. (3) Proof of ownership (certified deed)
5. (3) Radius map and list of property owners within 200'
6. (3) Project narrative prepared by Natural Resource Services, Inc.
7. (3) Stormwater BMP narrative report prepared by Commonwealth Engineers & Consultants, Inc.
8. (3) Site affidavit for field work

Should you require additional information please call.

Sincerely yours
COMMONWEALTH ENGINEERS & CONSULTANTS, INC.

Timothy Behan, P.E.

Enclosure

BK812 PG327

A 5510

QUITCLAIM DEED

We, **JOHN A. MOONEY** and **JOAN M. MOONEY,** husband and wife, of the Town of Cumberland, County of Providence, State of Rhode Island, for consideration paid, grant to **JOAN M. MOONEY,** of the Town of Cumberland, County of Providence, State of Rhode Island, with **QUITCLAIM COVENANTS**:

> Those certain lots or parcels of land, with all the buildings and improvements thereon, situated in the Town of Cumberland, County of Providence, State of Rhode Island, laid out and designated as Lots One Hundred Eighty Six (186) and One Hundred Eighty Seven (187), fronting on Canning Street in Section "F" on that plat entitled, "Cumberland Park", Surveyed and Platted by Joseph Wood, C. E., March 1925, which said plat is recorded in the Records of Plats in the Town Clerk's Office in said Town of Cumberland in Plat Book 2 at Page 52, to which plat reference may be had for further description of said premises.

Said premises are conveyed subject to restrictions of record, if any.

There is no monetary consideration for this conveyance and therefore no tax stamps are required. Compliance with RIGL 44-30-71.3 is not required in that the Grantors herein are residents of the State of Rhode Island, and this deed is for estate planning purposes.

Compliance with RIGL 23-28.35-1, the Rhode Island Smoke Detector Law, is not required in that this is not a "sale".

IN WITNESS WHEREOF, the undersigned have hereunto set their hands and seals this 30TH day of JUNE, 1999.

RECEIVED
Town of Cumberland
11:29 AM
JUL 06 1999
Town Clerk

John A. Mooney
JOHN A. MOONEY

Joan M. Mooney
JOAN M. MOONEY

STATE OF RHODE ISLAND
COUNTY OF PROVIDENCE

In Providence on this 30th day of June, 1999, before me personally appeared JOHN A. MOONEY and JOAN M. MOONEY, to me known and known to me to be the parties executing the foregoing instrument, and they acknowledged said instrument by them executed to be their free acts and deeds.

Danielle P. Stoddard
NOTARY PUBLIC

DANIELLE P. STODDARD, Notary Public
State of Rhode Island and Providence Plantations
My Commission Expires: 03/10/03

TOWN OF CUMBERLAND, RI
DATE: APR 04 2019
A true copy,
ATTEST: M. Giannelli
Town Clerk

RIDEM USE ONLY: Wetlands Application Number_____

RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
Office of Water Resources / Freshwater Wetlands Program
235 Promenade Street, Providence, RI 02908-5767

SITE WORK AFFIDAVIT

This affidavit is to be used by Freshwater Wetland Professionals to attest to the completion and certification of all Site Work **at the time an application is submitted** to the RIDEM Freshwater Wetlands Program. Affidavits must be accompanied by a complete Freshwater Wetlands permit application submittal.

In accordance with the *Rules and Regulations Governing the Administration and Enforcement of the Freshwater Wetlands Act*, 250-RICR-150-15-1, specifically, 250-RICR-150-15-1.7(A)(5), an applicant must perform site work to clearly identify and label site activities and features. Incomplete site work results in the issuance of deficiency letters and the need for multiple RIDEM inspections, causing unnecessary permitting delays. Applicants are encouraged to read *Avoid these Common Preventable Site Work Delays!* to learn more about facilitating quicker permit reviews.

Applicant Name: JOAN M. MOONEY

Note: Applicant must be the owner of property or easement or a government agency or entity with power of condemnation over such property or easement that is the subject of this application.

Please initial that all applicable site work listed below have been performed and certified at the time of application submission and sign the certification statement.

X Wetland Flags are present on site and are correctly and legibly labeled;

X Wetland Flag numbers on site correspond to those depicted on the plans;

X Wetland Flags have been accurately surveyed and depicted on the plans; and

X The proposed Limit of Disturbance (LOD) and other applicable proposed activities and features (See 250-RICR-150-15-1.7(A)(5)) have been staked and labeled on site.

CERTIFICATION OF PROFESSIONAL(S)

I certify that I have inspected the subject property and its surroundings and do hereby attest that to the best of my knowledge, all site work specified above has been accurately completed and certified at the time of application submission and prior to RIDEM inspection, in accordance with the Rules and Regulations Governing the Administration and Enforcement of the Freshwater Wetlands Act, 250-RICR-150-15-1.

Professional's Name: TIMOTHY BEHAN

Note: The professional (e.g. engineer, biologist, landscape architect, surveyor, etc.) responsible for the submission and/or preparation of this Application, on behalf of the Applicant, must sign below.

Signature: _____ **Date:** 11-3-2020

RHODE ISLAN EPARTMENT OF ENVIRONMEN . MANAGEMENT
OFFICE OF WATER RESOURCES \ FRESHWATER WETLANDS PROGRAM

235 Promenade Street, Providence, RI 02908
Telephone [redacted], Rhode Island Relay 711

AGENCY USE ONLY
Application No: 20-0254
Application Received:

Environmental Management
NOV 04 2020
Office of Water Resources

GENERAL APPLICATION FORM

Please type or print

PART A **Purpose of Application (see 250-RICR-150-15-1)**

- ☐ Request to Determine Presence of Wetlands only (250-RICR-150-15-1.8(B))
- ☐ Request to Verify Delineated Edge of Wetlands (250-RICR-150-15-1.8(C))
- ☐ Request for Preliminary Determination (250-RICR-150-15-1.9)
- ☒ Application to Alter a Freshwater Wetland (250-RICR-150-15-1.10)
- ☐ Application for Permit Renewal (250-RICR-150-15-1.11(B)) **Complete Only Parts B, D & H**
- ☐ Application for Permit Modification (250-RICR-150-15-1.11(C))
- ☐ Application for Permit Transfer (250-RICR-150-15-1.11(D)) **Complete Only Parts B, E & H**
- ☐ Change in Owner during review (250-RICR-150-15-1.7(A)(2)(e)) **Complete Only Parts B, F & H**

PART B **Applicant Information:**

Applicant's Name (see 250-RICR-150-15-1.7(A)(2)): JOAN M. MOONEY

Note: The applicant must be the owner of the property or easement which is the subject of this application or must be the government agency or entity with power of condemnation over such property or easement.

Applicant's Mailing Address: [redacted]
Street/Road

[redacted] City/Town | [redacted] State | [redacted] Zip Code | P.O. Box [redacted] Telephone No.

Applicant's Email Address: (print legibly): N/A

Property Location subject to this Application:

CUMBERLAND (City/Town) | CANNING STREET (Street Abutting Site) | 45 (Street address number (if applicable))

Nearest street intersection and its distance and direction from site: Canning St. & Woodrow St. is located 370' SW

Nearest utility pole number(s): #4 Direction to site from abutting street: N___ S___ E X W___

Tax Assessor's Plat(s) and Lot No(s): A.P. 37 LOT 186

Recorded Plat(s) and Lot No(s) (*if Assessor's are not available*): N/A

PART C **General Information:**

Any previous application for this site? Yes X No ___ Provide Application No(s) #18-0153 & #19-0107
Any previous enforcement action for this site? Yes ___ No X Provide File No(s) ___
Amount of wetland area to be altered, if any:
Palustrine wetland: 1,033 *square feet*
Riverbank or perimeter wetland: 4,245 *square feet*
Watercourse: 0 *linear feet*

☐ *Check here if any floodplain alteration is proposed.*

- Fee category per 250-RICR-150-15-1.7(A)(11) (ex. 1.7(A)(11)(d)(6) 2-lots sub. Pre-Det. $900) 1.7A.11.D.2$900 Check No. 690

☐ Check here if the project has a Certificate of Critical Economic Concern (CEC) and attach copy of certification.

PART D **For Application for Permit Renewal** (if applicable):

Name of Original or Subsequent Permittee: ___

Application/Permit No. ___ Permit Expiration Date: ___
Number of previous renewals issued (if applicable): ___

Applicant's Statement: I hereby state that I am requesting renewal of the original or subsequently modified permitted project under Application/Permit No. ___. I fully understand the permit limitations and will comply with any and all conditions of the permit.
Applicant's name: (*print*) ___ (*signature*) ___
Check here if actual site work has commenced on the project for which renewal is requested.

PART E **For Application fo mit Transfer** (if applicable):

Original Permittee's Name: _____

Application/Permit No.: _____ Permit Expiration Date: _____

Note: A certified copy of the deed of transfer must be enclosed with application.

Applicant's Statement: I hereby certify that I have reviewed the permit letter issued under Application/Permit No. _____ and hereby agree to comply with all conditions of the permit, including any time limitations imposed.

Applicant's Name (*print*): _____ (*signature*): _____ Date: _____

PART F **For Change in Owner During Application Processing** (if applicable):

Original Applicant's Name: _____ Application No. _____

Note: A certified copy of the deed of transfer must be enclosed for Applications to Alter only.

PART G **Certification of Professional(s)** (if applicable):

Note: Any professional (e.g. engineer, biologist, landscape architect, etc.) who participated in the submission and/or preparation of this Application and supporting documentation must sign below.

I hereby certify that I have been authorized by the applicant to prepare documentation to be submitted in support of this Application; that such documentation is in accordance with the *Rules and Regulations Governing the Administration and Enforcement of the Freshwater Wetlands Act* (250-RICR-150-15-1); and that such documentation is true, accurate and complete to the best of my knowledge.

Professional's Name (*print*): Timothy Behan, P.E. Title: Engineer

Email (print legibly): [redacted] d/b/a: Commonwealth Engineer & Consultants, Inc.

Address: 400 Smith Street, Providence, RI 02908

Professional's Signature: _____ Date: 11-3-2020

☒ **Check this box if the above named is the project manager or project lead for the applicant.**

☒ **I've completed and attached the Site Work Affidavit.**

If more than one professional:

Professional's Name (*print*): Scott Rabideau, PWS Title: Biologist

Email (print legibly): [redacted] d/b/a: Natural Resource Services, Inc.

Address: P.O. Box 311 Harrisville, RI 02830

Professional's Signature: _____ Date: _____

☐ **I've completed and attached the Site Work Affidavit.**

Professional's Name (*print*): _____ Title: _____

Email (print legibly): _____ d/b/a: _____

Address: _____

Professional's Signature: _____ Date: _____

☐ **I've completed and attached the Site Work Affidavit.**

PART H **Certification/Authorization of Applicant:**

I hereby certify that I have requested and authorized the investigation, compilation, and submission of all the information, in whatever form, contained in this Application; that I have personally examined and am familiar with the information submitted herein; and that such information is true, accurate and complete to the best of my knowledge. I hereby authorize RIDEM personnel access to the property for purposes of observing conditions pertinent to this application and assessing compliance with any permit or determination resulting from this application, including any sampling, monitoring or surveying that may be deemed appropriate, consistent with the RIDEM Administrative Inspection Guidelines. (See DEM website - Office of Compliance and Inspection for copy).

Note any special concerns for access here:

_____

Applicant's Signature: ✓ Joan M. Mooney Title (if applicable): _____

See 250-RICR-150-15-1.7(A)(2) regarding Signatures

Print Name Signed Above: ✓ JOAN M. MOONEY **Date**: ✓ 10/20/20

PART E **For Application for Permit Transfer** (if applicable):

Original Permittee's Name: _____

Application/Permit No.: _____ Permit Expiration Date: _____

Note: A certified copy of the deed of transfer must be enclosed with application.

Applicant's Statement: I hereby certify that I have reviewed the permit letter issued under Application/Permit No. _____ and hereby agree to comply with all conditions of the permit, including any time limitations imposed.

Applicant's Name (*print*): _____ (*signature*): _____ Date: _____

PART F **For Change in Owner During Application Processing** (if applicable):

Original Applicant's Name: _____ Application No. _____

Note: A certified copy of the deed of transfer must be enclosed for Applications to Alter only.

PART G **Certification of Professional(s)** (if applicable):

Note: Any professional (e.g. engineer, biologist, landscape architect, etc.) who participated in the submission and/or preparation of this Application and supporting documentation must sign below.

I hereby certify that I have been authorized by the applicant to prepare documentation to be submitted in support of this Application; that such documentation is in accordance with the *Rules and Regulations Governing the Administration and Enforcement of the Freshwater Wetlands Act* (250-RICR-150-15-1); and that such documentation is true, accurate and complete to the best of my knowledge.

Professional's Name (*print*): Timothy Behan, P.E. Title: Engineer

Email (print legibly): [redacted] d/b/a: Commonwealth Engineer & Consultants, Inc.

Address: 400 Smith Street, Providence, RI 02908

Professional's Signature: _____ Date: 11-3-2020

☒ **Check this box if the above named is the project manager or project lead for the applicant.**

☒ **I've completed and attached the Site Work Affidavit.**

If more than one professional:

Professional's Name (*print*): Scott Rabideau, PWS Title: Biologist

Email (print legibly): [redacted] d/b/a: Natural Resource Services, Inc.

Address: P.O. Box 311 Harrisville, RI 02830

Professional's Signature: _____ Date: 11/3/2020

☐ **I've completed and attached the Site Work Affidavit.**

Professional's Name (*print*): _____ Title: _____

Email (print legibly): _____ d/b/a: _____

Address: _____

Professional's Signature: _____ Date: _____

☐ **I've completed and attached the Site Work Affidavit.**

PART H **Certification/Authorization of Applicant:**

I hereby certify that I have requested and authorized the investigation, compilation, and submission of all the information, in whatever form, contained in this Application; that I have personally examined and am familiar with the information submitted herein; and that such information is true, accurate and complete to the best of my knowledge. I hereby authorize RIDEM personnel access to the property for purposes of observing conditions pertinent to this application and assessing compliance with any permit or determination resulting from this application, including any sampling, monitoring or surveying that may be deemed appropriate, consistent with the RIDEM Administrative Inspection Guidelines. (See DEM website - Office of Compliance and Inspection for copy).

Note any special concerns for access here:

Applicant's Signature: ✓ Joan M. Mooney Title (if applicable): _____

See 250-RICR-150-15-1.7(A)(2) regarding Signatures

Print Name Signed Above: ✓ JOAN M. MOONEY **Date:** ✓ 10/20/20

NOTE: This list is not consid[illegible] complete for NOTICE purposes u[illegible]ss authorized by the Permitting Supervisor. See reverse side for authorization.

AGENCIES, GROUPS, INDIVIDUALS-RECEIVE COPIES OF THE "NOTICE" AND PLANS

APPLICATION NO. 20-0254

AGENCY/GROUP INDIVIDUAL	REDUCED SIZE	FULL SIZE PLAN
CITY/TOWN COUNCIL (CLERK)		2
PLANNING OFFICIAL	1	
ZONING OFFICIAL	1	
BUILDING INSPECTOR	1	
CITY/TOWN PUBLIC WORKS	1	
CONSERVATION COMMISSION	1	
FILE		#3
ABUTTORS (LIST ATTACHED)	17	
STAFF BIOLOGIST		1
APPLICANT	1	
THE SIERRA CLUB, RI Chapter		
THE PROVIDENCE JOURNAL	1	
HISTORIC PRESERVATION COMMISSION	1	
ENVIRONMENTAL COUNCIL OF RI		
U.S. ARMY CORPS OF ENGINEERS, NEW ENGLAND*	1	
RI CRMC → Leslie.Marthiensee.army.mil		
SAVE THE BAY		
RI NATURAL HISTORY SURVEY		
WOOD PAWCATUCK WATERSHED ASSOCIATION		
NARRAGANSETT INDIAN TRIBE	1	
AUDUBON SOCIETY OF RI		
PAWTUXET RIVER AUTHORITY		
BLACKSTONE RIVER WATERSHED COUNCIL		
WOONASQUATUCKET RIVER WATERSHED		
NARROW RIVER PRESERVATION ASSOCIATION		
DEM DIVISION OF FISH & WILDLIFE		
TEN MILE RIVER WATERSHED COUNCIL		
FRIENDS OF THE MOSHASSUCK		
SALT PONDS COALITION		
KICKEMUIT RIVER COUNCIL		
BUCKEYE BROOK COALITION		

AGENCIES, GROUPS, INDIVIDUALS-RECEIVE COPIES OF THE "NOTICE" AND PLANS

APPLICATION NO.

AGENCY/GROUP INDIVIDUAL	REDUCED SIZE	FULL SIZE PLAN
DEM DIVISION OF PLANNING & DEVELOPMENT		
PROVIDENCE WATER SUPPLY BOARD		
PAWTUCKET WATER SUPPLY BOARD		
NEWPORT DEPT. OF UTILITIES, WATER DIVISION		
WOONSOCKET DEPT. OF PUBLIC WORKS, WATER DIVISION		

ADDITIONAL PARTIES TO BE NOTIFIED AS INDICATED BELOW	
Blackstone River Watershed Council	1
Timothy Behan, PE	1
Scott Rabideau	1
→ Contact info for Army Corps: [redacted]	

TOTAL NO OF NARRATIVE COPIES: 2

REDUCED PLANS: ~~30~~ 30

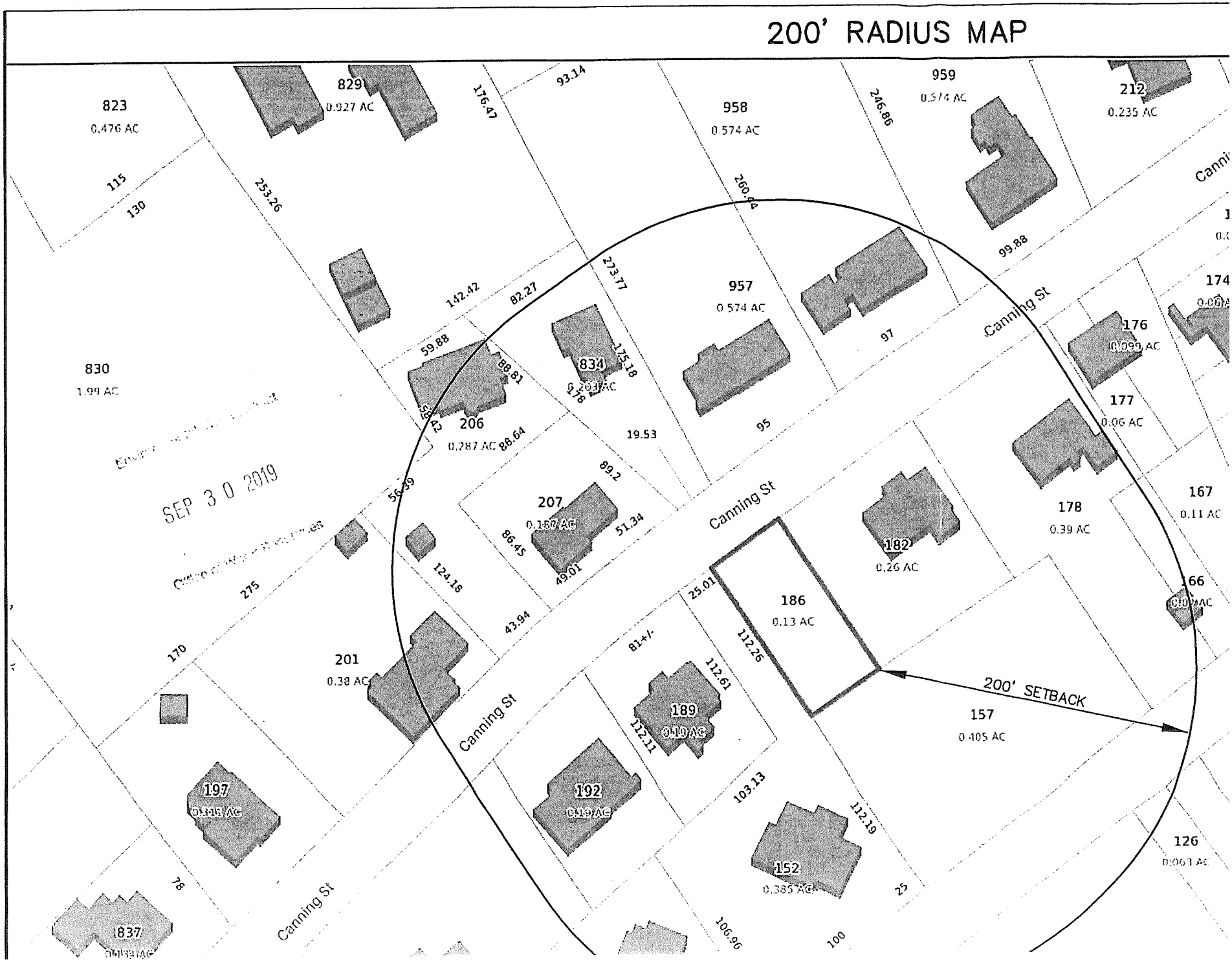
FULL PLANS: 6

Prepared by: Jane Kelly Date: 12/07/2020

Authorized by: Martin Wencek Date: 3/10/2021

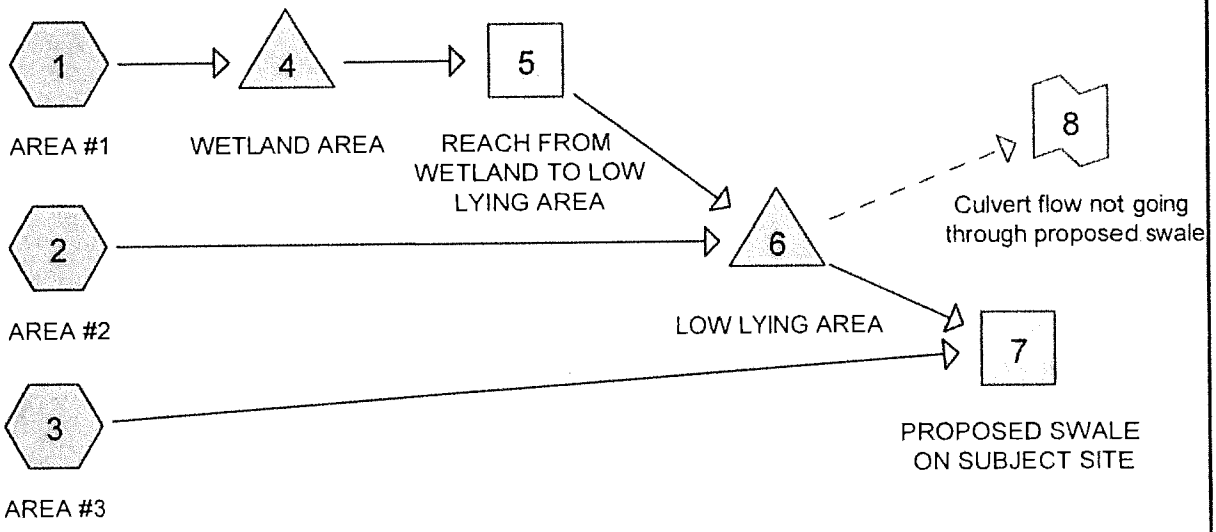
PUBLIC NOTICE FORM Notice Date 3/30/21; emailed 5/14/21

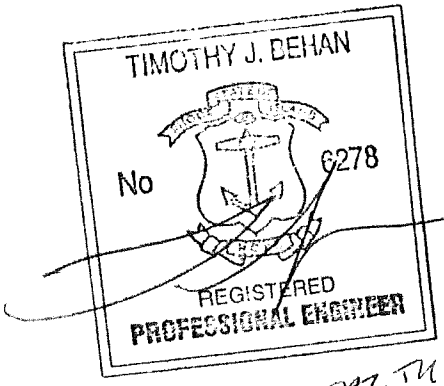
200' RADIUS MAP



200' RADIUS MAP

200' RADIUS MAP





COMMONWEALTH ENGINEERS & CONSULTANTS, INC.

Subcat | Reach | Pond | Link

Routing Diagram for 16056 MODEL rev Aug dem comments
Prepared by HP Inc.

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
121,097	61	>75% Grass cover, Good, HSG B (1, 2)
44,867	74	>75% Grass cover, Good, HSG C (1, 2, 3)
45,302	80	>75% Grass cover, Good, HSG D (1, 2, 3)
104,108	98	Impervious, HSG B, C, D (1, 2, 3)
42,253	55	Woods, Good, HSG B (1, 2)
4,356	70	Woods, Good, HSG C (1, 2)
52,708	77	Woods, Good, HSG D (1)

Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
267,458	HSG B	1, 2, 3
49,223	HSG C	1, 2, 3
98,010	HSG D	1, 2, 3
0	Other	

Ground Covers (all nodes)

HSG-A (sq-ft)	HSG-B (sq-ft)	HSG-C (sq-ft)	HSG-D (sq-ft)	Other (sq-ft)	Total (sq-ft)	Ground Cover	Subca Numb
0	121,097	44,867	45,302	0	211,266	>75% Grass cover, Good	
0	104,108	0	0	0	104,108	Impervious	
0	42,253	4,356	52,708	0	99,317	Woods, Good	

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	6	318.00	312.00	400.0	0.0150	0.025	12.0	0.0	0.0

Summary for Subcatchment 1: AREA #1

Runoff = 2.69 cfs @ 12.41 hrs, Volume= 17,628 cf, Depth= 0.85"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-32.00 hrs, dt= 0.01
Type III 24-hr 1-YR TYPE III Rainfall=2.70"

	Area (ac)	CN	Description
*	1.220	98	Impervious, HSG B, C, D
	1.780	61	>75% Grass cover, Good, HSG B
	0.270	74	>75% Grass cover, Good, HSG C
	0.250	80	>75% Grass cover, Good, HSG D
	0.950	55	Woods, Good, HSG B
	0.050	70	Woods, Good, HSG C
	1.210	77	Woods, Good, HSG D
	5.730	73	Weighted Average
	4.510	66	78.71% Pervious Area
	1.220	98	21.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.4	100	0.0500	0.07		**Sheet Flow, Sheet** Woods: Dense underbrush n= 0.800 P2= 3.33"
2.3	65	0.0350	0.47		**Shallow Concentrated Flow, Shallow Concentrated** Forest w/Heavy Litter Kv= 2.5 fps
27.7	165	Total			

Summary for Subcatchment 2: AREA #2

Runoff = 1.68 cfs @ 12.32 hrs, Volume= 9,541 cf, Depth= 0.97"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-32.00 hrs, dt= 0.01
Type III 24-hr 1-YR TYPE III Rainfall=2.70"

	Area (ac)	CN	Description
*	0.630	98	Impervious, HSG B, C, D
	1.000	61	>75% Grass cover, Good, HSG B
	0.620	74	>75% Grass cover, Good, HSG C
	0.390	80	>75% Grass cover, Good, HSG D
	0.020	55	Woods, Good, HSG B
	0.050	70	Woods, Good, HSG C
	2.710	75	Weighted Average
	2.080	69	76.75% Pervious Area
	0.630	98	23.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.1	100	0.0800	0.08		**Sheet Flow, Sheet** Woods: Dense underbrush n= 0.800 P2= 3.33"
0.2	30	0.0400	3.00		**Shallow Concentrated Flow, Shallow Concentrated** Grassed Waterway Kv= 15.0 fps
0.9	120	0.0120	2.22		**Shallow Concentrated Flow, Shallow Concentrated** Paved Kv= 20.3 fps
0.2	190	0.0700	13.11	131.05	**Channel Flow, Channel flow** Area= 10.0 sf Perim= 10.0' r= 1.00' n= 0.030 Earth, grassed & winding
22.4	440	Total			

Summary for Subcatchment 3: AREA #3

Runoff = 2.02 cfs @ 12.08 hrs, Volume= 6,645 cf, Depth= 1.70"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-32.00 hrs, dt= 0.01 hr
Type III 24-hr 1-YR TYPE III Rainfall=2.70"

	Area (ac)	CN	Description
*	0.540	98	Impervious, HSG B, C, D
	0.140	74	>75% Grass cover, Good, HSG C
	0.400	80	>75% Grass cover, Good, HSG D
	1.080	88	Weighted Average
	0.540	78	50.00% Pervious Area
	0.540	98	50.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	50	0.1000	0.20		**Sheet Flow, Sheet** Grass: Dense n= 0.240 P2= 3.33"
0.5	100	0.0600	3.67		**Shallow Concentrated Flow, Shallow Concentrated** Grassed Waterway Kv= 15.0 fps
0.5	75	0.0130	2.31		**Shallow Concentrated Flow, Shallow Concentrated** Paved Kv= 20.3 fps
5.2	225	Total			

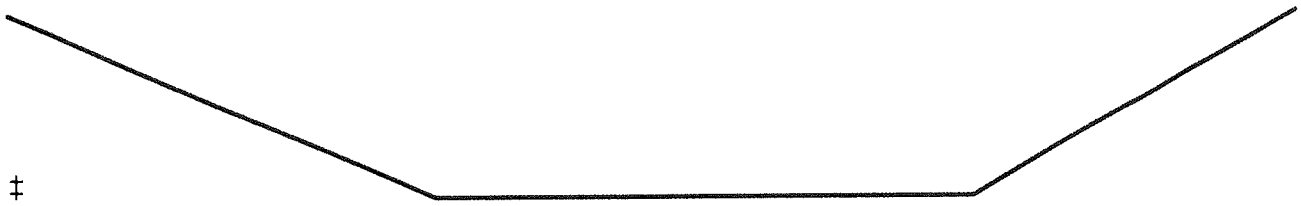
Summary for Reach 5: REACH FROM WETLAND TO LOW LYING AREA

Inflow Area = 249,599 sf, 21.29% Impervious, Inflow Depth = 0.00" for 1-YR TYPE III event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 1.00' Flow Area= 8.5 sf, Capacity= 71.68 cfs

Custom cross-section, Length= 190.0' Slope= 0.0474 '/'
Constant n= 0.030 Earth, grassed & winding
Inlet Invert= 327.00', Outlet Invert= 318.00'



‡

Offset (feet)	Elevation (feet)	Chan.Depth (feet)
0.00	2.00	0.00
4.00	1.00	1.00
9.00	1.00	1.00
12.00	2.00	0.00

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	5.0	0	0.00
1.00	8.5	12.3	1,615	71.68

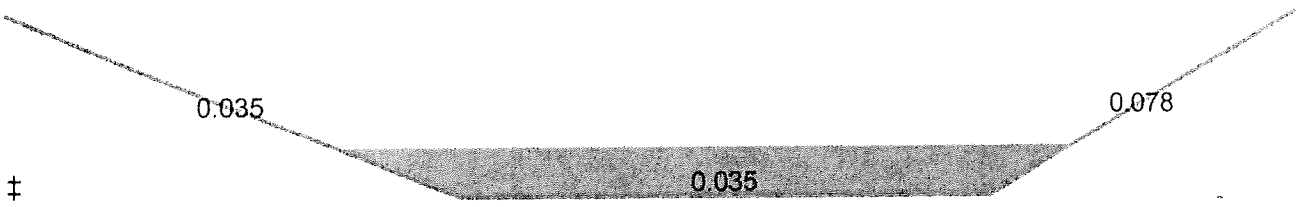
Summary for Reach 7: PROPOSED SWALE ON SUBJECT SITE

Inflow Area = 414,691 sf, 25.11% Impervious, Inflow Depth = 0.19" for 1-YR TYPE III event
Inflow = 2.02 cfs @ 12.08 hrs, Volume= 6,645 cf
Outflow = 2.02 cfs @ 12.08 hrs, Volume= 6,645 cf, Atten= 0%, Lag= 0.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 1.77 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 0.45 fps, Avg. Travel Time= 1.5 min

Peak Storage= 46 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.27'
Bank-Full Depth= 1.00' Flow Area= 6.0 sf, Capacity= 20.85 cfs

Custom cross-section, Length= 40.0' Slope= 0.0125 '/'
Flow calculated by Manning's Subdivision method
Inlet Invert= 317.00', Outlet Invert= 316.50'



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Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	2.00	0.00		
3.00	1.00	1.00	0.035	Earth, dense weeds
6.50	1.00	1.00	0.035	Earth, dense weeds
8.50	2.00	0.00	0.078	Riprap, 12-inch

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	3.5	0	0.00
1.00	6.0	8.9	240	20.85

Summary for Pond 4: WETLAND AREA

Inflow Area = 249,599 sf, 21.29% Impervious, Inflow Depth = 0.85" for 1-YR TYPE III event
Inflow = 2.69 cfs @ 12.41 hrs, Volume= 17,628 cf
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 327.59' @ 25.56 hrs Surf.Area= 29,936 sf Storage= 17,628 cf

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

Volume	Invert	Avail.Storage	Storage Description
#1	325.00'	85,391 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
325.00	10	0	0
325.50	80	23	23
326.25	1,755	688	711
327.00	11,000	4,783	5,494
327.50	27,210	9,553	15,046
328.00	42,295	17,376	32,423
328.50	54,790	24,271	56,694
329.00	60,000	28,698	85,391

Device	Routing	Invert	Outlet Devices
#1	Primary	327.75'	**8.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=325.00' TW=327.00' (Dynamic Tailwater)
1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 6: LOW LYING AREA

[62] Hint: Exceeded Reach 5 OUTLET depth by 0.55' @ 12.72 hrs

Inflow Area = 367,646 sf, 21.92% Impervious, Inflow Depth = 0.31" for 1-YR TYPE III event
Inflow = 1.68 cfs @ 12.32 hrs, Volume= 9,541 cf
Outflow = 0.81 cfs @ 12.72 hrs, Volume= 8,922 cf, Atten= 52%, Lag= 23.9 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Secondary = 0.81 cfs @ 12.72 hrs, Volume= 8,922 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 318.55' @ 12.72 hrs Surf.Area= 7,033 sf Storage= 3,099 cf

Plug-Flow detention time= 131.0 min calculated for 8,922 cf (94% of inflow)
Center-of-Mass det. time= 95.4 min (925.5 - 830.1)

Volume	Invert	Avail.Storage	Storage Description
#1	317.50'	29,474 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
317.50	5	0	0
318.00	2,180	546	546
318.50	6,640	2,205	2,751
319.50	14,370	10,505	13,256
320.00	16,200	7,643	20,899
320.50	18,100	8,575	29,474

Device	Routing	Invert	Outlet Devices
#1	Primary	319.40'	**4.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Secondary	318.00'	**12.0" Round Culvert** L= 400.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 318.00' / 312.00' S= 0.0150 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=317.50' TW=317.00' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Secondary OutFlow Max=0.81 cfs @ 12.72 hrs HW=318.55' TW=0.00' (Dynamic Tailwater)
↑—**2=Culvert** (Barrel Controls 0.81 cfs @ 2.64 fps)

Summary for Link 8: Culvert flow not going through proposed swale

Inflow = 0.81 cfs @ 12.72 hrs, Volume= 8,922 cf
Primary = 0.81 cfs @ 12.72 hrs, Volume= 8,922 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 1: AREA #1

Runoff = 8.33 cfs @ 12.40 hrs, Volume= 47,827 cf, Depth= 2.30"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-32.00 hrs, dt= 0.01 hr
Type III 24-hr 10-YR TYPE III Rainfall=4.90"

	Area (ac)	CN	Description
*	1.220	98	Impervious, HSG B, C, D
	1.780	61	>75% Grass cover, Good, HSG B
	0.270	74	>75% Grass cover, Good, HSG C
	0.250	80	>75% Grass cover, Good, HSG D
	0.950	55	Woods, Good, HSG B
	0.050	70	Woods, Good, HSG C
	1.210	77	Woods, Good, HSG D
	5.730	73	Weighted Average
	4.510	66	78.71% Pervious Area
	1.220	98	21.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.4	100	0.0500	0.07		**Sheet Flow, Sheet** Woods: Dense underbrush n= 0.800 P2= 3.33"
2.3	65	0.0350	0.47		**Shallow Concentrated Flow, Shallow Concentrated** Forest w/Heavy Litter Kv= 2.5 fps
27.7	165	Total			

Summary for Subcatchment 2: AREA #2

Runoff = 4.82 cfs @ 12.32 hrs, Volume= 24,897 cf, Depth= 2.53"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-32.00 hrs, dt= 0.01 hr
Type III 24-hr 10-YR TYPE III Rainfall=4.90"

	Area (ac)	CN	Description
*	0.630	98	Impervious, HSG B, C, D
	1.000	61	>75% Grass cover, Good, HSG B
	0.620	74	>75% Grass cover, Good, HSG C
	0.390	80	>75% Grass cover, Good, HSG D
	0.020	55	Woods, Good, HSG B
	0.050	70	Woods, Good, HSG C
	2.710	75	Weighted Average
	2.080	69	76.75% Pervious Area
	0.630	98	23.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.1	100	0.0800	0.08		**Sheet Flow, Sheet** Woods: Dense underbrush n= 0.800 P2= 3.33"
0.2	30	0.0400	3.00		**Shallow Concentrated Flow, Shallow Concentrated** Grassed Waterway Kv= 15.0 fps
0.9	120	0.0120	2.22		**Shallow Concentrated Flow, Shallow Concentrated** Paved Kv= 20.3 fps
0.2	190	0.0700	13.11	131.05	**Channel Flow, Channel flow** Area= 10.0 sf Perim= 10.0' r= 1.00' n= 0.030 Earth, grassed & winding
22.4	440	Total			

Summary for Subcatchment 3: AREA #3

Runoff = 4.37 cfs @ 12.07 hrs, Volume= 14,291 cf, Depth= 3.65"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-32.00 hrs, dt= 0.01
Type III 24-hr 10-YR TYPE III Rainfall=4.90"

	Area (ac)	CN	Description
*	0.540	98	Impervious, HSG B, C, D
	0.140	74	>75% Grass cover, Good, HSG C
	0.400	80	>75% Grass cover, Good, HSG D
	1.080	88	Weighted Average
	0.540	78	50.00% Pervious Area
	0.540	98	50.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	50	0.1000	0.20		**Sheet Flow, Sheet** Grass: Dense n= 0.240 P2= 3.33"
0.5	100	0.0600	3.67		**Shallow Concentrated Flow, Shallow Concentrated** Grassed Waterway Kv= 15.0 fps
0.5	75	0.0130	2.31		**Shallow Concentrated Flow, Shallow Concentrated** Paved Kv= 20.3 fps
5.2	225	Total			

Summary for Reach 5: REACH FROM WETLAND TO LOW LYING AREA

Inflow Area = 249,599 sf, 21.29% Impervious, Inflow Depth > 1.19" for 10-YR TYPE III event
Inflow = 1.17 cfs @ 13.92 hrs, Volume= 24,802 cf
Outflow = 1.17 cfs @ 13.93 hrs, Volume= 24,798 cf, Atten= 0%, Lag= 1.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 2.21 fps, Min. Travel Time= 1.4 min
Avg. Velocity = 1.23 fps, Avg. Travel Time= 2.6 min

Peak Storage= 101 cf @ 13.93 hrs
Average Depth at Peak Storage= 0.10'
Bank-Full Depth= 1.00' Flow Area= 8.5 sf, Capacity= 71.68 cfs

Custom cross-section, Length= 190.0' Slope= 0.0474 '/'
Constant n= 0.030 Earth, grassed & winding
Inlet Invert= 327.00', Outlet Invert= 318.00'

‡

Offset (feet)	Elevation (feet)	Chan.Depth (feet)
0.00	2.00	0.00
4.00	1.00	1.00
9.00	1.00	1.00
12.00	2.00	0.00

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	5.0	0	0.00
1.00	8.5	12.3	1,615	71.68

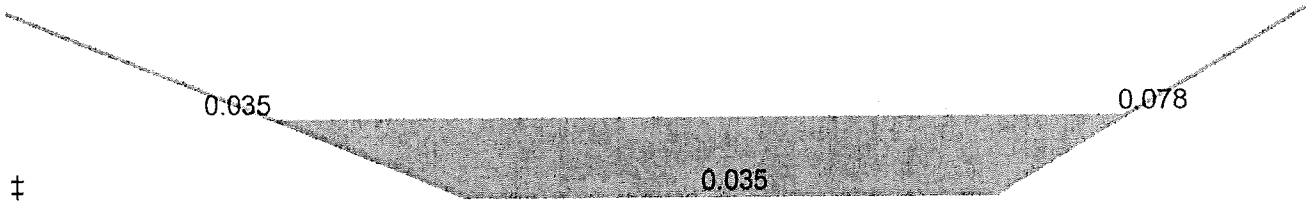
Summary for Reach 7: PROPOSED SWALE ON SUBJECT SITE

Inflow Area = 414,691 sf, 25.11% Impervious, Inflow Depth = 0.41" for 10-YR TYPE III event
Inflow = 4.37 cfs @ 12.07 hrs, Volume= 14,291 cf
Outflow = 4.37 cfs @ 12.08 hrs, Volume= 14,291 cf, Atten= 0%, Lag= 0.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 2.25 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 0.58 fps, Avg. Travel Time= 1.1 min

Peak Storage= 77 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.42'
Bank-Full Depth= 1.00' Flow Area= 6.0 sf, Capacity= 20.85 cfs

Custom cross-section, Length= 40.0' Slope= 0.0125 '/'
Flow calculated by Manning's Subdivision method
Inlet Invert= 317.00', Outlet Invert= 316.50'



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Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	2.00	0.00		
3.00	1.00	1.00	0.035	Earth, dense weeds
6.50	1.00	1.00	0.035	Earth, dense weeds
8.50	2.00	0.00	0.078	Riprap, 12-inch

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	3.5	0	0.00
1.00	6.0	8.9	240	20.85

Summary for Pond 4: WETLAND AREA

Inflow Area = 249,599 sf, 21.29% Impervious, Inflow Depth = 2.30" for 10-YR TYPE III event
Inflow = 8.33 cfs @ 12.40 hrs, Volume= 47,827 cf
Outflow = 1.17 cfs @ 13.92 hrs, Volume= 24,802 cf, Atten= 86%, Lag= 90.9 min
Primary = 1.17 cfs @ 13.92 hrs, Volume= 24,802 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 327.90' @ 13.92 hrs Surf.Area= 39,304 sf Storage= 28,377 cf

Plug-Flow detention time= 348.1 min calculated for 24,802 cf (52% of inflow)
Center-of-Mass det. time= 217.7 min (1,049.2 - 831.6)

Volume	Invert	Avail.Storage	Storage Description
#1	325.00'	85,391 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
325.00	10	0	0
325.50	80	23	23
326.25	1,755	688	711
327.00	11,000	4,783	5,494
327.50	27,210	9,553	15,046
328.00	42,295	17,376	32,423
328.50	54,790	24,271	56,694
329.00	60,000	28,698	85,391

Device	Routing	Invert	Outlet Devices
#1	Primary	327.75'	**8.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=1.17 cfs @ 13.92 hrs HW=327.90' TW=327.10' (Dynamic Tailwater)
↑—1=**Broad-Crested Rectangular Weir** (Weir Controls 1.17 cfs @ 0.97 fps)

Summary for Pond 6: LOW LYING AREA

[62] Hint: Exceeded Reach 5 OUTLET depth by 1.04' @ 12.71 hrs

Inflow Area = 367,646 sf, 21.92% Impervious, Inflow Depth > 1.62" for 10-YR TYPE III event
Inflow = 4.82 cfs @ 12.32 hrs, Volume= 49,695 cf
Outflow = 2.16 cfs @ 12.72 hrs, Volume= 48,922 cf, Atten= 55%, Lag= 24.1 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Secondary = 2.16 cfs @ 12.72 hrs, Volume= 48,922 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 319.04' @ 12.72 hrs Surf.Area= 10,814 sf Storage= 7,463 cf

Plug-Flow detention time= 70.3 min calculated for 48,907 cf (98% of inflow)
Center-of-Mass det. time= 58.8 min (995.3 - 936.5)

Volume	Invert	Avail.Storage	Storage Description
#1	317.50'	29,474 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
317.50	5	0	0
318.00	2,180	546	546
318.50	6,640	2,205	2,751
319.50	14,370	10,505	13,256
320.00	16,200	7,643	20,899
320.50	18,100	8,575	29,474

Device	Routing	Invert	Outlet Devices
#1	Primary	319.40'	**4.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Secondary	318.00'	**12.0" Round Culvert** L= 400.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 318.00' / 312.00' S= 0.0150 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=317.50' TW=317.00' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Secondary OutFlow Max=2.16 cfs @ 12.72 hrs HW=319.04' TW=0.00' (Dynamic Tailwater)
↑—**2=Culvert** (Barrel Controls 2.16 cfs @ 3.29 fps)

Summary for Link 8: Culvert flow not going through proposed swale

Inflow = 2.16 cfs @ 12.72 hrs, Volume= 48,922 cf
Primary = 2.16 cfs @ 12.72 hrs, Volume= 48,922 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 1: AREA #1

Runoff = 20.34 cfs @ 12.38 hrs, Volume= 112,577 cf, Depth= 5.41".

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-32.00 hrs, dt= 0.01
Type III 24-hr 100-YR TYPE III Rainfall=8.70"

	Area (ac)	CN	Description
*	1.220	98	Impervious, HSG B, C, D
	1.780	61	>75% Grass cover, Good, HSG B
	0.270	74	>75% Grass cover, Good, HSG C
	0.250	80	>75% Grass cover, Good, HSG D
	0.950	55	Woods, Good, HSG B
	0.050	70	Woods, Good, HSG C
	1.210	77	Woods, Good, HSG D
	5.730	73	Weighted Average
	4.510	66	78.71% Pervious Area
	1.220	98	21.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.4	100	0.0500	0.07		**Sheet Flow, Sheet** Woods: Dense underbrush n= 0.800 P2= 3.33"
2.3	65	0.0350	0.47		**Shallow Concentrated Flow, Shallow Concentrated** Forest w/Heavy Litter Kv= 2.5 fps
27.7	165	Total			

Summary for Subcatchment 2: AREA #2

Runoff = 11.25 cfs @ 12.31 hrs, Volume= 56,725 cf, Depth= 5.77"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-32.00 hrs, dt= 0.01
Type III 24-hr 100-YR TYPE III Rainfall=8.70"

	Area (ac)	CN	Description
*	0.630	98	Impervious, HSG B, C, D
	1.000	61	>75% Grass cover, Good, HSG B
	0.620	74	>75% Grass cover, Good, HSG C
	0.390	80	>75% Grass cover, Good, HSG D
	0.020	55	Woods, Good, HSG B
	0.050	70	Woods, Good, HSG C
	2.710	75	Weighted Average
	2.080	69	76.75% Pervious Area
	0.630	98	23.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.1	100	0.0800	0.08		**Sheet Flow, Sheet** Woods: Dense underbrush n= 0.800 P2= 3.33"
0.2	30	0.0400	3.00		**Shallow Concentrated Flow, Shallow Concentrated** Grassed Waterway Kv= 15.0 fps
0.9	120	0.0120	2.22		**Shallow Concentrated Flow, Shallow Concentrated** Paved Kv= 20.3 fps
0.2	190	0.0700	13.11	131.05	**Channel Flow, Channel flow** Area= 10.0 sf Perim= 10.0' r= 1.00' n= 0.030 Earth, grassed & winding
22.4	440	Total			

Summary for Subcatchment 3: AREA #3

Runoff = 8.63 cfs @ 12.07 hrs, Volume= 28,425 cf, Depth= 7.25"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-32.00 hrs, dt= 0.01 hr
Type III 24-hr 100-YR TYPE III Rainfall=8.70"

	Area (ac)	CN	Description
*	0.540	98	Impervious, HSG B, C, D
	0.140	74	>75% Grass cover, Good, HSG C
	0.400	80	>75% Grass cover, Good, HSG D
	1.080	88	Weighted Average
	0.540	78	50.00% Pervious Area
	0.540	98	50.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	50	0.1000	0.20		**Sheet Flow, Sheet** Grass: Dense n= 0.240 P2= 3.33"
0.5	100	0.0600	3.67		**Shallow Concentrated Flow, Shallow Concentrated** Grassed Waterway Kv= 15.0 fps
0.5	75	0.0130	2.31		**Shallow Concentrated Flow, Shallow Concentrated** Paved Kv= 20.3 fps
5.2	225	Total			

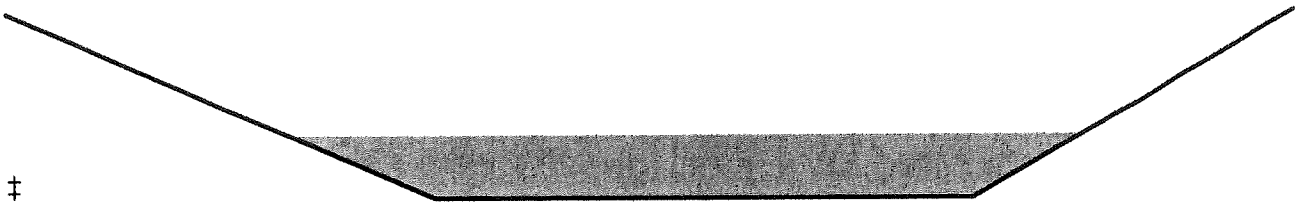
Summary for Reach 5: REACH FROM WETLAND TO LOW LYING AREA

Inflow Area = 249,599 sf, 21.29% Impervious, Inflow Depth > 4.30" for 100-YR TYPE III event
Inflow = 9.75 cfs @ 12.80 hrs, Volume= 89,509 cf
Outflow = 9.74 cfs @ 12.81 hrs, Volume= 89,503 cf, Atten= 0%, Lag= 0.5 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 4.63 fps, Min. Travel Time= 0.7 min
Avg. Velocity = 1.76 fps, Avg. Travel Time= 1.8 min

Peak Storage= 400 cf @ 12.81 hrs
Average Depth at Peak Storage= 0.34'
Bank-Full Depth= 1.00' Flow Area= 8.5 sf, Capacity= 71.68 cfs

Custom cross-section, Length= 190.0' Slope= 0.0474 '/'
Constant n= 0.030 Earth, grassed & winding
Inlet Invert= 327.00', Outlet Invert= 318.00'



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Offset (feet)	Elevation (feet)	Chan.Depth (feet)
0.00	2.00	0.00
4.00	1.00	1.00
9.00	1.00	1.00
12.00	2.00	0.00

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	5.0	0	0.00
1.00	8.5	12.3	1,615	71.68

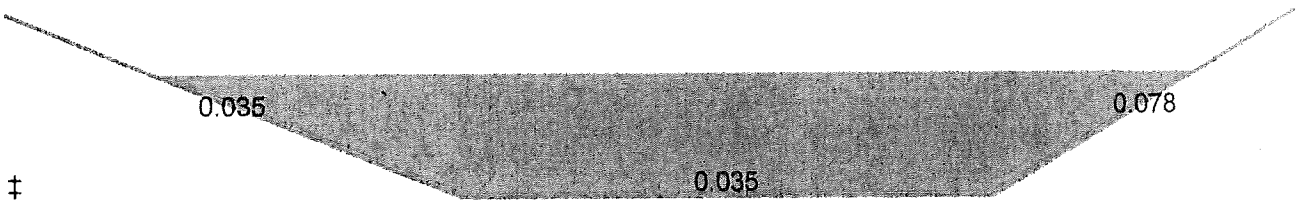
Summary for Reach 7: PROPOSED SWALE ON SUBJECT SITE

Inflow Area = 414,691 sf, 25.11% Impervious, Inflow Depth = 2.46" for 100-YR TYPE III event
Inflow = 10.04 cfs @ 12.95 hrs, Volume= 84,879 cf
Outflow = 10.04 cfs @ 12.96 hrs, Volume= 84,879 cf, Atten= 0%, Lag= 0.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 2.87 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 0.93 fps, Avg. Travel Time= 0.7 min

Peak Storage= 140 cf @ 12.96 hrs
Average Depth at Peak Storage= 0.68'
Bank-Full Depth= 1.00' Flow Area= 6.0 sf, Capacity= 20.85 cfs

Custom cross-section, Length= 40.0' Slope= 0.0125 '/'
Flow calculated by Manning's Subdivision method
Inlet Invert= 317.00', Outlet Invert= 316.50'



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Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	2.00	0.00		
3.00	1.00	1.00	0.035	Earth, dense weeds
6.50	1.00	1.00	0.035	Earth, dense weeds
8.50	2.00	0.00	0.078	Riprap, 12-inch

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	3.5	0	0.00
1.00	6.0	8.9	240	20.85

Summary for Pond 4: WETLAND AREA

Inflow Area = 249,599 sf, 21.29% Impervious, Inflow Depth = 5.41" for 100-YR TYPE III event
Inflow = 20.34 cfs @ 12.38 hrs, Volume= 112,577 cf
Outflow = 9.75 cfs @ 12.80 hrs, Volume= 89,509 cf, Atten= 52%, Lag= 25.0 min
Primary = 9.75 cfs @ 12.80 hrs, Volume= 89,509 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 328.34' @ 12.80 hrs Surf.Area= 50,775 sf Storage= 48,214 cf

Plug-Flow detention time= 192.0 min calculated for 89,481 cf (79% of inflow)
Center-of-Mass det. time= 111.9 min (931.7 - 819.8)

Volume	Invert	Avail.Storage	Storage Description
#1	325.00'	85,391 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
325.00	10	0	0
325.50	80	23	23
326.25	1,755	688	711
327.00	11,000	4,783	5,494
327.50	27,210	9,553	15,046
328.00	42,295	17,376	32,423
328.50	54,790	24,271	56,694
329.00	60,000	28,698	85,391

Device	Routing	Invert	Outlet Devices
#1	Primary	327.75'	**8.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=9.75 cfs @ 12.80 hrs HW=328.34' TW=327.34' (Dynamic Tailwater)
↑—1=**Broad-Crested Rectangular Weir** (Weir Controls 9.75 cfs @ 2.07 fps)

Summary for Pond 6: LOW LYING AREA

[62] Hint: Exceeded Reach 5 OUTLET depth by 1.98' @ 13.05 hrs

Inflow Area = 367,646 sf, 21.92% Impervious, Inflow Depth > 4.77" for 100-YR TYPE III event
Inflow = 15.21 cfs @ 12.56 hrs, Volume= 146,228 cf
Outflow = 11.75 cfs @ 12.98 hrs, Volume= 145,422 cf, Atten= 23%, Lag= 25.4 min
Primary = 9.29 cfs @ 12.98 hrs, Volume= 56,453 cf
Secondary = 2.46 cfs @ 12.98 hrs, Volume= 88,969 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 320.31' @ 12.98 hrs Surf.Area= 17,370 sf Storage= 26,067 cf

Plug-Flow detention time= 59.6 min calculated for 145,377 cf (99% of inflow)
Center-of-Mass det. time= 55.1 min (940.3 - 885.2)

Volume	Invert	Avail.Storage	Storage Description
#1	317.50'	29,474 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
317.50	5	0	0
318.00	2,180	546	546
318.50	6,640	2,205	2,751
319.50	14,370	10,505	13,256
320.00	16,200	7,643	20,899
320.50	18,100	8,575	29,474

Device	Routing	Invert	Outlet Devices
#1	Primary	319.40'	**4.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Secondary	318.00'	**12.0" Round Culvert** L= 400.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 318.00' / 312.00' S= 0.0150 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 0.79 sf

Primary OutFlow Max=9.29 cfs @ 12.98 hrs HW=320.31' TW=317.67' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 9.29 cfs @ 2.56 fps)

Secondary OutFlow Max=2.46 cfs @ 12.98 hrs HW=320.31' TW=0.00' (Dynamic Tailwater)
↑—**2=Culvert** (Barrel Controls 2.46 cfs @ 3.13 fps)

Summary for Link 8: Culvert flow not going through proposed swale

Inflow = 2.46 cfs @ 12.98 hrs, Volume= 88,969 cf
Primary = 2.46 cfs @ 12.98 hrs, Volume= 88,969 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 1: AREA #1

Runoff = 0.79 cfs @ 12.37 hrs, Volume= 4,454 cf, Depth= 0.21"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-32.00 hrs, dt= 0.01 hr
Type III 24-hr WQV Rainfall=1.20"

	Area (ac)	CN	Description
*	1.220	98	Impervious, HSG B, C, D
	1.780	61	>75% Grass cover, Good, HSG B
	0.270	74	>75% Grass cover, Good, HSG C
	0.250	80	>75% Grass cover, Good, HSG D
	0.950	55	Woods, Good, HSG B
	0.050	70	Woods, Good, HSG C
	1.210	77	Woods, Good, HSG D
	5.730	73	Weighted Average
	4.510	66	78.71% Pervious Area
	1.220	98	21.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.4	100	0.0500	0.07		**Sheet Flow, Sheet** Woods: Dense underbrush n= 0.800 P2= 3.33"
2.3	65	0.0350	0.47		**Shallow Concentrated Flow, Shallow Concentrated** Forest w/Heavy Litter Kv= 2.5 fps
27.7	165	Total			

Summary for Subcatchment 2: AREA #2

Runoff = 0.45 cfs @ 12.30 hrs, Volume= 2,397 cf, Depth= 0.24"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-32.00 hrs, dt= 0.01 hr
Type III 24-hr WQV Rainfall=1.20"

	Area (ac)	CN	Description
*	0.630	98	Impervious, HSG B, C, D
	1.000	61	>75% Grass cover, Good, HSG B
	0.620	74	>75% Grass cover, Good, HSG C
	0.390	80	>75% Grass cover, Good, HSG D
	0.020	55	Woods, Good, HSG B
	0.050	70	Woods, Good, HSG C
	2.710	75	Weighted Average
	2.080	69	76.75% Pervious Area
	0.630	98	23.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.1	100	0.0800	0.08		**Sheet Flow, Sheet** Woods: Dense underbrush n= 0.800 P2= 3.33"
0.2	30	0.0400	3.00		**Shallow Concentrated Flow, Shallow Concentrated** Grassed Waterway Kv= 15.0 fps
0.9	120	0.0120	2.22		**Shallow Concentrated Flow, Shallow Concentrated** Paved Kv= 20.3 fps
0.2	190	0.0700	13.11	131.05	**Channel Flow, Channel flow** Area= 10.0 sf Perim= 10.0' r= 1.00' n= 0.030 Earth, grassed & winding
22.4	440	Total			

Summary for Subcatchment 3: AREA #3

Runoff = 0.63 cfs @ 12.08 hrs, Volume= 2,161 cf, Depth= 0.55"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-32.00 hrs, dt= 0.01
Type III 24-hr WQV Rainfall=1.20"

	Area (ac)	CN	Description
*	0.540	98	Impervious, HSG B, C, D
	0.140	74	>75% Grass cover, Good, HSG C
	0.400	80	>75% Grass cover, Good, HSG D
	1.080	88	Weighted Average
	0.540	78	50.00% Pervious Area
	0.540	98	50.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	50	0.1000	0.20		**Sheet Flow, Sheet** Grass: Dense n= 0.240 P2= 3.33"
0.5	100	0.0600	3.67		**Shallow Concentrated Flow, Shallow Concentrated** Grassed Waterway Kv= 15.0 fps
0.5	75	0.0130	2.31		**Shallow Concentrated Flow, Shallow Concentrated** Paved Kv= 20.3 fps
5.2	225	Total			

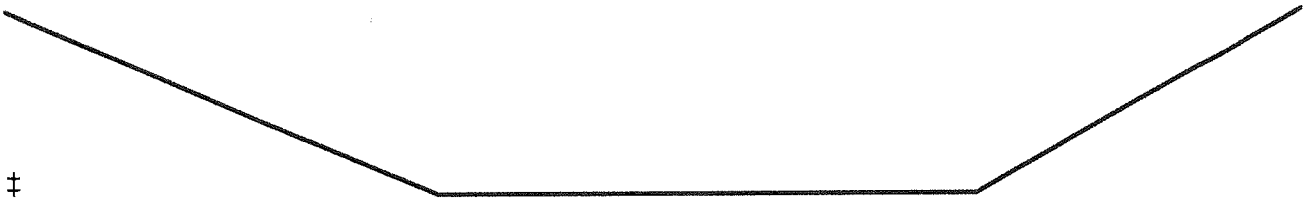
Summary for Reach 5: REACH FROM WETLAND TO LOW LYING AREA

Inflow Area = 249,599 sf, 21.29% Impervious, Inflow Depth = 0.00" for WQV event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 1.00' Flow Area= 8.5 sf, Capacity= 71.68 cfs

Custom cross-section, Length= 190.0' Slope= 0.0474 '/'
Constant n= 0.030 Earth, grassed & winding
Inlet Invert= 327.00', Outlet Invert= 318.00'



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Offset (feet)	Elevation (feet)	Chan.Depth (feet)
0.00	2.00	0.00
4.00	1.00	1.00
9.00	1.00	1.00
12.00	2.00	0.00

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	5.0	0	0.00
1.00	8.5	12.3	1,615	71.68

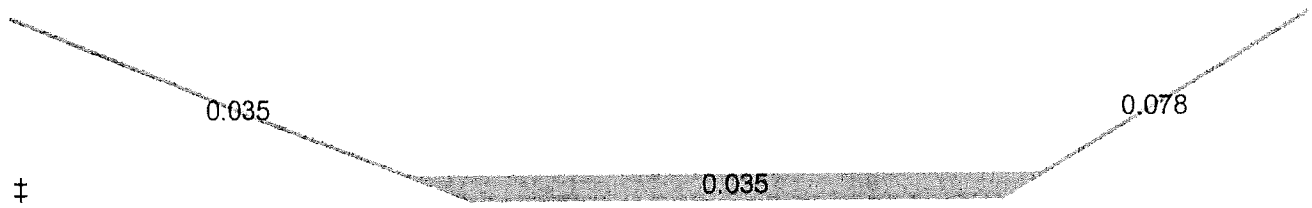
Summary for Reach 7: PROPOSED SWALE ON SUBJECT SITE

Inflow Area = 414,691 sf, 25.11% Impervious, Inflow Depth = 0.06" for WQV event
Inflow = 0.63 cfs @ 12.08 hrs, Volume= 2,161 cf
Outflow = 0.62 cfs @ 12.08 hrs, Volume= 2,161 cf, Atten= 0%, Lag= 0.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 1.18 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 0.32 fps, Avg. Travel Time= 2.1 min

Peak Storage= 21 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.14'
Bank-Full Depth= 1.00' Flow Area= 6.0 sf, Capacity= 20.85 cfs

Custom cross-section, Length= 40.0' Slope= 0.0125 '/'
Flow calculated by Manning's Subdivision method
Inlet Invert= 317.00', Outlet Invert= 316.50'



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Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	2.00	0.00		
3.00	1.00	1.00	0.035	Earth, dense weeds
6.50	1.00	1.00	0.035	Earth, dense weeds
8.50	2.00	0.00	0.078	Riprap, 12-inch

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	3.5	0	0.00
1.00	6.0	8.9	240	20.85

Summary for Pond 4: WETLAND AREA

Inflow Area = 249,599 sf, 21.29% Impervious, Inflow Depth = 0.21" for WQV event
Inflow = 0.79 cfs @ 12.37 hrs, Volume= 4,454 cf
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 326.90' @ 25.56 hrs Surf.Area= 9,765 sf Storage= 4,454 cf

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

Volume	Invert	Avail.Storage	Storage Description
#1	325.00'	85,391 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
325.00	10	0	0
325.50	80	23	23
326.25	1,755	688	711
327.00	11,000	4,783	5,494
327.50	27,210	9,553	15,046
328.00	42,295	17,376	32,423
328.50	54,790	24,271	56,694
329.00	60,000	28,698	85,391

Device	Routing	Invert	Outlet Devices
#1	Primary	327.75'	**8.0' long x 10.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=325.00' TW=327.00' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 6: LOW LYING AREA

[62] Hint: Exceeded Reach 5 OUTLET depth by 0.22' @ 12.83 hrs

Inflow Area =	367,646 sf,	21.92% Impervious,	Inflow Depth =	0.08" for WQV event
Inflow =	0.45 cfs @	12.30 hrs, Volume=	2,397 cf	
Outflow =	0.13 cfs @	12.83 hrs, Volume=	1,793 cf,	Atten= 71%, Lag= 32.3 min
Primary =	0.00 cfs @	0.00 hrs, Volume=	0 cf	
Secondary =	0.13 cfs @	12.83 hrs, Volume=	1,793 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 318.22' @ 12.83 hrs Surf.Area= 4,111 sf Storage= 1,227 cf

Plug-Flow detention time= 268.5 min calculated for 1,792 cf (75% of inflow)
Center-of-Mass det. time= 173.6 min (989.4 - 815.9)

Volume	Invert	Avail.Storage	Storage Description
#1	317.50'	29,474 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
317.50	5	0	0
318.00	2,180	546	546
318.50	6,640	2,205	2,751
319.50	14,370	10,505	13,256
320.00	16,200	7,643	20,899
320.50	18,100	8,575	29,474

Device	Routing	Invert	Outlet Devices
#1	Primary	319.40'	**4.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Secondary	318.00'	**12.0" Round Culvert** L= 400.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 318.00' / 312.00' S= 0.0150 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=317.50' TW=317.00' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Secondary OutFlow Max=0.13 cfs @ 12.83 hrs HW=318.22' TW=0.00' (Dynamic Tailwater)
↑—**2=Culvert** (Barrel Controls 0.13 cfs @ 1.56 fps)

Summary for Link 8: Culvert flow not going through proposed swale

Inflow =	0.13 cfs @	12.83 hrs, Volume=	1,793 cf	
Primary =	0.13 cfs @	12.83 hrs, Volume=	1,793 cf,	Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs

SWALE MAINTENANCE NOTES:

1. VEGETATED SWALES SHALL BE INSPECTED ANNUALLY AND AFTER LARGE STORM EVENTS.
2. ERODED SIDE SLOPES AND CHANNEL BOTTOMS SHALL BE STABILIZED AS NECESSARY.
3. IF THE SURFACE OF THE SWALE BECOMES CLOGGED TO THE POINT THAT STANDING WATER IS OBSERVED ON THE SURFACE 48 HOURS AFTER THE PRECIPITATION EVENTS, THE BOTTOM SHALL BE ROTO-TILLED OR CULTIVATED TO BREAK UP ANY HARD-PACKED SEDIMENT, AND THEN RESEEDED.
4. VEGETATION IN SWALES SHALL BE MOWED AS REQUIRED TO MAINTAIN MINIMUM GRASS HEIGHTS IN THE 4 TO 6 INCH RANGE.
5. EVERY FIVE YEARS, THAN CHANNEL BOTTOM OF SWALES SHOULD BE SCRAPED TO REMOVE SEDIMENT AND TO ENSURE ORIGINAL CROSS SECTION AND INFILTRATION RATE, AND SHOULD BE SEEDED TO RESTORE GROUND COVER, WHERE NECESSARY.

THESE NOTES ARE ON SHEET 1 OF 2 OF THE PLAN SET.

TIM

R.I. DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES PERMITTING SECTION
FRESHWATER WETLANDS PROGRAM
APPLICATION INSPECTION REPORT

Application No.: 20-0254 **Applicant Name:** Joan M. Mooney
Biologist: Jane Kelly **Response to Deficiency:** Yes
Inspection/Review Date: May 27, 2021 **Time:** 1:30 PM
3.05(B) Wetlands Gain/Loss (*for reporting purposes only*): 0 acres (gain/loss)

Site Location:
Approximately 50 feet south east of Canning Street, opposite Utility Pole No. 4, approximately 390 feet northeast of the intersection of Woodrow and Canning Streets, Assessor's Plat 37, Lot 186, Cumberland, RI.

I. FRESHWATER WETLANDS IDENTIFIED (Attach BIR-Forms as Necessary):
Swamp and Perimeter Wetland; Area Subject to Storm Flowage (ASSF).

II. PROJECT PURPOSE AND PROPOSED ALTERATIONS:
Construct a single-family dwelling with associated driveway, stormwater control features, and plantings. Replace an existing 12-inch drain pipe with a new 12-inch HDPE drain pipe.

III. REVIEW COMMENTS:
1. Freshwater wetlands including a portion of a swamp and associated perimeter wetland extend northwesterly across the entire lot. Approximately 5,600 sq. ft. of freshwater wetlands and ~36 linear feet of an ASSF would be altered by the proposed project.
2. The following is a summary of previous applications submitted to the Freshwater Wetlands Program ("Program") for proposed residential development of the subject site, and corresponding Program determinations:
   a. Request for Preliminary Determination Application No. 18-0153 received June 22, 2018 for a single-family dwelling, driveway, garage, connections to the sewer and water lines under Canning Street, two (2) vegetated swales to control stormwater, and a screen of white cedar plantings at the southerly limits of disturbance. DEM's site inspection revealed that the swamp edge extended approximately 85 feet further into the interior of the property than delineated at the site and depicted on the site plans. Additionally, an Area Subject to Storm Flowage that flowed into the portion of swamp that was not delineated was also present at the site. As a result, the proposed project represented of significant alteration of freshwater wetlands that could proceed only upon receipt of an Application to Alter Freshwater Wetlands and approval was issued by the Freshwater Wetlands Program on August 9, 2018.
   b. Application to Alter Freshwater Wetlands No. 19-0107 was submitted on April 4, 2019. The site plans depicted a revised swamp edge that extended into the interior of the lot, but DEM's site inspection revealed that two (2) of the flags needed to be adjusted to include a portion of swamp that was not adequately delineated. The flags were adjusted as requested, revised plans were submitted, and a Public Notice was issued on October 11, 2019. Seven (7) objection letters were received during the 45-day Public Notice period, including an objection from the Town of Cumberland Planning Director.
   c. DEM's biological review determined that design changes to the proposed project, including relocating the proposed disturbance limit ~20 feet northwesterly, adding evergreen trees between the proposed 5 white spruce trees at the southeasterly disturbance limit and an additional dense row of evergreen trees along the revised limit of disturbance would reduce habitat loss and associated wildlife disturbance relative to the previously proposed project.

d. DEM's engineering review determined that insufficient information was provided about an existing culvert and two swales proposed to convey stormwater along the easterly and westerly property boundaries to establish
whether the proposed project would adversely affect adjacent properties from increases in flood elevation, and approval of the project as proposed was not recommended.

e. On February 14, 2020, the Applicant was informed that DEM had received seven (7) letters of comment about the proposed project and that several of these were considered objections of a substantive nature. In accordance with the Rules and Regulations Governing the Administration and Enforcement of the Freshwater Wetlands Act (Rules), the following options were described to the applicant: i) withdraw the application, ii) authorize the scheduling of a public hearing. Information about the applicant's decision was not found in the file.

3. The proposed residential development has been redesigned under the current application to include changes to existing gradients, construction of a paved waterway at the intersection of the northwesterly property line and Canning Street, and replacement of an existing drainage pipe with a new HDPE drainage pipe and associated drainage easement that were not previously proposed, and a Long-Term Operation and Maintenance Plan was submitted. The planting scheme has not been revised.
4. DEM's reviewing engineer has cleared the project with a special condition that the long-term operation and maintenance plan prepared by Commonwealth Engineering and received by this Program on 2/15/2021 shall be strictly followed. Refer to the attached comments. A DEM engineering review was not initiated for Application No. 19-0107.
5. Nine (9) objection letters were received during the public notice period. In summary, the letters referred to existing persistent flood conditions during storm events on properties along Canning Street and expressed concerns that developing the subject lot would worsen them. Neighboring residents also noted concerns about the loss of the subject site's wooded wildlife habitat functions and values. An objection letter submitted by the Town of Cumberland Planning Director states that the proposed drainage structures would only benefit the property owner, would only negligibly improve existing stormwater ponding/flooding conditions at the site, and would "have an inordinately adverse impact on the adjacent lot receiving stormwater flows at a higher rate". The Town's objection letter does not specifically disapprove of the application or indicate that the Town Council voted to disapprove the application, [redacted]
6. As previously proposed under Application No. 19-0107, a vegetation screen of five (5) 4-feet tall white spruce (*Picea glauca*) planted 10 feet on center is proposed at the southerly limit of disturbance. If the project is approved, eastern white pine (*Pinus strobus*) or northern white cedar (*Thuja occidentalis*) could be a more appropriate alternative where tree plantings are proposed at the outlets of the drainage swales due to these species' greater tolerance of wet conditions, although it is also acknowledged that northern white cedar tends to be browsed by deer. Additionally, as noted in the biological review of Application No. 19-0107, adding an additional row of dense evergreen plantings along the proposed limit of disturbance may further reduce the proposed project's potential disturbance to wildlife and associated loss of habitat.

RECOMMENDATION:
Significant alteration. Supervisor's determination.

Signed: _____

RHODE I[illegible]ND DEPARTMENT OF ENVIRONMEN[illegible] MANAGEMENT
OFFICE OF WATER RESOURCE[illegible]
WETLANDS ENGINEERING FINAL REVIEW

Date: 2/17/2021 **Reviewer:** Nicholas A. Pisani, P.E.

Application Number:

FWW#:	20-0254
WQC#:	_____
GWD/UIC#:	_____
RIPDES#:	_____
OTHER:	_____

Applicant Name: Joan Mooney

Project Name: Proposed Dwelling 45 Canning Street

Plans and Analysis Reviewed: Plans and Reports received by DEM on 11/04/2020, along with revised analysis dated received 2/15/2021, and O & M Plan sheet dated received 2/15/2021.

Engineering Review conducted with Checklist rev. date: 2/20/2014.

Recommended Action: Adequate for public notice.

Findings:

1) **Redevelopment Status:** The proposed project is new development.
2) **Drainage and Water Quality Issues:** Given that this project is a single family residence this engineering review is confined to the issue of floodplain and conveyance of the flow carried by an area subject to storm flow.
    - Please note that the proposed plan now includes a proposed replacement segment of 12" diameter HDPE pipe through the area of proposed work and to be located in a strip of land to be protected by a drainage easement. The plan indicates that existing inverts will be matched.
    - The design includes a proposed surface swale to carry local flow and overflow from the pipe culvert in storm events that exceed a 10-year storm event. This swale is to be 1.0' deep and the submitted analysis shows that is has the capacity to convey flows to it in up to the 100-year storm event.
    - The design also includes a 0.5' deep secondary swale which should help proposed some water quality treatment for runoff from the proposed impervious areas of the site.

3) **Floodplain and Floodway Issues:** The site of the proposed is not located within any area of 100-year floodplain.

Technical Justification(s): If the site plans for the proposed development include a BMP that does not fully comply with all the applicable design requirements of the RISDISM, then please note below:

- NA

Permit Conditions:

1) The long-term operation and maintenance plan shall be strictly followed. The long-term O & M Plan shall be that dated received 2/15/2021 prepared by Commonwealth Engineering.

Application No. 20-0254
Public Notice End Date: May 14, 2021

Summary of Comment Letters Received During Public Notice Period:

1. Ernest Fauchon: expressed concerns about adverse effects of the proposed development on flooding on his and surrounding properties and impacts to wildlife.

2. Craig Polucha: expressed support for abutters and concerns about runoff; noted buffer requirements from wetlands; lack of sewer connection; subject property's retention of stormwater runoff and associated protection of adjacent properties from flooding; the site's recharge and discharge functions; wildlife habitat; approval may lead to future development of parcels with wetlands adjacent to his property.

3. Michelle Burgoyne: easterly abutter; concerned about vegetation removal and loss of floodwater retention leading to flooding on her property; lack of available sewers; loss of wildlife habitat (enclosed photos); abutting homes flooded in 2010; owns lot on 0 Harding and plans appear to indicate a pipe that would allow water to drain onto her property.

4. Michael and Meredith Barry: lives across the street; steep gradient conveys runoff onto 70 and 74 Canning Street; proposed drainage pipe will convey water to a lot on Harding Street; plans suggest sewer connection, whereas most houses have septic systems; concerned that a septic system would need to be pumped uphill, through properties at 17 and 15 Canning Street; many homes an Canning Street flood above basement level; loss of wildlife habitat; wetlands should be allowed to remain.

5. Jonathan Stevens, Town of Cumberland Planning Director: 93% of wetlands on the lot would be disturbed. Stormwater practice would have negligible beneficial effect on stormwater ponding and potential flooding at the site and "inordinately adverse impact on the adjacent lot receiving the stormwater flows at a higher rate. (Duplicate letters received 4/22/21 and 4/26/21)

6. Commonwealth Engineers & Consultants, Inc.: refers to drainage study prepared for the Town of Cumberland that determined "the problematic flooding area" is upgradient of the subject site and behind residences on the opposite side of Canning Street. Drainage characteristics in the area will not be adversely affected by the proposed development.

7. Michael and Sharon Clapprood: have owned the abutting lot for 15 years and have witnessed flooding on the subject lot due to lack of drainage. The project will adversely affect their property and those of surrounding homeowners because the undeveloped lot contains runoff during heavy rain events.

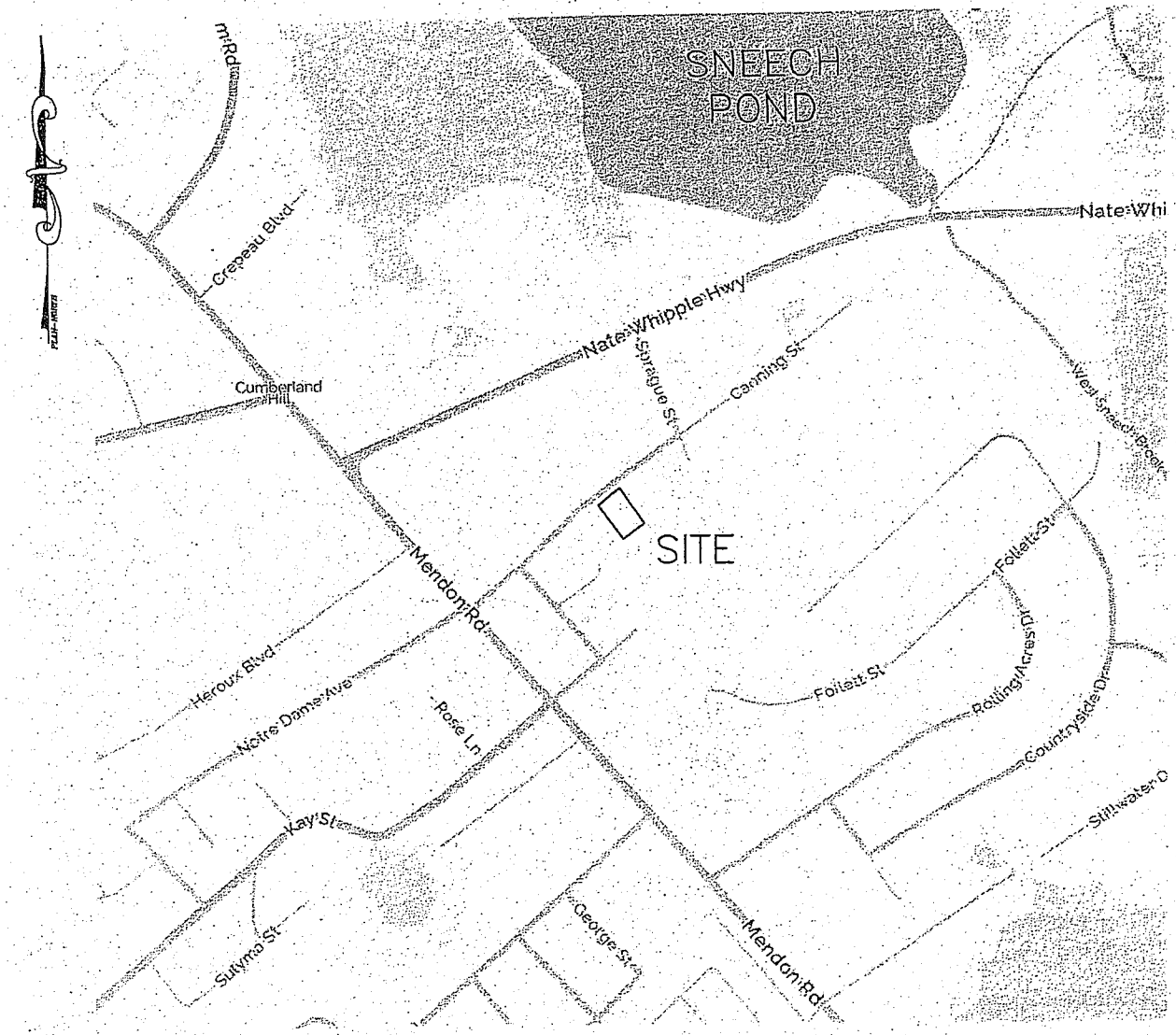
8. William Spear: The former owner of his property at [redacted] installed a French drain after the first floor was inundated during a storm. Mr. Spear's insurance company has informed him that if it floods again it will not be insurable. Neighbors' basements flood during storms, and a yard remains inundated "for weeks". Another abutter pumps water from the basement that ultimately flows into the subject site. He has observed a spotted turtle "coming from the property in question". Mr. Spear refers to a photograph of the turtle, but no photos were submitted.

9. Amy Bancroft: Project will exacerbate flooding issues on adjacent properties; increase stormwater flow down Canning Street; no sewer on Canning Street; roadway flooding; sewer extension would require a pump station.

Comments Received After Public Notice Period

1. James Queenan, Jr.: the site is vegetated, populated by wildlife and a valuable part of the ecosystem, absorbs runoff and minimizes flooding and ice on the street; development would reduce absorption of in the frequently flooded area; sewer may not be available.

2. Attila Majoros: site provides recharge/discharge; natural stream stays wet after rain; neighbors have experienced life-altering floods.



LOCUS

NOTES:

1. WETLAND EDGE DETERMINATION BY NATURAL RESOURCE SERVICES, INC. SEPTEMBER 2018. RIDEM FRESHWATER WETLANDS SECTION MODIFIED WETLAND EDGE, REFER TO APPLICATION #19-0107.
2. SITE IS SITUATED IN AN 'AREA OF MINIMAL FLOOD HAZARD, ZONE X' AS DEPICTED ON FEMA'S FLOOD INSURANCE RATE MAP, 44007C0177G, TOWN OF CUMBERLAND, 440016, EFFECTIVE DATE MARCH 2, 2009.
3. REFERENCE IS MADE TO TOWN PLAT MAPS FOR PROPERTY LINE AND ASSESSORS PLAT AND LOT

CANNING STREET
50'±
40'±
10'
10'
112'±
112'±
112'±
PROPERTY LINE (TYP)
DRAINAGE EASEMENT
A.P. 37
LOT 186
0.13 AC.
PLAN-NORTH