DiPrete Engineering

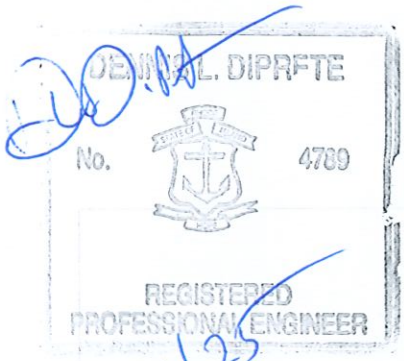
Project # 0644-045

June 22, 2025

Addendum to Flood Plain Survey

125 Hope Street, Bristol RI

Client:
125 Hope St, LLC
c/o NDL Designs
148 Thayer Drive
Portsmouth, RI 02871



8/21/25

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1.0 Scope of Work

This firm issued the results of an on-the-ground topographic and flood plain survey in a letter report dated February 3, 2025 (*Exhibit A*). The letter report recited the results of research, a survey, and opinions conducted of the conditions of the subject property and included a figure entitled Elevation Views, and a figure entitled FEMA Site Figure. The data and figures showed that the ground between the shoreline and the existing home was at approximately elevation 5.5, the house is about 38 feet horizontally from the shoreline, the property is almost entirely within a mapped FEMA VE 14 zone, and the house and foundation have walls 8-9 feet vertically exposed to the wave velocity energy with 0 freeboard. The findings of this survey along with the structural report prepared for the home were the basis for us to recommend to the applicant, architect, and the Bristol Historic District Commission that this home should not be considered for a "substantial improvement" under NFIP at the current elevations and that the existing foundation not be utilized as part of any renovation, restoration, or replication. Any substantial improvement or new construction should include a RI Building Code and FEMA compliant foundation for this location in a VE zone, and with the appropriate freeboard. A structural inspection and report on the home should also be performed to address what would be involved in making the structure code compliant. The structural report was beyond the parameters of the letter report and this firm's engagement.

Subsequent to the issuance of this letter report, additional information was sought and evaluated of the potential to renovate the existing house at the current elevation and on the existing foundation. The additional areas of inquiry included:

- Given that VE Zones pose severe storm surge and wave damage risk, would the town's NFIP cover the damage to the building and contents if there is a loss, and at what levels if the home were to be renovated on the existing foundation?
- Could excess flood insurance be purchased through a provider to cover a loss beyond what the NFIP (National Flood Insurance Program) would cover if the home were to be renovated on the existing foundation?
- Although the current FEMA maps clearly show this property in the VE Zone, could data be compiled to compel a map change or amendment by FEMA to remove the property from the VE zone?

In addressing these additional questions, the applicant or its consultants met with or spoke with Steve Greenleaf (Town Building Official), Diane Williamson (Director of Community Development), and Morgan Reilly (State Flood Plain Coordinator). The FEMA files on previous LOMA's (Letter of Map Amendments), and LOMR's (letter of Map Revisions) were also obtained, and reviewed for applicability or findings that would affect the 125 Hope Street condition in a flood event.

2.0 Addendum Findings

1) If the applicant sought a variance to the Bristol's NFIP to perform substantial improvements (renovation or replication of the existing building), and if the town granted the NFIP variance, and if the house was reconstructed, replicated, or renovated at the current location and on the existing foundation, the insurance coverage from the NFIP in the event of a loss would be up to $250,000 for the building and $100,000 for the contents. (See *Exhibit B*).
2) The owner or occupant of the reconstructed, replicated, or renovated building would likely be required to purchase additional insurance coverage by a lender or mortgage holder, or for their own risk mitigation. A policy that would provide $2,000,000 of building coverage, no contents coverage, and with a $10,000 deductible could be purchased for an annual cost of $103,747.68 for 2025. (See *Exhibit C*). It was not possible to secure a proposal for an extended forward-looking policy or to get confirmation of coverage beyond 12 months.
3) The FEMA files list 13 cases under Letters of Map Change (see *Exhibit D*). Of the 13 cases, 9 of them are LOMA's (Letter of Map Amendments) and 4 of them are LOMR's (letter of Map Revision). The home at 125 Hope Street would not be eligible for a LOMA since it is within the mapped VE zone and the topography has been confirmed. The 4 LOMR's are the most relevant FEMA decisions that could have an effect on 125 Hope Street, and all of them were reviewed.
    - The LOMR on 22 King Phillips Ave has no information on point to 125 Hope Street because of its location and the nature of that LOMR to confirm the property is within a VE zone.
    - The LOMR for 45 Shore Road also is of no relevance to the condition at 125 Hope Steet because of its location and the nature of the confirmation that the particular property is above elevation 16.
    - The file for 6 Thames Street is of interest to 125 Hope Street because of its proximity and the nature of the engineering modeling that was done for it.

2.1 6 Thames Street Modeling and LOMR

As part of the goal to review and analyze the public record for any data that would be relevant to 125 Hope Street, we requested the entire file including the computer modeling for 6 Thames Street. The characteristics of 6 Thames St and analysis available from FEMA show that:

- The property was partially in a VE Zone (elev. 14) and partially in an AE Zone (elev.12). The purpose of the modeling, analysis, and ultimately the LOMR was to modify the FEMA VE Zone boundary.
- The analysis was done by Waldo & Associates, LLC (Waldo) from Guilford CT in January 2018 *(Exhibit E).* A summary of the modeling method is that Waldo accepted the base flood elevation provided by FEMA, and then used the FEMA Coastal Hazard Analysis Modeling Program (CHAMP) to analyze the impacts from a wave along two transects that had some detailed survey provided.
- The property analyzed (6 Thames Street) is on the west side of Thames Street (on the opposite side of the shoreline along Thames Street) and approximately 380' and 520' from the water edge along the two transects modeled by Waldo.
- The result of the modeling and LOMR is that the boundary of the VE zone (elev. 14) was moved approximately 40' east (towards the shoreline). This puts the limit of the VE

zone about 380' to 520' from the shoreline and still along the west side of Thames Street.

A comparison of the analysis done for 6 Thames Street and 125 Hope Street property, and the relevance shows:

- 125 Hope Street has an existing FEMA transect about 600 feet from the property *(see Exhibit F).* The existing transect from FEMA shows a Stillwater elevation of 11.0 and a wave crest at elevation 15.2 (1%)
- The Waldo model confirms that there is VE zone above the base flood elevation in this area. The transects for 6 Thames St were created by Waldo as part of their analysis.
- The Waldo model has the wave height and strength diminishing at about 380' from the water's edge.
- The building at 125 Hope Street is about 40' from the waters edge with a ground elevation of about 5.5. A fair reading of this 6 Thames St model does not dispute the VE (14) zone at 125 Hope Street and if anything, confirms the likely existence of it as shown on the current FEMA map.

2.2 4 Franklin Street Modeling and LOMR

The Town of Bristol also had in their files a similar analysis to the 6 Thames Street for a property located at 4 Franklin Street. The characteristics of this property and analysis available from the town show that:

- The property was partially in a VE Zone and partially in an AE Zone. The purpose of the modeling, analysis, and ultimately the LOMR was to modify the FEMA VE Zone boundary.
- The analysis was done by Delta Environmental Services, Inc (Delta) from Branford CT in June 2005 *(Exhibit G).* A summary of the modeling method is that Delta used the FEMA Coastal Hazard Analysis Modeling Program (CHAMP) to analyze the impacts from a wave along two transects that they created.
- The property analyzed (4 Franklin Steet) is on the west side of Thames Street (opposite side of the street from the shoreline) and approximately 400' from the water's edge along the two transects modeled by Delta.
- The result of the modeling and LOMR is that the boundary of the VE (elev. 14) was moved to a maximum of 120' east (towards the shoreline). This sets the limit of the VE zone approximately 280' from the shoreline. This is an approximate interpretation of the Delta findings but suitable for comparison to 125 Hope Street and understanding its relevance.

A comparison of the analysis done for 4 Franklin St and the 125 Hope Street property, and the relevance shows:

- 125 Hope Street has an existing FEMA transect about 600 feet from the property *(see Exhibit F).* The new transects for 4 Franklin St were created by Delta as part of their analysis.
- The Delta model confirms that there is VE zone above the base flood elevation in this area.

- The Delta model has the wave height and strength diminishing at about 280' from the water's edge.
- The building at 125 Hope Street is about 40' from the water's edge with a ground elevation of about 5.5. A fair reading of this 4 Franklin St model does not dispute the VE (14) zone at 125 Hope Street and if anything, confirms the likely existence of it as shown on the current FEMA map.

3.0 Summary of this Addendum

- Additional research was conducted of the FEMA files for data on sites that may have relevance to support a map change of the VE zone at 125 Hope Street.
- The data and conclusions in the FEMA files and in the file of 4 Franklin Street do not dispute the existence of the VE zone at 125 Hope Street, and in general support the way it is currently mapped at the property.
- The current house on the existing foundation would be covered for losses under the town's NFIP for up to $250,000. Additional coverage could be bought for $2,000,000 of coverage at a current annual cost of $103,747.68 with only a 1 year commitment. This may be at the level that would be considered uninsurable.
- The rehabilitation of 125 Hope Street to be habitable would be considered a *Substantial Improvement*. A *Substantial Improvement* at the current elevation and on the existing foundation would require variances from the RI Building Code and from FEMA regulations. Given the 8-9 ft depth into the VE Zone (ground at elevation 5.5 and VE Zone of 14) with walls entirely exposed to the horizontal wave energy, and the proximity to the shoreline (38'), and the noncompliant nature of the existing foundation, the recommendation from this firm is to bring the foundation and structure into compliance with the FEMA and RI Building codes. This will require an appropriately designed pier foundation with adequate freeboard and the lowest horizontal member above elevation 15.0. Variances to allow the home to stay on the existing foundation at the existing elevation should be recognized as compromising to the long-term viability of the home and variances that this firm recommends not be sought or granted for approval.

Appendices

Exhibit A – February 3, 2025 Existing Building Elevation Summary 125 Hope Street by DiPrete Engineering

DiPrete Engineering

February 3, 2025

125 Hope St, LLC
c/o NDL Designs
148 Thayer Drive
Portsmouth RI, 02871

RE: 125 Hope Street – Existing Building Elevation Summary
Bristol, Rhode Island
Project #: 0644-045

Dear Ms. Laurienzo:

In August of 2024, DiPrete Engineering performed a boundary and topographic survey of the above referenced subject property. The site is located within a Special Flood Hazard Area (VE wave velocity zone, Base Flood Elevation = 14.0). This was determined by consulting FEMA Flood Map panel no. 44001C0014H, bearing an effective date of July 7, 2014. The existing elevations on the lot are all below this Base Flood Elevation. On January 20, 2025, additional floor elevation detail survey work was performed. This survey focused on obtaining the lowest floor elevation (basement slab) and other existing structural elements.

The enclosed figures summarize these elevations. The site plan figure lists the obtained existing lowest floor, bottom of existing joists, top of foundation and existing first floor elevations of the existing main structures. These elevations are summarized below. The second figure has pictures of the existing front and rear of these buildings with lines superimposed on them representing the existing Base Flood Elevation and proposed future finish floor elevations to show the impact on the existing buildings.

	Central Main Building	Eastern Building
Basement Slab Elevation	6.3	5.9
Top of Foundation Elevation	13.4	13.3
Bottom of Joist Elevation	13.5	13.5
First Floor Elevation	14.5	14.4

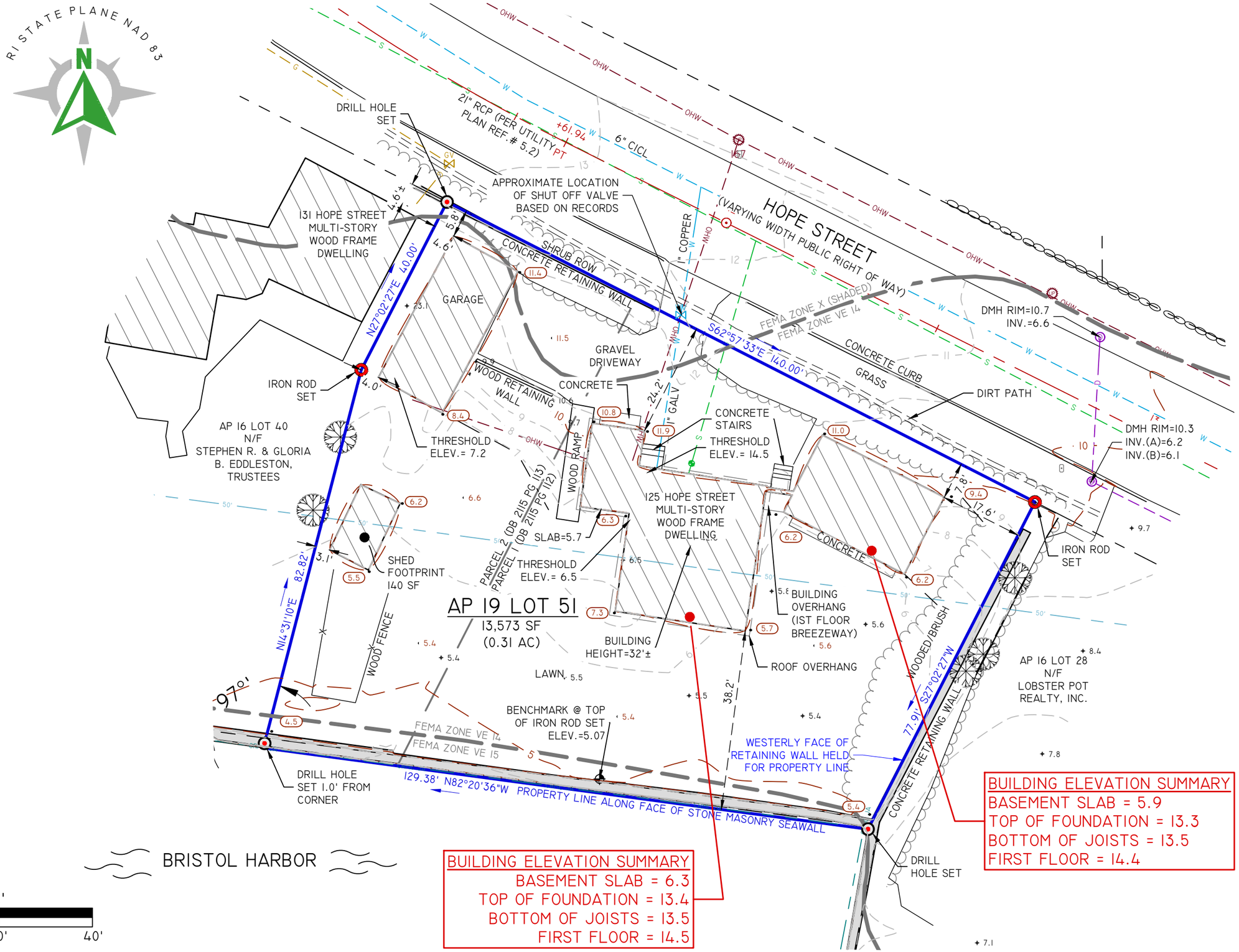
This shows that the lowest horizontal structural member (joists at elevation 13.5) is approximately 18 inches below the building code requirement to be at least a foot above the base flood elevation (14.0 + 1.0 = 15.0). Also, the existing mechanical systems that are in this lower area, while slightly elevated off the basement floor (mechanicals at approximately elevation 7.0), are still well below the base flood elevation by at least 7 feet.

If you have any further questions on this matter, please feel free to contact me at your earliest convenience.

Sincerely,
DiPrete Engineering Associates, Inc.

Michael Gavitt, PLS, LLS
Senior Survey Project Manager
mgavitt@diprete-eng.com

Enclosure: Figures summarizing elevations



DiPrete Engineering
Two Stafford Court Cranston, RI 02920
tel 401-943-1000 fax 401-464-6006 www.diprete-eng.com
Boston • Providence • Newport

FEMA Site Figure

125 Hope Street

BRISTOL, RHODE ISLAND

PREPARED FOR
THOMAS DIPRETE
2 STAFFORD COURT, CRANSTON, RHODE ISLAND 02920

DATE: 1/22/2025

SHEET — OF 2

z:\demain\projects\0644-045 hope street 125\autocad drawings\0644-045-exco.dwg Plotted: 1/22/2025

FUTURE FINISH FLOOR CALCULATION

BFE + 1.0' TO LOWEST HORIZONTAL MEMBER + 15" (1.25') FUTURE JOISTS AND SUBFLOOR

= 14.0 + 1.0' + 1.25' = 16.25

DiPrete Engineering
Two Stafford Court Cranston, RI 02920
tel 401-943-1000 fax 401-464-6006 www.diprete-eng.com
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ELEVATION VIEWS

125 HOPE STREET

BRISTOL, RHODE ISLAND

PREPARED FOR
THOMAS DIPRETE
2 STAFFORD COURT, CRANSTON, RHODE ISLAND 02920

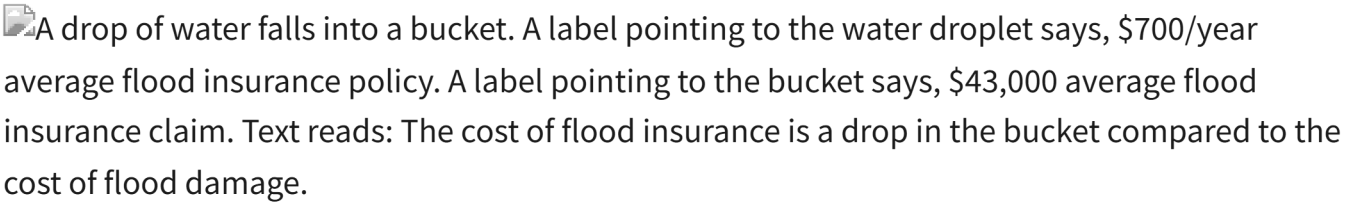
DATE: 1/22/2025

SHEET — OF 2

Exhibit B – FEMA – Facts and Myths about Flood Insurance

Facts and Myths about Flood Insurance

English



The recent severe flooding in Idaho has increased interest in purchasing flood insurance to protect homes and personal property. Since the beginning of the year, the number of flood insurance policies throughout the state has increased by 13.3 percent to a total of 6,804.

However, misperceptions and myths about flood insurance still exist. Here are the facts to correct some of the myths about the National Flood Insurance Program (NFIP), which is administered by the Federal Emergency Management Agency (FEMA).

MYTH: I receive flood insurance through my homeowner's insurance.

FACT: Homeowner insurance policies do not normally cover flood damage. That is why the federal government backs the NFIP. You can purchase flood insurance through an insurance agent or company.

MYTH: My homeowner's insurance agent knows whether I need flood insurance.

Not necessarily. Not all insurance agents are familiar with communities that participate in NFIP or floodplain hazards. Better to check with an agent who is knowledgeable about NFIP and can

explain the benefits so your home and property will be covered should a flood occur. If your insurance agent tells you that you don't need flood insurance, it's best to check with the NFIP. For more information, go to floodsmart.gov or contact the NFIP call center at **877-336-2627**.

MYTH: Only those who live in a Special Flood Hazard Area (SFHA) can buy flood insurance.

FACT: Anyone can buy flood insurance if you live in a participating community, which must enforce floodplain ordinances and building requirements that meet or exceed FEMA guidelines. If your community does not participate in the NFIP, you can make a request for it to do so through your mayor, city council or county commissioner's office.

MYTH: It doesn't make sense to pay for flood insurance if you are in a low-risk flood zone.

FACT: People outside of high-risk flood zones file more than 20 percent of all NFIP claims and receive one-third of federal disaster assistance for flooding. Flooding can occur anywhere. In fact, it is the number one natural disaster in the United States. The NFIP's Preferred Risk Policy is very affordable. A premium for a primary residence may cost about $467 a year for $200,000 of coverage for a home structure and $80,000 for contents. That is less than $40 a month.

MYTH: I don't need flood insurance if I can get disaster assistance from FEMA.

FACT: A flooding incident must be declared a federal disaster by the president before FEMA assistance becomes available. Federal disaster declarations are issued in less than 50 percent of flooding events. If a declaration is made, federal disaster assistance typically is in the form of a low-interest disaster loan, which must be repaid. Any grants that may be provided are not enough to cover all losses. NFIP pays for covered damage whether a federal disaster declaration has been made or not, and may cover more of your losses.

MYTH: Even if my property did flood, it wouldn't be by much.

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Get real-time weather and emergency alerts, disaster news, and more with the FEMA app.

and businesses, are eligible to purchase flood insurance.

A maximum of $250,000 of building coverage is available for single-family residential buildings; $250,000 per unit for residential condominiums. The limit for contents coverage on all residential buildings is 100,000, which is also available to renters. Commercial structures can be insured to a limit of $500,000 for the building and $500,000 for the contents.

For more information on NFIP, go to floodsmart.gov . For a referral to an NFIP agent in Idaho, contact the NFIP call center at **877-336-2627**.

Release Date: January 5, 2024

Last updated January 21, 2025

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Disasters & Assistance

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Floods & Maps

Emergency Management

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Get real-time weather and emergency alerts, disaster news, and more with the FEMA app.

Exhibit C – Neptune Flood Insurance private insurance proposal

NEPTUNE FLOOD INSURANCE

Residential

Terry Biafore,

Welcome to Neptune Residential Flood, the simplest way to buy flood insurance. We are excited to protect your home from one of nature's most damaging disasters. The below details are based off the selections made during the quoting process for your property.

Quote:	RI5090AVQ32MYR (QQ)	Quote Date:	3/31/2025
Policyholder:	Terry Biafore	Effective Date:	4/10/2025
Address:	125 HOPE ST BRISTOL, RI 02809	Property Type:	Primaryhome
		Foundation:	Basement
Home Type:	Singlefamily	Construction:	Wood
On Floor:	N/A	# Stories:	1
Year Built:	1930	# Steps:	0
Flood Zone:	VE	Has EC:	No
Prior Losses:	None	EC Height:	N/A

Coverage	Description	Amount	Premium
Coverage A	Building Property	$2,000,000	$104,053.00
Coverage B	Personal Property	$0	$0.00
Coverage E	Pers. Property Replacement Cost	No	$0.00
Coverage F	Basement Contents	$0	$0.00
Coverage G	Pool Repair & Refill	$0	$0.00
Coverage H	Unattached Structures	$0	$0.00
Coverage I	Temporary Living Expenses	$10,000	$495.00
Deductible	Selected Deductible	$10,000	($4,906.00)

Lienholder Information:

Subtotal	$99,642.00
Policy Fee	$120.00
Taxes	$3,985.68
Total Annual Cost	**$103,747.68**

To purchase this policy, please contact:
Gallo Thomas
(401)732-9100
msantos@gallothomas.com

This non-binding quotation is not an offer of or a contract for insurance. This quotation is based on the information supplied, and it may be withdrawn by Neptune Flood for any reason prior to the submission of a completed, signed application for insurance that meets the underwriting criteria of the insurer. Quote and pricing shown are valid for 60 days beginning the date the quote is created. After 60 days, a new quote with potentially different pricing will be required.

NEPTUNE FLOOD INSURANCE

Residential

THIS POLICY MEETS THE DEFINITION OF PRIVATE FLOOD INSURANCE CONTAINED IN 42 U.S.C. 4012a(b)(7) AND THE CORRESPONDING REGULATION

SEC. 100239. USE OF PRIVATE FLOOD INSURANCE TO SATISFY MANDATORY PURCHASE REQUIREMENT

"(7) PRIVATE FLOOD INSURANCE DEFINED. - In this sub-section, the term 'private flood insurance' means an insurance policy that –

"(A) is issued by an insurance company that is -

"(i) licensed, admitted, or otherwise approved to engage in the business of insurance in the State or jurisdiction in which the insured building is located, by the insurance regulator of that State or jurisdiction; or

"(ii) in the case of a policy of difference in conditions, multiple peril, all risk , or other blanket coverage insuring nonresidential commercial property, is recognized, or not disapproved, as a surplus lines insurer by the insurance regulator of the State or jurisdiction where the property to be insured is located;

"(B) provides flood insurance coverage which is at least as broad as the coverage provided under standard flood insurance policy under the national flood insurance program, including when considering deductibles, exclusions, and conditions offered by the insurer;

"(C) includes -

"(i) a requirement for the insurer to give 45 days written notice of cancellation or non-renewal of flood insurance coverage to - "(I) the insured; and

"(ii) the regulated lending institution or Federal agency lender;

"(ii) information about the availability of flood insurance coverage under the national flood insurance program;

"(iii) a mortgage interest clause similar to the clause contained in a standard flood insurance policy under the national flood insurance program; and;

"(iv) a provision requiring an insured to file suit not later than 1 year after date of a written denial of all or part of a claim under the policy; and

"(D) contains cancellation provisions that are as restrictive as the provisions contained in a standard flood insurance policy under the national flood insurance program.

Exhibit D – FEMA List of 13 Cases for Map Changes

Exhibit D

Review of the 13 Cases listed under Letters of Map Change

LOMA		
Case #	Address	Summary
14-01-3245A-445393	22 Bliven Avenue	Removed Structure from AE
16-01-2686A-445393	19 Cole Street	Removed Structure from AE
17-01-0505A-445393	14 Anawan Avenue	Non Removal of structure from AE
17-01-1793A-445393	14 Anawan Avenue	Non Removal of lot from AE
17-01-2224A-445393	29 Surf Drive	Removed Structure from AE
18-01-0997A-445393	116 (Rear) Wood Street	Removed Structure from AE
20-01-1336A-445393	17 Prospect Street	Removed Structure from AE
21-01-0061A-445393	3 Harrison Street	Non Removal of structure from AE
21-01-1303A-445393	37 Garfield Avenue	Non Removal of structure from AE
LOMR		
14-01-3304A-445393	22 King Phillip Avenue	Confirms in VE and Special Flood Hazard Area and Coastal High Hazard Area (listed as LOMA but filed under LOMR)
16-01-1532A-445393	45 Shore Road	Changed portion of property located above BFE 16 from V to X shaded
18-01-0901P-445393	6 Thames Street	Changed VE to AE with no apparent change in BFE
19-01-0504P-445393	n/a	Removed Coastal Barrier Resource Systems from several communities

Exhibit E – FEMA Map Change – 6 Thames Street

Federal Emergency Management Agency

Washington, D.C. 20472

LETTER OF MAP REVISION DETERMINATION DOCUMENT

COMMUNITY AND REVISION INFORMATION		PROJECT DESCRIPTION	BASIS OF REQUEST
COMMUNITY	Town of Bristol Bristol County Rhode Island	NO PROJECT	COASTAL ANALYSIS UPDATED TOPOGRAPHIC DATA
	COMMUNITY NO.: 445393		
IDENTIFIER	Map:10 Lot:6 Thames Street	APPROXIMATE LATITUDE AND LONGITUDE: 41.670, -71.278 SOURCE: Precision Mapping Streets DATUM: NAD 83	

ANNOTATED MAPPING ENCLOSURE	ANNOTATED STUDY ENCLOSURES
TYPE: FIRM* NO.: 44001C0014H DATE: July 7, 2014	NO REVISION TO THE FLOOD INSURANCE STUDY REPORT

Enclosures reflect changes to flooding sources affected by this revision.
* FIRM - Flood Insurance Rate Map

FLOODING SOURCE AND REVISED REACH

Atlantic Ocean via Bristol Harbor - an area centered at approximately 170 feet southeast of the intersection of Thames Street and State Street

SUMMARY OF REVISIONS

Flooding Source	Effective Flooding	Revised Flooding	Increases	Decreases
Atlantic Ocean via Bristol Harbor	Zone VE	Zone AE	NONE**	NONE**
	BFEs*	BFEs	NONE	YES

* BFEs - Base Flood Elevations; ** Special Flood Hazard Area (SFHA) zone designations modified without a boundary change

DETERMINATION

This document provides the determination from the Department of Homeland Security's Federal Emergency Management Agency (FEMA) regarding a request for a Letter of Map Revision (LOMR) for the area described above. Using the information submitted, we have determined that a revision to the flood hazards depicted in National Flood Insurance Program (NFIP) map is warranted. This document revises the effective NFIP map, as indicated in the attached documentation. Please use the enclosed annotated map panel revised by this LOMR for floodplain management purposes and for all flood insurance policies and renewals in your community.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Information eXchange toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMC Clearinghouse, 3601 Eisenhower Avenue, Suite 500, Alexandria, VA 22304-6426. Additional Information about the NFIP is available on our website at https://www.fema.gov/national-flood-insurance-program.

Patrick "Rick" F. Sacbibit, P.E., Branch Chief
Engineering Services Branch
Federal Insurance and Mitigation Administration

Federal Emergency Management Agency
Washington, D.C. 20472

LETTER OF MAP REVISION
DETERMINATION DOCUMENT (CONTINUED)

COMMUNITY INFORMATION

APPLICABLE NFIP REGULATIONS/COMMUNITY OBLIGATION

We have made this determination pursuant to Section 206 of the Flood Disaster Protection Act of 1973 (P.L. 93-234) and in accordance with the National Flood Insurance Act of 1968, as amended (Title XIII of the Housing and Urban Development Act of 1968, P.L. 90-448), 42 U.S.C. 4001-4128, and 44 CFR Part 65. Pursuant to Section 1361 of the National Flood Insurance Act of 1968, as amended, communities participating in the NFIP are required to adopt and enforce floodplain management regulations that meet or exceed NFIP criteria. These criteria, including adoption of the FIS report and FIRM, and the modifications made by this LOMR, are the minimum requirements for continued NFIP participation and do not supersede more stringent State/Commonwealth or local requirements to which the regulations apply.

COMMUNITY REMINDERS

We based this determination on the 1-percent-annual-chance stillwater elevations computed in the FIS for your community. A comprehensive restudy of your community's flood hazards could establish greater flood hazards in this area.

Your community must regulate all proposed floodplain development and ensure that permits required by Federal and/or State/Commonwealth law have been obtained. State/Commonwealth or community officials, based on knowledge of local conditions and in the interest of safety, may set higher standards for construction or may limit development in floodplain areas. If your State/Commonwealth or community has adopted more restrictive or comprehensive floodplain management criteria, those criteria take precedence over the minimum NFIP requirements.

We will not print and distribute this LOMR to primary users, such as local insurance agents or mortgage lenders; instead, the community will serve as a repository for the new data. We encourage you to disseminate the information in this LOMR by preparing a news release for publication in your community's newspaper that describes the revision and explains how your community will provide the data and help interpret the NFIP maps. In that way, interested persons, such as property owners, insurance agents, and mortgage lenders, can benefit from the information.

We have designated a Consultation Coordination Officer (CCO) to assist your community. The CCO will be the primary liaison between your community and FEMA. For information regarding your CCO, please contact:

Mr. Dean Savramis
Director, Mitigation Division
Federal Emergency Management Agency, Region I
99 High Street, Sixth Floor
Boston, MA 02110
(617) 956-7564

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Information eXchange toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMC Clearinghouse, 3601 Eisenhower Avenue, Suite 500, Alexandria, VA 22304-6426. Additional Information about the NFIP is available on our website at https://www.fema.gov/national-flood-insurance-program.

Patrick "Rick" F. Sacbibit, P.E., Branch Chief
Engineering Services Branch
Federal Insurance and Mitigation Administration

Federal Emergency Management Agency
Washington, D.C. 20472

LETTER OF MAP REVISION
DETERMINATION DOCUMENT (CONTINUED)

STATUS OF THE COMMUNITY NFIP MAPS

We will not physically revise and republish the FIRM for your community to reflect the modifications made by this LOMR at this time. When changes to the previously cited FIRM panel warrant physical revision and republication in the future, we will incorporate the modifications made by this LOMR at that time.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Information eXchange toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMC Clearinghouse, 3601 Eisenhower Avenue, Suite 500, Alexandria, VA 22304-6426. Additional Information about the NFIP is available on our website at https://www.fema.gov/national-flood-insurance-program.

Patrick "Rick" F. Sacbibit, P.E., Branch Chief
Engineering Services Branch
Federal Insurance and Mitigation Administration

Federal Emergency Management Agency

Washington, D.C. 20472

LETTER OF MAP REVISION
DETERMINATION DOCUMENT (CONTINUED)

PUBLIC NOTIFICATION OF REVISION

A notice of changes will be published in the *Federal Register*. This information also will be published in your local newspaper on or about the dates listed below, and through FEMA's Flood Hazard Mapping website at https://www.floodmaps.fema.gov/fhm/bfe_status/bfe_main.asp

LOCAL NEWSPAPER

Name: *Bristol Phoenix*

Dates: July 12, 2018 and July 19, 2018

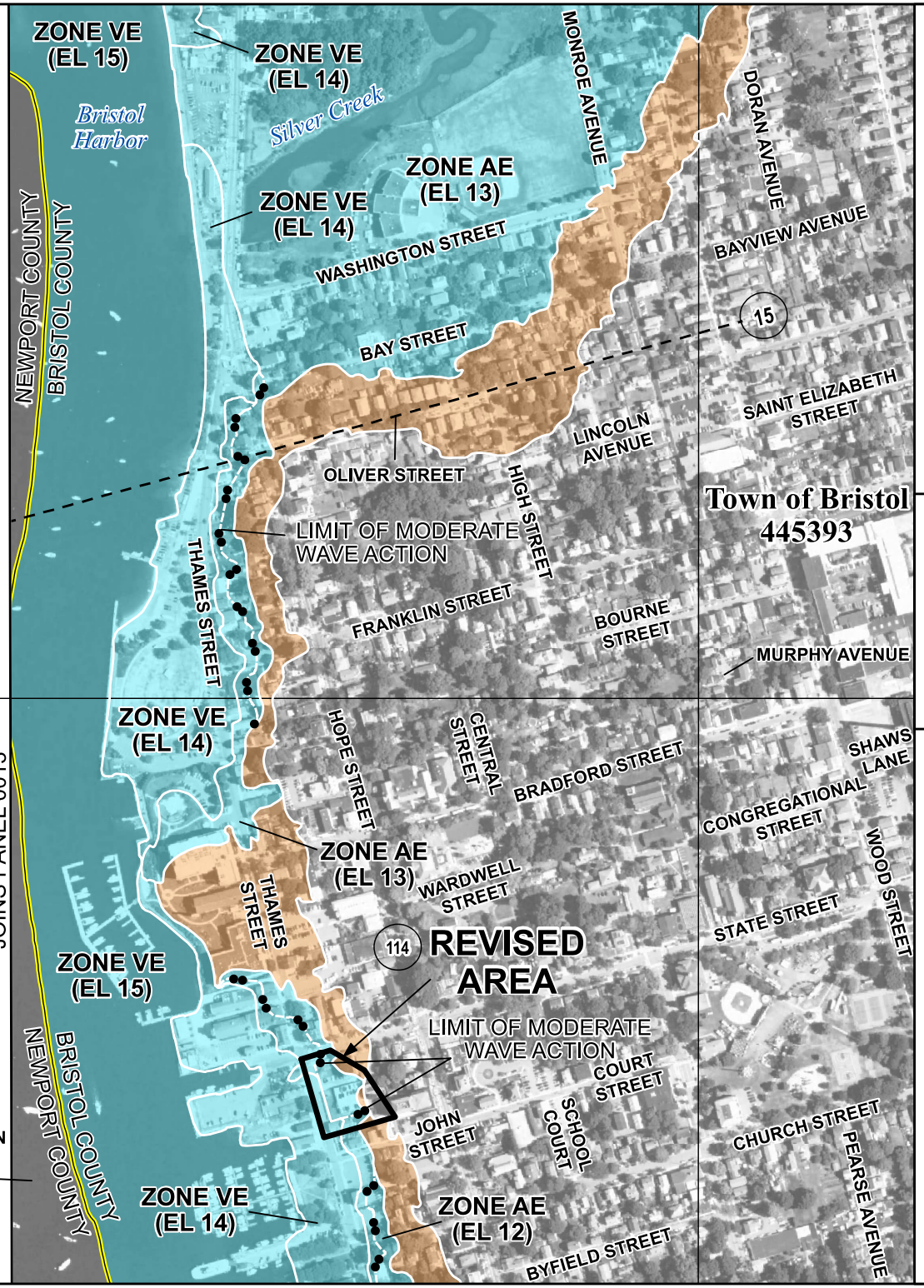
Within 90 days of the second publication in the local newspaper, any interested party may request that we reconsider this determination. Any request for reconsideration must be based on scientific or technical data. Therefore, this letter will be effective only after the 90-day appeal period has elapsed and we have resolved any appeals that we receive during this appeal period. Until this LOMR is effective, the revised flood hazard determination presented in this LOMR may be changed.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Information eXchange toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMC Clearinghouse, 3601 Eisenhower Avenue, Suite 500, Alexandria, VA 22304-6426. Additional Information about the NFIP is available on our website at https://www.fema.gov/national-flood-insurance-program.

Patrick "Rick" F. Sacbibit, P.E., Branch Chief
Engineering Services Branch
Federal Insurance and Mitigation Administration

18-01-0901P

102-D-A



FLOOD HAZARD INFORMATION IS NOT SHOWN ON THIS MAP IN AREAS OUTSIDE OF BRISTOL COUNTY

OTHER FEATURES
- Limit of Moderate Wave Action coincident with Zone Break
- Limit of Moderate Wave Action

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee See Notes. *Zone X*

SCALE

NOTE: BASEMAP IMAGERY WAS OBTAINED FROM NAIP IN 2016.

Map Projection:
NAD 1983 StatePlane Rhode Island FIPS 3800 Feet;
Western Hemisphere; Vertical Datum: NAVD 88

1 inch = 500 feet 1:6,000

0 250 500 1,000 Feet

0 75 150 300 Meters

FEMA National Flood Insurance Program

NATIONAL FLOOD INSURANCE PROGRAM
FLOOD INSURANCE RATE MAP

BRISTOL COUNTY, RHODE ISLAND
(All Jurisdictions)

PANEL 14 OF 18

Panel Contains:

COMMUNITY	NUMBER	PANEL	SUFFIX
BRISTOL, TOWN OF	445393	0014	H

REVISED TO REFLECT LOMR EFFECTIVE: November 16, 2018

VERSION NUMBER
2.1.3.0

MAP NUMBER
44001C0014H

MAP REVISED
JULY 7, 2014

Exhibit F – FEMA Transect in Vicinity of 125 Hope Street

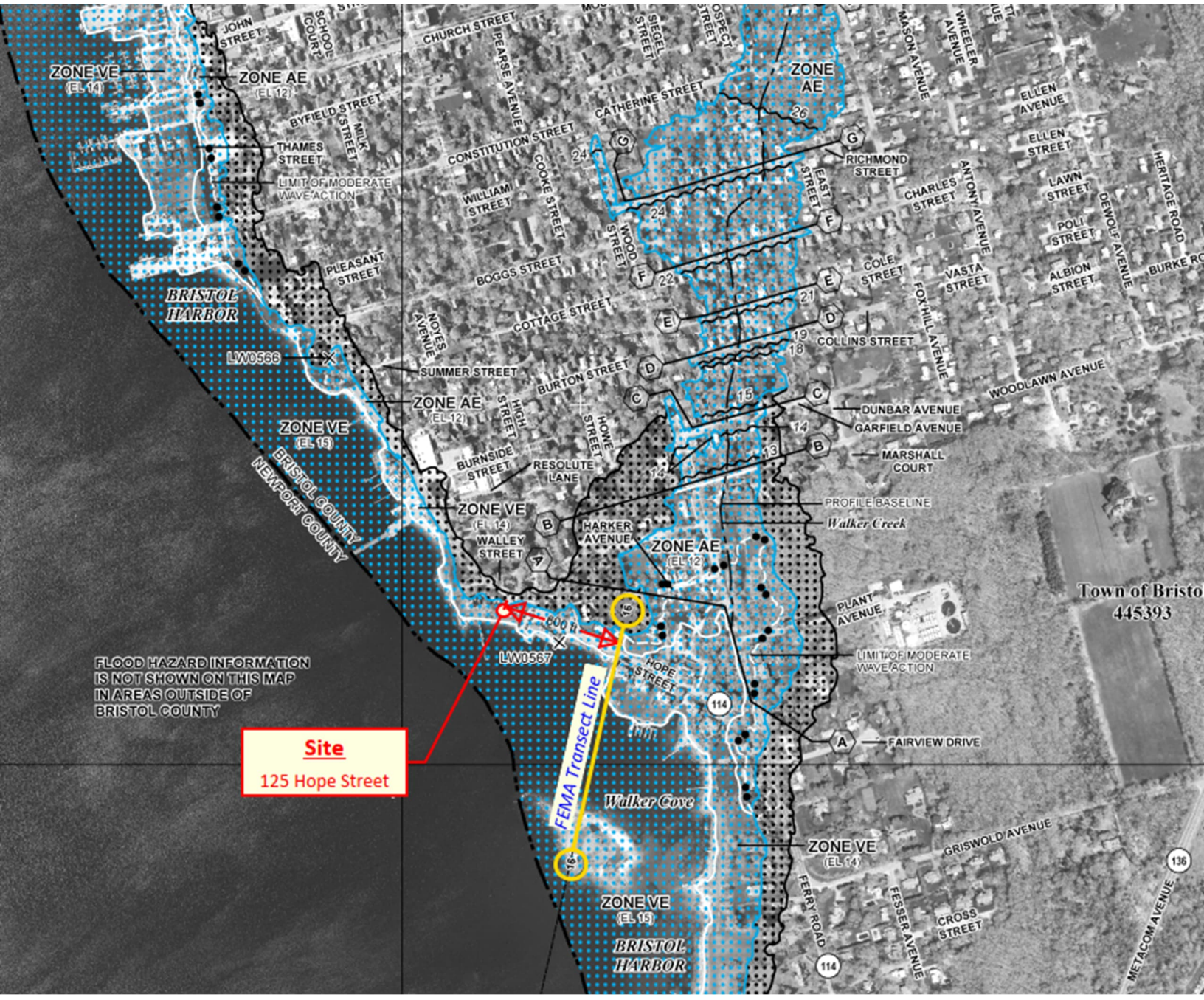

ZONE VE
(EL 14)
ZONE AE
(EL 12)
JOHN STREET
SCHOOL COURT
CHURCH STREET
PEARSE AVENUE
SIEGEL STREET
ASPECT STREET
MASON AVENUE
WHEELER AVENUE
ELLEN AVENUE
ELLEN STREET
BYFIELD STREET
MILK STREET
THAMES STREET
LIMIT OF MODERATE WAVE ACTION
CONSTITUTION STREET
COOKE STREET
CATHERINE STREET
RICHMOND STREET
EAST STREET
CHARLES STREET
ANTONY AVENUE
LAWN STREET
HERITAGE ROAD
POLI STREET
DEWOLF AVENUE
ALBION STREET
BURKE RO
WILLIAM STREET
WOOD STREET
BOGGS STREET
PLEASANT STREET
COLE STREET
VASTA STREET
FOX HILL AVENUE
BRISTOL HARBOR
NOYES AVENUE
COTTAGE STREET
COLLINS STREET
LW0566
SUMMER STREET
BURTON STREET
WOODLAWN AVENUE
ZONE AE
(EL 12)
HIGH STREET
HOWE STREET
DUNBAR AVENUE
GARFIELD AVENUE
ZONE VE
(EL 15)
BRISTOL COUNTY
NEWPORT COUNTY
BURNSIDE STREET
RESOLUTE LANE
MARSHALL COURT
ZONE VE
(EL 14)
WALLEY STREET
HARKER AVENUE
PROFILE BASELINE
Walker Creek
ZONE AE
(EL 12)
Town of Bristo
445393
PLANT AVENUE
800 ft
LW0567
LIMIT OF MODERATE WAVE ACTION
HOPE STREET
FLOOD HAZARD INFORMATION
IS NOT SHOWN ON THIS MAP
IN AREAS OUTSIDE OF
BRISTOL COUNTY
Site
125 Hope Street
FEMA Transect Line
FAIRVIEW DRIVE
Walker Cove
ZONE VE
(EL 14)
GRISWOLD AVENUE
FERRY ROAD
FESSER AVENUE
CROSS STREET
METACOM AVENUE
ZONE VE
(EL 15)
BRISTOL HARBOR

Exhibit G – Delta Study – 4 Franklin Street

REQUEST FOR

REVISION

OF

FLOOD INSURANCE RATE MAP

4 Franklin Street
Bristol, Rhode Island

PREPARED FOR:

Mr. Stephan Brigidi
4 Franklin Street
Bristol, Rhode Island

DELTA NUMBER: D04-135-10

REPORT DATE: June 20, 2005

DELTA ENVIRONMENTAL SERVICES, INC.
81 Schoolground Road
P.O. Box 564, Branford, CT
(203) 481-7668

TABLE OF CONTENTS

APPENDICES

FIGURES

I. INTRODUCTION

Mr. Stephen Brigidi is the owner of a commercial building located at 4 Franklin Street in the Town of Bristol, Bristol County, Rhode Island (FIS Community No. 445393 0014 F). DELTA Environmental Services, Inc. has been retained to review the currently effective Flood Insurance Rate Map and to request an appropriate revision to the special flood hazard area delineations on the property.

II. STUDY AREA DESCRIPTION

The 18,050 square foot property is located to the east of Independence Park, a municipal park developed at a former rail head, and near the northern end of the commercial and residential area associated with the center of the Town of Bristol. The building fronts on the east side of Thames Street, and the south side of Franklin Street. The surrounding area is a mix of commercial, municipal, and residential property.

A property Location Map is included with the figures at the end of this report. The improvement that currently exists at the site consists of a wood frame commercial building.

The Bristol Harbor waterfront is located approximately 400 feet west of the property. Bristol Harbor is protected from wave attack by Jamestown and Newport at the mouth of Narragansett Bay and by Prudence Island directly south of the harbor entrance. Bristol is situated well north of the entrance of Narragansett Bay with several landmasses to protect it from wave attack. Long fetch, deep water, storm waves generated across the Atlantic Ocean are interrupted by the landmasses located in the Bay before they can impact the Bristol Harbor shoreline.

In addition, the developed shoreline of Bristol Harbor located south of the property at 4 Franklin Stree protects it from long fetch waves approaching from the south and southwest. Only waves from the west can potentially impact the shoreline adjacent to the property.

III. FLOOD HAZARD ANALYSIS

The currently effective Flood Insurance Study for Bristol, Bristol County, Rhode Island (Community No. 445393) was completed in 1996.

On September 5, 2003 a Letter of Map Revision (LOMR), case number 03-01-045P, was issued for a large property on the west side of Thames Street in Bristol (Stone Harbor Condominiums). That LOMR revised a section of the Flood Insurance Rate Map (FIRM) immediately to the south of the subject property. The revision matched the previous FIRM flood boundaries in the vicinity of 4 Franklin Street.

The velocity zone crosses Thames Street in the vicinity of the intersection of Thames Street and Franklin Street. Since the property at 4 Franklin Street was not included in the study area covered by the September 2003 LOMR, DELTA was requested to continue the analysis of the coastal hazards along Bristol Harbor to the north to include a detailed analysis of the applicants property.

Copies of LOMR 03-01-045P and the revised FIRM are included in the appendix to this report.

The 100-year still water flood surge elevation in this section of Narragansett Bay was established utilizing a tidal flood profile of Narragansett Bay developed by the U.S. Army Corps of Engineers and published in 1988. The 100-year still water elevation in the eastern portion of Bristol is 13.6 feet NGVD.

DELTA developed two existing conditions coastal transects to reflect the conditions that currently exist at 4 Franklin Street. Detailed topographic and bathymetric data for the site was used to construct the transects.

Wave attack from the west direction was chosen for the transects. This direction was selected as being the direction with the greatest uninterrupted open water fetch that could potentially impact the reach of shoreline being studied. The fetch distance is approximately .5 miles.

FEMA's Coastal Hazard Analysis Modeling Program (CHAMP) was utilized to analyze the transects. The transects are shown on the topographic maps that are included in the technical appendix.

The wave height analysis for Flood Insurance Studies (WHFIS) was run first. The fetch-limited option was used to establish a controlling wave height and spectral peak wave period. The model produced results that indicate that the limit of the velocity zone is substantially water ward of the location depicted on the currently effective Flood Insurance Rate Map.

Using the results of the WHFIS models, DELTA used FEMA's wave run-up analysis to evaluate the potential for wave run-up elevations creating more hazardous coastal flood hazards at the site. Wave height data generated in the WHFIS analysis was utilized as input into the run-up model.

The results indicated that wave run-up would be less than one foot above the still water 100-year flood elevation. When combined with the WHFIS analysis the results indicate that the limit of the V-zone will be along the shoreline, a significant distance from 4 Franklin Street. The area landward of the V-zone limit up to the building is within Zone A15 and Zone A16 with a 100-year flood elevations of 15 and 16 feet NGVD.

DELTA prepared maps indicating the proposed revised flood hazard area and included them as an appendix to this report.

IV. CONCLUSION

Based on the CHAMP wave height and wave run-up analyses the limits of the Velocity Zone should be relocated a significant distance waterward from the locations indicated on the currently effective FIRM.

As a result of our analysis it is DELTA's conclusion that the flood hazard zone delineation indicated on the currently effective Flood Insurance Rate Map for the subject property should be revised and that our request for a Letter of Map Revision is technically supported.

We have redrawn the limits of the flood hazard boundaries based on our analysis. We have indicated the existing and proposed flood zone delineations on both a copy of the detailed topographic map of the property and on the currently effective Flood Insurance Rate Map. In addition we have completed the appropriate sections of FEMA form MT-2 and included them in this report along with our wave height computations.

05061001/125

APPENDIX A

Application/Certification Forms
(FEMA MT-2)

FEDERAL EMERGENCY MANAGEMENT AGENCY

OVERVIEW & CONCURRENCE FORM

O.M.B No. 3067-0148
Expires September 30, 2005

PAPERWORK BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 1 hour per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing, reviewing, and submitting the form. You are not required to respond to this collection of information unless a valid OMB control number appears in the upper right corner of this form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, Federal Emergency Management Agency, 500 C Street, SW, Washington DC 20472, Paperwork Reduction Project (3067-0148). Submission of the form is required to obtain or retain benefits under the National Flood Insurance Program. **Please do not send your completed survey to the above address.**

A. REQUESTED RESPONSE FROM FEMA

This request is for a (check one):

☐ CLOMR: A letter from FEMA commenting on whether a proposed project, if built as proposed, would justify a map revision, or proposed hydrology changes (See 44 CFR Ch. 1, Parts 60, 65 & 72).

☒ LOMR: A letter from FEMA officially revising the current NFIP map to show the changes to floodplains, regulatory floodway or flood elevations. (See Parts 60 & 65 of the NFIP Regulations.)

B. OVERVIEW

1. The NFIP map panel(s) affected for all impacted communities is (are):

Community No.	Community Name	State	Map No.	Panel No.	Effective Date
Ex: 480301 480287	City of Katy Harris County	TX TX	480301 48201C	0005D 0220G	02/08/83 09/28/90
445393	Town of Bristol Bristol County	RI	44001C	0014F	3/5/1996

2. Flooding Source: Atlantic Ocean-Bristol Harbor

3. Project Name/Identifier: 4 Franklin Street

4. FEMA zone designations affected: VE-AE (choices: A, AH, AO, A1-A30, A99, AE, AR, V, V1-V30, VE, B, C, D, X)

5. Basis for Request and Type of Revision:

a. The basis for this revision request is (check all that apply)

☐ Physical Change ☒ Improved Methodology/Data

☐ Regulatory Floodway Revision ☐ Other (Attach Description)

Note: A photograph and narrative description of the area of concern is not required, but is very helpful during review.

b. The area of revision encompasses the following types of flooding and structures (check all that apply)

Types of Flooding:	☐ Riverine	☒ Coastal	☐ Shallow Flooding (e.g., Zones AO and AH)
	☐ Alluvial fan	☐ Lakes	☐ Other (Attach Description)
Structures:	☐ Channelization	☐ Levee/Floodwall	☐ Bridge/Culvert
	☐ Dam	☐ Fill	☐ Other, Attach Description

C. REVIEW FEE

Has the review fee for the appropriate request category been included? ☐ Yes Fee amount: $___

☒ No, Attach Explanation

Please see the FEMA Web site at http://www.fema.gov/mit/tsd/frm_fees.htm **for Fee Amounts and Exemptions.**

D. SIGNATURE

All documents submitted in support of this request are correct to the best of my knowledge. I understand that any false statement may be punishable by fine or imprisonment under Title 18 of the United States Code, Section 1001.

Name: Stephen Brigidi	Company	
Mailing Address: 4 Franklin Street Bristol, RI 02809	Daytime Telephone No.: 401-253-2351	Fax No.: 401-254-2040
	E-Mail Address: SB@BRIGIDI-BWPHOTO.COM	
Signature of Requester (required): Stephen Brigidi		Date: 27 June 05

As the community official responsible for floodplain management, I hereby acknowledge that we have received and reviewed this Letter of Map Revision (LOMR) or conditional LOMR request. Based upon the community's review, we find the completed or proposed project meets or is designed to meet all of the community floodplain management requirements, including the requirement that no fill be placed in the regulatory floodway, and that all necessary Federal, State, and local permits have been, or in the case of a conditional LOMR, will be obtained. In addition, we have determined that the land and any existing or proposed structures to be removed from the SFHA are or will be reasonably safe from flooding as defined in 44CFR 65.2(c), and that we have available upon request by FEMA, all analyses and documentation used to make this determination.

Community Official's Name and Title:		Telephone No.:
Community Name:	Community Official's Signature (required):	Date:

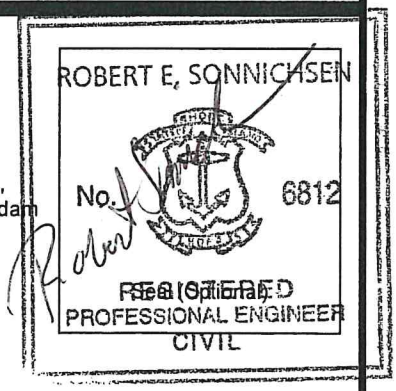
CERTIFICATION BY REGISTERED PROFESSIONAL ENGINEER AND/OR LAND SURVEYOR

This certification is to be signed and sealed by a licensed land surveyor, registered professional engineer, or architect authorized by law to certify elevation information. All documents submitted in support of this request are correct to the best of my knowledge. I understand that any false statement may be punishable by fine or imprisonment under Title 18 of the United States Code, Section 1001.

Certifier's Name: Robert E. Sonnichsen	License No.: 14596	Expiration Date: 1/31/2006
Company Name: DELTA Environmental Services, Inc.	Telephone No.: 203-481-7668	Fax No.: 203-488-8164
Signature:		Date: 06/01/2005

Ensure the forms that are appropriate to your revision request are included in your submittal.

Form Name and (Number)	Required if ...
☐ Riverine Hydrology and Hydraulics Form (Form 2)	New or revised discharges or water-surface elevations
☐ Riverine Structures Form (Form 3)	Channel is modified, addition/revision of bridge/culverts, addition/revision of levee/floodwall, addition/revision of dam
☒ Coastal Analysis Form (Form 4)	New or revised coastal elevations
☐ Coastal Structures Form (Form 5)	Addition/revision of coastal structure
☐ Alluvial Fan Flooding Form (Form 6)	Flood control measures on alluvial fans



FEDERAL EMERGENCY MANAGEMENT AGENCY

COASTAL ANALYSIS FORM

O.M.B. No. 3067-0148
Expires September 30, 2005

PAPERWORK REDUCTION ACT

Public reporting burden for this form is estimated to average 1 hour per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing, reviewing, and submitting the form. You are not required to respond to this collection of information unless a valid OMB control number appears in the upper right corner of this form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, Federal Emergency Management Agency, 500 C Street, SW, Washington DC 20472, Paperwork Reduction Project (3067-0148). Submission of the form is required to obtain or retain benefits under the National Flood Insurance Program. **Please do not send your completed survey to the above address.**

Flooding Source: Atlantic Ocean - Narragansett Bay - Bristol Harbor
Note: Fill out one form for each flooding source studied

A. COASTLINE TO BE REVISED

Describe limits of study area: 345 Thames Street property on the eastern shore of Bristol Harbor

B. EFFECTIVE FIS

The area being revised in the effective FIS was studied by detailed methods using (check all that apply):

- ☐ Storm surge modeling
- ☒ Wave height computations
- ☐ Wave overtopping computations
- ☐ Primary Frontal Dune Assessment
- ☐ Wave setup computations
- ☒ Wave runup computations
- ☐ Dune erosion computations
- ☐ N/A (area not studied by detailed methods)

C. REVISED ANALYSIS

1. Number of transects in revised analysis:

2. Information used to prepare the revision (check all that apply):
   - ☐ Wave setup analyses (complete Items 3, 4, and 5 below)
   - ☐ Stillwater elevation determinations (complete Item 3)
   - ☐ Erosion considerations (complete Item 4)
   - ☒ Wave runup analysis (complete Items 4 and 5)
   - ☒ Wave height analysis (complete Items 4 and 5)
   - ☐ Wave overtopping assessment (complete Items 4 and 5)
   - ☐ More detailed topographic information (complete Section E)
   - ☐ Shore protection structures (attach completed Coastal Structures Form - Form 5)
   - ☐ Primary frontal dune assessment (complete Item 5)
   - ☐ Other, attach basis of revision request with explanation

3. Stillwater Elevation Determination
   a. How were stillwater elevations determined?
      - ☐ Gage analysis (If revised gage analysis was used, provide copies of gage data and revised analysis.)
      - ☐ Storm surge analysis
      - ☒ Other (Describe): Corps of Engineers Coastal Profile

   b. Specify what datum was used in the calculations: NGVD
      If not the FIS datum, have the calculations been adjusted to the FIS datum? ☐ Yes ☐ No Conversion factor:
   c. If revised storm surge analysis, was FEMA's storm surge model utilized? ☐ Yes ☐ No
   d. If FEMA's storm surge model was used, attach a detailed description of the differences between the current and the revised analyses, and why the revised analysis should replace the current analysis.
   e. If wave setup was computed, attach a description of methodology used.
      Amount of wave setup added to stillwater elevation: 0 feet

C. REVISED ANALYSIS (CONTINUED)

4. Revised Analysis (i.e., erosion, wave height, wave runup, primary frontal dune, and wave overtopping)

If FEMA procedures were utilized to perform the revision, attach a detailed description of differences between the current and the revised analyses, and why the revised analysis should replace the current analysis.

If FEMA procedures were not utilized to perform the revision, provide full documentation on methodology and/or models used; including operational program, detailed differences between methodology and/or models utilized and FEMA's methodology and/or models. Also, attach an explanation of why new methodology and/or models should replace current methodology and/or models.

If revision reflects more detailed topographic information and fill has been/will be placed in a V Zone, and is not protected from erosion by a shore protection structure, provide a detailed description of how the fill has been treated in the revised analysis.

5. Wave Runup, Wave Height, And Wave Overtopping Analysis

Wave height analyses along a transect are greatly affected by starting wave conditions that propagate inland. Wave runup and overtopping analyses are typically considered when wave heights and/or wave runup are close to or greater than the crest of shore protection structures or natural land forms.

a. Was an analysis performed to determine starting wave height and period for input into WHAFIS?
☐ Yes ☒ No

If Yes, attach an explanation of the method utilized. If No, explain why these analyses were not performed.

b. Was wave setup included in wave height analysis and removed for erosion and wave runup analyses?
☐ Yes ☒ No

c. Was an overtopping analysis performed for any coastal shore protection structures or natural land forms that may be overtopped?
☐ Yes ☒No

If Yes, attach an explanation of the methodology utilized and describe in detail the results of the analysis.

If overtopping was not analyzed, attach an explanation for why these analyses were not performed.

D. RESULTS

1. Stillwater storm surge elevation: 13.6 feet NGVD Datum
2. Wave setup: 0 feet
3. Starting deep-water significant wave condition:
   height: 8 ft period: 6 sec
4. Maximum wave height elevation: 14.6 feet
5. Maximum wave runup elevation: 14.6 feet
6. Estimated amount of maximum overtopping: 0 cfs/feet
7. The areas designated as coastal high hazard areas (V Zones) have:
   ☐ increased ☒ decreased ☐ both

Attach a description where they have increased and/or decreased.

8. As a result of the revised analyses, the V Zone location has shifted a maximum of 120 feet seaward and feet landward of its existing position.
9. The Base Flood Elevations have:
   ☐ increased ☒ decreased
   a. What was the greatest increase? feet
   b. What was the greatest decrease? feet
10. The special flood hazard area has:
    ☐ increased ☒ decreased ☐ both

Attach a description where it has increased or decreased.

E. MAPPING REQUIREMENTS

A certified topographic map must be submitted showing the following information (where applicable): effective, existing conditions, and proposed conditions 1%-annual-chance floodplain boundaries, revised shoreline due to either erosion or accretion, location and alignment of all transects, correct location and alignment of any structures, current community easements and boundaries, boundary of the requester's property, certification of a professional engineer registered in the subject State, location and description of reference marks, and the referenced vertical datum (NGVD, NAVD, etc.).

Note that the existing or proposed conditions floodplain boundaries to be shown on the revised FIRM must tie-in with the effective floodplain boundaries. Please attach a copy of the current FIRM annotated to show the revised 1%-annual-chance floodplain boundaries that tie-in with effective 1%-annual-chance floodplain boundaries along the entire extent of the area of revision.

Federal Emergency Management Agency

Washington, D.C. 20472

RECEIVED
SEP - 8 2003

SEP 5 2003

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Joseph F. Parella
Bristol Town Administrator
Town Hall
10 Court Street
Bristol, Rhode Island 02809-2208

IN REPLY REFER TO:

Case Number:	03-01-045P
Community Name:	Town of Bristol, Bristol County, Rhode Island
Community Number:	445393
Map Panel Number:	44001C0014
Effective Date of this Revision:	SEP 5 2003

102-D-A

Dear Mr. Parella:

The Flood Insurance Rate Map (FIRM) for the Town of Bristol has been revised by this Letter of Map Revision (LOMR) to reflect a site-specific coastal analysis and more detailed and up-to-date topographic information along Bristol Harbor than that used to prepare the March 5, 1996, FIRM. The subject area is located approximately 200 feet west of the intersection of Thames Street and Bradford Street. This revision was initiated by Mr. Robert E. Sonnichsen, P.E., President of Delta Environmental Services, Inc., in a letter dated April 17, 2003.

We received the following technical data, prepared by Delta Environmental Services, Inc., in support of this revision:

- Wave Height Analysis for Flood Insurance Studies, Version 3.0, input and output files, dated June 24, 2003, for three transects located along the subject area;
- RUNUP, Version 2.0, input and output files, dated June 24, 2003, for three transects located along the subject area;
- a certified topographic map, titled Flood Insurance Rate Map Revision Existing Conditions, dated April 2003, revised June 25, 2003, at a scale of 1" = 30', with a contour interval of 1 foot, reflecting the location and alignment of the transects used in the aforementioned modeling, and proposed modifications to the Base (1% annual chance) Flood Elevations (BFEs) and flood hazard zone designations; and
- an annotated copy of the Bristol County (All Jurisdictions) FIRM number 44001C0014 F, dated March 5, 1996, showing the proposed revisions to the BFEs and flood hazard zone designations.

In addition to the above referenced technical data, we received the following documentation in support of this request:

- a letter, dated June 3, 2003, from Mr. Joseph F. Parella, Bristol Town Administrator, indicating community concurrence with the request; and
- completed application/certification forms.

We received all data necessary to process this revision by July 30, 2003.

Based on our review of the submitted data, we are issuing this LOMR to reflect a decrease in the Coastal High Hazard Area (V Zone) and BFEs along Bristol Harbor. This revision results in changes in the flood hazard zone designations and BFEs along the subject area as follows:

- a portion of the area currently designated as Zone VE with a BFE of 18 feet National Geodetic Vertical Datum of 1929 (NGVD 29) has been revised to Zone VE with a BFE of 17 feet NGVD 29 and Zone AE with BFEs of 14 and 15 feet NGVD 29; and
- a portion of the area currently designated as Zone AE with a BFE of 15 feet NGVD 29 has been revised to Zone AE with a BFE of 14 feet NGVD 29.

This LOMR revises the Bristol County (All Jurisdictions) FIRM number 44001C0014 F, dated March 5, 1996, as shown on the enclosed annotated portion of the FIRM.

We have enclosed a copy of the public notification of the revised BFEs, which will be published in the Providence Journal on or about September 12, 2003, and September 19, 2003. In addition, we will publish a notice of changes in the Federal Register. However, we will not print and distribute this LOMR to users, such as insurance agents or lenders. Your community will serve as a repository for the new data. Therefore, we encourage you to supplement the notification to appear in the Providence Journal by preparing a news release for publication in your community newspaper that describes the revision and explains how your community will provide data and help interpret the National Flood Insurance Program (NFIP) maps. In that way, interested persons, such as property owners, insurance agents, and mortgage lenders, can benefit from the information.

Within 90 days of the second publication in the Providence Journal, any interested party may request that we reconsider this determination. Any request for reconsideration must be based on scientific or technical data. This revision is effective as of the date of this letter. However, until the 90-day period elapses, the revised BFEs presented in this LOMR may be revised.

hazard conditions subsequent to the publication of the FIS, and the flood hazards shown in the FIS and FIRM could be increased.

Your community must approve all proposed floodplain development and ensure that permits required by Federal and/or State law have been obtained. State or community officials, based on knowledge of local conditions and in the interest of safety, may set standards for construction that are higher than the minimum NFIP criteria or may limit development in floodplain areas. If the State of Rhode Island or the Town of Bristol has adopted more restrictive or comprehensive floodplain management criteria, those criteria take precedence over the minimum NFIP requirements.

Because of funding constraints, we must limit the number of map republications. Consequently, we will not republish the FIRM for Bristol County (All Jurisdictions) to reflect this determination. However, we will incorporate this determination when we next republish FIRM number 44001C0014.

We have enclosed a document titled "List of Current Flood Insurance Study Data," which includes this letter, to help your community maintain all information for floodplain management and flood insurance. If any of the items in that document are not filed in your community's map repository, please contact the Federal Emergency Management Agency (FEMA) Map Assistance Center (FMAC) at the number listed below for information on how to obtain those items.

Use the map panel listed above and revised by this letter for flood insurance policies and renewals issued for property located on this panel.

We have made this determination pursuant to Section 206 of the Flood Disaster Protection Act of 1973 (P.L. 93-234) and in accordance with the National Flood Insurance Act of 1968, as amended (Title XIII of the Housing and Urban Development Act of 1968, P.L. 90-448), 42 U.S.C. 4001-4128, and 44 CFR Part 65. Pursuant to Section 1361 of the National Flood Insurance Act of 1968, as amended, communities participating in the NFIP are required to adopt and enforce floodplain management ordinances that meet or exceed minimum NFIP criteria. These criteria, including adoption of the FIS and FIRM, and revisions made by this LOMR, are the minimum requirements for continued NFIP participation and do not supersede more stringent State or local requirements to which the regulations apply.

If you have any questions, please do not hesitate to contact the Director, Federal Insurance and Mitigation Division of FEMA in Boston, Massachusetts, at (617) 223-9561, or FMAC toll free at 1-877-FEMA MAP (1-877-336-2627).

Sincerely,

William R Blanton Jr

William R. Blanton Jr.
Project Engineer
Hazard Study Branch
Mitigation Division
Emergency Preparedness
and Response Directorate

For: Doug Bellomo, P.E., Acting Branch Chief
Hazard Study Branch
Mitigation Division
Emergency Preparedness
and Response Directorate

Enclosures

cc: Mr. Gerhard Oswald, Town of Bristol Director of Community Development
Mr. Robert E. Sonnichsen, P.E.
Mr. Christopher Reynolds, Stonestreet Corporation
State NFIP Coordinator

LIST OF CURRENT FLOOD INSURANCE STUDY DATA

This list is provided to document all information currently effective for your community for insurance and floodplain management.

Date: SEP 5 2003

Community: Town of Bristol, Bristol County, Rhode Island

Community Number: 445393

Page Number: 1 of 1

CURRENT EFFECTIVE FLOOD INSURANCE STUDY DATE: March 5, 1996

FLOOD INSURANCE RATE MAP

Map Number: 44001C (Bristol County, Rhode Island [All Jurisdictions])

Index Date: March 5, 1996

Panel Numbers	Effective Date
44001C0010F, 44001C0011F, 44001C0012F, 44001C0013F, 44001C0014F, 44001C0015F, 44001C0016F, and 44001C0017F	March 5, 1996

LETTERS OF MAP REVISION

Panel Numbers	Effective Date
44001C0014F	SEP 5 2003

LETTERS OF MAP AMENDMENT AND MAP REVISION BASED ON FILL

None

BEST AVAILABLE DATA LETTERS

None

REVALIDATION LETTER

None

CHANGES ARE MADE IN THE TOWN OF BRISTOL, BRISTOL COUNTY, RHODE ISLAND, BASE (1% ANNUAL CHANCE) FLOOD ELEVATIONS (BFEs) AND ZONE DESIGNATIONS UNDER THE NATIONAL FLOOD INSURANCE PROGRAM (NFIP)

The Federal Emergency Management Agency (FEMA), has determined that modification of the elevations and zone designations of the flood having a 1% chance of occurrence in any given year (base flood) for certain locations in the Town of Bristol, Rhode Island, is appropriate. These modifications and zone designations amend the FEMA Flood Insurance Rate Map (FIRM) for the community, dated March 5, 1996.

This modification reflects a site-specific coastal analysis and more detailed and up-to-date topographic information along Bristol Harbor than that used to prepare the March 5, 1996, FIRM. As a result, there is a decrease in the Coastal High Hazard Area (V Zone) and BFEs along Bristol Harbor. In addition, there is a change in zone designation from Zone VE to Zone AE. The revised BFEs for the Atlantic Ocean/Bristol Harbor are as follows:

Location	Base Flood Elevations (NGVD)* Effective	Revised
Approximately 400 feet northwest of the intersection of Thames Street and Bradford Street along Bristol Harbor	*18	*17
Approximately 150 feet southwest of the intersection of Thames Street and Bradford Street along Bristol Harbor	*15	*14

*Elevation in feet National Geodetic Vertical Datum

In order for the community to participate in the NFIP, the community will be using the new BFEs and zone designations to administer the floodplain management measures of the NFIP. These modified BFEs and zone designations will also be used to calculate the appropriate flood insurance premium rates for new buildings and their contents.

Upon the second publication of notice of these changes, any person has 90 days in which he can request through the Chief Executive Officer of the community that FEMA reconsider the determination. Any request for reconsideration must be based on scientific or technical data. All interested parties are on notice that until the 90-day period elapses, the FEMA's determination to modify the BFEs and zone designations may itself be changed.

Any person wishing to comment on these changes should notify:

Mr. Joseph F. Parella
Bristol Town Administrator
Town Hall
10 Court Street
Bristol, Rhode Island 02809-2208

APPENDIX B

Wave Height and Run-up Analysis

1 *** THE FOLLOWING MESSAGES ARE THE RESULTS FROM THE 100-YR ELEVATION INTERPOLATION FOR THE TRANSECT:

- Transect: 1 Date: 6/21/2005

1

WAVE HEIGHT COMPUTATIONS FOR FLOOD INSURANCE STUDIES (VERSION 3.0, 9_88)
- Transect: 1 Date: 6/21/2005

PART1 INPUT

IE	.000	.000	.430	7.600	13.600	.000	.000	.000	.833	.000
IF	6.000	5.000	.000	13.600	.000	.000	.000	.000	.304	.000
IF	23.000	7.000	.000	13.600	.000	.000	.000	.000	.032	.000
IF	93.000	7.780	.000	13.600	.000	.000	.000	.000	.007	.000
IF	118.000	7.700	.000	13.600	.000	.000	.000	.000	.005	.000
IF	137.000	8.020	.000	13.600	.000	.000	.000	.000	.008	.000
IF	170.000	8.120	.000	13.600	.000	.000	.000	.000	.006	.000
IF	199.000	8.380	.000	13.600	.000	.000	.000	.000	.003	.000
IF	231.000	8.320	.000	13.600	.000	.000	.000	.000	-.000	.000
IF	265.000	8.370	.000	13.600	.000	.000	.000	.000	-.008	.000
IF	297.000	7.820	.000	13.600	.000	.000	.000	.000	-.010	.000
IF	353.000	7.450	.000	13.600	.000	.000	.000	.000	-.011	.000
IF	371.000	7.030	.000	13.600	.000	.000	.000	.000	-.040	.000
IF	372.000	6.700	.000	13.600	.000	.000	.000	.000	-.002	.000
IF	418.000	6.920	.000	13.600	.000	.000	.000	.000	.013	.000
IF	420.000	7.300	.000	13.600	.000	.000	.000	.000	.154	.000
IF	425.000	8.000	.000	13.600	.000	.000	.000	.000	.140	.000
ET	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

1

	END STATION	END ELEVATION	FETCH LENGTH	SURGE ELEV 10-YEAR	SURGE ELEV 100-YEAR	INITIAL WAVE HEIGHT	INITIAL W. PERIOD		BOTTOM SLOPE	AVERAGE A-ZONES
IE	.000	.000	.430	7.600	13.600	.000	.000	.000	.833	.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	6.000	5.000	.000	13.600	.000	.000	.000	.000	.304	.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	23.000	7.000	.000	13.600	.000	.000	.000	.000	.032	.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	93.000	7.780	.000	13.600	.000	.000	.000	.000	.007	.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	118.000	7.700	.000	13.600	.000	.000	.000	.000	.005	.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	137.000	8.020	.000	13.600	.000	.000	.000	.000	.008	.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	170.000	8.120	.000	13.600	.000	.000	.000	.000	.006	.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	199.000	8.380	.000	13.600	.000	.000	.000	.000	.003	.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	231.000	8.320	.000	13.600	.000	.000	.000	.000	.000	.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	265.000	8.370	.000	13.600	.000	.000	.000	.000	-.008	.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	297.000	7.820	.000	13.600	.000	.000	.000	.000	-.010	.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	353.000	7.450	.000	13.600	.000	.000	.000	.000	-.011	.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	371.000	7.030	.000	13.600	.000	.000	.000	.000	-.040	.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	372.000	6.700	.000	13.600	.000	.000	.000	.000	-.002	.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	418.000	6.920	.000	13.600	.000	.000	.000	.000	.013	.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	420.000	7.300	.000	13.600	.000	.000	.000	.000	.154	.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	425.000	8.000	.000	13.600	.000	.000	.000	.000	.140	.000

----------END OF TRANSECT----------

NOTE:

SURGE ELEVATION INCLUDES CONTRIBUTIONS FROM ASTRONOMICAL AND STORM TIDES.

1

PART2: CONTROLLING WAVE HEIGHTS, SPECTRAL PEAK WAVE PERIOD, AND WAVE CREST ELEVATIONS

LOCATION		CONTROLLING WAVE HEIGHT	SPECTRAL PEAK WAVE PERIOD	WAVE CREST ELEVATION
IE	.00	3.18	2.09	15.83
IF	6.00	3.08	2.09	15.76
IF	23.00	2.91	2.09	15.63
IF	93.00	2.80	2.11	15.56
IF	118.00	2.82	2.11	15.57
IF	137.00	2.76	2.12	15.54
IF	170.00	2.75	2.12	15.53
IF	199.00	2.70	2.13	15.49
IF	231.00	2.71	2.14	15.50
IF	265.00	2.72	2.14	15.50
IF	297.00	2.76	2.15	15.53
IF	353.00	2.83	2.16	15.58
IF	371.00	2.90	2.16	15.63
IF	372.00	2.93	2.16	15.65
IF	418.00	2.93	2.17	15.65
IF	420.00	2.88	2.17	15.62
IF	425.00	2.81	2.17	15.57

TRANSMITTED WAVE HEIGHT AT LAST FETCH OR OBSTRUCTION = 2.81 WHICH EXCEEDS 0.5.

PART3 LOCATION OF AREAS ABOVE 100-YEAR SURGE

NO AREAS ABOVE 100-YEAR SURGE IN THIS TRANSECT

PART4 LOCATION OF SURGE CHANGES

STATION 10-YEAR SURGE 100-YEAR SURGE

NO SURGE CHANGES IN THIS TRANSECT

PART5 LOCATION OF V ZONES

STATION OF GUTTER LOCATION OF ZONE

13.84 WINDWARD

PART6 NUMBERED A ZONES AND V ZONES

STATION OF GUTTER	ELEVATION	ZONE DESIGNATION	FHF
.00	15.83		
		V19 EL=16	95
13.84	15.70		
		A16 EL=16	80
190.02	15.50		
		A16 EL=15	80
245.90	15.50		
		A16 EL=16	80
425.00	15.57		

ZONE TERMINATED AT END OF TRANSECT

CLIENT-
PROJECT-

** WAVE RUNUP-VERSION 2.0 **

ENGINEERED BY

JOB
RUN 4 PAGE 1

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Transect 1 Wave runup

CROSS SECTION PROFILE

	LENGTH	ELEV.	SLOPE	ROUGHNESS
1	-22.0	-10.0		
			3.75	1.00
2	-7.0	-6.0		
			1.17	1.00
3	.0	.0		
			1.20	1.00
4	6.0	5.0		
			8.50	1.00
5	23.0	7.0		
			87.50	1.00
6	93.0	7.8		
			-250.00	1.00
7	118.0	7.7		
			63.33	1.00
8	137.0	8.0		
			330.00	1.00
9	170.0	8.1		
			96.67	1.00
10	199.0	8.4		
			-320.00	1.00
11	231.0	8.3		
			340.00	1.00
12	265.0	8.4		
			-53.33	1.00
13	297.0	7.8		
			FLAT	1.00
14	325.0	7.8		
			-93.33	1.00
15	353.0	7.5		
			-36.00	1.00
16	371.0	7.0		
			-3.33	1.00
17	372.0	6.7		

LAST SLOPE 1.00 LAST ROUGHNESS 1.00

CLIENT-
PROJECT-

** WAVE RUNUP-VERSION 2.0 **

ENGINEERED BY

JOB
RUN 4 PAGE 2

****

OUTPUT TABLE

INPUT PARAMETERS			RUNUP RESULTS			
WATER LEVEL ABOVE DATUM	DEEP WATER WAVE HEIGHT	WAVE PERIOD	BREAKING SLOPE NUMBER	RUNUP SLOPE NUMBER	RUNUP ABOVE WATER LEVEL	BREAKER DEPTH

(FT.)	(FT.)	(SEC.)			(FT.)	(FT.)
13.60	1.90	2.60	17	17	.48	2.41
13.60	1.90	2.70	17	17	.47	2.41
13.60	1.90	2.90	17	17	.51	2.41
13.60	2.00	2.60	17	17	.49	2.54
13.60	2.00	2.70	17	17	.49	2.54
13.60	2.00	2.90	17	17	.52	2.54
13.60	2.10	2.60	17	17	.49	2.67
13.60	2.10	2.70	17	17	.51	2.67
13.60	2.10	2.90	17	17	.55	2.67

1 *** THE FOLLOWING MESSAGES ARE THE RESULTS FROM THE 100-YR ELEVATION INTERPOLATION FOR THE TRANSECT:

- Transect: 2 Date: 6/21/2005

1

WAVE HEIGHT COMPUTATIONS FOR FLOOD INSURANCE STUDIES (VERSION 3.0, 9_88)
- Transect: 2 Date: 6/21/2005

PART1 INPUT

IE	.000	.000	.470	7.600	13.600	.000	.000	.000	.417	.000
IF	12.000	5.000	.000	13.600	.000	.000	.000	.000	.333	.000
IF	18.000	6.000	.000	13.600	.000	.000	.000	.000	.013	.000
IF	91.000	6.000	.000	13.600	.000	.000	.000	.000	.005	.000
IF	216.000	7.000	.000	13.600	.000	.000	.000	.000	.012	.000
IF	260.000	8.000	.000	13.600	.000	.000	.000	.000	.024	.000
IF	271.000	8.300	.000	13.600	.000	.000	.000	.000	-.023	.000
IF	273.000	7.700	.000	13.600	.000	.000	.000	.000	-.004	.000
IF	340.000	8.000	.000	13.600	.000	.000	.000	.000	.004	.000
ET	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

1

	END STATION	END ELEVATION	FETCH LENGTH	SURGE ELEV 10-YEAR	SURGE ELEV 100-YEAR	INITIAL WAVE HEIGHT	INITIAL W. PERIOD		BOTTOM SLOPE	AVERAGE A-ZONES
IE	.000	.000	.470	7.600	13.600	.000	.000	.000	.417	.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	12.000	5.000	.000	13.600	.000	.000	.000	.000	.333	.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	18.000	6.000	.000	13.600	.000	.000	.000	.000	.013	.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	91.000	6.000	.000	13.600	.000	.000	.000	.000	.005	.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	216.000	7.000	.000	13.600	.000	.000	.000	.000	.012	.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	260.000	8.000	.000	13.600	.000	.000	.000	.000	.024	.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	271.000	8.300	.000	13.600	.000	.000	.000	.000	-.023	.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES

IF	273.000	7.700	.000	13.600	.000	.000	.000	.000	-.004	.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	340.000	8.000	.000	13.600	.000	.000	.000	.000	.004	.000

----------END OF TRANSECT----------

NOTE:

SURGE ELEVATION INCLUDES CONTRIBUTIONS FROM ASTRONOMICAL AND STORM TIDES.

1

PART2: CONTROLLING WAVE HEIGHTS, SPECTRAL PEAK WAVE PERIOD, AND WAVE CREST ELEVATIONS

LOCATION		CONTROLLING WAVE HEIGHT	SPECTRAL PEAK WAVE PERIOD	WAVE CREST ELEVATION
IE	.00	3.37	2.15	15.96
IF	12.00	3.23	2.15	15.86
IF	18.00	3.14	2.15	15.80
IF	91.00	3.17	2.17	15.82
IF	216.00	3.08	2.19	15.76
IF	260.00	2.89	2.20	15.62
IF	271.00	2.81	2.20	15.57
IF	273.00	2.85	2.20	15.59
IF	340.00	2.85	2.21	15.60

TRANSMITTED WAVE HEIGHT AT LAST FETCH OR OBSTRUCTION = 2.85 WHICH EXCEEDS 0.5.

PART3 LOCATION OF AREAS ABOVE 100-YEAR SURGE

NO AREAS ABOVE 100-YEAR SURGE IN THIS TRANSECT

PART4 LOCATION OF SURGE CHANGES

STATION	10-YEAR SURGE	100-YEAR SURGE

NO SURGE CHANGES IN THIS TRANSECT

PART5 LOCATION OF V ZONES

STATION OF GUTTER	LOCATION OF ZONE

234.63 WINDWARD

PART6 NUMBERED A ZONES AND V ZONES

STATION OF GUTTER	ELEVATION	ZONE DESIGNATION	FHF
.00	15.96		
		V19 EL=16	95
234.63	15.70		
		A16 EL=16	80
340.00	15.60		

ZONE TERMINATED AT END OF TRANSECT

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Transect 2 wave runup

CROSS SECTION PROFILE

	LENGTH	ELEV.	SLOPE	ROUGHNESS
1	-24.0	-5.0		
			6.00	1.00
2	-18.0	-4.0		
			6.00	1.00
3	-12.0	-3.0		
			6.00	1.00
4	-6.0	-2.0		
			4.00	1.00
5	-2.0	-1.0		
			2.00	1.00
6	.0	.0		
			2.40	1.00
7	12.0	5.0		
			6.00	1.00
8	18.0	6.0		
			FLAT	1.00
9	91.0	6.0		
			125.00	1.00
10	216.0	7.0		
			44.00	1.00
11	260.0	8.0		
			36.67	1.00
12	271.0	8.3		
			-3.33	1.00
13	273.0	7.7		

LAST SLOPE 1.00 LAST ROUGHNESS 1.00

CLIENT-
PROJECT-
** WAVE RUNUP-VERSION 2.0 **
ENGINEERED BY
JOB

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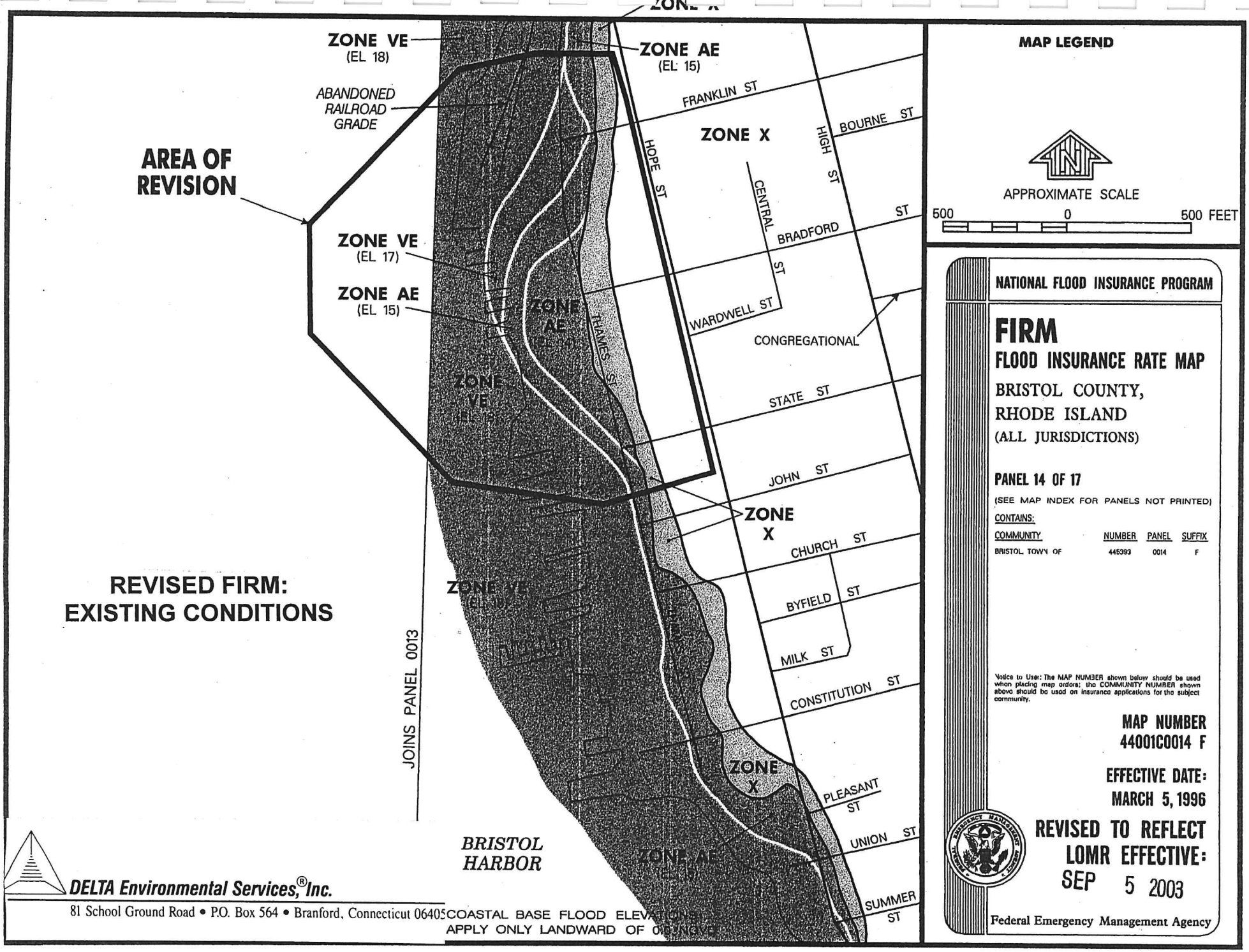
OUTPUT TABLE

INPUT PARAMETERS			RUNUP RESULTS			
WATER LEVEL ABOVE DATUM (FT.)	DEEP WATER WAVE HEIGHT (FT.)	WAVE PERIOD (SEC.)	BREAKING SLOPE NUMBER	RUNUP SLOPE NUMBER	RUNUP ABOVE WATER LEVEL (FT.)	BREAKER DEPTH (FT.)
13.60	2.00	2.50	13	13	.51	2.54
13.60	2.00	2.70	13	13	.50	2.54
13.60	2.00	2.80	13	13	.52	2.54

13.60	2.10	2.50	13	13	.48	2.67
13.60	2.10	2.70	13	13	.52	2.67
13.60	2.10	2.80	13	13	.55	2.67
13.60	2.20	2.50	13	13	.50	2.79
13.60	2.20	2.70	13	13	.53	2.79
13.60	2.20	2.80	13	13	.55	2.79

FIGURES


ZONE VE
(EL 18)
ZONE AE
(EL 15)
ABANDONED
RAILROAD
GRADE
AREA OF
REVISION
ZONE VE
(EL 17)
ZONE AE
(EL 15)
ZONE X
FRANKLIN ST
BOURNE ST
HOPE ST
HIGH ST
CENTRAL ST
BRADFORD ST
WARDWELL ST
CONGREGATIONAL
THAMES ST
STATE ST
JOHN ST
CHURCH ST
BYFIELD ST
MILK ST
CONSTITUTION ST
PLEASANT ST
UNION ST
SUMMER ST
REVISED FIRM:
EXISTING CONDITIONS
JOINS PANEL 0013
BRISTOL
HARBOR
MAP LEGEND
APPROXIMATE SCALE
500 0 500 FEET
NATIONAL FLOOD INSURANCE PROGRAM
FIRM
FLOOD INSURANCE RATE MAP
BRISTOL COUNTY,
RHODE ISLAND
(ALL JURISDICTIONS)
PANEL 14 OF 17
(SEE MAP INDEX FOR PANELS NOT PRINTED)
CONTAINS:
COMMUNITY NUMBER PANEL SUFFIX
BRISTOL, TOWN OF 445393 0014 F
Notice to User: The MAP NUMBER shown below should be used when placing map orders; the COMMUNITY NUMBER shown above should be used on insurance applications for the subject community.
MAP NUMBER
44001C0014 F
EFFECTIVE DATE:
MARCH 5, 1996
REVISED TO REFLECT
LOMR EFFECTIVE:
SEP 5 2003
Federal Emergency Management Agency
DELTA Environmental Services,® Inc.
81 School Ground Road • P.O. Box 564 • Branford, Connecticut 06405
COASTAL BASE FLOOD ELEVATIONS
APPLY ONLY LANDWARD OF