UNITED STATES COAST GUARD (COAST GUARD) SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT FOR THE NATIONAL COAST GUARD MUSEUM PROJECT

This Coast Guard environmental assessment (EA) was prepared in accordance with National Environmental Policy Act (NEPA) Implementing Procedures and Policy for Considering Environmental Impacts, COMDTINST M16475.1 (series) and is in compliance with the National Environmental Policy Act of 1969 (42 U.S.C. §§ 4321 to 4370h) and the Council of Environmental Quality Regulations dated 28 November 1978 (40 C.F.R. Parts 1500- 1508).

This EA serves as a concise public document to briefly provide sufficient evidence and analysis for determining the need to prepare an environmental impact statement (EIS) or a finding of no significant impact (FONSI). This EA concisely describes the proposed action, the need for the proposal, the alternatives, and the environmental impacts of the proposal and alternatives. This EA also contains a comparative analysis of the action and alternatives, a statement of the environmental significance of the preferred alternative, and a list of the agencies and persons consulted during EA preparation.

31MAY2022

Date		
	BMCS JOSHUA FOLCKEMER Document Preparer	CG-0923M National Coast Guard Museum

I reviewed the EA and submitted my written comments to the Proponent.

31MAY2022 Andrew Haley

Date			
	ANDREW HALEY, CHIEF Environmental Reviewer	OFFICE OF ENVIRONMENTAL MANAGMENT	Level III Warrant Level

I reviewed the EA and submitted my written comments to the Proponent.

31MAY2022 Andrew Haley

Date			
	ANDREW HALEY, CHIEF Senior Environmental Professional	OFFICE OF ENVIRONMENTAL MANAGEMENT	Level III Warrant Level

In reaching my decision/recommendation on the Coast Guard's proposed action, I considered the information contained in this EA and considered and acknowledge the written comments submitted to me from the Environmental Reviewer(s).

2 JUN 2022

Date		
	RDML MARY M. DEAN Proponent	CG-092 OFFICE OF GOVERNMENTAL AND PUBLIC AFFAIRS

FINAL SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT

NATIONAL COAST GUARD MUSEUM PROJECT
NEW LONDON, CONNECTICUT

Prepared for:
U.S. Coast Guard

In association with:
National Coast Guard Museum Association, Inc.

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May 2022

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**Note that Appendices C1 and C2 are contained in the 2014 EA.
*** Note that Appendix D1 is contained in the 2014 EA but is also reprinted here by request.

LIST OF ACRONYMS

AMSL	above mean sea level
APE	Area of Potential Effect
AST	aboveground storage tank
B.P.	before present
BMP	Best Management Practice
°C	degrees Celsius
CAA	Clean Air Act
CAAA	Clean Air Act Amendments
CCD	Coastal Consistency Determination
CCMA	Connecticut Coastal Management Act
CEPA	Connecticut Environmental Policy Act
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CGS	Connecticut General Statutes
Clean Water Act	Federal Water Pollution Control Act
CM	construction management
CMA	Connecticut Coastal Management Act
CO	carbon monoxide
CO_2e	CO2 equivalent
CT DEEP	Connecticut Department of Energy & Environmental Protection
CZMA	Coastal Zone Management Act
dBA	A-weighted decibel
DECD/SHPO	Department of Economic and Community Development/State Historic Preservation Office
EA	Environmental Assessment
EAC	Early Action Compact
EB	Electric Boat
EDDA	environmental due diligence audit
EFH	Essential Fish Habitat
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
°F	degrees Fahrenheit
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FIRST	For Inspiration and Recognition of Science and Technology
FONSI	Finding of No Significant Impact
FSEA	Final Supplemental Environmental Assessment
GDEB	General Dynamics Electric Boat
GHG	greenhouse gas
GIS	geographical information system
gpd	gallons per day
GSF	gross square foot
GWB	Governor Winthrop Boulevard

GWP	global warming potential
IPaC	Information for Planning and Consultation (USFWS's database)
LEED	Leadership in Energy and Environmental Design
LOS	Level of Service
LWRD	Land and Water Resources Division (CT DEEP)
mgd	million gallons per day
MHW	mean high water
MLLW	mean lower low water
NAAQS	National Ambient Air Quality Standards
NAICS	North American Industry Classification System
NAVD	North American Vertical Datum
NCGM	National Coast Guard Museum
NCGMA	National Coast Guard Museum Association, Inc.
NDDB	Natural Diversity Data Base
NEPA	National Environmental Policy Act
NFIP	National Flood Insurance Program
NGVD	National Geodetic Vertical Datum
NHPA	National Historic Preservation Act
NLPA	New London Parking Authority
NOAA Fisheries	National Oceanic and Atmospheric Administration National Marine Fisheries Service
NOI	Notice of Intent
NO_X	nitrogen oxides
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NRIS	National Register Information System
NWI	National Wetland Inventory
OSHA	Occupational Safety & Health Administration
PAH	polycyclic aromatic hydrocarbons
PAST	Public Archaeology Survey Team, Inc.
PCB	polychlorinated biphenyls
PM_{10}	particulate matter with an aerodynamic size less than or equal to 10
$PM_{2.5}$	particulate matter with an aerodynamic size less than or equal to 2.5
POCD	Plan of Conservation and Development
RCSA	Regulations of Connecticut State Agencies
RSR	Remediation Standard Regulation
S/veh	seconds per vehicle
SAV	submerged aquatic vegetation
SEAT	Southeast Area Transit
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SO_2	sulfur dioxide
SPCC	Spill Prevention, Control, and Countermeasure
SPRP	Spill Prevention and Response Plan
STEM	Science, Technology, Engineering and Math
SVOC	semivolatile organic compounds
SWPPP	Stormwater Pollution Prevention Plan
TMDL	Total Maximum Daily Load

tpy	tons per year
USACE	United States Army Corps of Engineers
USC	United States Code
USCG	United States Coast Guard
USCGC	United States Coast Guard Cutter
USCS	United States Coast Survey
USEPA	U.S. Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
UST	underground storage tank
VOC	volatile organic compound
WQC	Water Quality Certificate

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CHAPTER 1.0
PURPOSE AND NEED FOR THE PROPOSED ACTION

1.1 INTRODUCTION

This Final Supplemental Environmental Assessment (FSEA) supplements the United States Coast Guard's (USCG's) March 2014 *Environmental Assessment for the National Coast Guard Museum Project (EA)*, which evaluated land acquisition and the proposed construction of a National Coast Guard Museum (NCGM) in New London, Connecticut. Specifically, the 2014 EA evaluated the potential environmental impacts of the U.S. Coast Guard acquiring a 0.34-acre parcel adjacent to Water Street in downtown New London (See Figures 1.1-1 and 1.1-2) and licensing the National Coast Guard Museum Association, Inc. (NCGMA) to construct a new museum on the property. The subject SEA addresses changes to the proposed action, including acquisition (through a use agreement with or by conveyance of title from the State of Connecticut) of submerged lands immediately offshore from the previously acquired 0.34-acre parcel, acquisition of additional land from the City of New London immediately south of the 0.34-acre parcel, and refinements to the design of the proposed museum. The 2014 EA is hereby incorporated by reference.[1]

Both the subject FSEA and the 2014 EA have been developed in accordance with the requirements of the National Environmental Policy Act (NEPA) of 1969, the President's Council on Environmental Quality Regulations (40 Code of Federal Regulations [CFR] Parts 1500-1508), and the Coast Guard's procedures for implementing NEPA (COMDTINST M16475.1D).

This chapter includes a discussion of the project background, a restatement of the purpose and need for the Proposed Action, a description of public and agency involvement, and an overview of the organization of this SEA.

1.2 PROJECT BACKGROUND

1.2.1 EXISTING COAST GUARD MUSEUM

Figure 1.2-1 is a location plan of the existing Coast Guard Museum on Deshon Street in New London, Connecticut. Since 1973, the existing Coast Guard Museum has been housed in one wing of Waesche Hall at the Coast Guard Academy in New London. The Coast Guard Academy currently provides funding for all utilities, maintenance, and security associated with the existing Coast Guard Museum. The existing Coast Guard Museum serves approximately 20,000 visitors annually. The museum is staffed by one full-time employee, along with approximately 20 part-time volunteers. It includes approximately 5,000 square feet of space for storage, exhibits, and administrative duties. Because space in the museum is limited, large artifacts and traveling exhibits cannot be displayed. In addition, most of the Coast Guard's artifacts are either in storage or on loan to other institutions (e.g., the Coast Guard Exhibit Center in Forestville, Maryland). Many of the approximately 20,000 Coast Guard artifacts are on long-term loan to nearly 300 institutions (Coast Guard 2008b).

[1] The EA can be found at http://www.cga.edu/assets/0/123/478/3052bc19-d0d7-4c95-8d57-893366b8614e.pdf

Figure 1.1-1 Regional Setting Location Plan

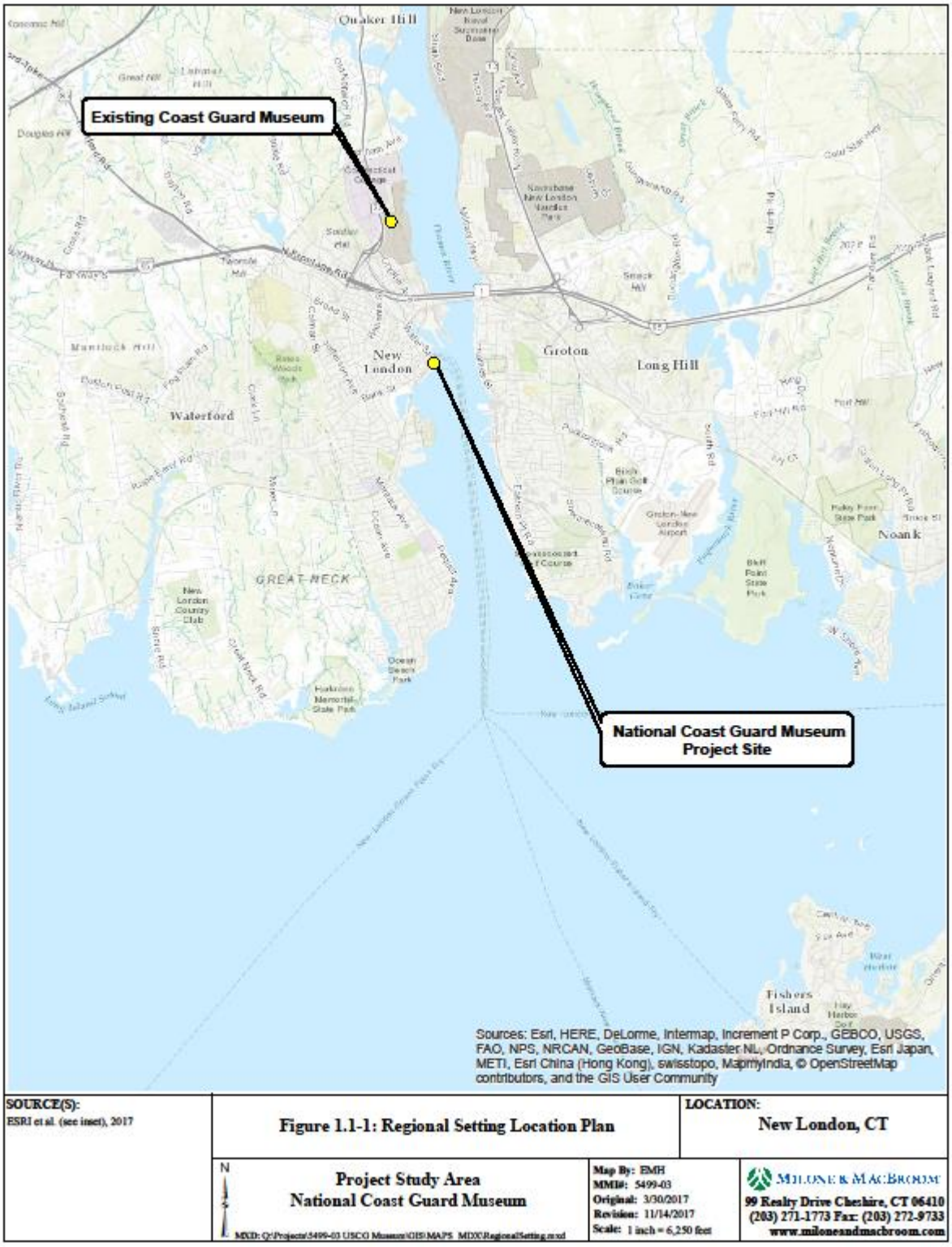


Figure 1.1-2 Aerial: Project Location Plan

SOURCE(S): CT Ortho, 2016	Figure 1.1-2: Project Location Plan	LOCATION: New London, CT
N	Project Study Area National Coast Guard Museum	Map By: EMH MMI#: 5499-03 Original: 3/30/2017 Revision: 11/15/2017 Scale: 1 inch = 300 feet
		Milone & MacBroom 99 Realty Drive Cheshire, CT 06410 (203) 271-1773 Fax: (203) 272-9733 www.miloneandmacbroom.com

Figure 1.2-1 Existing USCG Museum Location Plan

SOURCE(S): CT Ortho, 2016	Figure 1.2-1: Existing USCG Museum Location Plan	LOCATION: New London, CT
	N — Project Study Area National Coast Guard Museum	Map By: EMH MMI#: 5499-03 Original: 3/30/2017 Revision: 11/14/2017 Scale: 1 inch = 500 feet
		Milone & MacBroom 99 Realty Drive Cheshire, CT 06410 (203) 271-1773 Fax: (203) 272-9733 www.miloneandmacbroom.com

1.2.2 NEW NATIONAL COAST GUARD MUSEUM

In 2002, the NCGMA was established as a nonprofit charitable organization under Section 501(c)(3) of the Internal Revenue Code. The purpose of the NCGMA is to raise funds and to apply for and administer federal and state grants for the sole purpose of acquiring land for, designing, constructing, and developing exhibits for a national museum as well as appurtenant access facilities within the city of New London, Connecticut.

In accordance with 14 U.S.C. Section 316(a) – National Coast Guard Museum, the Coast Guard Commandant may establish a NCGM on lands that would be federally owned and administered by the Coast Guard, and located in New London, Connecticut at, or in close proximity to, the Coast Guard Academy (GPO, 2012). U.S.C. Sections 98(b)(1) and (2) initially provided that no appropriated federal funds may be expended for the engineering, design, or construction of the NCGM, and that operation and maintenance must be funded with non-appropriated and nonfederal funds to the maximum extent practicable (GPO, 2012). In 2016, the legislation was amended to provide that appropriated funds could be used to preserve and protect historic Coast Guard artifacts, including the design, fabrication, and installation of exhibits or displays in which such artifacts are included.

1.3 PREVIOUS STUDIES

The Coast Guard has previously evaluated a number of different alternatives for the NCGM. These studies are outlined below.

United States Coast Guard Museum Feasibility, Programming and Siting Study (1999) – In 1999, the Coast Guard prepared *the United States Coast Guard Museum Feasibility Programming, and Siting Study* (Coast Guard, 1999). The report indicated that the existing Coast Guard Museum is far below the size required for such a facility, even with its current visitation. The feasibility study indicated that no opportunities for growth exist in the current Coast Guard Academy location, and as a national museum, its identity is too closely tied to that of the Coast Guard Academy. The feasibility study projected a tenfold increase in visitation of up to 200,000 visitors annually within 5 years of beginning operation of the NCGM.

Planning Proposal for the Proposed National Coast Guard Museum (2000) – In February 2000, the Coast Guard prepared a *Planning Proposal for the Proposed National Coast Guard Museum* (Coast Guard, 2000). The purpose of the planning proposal was to evaluate and obtain conceptual approval for the acquisition of land adjacent to Fort Trumbull and for the construction of the NCGM on the site. This document provided the basis for subsequent site selection criteria.

Final Environmental Assessment: Land Acquisition for the National Coast Guard Museum (2002) – In March 2002, the Coast Guard prepared a Final EA (2002 Final EA) and Finding of No Significant Impact (FONSI) for Land Acquisition for the National Coast Guard Museum (Coast Guard, 2002). Twenty-eight sites were considered in the 2002 Final EA; 25 sites were eliminated from further analysis because they did not meet one or more of the primary site evaluation criteria. The three alternatives evaluated in the 2002 Final EA included the No Action Alternative, which would have continued the operation of the existing Coast Guard Museum in Waesche Hall at the Coast Guard Academy; the Riverside Park Alternative; and the Fort Trumbull Area (Parcel 4A) Alternative. The 2002 Final EA concluded that none of the alternatives would result in a significant impact on the human environment. The Coast Guard identified the Fort Trumbull Area (Parcel 4A) Alternative as its Preferred Alternative (Coast Guard, 2002).

Final Environmental Assessment: Proposed Coast Guard Acquisition and Operation of a Privately Constructed New National Coast Guard Museum (2008) – Following publication of the 2002 Final EA, the Coast Guard reconsidered the evaluated alternatives and decided to restart the EA process. In November 2008, the Coast Guard published a Final EA (2008 Final EA) and FONSI for *Proposed Coast Guard Acquisition and Operation of a Privately Constructed New National Coast Guard Museum* (Coast Guard, 2008a). Thirteen alternatives were considered for evaluation in the 2008 Final EA. Eight alternative locations were eliminated from further study because they did not meet one or more of the primary site evaluation criteria. The five alternatives evaluated in the 2008 Final EA included the No Action Alternative, which would continue the operation of the existing Coast Guard Museum in Waesche Hall at the Coast Guard Academy; Alternative 1 (Parcel 1: Fort Trumbull); Alternative 2 (Parcel 1A: Fort Trumbull); Alternative 3 (Parcel 4A: Fort Trumbull); and Alternative 4 (Riverside Park). The 2008 Final EA concluded that none of the alternatives would result in a significant impact on the human environment. The Fort Trumbull alternatives (Alternatives 1 through 3) and Riverside Park Alternative (Alternative 4) would have required acquisition of land for construction of the NCGM from the New London Development Corporation and the City of New London, respectively.

Strategic Master Plan: The National Coast Guard Museum (2008 and 2014) – In 2008, the Coast Guard commissioned a Strategic Master Plan to assess the Coast Guard and public needs for a NCGM and then to assess the plans for the NCGM in sufficient detail to determine the Coast Guard's requirements for ongoing financial support. The 2008 Strategic Master Plan addressed numerous planning aspects related to the NCGM, including an identification of community needs based on community leader interviews; required Coast Guard annual support; working site selection; foundations of a museum plan; required resources, revenue, and costs; and need for the ongoing annual support of the NCGM (Coast Guard, 2008b). The 2008 Strategic Master Plan considered five sites including the existing Coast Guard Museum at the Coast Guard Academy, Riverside Park, and three locations in Fort Trumbull. An addendum to the 2008 Strategic Master Plan was completed in 2014 to evaluate a new location on the downtown New London waterfront and to update changes in the market, museum practice, and data trends (Coast Guard, 2014).

Environmental Assessment National Coast Guard Museum Project (2014) – In 2014, the Coast Guard commissioned an EA to assess acquisition of property in New London, Connecticut, and construction of a new National Coast Guard Museum following acquisition. The EA considered a No Action Alternative, which would continue the operation of the existing Coast Guard Museum in Waesche Hall at the Coast Guard Academy and a Proposed Action Alternative at a new location on the downtown New London waterfront. The Coast Guard determined that the Proposed Action Alternative would have no significant effect on the human environment. The EA was determined to have adequately and accurately discussed the environmental issues and impacts of the Proposed Action Alternative and provided sufficient evidence and analysis for determining that an environmental impact statement was not required. The EA concluded in a FONSI.

1.4 PURPOSE AND NEED FOR THE PROPOSED ACTION

The purpose of the Proposed Action is to establish a NCGM that is capable of adequately preserving, recording, and displaying the Coast Guard's history and artifacts and that would be established in accordance with 14 U.S.C. §316 – privately constructed on land gifted to the Coast Guard in New London and in close proximity to the Coast Guard Academy. The need for the Proposed Action is based on the limited space and functional constraints of the existing Coast Guard Museum and the inability of the existing Coast Guard Museum to effectively tell the story of the Coast Guard.

Except for the Coast Guard, each branch of the armed forces has a national museum, and several are planning expansions. A NCGM would allow the telling of the broad story of the Coast Guard. It would provide public education through exhibits, theaters, programs, and other museum-quality learning experiences. The NCGM would build awareness of all the Coast Guard has done, and continues to do, for the nation in the execution of its missions (Coast Guard, 2008b; Coast Guard, 2014).

The effectiveness of the existing Coast Guard Museum at informing the public and potential recruits of its role in society has been limited. Because it lies behind Coast Guard Academy security barriers, public access is constrained. Visitation has historically been limited primarily to cadets, their families, and occasional veterans. A NCGM in a more publicly visible and accessible location is expected to substantially increase visitation.

The existing Coast Guard Museum is also too small to adequately serve its display and curatorial purposes. Because of a lack of space, many of the approximately 20,000 Coast Guard artifacts cannot be displayed or are out on long-term loan to nearly 300 institutions. Currently, museum patrons would need to travel to dozens of museums and locations to see the full range of Coast Guard artifacts. The Coast Guard needs to bring its large collection of artifacts together for exhibition in a modern museum. The NCGM would permit this consolidation.

In addition, improved storage conditions are needed for Coast Guard artifacts. Because only a small fraction of the existing storage space in Forestville, Maryland, is climate controlled, many artifacts are exposed to summer heat and humidity, pests, mildew, rust, and other corrosive and destructive elements (Coast Guard, 2008b; Coast Guard, 2014). These artifacts can tell a powerful and extremely important story but only if they are maintained to proper curation standards.

The Coast Guard Academy also has space constraints. Moving the Coast Guard Museum from its current location at the Coast Guard Academy would free up much-needed space that could be used for other Coast Guard Academy functions.

In addition to being required of the Coast Guard under 14 U.S.C. §316, a location in close proximity to the Coast Guard Academy is necessary because the museum must operate in tandem with the Academy. This operation must occur both administratively and to provide access for research and interpretation by current and future generations of cadets and leadership students.

1.5 PUBLIC AND AGENCY INVOLVEMENT

Public involvement and agency coordination were initiated at the beginning of the preparation of the 2014 EA to ensure that information was provided to the general public and agencies and that input from

these parties was received and considered as the EA was prepared. Public and agency involvement undertaken as part of the 2014 EA is documented in detail in that report.

The following sections summarize the agency coordination and public involvement activities associated with the subject FSEA. Consultation activities related to specific resources are summarized in their respective sections of the FSEA. For example, consultation in compliance with Section 106 of the National Historic Preservation Act and its implementing regulations is summarized in Sections 3.9 and 4.9 – Historic and Cultural Resources. A list of agencies and stakeholders consulted during the preparation of the 2014 EA and the subject FSEA is presented in Chapter 7.

1.5.1 SCOPING

Scoping is a term used in the Council on Environmental Quality (CEQ) regulations implementing NEPA (40 CFR, Part 1500 et seq.) to define the early and open process for determining the scope of issues to be addressed in the planning process. The scoping process involves the public in the identification of significant issues associated with proposed federal actions.

Scoping activities associated with the 2104 EA are presented in detail in that document. A supplemental scoping period was held to gather input from the public and various entities relative to the range of issues to be addressed within the FSEA. The scoping period extended from June 15, 2017, to July 18, 2017. A Notice of Intent (NOI) was published in the legal notices section of *The Day* newspaper on June 15, 2017. A copy of the NOI and documentation of notification is included herein as Appendix A5. The NOI briefly described the environmental review process that had occurred up to that point as well as the intent of the FSEA. The NOI announced a public scoping meeting that was subsequently held on June 22, 2017, to present an overview of the NEPA process and intended analysis and to solicit comments from the public.

On June 15, 2017, the NOI was mailed to 42 involved and interested agencies, organizations, businesses, and individuals who previously expressed an interest in the project, including those who provided written comment on the 2014 EA. A copy of the updated agency and stakeholder mailing list is included herein as Appendix A6.

A public scoping meeting was held on June 22, 2017. A copy of the scoping meeting presentation is included herein as Appendix A7. No oral comments were received during the meeting.

Scoping comments were accepted by U.S. mail, facsimile, and electronic mail until the close of the comment period on July 18, 2017. A total of five letters were received during the comment period. These are included herein as Appendix A8. All scoping comments were reviewed and are addressed within the body of this FSEA, as appropriate. Table A-8 in Appendix A-8 presents a summary of comment topics and the section within the EA or FSEA where the comment is addressed.

1.5.2 FSEA REVIEW

The 2014 EA was made available to all interested federal, state, and local agencies and the general public for a 30-day no action period in accordance with 40 CFR 1504.1(e)(2). The Coast Guard published a Notice of Availability of the EA in the legal notices section of *The Day* newspaper on March 26, 2014. The EA was mailed to interested parties and agencies requesting copies. Additionally, the EA was made available for review at the Public Library of New London.

The draft FSEA was published in August 2018. It was made available to all interested federal, state, and local agencies and the general public for a 30-day review period (August 1 through September 4, 2018). A Notice of Availability of the FSEA was published in the legal notices section of *The Day* newspaper. Electronic copies of the FSEA were available to interested parties and agencies on the NCGMA's website at https://www.coastguardmuseum.org. Additionally, the FSEA was available for review at the Public Library of New London. Copies of all public comment received are included as Appendix A9. Response to public comments is included as Appendix A10. Post-comment correspondence is included as Appendix A11.

1.6 DOCUMENT ORGANIZATION

The subject FSEA has been organized into the sections summarized below. A list of acronyms and abbreviations follows the Table of Contents, and appendices are provided at the end of the FSEA. This organization is identical to the 2014 EA, and pertinent narrative from the 2014 EA is included herein such that the document stands alone without the need to read the prior EA.

- Chapter 1, Purpose and Need for the Proposed Action, provides a background on the NCGM and describes the purpose and need for the Proposed Action, public and agency involvement opportunities during preparation of the FSEA, and the organization of the FSEA.

- Chapter 2, Proposed Action and Alternatives, describes the No Action and Proposed Action alternatives, the alternatives eliminated from detailed analysis, and the best management practices (BMPs) and project-incorporated protection measures that would be implemented to minimize impacts on the environment; and summarizes the environmental effects of the Proposed Action and No Action Alternatives.

- Chapter 3, Affected Environment, describes the existing environmental conditions of the resources in the project study area that may be affected by implementing the Proposed Action.

- Chapter 4, Environmental Consequences, discusses and compares the potential environmental impacts associated with the No Action and Proposed Action alternatives described in Chapter 2; includes a discussion of BMPs and project-incorporated protection measures that would be implemented in conjunction with the Proposed Action; and identifies potential cumulative effects from the Proposed Action and other relevant actions occurring in the area, and/or concurrently, with implementation of the Proposed Action.

- Chapter 5, References, is a list of the sources of information used in preparing the EA and FSEA.

- Chapter 6, List of Preparers, provides a concise summary of the preparers of the FSEA.

- Chapter 7, List of Agencies and Persons Contacted, is a list of agencies contacted regarding preparation of the EA and the FSEA.

CHAPTER 2.0
PROPOSED ACTION AND ALTERNATIVES

2.1 INTRODUCTION

This chapter briefly summarizes the prior analysis conducted to identify the range of reasonable and practicable alternatives that were considered and selected for evaluation as well as a detailed description of the Proposed Action Alternative. The 2014 EA concluded in the selection of a preferred site alternative for the future construction of the museum and a FONSI. A 0.34-acre parcel was subsequently acquired by gift from the City of New London to the USCG. Changes to the Proposed Action Alternative are analyzed herein to address additional land acquisition and refinements to the design of the proposed museum at the previously selected site.

2.2 PREVIOUSLY IDENTIFIED ALTERNATIVES

The USCG may not establish a Coast Guard Museum except as set forth in 14 United States Code (USC) §98. Therefore, alternatives presented in the 2014 EA were evaluated using criteria the Coast Guard developed based on the requirements outlined in 14 USC §98. The following alternatives were considered in the 2014 EA:

- No Action
- Fort Trumbull Alternatives
- Riverside Park Alternatives
- Water Street (Selected Alternative)

Alternatives considered but eliminated from further study included the following:

- Virtual Museum
- Union Station
- Norwich State Hospital
- Fort Trumbull State Park

In addition, many other potential alternatives were considered in previous EAs prepared by the Coast Guard for the NCGM.

2.3 PROPOSED ACTION

The proposed action in this FSEA is the acquisition of additional land by the Coast Guard in the City of New London that may be licensed to the NCGMA for the purpose of building a museum of approximately 80,000 square feet. As described below, changes to the Proposed Action include the acquisition of additional land abutting this 0.34-acre parcel as well as changes to the museum design that affect its size, footprint, related in-water activities, and the overall relationship of the building to the surrounding area. Since construction of a museum would be an indirect effect of the proposed Coast Guard actions, the potential impacts of such construction and long-term operation are evaluated herein.

The museum's size must be sufficient to ensure the conservation and display of the large collection of macro and micro artifacts, exhibits, tableaus, original artwork, and interactive audiovisual media exhibits in accordance with international museum standards. The museum must also be of sufficient size to conform to all relevant Americans with Disabilities Act (ADA), National Fire Protection Association (NFPA), and other applicable federal, state, and local codes and standards as required by law.

In this FSEA, museum size alternatives were considered based on needs as well as site constraints as follows:

- *Option 1: 30,000 to 40,000 GSF Museum* – The first option considered a small-scale museum in the range of 30,000 to 40,000 gross square feet such that the entire building would be placed within the 0.34-acre parcel; would not encroach into the Thames River; and would not encroach to the south onto the City Pier Plaza. In this option, the space required for stairways, elevators, restrooms, and mechanical/electrical equipment would leave insufficient gallery space to house exhibits, therefore failing to meet the project purpose. A museum of this magnitude would not be economically sustainable as a stand-alone cultural destination in New London.

- *Option 2: 50,000 to 60,000 GSF* – The second option was considered in the 2014 EA programmatically evaluated an approximately 50,000-square-foot museum that would span the upland site as well as a significant portion of the structure that would extend out over the Thames River. Subsequent coordination with state and federal regulatory agencies led to the conclusion that the cantilever option over open water was not feasible. It was also determined that the building size would need to increase in order to provide educational space as well as to expand the mechanical equipment and bring it indoors.

- *Option 3: 70,000 to 80,000 GSF* – The third option is large enough to support the internal building infrastructure while also providing suitable (though not excessive) area for gallery space to show exhibits, along with modest areas for event space and some administrative offices. Under this option, a portion of the administrative functions would be moved to a nearby off-site location, such as potentially Union Station. While this solution requires some compromises, they are consistent with delivering a world-class museum and fit within the anticipated budgetary and site constraints. This layout option extends just beyond the historic riprap shoreline, where the bulkhead would be placed.

- *Option 4: 90,000 to 100,000 GSF* – The fourth option evaluated a larger facility that would significantly extend the fill and bulkhead into the Thames River and beneath the adjacent City Pier Plaza to support all museum functions, including gallery space, ancillary uses, and administrative offices. In order to accommodate such a structure, the shoreline would extend outward to align with the ferry terminal shoreline to the north. This would result in nearly 18,000 square feet or just over 0.4 acres of fill area within the Thames River. This solution would provide sufficient facility space to accommodate administrative support as well as a larger auditorium and event spaces to address the complete programmatic demands of the museum. The amount of fill required to accommodate this construction could not realistically be offset, and the scale of this structure was believed to be too large to sit within the New London historic district. Additionally, the cost of the larger structure would be financially prohibitive.

The conclusion of the above screening analysis is that, based on the museum needs and site constraints, an 80,000-square-foot museum can be accommodated at the project location and is large enough to

support the critical functions of the facility. As such the Proposed Action evaluated herein is the acquisition of additional land by the Coast Guard that may be licensed to the NCGMA for the purpose of building a museum of approximately 80,000 square feet. The subsequent subsections present a more detailed description of the Proposed Action. It is noted that the 80,000 square feet refers to the gross square footage of usable building area and does not include the open or enclosed areas on the ground level, which are intended to serve a loading dock, entrance, storage, and other unoccupied areas as allowed by Federal Emergency Management Agency (FEMA) regulations for uses within a designated flood zone.

2.3.1 LAND ACQUISITION

Additional land acquisition is necessary to enable the museum to be constructed at the site. Under the revised proposal, the USCG would acquire additional land as follows:

- From the State of Connecticut under a use agreement or conveyance of title: Approximately 6,400 square feet of submerged lands beneath the City Pier Plaza platform
- From the State of Connecticut under a use agreement or conveyance of title: Approximately 3,100 square feet of submerged land in the Thames River
- By gift from the City of New London: Approximately 2,000 square feet of land immediately to the south of the 0.34-acre site (Note that this land has since been transferred).

The total additional land to be acquired is approximately 11,500 square feet or approximately 0.26 acres. When added to the existing parcel, the total museum site would comprise approximately 0.6 acres. Figure 2.3-1 depicts the current USCG property as well as the adjacent City Pier Plaza to the south, a portion of which is located on existing fill and a portion of which is constructed on piers over water. Figure 2.3-1 depicts the following:

- Approximately 6,400 square feet of proposed acquisition of submerged lands beneath the City Pier platform (to support future demolition of a portion of the existing platform structure and placement of fill by the NCGMA as part of museum construction);
- Approximately 3,100 square feet of proposed acquisition of submerged lands along the open Thames River shoreline (to support future placement of fill by the NCGMA as part of museum construction); and
- Approximately 2,000 square feet of proposed acquisition of land by gift from the City of New London, immediately south of and adjacent to the existing USCG parcel.

Also depicted in Figure 2.3-1 is a 3,100-square-foot area of the existing City Pier platform to be removed by NCGMA to create open water to offset the proposed 3,100 feet of open water fill. Figure 2.3-2 depicts the future anticipated NCGM site.

2.3.2 OVERVIEW OF THE PROPOSED MUSEUM

The construction of the museum would be an indirect effect of the proposed Coast Guard actions and is therefore evaluated herein. A brief discussion of the background as well as an overview of the proposed museum are presented below. The activities associated with museum construction and long-term operation are presented in subsequent sections.

Museum Function and Programming

The USCG Historian's Office serves as the gateway to the service's illustrious past. Charged with preserving, promoting, and commemorating its history and heritage, the USCG Historian's Office oversees the preservation of thousands of documents and artifacts for the modern Coast Guard, including its five predecessor agencies: the Revenue Cutter Service, the Life-Saving Service, the Lighthouse Service, the Bureau of Navigation, and the Steamboat Inspection Service.

Figure 2.3-1 Proposed Land

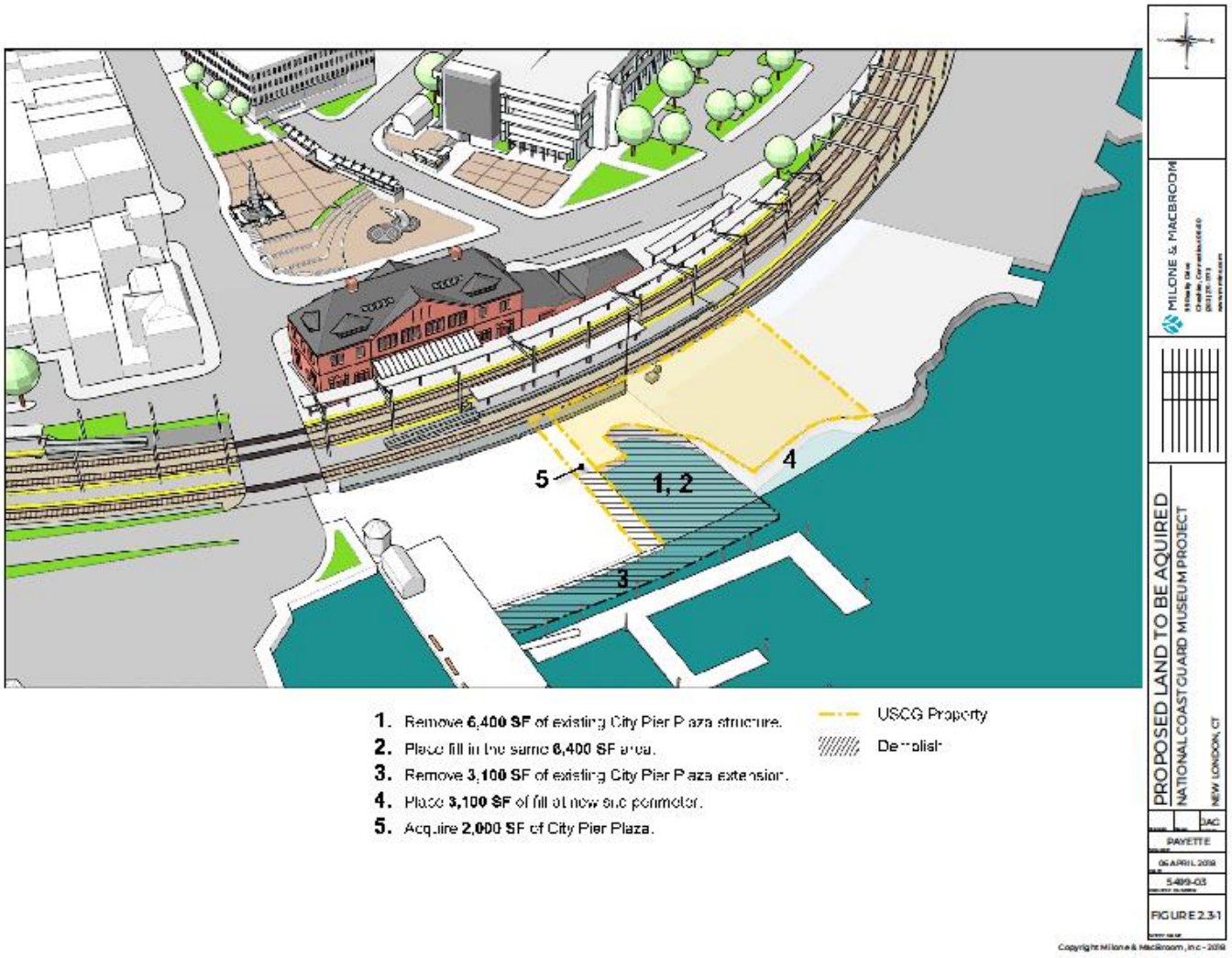


Figure 2.3-2 Proposed Museum Site

The Coast Guard Curatorial Services Program, a unit within the Historian's Office, has more than 1,800 artifacts on loan to over 200 nonprofit organizations throughout the United States while more than 20,000 artifacts reside in storage. Heritage assets include navigational instruments, artwork, uniforms, flags, and Fresnel lenses, all of which will potentially be displayed in the museum once differing levels of conservation and preservation have been completed.

The museum will educate the public about the evolution of the maritime and military history of the USCG and its contributions to America. The components of the museum will reflect the missions of the USCG curated in three themed areas of Safety, Security, and Stewardship explored through five story lines:

- Defenders of the Nation
- Enforcers on the Seas
- Lifesavers around the Globe
- Champions of Commerce
- Protectors of the Environment

Museum programming within these story lines will be showcased in various galleries, exhibits, and immersive and tactile experiences to bring to life the heroic stories of the USCG. The museum will be free and open to the public, with over 200,000 estimated annual visitors.

The museum will be a hub of direct experiential learning as well as distance learning through online access to the activities that will connect visitors to the museum long after their tour has ended. Museum galleries and exhibits will focus on the accomplishments of the USCG and its remarkable history woven into the themed storylines, bringing to life the significance, history, culture, heroism, and values of the USCG. The museum's STEM (Science, Technology, Engineering and Math) Center will complement the exhibits and expand the visitor's interactive museum experience. The primary goal will be to provide a comprehensive immersion into Coast Guard life with blended and highly engaging learning experiences for every visitor.

Throughout the museum and in a dedicated area, STEM concepts will be explored with interactive classroom sessions, hands-on lab work, and simulators designed to illustrate USCG activities on the global maritime environment, weather, nautical science, maneuvering boards/relative motion and physics, buoyancy and stability, survival at sea (health science), and aviation principles. The museum will partner with K-12 school districts to provide expert STEM programming that integrates best practices and research from centers such as the National Science Foundation, U.S. Space & Rocket Center, Challenger Center, and FIRST (For Inspiration and Recognition of Science and Technology).

Physical Museum Structure

The physical museum structure would be an 80,000-square-foot museum with minimal at-grade floor area and up to six elevated floor levels. It would be designed for the appropriate (non-zero) seismic loads for the New London area, which are determined by building code. Figures 2.3-3, 2.3-4, and 2.3-5 show perspectives from the shoreline, train station, and west side of Water Street, respectively. Figure 2.3-6 presents a plan view of the museum on the site. The building footprint would cover an area of approximately 15,000 square feet. Figure 2.3-7 presents the building in profile.

Figure 2.3-3 Perspective from Shoreline

Figure 2.3-4 Perspective from Train Station

Figure 2.3-5 Perspective from West Side

Figure 2.3-6 Plan View

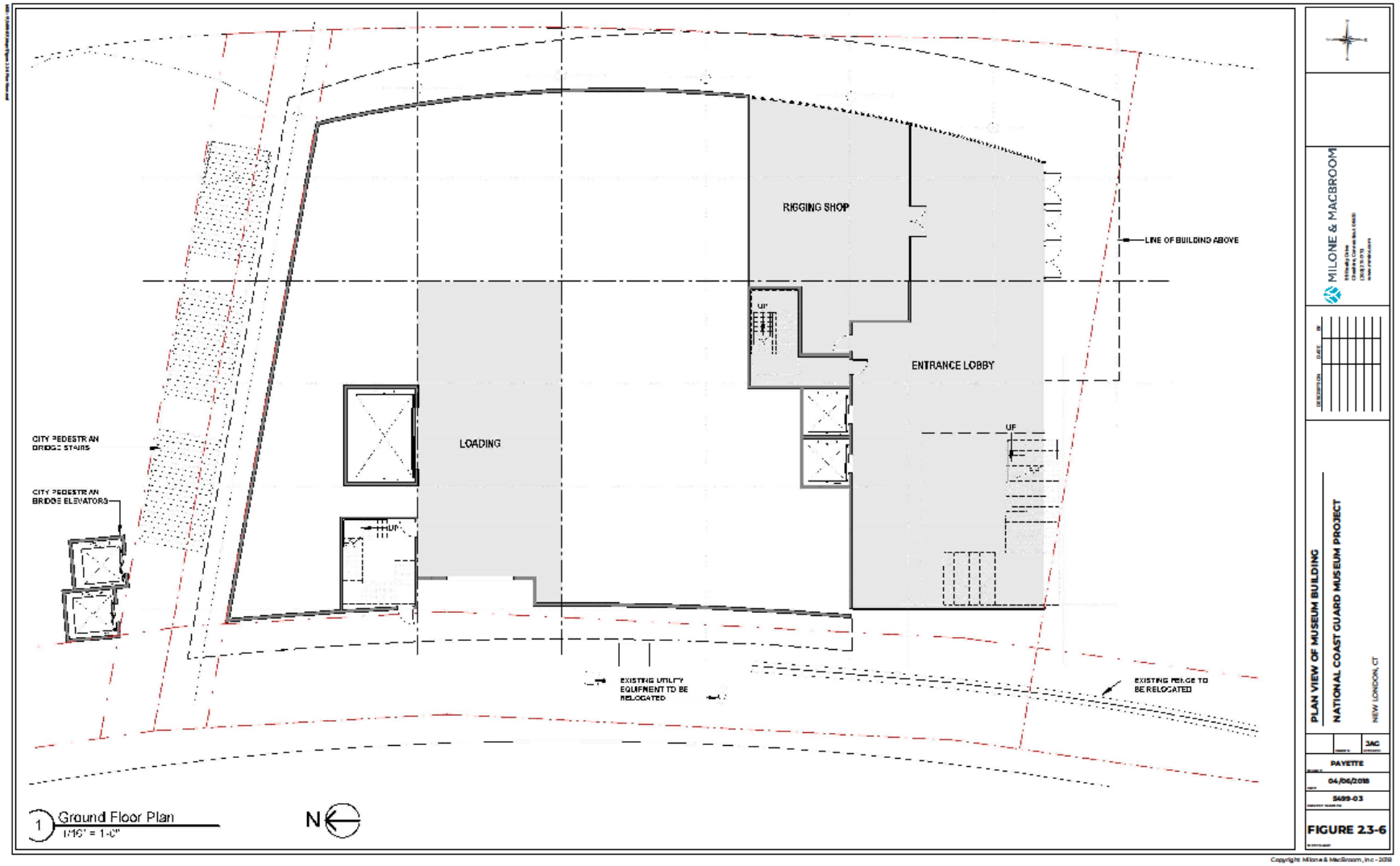
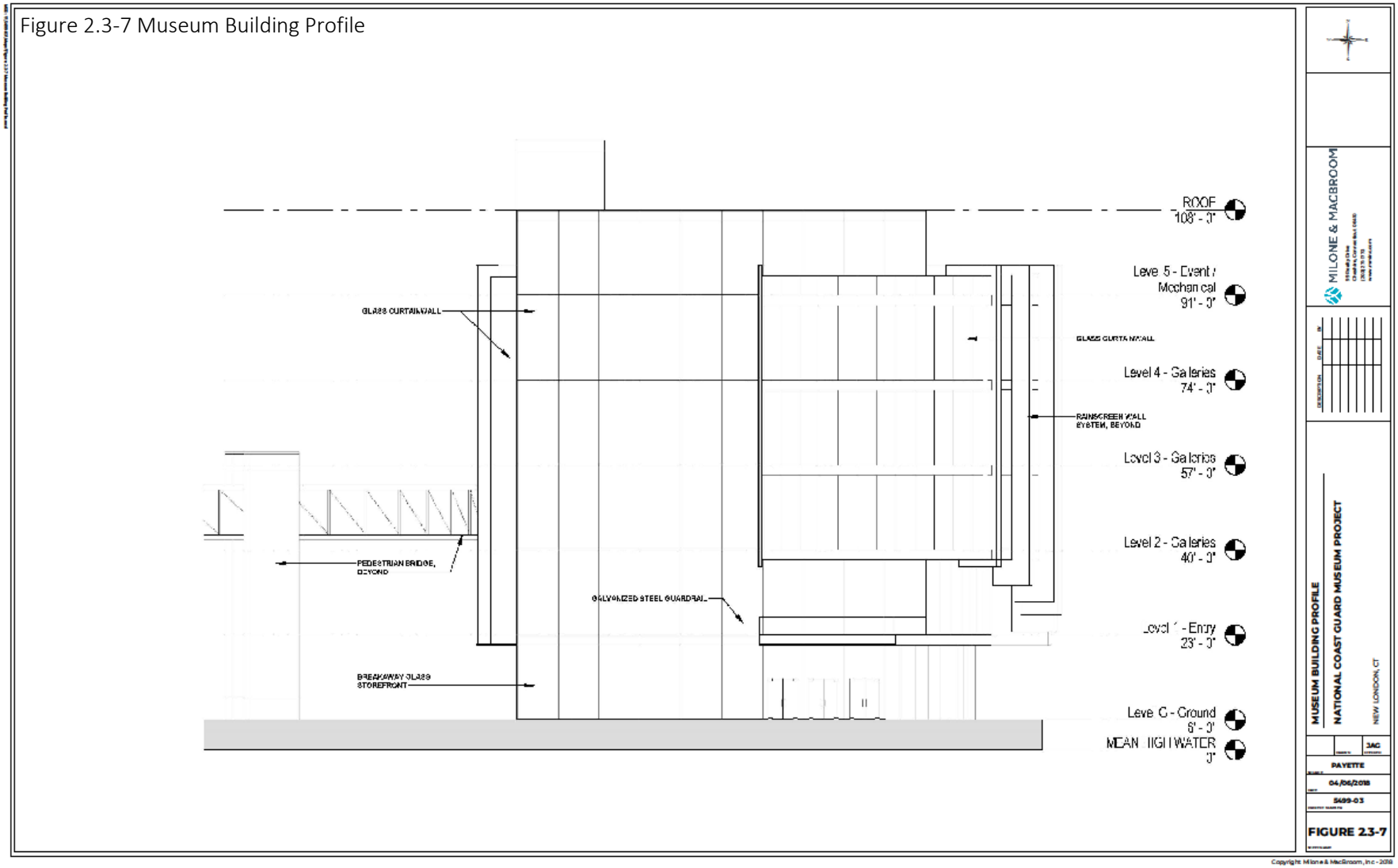


Figure 2.3-7 Museum Building Profile



The entry level of the building would be approximately 17 feet above the City Pier Plaza (above the 500-year flood elevation) and would be accessed through open stairs or elevators within the entry area and/or those that would be part of a proposed pedestrian bridge construction to serve the museum and the adjacent ferry terminal (see discussion in Section 2.3.13). This main floor would contain the front entrance and lobby area, ticketing and security (to the extent these are needed), a gift shop, and an auditorium or orientation/welcoming presentation space. The next three floors of the museum would contain galleries and educational space.

The fifth floor would include event space with a small warming kitchen, space for museum staff, and mechanical equipment. The event space would include an indoor area and a roof deck for outdoor events as well as exhibits. The event space would be used for educational programming and private functions such as retirement parties, weddings, and conferences. The building would have very limited office and facilities space. As such, additional off-site offices would be required to fully support the museum's operation.

If needed, the sixth and uppermost floor would be an enclosed area dedicated to mechanical equipment to operate the building. Due to the local climate, it would be undesirable to expose museum-grade equipment that will require maintenance during the winter months.

Building construction materials would be selected to be compatible with the salty ocean spray environment (i.e., stainless steel, coated aluminum, etc.). The building exterior would feature a primarily glass façade on the lower levels, with opaque "sails" on the eastern and western building faces. The solid building façade (including the curved panels on the east façade) would be a rain screen wall system likely composed of stainless steel, coated steel, or metal composite panels. The curvature of the panels on the east and the texture of the panels overall would give depth and detail to the sweeping façade.

The vast majority of exterior glass would be concentrated on the south façade, which would open up to the city with a welcoming entrance at grade on City Pier Plaza. The south facade would capture natural light and solar heat into the gallery and circulation areas in the building. Selected use of exterior sunshades and bird protection glazing would be studied during the advanced design phase in order to minimize risk to migratory birds and optimize energy performance of the facility.

Bird Strike Prevention Design Elements/Bird Safety Design

One of the important features of the NCGM site is its proximity to, and engagement with, the Thames River. As a result, it is important for the building to maintain transparency, both as a way to provide views from the interior and to interact with the public realm. This provides unique opportunities to enhance the visitor experience through programming centered on the views to the Thames River and observable vessel traffic in the area. At the same time, however, glass in a building creates the potential for bird strikes. Birds cannot see glass. Instead, they see what is reflected in its mirror like surfaces or through it to potential resting areas. Bird strikes often occur in areas of shaded glass or in areas where glass reflects adjacent vegetation or the sky.

Scoping comments raised a concern for bird strikes with the initial design concept. In recognition of the risks to migratory birds, the Coast Guard was urged to consider incorporating bird-safe glazing options to make the glass more easily detected by birds.

A variety of approaches have been considered, such as fritting, silk-screening, ultraviolet coating, or creating a pattern that breaks up the reflectivity of the glass and alerts birds to its presence. Understanding that bird-safe glass is only one part of the equation and not guaranteed to be 100 percent effective, efforts were first made to simply reduce the total amount of glass, virtually eliminating the north- and east-facing glass on the upper floors and concentrating transparent sections of the building on those areas facing to the south. The net impact of this was an approximately 30 percent reduction in transparent surface from the initial concepts.

Having accomplished this, a combination of techniques were considered to make the transparent glass less of a hazard to birds. First, there would be no vegetation near or inside the building, so its installation would be less attractive as a stopping off point for birds. The glass would also be broken up with structure and mullions to provide visual breaks that are easily seen by birds. The proposed design would also employ bird-safe glass strategies to mitigate the impact of transparent glass, focusing on ultraviolet patterned glass (such as Ornilux) and fritted glass in areas deemed most vulnerable, such as the tall entry vestibule on the southwest corner of the building.

Finally, understanding that the science of protecting birds from building glass is evolving, the design would also provide for devices that could be added after construction to "tune" the way the building is perceived by birds. This would be achieved by designing interior surface-applied and appropriately spaced decals that could be placed after the fact in the event it is found that the measures employed up front were not sufficient in one part of the building or another. These would likely be translucent, die-cut shapes that would simulate and blend with frit patterns (lines or dots) that might be deployed with the initial construction.

Historic Preservation

The Secretary of the Interior's Standards for the Treatment of Historic Properties provide architects and planners with general advisory guidelines and best practices to promote historic preservation. New construction adjacent to Union Station is being designed to be differentiated from the existing structure to maintain the station's historic character. The museum building design presents a quiet façade facing the train station and Parade Plaza, so that the museum would remain deferential and recessive to the train station. From the waterfront, the building would be more sculptural and expressive of its cultural significance to the city, but through its distinct and modern architectural language would complement, rather than compete with the historic train station.

In response to early consultations with the State Historic Preservation Office (SHPO), the museum design is sensitive in how the new structures would interact with Union Station and the downtown area around Parade Plaza. The updated design includes an extension of the pedestrian bridge to the south, embedded within the volume of the museum. Pedestrian pathways for those people arriving at grade and from the bridge would be joined at the southwest corner of the building in a large, full-height entrance vestibule that would include an iconic rescue helicopter display. This soft corner of the building is being designed to provide a visual window into and through the museum from vantage points downtown and Union Station, as well as expand the view corridor between the two buildings toward the waterfront. This would allow for far greater openness as perceived from the train platform and a greater visibility of the full train station façade from the water.

Moving the museum entrance from the waterfront edge (as in earlier design iterations) to the south side of the building would provide for greater connection to the public realm at the ground level. Activating

City Pier Plaza with the museum's entrance and glass atrium façade would encourage visitors to arrive at grade and increase pedestrian traffic at street level.

The waterfront site in the heart of New London provides a setting for the new museum that ensures the facility will contribute to and benefit from the vibrancy of the transportation hub and downtown business district. The rich history of New London is a significant factor to be considered in the design of the building. In particular, the structure is planned for the northern boundary of the City's historic district and is in direct dialog with Architect H.H. Richardson's celebrated train station.

The NCGM has been designed to ensure that the new museum would protect views to the train station and ensure it maintained its essential connection to the waterfront. To that end, the previous designs focused on glass and transparency to the waterfront, with a more closed-off attitude to the west facing the train station and downtown. The design was refined in response to consultation with the State Historic Preservation Office (SHPO) and public comments. The current design reflects this input through the following design features:

- Pedestrian Connector Path
  The pedestrian connector is required to extend from the parking garage to the waterfront providing access to points in-between including the train station north bound platform. Because it must pass between the catenary wire stanchions (train power line supports) placement of the connector is limited in the routes that can be mapped. Initially, the connector was slated to take a direct route from the parking garage to the waterfront. This required demolition of the existing brick bus station structure. While the SHPO determined during the 2014 Environmental Assessment process that this structure, while of interest, need not be preserved, the current design has been modified to avoid elimination of the existing brick structure while still maintaining access to the train platforms.

  The pedestrian connector now follows a sweeping path designed to stay as far north as possible, keeping well clear of the train station and reinforcing the sense of the Parade Plaza "urban room" that is currently defined by the train station to the east, older buildings on State Street to the south, and the more contemporary garage to the north. The pedestrian connector provides a natural extension of the garage demarcation and maintains a simple clarity of design and transparency that keeps it from competing with the existing architecture of New London.

  The new design for the connector also provides an extension to the south on the waterfront side so pedestrians can experience a comprehensive view of downtown New London and also an unfettered view of the train station from three sides.

- Connection to City Pier Plaza
  In response to the desire for the building to address the city as well as the waterfront, the design has been reconfigured so that the true front door now faces City Pier Plaza instead of the water. This reinforces the connection to the city and will create more activity on City Pier Plaza. This orientation will also help to define the museum and pedestrian connector as a natural terminus for the new river walk which currently extends from Shaw Cove up to the proposed site but then dead-ends at Cross Sound Ferry's property line and gravel parking lot.

  The new entrance also incorporates a multi-storied glass entrance vestibule on the southwest corner of the building. This placement is strategically selected to make the building feel lighter and more

transparent as it nears the train station. This is particularly driven to provide views through the building expanding the view to the train station from the waterfront and to the waterfront from the train platform and pedestrian connector.

Reinforcing the idea that the museum connects back to the City and train station, the glass entrance will include the signature Coast Guard exhibit of a helicopter with a suspended rescue swimmer.

- Waterfront Elevation
  The design of the museum has been understated when viewed from the City and more interactive when viewed from the water. This led to expanses of glass and transparency along the riverfront. In response to feedback received, the design has moved to a quieter, more sculptural expression that is defined by a pattern of repeated curved "sail" elements. This new approach allows the building to be transparent with vast expanses of glass near the train station, and then more opaque and restrained along the water's edge so that the building can more naturally fit in with the New London skyline and riverfront.

- Parade Plaza Elevation
  The attitude of the building as it faces the train station and Parade Plaza has similarly been studied and updated over the course of the design evolution. Most notably, the design incorporates a section of the pedestrian connector that cuts through the building providing continued views of Parade Plaza and the train station along the length of its eastern elevation.

  Following discussions with the SHPO, the general approach of the façade is to keep it neutral and preserve the idea of a backdrop for the train station. With the extensive transparency of entrance on the southeastern corner and the views into the pedestrian connector, the building addresses the urban context without overshadowing the train station. The intent is to keep the rest of the façade neutral and suppress the expression of other elements such as windows or other articulations.

Architecturally, it is understood that any new construction within the New London historic district will have an impact. The museum will be larger than its immediate neighbors, but its size has been reduced in response to this context. The goal is that this design will respond to the historic fabric and, within the constraints imposed by the site, be a respectful and reserved neighbor. From Parade Plaza, the building has a recessive posture. From the waterfront, the design is more textured, but more subdued than previous design concepts. The waterfront view is designed to work in conjunction with the view to the train station so that new and old are seen in partnership with one another.

This approach to the design is consistent with the Secretary of the Interior's Standards for the Treatment of Historic Properties which strive to preserve historic assets and ensure that new interventions remain distinct rather than copy traditional designs. The Standards are set to help instruct how new construction can be incorporated as a modification to a historic building or within a historic district, such as New London. Seen through the lens of the Standards, the museum design employs a modern architectural language so will not be confused with the City's historic architectural fabric. The site is also at the northern tip of the historic district, so with the careful planning of its relationship to the train station, the museum obscures very little of the City's historic skyline.

Even with the level of attention, and the hope that the project will bring significant benefit to the city through its operation, design efforts reflect additional measures that "mitigate" or compensate for

unavoidable impacts. In many cases, development projects might document historic structures that are to be demolished, but that is not applicable in this instance. The pedestrian connector, however, provides an opportunity to convey the story of New London's past. Projecting curated panels on the north face of the pedestrian connector walls, the historic context can be explained as visitors are experiencing the panoramic view of the business district on the south facing glass of the connector.

Sustainability

The building and site design would strive to be highly sustainable, with a goal of achieving the platinum certification, which is the highest level of certification offered by the premier green building rating system organization Leadership in Energy and Environmental Design (LEED). At the beginning of the project, it is not possible to confirm the final level of performance. Seeking a platinum-level certification indicates a project that has pursued efficient energy use and healthy indoor air quality, among other design goals.

2.3.3 CONSTRUCTION LAYDOWN

The footprint of the NCGM would be approximately 15,000 square feet. This would leave a minimum amount of circulation area around the building site for construction and maintenance activities including limited laydown areas. A 20-foot-wide easement along the property line parallel to the railroad tracks will need to be maintained during and after construction of the museum.

Because of the limited amount of space available, laydown and staging areas on the site will be minimal. A "*Just-In-Time*" logistics plan for delivery of the major construction materials is anticipated, including piles; structural steel, glass, and glazing; as well as major mechanical and electrical equipment. As the name implies, the "*Just-In-Time*" logistics plan would schedule materials to arrive on site when they are needed. This approach would require the construction team to identify and acquire a secure, off-site material and equipment laydown location or locations where deliveries can be received, stored, staged, and prepared for delivery to the construction site. Dedicated locations at the NCGM site would then be established for receiving material and equipment and coordinating timely installation. Material and equipment for the NCGM project would be transported to the site by a combination of over-the-road trucks and barges.

In addition to "*Just-In-Time*" delivery, it is anticipated that a barge would be moored at the new waterfront bulkhead. This barge would be used as a floating laydown area during key phases of construction. Construction materials including piles and structural steel could be delivered in this manner. Depending on the sequencing and the timing of delivery, the material would be removed from the barges and placed immediately adjacent to the site. While barges vary in size, a typical barge used for this purpose would be between 110 and 135 feet in length and 30 to 45 feet wide. Depending on the size of the required floating laydown area and the availability of the space, more than one barge may be used. Barge traffic is common on the Thames River, and the navigational channel is sufficient to support the transport to and from the site during construction.

Several areas within a 5-mile radius of the NCGM site, both inland and on the Thames River, may be available for laydown areas. The following locations, depicted in Figure 2.3-8, were evaluated for laydown areas:

1. Site A – Mohawk Northeast property in Groton with waterfront access and access to roads
2. Site B – Mohawk Northeast property in New London with waterfront access and access to roads

3. Site C – Cross Sound Ferry property adjacent to the NCGM site
4. Site D – State Pier property in New London with waterfront access and access to roads

Depending on the actual space that is available at the time of procurement, multiple sites may be required. It is noted that the State Pier property as well as the Mohawk sites have capacity and have been used in a similar manner in the past. It may be necessary to construct temporary access; install erosion and sediment controls; and install advance security enhancements including perimeter fencing and security monitoring devices such as cameras.

2.3.4 CONTRACTOR PARKING

It is anticipated that on-site parking will not be available for contractors due to the limited space that will be available. At the peak of construction, there may be the need for parking for 80 to 120 contractor and employee vehicles per day. On average, between 50 and 60 contractor and employee vehicles per day are anticipated. Contractor parking will need to be accommodated by relying on currently available off-site parking options. They include the following locations (depicted on Figure 2.3-9) described below:

1. The Water Street Garage (connection point for pedestrian walkway) – This garage is located approximately 0.2 miles walking distance from the NCGM site. There may be competition for space in this garage with General Dynamics Electric Boat (GDEB) employees, patrons using Cross Sound Ferry, and general downtown parking demands. It is possible that other entities may restrict contractor parking in this structure during peak seasonal usage. Additionally, this garage may have height limitations that may restrict access to vans and pickup trucks with ladder and pipe racks.

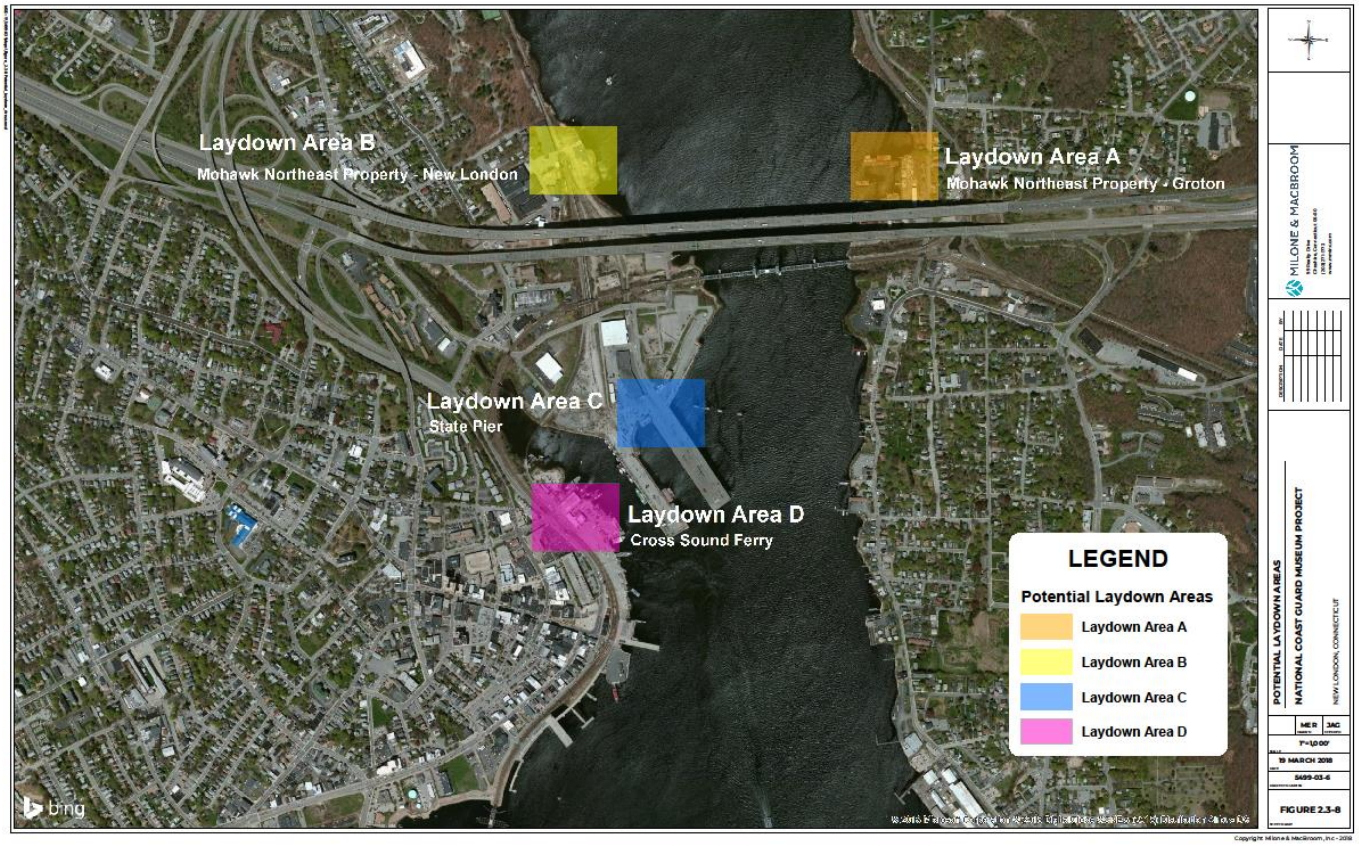
2. Governor Winthrop Parking Garage (located at 70 Union Street) – This garage is approximately 0.4 miles walking distance from the NCGM. This garage may also have height limitations that may restrict access to vans and pickup trucks with ladder and pipe racks.

3. Public parking lots on Eugene O'Neil Drive/Green Street – These lots are approximately 0.3 miles walking distance from the NCGM. The lots support the businesses on Bank Street and the surrounding areas.

4. Private parking nearby – Private parking could possibly include use of available parking at Cross Sound Ferry, the Yankee Gas property north of Cross Sound Ferry east of the railroad tracks, at State Pier, or other nearby property. This would necessitate some form of agreement with the property owner. In the case of Cross Sound Ferry, use of its property for construction parking may only be possible during the off season.

5. Remote parking with a dedicated shuttle service to and from the construction site and the parking lot is another option for contractor parking. A potential location for remote parking is the property within the Fort Trumbull area, approximately 1.3 miles from the NCGM by vehicle.

Figure 2.3-8 Potential Laydown Areas



2.3.5 CONSTRUCTION-RELATED TRAFFIC

Based on the layout of the streets in the downtown New London area, construction vehicles would have access to the site from two locations, as depicted in Figure 2.3-10. The first location, referenced as Entrance A, is located at the end of State Street to the south of Union Station. The second location, referenced as Entrance B, is located at the entrance to the Cross Sound Ferry terminal, which is at the intersection of Water Street and Governor Winthrop Boulevard (GWB). GWB becomes Ferry Street on the property of Cross Sound Ferry.

Both Entrances A and B would require crossing the active railroad tracks to gain access to the site. Automatic warning devices and crossing arms are in place at both locations to stop vehicles when trains are approaching. Entrance A would require vehicles to cross City Pier Plaza along the fence line for a distance of approximately 200 feet. Prior to construction, an assessment would be made as to the need for protection of City Pier Plaza during construction to minimize damage to the existing brick pavers. If protection was deemed warranted, engineered interlocking mat systems designed for this purpose or similar protective measures would be put in place. Following construction, it is possible that some off-site refinishing and paving work may be necessary to address impacts related to site construction activities.

Entrance B would require vehicles to traverse the Cross Sound Ferry site. The distance from the Cross Sound Ferry entrance to the NCGM construction site is approximately 1,100 feet. Entrance B would only

be viable upon approval by Cross Sound Ferry and only during certain times of the day such that ferry operations are not impacted.

On-site space for a turnaround for tractor trailers or other large construction vehicles would not likely be available such that only one entrance could be used. The preferred traffic pattern is as follows:

- Delivery vehicles would enter the site at Entrance A.
- The vehicles would travel across the City Pier Plaza to the designated material unloading point at the NCGM construction site.
- The vehicles would then exit the site to the north, crossing the tracking mat and departing though Entrance (Exit) B.

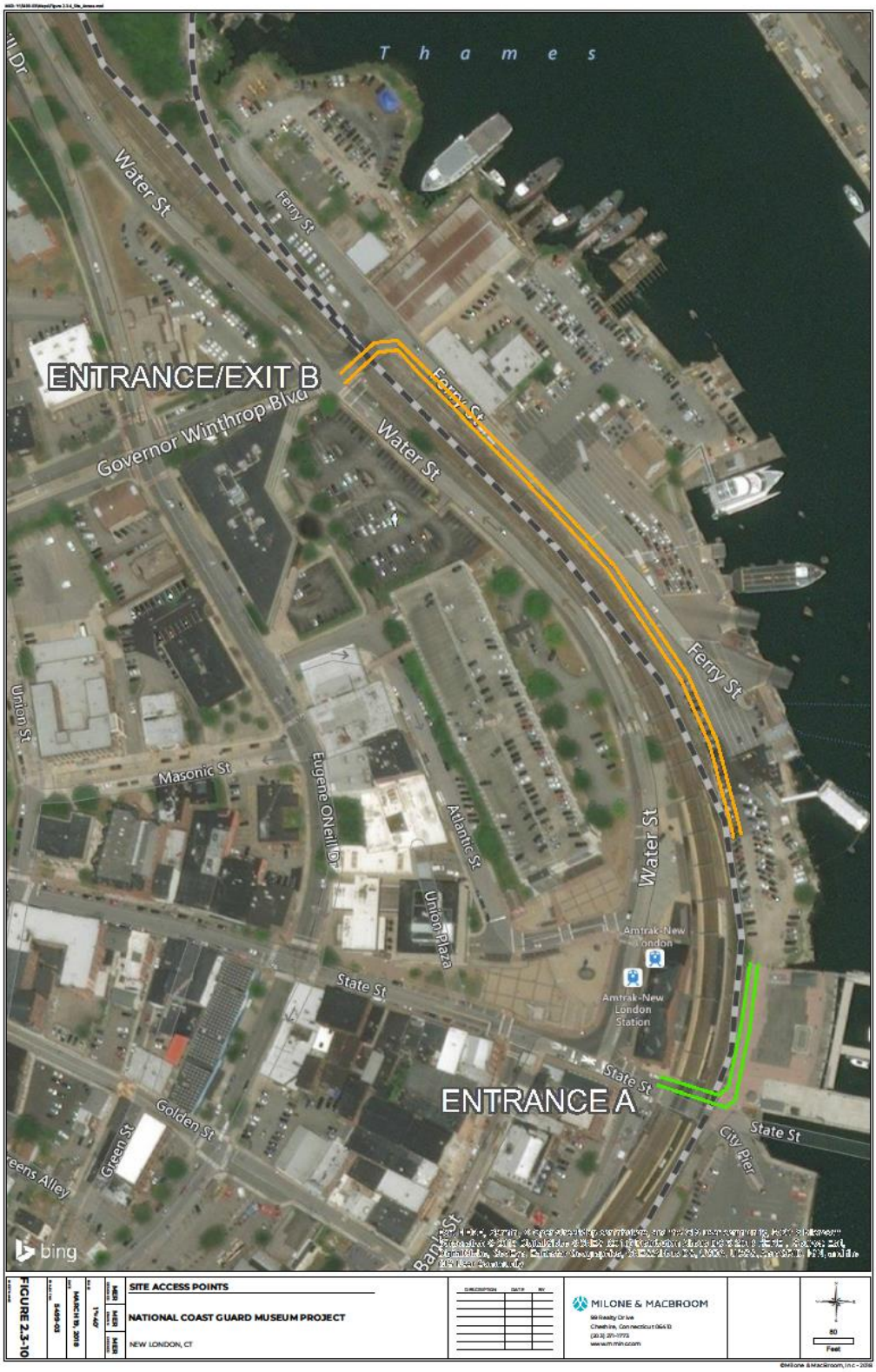
This would require coordinating deliveries with peak ferry service times and the Amtrak train schedule in order to minimize interferences with both operations.

A properly constructed tracking mat would be installed at the primary construction site exit to prevent sediment from being tracked off site. The tracking mat would be constructed of angular stone not less than 6 inches thick, with a minimum width of 12 feet and a minimum length of 50 feet. The 2002 revision of the *Connecticut Guidelines for Soil Erosion and Sediment Control* would be followed regarding the construction of the mat. The limitations of entrance and egress from either Entrance A or B may shift the primary access to the use of barges for storage and delivery of materials to the site.

Managing traffic during all phases of construction for the NCGM would be necessary to minimize traffic delays, maintain motorist and worker safety, complete work that would cross roadways in a timely manner, and maintain access to Union Station, Amtrak, and the Cross Sound Ferry Terminal and for New London businesses and residents in general. As such, a Maintenance and Protection of Traffic Plan would be required.

Figure 2.3-9 Parking

Figure 2.3-10 Site Access



Effective work zone traffic management would include assessing work zone impacts and documenting strategies for mitigating the impacts. Work zone traffic management strategies would be identified based on the project constraints, construction phasing/staging plan, type of work zone, and anticipated work zone impacts. Once these strategies are implemented, they would be monitored to ensure they effectively manage work zone impacts.

2.3.6 CONSTRUCTION EQUIPMENT

The construction equipment required for the museum, site, and shoreline improvements would include both medium and heavy construction type. Most of the equipment would be delivered to the site on trailers. Equipment such as hydraulic truck cranes would be brought over the road. It is anticipated that the sheetpiles for the bulkhead would be installed with the use of a barge-mounted hydraulic or vibratory pile-driving rig similar to what has been used at adjacent properties to the north and south. The following is a list of anticipated/typical equipment that will be needed to construct the museum and shoreline improvements:

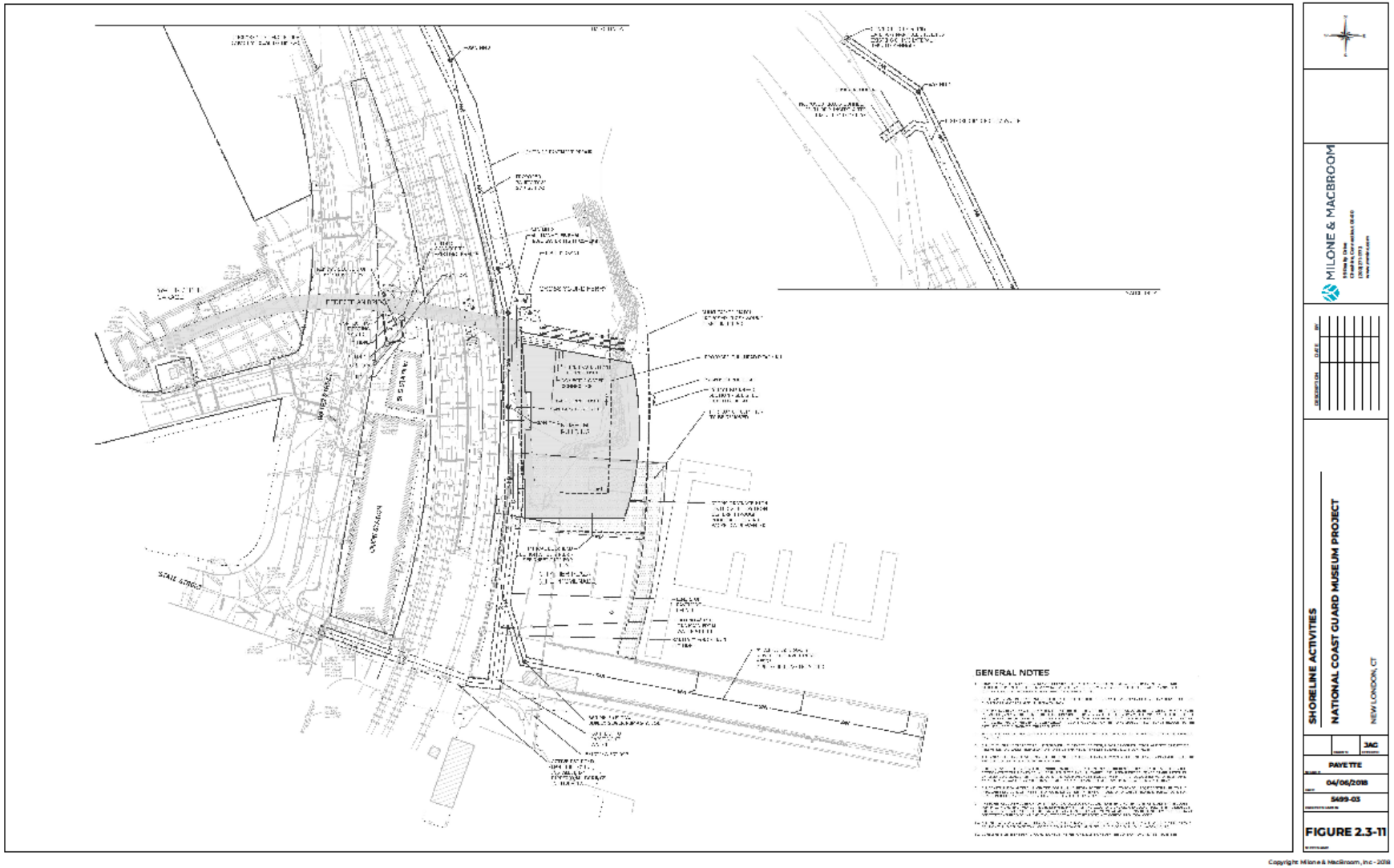
- Skid steer loaders
- Excavators
- Front end loaders
- Backhoe loaders
- Concrete trucks
- Dump trucks
- Hydraulic truck-mounted cranes
- Tower crane
- Barge-mounted cranes
- Hydraulic pile-driving rig; barge and land based
- Vibratory pile-driving rig; barge and land based
- Auger drilling rig for caissons
- Roller compactors
- Diamond blade demolition saws
- Scissor lifts
- Boom lifts
- Dewatering pumps
- Temporary generators

2.3.7 SHORELINE ACTIVITIES

The Proposed Action involves constructing bulkheading along approximately 200 linear feet of shoreline and filling behind the bulkheading within an area of approximately 9,500 square feet, 6,400 square feet of which is currently beneath the City Pier Plaza. Figure 2.3-11 depicts the shoreline activities. The shoreline improvements would need to be constructed prior to construction of the museum.

Enabling Activities – Soil sampling and analysis would be undertaken prior to construction to determine the nature of any contaminants that may be present as well as establishing its suitability to be used for construction. Soil samples were previously collected at the site in 2014 as part of the Phase II Environmental Due Diligence Audit commissioned by the Coast Guard. Specific contaminants of concern analyzed included volatile organic compounds, semivolatile organic compounds, petroleum hydrocarbons, heavy metals, polychlorinated biphenyls (PCBs), pesticides, and asbestos. Most contaminants were detected at concentrations that were below the Connecticut Remediation Standard Regulations (RSR) criteria. Semivolatile organic compounds and polyaromatic hydrocarbons were detected in the majority of the soil samples, indicating the impact of historic use of coal at the site. Certain metals were detected in several soil sample concentrations above those normally detected in clean soil and likely represent a release of these metals to the soil. Confirmatory sampling will dictate the future use and appropriate disposal criteria for any excavated soil. If contamination is found, it will be handled and managed in accordance with all applicable laws and regulations.

Figure 2.3-11 Shoreline Activities



Site Preparation – A land-based comprehensive, site-specific Stormwater Pollution Prevention Plan (SWPPP) would be in place prior to the start of bulkhead and fill construction. In addition, turbidity curtains would be installed in the Thames River around the limits of construction in order to retain silts, sediments, and turbidity within the construction area. Turbidity curtains would be fabricated from tightly woven geosynthetic or impervious reinforced thermoplastic that is UV stable. A floating surface boom would also be installed to capture floating surface debris. The floating boom would be equipped with absorbent pads to contain any oil that may enter the water.

There are four types of turbidity curtains available ranging from Type I to Type IV. The appropriate type to be used is a function of tidal range, maximum velocity of the current, and the amount of wind and wave action that is anticipated. Based on the conditions in the Thames River, Type II turbidity curtains are anticipated to be adequate. This would be confirmed during the detailed project design phase.

The turbidity curtains would be anchored to the bottom of the Thames River in accordance with BMPs. As a general rule, a minimum 1-foot gap would be maintained between the curtain and the bottom of the river. The type and quantity of anchors would be determined based on factors including bottom conditions, winds, currents, and size of the turbidity curtain's boom.

The turbidity curtains would be inspected daily for damage, and repairs will be made as necessary. The curtains would remain in place until the end of construction or as long as the contributing area can still introduce sediment into the water.

The following BMPs would be in place for each major activity outlined below:

Removal of Existing Timber Piles – Remnants of old timber piles are evident along the Thames River shoreline adjacent to the site. It is anticipated that these would be removed prior to construction of bulkheading. The following measures would be undertaken in the course of timber pile removal:

- Piles would be removed slowly in order to minimize turbidity in the water column as well as sediment disturbance.

- The pulled pile would be placed in a containment basin on land to capture any adhering sediment. This would be done immediately after the pile is initially removed from the water.

- Vibratory extraction would be the preferred method of pile removal and would be employed unless the pile is too decayed or short for the vibratory hammer to grip. In this method, the vibratory hammer would be suspended from a crane by a cable. The hammer would be activated to loosen the piling by vibrating as the piling is pulled up. The hammer would be shut off when the end of the piling reaches the mudline. The length of time required to extract the piling will depend on piling length and sediment condition. Typically, there is little or no sediment attached to the skin of the pile during withdrawal.

- Direct-pull extraction would be optional if the contractor determines it to be appropriate for the substrate type, pile length, and structural integrity of the piling. If this method is used, the pilings would be wrapped with a choker cable or chain that is attached at the top to a crane. The crane would pull the piling directly upward, removing the piling from the sediment.

- Broken and damaged pilings that cannot be removed by either the vibratory hammer or direct pull would be removed with a clamshell bucket. A clamshell is a hinged steel apparatus that operates like a set of steel jaws. If this method is used, the bucket would be lowered from a crane, and the jaws would grasp the piling stub as the crane pulls up. The size of the clamshell bucket would be minimized to reduce turbidity during piling removal. The clamshell bucket would be emptied of material onto a contained area on the barge or on land before it is lowered into the water.

- Cutting of piles would be required if the pile breaks at or near the existing substrate and cannot be removed by other methods. If a pile is broken or breaks during extraction, one of the methods listed below would be used to cut the pile. Piles located in intertidal and shallow subtidal areas that are less than -10 feet deep mean lower low water (MLLW) would be cut at least 2 feet below the mudline. In subtidal areas that are greater than -10 feet deep MLLW, piles would be cut at least 1 foot below the mudline. Piles would be cut off at the lowest practical tide condition and at slack water. This would reduce turbidity due to reduced flow and a shorter water column through which the pile must be withdrawn.

Removal of Existing Riprap – Within the limits of the proposed added waterward encroachment, existing riprap consisting of large, angular rocks and sections of concrete slabs is visible along the bank of the Thames River. It is anticipated that this material would be removed in advance of constructing the bulkhead. The riprap would be removed using an excavator or crane depending on the size, weight, and location of the material, loaded onto dump trucks or barges, and disposed of off site at an appropriate location.

Installation of Sheet Piles – Bulkhead at City Pier Plaza and along the Thames River east of the proposed building would consist of PZC-39 steel sheeting bulkhead with tie-backs anchored to deadman sheeting. The length along the Thames River would be approximately 180 feet and at the City Pier Plaza approximately 80 feet. The line of sheeting would be anchored to a line of deadman sheeting PZC-39 located approximately 35 feet west of the Thames River sheeting and north of City Pier Plaza sheeting of the main sheeting with 1-3/4" tie rods spaced approximately at 10 feet on center and walers attached to sheeting. The tie rods and deadman would be placed strategically to avoid conflicts with the museum building piling system. The sheeting would be driven to bedrock.

Sheet piles would be installed for the new bulkhead by one of the methods described below. These relatively thin steel sections would be interlocked with each other to create a continuous wall. The voids from the line of sheeting toward land would be filled with structure backfill in compacted lifts. The sheeting would have a concrete cap finish.

- Vibratory Method: This technique would be used in pile installations where the substrate has been determined through the subsurface investigation to be suitable for this method. Use of this technique may be limited in very hard subsurface conditions or soils that may become liquefied by vibratory action.

- Impact Method: This method would be required where a greater driving force is needed to advance the piles to the required depth or where the vibratory method is not suitable due to the existing subsurface soil conditions. Impact hammers used for this technique have guides that hold the hammer in alignment with the pile while a heavy piston moves up and down striking the top of the pile and driving the pile into the substrate from the downward force of the hammer.

Installation of Concrete Bulkhead – Once the sheet piles have been placed, a cast-in-place concrete bulkhead would be formed and poured. The formwork would be constructed in such a fashion that it would prevent concrete slurry from entering the Thames River. Provisions following the SWPPP would be available on site for washout of the concrete truck and cleaning of tools.

Backfilling Behind Sheet Pile Bulkhead – Once the bulkhead is completed and connected to the tieback and anchor system, the area behind the bulkhead would be backfilled in layers with a well-graded fill.

Removal of Portion of Existing City Pier (Approximately 3,100 square feet) – Discussions with state regulators have led to the conclusion that an approximately 3,100-square-foot area of City Pier would be removed to provide open water in recognition that approximately the same area of currently open water would be filled to support the NCGM. The existing structural slab would be cut approximately 18" north of the concrete beam running east to west. A new steel bulkhead would be installed along the east-west line along the removed portion of City Pier Plaza. The steel bulkhead would butt against the existing sheeting on the west and new bulkhead along the east.

A comprehensive Demolition Plan would be developed for the removal of the existing concrete deck and support beams. The exact means and methods for demolition would be determined by the demolition contractor in conjunction with the construction management team and in accordance with any regulatory conditions. All work would be in accordance with the requirements of the Clean Water Act and other applicable regulations. All existing piles from the City Pier Plaza portion being removed would be cut off at the mudline. It is anticipated that one of the following methods of concrete demolition would be used:

- Saw Cutting Using a Diamond Blade: This is one of the most common cutting methods for concrete. If this method is selected, a spindle-mounted diamond blade would be mounted on a walk-behind machine, or a concrete chain saw would be used.

- Cutting of Concrete Using Hydrodemolition Methods (also known as hydro demolition, hydro-blasting, hydro-blasting, hydro-milling, water blasting, and water jetting): If this method is selected, a special concrete cutting machine that creates a high-pressure water jet would be used to cut the concrete.

In both methods, water would be used in the cutting process. For saw cutting using a diamond blade, the water would be used to cool the blade and control dust in order to be compliant with Occupational Safety & Health Administration's (OSHA) Respirable Crystalline Silica Standard for Construction. In the hydrodemolition process, water is the actual cutting medium. The slurry would be vacuumed up and disposed of in an approved manner following the BMPs set forth in the SWPPP. A small barge or skiff set up with a containment basin would be located under elevated slab in the area where the concrete is being cut to catch the concrete slurry that is not removed by vacuuming. This slurry would be disposed of in an approved manner. Permit conditions may allow filter fabric to be suspended beneath the cut zones to catch and filter the slurry. This would be further evaluated during the detailed design and permitting process.

The concrete structure would be cut into manageable sections that can be loaded onto trucks or barges and disposed of offsite. The sections that are being cut would be temporarily supported during

construction operations, so they do not drop into the water. The sequencing of the demolition would be developed in the Demolition Plan.

Existing pipe piles supporting the concrete deck and beams would be removed by the same methods described above for removing timber piles, including vibratory extraction, the direct-pull method, the clamshell method, and cutting off the pile if the above methods fail. If the existing pipe piles are filled with concrete, they may be deemed too difficult to break loose and would need to be cut off in place.

2.3.8 UTILITIES

Numerous utility upgrades will be necessary to support the long-term operation of the museum, including water, sanitary sewer, and stormwater facilities. Each is described below.

Water Supply – The water provider is the New London Water and Sewer Department. The existing water system in the project area has been found to be in good condition, well maintained, and with only a very small percentage of the available water distribution system capacity currently being consumed. The overall capacity and condition of the water systems will support the NCGM site as well as other development in the downtown area. Adequate water supply can be made available to the site with the installation of approximately 550 feet of 8-inch water main including several isolation valves and a new fire hydrant.

To serve the new museum site, a new 8-inch ductile iron water main would be constructed along the east side of the railroad tracks to connect the north at the Cross Sound Ferry existing 10-inch main to the south at the City Pier existing 6-inch main. Installation of a crossover link between the 8-inch and 10-inch pipes (north of the museum site) at the location of Cross Sound Ferry would further increase the capacities in the system. This new water main system loop would improve flow, pressures, and water quality by eliminating the dead-end line feeding Fishers Island Ferry (south of the museum site at City Pier).

Sanitary Sewer – Wastewater collection and treatment in the project area is provided by the New London Water and Sewer Department. The sanitary sewer in the vicinity of the proposed museum has been found to be in good condition, well-maintained, and with only a very small percentage of the available sewer collection capacity currently being consumed (Veolia, 2015). The overall capacity and condition of the sewer system are capable of supporting the museum as well as other development in the downtown New London area. The majority (79 percent) of existing vitrified clay sewer piping in the project vicinity was fiberglass lined in 2005-2007. The pump station in the area (PS4) was upgraded in 2008-2009. This upgrade included mechanical, electrical, piping, controls, and pumping equipment. The NCGM sewage would flow by gravity to this pump station.

There is currently no gravity sewer in the area of the proposed NCGM site, City Pier, Fisher's Island Ferry, or the southern end of the adjacent Cross Sound Ferry property. City Pier and Fisher's Island Ferry are on E1 grinder pump systems. Due to inadequate slope and capacity, the Coast Guard Museum site cannot connect to the City Pier E1 pump system. The E1 pumps send flow by force main pipe upstream of an existing storm pipe located under the railroad tracks and eventually discharge into a gravity sewer manhole.

The museum site would need to connect into a gravity manhole to the north of the proposed site in the manhole east of the railroad tracks (Veolia, 2015). Adequate wastewater collection capacity can be made available to the site with the installation of approximately 550 feet of 8-inch sewer main. This gravity

system would include approximately three manholes. This new gravity system would need to be installed at a minimum slope due to the shallow depth of the existing connection manhole. Assuming the museum's sewer would have 36 inches of cover, the new pipe slope would be approximately 0.4 percent.

The existing connection manhole (MH 04B0003) currently accepts a 6-inch clay sewer pipe from Cross Sound Ferry. It would need to be intercepted and relaid into a new manhole and combined with the new museum's gravity pipe. This would improve the angle of flow entering the connection manhole and resolve piping conflicts entering the connection manhole.

Downstream of the connection manhole, an undersized short piece of 8-inch sewer line connects two manholes fed by 18-inch sewer lines, creating a bottleneck. As a means of alleviating this bottleneck, a new pipe to replace the approximately 9-foot piece of 8-inch pipe would need to be added to match the 18-inch carrying capacity.

Storm Drainage – Except for a small drainage system in the City Pier Promenade, no drainage systems are currently located in the project area. New drainage system needs are expected to be minimal. Use of a cistern to be constructed within the building is anticipated to capture, reuse, and infiltrate rainwater for nonpotable uses in the building, such as toilet flushing.

Electricity – Electric service in the project area is provided by Eversource. Based on anticipated load and equipment requirements for 3-phase power, the museum development will require new utility pad-mounted transformers at the northern edge of the site. The museum would be responsible for providing site infrastructure to facilitate bringing new electric utility service.

Natural Gas – Natural gas in the project area is also provided by Eversource. A gas main extension of approximately 760 feet would be required to serve the site.

2.3.9 MUSEUM CONSTRUCTION

Each of the major components of museum construction is presented below.

Enabling Activities – On-site utilities may be required to be relocated to avoid interference with the foundation for the museum. Utility infrastructure is currently in place in the downtown New London waterfront area to support the NCGM. These services would need to be routed to their respective locations for incorporation into the project phases. Coordination with the electrical provider would be necessary since electrical power would be the primary utility with appreciable use. Soil sampling and analysis would be undertaken prior to construction to determine the nature of any contaminants that may be present as well as establishing its suitability to be used for construction.

Site Preparation – A comprehensive, site-specific SWPPP would be developed for this project. The SWPPP would identify potential sources of stormwater pollution at the site, describe practices to reduce pollution from the stormwater discharge, and identify procedures the contractors would implement to comply with the SWPPP and the construction general permit. The SWPPP would include BMPs necessary for controlling erosion. The SWPPP would also include BMPs for good housekeeping principles that are designed to prevent contamination of stormwater from a wide range of materials and waste at the construction site.

The typical BMPs for erosion and sediment control would include the following combination of best practices:

- Minimize disturbed areas and protect natural features and soils. By delineating the areas of construction and controlling areas impacted by site grading and construction activities, soil erosion and stormwater runoff will be greatly reduced.

- Control stormwater flow through the site with the use of diversion ditches and berms. Sediment-laden water would be diverted to a sediment-trapping structure, and slopes and berms would be protected from erosion by using vegetation, geotextiles, or other BMPs.

- Stabilize exposed soils to minimize erosion. Stabilization measures would be in place after grading activities have ceased. Topsoil and other fill material would be covered to minimize any erosion from the area. BMPs for temporary covers include seeding, mulching, bonded fiber matrix materials, blankets, and mats.

- Protect slopes with appropriate erosion controls including geofabric blankets, bonded fiber matrix materials, and turf reinforcement mats. Silt fence or fiber rolls are also used to help control erosion on moderate slopes.

- Protect storm drain inlets that could receive stormwater from the project until final stabilization of the site has been achieved. Inlet protection would also be in place at storm drains that are outside of the limits of the property but may receive stormwater discharge from the project. Several types of filters would be used including silt fence, filter fabric, or rock-filled bags.

- Establish perimeter controls by maintaining natural areas and supplementing them with silt fence and fiber rolls around the perimeter of the site. This would help prevent soil erosion and stop sediment from leaving the site.

- Retain sediment on site and control dewatering practices through the use of temporary sediment traps such as silt filtration bags or sediment basins. Sediment-laden water would not be discharged into storm drains or bodies of water.

- Establish stabilized construction exits to prevent tracking of significant amounts of sediment onto the street. These exits are typically constructed with large, crushed stone placed over a geotextile fabric on a properly prepared subgrade. Street sweeping is also likely to be required.

- Inspect and maintain all controls through the use of regularly occurring and spot inspections, especially before and after a storm event.

The typical BMPs for good housekeeping control will include the following combination of best practices:

- Provide for waste management procedures and practices to prevent or reduce the discharge of pollutants. For solid or construction waste, this includes designated trash and bulk waste collection areas, recycling and segregation of materials whenever possible, proper segregation and disposal of hazardous material wastes, and daily cleanup of litter and debris. For sanitary and septic waste, this includes convenient and well-maintained toilet facilities.

- Establish proper building material staging areas for the handling and management of building materials, especially those that are hazardous or toxic. Secondary containment would be used to prevent a spill from spreading and causing damage.

- Establish paint and concrete washout areas with adequate containment for the amount of washout water that will be used. Establish washout areas away from storm drains and watercourses. Maintain areas on a regular basis.

- Establish proper equipment/vehicle fueling and maintenance practices. Provide a clean and dry area for fueling operations, located at least 50 feet away from any watercourse. Have a spill kit available and ensure that people conducting fueling operations are properly trained in using the kit.

- Control equipment/vehicle washing and allowable nonstormwater discharges by using off-site facilities to the fullest extent possible and by washing in designated and contained areas only.

- Develop a spill prevention and response plan. The plan would clearly identify ways to reduce the chance of spills, stop the occurrence of spills, contain and clean up spills, dispose of materials contaminated by spills, and train personnel in spill prevention and response.

Temporary Utilities – Temporary power would be needed at the construction site for lighting, temporary heat and fans, office trailers, and use of miscellaneous tools. The estimated service size is 225 KW or 480 volts, 400 amps, 3-phase power.

Removal of Existing Unsuitable Soil – Geotechnical investigations undertaken during detailed design may determine that some of the existing soil within the construction zone is not suitable for construction or backfill material and would require to be disposed of offsite. In the event that the soil is determined to be too wet for transportation, it would be placed within a properly designed temporary sediment basin consisting of a combination of BMPs including berms, hay bales, and a geotextile silt fence. This method is not intended for dewatering contaminated soils.

Structural Support – Because the NCGM site is located within the AE 11 and VE 14 flood zones, the expected low load-bearing capacity of the soil at the site, and the design loads for the structure, it is expected that a pile foundation will be required. Drilled caissons are anticipated to be the method of pile construction. Drilled caissons are high load capacity deep-pile foundations. They are also referred to as drilled piers or bored piles. A cylindrical hole with the predetermined design diameter would be drilled to the required design depth. An auger would be used to drill the hole. The auger bit would be fitted with tungsten carbide tips that are capable of drilling through hard materials. The soil from the hole would be removed through the auguring process and would either be disposed of offsite or used for backfill on site if deemed to be suitable for this application. Any soil that is removed would be tested and disposed of in accordance with local, state, and federal requirements.

If the drill hole requires supplemental support to remain open, a permanent or temporary steel casing would be installed. Once the required depth is reached, reinforcing steel would be lowered into the hole, and the hole would be filled with concrete. If the depth of the caisson is below the water level, the tremie method for concrete placement would likely be used. In this method, the lower end of the pipe delivering the concrete to the hole is kept immersed in the fresh concrete as the hole is filled. The rising concrete

from the bottom of the hole displaces the water in the hole without washing out the cement content in the concrete.

Groundwater that is displaced would require proper handling and potential off-site disposal depending on the level of contamination. If the displaced water is determined to be safe, it would be pumped from the hole and passed through a dewatering and sediment-containing filter bag before it is discharged. Once the filter bag has reached its capacity, the bag would be disposed of in accordance with local, state, and federal requirements.

If a permanent or temporary steel casing is required, this casing would need to be driven to the required depth using a vibratory hammer.

In all cases, the BMPs included in the site-specific SWPPP would be in place prior to the start of any foundation work. This would include properly designed concrete washout areas and the placement of turbidity curtains parallel to the shore to create a confined construction area in the water.

The structure would be founded on a structural slab. The platform would consist of a permanent structure designed to withstand all codified flood requirements, including hydrostatic and hydrodynamic pressures, wave action, and debris impact. Building floors and walls would be constructed of reinforced concrete with interior cementitious waterproofing at elevator pits. A braced structural steel frame is anticipated, with lightweight or normal weight concrete on composite metal decking.

Site Improvements – Site improvements would include pavement and sidewalks, railing, landscaping features, and utility service, including potable water, sanitary sewer, electric, cable, and storm drainage. An existing siren pole would be eliminated to allow streamlining of easements. To the extent practical, porous surfaces would be utilized to minimize the volume of stormwater runoff. Stormwater that is generated would either run off via sheet flow or would be discharged to the City of New London's storm drainage system. New stormwater outfalls to the Thames River are not contemplated.

2.3.10 Construction Sequence, Scheduling, and Duration

The following elements have been considered relative to construction sequencing, schedule, and duration:

- The estimated duration of preconstruction activities that must be undertaken before a contractor can mobilize is estimated to be 4 months.
- The estimated duration for the bulkhead and backfill, inclusive of demolition and removal of the existing encroachment at City Pier is estimated to be 6 months.
- The bulkhead and backfill phase would need to be substantially complete before installation of the piles for the NCGM can begin. Installing the pile foundation is the first major activity for the new NCGM building.
- The estimated duration of the actual NCGM building after the start of the installation of piles is approximately 18 months.
- The overall estimated duration of active construction is 24 months. This includes enabling and utility work.

Proposed construction sequencing is presented in Figures 2.3-12 through 2.3-17. The overall duration for construction is estimated to be approximately 30 months. This duration takes into account such factors

as the level of improvements that will be required to be made to the waterfront prior to the start of construction of the museum; the location of the museum and the associated logistical challenges this poses; and the proposed size of the museum as well as the type of foundation, structure, and cladding that is envisioned.

Items that may impact the overall construction duration include the following:

- Difficult subsurface soil conditions resulting in decreased productivity
- Potential remediation of hazardous materials that may be encountered
- Any restriction that may be placed on working hours or time of year for construction activities
- Coordination with the City of New London for scheduled events that may require construction blackout dates
- Coordination with Amtrak, Union Station, Cross Sound Ferry, and other surrounding businesses that may be directly or indirectly impacted by construction activities
- Weather-related events including but not limited to hurricanes and winter storms
- Environmental permitting or findings requiring changes to the means and methods of construction that could potentially increase construction durations

2.3.11 CONSTRUCTION HOURS OF OPERATION

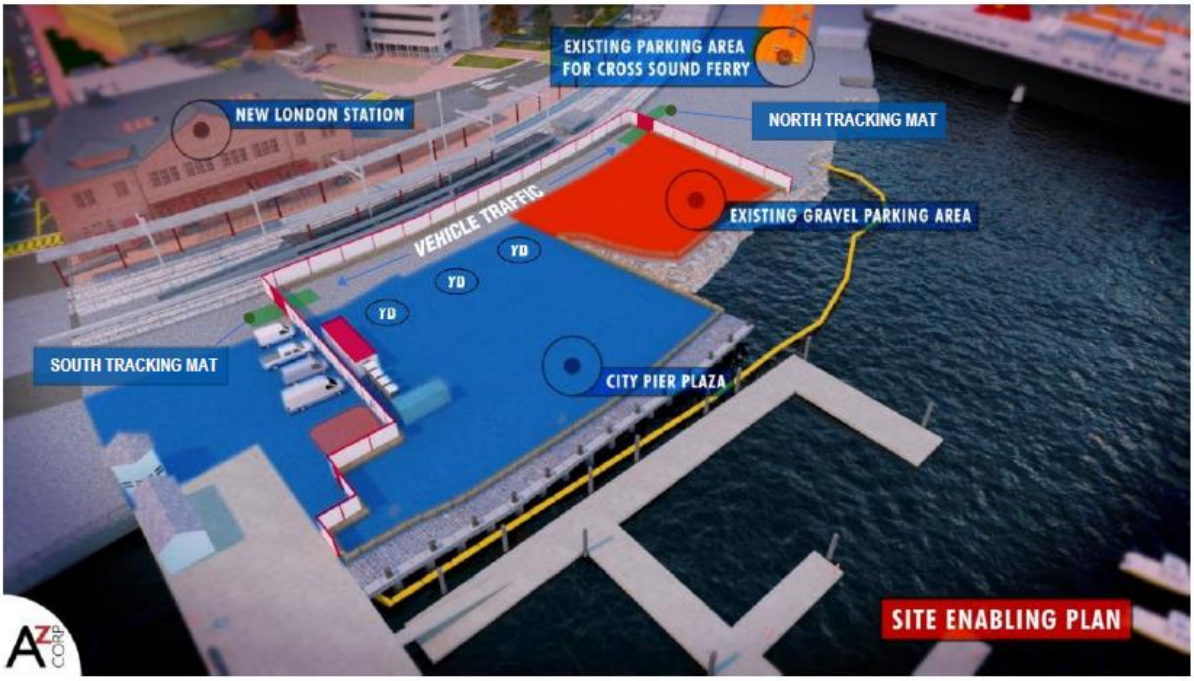
The general construction hours are anticipated to be between the hours of 7:00 a.m. and 5:00 p.m., Monday through Friday. Weekend work, if needed, would be limited and for specific activities that would not require large deliveries of materials; would be internal to the site; and would require smaller crew sizes.

2.3.12 LONG-TERM MUSEUM OPERATION

The NCGM is expected to be staffed by approximately 34 staff, some of whom would work on site and others of whom would be located off site. Selected Coast Guard artifacts and documents from the existing Coast Guard Museum and the Coast Guard Exhibit Center in Forestville, Maryland, would be transferred to the NCGM. The Coast Guard Exhibit Center in Forestville, Maryland, would remain in operation, continuing to store selected artifacts and documents. Personnel from the Coast Guard Historian's Office in Washington, D.C., would not be transferred as part of the Proposed Action. The waterfront location would allow for the exhibition of decommissioned Coast Guard vessels, as well as other active Coast Guard vessels such as the *Barque* EAGLE in the future.

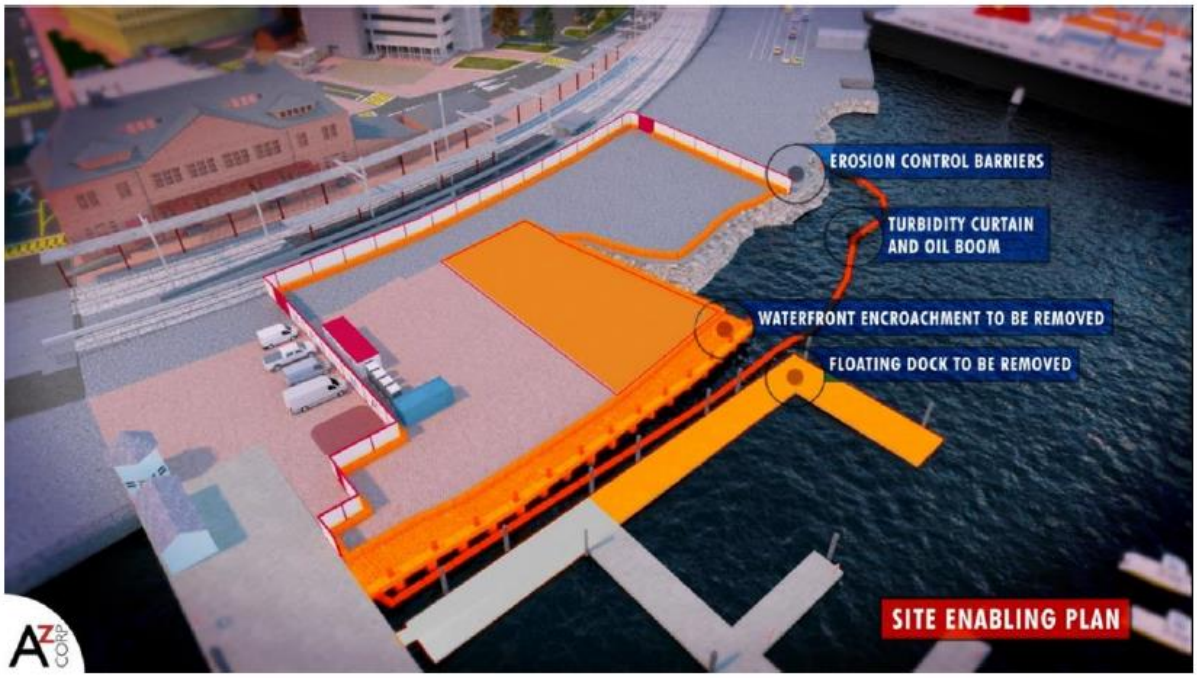
Admission to the NCGM would be open to the public free of charge. Museum exhibits would be mainly housed indoors; however, outdoor and in-water exhibits and activities would be key elements of the museum, with scheduled demonstrations and displays and opportunities for the public to interact with Coast Guard members.

Figure 2.3-12: Site Enabling Plan



1. Install perimeter fencing to establish limits of construction.
2. Establish traffic patterns for entry and exit onto site.
3. Set up job trailer, portable toilets and parking areas.
4. Establish building material staging area and waste management area for dumpsters.
5. Establish stabilized construction exits by installing tracking mats at the south and north entrance and egress paths for the site.
6. Establish perimeter erosion controls by Installing silt fence, hay bales and ancillary sedimentation and erosion measures.
7. Protect 12" x 12" yard drains (YD) from siltation. (See approximate locations of YDs on Site Enabling Plan)
8. Install turbidity curtains with floating booms equipped with absorbent pads along the length of the watercourse to retain silts, sediments and turbidity within the construction area. Turbidity curtains will be staged from the upland at the north end of the site. The sections will be joined together, placed in the water, positioned and anchored into place using a small skiff.
9. The process is anticipated to take approximately 1 month.

Figure 2.3-13: Waterfront Encroachment Removed



1. Remove floating docks and tow offsite to secure offsite location respecting existing navigational channels. Reposition ramp to remaining portion of floating finger piers.
2. Confirm turbidity curtains and floating booms are properly installed to support the removal of the portion of City Pier Plaza.
3. Perform lockout/tag out to ensure all utilities within the encroachment have been disconnected and made safe.
4. The northern portion of the City Pier Plaza will be removed in small, manageable sections of approximately 4 feet x 4 feet. Cutting operations will be performed using diamond blades.
5. Maneuver small skiff or barge under the sections of the City Pier Plaza that is to be removed to collect the water that will be used for cutting and dust control. Properly dispose of the water in an approved manner.
6. If permitted, in lieu of a small skiff or barge, suspend filter fabric under the cut zones to catch and filter the water before it enters the water course.
7. Using a crane staged from an upland position temporarily support the section of the City Pier Plaza that is being removed so it does not drop into the watercourse.
8. From an upland position, load the sections of concrete onto trucks for disposal off site.
9. It is anticipated that the existing pipe piles supporting the concrete deck and beams will not be able to be removed. These piles will be cut at or below the mudline. If cut below the mudline, the depth will depend on the depth of the water at mean lower low water (MLLW).
10. Several of the piles falling within the footprint of the museum may be reused and incorporated into the new foundation.
11. The process is anticipated to take approximately 3 months.

Figure 2.3-14: Barge and Pile Driving

1. Perform pre-construction surveys and vibration monitoring in accordance with the approved plans.
2. Confirm turbidity curtains and floating booms are properly installed.
3. Confirm perimeter erosion controls including silt fence, hay bales and other approved methods to control runoff are in place.
4. Remove Existing Riprap:
   - Remove rip rap along the proposed location of the bulkhead and tie back system using an excavator or crane staged from the upland.
   - Load riprap onto trucks for disposal off site in an approved manner.
5. Remove Existing Timber Piles:
   - Remove the existing timber piles using either vibratory or the direct pull extraction method. Piles that cannot be removed by the methods noted above will be left in place and cut at or below the mudline.
6. Install Sheet Piles at AZ38-700N Bulkhead
   - Respecting existing navigational patterns, position barge carrying pile driving rig parallel to proposed bulkhead.
   - Drive steel sheet piles to the required depth using either the Vibratory Method or the Impact Method.
   - Install rock socket toe pins into bedrock at toe of sheetpiles.
7. Install Sheet Piles at AZ38-700N Deadman
   - It is anticipated that the tieback piles will be driven from land.
   - Mobilize pile driving equipment suitable for this task.
   - Drive steel sheet piles to the required depth using either the Vibratory Method or the Impact Method.
   - Install whalers and tieback system
   - The process is anticipated to take approximately 2 months.

Figure 2.3-15: Bulkhead and Fill

1. Confirm perimeter erosion controls including silt fence, hay bales and turbidity curtain are in place prior to starting work.
2. **Perform Dewatering behind Bulkhead**
   - Install dewatering pump(s).
   - Install suction header on inboard side of bulkhead for dewatering.
   - Discharge water outside of the bulkhead.
   - The discharge from the dewatering pump(s) shall be passed through a dewatering filter bag before being discharged inboard of the turbidity curtain and oil boom.
3. **Backfill Behind Sheetpile Bulkhead**
   - Place lightweight structural fill behind bulkhead. Fill shall be placed and compacted in lifts in accordance with the contract documents.
4. **Form and Pour 3' wide concrete cap at Sheetpile Bulkhead.**
5. The process is anticipated to take approximately 2 months.

Notes:

A. Approximate location of dewatering and discharge station.

B. Approximate location of soil stockpile with silt fence around perimeter.

Figure 2.3-16: Pile Driving Operations and Pile Cap Construction

1. Perform pre-construction surveys and vibration monitoring in accordance with the approved plans.
2. Confirm turbidity curtains and floating booms are properly installed to support the removal of the existing riprap and the installation of the sheetpile bulkhead.
3. Confirm perimeter erosion controls including silt fence, hay bales and other approved methods to control runoff are in place prior to starting work.
4. Excavate and set two each, 5,000 gallon storm water attenuation tanks
5. **Refer to Proposed Alternates for Determining Types of Piles to be installed.**
   - Where specified, drive steel H piles to the required depth using either the Vibratory Method or the Impact Method.
   - Where specified, drill mini piles to the required depth using approved drilling method. Test soil spoils for contaminants and dispose of in an approved manner.
6. Install concrete pile caps and grade beams.
7. Backfill around pile caps and grade beams.
8. Install underground utilities including site electrical, water, storm water and sanitary waste lines.
9. Note: All sediment and erosion control measures shall be implemented and maintained until permanent cover and stabilization is established
10. The process is anticipated to take approximately 7 months

Notes:
A Location of 2 each, 5,000 gallon storm water attenuation tanks.

Figure 2.3-17: Site Work Complete

1. Site work complete.
2. Remove perimeter fencing.
3. Remove perimeter erosion controls by Installing silt fence, hay bales or other approved methods to control runoff.
4. Remove turbidity curtains and floating booms equipped with absorbent pads along the length of the watercourse.
5. Note: All sediment and erosion control measures shall be implemented and maintained until permanent cover and stabilization is established.

2.3.13 LONG-TERM MUSEUM ACCESS

The main entrance to the museum from Water Street would be via a proposed pedestrian overpass to be constructed by NCGMA as a separate but related action. The pedestrian overpass is proposed to extend from the Water Street parking garage, over Water Street and the active train tracks, to the location of the proposed museum and adjacent ferry terminal. The overpass would provide alternative means of access to the museum. One would allow visitors to proceed directly into the second floor of the museum and then descend by stairs or elevator to the main entry area one floor below. The other would terminate and then connect to grade and the museum's entrance one story above grade. Visitors to the museum would descend one flight via stairs or elevator to the first-floor main entrance level. Alternately, pedestrians may descend two flights to reach City Pier Plaza or to access the ferry terminal. Access to the waterfront is expected to be available even during off hours when the museum is closed.

2.4 BEST MANAGEMENT PRACTICES AND PROJECT-INCORPORATED PROTECTION MEASURES

The following are BMPs and project-incorporated protection measures that would be implemented as part of the NCGM project to avoid or minimize potential impacts on the environment. As the entity responsible for actual construction of the NCGM, NCGMA would ultimately be responsible for implementing many of these measures, either directly or indirectly through its contractors and subcontractors. The Coast Guard would ensure that these BMPs and project-incorporated protection measures are implemented by one or more of the following mechanisms: (1) the terms and conditions of the land use agreement between the Coast Guard and NCGMA authorizing construction of the NCGM; (2) the memorandum of agreement signed by the Coast Guard, NCGMA, and others, in February 2014; or (3) a new memorandum of agreement between the Coast Guard and NCGMA signed prior to construction.

All required regulatory permits from federal and state agencies will be acquired by NCGMA prior to construction. These agencies include the U.S. Army Corps of Engineers (USACE) and the Connecticut Department of Energy & Environmental Protection (CT DEEP). Through continued coordination with these jurisdictional agencies, environmental protection measures may be refined, and additional measures may be identified as terms and conditions of these permits and approvals.

Since publication of the draft SEA, regulatory permit applications have been filed with the USACE and CT DEEP to authorize the portions of the museum project seaward of the high tide line (HTL) and coastal jurisdiction line (CJL). The NCGMA applied for an Individual Permit (IP) in June 2020 from the USACE for Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act. A public notice was published by the USACE in September 2020, which commenced a 30-day public comment period. The NCGMA received comments from FEMA, EPA and NOAA and has worked with the advisory agencies to address comments. One of the comments from FEMA requested the filing of a Conditional Letter of Map Revision (CLOMR) to document the change in shoreline geometry. The CLMOR was issued by FEMA in March 2022 (Appendix E4). As of April 2022, the IP is within the final stages of the review process.

In June 2020, the NCGMA applied for a Structures, Dredging, and Fill Permit and Section 401 Water Quality Certification through CT DEEP. CT DEEP is intended to issue a public notice identifying the permit decision in spring 2022. A 30-day public comment period will follow. The NCGMA filed a Flood Management Certification-Exemption with CT DEEP in February 2022 to allow for the receipt of state funding for the bulkhead. CT DEEP is intended to issue a public notice identifying the permit decision in spring 2022.

BMPs and project-incorporated protection measures are described for each environmental resource, as applicable, below.

2.4.1 AIR QUALITY

NCGMA and its contractors will be required to implement measures to minimize operational air quality emissions and construction-related emissions. These measures may include but are not limited to the following:

- Dust control measures, which would be implemented by all contractors during construction, as required by standard contract provisions. Such measures may include the following:
  - → Minimize the area of disturbance.
  - → Cover stockpiled soil and dump truck loads.
  - → Use wind break enclosures.
  - → Use silt fences.
  - → Suspend earth-moving activities during high-wind conditions.
  - → Apply water, soil stabilizers, or vegetation.
  - → Maintain a speed of less than 15 miles per hour for construction equipment on unpaved surfaces.
- During construction activities, use electricity from power poles instead of generators when possible.
- Repair and service construction equipment according to the regular maintenance schedule recommended for each equipment type. Such repair and maintenance would occur off site.
- Use low-volatile-organic-compound architectural materials, supplies, and equipment when feasible.
- Incorporate energy-efficient supplies when feasible.

2.4.2 NOISE

NCGMA and its contractors will be required to implement construction noise control measures that may include but are not limited to the following:

- Conduct construction activities during daylight hours when possible.
- Maintain construction equipment in the best possible working condition.
- Fit construction equipment with efficient, well-maintained mufflers, when available, that reduce equipment noise emissions.
- Schedule truck loading, unloading, and hauling operations to reduce noise levels from construction.
- Conduct pile driving with a vibratory hammer.

2.4.3 WATER RESOURCES

NCGMA and its contractors will be required to comply with all erosion and sediment control plan requirements, SWPPP requirements, post construction stormwater management requirements, and other applicable water quality regulations. These plans and permits will include BMPs to minimize release

of contaminants and the subsequent adverse effects on water quality, including but not limited to the following:

- Perform in-water work during low tide to the extent possible.
- Cover soil stockpiles and exposed (graded) slopes during inclement weather conditions.
- Use erosion control techniques such as mulching, filter fences, straw bales, or diversion terracing.
- Construct drainage control devices to direct surface water runoff away from slopes and other graded areas.
- Seed/revegetate temporarily disturbed areas, if applicable, and stabilize the project site following the completion of ground-disturbing construction activities.
- Retrieve building material that inadvertently falls into the Thames River during construction.
- Ensure that construction equipment is in good repair without leaks of hydraulic or lubricating fluids and use drip pans when vehicles are parked.
- Perform fueling and maintenance of vehicles off site or at designated areas with secondary containment and stocked with spill response sorbent pads and equipment.
- Use a filter fabric to catch debris in washwater that will go back into the Thames River.
- Handle, store, clean up, and dispose of petroleum products and other hazardous substances used during construction in accordance with applicable regulations.
- Include standard design measures in site design plans to avoid erosion and sedimentation during operation.

The project site is in two FEMA coastal flood hazard areas: a VE elevation 14-foot North American Vertical Datum (NAVD) zone and an AE elevation 11-foot NAVD zone. The project would be designed to comply with applicable floodplain management requirements. A flood contingency plan will be developed to protect workers, equipment, and materials from flooding during the construction period.

A facility or construction site is covered by the "Spill Prevention, Control, and Countermeasure" SPCC rule if it has an aggregate aboveground oil storage capacity greater than 1,320 U.S. gallons or a completely buried storage capacity greater than 42,000 U.S. gallons and there is a reasonable expectation of an oil discharge into or upon navigable waters of the U.S. or adjoining shorelines. This SPCC rule is part of the U.S. Environmental Protection Agency's (EPA) oil spill prevention program and was published under the authority of Section 311(j) (1) (C) of the Federal Water Pollution Control Act (Clean Water Act) in 1974. The rule is covered in Title 40, Code of Federal Regulations, Part 112.

The EPA's SPCC rule would not apply to the NCGM, but the construction would require a "Spill Prevention and Response Plan" (SPRP) for use at the site since chemical products and/or fuel combustion/hydraulic equipment would be supplied and used for construction equipment. The SPRP would be prepared in accordance with good engineering practices and certified by a Professional Engineer. The guidelines presented herein would apply to all contactor and subcontractor personnel and their contracted entities. The requirements included in the SPRP may not serve as the only source of spill prevention and response requirements should the minimum storage capacities be exceeded. Instead, the SPRP would meet best practice standards and serve as the foundation for federal SPCC should one be needed in the future.

The construction phase SPRP would include the following key elements:

- *Inspection* – Fuel combustion/hydraulic equipment would be inspected on a daily basis by the user to identify minor fuel or lube oil leaks and if necessary, schedule maintenance or repairs. Inspection

findings and needed maintenance/repairs would be documented, and the documentation would be provided to the Project Management Team. Chemical substances would be stored in proper containers to minimize the potential for a spill. Whenever possible, chemicals would be kept in closed containers and stored so they are not exposed to the stormwater runoff.

- *Spill Notification* – All spills, regardless of volume or severity, would be immediately communicated to the Project Superintendent, who in turn would contact the Project Manager, Safety Representative, and Client Representative. The Project Superintendent would go to the location of the spill, assess its severity (e.g., volume spilled, impacts to areas, fire/explosion potential), and determine appropriate initial response actions. The Project Superintendent would also make a determination of the need for notifications to the construction management (CM) company's Corporate Environmental Safety Manager and legal groups and/or regulatory agencies. The Project Superintendent would contact the CM's Safety Department for guidance on response actions and required notifications. Within 8 hours after the initial report of the spill, the Project Superintendent would complete an Incident Report form and forward a copy to the CM's Safety Department.

- *Spill Prevention* – The following actions would be performed to reduce the potential for and severity of spills from the use of chemical products and/or fuel combustion/hydraulic equipment:

    1. Assure routine maintenance on the associated equipment is performed in accordance with manufacturer's recommendations.
    2. Employees would be instructed on the proper response procedures for spilled materials. The training would include materials available for use, proper waste disposal, and communication procedures.
    3. Maintenance work would not be performed on the equipment or in the immediate area of the equipment during fuel deliveries.
    4. Perform visual inspections of the associated equipment and document the findings and corrective actions.
    5. Areas where chemicals may be used or stored would be maintained using good housekeeping BMPs. This includes, but is not limited to, clean and organized storage, labeling, and secondary containment where necessary.
    6. A spill response kit would be available in the immediate vicinity of any fuel combustion/hydraulic equipment. A proper spill kit must contain the appropriate supplies for materials that may be spilled. Supplies must be easily accessible when required, and considerations would be made for both the type and quantity of materials.

- *Spill Response* – In most cases, releases involving equipment occur during fuel delivery when the driver has access to a spill response kit. However, in case the driver does not have the appropriate response equipment, or if a release occurs in some other fashion, the site would have a spill kit available. In addition, if a spill occurs from the associated equipment, the site would be capable of controlling a small to moderate spill and cleaning up a small spill with the on-site spill kit. This spill kit would be checked monthly to ensure that the kit has not been depleted of its materials. The status of the spill kit would be documented during the weekly site inspection.

2.4.4 BIOLOGICAL RESOURCES

Preliminary project-incorporated protection measures have been developed based on coordination with NOAA Fisheries and the CT DEEP. Implementation of the following preliminary measures – or similar measures developed in consultation with the USACE, NOAA Fisheries, and CT DEEP – would be required to avoid adverse effects on waters of the United States and Essential Fish Habitat (EFH). In addition to the project-incorporated protection measures outlined in Section 2.4.3, measures to avoid or minimize impacts on biological resources may include, but are not limited to the following:

- Observe seasonal restrictions for in-water work to avoid times (January 1 through June 30) when protected fish species have the greatest potential to occur in the vicinity and/or are most sensitive to disturbance.
- Install silt curtains around the in-water work area to minimize potential sedimentation and turbidity.
- For bank stabilization, use material that is free from toxic contaminants in other than trace quantities, free of exposed rebar, and free of debris.
- Wrap chemically treated piles, if used, with impact-resistant, biologically inert material.
- Conduct pile driving with a vibratory hammer.
- Use a soft-start technique to allow fish species to vacate the work area before the pile driver reaches full power.
- To minimize turbidity and potential noise-related effects on fish and other marine organisms, conduct pile installation activities during low tides (if feasible based on access considerations), when water levels are at their lowest.
- To minimize the number of fish exposed to adverse levels of underwater sound, drive piles when currents are reduced (i.e., centered around slack current).

2.4.5 INFRASTRUCTURE

NCGMA and its contractors will be required to contact Connecticut One-Call prior to commencing any activities involving digging, drilling, grading, or other subsurface disturbance. NCGMA and its contractors would also review plans with City of New London to identify any additional city-owned underground utilities.

2.4.6 TRANSPORTATION

NCGMA and its contractors will be required to implement construction traffic control measures during construction, addressing vehicular, pedestrian, and bicycle traffic; ensuring that proper signage is in place; and maintaining access in the project area, including to ferries along the downtown waterfront. Preliminary traffic control measures may include, but are not limited to the following:

- Schedule potential traffic lane or road closures during off-peak hours whenever possible.
- Limit vehicular traffic to designated access roads, construction laydown and parking areas, and the project site.
- Encourage worker carpooling to minimize drive-alone worker trips.
- Provide construction notification to stakeholders.

A Maintenance and Protection of Traffic Plan will be developed prior to the commencement of construction.

2.4.7 HAZARDOUS SUBSTANCES

As described further in Section 4.15.2, the results of a Phase II Environmental Due Diligence Audit (EDDA) (Appendix F) performed on site in 2018, which followed an initial environmental investigation in 2014, found levels of environmental contaminants in subsurface soil, sediment from the adjacent Thames River, and groundwater. Results of the Phase II EDDA identified coal in the soil samples within one portion of the site and found the river sediment and groundwater to be impacted with petroleum hydrocarbon and metals (as well as petroleum-related VOCs in the groundwater only).

A list of environmental soil and groundwater management considerations were developed as a result of the 2018 report and are further outlined below. The NCGMA and its contractors will be required to comply with all applicable federal, state, and local environmental requirements relating to hazardous materials management; hazardous waste management, including accidental spills; discharge related to on-site construction dewatering requirements, and worker safety and training requirements.

Environmental Soil and Groundwater Management Considerations/BMPs per the 2018 GEI Report:

- Work in locations with polluted or contaminated soil should be undertaken using appropriate health and safety procedures to minimize worker exposure to pollutants. The Museum project specifications should include provisions for worker safety in these areas. Although there are some pollutants in soil, the levels present and the classification of the project do not indicate that the project requires implementation of 40 CFR 1910.120, OSHA Hazardous Waste Operations regulations. However, the appropriate health and safety procedures will include many of the requirements in those regulations.
- Polluted and contaminated soil which is not reused in accordance with the requirements of RCSA 22a-133k-2(h) is classified as a solid waste and needs to be properly disposed. The Museum project specifications should include provisions for the proper handling and disposal/reuse of polluted and contaminated soil. Polluted soil that is physically (geotechnically) suitable (as determined by Geotechnical Engineer) could be reused within the project limits; however, due the heterogeneous nature of the contaminants any soil should be further tested prior to any on-site reuse. All surplus polluted and contaminated soil should be delivered to a properly permitted disposal or recycling facility.
- None of the soil removed from the Museum site should be considered clean soil unless further testing of it indicates it is not polluted. Clean soil is not regulated as a waste and can be used as fill off site provided it is not placed within wetlands, watercourses, floodplains, or other sensitive land use areas.
- Based on results of previous groundwater sampling and testing at the Museum site, it can be assumed that dewatering effluent can be discharged directly to sanitary sewer without treatment, other than sediment removal, under the Connecticut Department of Energy and Environmental Protection (DEEP) General Permit for the Discharge of Groundwater Remediation Wastewater, provided approval is obtained from the sewer owner (City of New London) for any such discharge.
- Connecticut DEEP may allow dewatering effluent to be discharged to local surface water without treatment other than sediment removal. However, given the pollutant level, consultation with Connecticut DEEP would be required to confirm suitable dilution in the tidal waters of the Thames River.

CHAPTER 3.0
AFFECTED ENVIRONMENT

3.1 INTRODUCTION

This chapter provides a description of existing conditions for the No Action and Proposed Action alternatives. The potential environmental impacts of the No Action and the Proposed Action alternatives retained for analysis of environmental consequences are presented in Chapter 4.0 of this FSEA.

3.2 LAND USE AND RECREATION

New London is situated on the western side of the Thames River. The downtown area of New London is situated to the west of Water Street and includes various commercial land uses, such as retail, restaurants, offices, and hotels. The downtown waterfront is located east of Water Street and is predominantly used for recreation and major transportation services, including ferry and passenger rail services. The State Pier, Gold Star Memorial Bridge (carrying Interstate 95 [I-95] and U.S. Route 1), Connecticut College, Riverside Park, and the United States Coast Guard (Coast Guard) Academy are along the waterfront north of downtown New London. Groton is east of New London on the eastern side of the Thames River. Major land uses in Groton include the General Dynamics Electric Boat facility, Pfizer Pharmaceutical Company, and Fort Griswold Battlefield State Park.

3.2.1 REGULATORY FRAMEWORK

Land uses in the project area are primarily controlled and regulated through plans and ordinances adopted by the City of New London. New London's Plan of Conservation and Development (POCD) is the broadest in scope of the planning documents. It is a long-range planning instrument that outlines land use goals and policies and includes the City of New London Land Use Plan, which designates preferred land uses for New London (City of New London, 2007). The city is currently in the process of updating its POCD, which is in draft form as of the publication of this document. The Zoning Regulations of the City of New London are the primary tool for achieving the objectives of the Plan of Conservation and Development (City of New London, 2017a). The zoning regulations identify zoning districts and permitted uses and include development standards (e.g., minimum lot size, maximum height, and minimum setbacks). Other regulations governing development in the project area include inland wetland and watercourse regulations, subdivision regulations, and building codes.

In 2014, the City of New London conveyed the 0.34-acre Water Street parcel (which comprises the majority of the proposed NCGMA museum site) to the USCG. This action changed the parcel's designation from city-owned land to federal land. As such, the museum construction is not subject to local planning and zoning regulations. The NCGMA has kept and intends to continue to keep local authorities abreast of and with an opportunity to comment on the progress of the museum design. Among others, this will include involvement from the City Council, Planning Commission, Building Department, Fire Department, and Mayor's Office.

3.2.2 NO ACTION ALTERNATIVE

Land Use

The existing Coast Guard Museum occupies approximately 5,000 square feet in Waesche Hall at the Coast Guard Academy in New London. The Coast Guard Academy is the military academy of the Coast Guard, providing education to future officers. The Coast Guard Academy grounds extend over approximately 103 acres on the western side of the Thames River and include approximately 32 major buildings for academic, residential, athletic, and various other support uses. The Coast Guard Academy conducts a waterfront training program and operates various training vessels, including the Cutter Eagle, a 295-foot tall ship.

Land uses surrounding the Coast Guard Academy include Connecticut College, residential properties, and an industrial shipyard to the north; Mohegan Avenue (State Route 32) to the west; the Thames River to the east; and Riverside Park to the south.

Land uses on the Coast Guard Academy property are not subject to City of New London plans and ordinances but are managed by the Coast Guard. The Coast Guard Academy and associated grounds are designated as institutional on the City of New London Land Use Plan included in the POCD and are zoned Institutional on the City of New London Zoning District Map. Land included in the institutional land use designation is intended to be used for activities such as colleges, museums, and accessory facilities. Similarly, the purpose of the institutional zoning district is to provide for areas in which various public and other institutional uses can be accommodated on large parcels. Institutions for higher learning and museums are permitted by right in the zoning district (City of New London, 2007; City of New London, 2017b).

Recreation

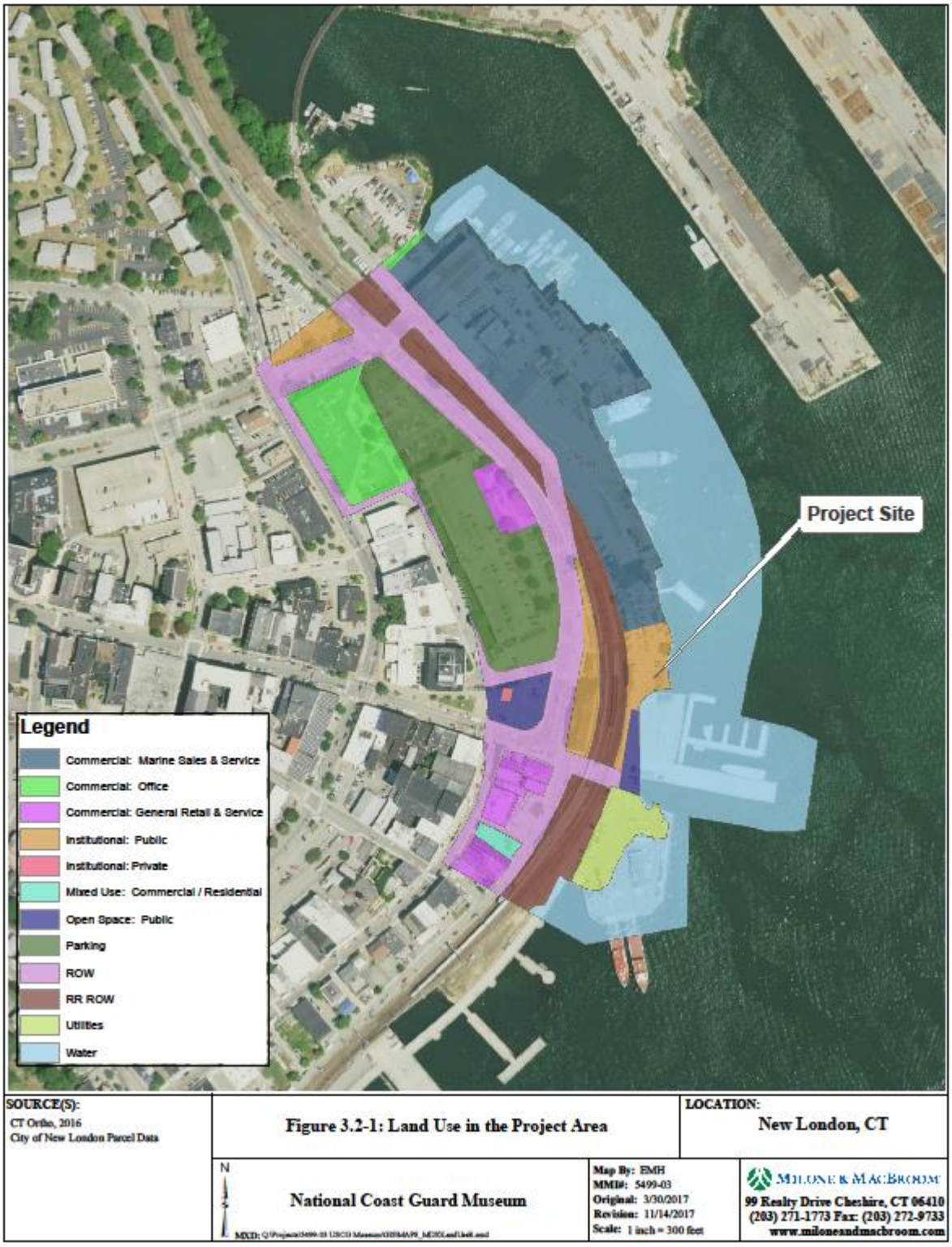
Several public, private, and quasi-public park and recreation facilities are located in the vicinity of the existing Coast Guard Museum. Private and quasi-public park and recreation facilities include the Coast Guard Academy, Connecticut College, and the Connecticut College Arboretum. The Robert Crown Park north of Deshon Street is the closest park facility to the existing Coast Guard Museum. Other parks in the vicinity include Castle Park, Tempel Green, Washington Parade Ground, Bertholf Plaza, McKindley Park, and Riverside Park.

3.2.3 PROPOSED ACTION ALTERNATIVE

Land Use

The downtown waterfront area, which encompasses the location of the proposed NCGM, is heavily developed. The project site is bordered by the Thames River to the east; City Pier, Fisher's Island Ferry, and the Waterfront Park to the south; the active rail lines and Union Station to the west; and Cross Sound Ferry Services/Block Island Ferry Services to the north. Land use to the west and south of the downtown waterfront area is mixed-use downtown development, primarily commercial and municipal uses interspersed with residential uses. Further west on the far side of Water Street, land uses include the Water Street Garage and Parade Plaza. Figure 3.2-1 depicts land use in the project area.

Figure 3.2-1 Land Use



The project site is improved with a gravel-and-dirt lot. The NCGM would also extend over portions of the adjacent City Pier Plaza and Thames River. The site is accessible from the south via an at-grade railroad crossing at the eastern end of State Street or from Ferry Street to the north of the project site. No buildings or structures are present on the project site except for two concrete pad-mounted electrical transformers along the western parcel line. A sire pole is adjacent to the two electrical transformers. The eastern side of the project site extends along and into the Thames River and is covered with broken concrete rubble comprising historic shoreline stabilization, which is visible on land and beneath the water extending into the Thames River.

The project site is designated as Waterfront Commercial on the City of New London Land Use POCD and is zoned Waterfront Development on the City of New London Zoning District Map. Land included in the Waterfront Commercial land use designation is intended to be used for a variety of marine-oriented and waterfront-dependent activities; development should enhance and preserve maritime/nautical themes and public access. Similarly, the purpose of the Waterfront Development zoning district is to encourage a mixture of land uses, with emphasis on waterfront access and water-dependent and related uses. Zoning regulations Section 540.2(10) indicates that museums with nautical themes are permitted in the Waterfront Development zoning district subject to issuance of a Special Permit by the City of New London Planning and Zoning Commission (City of New London, 2007; City of New London, 2017b). Therefore, although the project is not within the City's zoning jurisdiction, the proposed use is consistent with the type of operation anticipated by local zoning.

Four potential laydown areas have been identified, designated as A, B, C, and D. Land use at all of these locations consists of previously developed areas located in the vicinity of the project site as follows:

- Area A lies west of Fairview Avenue on the Thames River in Groton. The site is located immediately beneath and to the north and south of the Gold Star Memorial Bridge. The site consists of a small brick building and a paved parking area. Individual residential homes are located on the eastern side of Fairview Avenue. The potential laydown area at Mohawk Northeast is presently developed with storage buildings and docking facilities (three piers), which would allow materials to be transported by barge. Deliveries to the project site via road could occur via Fairview Avenue, Bridge Street, Interstate 95, Eugene O'Neill Drive, and State Street.

- Area B lies east of Eastern Avenue on the Thames River in New London immediately north of the Goldstar Memorial Bridge in an area of mixed residential/industrial uses. The potential laydown area is presently developed with storage buildings and soil piles. An at-grade railroad crossing is present, which would allow materials to be transported by barge (one pier) or truck. Deliveries to the project site via road would occur via industrial portions of Eastern Avenue, Lewis Street, Crystal Avenue, Eugene O'Neill Drive, and State Street.

- Area C lies north of the project site at State Pier in New London. Surrounding land uses are industrial, and the pier is essentially covered by pavement and buildings. Access to the site is via State Pier Road and Crystal Avenue, and materials could be transported via barge to the project site.

- Area D lies immediately north of the project site at Cross Sound Ferry in New London. Surrounding land uses are commercial or maritime. The site is heavily used for ferry transportation and in particular the queuing of ferry traffic.

Recreation

Several public parks are located in close proximity to the project area, including the City Pier Plaza and City Pier, which are adjacent to the project site. City Pier Plaza and City Pier include a waterfront park, boat docks, a pavilion structure, an information/storage/restroom building, and a pier. The plaza and pier provide the primary waterfront access in the downtown area. The Thames River and Long Island Sound are used for various water-related recreational activities, particularly recreational boating.

Parade Plaza is approximately 200 feet west of the project site at the intersection of State Street and Water Street; it provides a wide-open public space between the Water Street Garage, surrounding downtown businesses, and Union Station. Parade Plaza includes the Soldiers and Sailors Monument and is used intermittently for events.

None of the potential laydown areas are used for recreation.

3.3 AIR QUALITY

3.3.1 REGULATORY FRAMEWORK

The U.S. Environmental Protection Agency (USEPA) is the overall regulatory agency for air quality throughout the United States. Federal air quality regulations are included in the Clean Air Act (CAA) of 1970 and the Clean Air Act Amendments (CAAA) of 1990. These regulations provide a comprehensive national program, with the collective goal of reducing pollutant levels in the ambient air. Title I of the CAA requires air pollution source owners in ozone nonattainment areas (see Section 3.3.3) to submit an emission statement to local or state regulatory authorities (see Section 3.3.4). The emission statement should identify and quantify air emissions of sulfur oxides, nitrogen oxides (NO_x), and volatile organic compounds from stationary sources.

The primary regulatory authority for air quality in Connecticut is the CT DEEP, Bureau of Air Management. Applicable regulations are included in the Regulations of Connecticut State Agencies, Title 22a, Sections 22a-174-1 through 22a-174-200, Abatement of Air Pollution. CT DEEP regulates industrial and commercial sources of air pollution that are required to comply with appropriate federal, state, and local rules applying to air emissions.

3.3.2 AMBIENT AIR QUALITY

Ambient air quality in an area can be characterized in terms of whether it complies with the primary and secondary National Ambient Air Quality Standards (NAAQS). The CAAA require USEPA to set NAAQS for pollutants considered harmful to public health and the environment. NAAQS are provided for six principal pollutants, called criteria pollutants (as listed under CAA Section 108): carbon monoxide (CO); lead; NO_x; ozone; particulate matter, divided into two size classes (aerodynamic size less than or equal to 10 micrometers [PM_{10}] and aerodynamic size less than or equal to 2.5 micrometers [$PM_{2.5}$]); and sulfur dioxide (SO_2).

Each state and locality has primary responsibility for air pollution prevention and control. Under the CAA and CAAA, state and local air pollution control agencies have the authority to adopt and enforce ambient

air quality standards more stringent than the NAAQS. The CAA requires that each state submit a State Implementation Plan (SIP), which describes how the state would attain and maintain NAAQS in nonattainment areas. The State of Connecticut has developed a USEPA-approved SIP (CT DEEP, 2014d).

3.3.3 CRITERIA FOR ATTAINMENT/NONATTAINMENT AREAS

Per 40 Code of Federal Regulations (CFR) 50.9(b), on June 15, 2005, the 1-hour ozone standard was revoked for all nonattainment and maintenance areas, except for the 8-hour ozone nonattainment Early Action Compact (EAC) Areas. Connecticut was not an EAC area; therefore, the 1-hour ozone standard was revoked for Connecticut. Currently, New London County does not meet the NAAQS for ozone and as of June 2016 is classified as a moderate nonattainment area (the ozone 8-hour design value for the area is 0.075 parts per million) (USEPA, 2017a). New London County is in attainment for all other criteria pollutants (CO, NO_x, PM_{10}, $PM_{2.5}$, SO_2, and lead) (USEPA, 2017b).

3.3.4 GENERAL CONFORMITY RULE

The General Conformity Provision of the CAA (42 United States Code [USC] 7401 et seq.; 40 CFR 50-87) Section 176(c), including USEPA's implementation mechanism, the General Conformity Rule (40 CFR 51, Subpart W), requires federal agencies to prepare written Conformity Determinations for federal actions in or affecting NAAQS nonattainment areas or maintenance areas (see Section 3.3.3). Because New London County and the Greater Connecticut area are currently in nonattainment status for ozone, the procedural requirements of the General Conformity Rule apply to the Proposed Action (USEPA, 2013b).

3.3.5 GREENHOUSE GASES

Gases that trap heat in the atmosphere are often called greenhouse gases (GHGs), analogous to the way in which a greenhouse retains heat. GHG compounds in the atmosphere absorb infrared radiation and re-radiate a portion of that back toward the earth's surface, trapping heat and warming the earth's atmosphere. Although naturally present in the atmosphere, concentrations of CO_2, methane, and nitrous oxide also are affected by emissions from industrial processes, transportation technology, urban development, agricultural practices, and other human activity. Each GHG compound is assigned a global warming potential (GWP). The GWP is the ability of gas or aerosol to trap heat in the atmosphere. The GWP rating system is standardized to CO_2, which has a value of one. For example, methane has a GWP of 21, which means that its global warming effect is 21 times greater than that of CO_2 on an equal-mass basis. To simplify analyses, total GHG emissions from a source are often expressed as a CO_2 equivalent (CO_2e). The CO_2e is calculated by multiplying the emission rate of each GHG by its GWP and adding the results together to produce a single, combined emission rate representing all GHGs.

Because ambient air quality standards for GHGs have not been established, there are no means by which to designate an area as attainment or nonattainment for GHGs. In 2010, federal operational GHG emission thresholds were established for large stationary sources. Draft guidance for federal agencies considering climate change in their NEPA decision-making documents was released by the Council on Environmental Quality in 2010. The guidance advises that the consideration of climate change should address the GHG emission effects of the project. Because the potential effects of GHG emissions are global in nature, a discussion of the local GHG baseline is not meaningful. In 2015, total U.S. GHG emissions from all sources were approximately 6,586.7 million metric tons CO_2e (USEPA, 2017c).

3.3.6 LOCAL METEOROLOGICAL CONDITIONS

Local meteorological conditions in New London may be conducive to transporting airborne pollutants to adjacent properties and sensitive receptors (i.e., schools, nursing homes, child care centers, churches, and private residences) near the project area. Connecticut has a generally temperate climate with mild winters and warm summers. The January mean temperature is 27 degrees Fahrenheit (°F) (–3 degrees Celsius [°C]), and the July mean is 70°F (21°C). Coastal areas have warmer winters and cooler summers than the interior. Connecticut lies in a belt of generally eastward air movement called the prevailing westerly, which encircles the globe in the middle latitudes. A large number of storm centers and air-mass fronts pass over Connecticut during the year. Precipitation tends to be evenly distributed throughout the year in Connecticut, and prolonged droughts and widespread floods are infrequent (Connecticut State Climate Center, 2014).

3.3.7 NO ACTION ALTERNATIVE

Existing Emissions Sources – The existing Coast Guard Museum in Waesche Hall does not currently support any activities that represent permitted emission sources. Permitted emission sources are located elsewhere on the Coast Guard Academy grounds.

Existing Air Pollution Source Permits – The existing Coast Guard Museum in Waesche Hall does not support any activities that comprise major or minor air emission sources. A Title V Air Permit is maintained by the Coast Guard to cover all major and minor air emission sources elsewhere on the Coast Guard Academy grounds. These sources include boilers, generators, and aboveground storage tanks (ASTs).

Sensitive Receptors – Sensitive receptors within 1 mile of the existing Coast Guard Museum include schools, nursing homes, childcare centers, and residences. The nearest sensitive receptors to the existing Coast Guard Museum are residences (140 feet north), a childcare center (The Children's Program, 230 feet northeast), and schools (Connecticut College, 260 feet west; and The Williams School, 400 feet west).

3.3.8 PROPOSED ACTION ALTERNATIVE

Existing Emissions Sources – No activities that represent permitted emission sources take place on the project site or any of the laydown areas.

Existing Air Pollution Source Permits – No air pollution source permits apply to the project site because it is not currently used for activities that generate emissions.

Sensitive Receptors – Sensitive receptors within 1 mile of the project site include schools, nursing homes, child care centers, and residences. The nearest sensitive receptors to the project site include residences (0.25 mile), schools (St. Mary Star of the Sea School, 0.35 mile; and Isaac Interdistrict School for Arts and Communication, 0.36 mile), and a day care center (The Center, 0.45 mile).

3.4 NOISE

3.4.1 REGULATORY FRAMEWORK

Under NEPA, the Noise Control Act of 1972, and Executive Order (EO) 12088, Federal Compliance with Pollution Control Standards, the Coast Guard is required to assess the environmental impact of noise produced by its activities.

City of New London ordinance Section 14-3 includes noise regulations that classify noise zones and establish standards for each zone. Noise emissions that exceed the levels prescribed in the ordinance, beyond the boundaries of a noise zone as measured at any point on a receptor's parcel, are not permitted (see Table 3.4-1). The unit of measure for noise limits in the ordinance is A-weighted in decibels, which is an expression of the relative loudness of sounds in air as perceived by the human ear. Construction noise is exempt from the ordinance, and mobile sources of noise are excluded – except when a mobile source of noise has maneuvered into position at a loading dock or similar facility and has begun the physical process of loading or unloading (City of New London, 2017c).

3.4.2 NO ACTION ALTERNATIVE

The existing Coast Guard Museum and Coast Guard Academy are included in the B noise zone classified in the City of New London noise ordinance. Because of the close proximity to I-95, background vehicular traffic noise can be detected. However, on average, noise levels at the existing Coast Guard Museum in Waesche Hall are representative of acceptable levels in New London. Various sensitive receptors are within 0.25 mile of the existing Coast Guard Museum (see Section 3.3.7).

3.4.3 PROPOSED ACTION ALTERNATIVE

The project site is also included in the B noise zone classified in the City of New London noise ordinance. Because of its proximity to a train station, rail lines, at-grade rail crossing, ferry docks, and the Thames River, short-term (i.e., episodic) transportation noise occurs. However, on average, noise levels at the project site are representative of acceptable levels along the New London waterfront. These mobile sources of noise are excluded from the standards of the City of New London noise ordinance, except when they have maneuvered into stations or docking areas. Various sensitive receptors are within 0.25 mile of the project site (see Section 3.3.8).

Noise levels at potential laydown areas C and D are generally consistent with the above description as they are located along New London's waterfront. Potential laydown areas A and B are also located on the water, but they border residential areas (and potentially other sensitive receptors) such that existing noise levels are likely lower than those at potential laydown areas C and D.

TABLE 3.4-1
City of New London Receptor Noise Zone Class Standards

Zone Class	Zone Class Description	Emitter Standard to Zone Class			
		C	B	A-Day	A-Night
C	Generally industrial, including manufacturing activities; transportation facilities; warehousing; earth products excavation, processing, and mining and vacant lands zoned for such uses.	70 dBA	66dBA	61 dBA	51 dBA
B	Generally commercial, including retail trade; professional offices; government services; educational institutions; amusements; agricultural activities; automotive dealers and gasoline services stations; restaurants, bars, and nightclubs; marinas and other water-dependent uses and vacant lands zoned for such commercial or institutional uses.	62 dBA	62 dBA	55 dBA	45 dBA
A	Generally residential areas where human beings sleep, or areas where serenity and tranquility are essential to the intended use of the land. Includes single- and multiple-family homes, hotels, motels, religious facilities, hospitals, nursing homes, cultural activities, forest preserves, historic and monument sites, and vacant land zoned for residential or related uses requiring such protection.	62 dBA	55 dBA	55 dBA	45 dBA

Note: dBA = A-weighted decibel; Source: City of New London, 2017c

3.5 GEOPHYSICAL SETTING

New London is in the Eastern Highland physiographic section of Connecticut. The bedrock geology is primarily composed of metamorphic rock such as gneiss or schists. These bedrock formations are overlain by two types of materials primarily deposited by the Wisconsin glaciation, which occurred approximately 15,000 years ago. The dominant material deposited over the bedrock in New London is till, which is composed of rock particles that tend to be sandy or very stony and will contain a large percentage of boulders. Smaller, isolated areas of stratified drift contain deposits of sorted layers of sand and gravel, primarily along valleys and streams. In New London, this stratified drift is found along the Thames River, I-95, Fenger Brook, and Alewife Cove. As a result of glacial activity, the major topographic features of New London are north-south oriented, elongated hills called drumlins (City of New London, 2007).

The lands surrounding the existing Coast Guard Museum, Coast Guard Academy grounds, and the project site on the New London downtown waterfront are not designated as prime, unique, or farmlands of statewide or local importance (CT DEEP, 2014a). Therefore, farmlands would be not affected by the No Action or Proposed Action alternatives, and no further analysis of these resources is provided in this FSEA.

3.5.1 NO ACTION ALTERNATIVE

Geology – The near-surface bedrock at the Coast Guard Academy is Potter Hill Granite Gneiss, which is characterized as light-pink to gray, tan weathering, fine- to medium-grained, well-foliated granitic gneiss (CT DEEP, 2000b).

Topography – The elevation of the area around the existing Coast Guard Museum in Waesche Hall is approximately 130 feet above mean sea level (AMSL). The topography of the Coast Guard Academy grounds is mostly level and gently slopes from 130 to 160 feet AMSL in the west to near sea level along the Thames River.

Soil Types and Characteristics – The soils underlying the existing Coast Guard Museum in Waesche Hall and the majority of the Coast Guard Academy grounds include Udorthents-Urban land complex. This complex consists of well-drained soils that have been disturbed by cutting and filling. This complex is mostly in urban and built-up areas, including areas covered by building and pavement. Soils underlying other portions of the Coast Guard Academy include the Charlton-Chatfield complex, which are well-drained soils on bedrock-controlled hills and uplands (CT DEEP, 2014a; NRCS, 2008).

3.5.2 PROPOSED ACTION ALTERNATIVE

Geology – The near-surface bedrock at the project site is New London Gneiss. New London Gneiss is characterized as massive gray granitic gneiss (CT DEEP, 2000b).

Topography – The elevation of the project site is approximately 6 feet National Geodetic Vertical Datum (NGVD) of 1927. The topography of the project site is flat, sloping gently downward to the east along the Thames River.

Soil Types and Characteristics – The soils underlying the project site are Udorthents-Urban land complex, which consist of well-drained soils that have been disturbed by cutting and filling. This complex is mostly in urban and built-up areas and includes areas covered by building and pavement (CT DEEP, 2014a; Natural Resources Conservation Service [NRCS], 2008).

Laydown Areas – The near surface bedrock at the laydown areas includes gneiss associated with the Potter Hill (A), Mamacoke (B and C), Hope Valley Alaskite (C), and New London Gneiss (D) formations. Topography at each location is less than 10 feet NGVD, and the underlying soils are Udorthents-Urban land complex or Urban land.

3.6 WATER RESOURCES

3.6.1 NO ACTION ALTERNATIVE

Surface Water Resources – No surface water features exist in the vicinity of the existing Coast Guard Museum in Waesche Hall. The National Wetland Inventory (NWI) database and map indicate that wetlands are more than 1,000 feet east of Waesche Hall along the Thames River. The Coast Guard Academy is in the Thames River watershed. The Coast Guard Academy grounds slope eastward and drain to the Thames River, which flows southward and discharges to the Atlantic Ocean approximately 3 miles

south of the Coast Guard Academy. Stormwater runoff from impermeable surfaces in the Coast Guard Academy is collected in storm sewers and discharged into the Thames River.

Floodplains – Waesche Hall is not in an identified FEMA flood hazard area.

Groundwater Resources – Groundwater in the area below the existing Coast Guard Museum on the Coast Guard Academy grounds is from the Crystalline-Rock Aquifer formation. Water found in crystalline-rock aquifers is generally suitable for most uses because of the insoluble minerals forming the majority of the rock composure. Groundwater in these aquifers primarily moves through joints and fractures rapidly and along short slow paths (USGS, 1995). Groundwater in the vicinity of the existing Coast Guard Museum is included in Class GB, which includes groundwater presumed not suitable for human consumption without treatment, and designated uses include industrial process water and cooling waters (CT DEEP, 2014a; CT DEEP, 2014c). There are no potable water wells in the Coast Guard Academy grounds.

3.6.2 PROPOSED ACTION ALTERNATIVE

Surface Water Resources – No surface water features exist on the project site; however, the site and potential laydown areas are all located immediately adjacent to the Thames River. The Thames River is influenced by tidal and freshwater flows. The NWI database and map indicate that no wetlands are on the project site or in the project area. The project site slopes gradually toward the east and drains directly into the Thames River as do the potential laydown areas. No Total Maximum Daily Loads (TMDLs) have been established for the Thames River. The Thames River flows into Long Island Sound approximately 2 miles south of the project site.

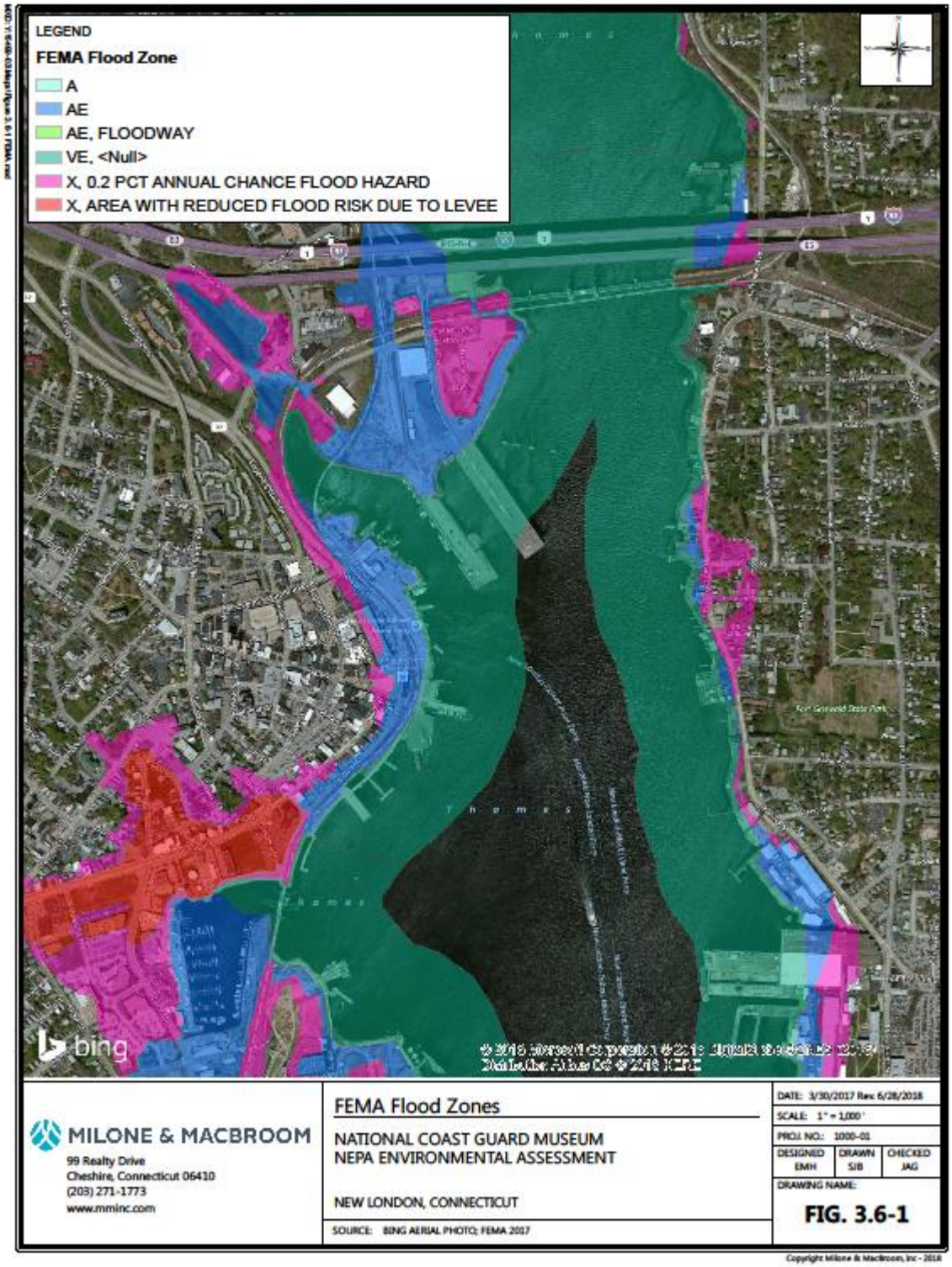
Floodplains – The project area lies within two FEMA coastal flood hazard areas: a VE zone at elevation 14 feet NAVD, and an AE zone at elevation 11 feet NAVD (16 feet and 13 feet NGVD, respectively). Figure 3.6-1 presents the FEMA Flood Insurance Rate Map (FIRM) and depicts the VE zone extending onto the upland portion of the project site. All of the laydown areas lie within the AE zone at elevation 11 feet NAVD as well as the VE zone (16 feet for potential laydown area D, 14 feet for potential laydown areas A and C, and 13 feet for potential laydown area B).

Projects proposed on federally owned lands must meet the requirements of EO 11988 (Floodplain Management) and EO 11990 (Protection of Wetlands). To comply, an eight-step process must be completed for actions taking place within a floodplain or wetland. As no wetlands are present within or near the project site, only the requirements of EO 11988 for floodplain management apply.

EO 11988 requires that to the extent possible the long- and short-term adverse impacts associated with the occupancy and modification of floodplains are avoided, and the direct and indirect support of floodplain development is avoided wherever there is a practicable alternative. Actions must be taken to reduce the risk of flood loss; to minimize the impact of floods on human safety, health, and welfare; and to restore and preserve the natural and beneficial values served by floodplains in carrying out their functions (FEMA, 2017b).

The eight-step process for compliance with EO 11988 floodplain management must be completed for actions taking place within a floodplain. The eight-step process entails the following considerations:

Figure 3.6-1 FEMA



- Step 1: Determine whether the proposed action is located in a 100-year floodplain.

- Step 2: Notify the public at the earliest possible time of a proposal to consider an action in a floodplain and involve the affected and interested public in the decision-making process.

- Step 3: Identify and evaluate practicable alternatives to locating the proposed action in a floodplain.

- Step 4: Identify the potential direct and indirect impacts associated with the occupancy or modification of the floodplain.

- Step 5: Where practicable, design or modify the proposed action to minimize the potential adverse impacts within the floodplain and to restore and preserve its natural and beneficial values.

- Step 6: Reevaluate the proposed action to determine: (1) where it is still practicable in light of its exposure to flood hazards in the floodplain, the extent to which it will aggravate the current hazards to other floodplains, and its potential to disrupt floodplain values; and (2) whether alternatives preliminarily rejected at Step 3 are practicable in light of the information gained in Steps 4 and 5.

- Step 7: If the reevaluation results in a determination that there is no practicable alternative to locating the proposal in the floodplain, publish a final notice.

- Step 8: Implement the action.

Groundwater Resources – Groundwater below the area surrounding the project site and all laydown areas is from the Crystalline-Rock Aquifer formation and is included in Class GB, which is described above for the No Action Alternative (see Section 3.6.1) (CT DEEP, 2014a; CT DEEP, 2014b). New London is 100 percent served by public water supply.[1] The vicinity of laydown area A in Groton is also served by public water supply.

Water Providers – Potable water is not currently provided to the project site; however, potable water is supplied to parcels in the surrounding area by the City of New London (maintained and operated by the Veolia company). According to a report entitled "*Downtown New London Sewer & Water Capacity Study*" dated January 2015, prepared by Veolia, only a small percentage of the available water distribution system is currently being consumed in the core downtown area. Additionally, the study notes that adequate water supply can be made available to the site with the installation of approximately 550 linear feet of eight-inch water main (Veolia, 2015). Potable water appears available at potential laydown areas A, C, and D but may not be immediately available at potential laydown area B.

[1] Reference: Milone & MacBroom, Inc., 2018, *Preliminary Integrated Report*, Eastern Connecticut Water Utility Coordinating Committee, March 2018, http://www.portal.ct.gov/DPH/Drinking-Water/WUCC/Eastern-Water-Utility-Coordinating-Committee

3.7 COASTAL RESOURCES

3.7.1 REGULATORY FRAMEWORK

The U.S. Congress recognized the importance of meeting the challenge of continued growth in the coastal zone by passing the Coastal Zone Management Act (CZMA) in 1972. The CZMA is administered by the National Oceanic and Atmospheric Administration's (NOAA) Office of Ocean and Coastal Resource Management. The CZMA requires that federal agency activities having reasonably foreseeable effects on any nonfederal lands or waters or natural resources of the coastal zone be consistent to the maximum extent practicable with the enforceable policies of a coastal state's federally approved coastal management program.

Connecticut's Coastal Management Program is administered by the CT DEEP and is approved by NOAA under the federal CZMA. Development in Connecticut's coastal boundary is subject to the Connecticut Coastal Management Act (CCMA) and is regulated by the CT DEEP LWRD. The *Connecticut Coastal Management Manual* provides guidance for implementing the standards and policies of the CCMA. Work in tidal, coastal, and navigable waters and tidal wetlands is regulated under the CCMA (Sections 22a-90 through 22a-112 of the Connecticut General Statutes), the Structures Dredging and Fill statutes (Sections 22a-359 through 22a-363f), and the Tidal Wetlands Act (Sections 22a-28 through 22a-35) (CT DEEP, 2014e).

Connecticut's coastal zone is separated into two tiers and incorporates 36 coastal townships – including New London, where the project site is located. The first tier is a continuous line delineated by a 1,000-foot linear setback measured from the mean high-water mark in coastal waters or by the continuous interior contour elevation of the 100-year frequency coastal flood zone (the 1 percent chance coastal flood zone), whichever is farthest inland. The second tier is the area between the inland boundary of the 36 coastal communities and the inland boundary of the first tier. On federal lands and for federal actions, state permit requirements under the CCMA are superseded by the need for determination of consistency with the state coastal policies, or federal consistency, pursuant to the CZMA.

3.7.2 NO ACTION ALTERNATIVE

The existing Coast Guard Museum in Waesche Hall is within the Connecticut coastal boundary and includes coastal resources categorized as shoreland in the *Connecticut Coastal Management Manual* (CT DEEP, 2014a). Shorelands include land areas within the coastal boundary exclusive of coastal hazard areas, which are not subject to dynamic coastal processes and are composed of typical upland features such as bedrock hills, till hills, and drumlins (CT DEEP, 2000a).

3.7.3 PROPOSED ACTION ALTERNATIVE

The project site and identified potential laydown areas are located within the Connecticut coastal boundary (CT DEEP, 2014a) and include coastal resources categorized in the *Connecticut Coastal Management Manual*. A coastal hazard area includes land areas inundated during coastal storm events or subject to erosion induced by such events. Coastal flood hazard areas generally include all areas designated as A-zones and V-zones by FEMA. Developed shorefronts include harbor areas that have been highly engineered and developed, resulting in the functional impairment or substantial alternation of their natural physiographic features of systems. The NCGM, according to the current conceptual design,

would also be built over portions of the existing City Pier Plaza and adjacent Thames River, which is classified as an estuarine embayment (CT DEEP, 2000a).

A number of coastal resources as identified in the CCMA are located on and adjacent to the subject parcel. The upland area on the property is comprised of both *Developed Shorefront* areas and *Coastal Flood Hazard Zone*. The site lies within FEMA-designated AE and VE flood zones, which extend up to 13 feet NGVD and 16 feet NGVD (11 feet and 14 feet NAVD, respectively). The flood zone areas are mapped as Coastal Flood Hazard areas per the CCMA.

Given the number of marine transportation facilities and supporting infrastructure in the project area, the waterfront is highly engineered and considered Developed Shorefront, which is defined as *"harbor areas which have been highly engineered and developed resulting in the functional impairment or substantial alteration of their natural physiographic features or systems.*" Specifically, the nature of the subject property as a sparsely vegetated parking area with an armored bank is consistent with the definition of developed shorefront. Seaward of the rubble bank, the Thames River is mapped as an *Estuarine Embayment,* and to the south at the confluence with Long Island Sound, *Nearshore Waters* exist. A summary of the aquatic environment adjacent to the property and relation to the proposed activities follows.

The intertidal area is located adjacent to a developed shorefront, consists of a shallow-profile rubble-strewn bank and a stony, coarse sand beach, and extends to the mean low water elevation -1.9 feet NAVD 1988. Clumps of rock weed *(Fucus spp)* colonize the rubble and fill material along the shoreline. Remnant sheet piling, refuse, pilings, and other fill material are located within the intertidal zone and extend seaward. The variable condition of the shoreline is reflective of a modified and engineered shoreline profile. No tidal wetlands are located on or adjacent to the proposed project site.

The subtidal work area extends from approximately elevation -1.9 to -5 feet NAVD 1988. Remnant construction slag is located in the subtidal zone as well as cobbles and rubble eroded from the shoreline. Refuse exists in this area as well. Two individual culms of eelgrass were observed in two locations within this area on October 9, 2020. Given the presence of eelgrass (*Zostera marina*) within the lower Thames River estuary, the individual eelgrass observations is not considered atypical. A small portion of a mapped shellfish concentration area is located within the project site. The mapped shellfish area supports commercially viable hard clams *(Mercenia mercenia)*. However, the subtidal area adjacent to the NCGM site has not been actively harvested for shellfish in decades. The consistent sediment resuspension resulting from adjacent ferry operations is not conducive to shellfish settlement. Also, the consistent boat traffic in this area may present navigational conflicts to active shellfishing. In concert, the condition of the benthic habitat in-water and upland uses is inconsistent with a commercially viable shellfish bed in this location.

The benthic community of the Thames River estuary has been studied extensively over time (Zajac and Whitlach, 1990). These studies have documented and mapped the variety of assemblages of benthic infaunal species. The Thames River supports two relatively distinct assemblages of benthic communities: the lower river channel that displays a diversity of species typically found in deeper habitats of Long Island Sound and the upper portion of the estuary that is characterized by reduced number of benthic species and a lower overall abundance of benthos. Studies completed by Whitlach (1999) identified the area directly adjacent to the stream bank as displaying indicators of both benthic communities. However, a

number of opportunistic species, e.g., *Streblospio benediciti*, were observed, which is indicative of the disturbed nature of the benthic environment.

3.8 BIOLOGICAL RESOURCES

3.8.1 REGULATORY FRAMEWORK

In accordance with Section 7(2)(a) of the Endangered Species Act (ESA) of 1973 (16 USC 1531 et seq.), a federal agency that carries out, permits, licenses, funds, or otherwise authorizes activities that may affect an ESA-listed species must consult with the United States Fish and Wildlife Service (USFWS) or NOAA Fisheries to ensure that its actions are not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of the critical habitat of such species. The USFWS is responsible for federally listed terrestrial and freshwater species and their habitat, and NOAA Fisheries is responsible for federally listed marine species and their habitat.

NOAA Fisheries is also the lead federal agency responsible for the stewardship of the nation's offshore living marine resources and their habitat under the Magnuson-Stevens Fishery Conservation and Management Act and Marine Mammal Protection Act. The Magnuson-Stevens Fishery Conservation and Management Act, passed in 1976 and reauthorized in 2006, is the primary law governing marine fisheries management in the United States. It requires federal agencies to consult with NOAA Fisheries when any activity proposed to be permitted, funded, or undertaken by a federal agency may have adverse effects on designated EFH.

The Marine Mammal Protection Act of 1972 prohibits the taking of marine mammals. "Take" means to harass, hunt, capture, or kill, or attempt to harass, hunt, capture, or kill any marine mammal (NOAA, 2014). Additionally, the Fish and Wildlife Coordination Act of 1934 (16 USC 661 et seq.) requires that all federal agencies consult with NOAA Fisheries, USFWS, and state wildlife agencies when proposed actions might result in modification of a natural stream or body of water.

3.8.2 NO ACTION ALTERNATIVE

Local Ecosystems and Communities

Plant Communities – Vegetation in the area surrounding the existing Coast Guard Museum in Waesche Hall at the Coast Guard Academy comprises extensive grass-covered open space, including lawns, parade grounds, and athletic fields, which are actively managed and mowed. The building areas, streets, and parking areas are lined with tree species typical of parks and urban settings. Therefore, there is currently minimal natural habitat around the existing Coast Guard Museum in Waesche Hall, and no sensitive plant communities have been identified in the area or elsewhere on the Coast Guard Academy grounds.

Significant Natural Communities – The area surrounding the existing Coast Guard Museum in Waesche Hall is not in a special habitat area based on a review of CT DEEP state and federally listed species and significant natural community maps. Other portions of the Coast Guard Academy grounds are in special habitat areas.

Essential Fish Habitat – The area surrounding the existing Coast Guard Museum in Waesche Hall is terrestrial and therefore is not an area designated as EFH.

Threatened and Endangered Species –

An initial review of the United States Fish and Wildlife Service's (USFWS) Information for Planning and Consultation (IPaC) USFWS Environmental Conservation Online System (ECOS) identified two bird species, two plant species, and three reptiles with federal endangered or threatened status that have the potential to occur in New London County (see Table 3.8-1). A follow-up consultation was performed in September 2021 utilizing the ECOS Information for Planning and Consultation (IPaC) tool, and the resulting updated list of federal listed species generated is presented in table 3.8-2.

The September 17, 2021 species list identifies the Northern long-eared bat (*Myotis septentrionalis*), a threatened mammal, the roseate tern (*Sterna dougallii douglaii*), an endangered bird, and a candidate species, the monarch butterfly (*Danaus plexippus*), as potentially occurring on the project site or affected by the project.

The proposed project will have *no effect* on listed species identified in the USFWS IPaC mapper. The species listed in the project's vicinity are not supported by available habitat within the area. The upland portion of the site is comprised of parking area and devoid of vegetation. No tree or vegetation removal is proposed as part of the project. The project site is not accessible from the shoreline due to the City Pier Pavilion and existing development. The sites provide no shelter, escape cover, or food sources due to the existing lack of vegetation, impervious cover, and landscape position within a developed, urban environment.

As described further in 3.8.3, based on the conditions of the project area as well as the habitat requirements of the species, the proposed project will have "no effect" on federally listed species listed in Tables 3.8-1 and 3.8-2 and are further not expected to be present in the area surrounding the existing Coast Guard Museum in Waesche Hall and the surrounding Coast Guard Academy grounds.

TABLE 3.8-1
Federally Listed Species Potentially Occurring in New London County, Connecticut

Group	Common Name (*Scientific Name*)	Status
Birds	Piping plover (*Charadrius melodus*)	Threatened
	Roseate tern (*Sterna dougallii dougallii*)	Endangered
Flowering Plants	Small whorled pogonia (*Isotria medeoloides*)	Threatened
	Sandplain gerardia (*Agalinis acuta*)	Endangered
Reptiles	Hawksbill sea turtle (*Eretmochelys imbricata*)	Endangered
	Leatherback sea turtle (*Dermochelys coriacea*)	Endangered
	Green sea turtle (*Chelonia mydas*)	Threatened

Source: USFWS, 2013

TABLE 3.8-2
2021 Federally Listed Species Potentially Occurring in New London County, Connecticut

Group	Common Name (*Scientific Name*)	Status
Birds	Roseate tern (*Sterna dougallii dougallii*)	Endangered
Mammals	Northern Long-eared Bat (*Myotis septentrionalis*)	Threatened
Insects	Monarch Butterfly (*Danaus plexippus*)	Candidate

Source: USFWS, 2021

3.8.3 PROPOSED ACTION ALTERNATIVE

Local Ecosystems and Communities

Plant Communities – The project site is improved with a gravel-and-dirt parking lot that has actively been used for the Cross Sound Ferry operations. The Thames River extends along the eastern side of the project site. The outboard (river) side of the project site is covered with broken concrete rubble. The project site is heavily disturbed as a result of previous commercial/industrial use. No wetlands or significant plant communities were observed on the project site during a field reconnaissance visit. The field visit identified tree-of-heaven (*Ailanthus altissima*), a nonnative tree species, on the project site. All of the identified laydown areas are similarly developed, with few plant communities available at potential laydown areas A, C, and D, and invasive species and brush appearing to dominate the unused area at potential laydown area B.

Significant Natural Communities – State and federally listed species and significant natural community maps were reviewed for the area surrounding the project site and laydown areas. The project site is in an area identified as a *State and Federal Species and Significant Natural Community*. The designation applies to an extensive area of the Thames River, waters of Long Island Sound, and coastal upland in the vicinity of these areas. The basis for this designation includes records for the blueback herring (Alosa aestivalis), a state species of concern adjacent to the project site in the Thames River (see Threatened and Endangered Species discussion below).

Essential Fish Habitat – The Coast Guard initiated coordination activities with NOAA Fisheries by letter on December 12, 2013. The 2013 NOAA Fisheries response letter indicated that the Thames River has been designated as EFH for a number of federally managed species, including windowpane flounder, scup, and bluefish (see Appendix A). The Coast Guard performed further consultation with NOAA Fisheries through an EFH Assessment and supplemental report between October 2019 and June 2020, and received an official response letter from the agency on June 12, 2020. The NOAA Fisheries response letter from 2020 indicates that the Thames River has been designated as EFH for a number of federally managed species, including winter and summer flounder.

The letter recommended that a compensatory mitigation plan be developed for all permanent impacts proposed, and that no unconfined fill or in-water silt producing activities including dredging should occur between January 1 and June 30 of any calendar year related to the proposed project. The USCG responded to the NOAA Fisheries determination with a memo concurring with the recommended time of year restriction and offering a shoreline clean-up within the Thames River watershed as habitat disturbance compensation. The Thames River Shoreline Clean-up was conducted on April 24, 2021. All coordination discussed above is provided in Appendix C.

Threatened and Endangered Species – The Coast Guard initiated coordination activities with the USFWS by letter on December 12, 2013 (Appendix C) (response not received), and NOAA through the online database in November 2021 . The federally listed species listed in Table 3.8-2 that have the potential to occur in New London County are not expected to be present at the project site or potential laydown areas based on the conditions in these areas as well as the habitat requirements of the species. The proposed work areas are located within a developed city center and are devoid of vegetation and soil. As a result, the proposed project will have *"no effect"* on federally listed species.

The Thames River estuary - and every Connecticut estuary on Long Island Sound- is mapped as potential habitat for federally aquatic listed species (see Table 3.8-3) by the National Marine Fisheries Service (NMFS). The NMFS mapper, accessed on December 1, 2021 identifies the Atlantic sturgeon (*Acipenser oxyriynchus oxyriynchus)* sub-adult and adult species, green sea turtle (*Chelonia mydas)*, Kemp's ridley sea turtle (*Lepidochelys kempii)*, leatherback sea turtle (*Dermochelys coriacea)*, loggerhead sea turtle (*Caretta caretta)*, and the short-nosed sturgeon (*Acipenser brevirostrum)* are identified as potentially occurring in the Thames River. The sea turtles and short-nosed sturgeon are seasonal, migratory species, while the Atlantic sturgeon adult and subadult populations are year-round foraging and migrating species.

TABLE 3.8-3
2021 NMFS Federally Listed Species Potentially Occurring in New London County, Connecticut

Group	Common Name (*Scientific Name*)	Status
Fish	Atlantic Sturgeon (*Acipenser oxyrinchus oxyrinchus*)	Endangered
Fish	Shortnose Sturgeon (*Acipenser brevirostrum*)	Endangered
Reptiles	Green Turtle (*Chelonia mydas*)	Threatened
Reptiles	Kemp's Ridley Turtle (*Lepidochelys kempii*)	Endangered
Reptiles	Loggerhead Turtle (*Caretta caretta*)	Endangered
Reptiles	Leatherback Turtle (*Dermochelys coriacea*)	Endangered

Source: NMFS, 2021

The proposed project is comprised of small bulkhead and fill areas to support water dependent uses. Given the limited temporal and spatial extent of the proposed project and the developed nature of the shoreline, the proposed project is *not likely to adversely affect listed aquatic species*. Conservation measures are provided to prevent incidental capture of species in the work area during construction and best management practices are incorporated in the short and long term to minimize water quality impacts.

A preliminary concurrence of *not likely to adversely affect (NLAA) listed species* was established by the United States Army Corps of Engineers (USACE) in the Public Notice (PN) for Section 10 and Section 404 authorizations for the project. The PN for the National Coast Guard Museum (NAE-2016-00120) was published in September 2020. Utilizing the NLLA Program verification form and process, the USACE coordinated with NOAA-Greater Atlantic Region Fisheries Office (GARFO) for determination of NLAA and Section 7, of the ESA, consultation. The USACE found the project met all applicable Project Design Criteria's (PDC) identified in the verification process save for the number of specific new piles being installed channelward of MHW. Specifically, justification is necessary for installation of >50 piles channelward of MHW. Justification was provided for the proposed 247 metal sheet piles to be installed for the project based on vessel traffic and commercial use of the surrounding area providing for less than suitable conditions for ESA listed sturgeon and best management practices implemented during pile driving (see Section 2.4) activities such as implementation of soft start approach. Section 2.4 provides details for best management practices and serve as supportive details for meeting PDC's. In result, on April 7, 2022, the USACE determined, in accordance with NLAA Program, that the action is not likely to adversely affect listed species per the justification and/or special conditions provided. Additionally, on April 7, 2022, NOAA-GARFO provided concurrence with the USACE's findings.

On May 20, 2019, in response to a letter sent on April 12, 2019 to the NOAA National Marine Fisheries Service (NMFS) by SLR on behalf of NCGMA, SLR received an official determination stating that the presence of and/or anticipated "take" of marine mammals within the proposed project area is highly unlikely under the proposed project activities (see Appendix C-8). NMFS also offered concurrence in this letter that an incidental take authorization (ITA) was not warranted for the proposed work.

A regulatory review was performed with USFWS's Information for Planning and Consultation (IPaC) online database on October 26, 2017. A species determination was generated for the proposed project. The species determination listed the Northern long-eared bat (*Myotis septentrionalis*), a threatened mammal, and the Red Knot (*Calidris canutus rufa*), a threatened bird, as the listed species potentially affected by activities within the project site.

On September 17, 2021 an updated IPaC species determination list was generated which included, in addition to the Northern long-eared bat, the Roseate tern (*Sterna dougallii dougallii*), an endangered bird, and the Monarch butterfly (*Danaus plexippus*), an insect listed as Candidate. As the proposed project area is located within an urban center that lacks vegetation and soil and does not provide any life cycle support for any of the listed or candidate species.

Migratory Birds - The project site is located within the North Atlantic Flyway along which numerous migratory birds fly. According to the USFWS, several Birds of Conservation Concern may migrate through or near the project site. The species include the American Oystercatcher (*Haemetopus palliates*), Bald Eagle (*Haliaeetus leucocephalus*), Black-Billed Cuckoo (*Coccyzus erythropthalmus*), Hudsonian Godwit (*Limosa haemastica*), Least Tern (*Sterna antillarum*), Peregrine Falcon (*Falco peregrinus*), Purple Sandpiper (*Calidris maritime*), Rusty Blackbird (*Euphagus carolinus*), Short-eared Owl (*Asio flammeus*), Willow Flycatcher (*Empidonax traillii*), Wood Thrush (*Hylocichla mustelina*), and Worm-Eating Warbler (*Helmitheros vermivorum*).

State-Listed Species - As part of the 2014 EA analysis, a request for Natural Diversity Date Base (NDDB) state-listed species review was submitted to the CT DEEP on December 18, 2013. The CT DEEP's letter response dated December 23, 2013, indicated that there are records for the blueback herring, a state species of concern, adjacent to the project site in the Thames River (see Appendix C). Blueback herring habitat includes riverine, estuarine, and Atlantic coastal waters. Spawning occurs in deep, swift freshwater with a hard substrate in fresh or brackish water and/or in tidally influenced portions of coastal rivers (Bozeman and Van Den Avyle, 1989; Fuller et al., 2014). Adults occur in saltwater except during the spawning season, when they migrate between coastal river spawning habitat and marine nonspawning habitat. Juveniles spend 3 to 7 months in freshwater, then migrate to the ocean (Yako et al., 2002).

As part of the subject FSEA analysis, on August 10, 2017, an updated review request form was submitted to the CT DEEP NDDB regarding the currently proposed museum. In a letter dated August 22, 2017, the CT DEEP stated that no negative impacts to state-listed species (Regulations of Connecticut State Agencies [RCSA] Sec. 26-306) are anticipated as a result of the proposed project (See Appendix C4).

Subsequent to the publication of the August 2018 publication of the SEA, a supplemental inquiry was submitted to CT DEEP's Natural Diversity Data Base. The response dated April 30, 2020 (Appendix C6) indicated the presence of Atlantic and Shortnose Sturgeon as well as Blueback herring in the Thames River, and deferred to DEEP fisheries biologists' review of permit applications. As a determination issued

by the CT NDDB is only valid for two years, submittal of a new request for determination will be required if the proposed work has not begun by April 30, 2022. A new request will be submitted in May 2022.

As a condition of the April 2020 NDDB response, SLR conducted a fisheries consultation with the DEEP Fisheries Division. The response dated May 28, 2020 (Appendix C7) determined that the proposed project will not significantly impact any fisheries and/or habitat, provided that no work occur between February 1 and May 15 to protect Winter Flounder spawning, eggs, and early life stages.

3.9 HISTORIC AND CULTURAL RESOURCES

The NHPA outlines federal policy to protect historic properties and promote historic preservation in cooperation with states, tribal government, and other consulting parties. The NHPA established the NRHP and designated the SHPO as the entity responsible for administering state-level programs. Section 106 of the NHPA (54 USC 306108) and its implementing regulations (36 CFR, Part 800 et seq.) outline the procedures for federal agencies to follow to take into account the effect of their undertakings on historic properties. The undertaking (here the indirect effect of constructing a museum) has the potential to affect historic properties, defined in the NHPA as those properties (archaeological sites, standing structures, or other historic resources) that are listed in or eligible for listing in the NRHP.

3.9.1 NO ACTION ALTERNATIVE

The Coast Guard Academy is not listed in the NRHP, but many of its buildings date to construction of the campus in 1932 and therefore could be determined eligible for NRHP listing. Waesche Hall was built during or after the 1970s. The Winslow Ames House and Dashon-Allyn House, both of which are NRHP-listed properties, are approximately 0.5 mile and 1 mile, respectively, to the west of the Coast Guard Academy. In 2017, the Hodges Square neighborhood, situated between the Academy and the I-95 corridor to the south, was officially recognized as a Historic District.

Native American and Colonial American settlement patterns along major waterways, such as the Thames River, are well documented. An extensive Thames River drainage archaeological survey by Harold Juli recorded one pre-contact site on the Coast Guard Academy campus, the Coast Guard Academy Rockshelter site (95-6), and another just to the north of the Academy, the Connecticut College Soccer Field site (95-4).

3.9.2 PROPOSED ACTION ALTERNATIVE

Areas of Potential Effects

Because elements of the Proposed Action alternative have the potential to create effects on both historic properties and archaeological sites, two Areas of Potential Effects (APEs) have been created: one for aboveground historic resources and one for archaeological resources (see the Section 106 correspondences with SHPO included in Appendix D). The archaeological APE includes areas where subsurface disturbance associated with the construction of the NCGM would occur. The historic resources APE, often referred to as a Study Area, takes into account direct and indirect effects (e.g. visual and contextual impacts). The APE, defined in consultation with SHPO, extends 2,250 feet from the project site and includes a number of recognized aboveground NRHP buildings, structures, and districts that surround the project area. As discussed below, the project site is on the waterfront and across the

railroad tracks from the long-established Downtown New London Historic District. However, there are numerous individually NRHP-listed historic properties within the District, as well as many NRHP-listed properties and two smaller districts within the 2,250-foot APE that contribute to New London's significant heritage. The 2,250-foot historic resources APE include the districts, buildings, and structures listed in Table 3.9-1. Each is discussed below.

Across the Thames River and outside the 2,250-foot APE are two NRHP Districts that flank the Groton shoreline. The 50-acre NRHP-listed Groton Bank Historic District (National Register Information System [NRIS] 83001287) is on the opposite or eastern bank of the Thames River, below NRHP-listed Fort Griswold (NRIS 70000694), which is approximately 16 acres in area. Fort Griswold is marked by the prominently sited Groton Monument, a 135-foot-tall stone obelisk. These Groton historic district resources are separated from the project site by more than 2,500 feet and a broad expanse of a busy waterway, with the dominant railroad bridge and soaring I-95 crossings to the north of both.

TABLE 3.9-1
Properties and Districts Listed on the National Register of Historic Places
within 2,250 Feet of the NCGM Project Site

NRIS #	NAME	ADDRESS	RESOURCE TYPE	COMMENTS
86000124	US Post Office - Main	27 Masonic Street	building	Not in a District
76001992	Acors Barns House	68 Federal Street	building	Not in a District
90001098	St. James Episcopal Church	125 Huntington Street	building	Not in a District
70000714	Whale Oil Row	105-119 Huntington Street	District	4 residential buildings
71000913	New London Railroad/Union Station	State Street	building	Adjacent to proposed museum and within Downtown New London Historic District
79002665 / 88000070	Downtown New London Historic District/aka Historic Waterfront District	(1979) Original bounds along Captain's Walk, Bank Street/Thames River, Tilley and Washington Streets. (1988) Boundary increase along Huntington, Washington and Jay Streets.; SW corner of Meridan and Gov. Winthrop Blvd.; along Bank and Sparyard Streets.	District	190 buildings in original 1979 designation, including buildings listed on NRHP independently of the Historic District (e.g., the New London Customhouse and the Shaw Mansion); 33 buildings added in the 1988 boundary increase
#040015510	Vermont Railroad Pier	State Pier Road	(earth-filled masonry) structure	NRHP Areas of Significance: Transportation and Engineering
70000706	New London Customhouse	150 Bank Street	building	Within the Downtown New London Historic District; serves as a museum
88000068	Coit Street Historic District	Roughly bounded by Coit, Washington, Tilby, Bank, and Reed	District	33-buildings district that abuts southern edge of the Downtown New London Historic District [Note: The abutting Coit Street West Historic District (2014) is beyond the 2,250-ft Study Area/APE]
82004377	Huntington Street Baptist Church	29 Huntington Street	building	Within the Downtown New London Historic District
70000712	New London Public Library	63 Huntington Street	building	Within the Downtown New

				London Historic District
70000705	New London County Courthouse	70 Huntington Street	building	Within the Downtown New London Historic District
70000713	Shaw Mansion	11 Blinman Road	building	Within the Downtown New London Historic District; serves as a museum

The 8.3-acre NRHP-listed Central Vermont Railroad Pier (NRIS 04001551) is north of the Downtown District and across an open ferry channel from the project site but lies within the 2,250-foot APE. It is an earth-filled masonry structure. See Figure 3.9-1 for the location.

Two additional nationally recognized districts are within the 2,250 foot APE for historic resources: The four-property residential Whale Oil Historic District and the Coit Street Historic District on the southern perimeter of the Downtown Historic District. Each District, as well as individually listed Properties, are identified on Table 3.9-1, illustrated on Figure 3.9-1, and discussed below.

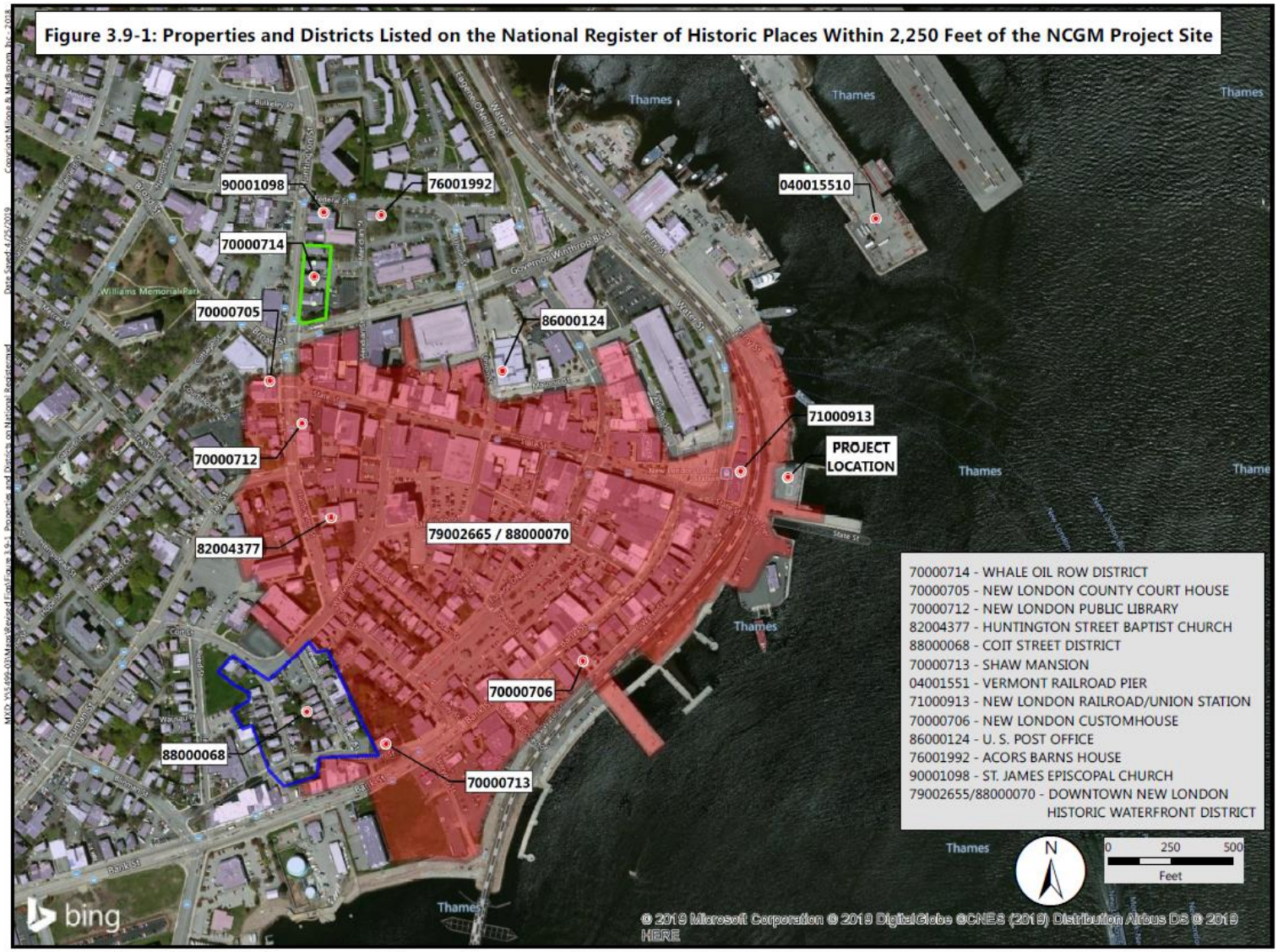
Historic Architectural Resources

Figure 3.9-1 depicts significant, National Register-listed historical resources within the 2,250-foot Area of Potential Effect (APE) of the project site. The APE has been defined as a reasonable sphere of concern for both contextual and visual perspectives. The APE includes maritime commercial resources within the Thames River waterfront, as well as civic structures on higher elevations within the downtown neighborhood. Each of the identified resources is presented in Table 3.9-1.

The 78-acre Downtown New London Historic District (National Register Information System [NRIS] 790026651/88000070, boundary increase) includes a total of 223 structures. The NCGM project site is within the extreme northeastern edge of this NRHP Historic District, as the commercial, residential, and civic properties transition into later industrial properties. The Downtown New London Historic District is listed under Criterion A for Community Planning and Transportation and Criterion C for Architecture. The variety of eclectic styles from the nineteenth century along Captain's Walk provides an unusual demonstration of architectural history, including the work of noted architects such as Henry Hobson Richardson, Rutan and Coolidge, Isaac Fitch, and Leopold Eidlitz, and represents architectural styles ranging from Federal to Art Deco. The principal element of significance in the district is the continuity of scale and function interrelationship; the buildings' cohesive affinity to one another is more important than the buildings are individually. Bank Street tells the story of early maritime activity along the waterfront. Starr Street illustrates a modest mid-nineteenth-century residential neighborhood based on maritime commerce. The Bank and Starr Streets neighborhoods preserve the spatial relationships typical of nineteenth century seaport towns – clustering of buildings with principal transportation arterials along the waterfront or at right angles to the waterfront. Access to the wharfs and water's edge is via the alleyways of Bank Street. Behind the commercial waterfront buildings are residential neighborhoods for the merchants, craftsmen, and artisans who worked the waterfront. This spatial and functional relationship of a seaport town has not been lost to freeway construction or urban renewal as has been the case in so many other towns with a similar history.

As noted on Table 3.9-1, a number of individually NRHP-listed properties are within the Downtown New London Historic District, including the New London Public Library, the Huntington Street Baptist Church, the Shaw Mansion, the U.S. Customhouse, and the neighboring Union Station. Of the individually listed

NRHP properties outside of the Downtown New London Historic District, the closest is the Central Vermont Railroad Pier, discussed below.



The 8.3-acre NRHP-listed Central Vermont Railroad Pier (NRIS 04001551) is north and east of the downtown district and separated by an active ferry channel from the NCGM project site. The Central Vermont Railroad Pier is 150 feet wide for most of its length but expands to 220 feet in width for the last 250 feet to its termination point. The pier deck is paved with non-original asphalt; however, the pier walls themselves are original granite blocks, 18 inches thick and 4 feet in length. The walls rise four feet above the high-water mark in this tidal area of the Thames River. Although the depth of the pier is unknown, bedrock is 70 feet below the sediment just north of the pier. The pier rests on piles of sufficient depth to reach densely compacted sediment or rock. In addition, the piers had to be adequately spaced to bear the weight of the walls and the earthen infill between the walls. Although various buildings and structures that were built on the pier have been removed, including a freight shed, coal hoist, office, and a tool house, the majority of the pier's historic fabric is intact. The pier is listed in the NRHP under Criterion A for transportation and Criterion C for engineering significance. Connecticut's system of railroad and shipping piers supplied the volume of coal needed to power the state's manufacturing facilities during the industrial revolution. The 1876 Central Vermont Railroad Pier is Connecticut's last-surviving nineteenth-century pier.

Archaeological Resources

The New London waterfront contains numerous documented historic archaeological resources, including domestic sites from the late seventeenth, eighteenth, and nineteenth centuries; eighteenth and nineteenth century inns and taverns; and nineteenth and twentieth century wharves. Certain NRHP-listed properties, e.g., the Shaw Mansion and the U.S. Customhouse, are listed as archaeological resources with the Office of State Archaeology in addition to recognition as Historic Resources.

New London was settled by Europeans in 1645; however, the area had been the site of Native American occupation since approximately 12,000 years Before Present (B.P.). Paleoindian artifacts dating from 12,000 to 10,000 B.P. have been recovered in both the larger New London and Groton city areas, indicating that the Thames River was used by prehistoric peoples from an early date though the most intensive occupation of the region was during the Woodland period (3,000 to 400 B.P.; Saunders and Schneiderman-Fox, 2000). However, there are no pre-contact archaeological sites listed with the Office of State Archaeology within one mile of the NCGM project APE. This is undoubtedly due to the intense and extended development and occupation of the New London waterfront. Archeological sites are listed in Table 3.9-2 and are shown graphically in Figure 3.9-2.

By the 1660s, the maritime focus of New London had been established. The historic development of New London and the project area is evident on maps as early as 1781, such as Captain Lyman's *Sketch of New London and Groton* (Lyman, 1781), which shows buildings and docks jutting into the harbor.

The nineteenth century was a period of change for the waterfront community of New London. During the first half of the century, residents had strong ties to the whaling industry. In fact, New London was the third largest whaling port in the United States (Turner and Jacobus, 1986). This is evidenced in the growth of the commercial businesses associated with whaling, which had almost completely replaced the older residences along the waterfront (e.g., Bank Street) as the population grew. The construction of massive wharves, piers, and warehouses attests to the economic boom the whaling industry brought to the city (Archaeological Consulting Services, 1999).

Just after 1845, when whaling was at its most profitable, things began to change dramatically for the residents of New London (Marshall, 1922). Because of the depletion of the whale population and the increased use of alternative fuels (gas, coal, and kerosene), the whale oil industry declined swiftly. Although fishing continued as a major source of income, New Londoners searched for other means of making a living. Shipbuilding became the next growth industry in New London. During the next century, shipbuilding became a new waterfront focus in New London. Although New London never did regain its former economic prowess, the collapse of the whaling industry coincided with the growth of the shipbuilding industry. The United States Navy had a pressing need for new ships throughout the late 19th and early 20th centuries. During the height of the shipbuilding business, between the Civil War and World War I, New London had the largest number of shipyards of any town along the coast (Herzan, 1997). The shipbuilding industry helped New London to regain a level of economic stability. It also formed strong ties between New London and the U.S. military.

Another significant influential factor in the late nineteenth century development of the city was the introduction of transportation enterprises (e.g., steamship and railroad lines) concentrating on the movement of freight. New London's location on the Atlantic coastline at the mouth of the Thames River made it ideal as a transfer point for freight up and down the coast as well as from inland towns and cities. Many fishermen and former whalers saw the potential in establishing transportation lines across the state. Believing that having railroad access would be the salvation for New London, the city fathers encouraged the creation of a charter for the New London, Willimantic & Springfield Railroad in May 1847 (Turner and Jacobus, 1986). Much of the initial financial backing for this company, later known as the New London Northern Railroad, was supplied by the Bank Street merchants and former whalers (Archaeological Consulting Services, 1999). Thus began decades of railroad fever among the people of New London. This was mirrored across southern New England as evidenced by the creation of over 100 independent railroads in the decade between 1850 and 1860 (Public Archaeology Laboratory, 2001).

The New Haven and New London Railroad was chartered in 1848 with plans to terminate in downtown New London because of the nearby "*connections with harbor and with the different railroads that terminate there or may be expected to terminate*" including the new Willimantic line (Poor, 1888; Public Archaeology Laboratory, 2001; Twining, 1849). Many of the Bank Street merchants who had originally supported the new railroad found their businesses being pushed off their land as the fledgling rail company began purchasing land along the proposed route. Construction of the single-track rail line began in 1850; in 1852, the New Haven and New London Railroad officially opened. Over the next few years, the company continued to expand the route in order to create a line that traveled from New York to Boston. In 1864, after some restructuring of the company, the original New Haven and New London Railroad was reorganized as the Shore Line Railway.

The rail corridor effectively separated many of the homes, businesses, and traffic from the Thames River waterfront. There are mid-century reports of failed ship-related businesses cut off from the river. After 1850, different types of businesses and new wharves and piers were constructed outboard of the rail corridor in the core of New London. Many of the wharves and docks on the 1868 *Atlas of New London County* (Beers, 1868) and the 1884 to 1951 Sanborn maps are shown in similar alignments on the 1848 U.S. Coast Survey (USCS, 1848); however, a comparison of the 1848 and 1868 maps does seem to show that portions of the project area were filled during that time span. The freight depot and rail lines are depicted on the 1868 Beers Atlas, along with coal, wood, and lumber yards and the New York Steamboat Wharf.

TABLE 3.9-2
CT Historic Archeologic Sites within One Mile of NCGM Location*

Site Reference	Name/Locations	Period of Significance	Comments	Inventory Form Author/Date
Groton: 59-102	Groton Marine Dock Marine Railway	Ca 1946-1975	Commercial and Industrial	Raber Asociates, 2006
Groton: 59-20	Fort Griswold	ca. 1781-1948	Revolutionary War battle site; 5-acre state park	CAS, 1979
New London: 95-1	Central Vermont Railroad Pier, at end of Thomas Griffin Road	1876 - 1946	An earth-filled granite block structure for steamship - rail freight interchange.	PAST, Inc. 2002
New London: 95-7	Allanach Carriage House,16 Cottage Street	ca.1890 - 1940	Domestic. Relocated in 1988 for State Project - site compromised	Historical Perspectives, Inc., 1982
New London: 95-8	Prentis - Palmer House, 18 Broad Street	ca.1845 - 1940	Domestic. Demolished in 1988 for State Project - site compromised	Historical Perspectives, Inc., 1982
New London: 95-9	Columbus Circle Gravestones, 20 ft. east of monument in traffic circle at Bank St. and Howard intersection.	Recovered Gravestone dated 1871	Remnants of former monument business in proximity to ConnDOT roadwork. NOT A CEMETERY SITE	Harold Juli, Connecticut College, 1979
New London: 95-10	New London Mills, Pequot Ave. south of Trumbull St.	est. 1850 - 1940	19th and/or 20th C. marine steel hulls within landfill soils. Not fully investigated.	PAST, Inc., 1990
New London: 95-11	South Water Street, North of 95-12 and U.S. Customhouse (150 Bank Steet)	18th - early 19th C.	Domestic artifacts (stoneware, creamware, Westerwald, kaolin pipe, delftware) within fill of possible displaced wharf, dock or mooring timbers. Disturbed context.	PAST, Inc., 1992
New London: 95-12	South Water Street, North of U.S. Customhouse (150 Bank Steet)	ca. 1810-1860	Domestic scatter within fill of possible displaced wharf, dock or mooring timbers. Disturbed context.	PAST, Inc., 1992
New London: 95-13	Shaw Mansion	1756	Merchant's house and the state's naval offices during American Revolutionary War. Currently, New London County Historical Soc. offices.	No files at OSA
New London: 95-14	U.S. Customhouse, 150 Bank Street	1833	Original granite wall enclosing the property identified during utility trench monitoring. Protected in situ.	PAST, Inc., 1992
New London: 95-16	Parade Plank Wharf, between Water Street and the Waterfront at foot of Parade	mid-19th to mid-20th C.	Approx. 15 deteriorated wooden piles remaining of plank wharf from period of shift in waterfront activities to accommodate introduction of rail traffic. Some artifacts in association.	ACS, G. Walwer, 1999
New London: 95-19	Frink's Wharf, Bank Street waterfront north of USCG pier	later 18th C. - early 20th C.	Wharf assoc. with major New London whaling family; Commercial and Industrial	ACS, G. Walwer, 1999
New London: 95-20	Turntable/Engine House, New Haven and New London Railroad, in Amtrak railyard off of Walbach	1852	Archaeological investigation of foundation remains of turntable and engine house. Designated a State Archaeological Preserve. Currently, a parking lot.	Historical Perspectives, 2001

*Historic Resources Inventory Forms and one-mile map provided by the Office of State Archeology (Brian Jones 4/12/19)

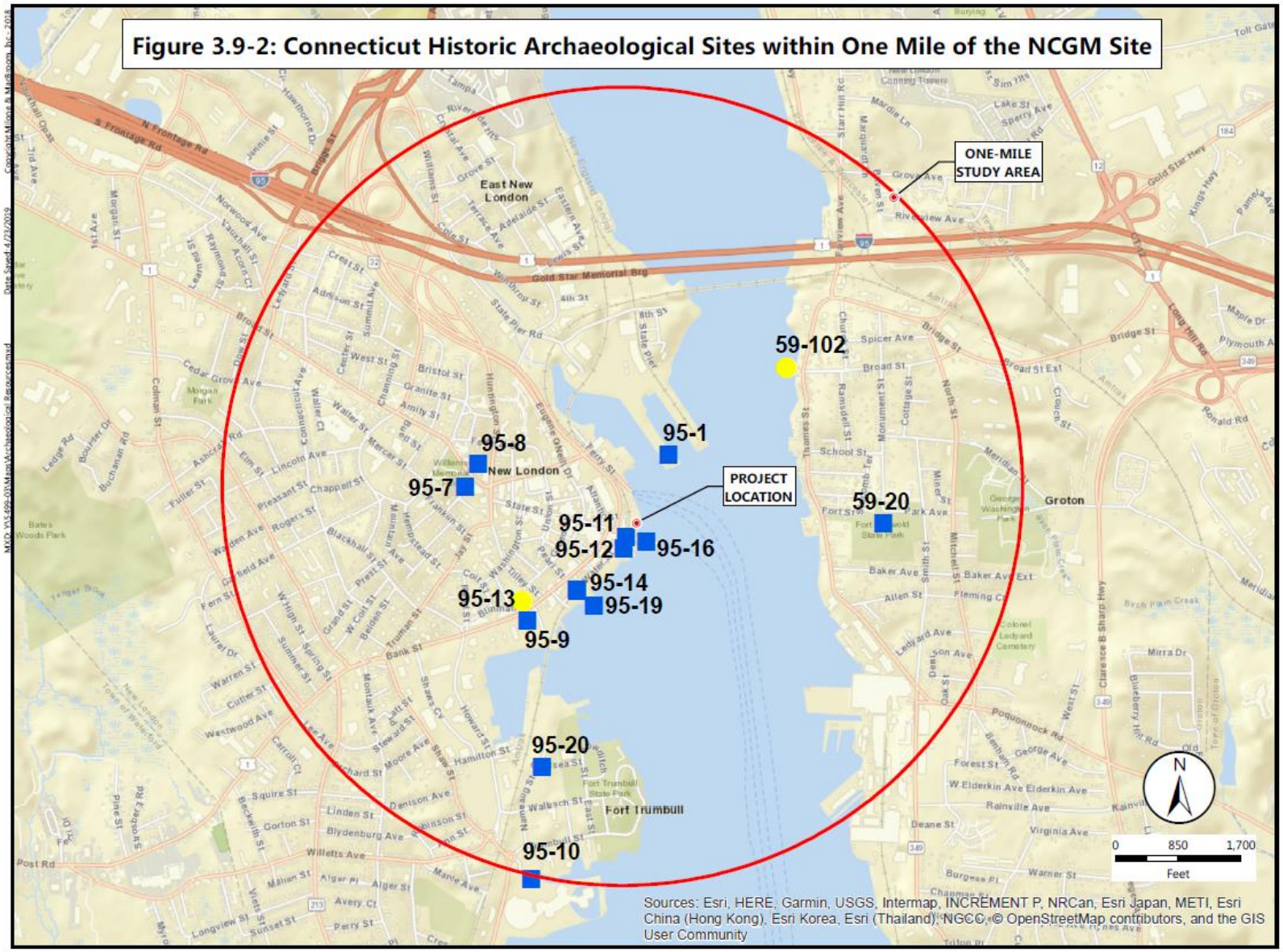


Figure 3.9-2: Connecticut Historic Archaeological Sites within One Mile of the NCGM Site
ONE-MILE STUDY AREA
PROJECT LOCATION
59-102
95-1
95-8
95-7
59-20
95-11
95-12
95-16
95-14
95-19
95-13
95-9
95-20
95-10
East New London
New London
Groton
Fort Trumbull
Gold Star Memorial Brg
N Frontage Rd
S Frontage Rd
0
850
1,700
Feet
N
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community

An 1884 Sanborn Map (Appendix D, Attachment 3, Figure 1) shows that the northern half of the project site contained a portion of the railroad freight house belonging to the "Norwich Line." A coal shed was located on the western side of the project site, and the southern half contained lumber storage buildings. Part of the Bishops Planing Mill was on a portion of the site. An 1891 Sanborn Map indicates that the mill buildings had been removed, and the southern half of the property was undeveloped. The freight house remained, and a gangway and two coal sheds are depicted. The train tracks were extended and bordered the property on the western edge.

A 1901 Sanborn Map (Appendix D, Attachment 3, Figure 2) only depicts the northern half of the project site, which still contains the freight house and tracks, branching off into a series of tracks extending along the eastern edge of the site along the river. This section of track is labeled Central Vermont Rail Road. A 1912 Sanborn Map (Appendix D, Attachment 3, Figure 3) contains the freight house and labels the area south of the project site as New London Harbor. A later 1951 Sanborn Map (Appendix D, Attachment 3, Figure 4) does not show the freight house. The building may have been destroyed in the Great New England Hurricane of 1938 and subsequent fires. Aerial photographs of the aftermath of this natural disaster reveal many of New London's waterfront warehouses and homes as shells without roofs and windows, if not flattened. Many of the docks and piers were destroyed (Artemel et al., 1984). The project site remained undeveloped after the hurricane, and maps and aerials reflect its current status as a gravel-and-dirt parking lot.

Two early archaeological investigations, which occurred within a few hundred feet of the project area along South State Street and Bank Street, established the high potential of the shoreline area of New London to contain buried archaeological resources. The first of these investigations, the Bank Street Waterfront Project, was conducted in the early 1980s as part of mitigation for impacts to the Shaw's Cove Bridge, the Bank Street Historic District, and the New London Historic District from the Northeast Railroad Corridor Improvement Project (Artemel et al., 1984). It was designed to document the development of the New London maritime industry from the city's founding in 1646. Research conducted for this project strongly suggested that the original shoreline was located immediately east of the structures currently standing along South Water Street. Coring along the waterfront documented deep fill to depths between 8 and 14 feet and a complex stratigraphic sequence resulting from filling and the construction of wharves, docks, and slips as well as the placement of underground utilities. The study determined that there are significant maritime-related cultural resources between Bank Street and the New London harbor. However, it is noted for project comparative purposes that the Bank Street excavations were all located west of the railroad corridor.

The second of these investigations was conducted in 1992 by Public Archaeology Survey Team, Inc., which monitored construction along a 260-foot section of the City of New London's reconstruction of South Water Street (PAST, 1992). See Table 3.9.2. This construction occurred south of the intersection of South Water Street and State Street, approximately 300 feet southeast of the project area. The trenching recovered timbers that were interpreted as representing the remains of a wharf or dock, as well as lead pipes suggestive of later disturbance. The report recommended additional archaeological investigations in advance of any future construction in the area to identify the presence or absence of intact archaeological resources. Again, the 1992 PAST excavations and recommendations relate to land areas to the west of the railroad corridor and/or south of State Street.

Archaeological investigations and additional archaeological monitoring since 1992 have yielded the identification of historic archaeological sites. Three waterfront archaeological sites, 95-11, 95-12, and

95-16 are in proximity to the USCGM site. These site types (disturbed and/or deteriorating wharf/dock timbers), recovered collections, and comparability to the project APE have been taken into consideration when evaluating the archaeological potential for the APE to contribute significantly to our understanding of the past.

Based on the history of New London and the examination of historic maps and previous archaeological investigations, the entire project neighborhood has a high potential for buried resources related to the early maritime history of New London, including wharves, docks, slips, and shipwrecks. Because the entire project area appears to lie on nineteenth century fill, the potential for prehistoric archaeological resources is considered low to moderate, depending on the nature of sea level change over the past 12,000 years. Therefore, the archaeological APE is considered to be any location in the project area where subsurface impacts could occur.

As part of the 2014 EA and the subject SEA, Cultural Resources Management professionals meeting the Secretary of the Interior's Professional Qualification Standards (36 CFR, Part 61) in the discipline of Architectural History and Archaeology conducted site visits and researched local and online repositories to assess the presence of NRHP aboveground and archaeological resources in the APE. Concurrently, an archaeologist who met the Secretary of the Interior's Professional Qualification Standards in the discipline of archaeology assessed the archaeological potential for the project site. Local repositories accessed included the New London Public Library, Local History Collection, the Groton Public Library, the Connecticut Department of Economic and Community Development/State Historic Preservation Office (DECD/SHPO), and the Office of State Archaeology. Various on-line resources on New London history were also valuable repositories, e.g., the New London Country Historical Society (https://www.nlchs.org/) and the New London Landmarks, Inc. (https://www.newlondonlandmarks.org/archives-and-resources).

Appendix D includes the NHPA Section 106 letter to the Connecticut SHPO, which provides additional information about the APEs, and selected background information and historic maps.

Native American Graves Protection and Repatriation Act

When it enacted the Native American Graves Protection and Repatriation Act (NAGPRA) in 1990, Congress recognized that human remains and other cultural items on or removed from Federal or tribal lands belong to those people who share cultural affinity with those remains and items. NAGPRA's intent is the respectful and expeditious return of specific human remains, funerary objects, sacred objects, and objects of cultural patrimony. The Act outlines a systematic process of determining the rights of lineal descendants, Indian Tribes, and Native Hawaiian organizations (Public Law 101-601; 25 U.S.C. 3001 et seq.; 43 CFR Part 10).

NAGPRA sets forth procedures for Federal agencies and museums with human remains or NAGPRA objects in their possession to summarize what they have, identify, and notify appropriate descendants, and repatriate remains and objects. NAGPRA applies to those items that are:

- In Federal possession
- In the possession or control or any institution or state or local government that receives federal funds
- Excavated intentionally or discovered inadvertently on federal or tribal lands after November 16, 1990 (Pub. L. 101-601, U.S.C. 3001-3013, 104 Stat.3048-3058).

There is no evidence that the NCGM site or surrounding areas have ever been used for burial of human remains. This is consistent with prior archeological investigations in the downtown New London area.

Laydown Areas During Construction

As discussed in Chapter 2, the project site is extremely limited by the river and the rail corridor and cannot support laydown and staging during construction. The contractors will rely on a combination of off-site staging and laydown areas, specifically an off-shore barge and one or more paved riverfront open lots. Four potential laydown areas along the waterfront have been identified, designated as A, B, C, and D. Figure 3.9-3 is a map of these four areas in relation to the project site; a close-up view of each potential laydown also follows (Figures 3.9-3 through 3.9-7). Land use at all of these paved locations consists of previously developed areas located in the vicinity of the project site as follows.

Area A lies west of Fairview Avenue on the Thames River in Groton. The site is located immediately beneath and to the north and south of the Gold Star Memorial Bridge. The site consists of a small brick building and a paved parking area. Individual residential homes are located on the eastern side of Fairview Avenue. The potential laydown area at Mohawk Northeast is presently developed with storage buildings and docking facilities (three piers), which would allow materials to be transported by barge. Deliveries to the project site via road could occur via Fairview Avenue, Bridge Street, Interstate 95, Eugene O'Neill Drive, and State Street.

Area B lies east of Eastern Avenue on the Thames River in New London immediately north of the Goldstar Memorial Bridge in an area of mixed residential/industrial uses. The potential laydown area is presently developed with storage buildings and soil piles. An at-grade railroad crossing is present, which would allow materials to be transported by barge (one pier) or truck. Deliveries to the project site via road would occur via industrial portions of Eastern Avenue, Lewis Street, Crystal Avenue, Eugene O'Neill Drive, and State Street.

Area C lies north of the project site at State Pier in New London. Surrounding land uses are industrial, and the pier is essentially covered by pavement and buildings. Access to the site is via State Pier Road and Crystal Avenue, and materials could be transported via barge to the project site.

Area D lies immediately north of the project site at Cross Sound Ferry in New London. Surrounding land uses are commercial or maritime. The site is heavily used for ferry transportation and in particular the queuing of ferry traffic.

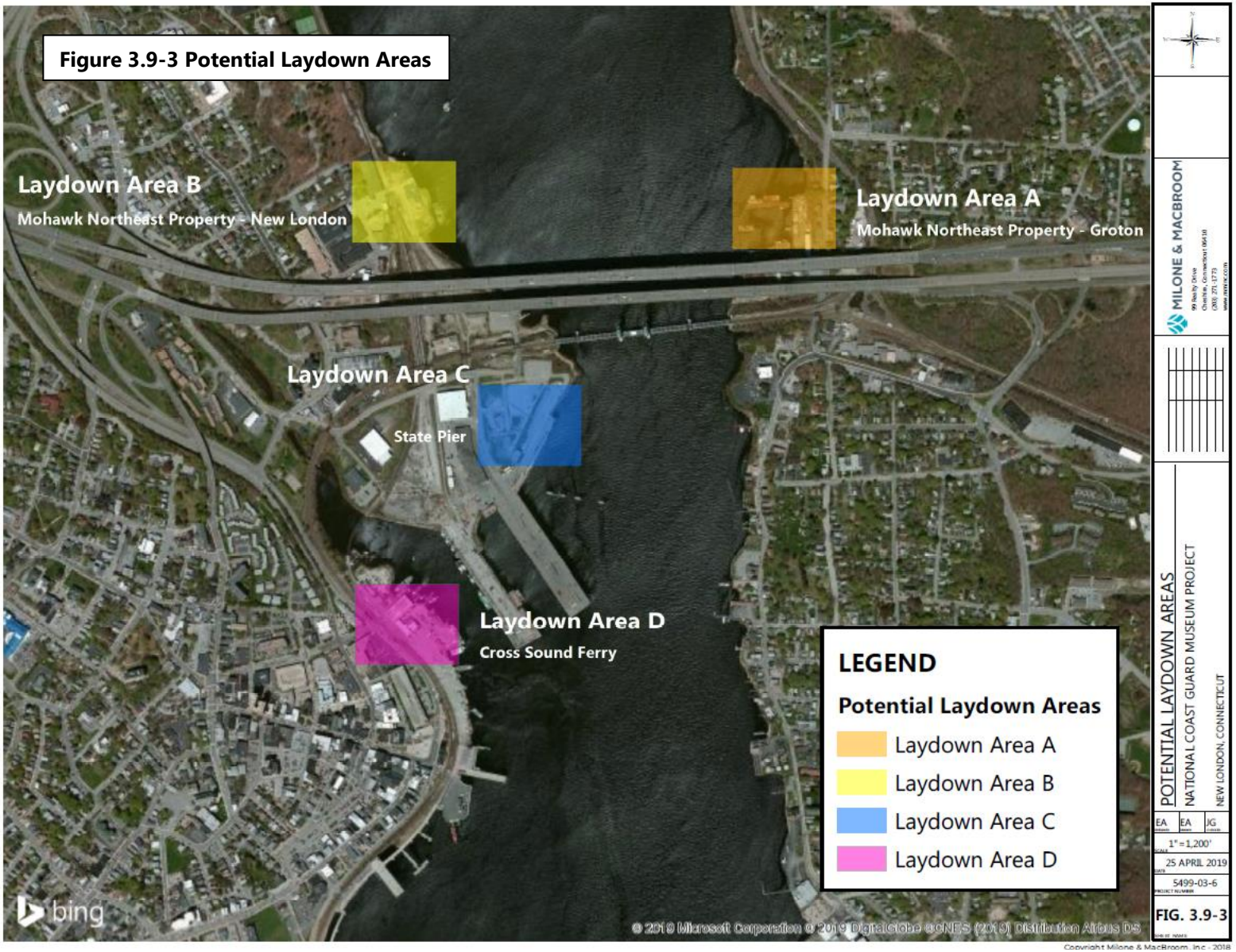


Figure 3.9-3 Potential Laydown Areas
Laydown Area B
Mohawk Northeast Property - New London
Laydown Area A
Mohawk Northeast Property - Groton
Laydown Area C
State Pier
Laydown Area D
Cross Sound Ferry
LEGEND
Potential Laydown Areas
Laydown Area A
Laydown Area B
Laydown Area C
Laydown Area D
bing
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MILONE & MACBROOM
POTENTIAL LAYDOWN AREAS
NATIONAL COAST GUARD MUSEUM PROJECT
NEW LONDON, CONNECTICUT
EA
EA
JG
1" = 1,200'
25 APRIL 2019
5499-03-6
FIG. 3.9-3
Copyright Milone & MacBroom, Inc - 2018


Figure 3.9-4: Potential Laydown Area A
POTENTIAL LAYDOWN AREA A
Mohawk Northeast Property - Groton
N
W
E
S
1" = 100'
Capitol Region Council of Governments. (2016). 2016 Aerial Imagery.

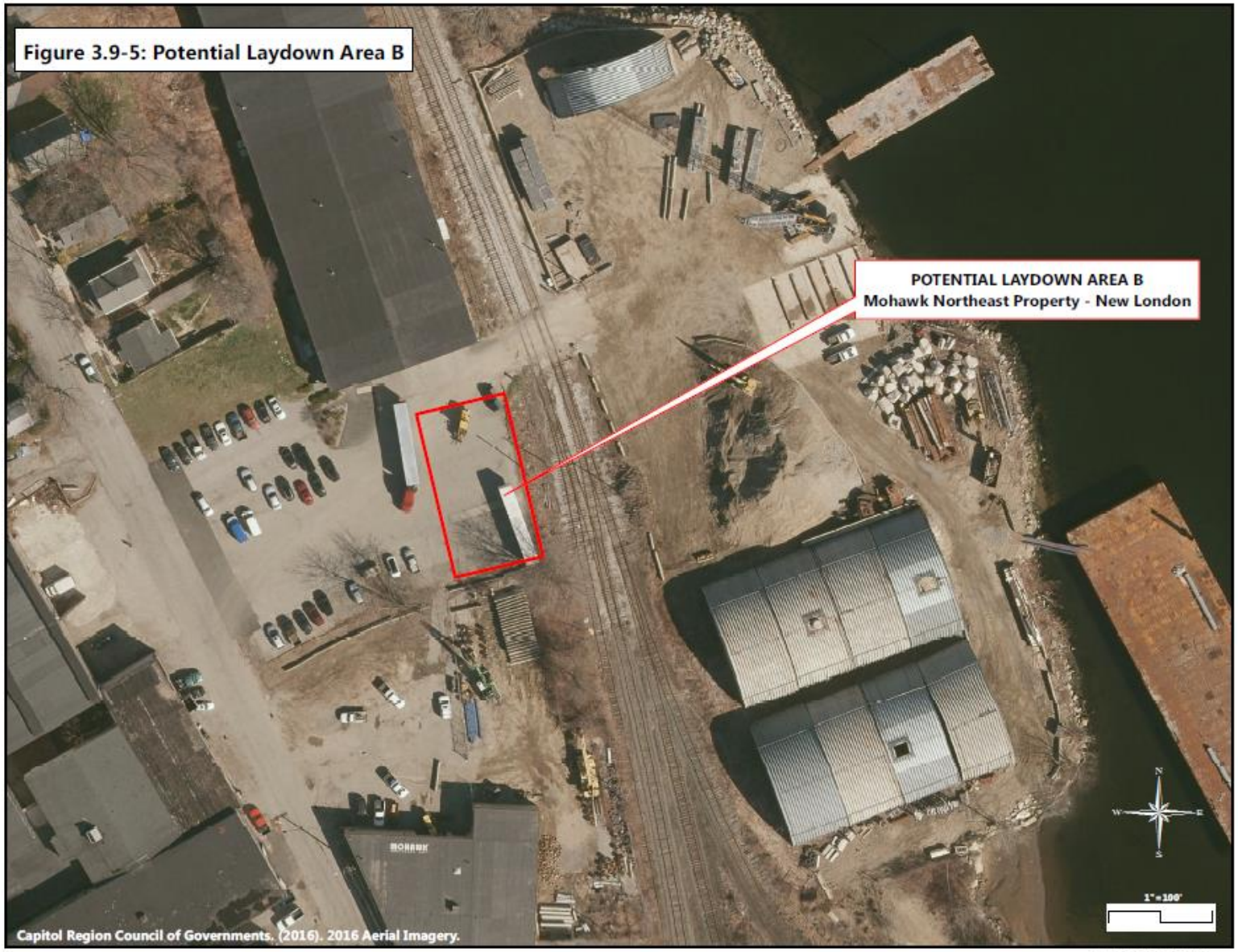


Figure 3.9-5: Potential Laydown Area B
POTENTIAL LAYDOWN AREA B
Mohawk Northeast Property - New London
Capitol Region Council of Governments. (2016). 2016 Aerial Imagery.


Figure 3.9-6: Potential Laydown Area C
POTENTIAL LAYDOWN AREA C
State Pier
N
W
E
S
1"=150'
Capitol Region Council of Governments. (2016). 2016 Aerial Imagery.

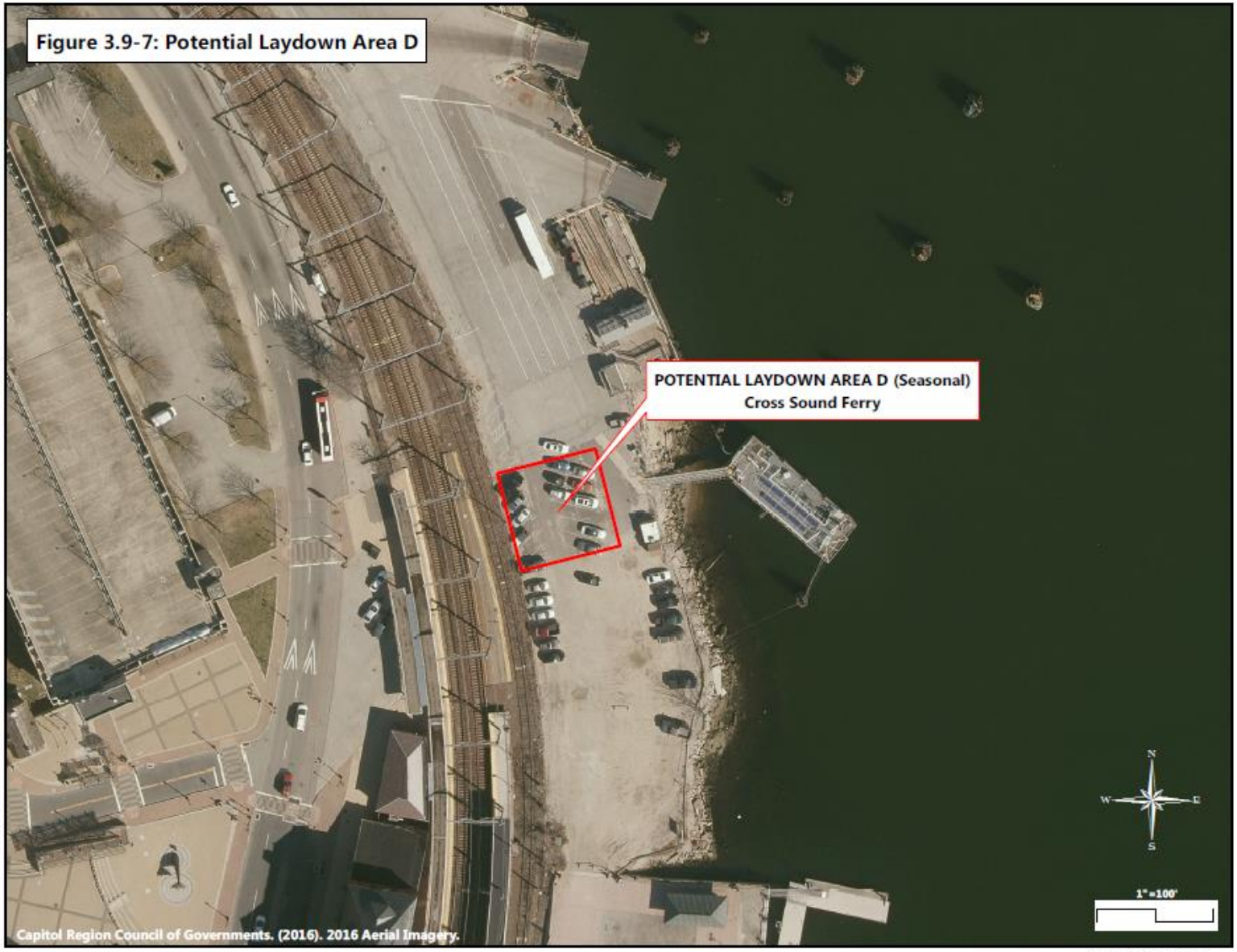


Figure 3.9-7: Potential Laydown Area D
POTENTIAL LAYDOWN AREA D (Seasonal)
Cross Sound Ferry
N
W
E
S
1" =100'
Capitol Region Council of Governments. (2016). 2016 Aerial Imagery.

3.10 VISUAL RESOURCES

3.10.1 NO ACTION ALTERNATIVE

The existing Coast Guard Museum is in Waesche Hall, a modern red brick hall. Other buildings on the Coast Guard Academy grounds are built in a variety of other architectural styles, including white-columned, red-brick halls in the colonial revival style. The Coast Guard Academy includes historical monuments, landscaped grounds, open spaces, and rolling hills that offer views of the Thames River.

3.10.2 PROPOSED ACTION ALTERNATIVE

The project site is on the western side of the Thames River. Aesthetics are mostly representative of commercial and industrial waterfront development, particularly paved and unpaved areas for ferry parking and loading and associated buildings and structures. The New England Central Railroad train tracks and associated structures dominate views to the west toward downtown New London. The eastern side of the project site along the Thames River is covered with broken concrete rubble and debris. These structures and conditions detract from views from the project site toward downtown New London and Union Station, the adjacent City Pier Plaza and City Pier, Thames River, Groton, and Fort Griswold Battlefield State Park.

The project site is mostly visible from surrounding properties, including the City Pier Plaza and City Pier, and from passing trains and boats. The project site is not readily visible from many downtown streets and locations because it is obscured by Union Station and other downtown buildings. Scenic views of the Thames River and New London downtown waterfront, including the project site, are available from areas of Groton on the opposite (eastern) side of the Thames River. Views from the eastern side of the Thames River are mostly from the Fort Griswold area in Groton, which is approximately 0.4 mile east of the project site. A 3-mile segment of Pequot Avenue in the southern end of the New London is the most significant scenic vista in New London. However, the project site is 1 mile to the north on the same side of the Thames River, and the predominant view from this vista is a panoramic view toward the east and southeast of the Thames River and Long Island Sound.

3.11 SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE

The existing Coast Guard Museum is part of the active Coast Guard Academy and is exempt from federal, state, and local property tax. The proposed museum would be constructed on land on the downtown waterfront that is currently or will be owned by the USCG, which is also exempt from federal, state, and local property tax, with the exception of any museum gift shop, event, experiential visitor, or dining facilities.

The following subsections identify and describe the socioeconomic setting in the areas surrounding the existing Coast Guard Museum (Census Tract 8703), the project site on the downtown waterfront (Census Tract 6905), New London, New London County, and Connecticut. Data used in preparing this section are primarily from the 2020 U.S. Census of Population and Housing and the 2016 to 2020 American Community Survey.

3.11.1 DEMOGRAPHICS

The city of New London experienced a period of decline from 1970 to 2000, with an 18.8 percent drop in population from 31,630 to 25,671. From 2000 to 2010, the city's population increased by 7.5 percent, with the addition of 1,949 people in the last 10 years. In the decade between 2010 and 2020, the population the population decreased from 27,620 to 27,367, less than 1% change. Consequently, the number of total housing units increased by 6.2 percent from 11,504 to 12,223. Tables 3.11-1 through 3.11-3 present demographic data for the city.

TABLE 3.11-1
Historic Population in New London (1900 – 2020)

Year	*Population*	*% Change*	*Year*	*Population*	*% Change*
1900	17,548		1970	31,630	-8.1%
1910	19,659	+12%	1980	28,842	-8.8%
1920	25,688	+ 30.6%	1990	28,540	-1.0%
1930	26,640	+ 3.7%	2000	25,671	-10.1%
1940	30,456	+14.3%	2010	27,620	+7.5%
1950	30,551	+0.3%	2020	27,367	-0.1%
1960	34,182	+11.9%			

Source: City of New London, 2007 Plan of Conservation and Development, U.S. Census

TABLE 3.11-2
New London Demographics

Universe	*2010*	*2020*	*%Change*
Population	27,496	27,001	-1.8%
Households	10,223	10,991	+7.5%
Household Size	2.26	2.11	+6.6%

Source: 2006-2010 ACS 5-Year Estimate, 2016-2020 ACS 5-Year Estimate

TABLE 3.11-3
Demographic and Socioeconomic Characteristics – City of New London

Parameter	*2010*	*2020*
Population	27,496	27,001
Housing Units (includes occupied + vacant)	11,504	12,223
Renter-Occupied Housing Units	6,339	6,618
Owner-Occupied Housing Units	3,884	4,373
Average Household Size	2.26	2.11

Source: 2006-2010 ACS 5-Year Estimate, 2016-2020 ACS 5-Year Estimate

The 2020 U.S. Census measured populations for Connecticut, New London County, and New London. The population in all three geographic areas increased in comparison to 2010 U.S. Census records. Table 3.11-4 presents regional population trends and projections for Connecticut, New London County, and New London.

TABLE 3.11-4
Population 2000 to 2040

Area	2000	2010	2015	2020	2025	2030	2035	2040	Change 2010 to 2020
Connecticut	3,405,565	3,574,097	3,593,301	3,604,591	3,618,775	3,633,982	3,645,390	3,653,954	0.8%
NL County	259,088	274,055	279,756	283,666	285,773	TBD	TBD	TBD	3.5%
New London	25,671	27,620	28,025	29,019	29,971	30,887	31,606	31,873	5.1%

Source: Connecticut State Data Center, 2021

3.11.2 REGIONAL ECONOMY

According to the Connecticut Department of Labor (2017a), the New London 2016 labor force was 12,007, with 11,148 employed and an unemployment rate of 7.2 percent. The 2016 unemployment rates in Connecticut and New London County were 5.1 and 5.0 percent, respectively. Over the past 10 years, the labor force in New London decreased by approximately 11 percent and in New London County by approximately 6 percent whereas the labor force of Connecticut grew by approximately 3.6 percent (Connecticut Department of Labor, 2014). Table 3.11-5 presents annual average employment by industry.

TABLE 3.11-5
Annual Average Employment by Industry (2016)[1]

Industry	NAICS[2] Code	Connecticut	New London County	New London
Agriculture, Forestry, Fishing and Hunting	11	4,378	1,053	–
Mining	21	556	45	–
Utilities	22	554	--	–
Construction	23	59,103	3,888	191
Manufacturing	31	156,431	15,778	428
Wholesale Trade	42	62,527	2,826	127
Retail Trade	44	184,616	14,760	1,535
Transportation and Warehousing	48	44,669	2,984	321
Information	51	32,336	1,059	325
Finance and Insurance	52	107,751	1,765	221
Real Estate and Rental and Leasing	53	20,007	837	181
Professional, Scientific, and Technical Services	54	96,911	4,904	721
Management of Companies and Enterprises	55	32,915	867	60
Administrative and Support and Waste Management and Remediation Services	56	88,351	2,522	331
Educational Services	61	56,912	2,216	1,209
Health Care and Social Assistance	62	264,831	16,785	4,507

TABLE 3.11-5
Annual Average Employment by Industry (2016)[1]

Industry	NAICS[2] Code	Connecticut	New London County	New London
Arts, Entertainment, and Recreation	71	27,343	1,921	108
Accommodation and Food Services	72	126,536	12,739	1,197
Other Services (except Public Administration)	81	63,042	3,540	524
Total Government	–	231,034	30,380	1,827

Notes:
1. Annual average employment by industry is based on the Quarterly Census of Employment and Wages program, which serves as a near census of employment and wage information. The program produces a comprehensive tabulation of employment and wage information for workers covered by Connecticut Unemployment Insurance laws and federal workers covered by the Unemployment Compensation for Federal Employees program.
2. NAICS = North American Industry Classification System
3. Source: Connecticut Department of Labor, 2017b

3.11.3 ENVIRONMENTAL JUSTICE

Geographic Distribution of Minorities – The majority of residents in Connecticut, New London County, and New London are nonminority groups (see Table 3.11-6). However, compared to Connecticut and New London County, a higher percentage of minority groups reside in the areas surrounding the project site on the downtown waterfront (Census Tract 6905), in areas surrounding the existing Coast Guard Museum (Census Tract 8703), in the vicinity of potential laydown areas B, C, and D, and in New London. A lower percentage of minority population (26 percent) is located in the vicinity of potential laydown area A in Groton.

TABLE 3.11-6
Regional Population by Race

Area	White	African American	Asian	American Indian and Alaska Native	Native Hawaiian and Pacific Islander	Other[1]	Two or More Race[2]	Minority (Percent)
Connecticut	2,649,994	382,161	163,262	9,079	1,189	192,217	172,647	25.7
New London County	213,152	15,622	10,855	1,632	43	9,357	16,207	20.1
New London	15,484	4,060	763	33	13	4,540	2,108	42.6
Individual Census Tracts in the Project Area								
Census Tract 6905[3]	1,373	275	12	14	13	431	333	43.9
Census Tract 8703[4]	3,807	757	0	233	0	755	425	36.3

Notes:
1. Includes all responses not included in other racial categories. Respondents reporting entries such as multiracial, mixed, interracial, or a Hispanic, Latino, or Spanish group (e.g., Mexican, Puerto Rican, Cuban, or Spanish) in response to the census race question were included in this category.
2. This category refers to combinations of two or more of the first six race categories.
3. This census tract includes the project site on the downtown New London waterfront.
4. This census tract includes the existing Coast Guard Museum and the area surrounding the Coast Guard Academy.

Sources: 2016-2020 ACS 5-Year Estimate, B02001

Geographic Distribution of Low-Income Populations – A higher percentage (33.6 percent) of low-income persons reside in areas surrounding the project site on the downtown waterfront (Census Tract 6905) and New London (23.9 percent) compared to Connecticut (9.8 percent) and New London County (8.5 percent) (ACS 2016-2020 B17001; see Table 3.11-7). These numbers are similar near B, C, and D while the percentage of low-income populations is much lower in the vicinity of potential laydown area A (14 percent).

TABLE 3.11-7
Income and Poverty (2020)

Area	Population[1]	Median Household Income (Dollars) [2]	Persons Below Poverty Level (Percent) [2]
Connecticut	3,570,549	$79,855	9.8
New London County	266,868	$75,831	8.5
New London	27,001	$47,424	23.9
Individual Census Tracts in the Project Area			
Census Tract 6905[3]	2,451	$27,098	33.6
Census Tract 8703[4]	5,977	$32,807	27.7

Note:
1. Official counts of the population based on the 2020 Census
2. Demographic estimate for 2020 based on the 2016 to 2020 American Community Survey, B19013, B17001
3. n waterfront.
4. This census tract includes the existing Coast Guard Museum and the area surrounding the Coast Guard Academy.

Source: 2016-2020 ACS 5-Year Estimate

Consumption Patterns – Based on the socioeconomic data consulted and referenced in the subsections above, no identifiable populations or local groups in the vicinity of the project study area currently rely solely on fish or wildlife for subsistence. No local population segments that meet these criteria were identified through interviews and/or data gathering for preparation of this FSEA.

3.12 PUBLIC AND OCCUPATIONAL HEALTH AND SAFETY

3.12.1 EXPLOSIVES MATERIALS SAFETY

No explosive materials are currently stored in Waesche Hall at the Coast Guard Academy or on the project site.

3.12.2 POLICE AND FIRE PROTECTION

The City of New London Police and Fire Departments provide police and fire protection to New London, including the Coast Guard Academy grounds and project site on the downtown waterfront. The police and fire departments are headquartered on Governor Winthrop Street and Bank Street, respectively. Police protection is also provided to the existing Coast Guard Museum by the Coast Guard Academy Police Department.

3.12.3 MEDICAL FACILITIES

Healthcare services are provided at the Lawrence and Memorial Hospital on Montauk Avenue in New London.

3.12.4 PROTECTION OF CHILDREN

Because children suffer disproportionately from environmental health and safety risks, EO 13045, Protection of Children from Environmental Health Risks and Safety Risks, was promulgated on April 21, 1997. EO 13045 was intended to: (1) prioritize the identification and assessment of environmental health and safety risks that may affect children; and (2) ensure that federal agency policies, programs, activities, and standards address environmental and safety risks to children.

To comply with EO 13045, the distribution of children and locations in which numbers of children may be disproportionately high (e.g., schools, childcare centers, and family housing) were identified in New London, New London County, and Connecticut. The number of children under the age of 18 living in New London was compared with the county and state levels. Locations where populations of children may be concentrated (e.g., schools, childcare centers, and family housing) were identified.

New London has a lower percentage of its total population represented by children under age 18 when compared with Connecticut and New London County. In 2020, there were 5,000 children under age 18 in New London, or 18.4 percent of the overall population. This compares to 20.6 percent for Connecticut and 19.4 percent for the New London County (2016-2020 ACS 5-Year Estimate). Table 3.12-1 summarizes the population under age 18 for New London and its surroundings. As discussed in Section 3.11.4, children living in New London attended approximately 15 public and private primary schools and high schools.

TABLE 3.12-1
Total Population and Population Under Age 18 (2020)

Area	Total Population	Population Under 18	Population Under 18 (Percent)
Connecticut	3,570,549	735,584	20.6
New London County	266,868	52,007	19.4
New London	27,001	5,000	18.5

Source: 2016-2020 ACS 5-Year Estimate

In addition, there are approximately 15 childcare centers in New London. The nearest school and childcare center to the existing Coast Guard Museum are The Williams School (400 feet) and The Children's Program (230 feet) (see Section 3.3.7). The nearest schools and childcare center to the project site are St. Mary Star of the Sea School (0.35 mile), Isaac Interdistrict School for Arts and Communication (0.36 mile), and The Center (0.45 mile) (see Section 3.3.8). The nearest schools to the potential laydown areas include Pleasant Valley School in Groton (0.78 miles northeast from A), Winthrop Elementary School (0.33 miles northwest from B), the Multi-Cultural Magnet School (0.43 miles west from C), and the Interdistrict School for Arts and Communication (0.27 mile west from D).

3.13 INFRASTRUCTURE

3.13.1 NO ACTION ALTERNATIVE

Potable Water Supply – Potable water is provided by the City of New London (maintained and operated by the Veolia company). There are no potable water wells at the Coast Guard Academy.

Wastewater Collection and Treatment – Wastewater treatment is provided by the City of New London (maintained and operated by the Veolia company). The main sanitary treatment facility is the Thomas E. Piacenti Regional Water Pollution Control Facility on the Fort Trumbull peninsula. The design capacity of the sanitary sewer treatment facility is 10 million gallons per day (mgd), and the average daily flow is currently 7 mgd.

Solid Waste Disposal – Solid waste disposal is currently provided under a private contract.

Energy Sources – Electricity is provided by Eversource. No fossil fuels are associated with the existing Coast Guard Museum in Waesche Hall. Fossil fuels are used elsewhere on the Coast Guard Academy campus.

Communications – Telephone, broadband, digital cable television, phone, and internet communication are provided by Fiber Technologies Networks, LLC, and AT&T. Digital cable television, phone, and high-speed broadband internet are provided by Metrocast Communications of Connecticut, LLC.

3.13.2 PROPOSED ACTION ALTERNATIVE

Potable Water Supply – Potable water is not currently provided to the project site; however, potable water is supplied to parcels in the surrounding area by the City of New London (maintained and operated by the Veolia company) and in Groton by Groton Utilities. The Lake Konomoc water filtration plant has a design capacity of 9 mgd and a peak capacity of 12 mgd. No potable water wells are evident at the project site.

Wastewater Treatment – Wastewater treatment is not currently provided to the project site although it is available at the identified laydown areas; however, wastewater treatment is supplied to parcels in the surrounding area by the City of New London (maintained and operated by the Veolia company), and the main sanitary treatment facility is the Thomas E. Piacenti Regional Water Pollution Control Facility, on the Fort Trumbull peninsula. The design capacity of the sanitary sewer treatment facility is 10 mgd, and the average daily flow is currently 7 mgd. There are peak times when the system's capacity is reached.

Solid Waste Disposal – Solid waste disposal is not currently provided to the project site; however, it is expected to be provided under a private contract.

Energy Sources – Electricity and gas are not currently provided to the project site; however, electricity and gas are supplied to parcels in the surrounding area by Eversource, a company formed by the merger between Northeast Utilities and its operating companies, which included Connecticut Light & Power and Yankee Gas Service Company, among others.

Communications – Telephone, broadband communication, and digital cable television services are not currently provided to the project site; however, they are supplied to parcels in the surrounding area by numerous providers.

3.14 TRANSPORTATION

3.14.1 NO ACTION ALTERNATIVE

Mohegan Avenue (State Route 32) provides access to the existing Coast Guard Museum at the Coast Guard Academy and extends along the academy's western boundary. State Route 32 is a major state route that extends north-to-south along the western side of the Thames River. The existing Coast Guard Museum is located north of I-95. Additional roadways in the vicinity of the project area include U.S. Route 1 and Williams Street.

3.14.2 PROPOSED ACTION ALTERNATIVE

Roadway Network

The project site is currently accessible by vehicle from the north via Ferry Street. It is accessible on foot from both the north via Ferry Street and from the south via an at-grade railroad crossing at the eastern end of State Street. The roadway network directly near the site consists of local streets and several downtown intersections. Further from the site, the local street network connects travelers to I-95, U.S. Route 1, and Route 32. Figure 3.14-1 is a location map of the roadway network.

Each identified potential laydown area is also connected to the roadway network via Eastern Drive (A), Fairview Avenue (B), State Pier Road (C), and Ferry Street (D) although access for A appears to be via easement through an adjacent property.

Traffic

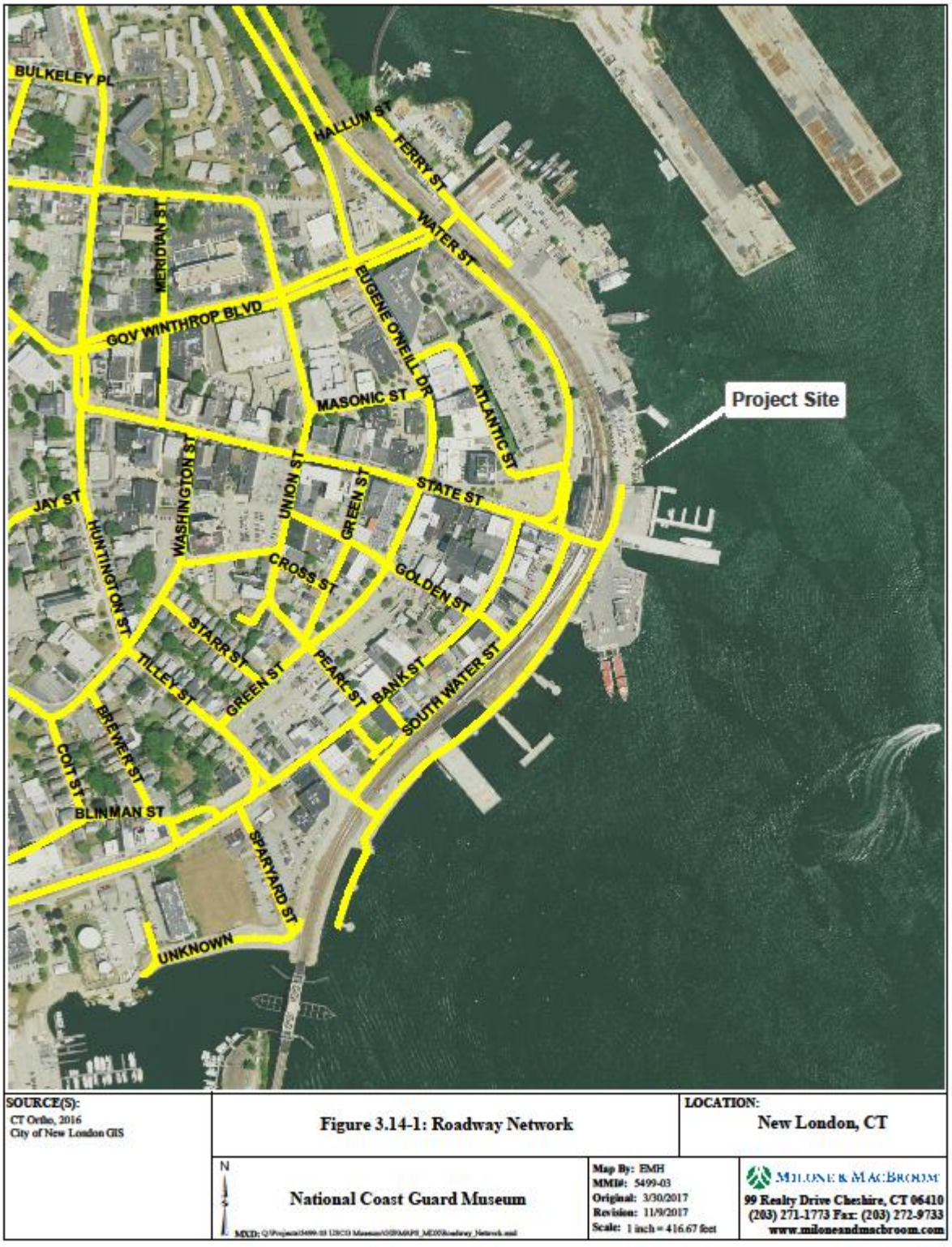
The *New London Downtown Transportation and Parking Study* (Milone & MacBroom, Inc., June 2017) undertook a review of traffic conditions near the project site during recent past summers. Downtown New London experiences heaviest traffic demands during the summer months, particularly when ferry services are in full operation. The downtown also experiences commuter pattern traffic flows that are largely in the southbound direction during the morning peak and in the northbound direction during the afternoon peak period. While some intersections in the downtown experience occasional traffic backups, particularly during summer months, there are currently no serious congestion problems in New London's downtown street system. There are some localized problems in terms of traffic/pedestrian safety, infrastructure repairs, and maintenance of signals and the existing street network that the city is actively seeking to address. Table 3.14-1 summarizes the overall Level of Service (LOS) findings at downtown intersections near the project site under the baseline (existing) summer traffic volume conditions.

TABLE 3.14-1
Signalized Intersection Level of Service Summary
Baseline (Existing) Traffic Volumes

Intersection	Overall Intersection LOS Results		
	Weekday Morning Peak Hour	Weekday Afternoon Peak Hour	Saturday Midday Peak Hour
Bank St at State St	A	A	A
Water St at Governor Winthrop Blvd	C	C	C
Ferry St at Governor Winthrop Blvd	A	A	B
Eugene O'Neill Drive at Governor Winthrop Blvd	C	B	B
Eugene O'Neill Drive at State Street	B	B	B

Source: 2017 *New London Downtown Transportation and Parking Study*

Figure 3.14-1 Roadway Network



Parking

Figure 3.14-2 is a location map of parking facilities in the downtown New London area and their existing peak utilization. Two public garages and three surface parking lots near the site provide approximately 1,700 publicly accessible off-street parking spaces for people visiting, working, and living in downtown New London, as well as for some ferry customers (park and walk-on ferry riders). The parking facilities include the Water Street Garage (city-owned and nearest to the project site), Cornish Parking Garage, O'Neill-Tilley lots (city-owned), and Julian/Mariner Square parking lot (open on summer weekends). Additionally, there are approximately 525 on-street parking spaces and approximately 1,000 private off-street parking spaces located in various lots in downtown New London. Upon the creation of the New London Parking Commission, additional parking spaces were made available at the Water Street Parking garage by removing abandoned vehicles.

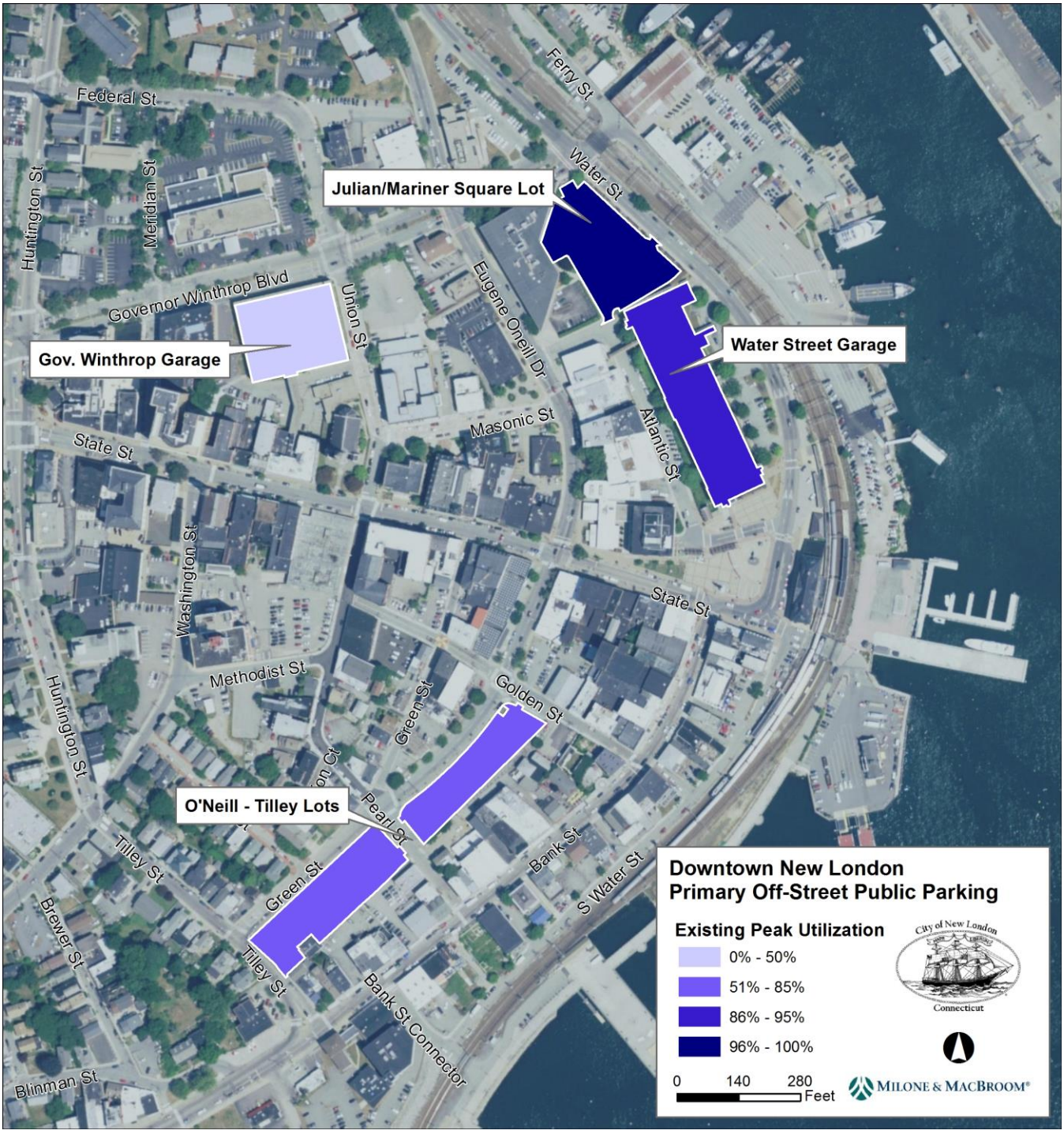
The 2017 *New London Downtown Transportation and Parking Study* analyzed the publicly accessible off-street parking in the downtown and found that it is most heavily utilized on a regular basis during Saturday afternoons in the summer when currently approximately three-quarters of the 1,700 parking spaces are used. The Water Street Parking Garage is regularly busy during summer afternoons on Fridays and Saturdays when approximately 90 percent of its approximately 910 parking spaces are utilized. Table 3.14-2 summarizes an analysis of the off-street parking demands versus the parking supply under typical summer conditions in downtown New London. All of the parking spaces in the Water Street Garage can be used on busy summer weekends. During one-time or rare events such as the OpSail Festival, all of the parking in the downtown may be at capacity.

Table 3.14-2
Existing Parking Utilization – Typical Summer Conditions - Off-Street Public Parking
Downtown New London

Parking Facility	# of Spaces		Summer Friday			Summer Saturday		Summer Sunday
			9 am – 12 pm	1pm – 4pm	6pm-9pm	9am – 12pm	1pm-4pm	9am-12pm
Water Street Parking Garage	910	Parked Vehicles	566	815	670	681	802	573
		Utilization	*62%*	*90%*	*74%*	*75%*	*88%*	*63%*
Governor Winthrop Parking Garage	400	Parked Vehicles	86	120	126	95	137	85
		Utilization	*22%*	*30%*	*32%*	*24%*	*34%*	*21%*
Julian/Mariner Square Surface Parking	185	Parked Vehicles	89	70	46	117	183	68
		Utilization	*48%*	*38%*	*25%*	*63%*	*99%*	*37%*
O'Neill – Tilley Municipal Lots	201	Parked Vehicles	56	-	122	-	139	73
		Utilization	*28%*	-	*61%*	-	*69%*	*36%*
Total Off-Street Parking	1,696	Parked Vehicles	797	1,005	964	893	1,261	799
		Utilization	*47%*	*67%**	*57%*	*59%**	*74%*	*47%*

* Excludes count of the O'Neill-Tilley Lots, which were in the process of being refinished at the time of the Friday afternoon and Saturday morning counts

Figure 3.14-2 *Existing Peak Parking Utilization - Summer Afternoons - Downtown New London*



3.15 HAZARDOUS SUBSTANCES

In 2018, the NCGMA contracted with GEI Consultants, Inc. (GEI) to conduct analytical testing in conjunction with the geotechnical investigation for the NCGM site. The September 2018 report contained the following observations (Appendix F).

Initial Environmental Sampling (2014)

- Draft Environmental Sampling Report. A Phase II Environmental Due Diligence Audit was prepared by URS, dated March 2014, of the property located at Block 108, Lot 1.01 (Assessor's parcel Map G12). The report included details of analytical testing of soil and groundwater that were collected within the proposed building footprint, as limited to the existing gravel parking lot.
- The analytical results from that report generally indicate that the top four feet of the soil are polluted, and the soil from 4 to 6 feet deep is polluted and contaminated. By statute:
    - *Polluted* soil contains constituents at concentrations above natural background levels, and
    - C*ontaminated* soil is that which contains constituents at concentrations above Remediation Standard Regulation (RSR) criteria.
- During the previous investigation, constituents detected (polluted and contaminated soil at levels above natural background levels) included petroleum-related and other volatile organic compounds (VOCs), semi-volatile organic compounds (SVOC) consisting primarily of polycyclic aromatic hydrocarbons (PAHs), metals, total petroleum hydrocarbons, and polychlorinated biphenyls. Constituents detected above RSR criteria in contaminated soil included PAHs, lead, and arsenic. Constituents detected above natural background levels in the groundwater samples included petroleum-related VOCs, petroleum hydrocarbons, and metals.

Phase II Environmental Analysis (2018)

- Environmental soil sampling was performed by GEI in conjunction with the recent geotechnical investigation.
- Fourteen test borings (B-01 through B-14) were conducted at the site between July and August 2018, using driven casing and rotary wash drilling procedures. Standard Penetration Tests were conducted, and split spoon samples were collected at maximum five-foot intervals. A GEI representative was on site to observe the drilling procedures and classify the soil samples. The GEI representative also recorded visual or olfactory impacts that were observed, if any.
- Soil samples in depths of interest (generally at depths likely to be excavated during construction) were screened in the field with a photo-ionization detector (PID) for the presence of volatile organic compounds (VOCs) using headspace methods.
- Environmental soil samples chosen for analytical testing were placed in laboratory-provided suitable containers, placed in coolers with bags of ice, and delivered to the laboratory. Soil samples chosen for analytical testing targeted the existing fill stratum and/or locations likely to be excavated during construction.

- Environmental Laboratory Testing was performed by Phoenix Environmental Laboratories, Inc. under subcontract to GEI, the location, testing parameters and results are contained in GEI's Report.

3.15.1 NO ACTION ALTERNATIVE

On-site Storage Tanks – No petroleum storage tanks are in the Coast Guard Academy's Waesche Hall.

Past Spills and Leaks – No spills or leaks have occurred in the Coast Guard Academy's Waesche Hall.

Spill Prevention, Control, and Countermeasures Plan – The Coast Guard Academy SPCC Plan includes Waesche Hall; however, there are no petroleum storage tanks at Waesche Hall.

On-site Environmental Concerns – There are no on-site hazardous and toxic materials/wastes concerns in the Coast Guard Academy's Waesche Hall.

Previous Site Investigations – A preliminary assessment was conducted at the Coast Guard Academy in 2001; it included Waesche Hall but did not identify concerns associated with Waesche Hall.

3.15.2 PROPOSED ACTION ALTERNATIVE

On-site Storage Tanks – A Phase I environmental due diligence audit (EDDA) completed for the project site did not identify evidence of underground storage tanks (USTs) or ASTs at the project site (URS, 2013).

Past Spills and Leaks – Database information provided by Environmental Data Resources, Inc. for the Phase I EDDA identified 113 oil or chemical spills and 11 leaking USTs within the 0.5-mile search radii. None of these spills or leaks was recorded on the project site, and they do not appear likely to create a potential hazard for the project site given the relative distance and elevations of the identified sites (URS, 2013).

Spill Prevention, Control, and Countermeasures Plan – A SPCC Plan has not been developed for the project site but will be developed prior to commencement of construction activities to address construction-related response needs.

On-site Environmental Concerns – The 2018 GEI report identified the following environmental soil and groundwater management considerations during Museum Construction:

- Work in locations with polluted or contaminated soil should be undertaken using appropriate health and safety procedures to minimize worker exposure to pollutants. The Museum project specifications should include provisions for worker safety in these areas. Although there are some pollutants in soil, the levels present and the classification of the project do not indicate that the project requires implementation of 40 CFR 1910.120, OSHA Hazardous Waste Operations regulations. However, the appropriate health and safety procedures will include many of the requirements in those regulations.
- Polluted and contaminated soil which is not reused in accordance with the requirements of RCSA 22a-133k-2(h) is classified as a solid waste and needs to be properly disposed. The Museum

project specifications should include provisions for the proper handling and disposal/reuse of polluted and contaminated soil. Polluted soil that is physically (geotechnically) suitable (as determined by Geotechnical Engineer) could be reused within the project limits; however, due the heterogeneous nature of the contaminants any soil should be further tested prior to any on-site reuse. All surplus polluted and contaminated soil should be delivered to a properly permitted disposal or recycling facility.

- None of the soil removed from the Museum site should be considered clean soil unless further testing of it indicates it is not polluted. Clean soil is not regulated as a waste and can be used as fill off-site provided it is not placed within wetlands, watercourses, floodplains, or other sensitive land use areas.
- Based on results of previous groundwater sampling and testing at the Museum site, it can be assumed that dewatering effluent can be discharged directly to sanitary sewer without treatment, other than sediment removal, under the Connecticut Department of Energy and Environmental Protection (DEEP) General Permit for the Discharge of Groundwater Remediation Wastewater, provided approval is obtained from the sewer owner (City of New London) for any such discharge.
- Connecticut DEEP may allow dewatering effluent to be discharged to local surface water without treatment other than sediment removal. However, given the pollutant level, consultation with Connecticut DEEP would be required to confirm suitable dilution in the tidal waters of the Thames River.

Previous Site Investigations – A search of records maintained at the City of New London and the Environmental Quality Records File Room at CT DEEP for the Phase I EDDA did not identify reports of previous environmental investigations at the project site (URS, 2013).

CHAPTER 4.0
ENVIRONMENTAL CONSEQUENCES

4.1 *INTRODUCTION*

The potential environmental effects resulting from implementation of the No Action and Proposed Action alternatives are presented in this chapter. The Proposed Action is presented in detail in Chapter 2.0 and briefly summarized below.

- *No Action Alternative* – Under the No Action alternative, the USCG would not acquire additional land or allow the NCGM to be constructed by the NCGMA. The existing Coast Guard Museum would continue to operate in Waesche Hall at the Coast Guard Academy.

- *Proposed Action Alternative* – Under the Proposed Action alternative, the USCG would acquire additional land and allow the NCGMA to construct an approximately 80,000-square-foot museum with an at-grade entry level, plus up to six elevated stories in downtown New London, Connecticut, on land that is now or will be in the future owned by or in the control of the USCG. Shoreline, site, and utility improvements would also be undertaken by NCGMA to support the museum facility. Following construction, the Coast Guard would potentially accept the museum and operate it on a long-term basis.

The analysis of potential effects on environmental resources discussed in this chapter includes potential impacts from the future construction of the museum by NCGMA (an indirect effect of the proposed action) as well as long-term operation of the NCGM. Potential cumulative impacts resulting from the incremental effects of the Proposed Action alternative when added to the effects of past, present, and reasonably foreseeable future actions are also analyzed. BMPs and protection measures described in Section 2.4 that would reduce or eliminate anticipated environmental impacts for each of the alternatives are considered in the analysis of potential impacts.

4.2 LAND USE AND RECREATION

4.2.1 NO ACTION ALTERNATIVE

No impacts to land use or recreational resources would occur under the No Action alternative because no changes to operations, construction, or expansion would occur at the existing Coast Guard Museum.

4.2.2 PROPOSED ACTION ALTERNATIVE

Land Use

The conveyance of the subject parcel in 2014 from the City of New London to the USCG changed the designation from city-owned land to federal land with a reversionary interest. As such, the property, and any subsequent land acquisition, is not subject to local planning and zoning regulations per 14 U.S.C. §316. In accordance with the Memorandum of Agreement signed by the NCGMA, the Coast Guard, and the City of

New London in 2014, the parties agreed to work cooperatively to assist NCGMA with resolution of any issues, including issues related to land use compatibility.

Future construction of the NCGM would result in short-term impacts to surrounding land uses associated with typical construction staging and work activity, primarily associated with noise and construction traffic. As discussed in Section 2.4, Section 4.4.2, and Section 4.11.2, BMPs and protection measures would be implemented to control construction noise, implement construction traffic control measures during construction, and coordinate with the City of New London to further reduce construction-related noise and traffic effects.

Despite federal preeminence over local planning and zoning, the Proposed Action alternative would still be consistent with the existing Waterfront Commercial land use designation and the preferred maritime/nautical uses for the project site, as described in the City of New London POCD and Zoning Regulations. The NCGM would be consistent with the surrounding waterfront commercial, transportation, and recreational land uses in the project area. Access to existing transportation uses in the surrounding area would be maintained, including through the maintenance of existing access easements and use agreement.

No land use changes would occur at the Coast Guard Exhibit Center in Forestville, Maryland, because selected artifacts would be transferred to the NCGM, and the Coast Guard Exhibit Center would remain in operation.

Several potential laydown area sites have been identified. All are located on land that is currently developed and generally covered with pavement and/or work areas on compacted bare soil. Use of these sites for temporary laydown is compatible with existing land uses.

Construction of the NCGM at the subject site would result in minor adverse short-term impacts to land use during construction. Long-term land use as a national museum would be compatible with and complementary to surrounding land uses.

Recreation

Future construction of the NCGM would occur over portions of the existing City Pier Plaza and adjacent Thames River. The NCGM would be built adjacent to the shoreline and would not extend farther into the river than the existing docks, pier, and areas used for the docking and loading of ferries along this segment of the Thames River. The presence of the museum would not interfere with the operation of any existing recreational activities in the river or on the riverfront shoreline, nor would it restrict pedestrian circulation along the river's edge. Rather, the Proposed Action alternative is anticipated to support and augment existing recreational uses through the introduction of river-related exhibits and by drawing more visitors to the riverfront. Recreational impacts are therefore anticipated to be generally positive. Minor impacts would occur on the City Pier Plaza by virtue of: (a) encroachment onto a portion of the existing plaza; and (b) removal of approximately 3,100 square feet of existing plaza to provide additional open water for recreational use and to mitigate the proposed fill area along the river shoreline that would be displaced to construct bulkheading and fill. Anecdotal observations over a number of years indicate that with the exception of specific, limited festival days, the City Pier Plaza is under-utilized and often empty or nearly so, particularly during the weekdays. As such, impacts associated with the smaller

plaza area are expected to be more than offset by the enhanced activity that results from the museum's entrance facing the plaza.

Approximately 10,650 square feet of City Pier promenade will be removed to accommodate the project, with 15,950 square feet remaining intact and available for public use following museum construction. An additional 5,800 square feet of outdoor public space will be created at ground level associated with the NCGM. This results in an effective public area that is nearly 80% of existing public space today. This combined area will remain open to public access.

Unlike other waterfront buildings including museums or educational facilities, the NCGM will be the public's museum, affording meaningful public access to and through the structure itself. The museum will be free to all visitors during established regular hours of operation.

Integral to the vision and design for the NCGM is connecting people with the waterfront, not only through unhindered waterfront access, but through documentation of the history of coastal waters, the role of the USCG, and through water exhibits that would extend the NCGM's reach beyond the physical walls by bringing the visiting public outside to view in-water exhibits and activities. Outdoor and in-water exhibits, as well as interactive activities would be key elements of the museum, with scheduled demonstrations and displays providing opportunities for the public to interact with the shoreline and with Coast Guard members. The adjacent City Pier also provides opportunities for vessels to visit the area, providing opportunities to bring maritime watercraft to the museum visitor's experience.

The presence of the NCGM would be anticipated to increase patronage to the City Pier Plaza and City Pier; and visitation by museum patrons would be consistent with and augment public use of these facilities. In September of 2008, White Oak Associates, Inc. conducted a Strategic Master Plan for the NCGM. This study was updated in February of 2014. The analysis projected a tenfold increase in visitation to over 200,000 visitors annually. The museum would offer a new opportunity for public use and waterfront access. A publicly accessible waterfront area would replace the former private parking area, with an at-grade interface with the Thames River. Construction of the NCGM would not restrict pedestrian circulation along the river's edge. The at-grade level of the museum would provide open access to the waterfront and to City Pier Plaza.

Records are not kept on the visitation of City Pier or at the adjacent City Pier Plaza. Anecdotal observations over a number of years indicate that, with the exception of specific, limited festival days and events, the City Pier Plaza is underutilized and often empty or nearly so during the weekdays and off-season. At the same time, use of the plaza for events, particularly in the months of July and August, are important to the vitality and sense of community in downtown New London.

City Pier hosts numerous events, most notably the annual Sailfest, which occupies the pier itself, the adjacent City Pier Plaza, and the surrounding downtown area including Parade Park, with street vendors along Bank Street, Water Street, State Street, and surrounding areas. A recent study found that in 2018 Sailfest brought $58.2 M in economic value and 279,000 visitors to the Thames River Region. City Pier Plaza accepts the spill-over from the Pier during this event and has been used to accommodate support uses, such as beer tents. While a portion of the City Pier Plaza would be occupied by the future NCGM, additional waterfront area to the north of the current plaza would be open to the public, as would the museum proper. The focal point of Sailfest is City Pier and the docked vessels would be complemented by the presence of the NCGM and its maritime heritage.

Other historic activities occurring along the Thames River waterfront include the Thames River Heritage Park Taxi, Thames River Quest, Make Music, Blues and BBQ, and Downtown Live, all of which take place on the pier itself. Parade Plaza, across Water Street also hosts community activities, including weekly music events and the Nimble Arts Circus. Other events that take place in the downtown New London vicinity include The Currach Regatta, Blues and Brews Festival, Connecticut Family Festival, and the Connecticut Maritime Heritage Festival. These activities would continue unhindered following construction of the NCGM.

Given the proposed use and opportunities associated with the NCGM, impacts associated with the smaller plaza area are expected to be offset by the enhanced activity that would result from the museum's entrance facing the plaza. Public access across the site will be encouraged and overall public access would increase through the conversion of a historically private parking lot to a public museum space and sheltered riverwalk along the exterior of the museum at grade, providing outdoor space for waterfront visitors who are not necessarily museum visitors.

The NCGM will be an important feature of the historic, educational and cultural offerings in this waterfront community, and a contributing presence for the events and maritime activities that New London is known for. From its location adjacent to City Pier, the NCGM will be a visible addition, presenting additional venue opportunities for visitors. As evident with the Maritime Heritage Festival, Celebrate New London and other water-focused events, New London has a long-standing relationship with the maritime community and the USCG.

The Proposed Action alternative would not conflict with the continued use of remaining City Pier Plaza and the adjacent docks and pier. The NCGM may display artifacts and/or hold outdoor events at City Pier Plaza in coordination with the City of New London or participate in outdoor events organized by other groups at the plaza. The NCGM would be anticipated to increase patronage to the City Pier Plaza and City Pier; however, visitation by museum patrons would be consistent with the purposes of these park areas and would not cause physical deterioration of park facilities.

The Proposed Action alternative is not expected to result in changes to the patronage of other parks, except that NCGM visitors parking in the nearby Water Street Garage may pass through the adjacent Parade Plaza as they walk to the new museum. The Parade Plaza provides a wide-open public space between the garage and surrounding businesses and is currently used by motorists who park in the Water Street Garage and walk to downtown destinations. Therefore, the Proposed Action alternative would result in minor impacts to recreational users of the surrounding public areas.

Only potential laydown area D (Cross Sound Ferry) has minor recreational value, primarily for its restaurants and as an access point to other areas (Long Island, Block Island) with well-defined recreational activities. Use of this location as a laydown area would require coordination with ferry operations to avoid impacts to recreation. It is likely that the site would only be available for laydown operations during off-season months. The remaining potential laydown areas are not used for recreation; therefore, their use will not impact recreation.

4.3 AIR QUALITY

4.3.1 NO ACTION ALTERNATIVE

No impacts to air quality would occur under the No Action alternative because no changes to operations, construction, or expansion would occur at the existing Coast Guard Museum.

4.3.2 PROPOSED ACTION ALTERNATIVE

Future construction of the NCGM would result in temporary, minor adverse air quality impacts that would occur from the generation of air pollutant and GHG emissions during construction. Mobile source emissions would be emitted from construction vehicles, equipment, and construction worker vehicles. Volatile organic compounds (VOCs) and nitrogen oxides (NO_X) would be emitted from the combustion engines of heavy machinery. Fugitive dust emissions would result from earth moving, grading, and construction vehicle traffic. Fugitive dust and mobile source emissions during construction would result in direct, minor, short-term, adverse air quality impacts.

BMPs and protection measures described in Section 2.4 would be implemented to reduce construction-related air emissions, including dust control measures, using electricity from power poles instead of generators when possible, and repairing and servicing construction equipment according to recommended maintenance schedules. Minor, short-term air quality impacts from mobile source emissions are also expected during the transfer of Coast Guard artifacts and documents from the Coast Guard Exhibit Center in Forestville, Maryland. Therefore, the Proposed Action alternative would result in minor, short-term impacts to air quality during construction. Such impacts would also be present at any potential laydown area to a lesser degree, limited to vehicular and equipment use associated with drop-off and pickup.

Air pollutant and GHG emissions associated with operation of the completed NCGM would primarily be the result of vehicle trips by workers and museum patrons. The building itself would have very little local emissions. The NCGM heating system (anticipated to be a natural gas boiler/heating unit with additional power from photovoltaic units) would produce emissions; however, the emissions produced by this type of heating system would be minor. The building would have a diesel generator that would only run when being tested and during an emergency. As a result, the impact would be negligible relative to air emissions.

An air quality applicability analysis prepared in 2008 estimated that the annual emissions for the NCGM during its operating lifetime would be approximately 11.5 tons per year (tpy) of NO_X and 3.8 tpy of VOCs (Coast Guard, 2008a). This analysis included emissions associated with visitor trips based on an expected 200,000 annual visits by persons in an average group size of two. Although the estimated number of visits to the NCGM at the new proposed location on the New London downtown waterfront are higher, these emissions estimates are still reasonable because the Proposed Action alternative has a greater potential for mass transit use, which would reduce total vehicle emissions even with greater museum attendance. These emission rates for both pollutants are below the de minimis thresholds for NO_X and VOCs (100 tpy NO_X and 50 tpy VOCs) established in 40 CFR 93.153(b), and a full conformity determination pursuant to 40 CFR 93.153(c)(1) is therefore not required for the Proposed Action alternative. Furthermore, the NCGM would not result in an increase in GHG emissions directly associated with the Proposed Action alternative in excess of 25,000 metric tons, which is a factor when considering more detailed analysis under draft NEPA guidelines (CEQ, 2010).

In summary, operation of the Proposed Action alternative is expected to result in minor impacts associated with air pollutant and GHG emissions. BMPs and protection measures described in Section 2.4 would be implemented to further reduce operation-related air quality effects, including using low-VOC architectural materials and supplies and energy-efficient equipment, when feasible.

4.4 NOISE

4.4.1 NO ACTION ALTERNATIVE

No impacts to the noise environment would occur under the No Action alternative because no changes to operations, construction, or expansion would occur at the existing Coast Guard Museum.

4.4.2 PROPOSED ACTION ALTERNATIVE

Future construction of the NCGM would result in moderate, short-term adverse noise impacts to construction workers and to nearby businesses, residences, and visitors, from construction activities under the Proposed Action alternative both at the project site and any potential laydown areas. Construction noise is exempt from the City of New London noise ordinance.

Individual pieces of construction equipment typically generate noise levels of 80 to 90 A-weighted decibels (dBA) at a distance of 50 feet. Table 4.4-1 presents the USEPA's estimated noise levels, expressed in dBA at approximately 50 feet from the source, for the main phase of outdoor construction activities. With multiple pieces of equipment operating concurrently, noise levels can be relatively high during daytime construction periods at locations within several hundred feet of active construction sites. The zone of relatively high construction noise levels typically extends to distances of 400 to 800 feet from the site of major equipment operations. Locations more than 1,000 feet from construction sites seldom experience significant levels of construction noise.

Construction would be set amidst a high traffic downtown urban area, including the adjacent active railroad station and two nearby ferry terminals. Train-generated noise, whistles, and ferry horns are common in the project area. Although potential noise impacts associated with construction are expected to be limited to short-term, moderately adverse noise impacts, BMPs described in Section 2.4 would be implemented to control construction noise and further reduce construction-related noise effects.

TABLE 4.4-1
Typical Noise Levels Associated with Outdoor Construction Activities

Construction Phase	Noise Level at 50 Feet from Source (dBA)
Ground Clearing	84
Excavation, Grading	89
Foundations	78
Structural	85
Finishing	89

Note: dBA = A-weighted decibel Source: USEPA, 1971

No significant operational noise impacts would be anticipated to result from the Proposed Action alternative. The project site is in the B noise zone classified in the City of New London noise ordinance;

this classification includes areas generally used for commercial activities. As presented in Table 3.4-1, the City of New London noise ordinance requires that noise emissions from operation of the Proposed Action alternative not exceed 62 dBA at any point on surrounding receptor parcels included in the B noise zone (City of New London, 2014).

As described in Section 3.3.8, the nearest sensitive receptors to the project site include residences (0.25 mile), schools (St. Mary Star of the Sea School, 0.35 mile; Isaac Inter-district School for Arts and Communication, 0.36 mile), and a day care center (The Center, 0.45 mile). The NCGM would display Coast Guard artifacts, providing passive public enjoyment and education; operation of the NCGM would result in noise primarily from visitors and vehicles and would not result in a significant increase in current noise levels in the project area.

4.5 GEOPHYSICAL SETTING

4.5.1 NO ACTION ALTERNATIVE

No impacts to geology, topography, and soils would occur under the No Action alternative because no changes to operations, construction, or expansion would occur at the existing Coast Guard Museum.

4.5.2 PROPOSED ACTION ALTERNATIVE

Future construction of the NCGM would result in ground-disturbing activities associated with site preparation for the NCGM. Grading is not expected to involve substantial cut or fill, and only minor changes would be made to the existing topography because the project site is relatively level. No deep excavations or significant construction-related impacts to geological resources are expected.

Disturbance and compaction of soils during construction have the potential to result in sedimentation of the Thames River; however, as described in Section 2.4, BMPs to control erosion and sedimentation would be incorporated into an erosion and sedimentation control plan that would be implemented during construction. These BMPs may include the use of filter fences, sediment berms, interceptor ditches, and/or other sediment control structures, as well as the seeding/revegetation of temporarily disturbed areas. Therefore, minor, short-term impacts may occur to geophysical resources during construction of the Proposed Action alternative.

The project site would be stabilized following the completion of ground-disturbing construction activities, and the site design would include standard design measures to avoid erosion and sedimentation during operation of the NCGM. Furthermore, ground-disturbing changes to potential laydown areas are not anticipated. Therefore, long-term impacts to geophysical resources are not anticipated for the Proposed Action alternative.

4.6 WATER RESOURCES

4.6.1 NO ACTION ALTERNATIVE

Surface Water Resources – No impacts to water resources would occur under the No Action alternative because no changes to operations, construction, or expansion would occur at the existing Coast Guard Museum.

Floodplains – No impacts would occur under the No Action alternative. Waesche Hall is not located in an identified FEMA Special Flood Hazard Area (1 percent annual chance floodplain).

Groundwater Resources – No impacts would occur to groundwater resources under the No Action alternative since no changes to operations, construction, or expansion would occur at the existing Coast Guard Museum.

4.6.2 PROPOSED ACTION ALTERNATIVE

Potential impacts to water resources as a result of the Proposed Action alternative could occur from the following sources:

- Sediment and erosion associated with the upland construction
- Sediment and erosion associated with activities at potential laydown areas
- Sediment and erosion associated with the construction of the shoreline improvements, including underwater elements such as sheet pile driving and the placement of fill
- Leakage or spills from construction equipment
- Stormwater runoff from the site following construction of the museum
- Flooding of the construction site during construction

Surface Water Resources – A portion of the proposed activities under the Proposed Action alternative would extend into the Thames River while the remainder of the project site is adjacent to the Thames River and is located within its watershed. Other than the Thames River, which is discussed further below, no wetlands or surface water features are present on the project site or potential laydown areas.

Future construction of the NCGM would result in ground-disturbing activities, particularly site preparation required for construction of the NCGM. As described in Section 4.5.2, disturbance and compaction of soils during construction have the potential to result in sedimentation of the Thames River; however, as described in Section 2.4 and Section 4.5.2, BMPs to control erosion and sedimentation would be incorporated into an erosion and sedimentation control plan that would be implemented during construction. The project site would be stabilized following the completion of ground-disturbing construction activities, and the site design would include standard design measures (as described above) to avoid erosion and sedimentation during operation of the NCGM.

In-water work for the NCGM is expected to include installation of sheet pile, placement of fill material, and other improvements to the outboard (river) side of the project site, most of which is currently covered with broken concrete rubble. Section 10 of the Rivers and Harbors Act of 1899 requires approval by the USACE for the placement of structures into navigable waters of the United States and for work in or affecting navigable waters of the United States. Section 404 of the Clean Water Act gives USACE the

authority to regulate disposal of dredge or fill material in waters of the United States, including coastal wetlands, tidelands, and marine waters below the high-tide line. As described in Section 2.4, USACE permits under these authorities would be sought prior to implementation. The NCGMA has filed an Individual Permit (IP) to authorize work under Section 10 Rivers and Harbors and Section 404 of the Clean Water Act. BMPs and project-incorporated protection measures will be developed in consultation with the USACE. These BMPs and protection measures would avoid significant adverse effects on waters of the United States; they would include erosion and sedimentation control measures and seasonal restrictions for ground-disturbing activities and/or in-water work, if feasible.

No inland wetlands or watercourses exist on the project property. The subsurface is comprised of fill material with a surface material of compacted crushed stone. Due to the nature of these materials, little infiltration occurs on the property, and stormwater flows overland to the Thames River following rain events. Coastal resources (as defined by Connecticut's Coastal Management Act, Connecticut General Statutes [CGS] Section 22a-90, et. seq.) on and adjacent to the site include developed shorefront and coastal flood hazard area. A description of each of the resources is provided in Section 4.7.2. Similarly, inland wetlands and watercourses do not exist at any of the potential laydown areas.

The development of the museum would require modifications of the shoreline, which is currently armored with boulders and construction slag. Approximately 200 linear feet of bulkhead would be installed to facilitate the shoreline improvements. Backfilling this area would result in an approximately 3,100-square-foot encroachment into the Thames River. To offset the loss of Thames River open water, a 3,100-square-foot area of City Pier would be "daylighted" adjacent to the westernmost pile-supported fixed pier. Daylighting is the process of physically uncovering or removing obstructions that are covering a waterbody and restoring the waterbody to its previous condition, thus allowing sunlight to reach the body of water once again (American Rivers, 2017). Additional measures may be required as part of the permitting process through the USACE and CT DEEP.

Sediment and erosion control measures would be implemented during the construction of the museum to prevent sediment, debris, and pollutants from entering the Thames River. These measures would be installed prior to the commencement of construction activities and maintained throughout construction activities until the site is stabilized. All work would be performed in compliance with state and federal approvals issued for the project. Refer to Sections 2.3 and 2.4 relative to proposed BMPs that are incorporated into the Proposed Action alternative, including the use of sediment and erosion controls on the upland and turbidity curtain for in-water work.

Floodplains – The majority of the downtown New London waterfront area is located within the FEMA 1 percent annual chance (100-year) floodplain (Zone AE). An area located further inland is designated within the 0.2 percent annual chance (500-year) floodplain (also known as Zone X). The Proposed Action alternative, including potential laydown areas, is also located within a Category 1, 2, or 3 Hurricane Inundation Zone.

Indirect flood hazard impacts would not occur as a result of the Proposed Action alternative. The driving factor on coastal flooding is backwater conditions from Long Island Sound. The area is not located in a floodwater storage zone, and construction of the proposed museum and related shoreline improvements will not worsen flooding at adjacent properties.

The project area is mapped by FEMA as within the VE Zone and the AE zone (see Figure 3.6-1). The A zone indicates the Special Flood Hazard Area while the V zone indicates, "high hazard areas along coastlines that are subject to high water levels and wave action from strong storms and hurricanes." The museum building would lie within both zones, and as a result the requirements of the more restrictive VE zone would apply.

The National Flood Insurance Program (NFIP) outlines requirements for the development of new buildings within A zones to ensure that developments will not increase the flood hazard on other properties. Table 4.6-1 paraphrases the NFIP guidelines from the document, "Managing Floodplain Development through the National Flood Insurance Program" (FEMA, 2017a), as discussed in "Unit 5, The NFIP Floodplain Management Requirements, Section F. New Buildings in V Zones." Table 4.6-1 also demonstrates how each requirement will be achieved.

Responding to floodplain management needs, the proposed museum building would have a generally unoccupied but enclosed at-grade area with up to six stories above it. The at-grade construction would be limited to the building entry, passenger elevator, two egress stairs, and a loading dock area with a service elevator. To the extent permissible under the applicable regulations, facilities may also include a rigging shop to repair and maintain blocks, tackle, and similar equipment for use by the USCG at times when the *Barque* EAGLE is moored at City Pier. In accordance with FEMA requirements, the area under the building would be enclosed with walls that break away in the event of severe storm activity. The building would be supported by foundational piers designed to withstand storm-force-level winds, flooding, and physical impacts. The piers would be keyed into the underlying bedrock to provide structural strength and ensure that the piers are not affected by erosion of soils resulting from storm flooding.

The structural design of the museum would allow floodwaters to pass unhindered at ground level. The at-grade construction would be enclosed by a material designed to break into small pieces under flooding, wave action, or other hazardous impacts. This would be material similar to tempered glass that breaks into pebble-like small pieces, allowing flood waters to pass beneath the building without causing damage to the structure. The structure of the stairs and elevator would have a more robust design for life safety and integrity of operation but would be structurally autonomous so as to protect the integrity of the building's primary structure.

The main entry level of the building would be approximately 17 feet above the City Pier Plaza (above the 500-year flood elevation) and would be accessed through open stairs or elevators that are part of a proposed pedestrian bridge construction to serve the museum and the adjacent ferry terminal (see discussion in Section 4.3.7 below). This main floor would contain the front entrance and lobby area, ticketing and security (to the extent these are needed), a gift shop, and an auditorium or orientation/welcoming presentation space.

TABLE 4.6-1
NFIP Requirements for Zone V

NFIP Requirement/ Guidance	Proposed Action Alternative Compliance
The new building cannot be over open water.	The proposed museum would be located entirely within upland areas and would not extend over open water of the Thames River.
All new construction and substantial improvements to buildings in V Zones must be elevated on pilings, posts, piers, or columns so that the lowest horizontal structure member of the lowest floor (excluding the pilings or columns) is elevated to or above the base flood level.	The first-floor entryway would consist of foundational piers designed to withstand storm force level winds and flooding. The piers would be drilled into and attached to the underlying bedrock to provide structural strength and ensure that the piers are not affected by any lateral movement of the surrounding soil material due to erosion. The building features within the entryway would be limited to a set of stairs, a bank of elevators to access the museum from this level, and a loading dock. These stairs and elevators would be designed to satisfy life safety requirements and enclosed within walls made of a material similar to tempered glass, designed to break away under storm forces without causing any damage to the museum building structure or nearby facilities. The stairs and elevator bank would have a more robust design so as to provide an adequate fire escape route but would be designed to break away under severe flooding conditions without impacting the integrity of the building. To the extent permissible under the applicable regulations, facilities may also include a rigging shop to repair and maintain blocks, tackle, and similar equipment for use by the USCG at times when the *Barque* EAGLE is moored at City Pier.
Fill is not allowed for structural support for buildings within V Zones because of the severe erosion potential of such locations.	No fill would be placed for the purposes of structural support.
The design of the supporting foundation must account for wind loads in combination with the forces that accompany the base flood.	The design of the foundation would account for wind loads and the forces of a base flood.
A registered professional engineer or architect must develop or review the structural design, specification, and plans for construction and certify that the design and planned methods of construction are in accordance with accepted standards of practice for meeting the above provisions.	A registered professional engineer and architect would be responsible for the design and certify that the design and planned methods of construction are in accordance with accepted standards of practice.
Any walls below the lowest floor in a building in a V Zone should give way under wind and water loads without causing collapse, displacement, or other damage to the elevated portion of the building or the supporting pilings and columns.	The walls of the entryway would be constructed of a material, such as tempered glass, that is designed to break away under storm forces without causing any damage to the museum building structure or nearby facilities.

TABLE 4.6-1
NFIP Requirements for Zone V

NFIP Requirement/ Guidance	Proposed Action Alternative Compliance
A breakaway wall shall have a design safe loading resistance of not less than 10 and no more than 20 pounds per square foot. Use of breakaway walls which exceed a design safe loading resistance of 20 pounds per square foot (either by design or when so required by local or state codes) may be permitted only if a registered professional engineer or architect certifies that the designs proposed meet certain conditions.	A registered professional engineer and architect would design the walls of the entryway and ground-level facilities to meet these standards.

In addition to meeting the NFIP requirements for Zone V, the following eight-step decision-making process has been undertaken in compliance with EO 11988 (FEMA, 2017b):

Step 1: Determine whether the proposed action is located in a 100-year floodplain – The project site was determined to be located in the FEMA 100-year floodplain.

Step 2: Notify the public at the earliest possible time of a proposal to consider an action in a floodplain and involve the affected and interested public in the decision-making process – The public was notified of the proposal to consider an action in a floodplain through the initial public scoping and review of the 2014 NEPA Environmental Assessment and more recently in relation to the 2018 NEPA Supplemental Environmental Assessment.

Step 3: Identify and evaluate practicable alternatives to locating the proposed action in a floodplain – Numerous alternative sites were considered for placement of the NCGM, as presented in the 2014 EA and 2018 SEA along with numerous prior studies.

Step 4: Identify the potential direct and indirect impacts associated with the occupancy or modification of the floodplain - Direct impacts from coastal flooding include inundation of the site as well as wave action. The area is not located in a floodwater storage zone, and construction of the proposed museum and related shoreline improvements will not worsen flooding at adjacent properties. This has been demonstrated through coastal wave modeling of the museum site as well as neighboring properties. Indirect impacts would occur if visitors were present during coastal flooding conditions. Areas below the Base Flood Elevation (BFE) within the VE zone will be free of obstruction and used solely for building access and storage. They will not be finished spaces but rather allowed to flood. The first floor "occupied" level of the museum will be constructed well above the 0.2 percent occurrence (500-year) flood elevation, thus reducing the potential for direct impacts. The museum will not be open to visitors during extreme storm events, thus minimizing indirect impacts. In addition, the museum will establish a weather and flood monitoring program, and detailed evacuation plans will be created for instances of potential flooding.

Step 5: Where practicable, design or modify the proposed action to minimize the potential adverse impacts within the floodplain and to restore and preserve its natural and beneficial values – The waterfront site and the museum are being designed with a focus on minimizing potential adverse impacts

within the floodplain upon consultations with State and federal environmental regulators. In accordance with FEMA requirements, the area under the building will be enclosed with breakaway curtain walls. The entry level of the building will be approximately 17 feet above the City Pier Plaza (and above the 500-year flood elevation). The structural design of the museum will allow floodwaters to pass unhindered at ground level. The at-grade-level building features will include egress stairs and a loading dock, including a freight elevator with protection of electrical and mechanical systems per FEMA recommendations. The at-grade construction will be enclosed by a material designed to detach from the framing under high flood loads. The stairs and elevator will have a more robust design for life safety and integrity of operation but will be structurally autonomous so as to protect the integrity of the building's primary structure. The exterior of the museum will be constructed at grades similar to current conditions so as to not impact the current floodplain function. Indirect flood hazard impacts will not occur as a result of the proposed NCGM. The driving factor on coastal flooding is backwater conditions from Long Island Sound.

Step 6: Reevaluate the proposed action to determine: (1) where it is still practicable in light of its exposure to flood hazards in the floodplain, the extent to which it will aggravate the current hazards to other floodplains, and its potential to disrupt floodplain values; and (2) whether alternatives preliminarily rejected at Step 3 are practicable in light of the information gained in Steps 4 and 5 – Based on extensive analysis and design assessment relative to flood hazards, construction of the NCGM at the subject site is believed to be practicable, will not aggravate current hazards to other floodplains or disrupt existing floodplain values, and remains the preferred location for the future NCGM. Given the nexus of the Coast Guard mission and history, the location of the museum in relation to the water is and continues to be an important factor in its siting.

Step 7: If the reevaluation results in a determination that there is no practicable alternative to locating the proposal in the floodplain, publish a final notice – A final notice will be published via the FSEA, informing the public of the details of the Proposed Action alternative, including those design elements specifically pertaining to the floodplain environment.

Step 8: Implement the action – If a FONSI is issued, the project would proceed to implementation following successful conclusion of regulatory permitting and approvals and fundraising.

Given the location of the project and potential laydown areas within the Special Flood Hazard Area, a severe flood event during the construction period has the potential to delay the construction schedule, damage equipment and building materials, and migrate sediment from the construction site and laydown areas. A Flood Contingency Plan would be developed prior to commencement of construction to outline procedures to minimize the impacts of flooding on the project site and potential laydown areas through, at a minimum, the following:

- Establishing weather forecast monitoring and response procedures
- Identifying backup locations to temporarily store building materials and equipment until flooding subsides
- Developing procedures for anchoring or otherwise securing certain materials and equipment to prevent movement during flooding
- Developing contingencies to replace lost supplies and equipment
- Developing procedures to ensure a safe return to work sites following the flood

The proposed NCGM is being designed in recognition of present and past flood threats, climate change, and sea level rise. Conservative design standards would have the lowest structural member of the lowest floor of the museum constructed above the 100-year flood elevation or base flood elevation (BFE) plus a

factor of safety or freeboard on top of that. Some guidance suggests an elevation that is 1.25 times BFE, or in the case of the NCGM, at elevation 17.5 feet (datum NAVD88). Other guidance suggests an elevation that is BFE plus 2 feet (or 16.0 feet NAVD88). Still other guidance suggests an elevation commensurate with the 500-year flood elevation (18.1 feet NAVD88).

The design of the NCGM represents a conservative approach to flood mitigation. The lowest floor of the proposed NCGM will be at approximate elevation 23 feet or a full 9 feet above the BFE elevation, approximately 5 feet above the 500-year flood elevation, and well above published guidance measures. Structural design computations are being conducted using BFE plus 2 feet; and building design elements are NFIP (National Flood Insurance Program) compliant.

The CT DEEP has passed Public Act 18-82 concerning an update of a sea level change scenario that anticipates a 36-inch rise in relation to the national tidal datum in Long Island Sound by 2050. The proposed elevation of the NCGM building is well above BFE plus the sea level rise projections for 2050 and beyond.

The proposed entry level of the NCGM will be approximately 17 feet above the City Pier Plaza at elevation ±23 feet, which is a full 5 feet above the 500-year flood elevation and more conservative than any published guidance as described above.

The NFIP outlines requirements for the development of new buildings within V zones to ensure that developments will not increase the flood hazard on other properties. Table 4.7-1 below paraphrases the NFIP guidelines from the document, "*Managing Floodplain Development through the National Flood Insurance Program*" (FEMA, 2017a), as discussed in *"Unit 5, The NFIP Floodplain Management Requirements, Section F. New Buildings in V Zones*." Table 4.7-1 demonstrates how each requirement will be achieved.

The first floor of the museum will be located 5 feet above the 500-year flood elevation, thus significantly exceeding FEMA's design requirements. An estimate of Sea Level Rise over time for Connecticut is presented on the CT DEEP website. For the year 2080, an estimate of 36 inches or 3 feet was estimated (https://www.ct.gov/deep///cwp/view.asp?q=480782&deepNav_GID=2022, 2018). The currently proposed design allows for this level of increase.

Included in Attachment E is a report dated September 13, 2019, presenting the results of a wave analysis conducted specifically to analyze existing and proposed conditions at the NCGM site. The analysis concluded that the proposed work will:

1. Not increase wave crest elevations on the site or adjacent properties
2. Not increase wave runup elevations on the site or adjacent properties
3. Not increase wave crest elevations on the site or adjacent properties due to reflected waves
4. Not increase overtopping rates, and as such, not increase anticipated damage due to erosion

Consultation with FEMA has continued since the publication of the Draft SEA through the regulatory permitting process associated with the federal Section 404 permit application administered by the Army Corps of Engineers. FEMA has provided comments on the project on October 1, 2020 and on December 3, 2020. Responses have been provided in correspondence dated October 16, 2020, March 18, 2021, and April 8, 2021, including specific review of grade beams and other building design features, completion of

a wave analysis, and submission of an application for a Conditional Letter of Map Revision (CLOMR), which was filed in 2021. These assessments and consultations have identified no new impacts. The CLOMR was issued in March 2022. Documentation of FEMA consultation is included in Appendix E.

Groundwater Resources – Groundwater in the project area and potential laydown areas is classified GB in Connecticut's Water Quality Standards, denoting a highly urbanized area or an area of intense industrial activity where public water supply service is available. The Proposed Action alternative is a redevelopment project on a previously disturbed site. The proposed action is not anticipated to adversely affect groundwater at the site. The museum will be serviced by city water and city sewer. Water demands will be modest, related to public restrooms, drinking fountains, and occasional event activities. The proposed design has been coordinated with the City of New London extensively which will rely on connecting into existing city and water utilities.

4.7 COASTAL RESOURCES

4.7.1 NO ACTION ALTERNATIVE

No impacts to coastal resources would occur under the No Action alternative because no changes to operations, construction, or expansion would occur at the existing Coast Guard Museum.

4.7.2 PROPOSED ACTION ALTERNATIVE

The Proposed Action alternative would give permission to the NCGMA to construct the NCGM, resulting in direct fill of approximately 9,500 square feet (consisting of a 6,400-square-foot area currently beneath the City Pier platform and a 3,100-square-foot area along the Thames River shoreline seaward of the state coastal jurisdiction line of 4.3 feet NGVD (see Figure 2.3-1). Construction of the proposed museum is consistent with the Connecticut Coastal Management Act (CMA) by facilitating *urban waterfront revitalization* within this section of New London shoreline and ensuring *the protection of water-dependent uses* by creating meaningful public access to and along this area. As detailed below, impacts to coastal resources have been avoided to the greatest extent possible and otherwise minimized and mitigated, such that significant impacts will not occur. A Coastal Consistency Review Form and supporting documentation are included in Appendix B. The Coast Guard is working with the appropriate agencies toward a positive Coastal Consistency Determination.

Identification of Applicable Coastal Resources and Coastal Resource Policies – In determining CMA consistency, an evaluation of existing site conditions as related to coastal resources defined in the CMA was completed. Table 4.7-1 provides the existing coastal resources on and adjacent to the property including at potential laydown areas. A check mark is placed adjacent to the resources and policies that are applicable to the project.

TABLE 4.7-1
Coastal Area Management Consistency
Applicable Coastal Resources

Coastal Resources	*On Site*	*Adjacent*	*Off Site but within the influence of project*	*Not Applicable*
General Coastal Resources *- Definition: CGS § 22a-93(7); Policy: CGS Section 22a-92(a)(2)*	☒	☒	☒	
Beaches & Dunes *- Definition: CGS § 22a-93(7)(C); Policies: CGS §§ 22a-92-(b)(2)(C) and 22a-92(c)(1)(K)*				☒
Bluffs & Escarpments *- Definition: CGS § 22a-93(7)(A); Policy: CGS Section 22a-92(b)(2)(A)*				☒
Coastal Hazard Area *- Definition: CGS §22a-93(7)(H); Policies: CGS Sections 22a-92(a)(2), 22a-92(a)(5), 22a-92(b)(2)(F), 22a-92(b)(2)(J), and 22a-92(c)(2)(B)*	☒	☒		
Coastal Waters, Estuarine Embayments, Nearshore Waters, Offshore Waters *- Definition: CGS § 22a-93(5), 22a-93(7)(G), and 22a-93(7)(K), and 22a-93(7)(L) respectively; Policies: CGS § 22a-92(a)(2) and 22a-92(c)(2)(A)*	☒	☒	☒	
Developed Shorefront *- Definition: CGS § 22a-93(7)(I); Policy: 22a-92(b)(2)(G)*	☒	☒	☒	
Freshwater Wetlands and Watercourses *- Definition: CGS § 22a-93(7)(F); Policy: CGS Section 22a-92(a)(2)*				☒
Intertidal Flats *- Definition: CGS § 22a-93(7)(D); Policies: 22a-92(b)(2)(D) and 22a-92(c)(1)(K)*				☒
Islands *- Definition: CGS § 22a-93(7)(J); Policy: CGS § 22a-92(b)(2)(H)*				☒
Rocky Shorefront *- Definition: CGS § 22a-93(7)(B); Policy: CGS § 22a-92(b)(2)(B)*				☒
Shellfish Concentration Areas *- Definition: CGS § 22a-93(7)(N); Policy: CGS § 22a-92(c)(1)(I)*		☒		
Shorelands *- Definition: CGS § 22a-93(7)(M); Policy: CGS § 22a-92(b)(2)(I)*				☒
Tidal Wetlands *- Definition: CGS § 22a-93(7)(E); Policies: CGS §§ 22a-92(a)(2), 22a-92(b)(2)(E), and 22a-92(c)(1)(B)*				☒

Coastal Resources Location and Condition – The location and condition of the coastal resources identified on or adjacent to the property in the preceding table are as follows:

1. Coastal Flood Hazard Area: Mapped AE and VE flood zones exist between elevation 11 and 14 (NAVD) on the site.

2. Coastal Waters, Estuarine Embayments, Nearshore and Offshore Waters: The Thames River is considered an estuarine embayment, and nearshore coastal waters (Long Island Sound) are located off site to the south.

3. Developed Shorefront: The entire parcel and abutting properties are comprised of the developed shorefront resource. This area has been engineered over time and is reflective of a densely developed urban area.

4. Shellfish Concentration Area: A portion of the Thames River adjacent to the property is mapped hard shell clam (*Mercenaria mercenaria*) habitat.

Identification of and Consistency with Applicable Coastal Use and Activity Policies and Standards – Table 4.7-2 identifies all coastal policies and standards in or referenced by CGS § 22a-92 applicable to the Proposed Action alternative. The Proposed Action alternative is consistent with the applicable coastal use and activity policies and standards. In accordance with the general development policy and standard, the project is proposed in a manner that is consistent with the capability of the land and water resources to support development, preservation, and use without significantly disrupting the natural environment or sound economic growth.

TABLE 4.7-2
Coastal Area Management Consistency
Applicable Goals and Policies

Coastal Use Activity Policy and Standard	Applicable
General Development *- CGS § 22a-92(a)(1), 22a-92(a)(2), and 22a-92(a)(9)*	☒
Water-Dependent Uses *- CGS § 22a-92(a)(3) and 22a-92(b)(1)(A); definition CGS § 22a-93(16)*	☒
Ports and Harbors *- CGS § 22a-92(b)(1)(C) and 22a-92(c)(1)(I)*	☒
Coastal Structures and Filling *- CGS § 22a-92(b)(1)(D)*	☒
Dredging and Navigation *- CGS § 22a-92(c)(1)(C) and 22a-92(c)(1)(D)*	
Boating *- CGS § 22a-92(b)(1)(G)*	☒
Fisheries *- CGS Section 22a-92(c)(1)(I)*	
Coastal Recreation and Access *- CGS § 22a-92(a)(6), 22a-92(C)(1)(j) and 22a-92(c)(1)(K)*	☒
Sewer and Water Lines *- CGS § 22a-92(b)(1)(B)*	
Fuel, Chemicals and Hazardous Materials *- CGS § 22a-92(b)(1)(C), 22a-92(b)(1)(E) and 22a-92(c)(1)(A)*	
Transportation *- CGS § 22a-92(b)(1)(F), 22a-92(c)(1)(F), 22a-92(c)(1)(G), and 22a-92(c)(1)(H)*	
Solid Waste *- CGS § 22a-92(a)(2)*	
Dams, Dikes and Reservoirs *- CGS § 22a-92(a)(2)*	
Cultural Resources *- CGS § 22a-92(b)(1)(J)*	☒
Open Space and Agricultural Lands *- CGS § 22a-92(a)(2)*	

Additionally, CGS Section 22a-92(c)(1)(L) is intended *to promote the revitalization of inner city urban harbors and waterfronts by encouraging appropriate reuse of historically developed shorefronts, which may include minimized alteration of an existing shorefront in order to achieve a significant net public benefit, provided:*

(i) such shorefront site is permanently devoted to a water dependent use or a water dependent public use such as public access or recreation for the general public and the ownership of any filled lands remain with the state or an instrumentality thereof in order to secure public use and benefit in perpetuity,

(ii) landward development of the site is constrained by highways, railroads or other significant infrastructure facilities,

(iii) no other feasible, less environmentally damaging alternatives exist,

(iv) the adverse impacts to coastal resources of any shorefront alteration are minimized and compensation in the form of resource restoration is provided to mitigate any remaining adverse impacts, and

(v) such reuse is consistent with the appropriate municipal coastal program or municipal plan of development.

Construction of the NCGM is consistent with these provisions.

Identification of Potential Adverse Impacts on Coastal Resources – Table 4.7-3 provides a list of potential adverse impacts on coastal resources as defined in CGS § 22a-93(15). A check mark is placed adjacent to the potential impacts that are applicable to the Proposed Action alternative.

No work is proposed on the subject parcel or potential laydown areas that would degrade any of the interests described above. Construction and long-term operation of a museum on Coast Guard land represents redevelopment of an urban waterfront parcel. Potential runoff increases resulting from increased impervious cover on the property would be managed to avoid impacts to coastal resources from additional stormwater discharges. Though some fill seaward of the coastal jurisdiction line would occur, this improvement would not impair the integrity of adjacent coastal resources and is considered in scale with the adjacent developed shorefront areas, as described below.

This portion of shoreline is located within a developed landscape and is flanked by high-intensity water-dependent uses. The construction of a new bulkhead would target the autumn and winter months to avoid potential conflicts with economically important organism reproduction in the estuary. Though a portion of the benthic environment would be filled, the concurrent installation of vertical sheet piling may mitigate the loss of benthos by providing vertical structure as substrate for a number of fouling species of organisms to colonize. Potential species may include bryozoans, barnacles, hydroids, sponges, ascidians, and blue mussels, which are characteristic lower estuary fouling species (Whitlach, 1994, 1998). In turn, these fouling species may provide food and habitat for some species of fish common to this area, such as cunner and blackfish. A number of studies have demonstrated that fauna associated with pilings and permanent in-water structures provide a substantial percentage of the food content for cunners and blackfish (Steimle and Ogren, 1982).

TABLE 4.7-3
Potential Adverse Impacts on Coastal Resources

Potential Adverse Impacts on Coastal Resources	Applicable	Not Applicable
Degrading tidal wetlands, beaches and dunes, rocky shorefronts, and bluffs and escarpments through significant alteration of their natural characteristics or functions - CGS Section 22a-93(15)(H)		☐
Increasing the hazard of coastal flooding through significant alteration of shoreline configurations or bathymetry, particularly within high velocity flood zones - CGS Section 22a-93(15)(E)		☐
Degrading existing circulation patterns of coastal water through the significant alteration of patterns of tidal exchange or flushing rates, freshwater input, or existing basin characteristics and channel contours - CGS Section 22a-93(15)(B)		☐
Degrading natural or existing drainage patterns through the significant alteration of groundwater flow and recharge and volume of runoff - CGS Section 22a-93(15)(D)		☐
Degrading natural erosion patterns through the significant alteration of littoral transport of sediments in terms of deposition or source reduction - CGS Section 22a-93(15)(C)		☐
Degrading visual quality through significant alteration of the natural features of vistas and viewpoints - CGS Section 22a-93(15)(F)		☐
Degrading water quality through the significant introduction into either coastal waters or groundwater supplies of suspended solids, nutrients, toxics, heavy metals or pathogens, or through the significant alteration of temperature, pH, dissolved oxygen or salinity - CGS Section 22a-93(15)(A)		☐

Identification of Potential Adverse Impacts on Water-Dependent Uses – Table 4.7-4 provides a list of potential adverse impacts on coastal resources as defined in CGS § 22a-93(17). A check mark is placed adjacent to the potential impacts that are applicable to the project.

TABLE 4.7-4
Potential Adverse Impacts on Water-Dependent Uses

Potential Adverse Impacts on Future Water-dependent Development Opportunities and Activities	*Applicable*	*Not Applicable*
Locating a non-water-dependent use at a site physically suited for or planned for location of a water-dependent use - CGS Section 22a-93(17)		☐
Replacing an existing water-dependent use with a non-water-dependent use - CGS Section 22a-93(17)		☐
Siting a non-water-dependent use which would substantially reduce or inhibit existing public access to marine or tidal waters - CGS Section 22a-93(17)		☐

Overall, the impacts of the NCGM and adjacent shoreline improvements should be limited to the immediate construction area. The minimal amount of fill in open water, heavily impacted subtidal areas

will be offset by an approximately equal amount of newly daylighted open water/subtidal area. For both the upland and in-water work, BMPs would be employed. In the upland areas, these measures include standard sedimentation and erosion controls (e.g., geotextile siltation fencing and hay bales in accordance with the 2002 *Connecticut Guidelines for Sedimentation and Erosion Control*). For the in-water portion of work, sedimentation impacts beyond the immediate work area would likely be managed with a turbidity curtain to minimize temporary aquatic impacts during construction. Construction would target the autumn and winter months to minimize impacts on coastal habitats. No potential adverse impacts on coastal resources and/or future water-dependent development are anticipated. The Proposed Action alternative maintains consistency with the legislative goals and policies of the CMA.

Consideration of Fisheries – The Connecticut Coastal Management Act empowers CT DEEP to manage the state's fisheries for promotion of economic benefits of commercial and recreational fishing; to enhance recreational fishing opportunities; to optimize yield of all species; to prevent the depletion or extinction of indigenous species; to maintain and enhance the productivity of natural estuarine resources; and to preserve healthy fisheries resources for future generations. As described above, the construction and operation of the proposed museum are not anticipated to impact the finfish or shellfish fishery resources of the Thames River. Though some modifications of the shoreline will be required to facilitate the proposed museum, these actions will not substantially modify the capacity of the Thames River to provide aquatic habitat.

In May of 2021, the USCG filed a federal coastal consistency determination. On August 24, 2021, CT DEEP issued a letter to the U.S. Coast Guard concurring with the determination that the activity as proposed is consistent with Connecticut's federally approved Coastal Management Program and will be conducted in a manner consistent with that program (Appendix B2).

4.8 BIOLOGICAL RESOURCES

4.8.1 NO ACTION ALTERNATIVE

No impacts to biological resources would occur under the No Action alternative because no changes to operations, construction, or expansion would occur at the existing Coast Guard Museum.

4.8.2 PROPOSED ACTION ALTERNATIVE

Future construction of the NCGM would result in temporary ground disturbance, noise, and other activities that could affect biological resources including state and federally listed terrestrial and aquatic species and their habitats. Measures would be implemented to avoid temporary impacts during construction, such as sedimentation and erosion controls, and in the long term by way of stormwater management.

As described in 3.8.3 of this FSEA, the project team has undertaken extensive consultation with state and federal agencies to determine anticipated impacts to listed species as a direct result of the proposed project activities. While federal species with potential to occur in New London within the Thames River are presented in table 3.8.1, no federally listed species are likely to occur within the project area, and no critical habitat has been designated in the project area (USFWS, 2021).

Terrestrial Habitat - Construction of the NCGM would not result in the removal of substantial vegetation because the project site is improved with a gravel-and-dirt parking lot and thus devoid of vegetation. One Tree of Heaven (*Ailanthus altissima*), a nonnative tree species, was identified on the project site through field reconnaissance. No wetlands or significant plant communities would be affected by the Proposed Action alternative as none were observed on or adjacent to the project site.

With the implementation of certain protective measures as described in Section 2.4, the construction and operation of the proposed NCGM is not anticipated to adversely impact biological resources. The existing project site itself consists of a gravel-and-dirt parking area largely devoid of vegetation. In addition to the Tree of Heaven, the vegetation is limited to scattered patches of pioneer weeds such as Asiatic bittersweet and common mugwort along the shoreline. The parking lot and surrounding uses provide no viable habitat as the area cannot support food sources, shelter, breeding, or perching areas for wildlife.

A regulatory review was performed with the USFWS's IPaC online database on September 17, 2021. A species determination was generated for the Proposed Action alternative. The species determination listed the Northern long-eared bat (*Myotis septentrionalis*), a threatened mammal, the Roseate tern (*Sterna dougallii dougallii*), a threatened bird, and the Monarch butterfly (*Danaus plexippus*), a Candidate insect, as the listed species potentially affected by activities within the project site. Given the existing conditions of the subject parcel, there is no potential for the site to provide critical wildlife habitat to these federally listed species. The proposed project will have *no effect* on species listed by the USFWS.

Aquatic Habitat - The coastal resources on the shoreline are largely comprised of developed shorefront reflective of the engineered environment. There are no tidal wetlands existing within proximity of the site and habitat conditions of the subtidal zone within the work area has not provided evidence of sustainable submerged aquatic vegetation beds. Habitat evaluation regarding the subtidal zone within the work area did not provide evidence of submerged aquatic vegetation establishment save for two individual culms of eelgrass (*Zostera marina*) observed in two locations on October 9, 2020. Given the presence of eelgrass within the lower Thames River estuary, the individual eelgrass observations is not considered atypical. Additionally, there are no tidal wetlands exiting within proximity of the site. The Coast Guard has determined that, pursuant to Section 7 of the Endangered Species Act and its implementing regulations at 50 CFR Part 402, the Proposed Action alternative would have no effect on any listed species or designated critical habitat.

The adjacent Thames River is designated as EFH in accordance with the Magnuson-Stevens Fishery Conservation and Management Act of 1976 for a number of federally managed species, including windowpane flounder, scup, and bluefish. Minor, temporary adverse impacts to fish and fish habitat may occur as a result of erosion and runoff of sediments to the river during construction. However, as described in Section 2.4 and Section 4.5.2, these potential impacts would be minimized with the implementation of BMPs that would be incorporated into an erosion and sedimentation control plan to be implemented during construction.

Impacts to fish may also occur as a result of in-water work for the NCGM, including pile driving, shading, fill, and other improvements to the outboard (river) side of the project site. The shoreline portion is currently covered with broken concrete rubble. The Coast Guard has determined that construction of the museum may adversely affect EFH because it would reduce the quality and/or quantity of EFH. However, measures have been taken to address impacts to EFH. Specifically, BMPs and protection measures such

as those described in Section 2.4 will be implemented to avoid significant impacts on EFH, including seasonal restrictions for ground-disturbing activities and/or in-water work, if feasible. Seasonal restrictions applied for specific species include January 1 – June 30 (for winter flounder). Seasonal restrictions are determined through ongoing agency consultation and would be dependent on the nature of the activity (e.g., unconfined or confined in-water work), sensitivity of species, and other protection measures implemented to avoid and minimize impacts on fish.

The Coast Guard reinitiated consultation with NOAA Fisheries to evaluate effects on EFH and the need for additional protection measures. An EFH assessment was conducted in 2019. NOAA Fisheries provided two conservation recommendations. These included: (1) proposed mitigation for habitat loss; and (2) a time of year restriction. In response to the first recommendation, the design of the building allows for an equal area of river daylighting to proposed impact to the river. Further, the NCGMA hosted a shoreline clean-up effort in the vicinity of the proposed NCGM site. The clean-up was completed in April 2021 and resulted in over 170 work hours. Following completion, a report was compiled and submitted to the NMFS. The TOY restriction will be incorporated into future federal permits. EFH related correspondence is included in Appendix C5.

The Thames River estuary - and every Connecticut estuary on Long Island Sound- is mapped as potential habitat for federally listed aquatic species (see Table 3.8-3) by the National Marine Fisheries Service (NMFS). The NMFS mapper, accessed on December 1, 2021 identifies the Atlantic sturgeon (*Acipenser oxyriynchus oxyriynchus)* sub-adult and adult species, green sea turtle (*Chelonia mydas)*, Kemp's ridley sea turtle (*Lepidochelys kempii)*, leatherback sea turtle (*Dermochelys coriacea)*, loggerhead sea turtle (*Caretta caretta)*, and the short-nosed sturgeon (*Acipenser brevirostrum)* are identified as potentially occurring in the Thames River. The sea turtles and short-nosed sturgeon are seasonal, migratory species, while the Atlantic sturgeon adult and subadult populations are year round foraging and migrating species.

The proposed project is comprised of small bulkhead and fill areas to support water dependent uses. Given the limited temporal and spatial extent of the proposed project and the developed nature of the shoreline, the proposed project is *not likely to adversely affect listed aquatic species*. Conservation measures are provided to prevent incidental capture of species in the work area during construction and best management practices are incorporated in the short and long term to minimize water quality impacts.

A preliminary concurrence of *not likely to adversely affect (NLAA) listed species* was established by the United States Army Corps of Engineers (USACE) in the Public Notice (PN) for Section 10 and Section 404 authorizations for each project. The PN for the National Coast Guard Museum (NAE-2016-00120) was published in September 2020. Utilizing the NLAA Program verification form and process, the USACE coordinated with NOAA-Greater Atlantic Region Fisheries Office (GARFO) for determination of NLAA and Section 7, of the ESA, consultation. In result, on April 7, 2022, the USACE determined, in accordance with NLLA Program, that the action is not likely to adversely affect listed species per the justification and/or special conditions provided. Additionally, on April 7, 2022, NOAA-GARFO provided concurrence with the USACE's findings.

A review request form was submitted to the CT DEEP NDDB regarding the currently proposed museum on August 10, 2017. In a letter dated August 22, 2017, the CT DEEP stated that no negative impacts to state-listed species (RCSA Sec. 26-306) are anticipated as a result of the Proposed Action alternative.

Subsequent to the publication of the August 2018 publication of the SEA, a supplemental inquiry was submitted to CT DEEP's Natural Diversity Data Base. The response (Appendix C6) indicated the presence of Atlantic and Shortnose Sturgeon as well as Blueback herring in the Thames River and deferred to DEEP fisheries biologists' review of permit applications. The fisheries review request and response (Appendix C7) determined that the proposed project will not significantly impact any fisheries and/or habitat, provided the no work occur between February 1 and May 15 to protect Winter Flounder spawning, eggs, and early life stages.

The project site is within the North Atlantic Flyway along which numerous migratory birds fly. Due to the proposed height of the building and the location within the flyway, measures have been taken to reduce the amount of glass associated with the museum in combination with the use of bird-safe glass, which reduces reflection as well as transparency and as a result discourages accidental bird collisions. Refer also to Section 2.3.2 for further discussion of bird protection.

4.9 HISTORIC AND CULTURAL RESOURCES

4.9.1 NO ACTION ALTERNATIVE

No impacts to historic and cultural resources would occur under the No Action alternative because no changes to operations, construction, or expansion would occur at the existing Coast Guard Museum.

4.9.2 PROPOSED ACTION ALTERNATIVE

The following evaluation is in compliance with federal guidelines for an assessment of adverse effects on historic properties (36 CFR 800.5). An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association.

Future construction of an elevated six-story, approximately 80,000-square-foot NCGM on the New London downtown waterfront would result in the introduction of visual elements that have the potential to diminish the significance of several NRHP-listed historic districts and individual historic properties, as per the National Historic Preservation Act (NHPA; Public Law 89-665; 54 U.S.C. 300101 et seq.). As detailed in the prior Section 3.9, the project site is immediately outside the boundaries of one NRHP-listed historic district and within 2,250 feet of two additional NRHP-listed districts and nine individually-listed NRHP properties in Downtown New London. See Table 3.9-1 for each of these recognized resources.

A related proposed pedestrian bridge to connect the NCGM with the inboard City of New London parking garage is funded by the State of Connecticut. The pedestrian bridge is undergoing a separate Section 106 (36 CFR 800.5) review consultation with SHPO.

Downtown New London National Register District – The triangle-shaped NRHP-listed Downtown New London National Register District (NRIS 79002665/88000070 boundary increase) is approximately 78 acres in area with 233 contributing properties; the NCGM would be located outside the northeastern edge of the district, diagonal to the Henry Hobson Richardson-designed 1884 Union Station building. The western end of the historic district is approximately 2,115 feet due west and is defined by the 1784 courthouse, the oldest courthouse in Connecticut. Located at the intersection of Huntington Street and

Captain's Walk (now Broad Street), this frame federal-style building is on a high point from which State Street descends down to the waterfront. The dark red brick Union Station is not visible from the courthouse but can be partially seen by a person of average height at street level near the intersection of Union and State Streets, approximately one-third of the distance down State Street from the courthouse. The proposed six-story NCGM would be visible at approximately the same location on State Street from where the three-story train station is visible.

From the far southern end of the Downtown New London National Register District, at the bottom tip of its triangularly shaped area, the NCGM would not be visible because of the existing buildings and the curvature of Water Street. Several of the intervening buildings are four stories in height and block any view of the proposed museum along much of the southeastern boundary. The NCGM would only be visible from Water Street within a few hundred feet south of the train station.

Following construction of the NCGM, the visual connection between Union Station and the waterfront rail line it serves to the Thames River would be altered. The six-story height of the museum would rise above the three-story station and the two- to four-story general height of the buildings in the district (Ransom, 1978). The physical connection between the ferry docks on the waterfront and the adjacent railroad lines was integral to the growth and development of New London for most of its history.

Although the development of the NCGM would alter views in the New London Historic District, the conceptual design of the NCGM is intended to fit sympathetically in the transition from the historic district to the more industrialized properties to the immediately north along the waterfront. The final design details and materials will be decided in consultation with the State Historic Preservation Office. The new structure will be recognizably of this era but also broken down in scale to acknowledge its component parts and the scale of its urban context and its relationship to the waterfront. For example, the building will be more expressive from the Thames River viewpoint where it will obscure the view of the nearby parking garage but will express more quiet details from the Parade Plaza viewpoint where it is a backdrop for Richardson's iconic train station.

A critical component of the design process will be maintenance of the architectural integrity of the adjacent Union Station building and the neighboring historic district as a whole, as well as individual historic resources both during construction and the subsequent operation of the museum.

The project site is situated at the extreme northeastern edge of the Downtown Historic District, outboard of the railroad tracks that parallel the Thames River to the east. This is the transition point between the pre-1850 resources of historic, small-scale New London and the subsequent large-scale industrialization of the waterfront to meet the more rigorous demands of modern transportation, such as railroad yards and shipping piers, ferry slips, and massive parking garages.

The 1876 Central Vermont Railroad Pier (NRIS 04001551), north of the proposed museum site, projects in a southwesterly direction into the New London Harbor (Clouette, 2004:7-1). A character-defining feature of this structure is the waterfront and railroad track setting, which will not be affected by the NCGM project. The Pier's association with the Thames River transportation heritage will not be affected by the NCGM project.

Archaeological Resources – No formal archaeological survey has been conducted to date in the tightly limited project APE. An extensive Thames River drainage archaeological survey by Harold Juli did record a

number of pre-contact sites north of the active New London waterfront (Juli 1994). The two closest pre-contact sites identified by Julie include the Coast Guard Academy Rockshelter Site (95:006) and the more northerly Connecticut College Soccer Field Site (95:004). Again, these sites are far outside the project area and have not been subject to the extreme subsurface changes on the landfilled and manipulated waterfront between the railroad tracks and the river. As Julie concluded (1994:39), the Thames River drainage has been highly disrupted and bears an overall poor rating with respect to the integrity of pre-contact archaeological sites.

As noted in Table 3.9-2 and Figure 3.9-2, archaeological excavations and monitoring have been conducted south of the APE indicating that specific sections of the New London riverfront possess a high potential to contain buried historic archaeological resources related to the maritime history of New London. The archaeological sensitivity of the New London waterfront is not directly applicable to the relatively late landfilled lots outboard of the rail corridor north of State Street. The following discussion focuses on the distinction between the non-APE waterfront areas of high sensitivity and the APE.

The wider project area is well documented for hosting archaeological resources related to the maritime history of New London, which could include but not be limited to maritime suppliers and wharves, docks, and slips dating as early as the eighteenth century. Archaeological reports from the last forty years revealed buried resources instructive of this past, as noted in Table 3.9-2. However, it is critical to compare the location of the APE, outboard of the mid-nineteenth-century landfilled and bulkheaded rail corridor, and the eighteenth through the early twentieth century maritime wharves and businesses to the south (See Table 3.9-2 and Figure 3.9-2).

Mapped and recorded activities on the APE are related to industries that have been demonstrated to leave a minimal archaeological footprint: coal yards, lumber sheds, planing mills, warehouses, etc. These resource types do not typically leave behind distinctive foundations and/or associations that provide insights not gained through existing studies and/or documents (Hartgen Archeological Associates, Inc. and Historical Perspectives, Inc., 1995).

The wharves and piers of the post-1850 era reflect a growing standardization of joinery, cribbing, and bulkheading techniques. The earlier haphazard approach to development and a plethora of vernacular designs and building techniques along the waterfront gave way as the century progressed, particularly after the Civil War when improved port facilities were urgently needed, the size of new steamships required longer piers and deeper berths, use of steam-driven pile drivers expanded, and engineering techniques were increasingly standardized. The archaeological study of these later generations of more standardized wharves and piers has not proven to provide a window into local technological adaptations (Hartgen Archeological Associates, Inc. and Historical Perspectives, Inc., 1995).

Research and analysis indicate that the possibility for *in-situ* pre-contact archaeological resources east of the rail corridor is not anticipated (Saunders and Schneiderman-Fox, 2000). As noted, the Office of State Archaeology has no record of pre-contact archaeological resources within one mile of the project site.

There is no evidence of burial grounds or recovered human remains at the NCGM site or in the surrounding vicinity and no further action anticipated under the Native American Graves Protection and Repatriation Act (NAGPR). If any such remains were identified, they would be handled in conformance with NAGPR.

Historic and Cultural Resources – In 2014, the Coast Guard initiated consultation with the Connecticut SHPO under Section 106 of the NHPA. In early consultation with SHPO, the initial design concept was favorably received, with several areas flagged as opportunities for continued development. In particular, the degree to which the design could be deferential to the train station was explored, preserving its air space more clearly and maintaining additional clearance for views to the water from the train tracks and from the water back to the station.

In response to initial discussions with SHPO, a series of improvements were made, including connection of pedestrian pathways for those people arriving at grade and from a proposed pedestrian bridge. These two sequences would be joined at the southwest corner of the building in a large, full-height entry vestibule that would include an iconic rescue helicopter display. Moving the entry from the waterfront to the south side of the building would provide for greater access for those with mobility impairments and allow for a full-height soft corner of the building that expands the view corridor between the train station and the waterfront. This would allow for greater openness as perceived from the train platform and a greater visibility of the full train station façade from the water.

Perhaps most importantly, a quiet façade would face toward the train station and Parade Plaza so that the museum would remain deferential and recessive to the train station. From the waterfront, the building would be more sculptural and expressive of its cultural significance to the city but through its distinct and modern architectural language would complement rather than compete with the historic train station. Taken in the aggregate, the revised approach minimizes the impact of the project on the Historic District and the train station.

Continued SHPO consultations through each phase of the design process have been undertaken in order to minimize or avoid any adverse effect to identified historic resources through choices on materials, signage, fenestration, etc. A Memorandum of Agreement (MOA) was signed in 2021 between the USCG, CT SHPO, NCGMA, THPO representatives of the Mohegan and Mashantucket Pequot tribes, and New London Landmarks, Inc., in which design updates resulting from these coordination efforts are presented (Appendix D3). The MOA certifies that the proposed project shall comply with Section 106 and limit potential adverse effects to historic and cultural resources through continued coordination efforts during the final design and construction phases.

Potential Impacts on Off-Site Staging and Laydown Areas – The off-site staging and laydown areas, in addition to an off-shore barge, have been identified (Figures 3.9-3 to 3.9-7). Each of the in-board staging and laydown sites, to be used primarily as storage of materials and equipment, is currently covered with asphalt, which will remain as a protection barrier against accidental subsurface impact. Given the lack of excavation and the asphalt surface to prevent disturbances, impacts to cultural resources are not anticipated in the off-site staging and laydown areas.

4.10 VISUAL RESOURCES

4.10.1 NO ACTION ALTERNATIVE

No impacts to visual resources would occur under the No Action alternative because no changes to operations, construction, or expansion would occur at the existing Coast Guard Museum.

4.10.2 PROPOSED ACTION ALTERNATIVE

The aesthetic character of the downtown New London waterfront area is predominantly centered on the architecture and significance of the buildings located within the historic district, including Union Station, which serves as an anchor within the district. Future construction of the NCGM would result in temporary changes to the visual character of the project area, typical of those associated with construction activity and staging. Limited construction activities will likely need to occur from barges in the water along the shoreline. Given the typical amount of maritime activity in the Thames River, particularly that associated with ferries to the north and south of the NCGM site, the temporary addition of equipment and staging areas would be moderately noticeable to downtown waterfront visitors, passing watercraft, and from Groton on the opposite (eastern) side of the Thames River.

The NCGM design is intended to complement the character of the New London waterfront without competing with historic architecture. An indirect effect of the Proposed Action alternative would involve construction of a modern six-story building along the downtown waterfront over what is now a gravel-and-dirt parking lot that is mostly level, over portions of the City Pier Plaza and adjacent to the Thames River. The size and architectural style of the NCGM will contrast with the older structures but also integrate into the fabric of downtown New London through the scale of its articulation and active program. Nighttime lighting required for safety and security will also enliven the site into the evening hours. These changes would be most visible from surrounding properties, including from the City Pier Plaza and City Pier, boats and ferries on the Thames River, and passing trains, and from scenic views of the New London downtown waterfront in Groton, particularly from the Fort Griswold area. Figure 4.10-1 shows the scope of view from the elevated parking garage on Water Street, where many visitors will have the first opportunity to see the waterfront. Figure 4.10-2 indicates numerous visual perspectives within and of the project area. Figures 4.10-3 through 4.10-8 present visual perspectives from City Pier, the Riverwalk, the proposed pedestrian bridge at the Water Street Parking Garage and at the museum, and along the railroad tracks.

The NCGM would be less visible from many downtown New London streets and locations because the project site is obscured by Union Station and other downtown buildings, and the building will be intentionally recessive from this vantage point. The project vicinity along the downtown waterfront is urbanized and mostly consists of commercial and industrial buildings and structures. The NCGM would not obstruct scenic views or vistas, including from the Fort Griswold area in Groton. As described in Section 2.4, BMPs and protection measures will also be implemented—through site planning and building design that will occur as the project receives funding for further design and development—to minimize impacts associated with glare and nighttime lighting required for safety and security.

Figure 4.10-1 View Angle from Water Street Parking Garage

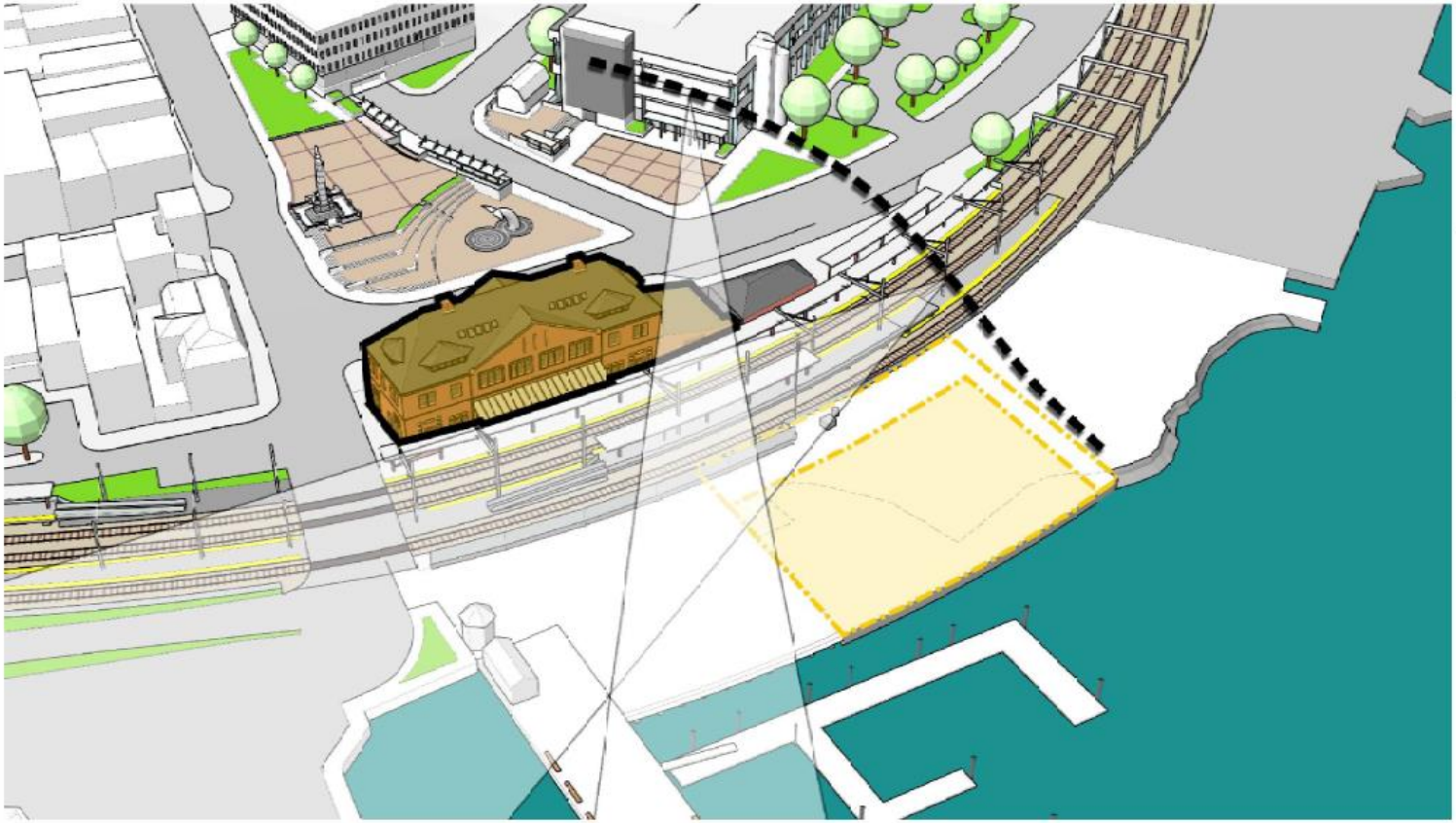


Figure 4.10-2 View Perspectives

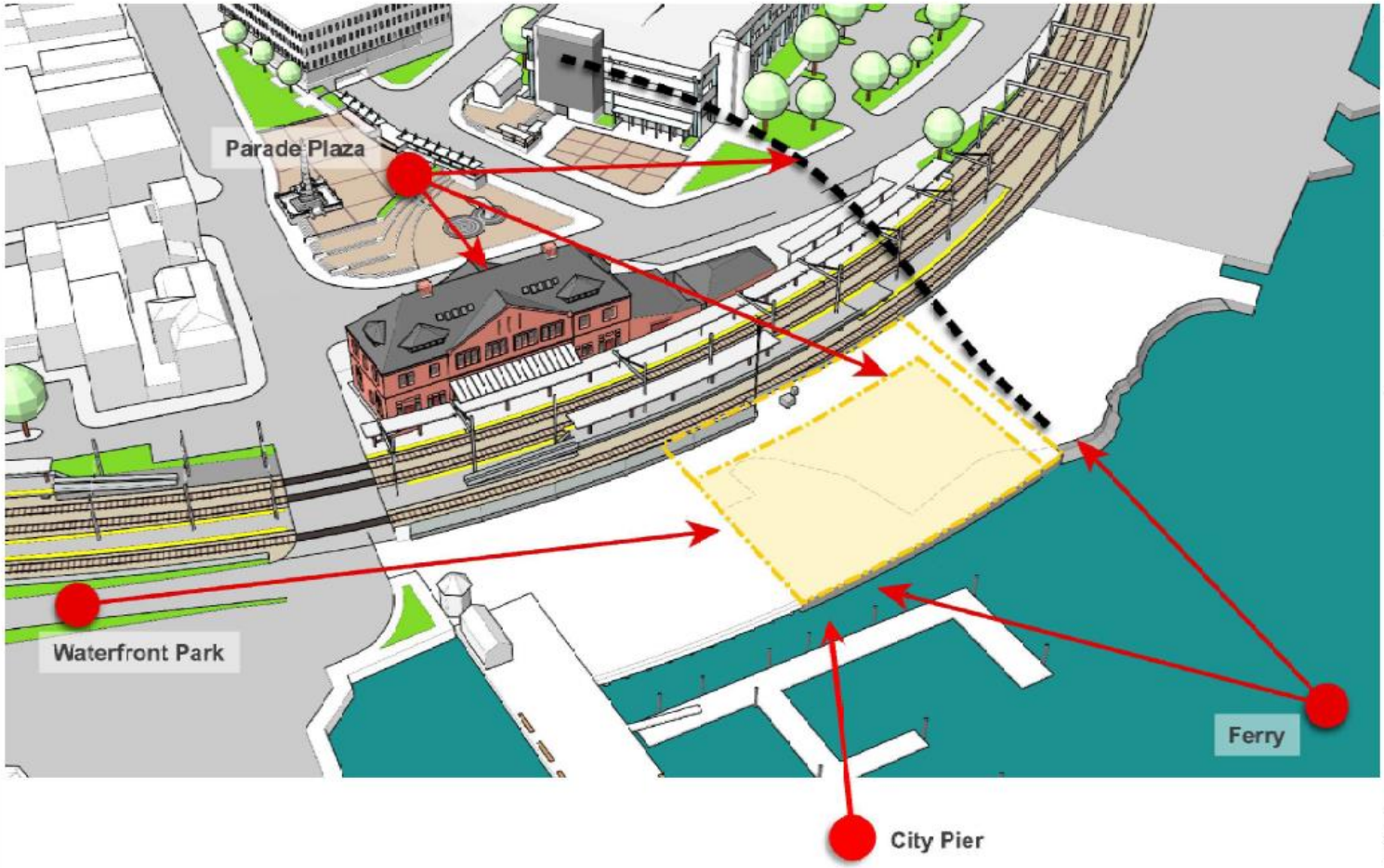


Figure 4.10-3 View from City Pier

MILONE & MACBROOM
99 Realty Drive
Cheshire, Connecticut 06410
(203) 271-1773
www.miloneandmacbroom.com

VIEW FROM CITY PIER
NATIONAL COAST GUARD MUSEUM PROJECT
NEW LONDON, CT

JAG
PAYETTE
24 SEPT 2021
5499-03
FIGURE 4.10-3

Figure 4.10-4 View from Riverwalk

MILONE & MACBROOM
99 Realty Drive
Cheshire, Connecticut 06410
(203) 271-1773
www.miloneandmacbroom.com

VIEW FROM RIVERWALK
NATIONAL COAST GUARD MUSEUM PROJECT
NEW LONDON, CT

JAG
PAYETTE
24 SEPT 2021
5499-03
FIGURE 4.10-4

Figure 4.10-5 View from Bridge at Garage

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Cheshire, Connecticut 06410
(203) 271-1773
www.miloneandmacbroom.com

VIEW FROM BRIDGE AT GARAGE
NATIONAL COAST GUARD MUSEUM PROJECT
NEW LONDON, CT

JAC
PAYETTE
24 SEPT 2021
5499-03
FIGURE 4.10-5

Figure 4.10-6 View from Bridge at Museum

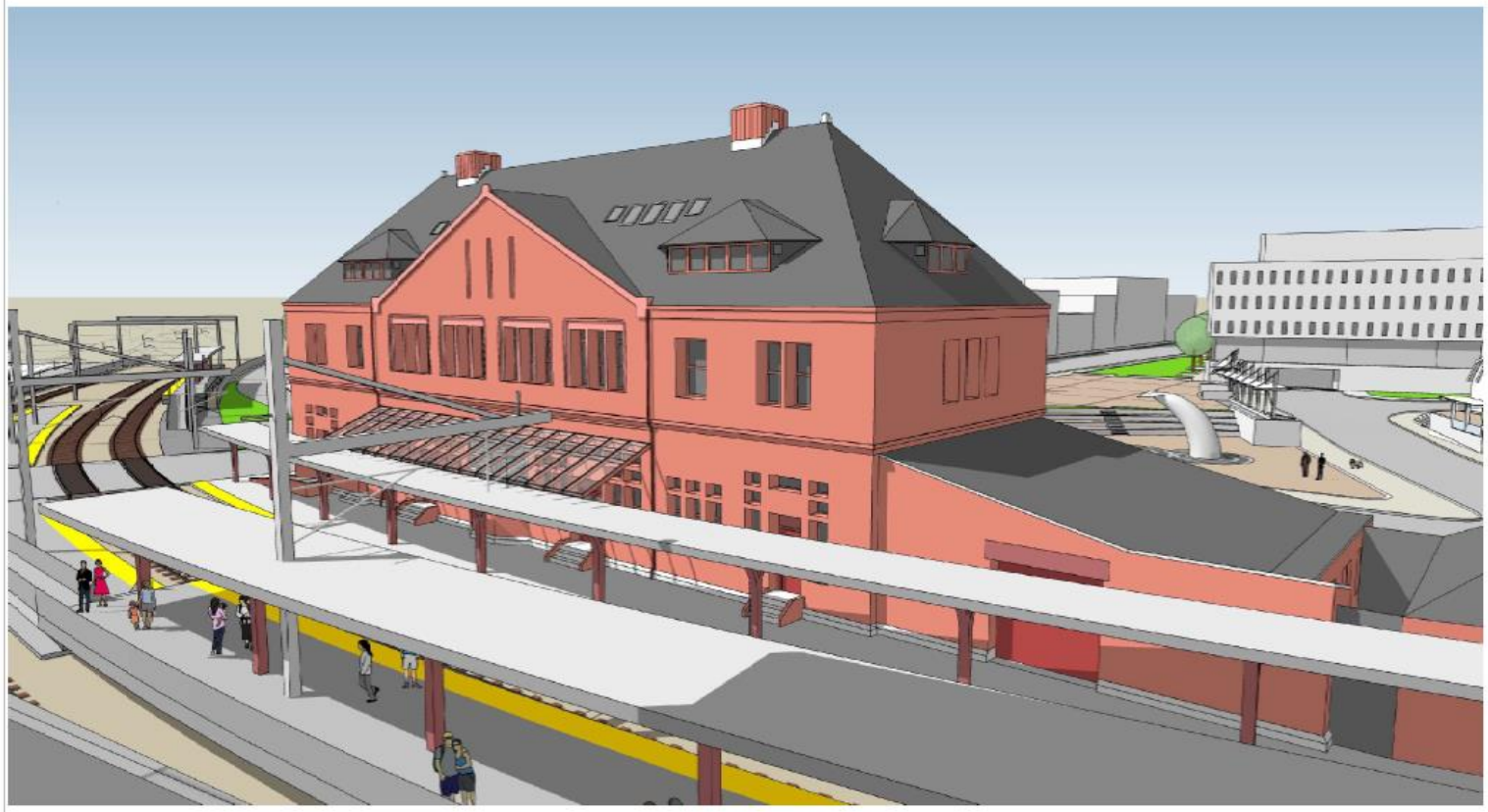
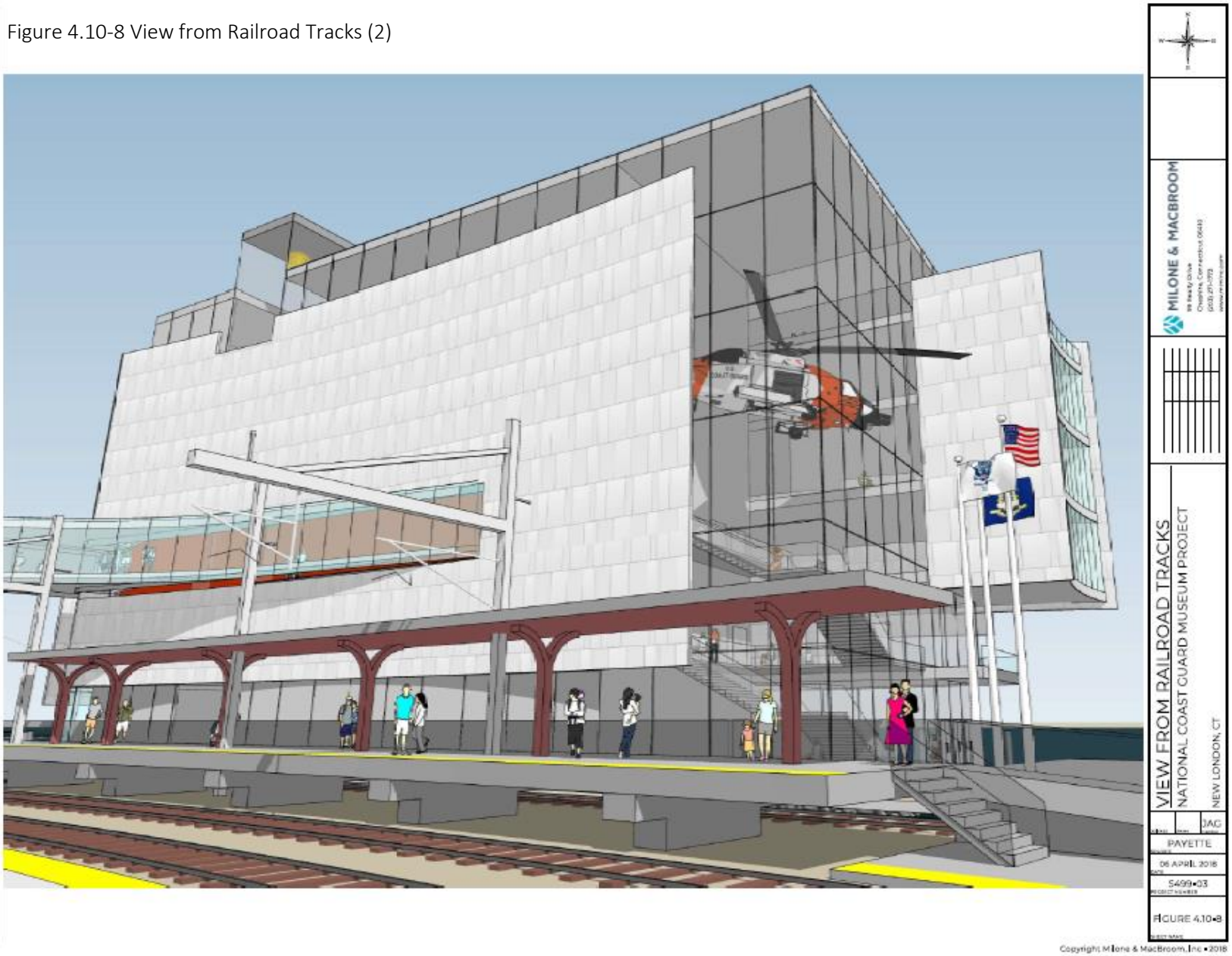


Figure 4.10-7 View from Railroad Tracks (1)

Figure 4.10-8 View from Railroad Tracks (2)



The museum building is proposed to be modern in style with a combination of exterior materials including a combination of glass and opaque exterior panels and the use of materials that are resistant to the corrosive forces of salt water, such as stainless steel and coated metals. The opaque façade planned for the west side of the building facing Union Station is intended to serve as a quiet foil, retaining the significant visual impact of Union Station. The aesthetic, height, and style of the NCGM would be distinct from the surrounding historic, industrial/commercial, and public uses within the downtown waterfront area.

The NCGM would be fully visible from the Thames River, the Cross Sound Ferry Terminal, the City Pier Plaza, and from the Amtrak railroad tracks. Only the uppermost floors of the museum would be visible from Water Street, the Parade Plaza, and the Water Street Parking Garage. As most development and traffic within New London is located on the Water Street side of the Amtrak station and beyond, the NCGM will be mostly obstructed by this intervening building. During nighttime hours, light emanating from the building as well as lighting surrounding the building for visibility and safety purposes would alter the existing visual environment.

The Proposed Action alternative would result in minor adverse short- and long-term impacts to visual resources within the downtown New London area and potentially along the Groton waterfront.

4.11 SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE

4.11.1 NO ACTION ALTERNATIVE

No impacts to socioeconomic conditions or to any minority, low-income, or Native American populations would occur under the No Action alternative because no changes to operations, construction, or expansion would occur at the existing Coast Guard Museum.

4.11.2 PROPOSED ACTION ALTERNATIVE

The Proposed Action alternative would not displace any residents or businesses. Future construction of the NCGM would result in employment of local and regional construction contractors, providing jobs and revenue to local and regional residents. This would result in direct, minor, short-term, positive impacts to the regional economy.

Operation of the NCGM would provide jobs and revenue to local residents. The NCGM would involve the employment of approximately 34 staff, and approximately 200,000 patrons would be expected to visit the museum each year. It is assumed that the NCGM would be owned by the Coast Guard and would therefore be tax exempt except for any gift shops or dining facilities in the museum.

The Proposed Action alternative would be implemented in a previously disturbed, nonresidential area on the downtown waterfront. No significant impacts on population or housing would be anticipated. No socioeconomic impacts in Forestville, Maryland, would be anticipated as a result of the Proposed Action alternative because the Coast Guard Exhibit Center in Forestville, Maryland, would remain in operation. Therefore, the Proposed Action alternative would result in direct, minor, long-term, positive impacts to the regional economy.

New London is composed of a disproportionate percentage of minority and low-income populations compared to New London County and Connecticut. However, the Proposed Action alternative would not involve the displacement of these minority or low-income populations. The project area is not located within a residentially zoned area but instead exists within an active industrial area on the city's waterfront. The project site is currently undeveloped, so no displacement is proposed.

The FSEA includes an analysis of the Proposed Action alternative's potential to result in adverse health or environmental impacts on the surrounding community, including air quality, noise, and transportation, which are typically the focus of an environmental justice evaluation. The Proposed Action alternative would not result in significant impacts, and BMPs and protection measures described in Section 2.4 would be implemented to further reduce impacts associated with the NCGM. The project is expected to have a minor positive economic impact on the surrounding area. The Proposed Action alternative would not have any disproportionate impacts on minority or low-income populations in New London or New London County, or in Forestville or Prince George's County, Maryland, because the Coast Guard Exhibit Center in Forestville, Maryland, would remain in operation. Therefore, no significant adverse impacts would occur that could disproportionately impact minority or low-income populations.

4.12 PUBLIC AND OCCUPATIONAL HEALTH AND SAFETY

4.12.1 NO ACTION ALTERNATIVE

No impacts to public and occupational health and safety would occur under the No Action alternative because no changes to operations, construction, or expansion would occur at the existing Coast Guard Museum.

4.12.2 PROPOSED ACTION ALTERNATIVE

The Proposed Action alternative does not involve the storage of explosive materials. As discussed in Section 4.11.2, the future construction of the NCGM would not significantly increase population in the area. The Proposed Action alternative would result in minor increased demands for police and fire protection services during construction and operation of the NCGM but not beyond levels anticipated and planned for by public service providers.

As described in Sections 3.2.3 and 3.3.8, the nearest sensitive receptors to the project site include residences (0.25 mile), schools (St. Mary Star of the Sea School, 0.35 mile; Isaac Interdistrict School for Arts and Communication, 0.36 mile), and a day care center (The Center, 0.45 mile); the nearest public parks include the City Pier Plaza, City Pier, and Parade Plaza. Potential air quality and noise impacts associated with construction of the Proposed Action alternative would be limited to the immediate vicinity of construction activities and are not expected to result in significant impacts to off-site areas (see Sections 4.3.2 and 4.4.2). Air quality and noise impacts associated with operation of the NCGM would not exceed applicable thresholds or result in impacts to school and day care facilities or on residential and recreational areas in the project area (see Sections 4.3.2 and 4.4.2). Therefore, minor impacts on public and occupational health and safety and (in accordance with EO 13045) on children's environmental health and safety are not anticipated under the Proposed Action alternative. Further, connections to water and wastewater supply infrastructure are not anticipated to cause disruption of services to the adjacent schools and daycares given the location of the existing mains and trunk lines. Should a

disruption of service be required, the construction contractor can look to alternatives, such as timing construction in in the summer months or after the day cares close.

The proposed project has documented the proximity of schools and day care centers to the proposed work and staging area. No facilities are immediately adjacent to the work area and an active railroad separates the work area from downtown New London. As a result, the work area is effectively isolated from its greater surroundings. Nonetheless, the proposed construction will be implemented mindful of EO 13045 and ensure the protection of children by avoiding direct interaction (due to distance) and indirect impacts by preventing disruptions to service. Communication and coordination with the City will be used to ensure construction is carried out in this manner.

4.13 INFRASTRUCTURE

4.13.1 NO ACTION ALTERNATIVE

No impacts to infrastructure would occur under the No Action alternative because no changes to operations, construction, or expansion would occur at the existing Coast Guard Museum.

4.13.2 PROPOSED ACTION ALTERNATIVE

Future construction of the NCGM would result in construction activities involving digging, drilling, grading, or other ground-disturbing activities. BMPs described in Section 2.4 would be implemented, including locating existing utility infrastructure and contacting the "Call Before You Dig" clearinghouse to verify the location of underground utilities. With implementation of these BMPs, no significant impacts on utilities would occur during construction of the Proposed Action alternative.

Utility services are not currently provided to the project site; however, utility services are provided to parcels in the surrounding area through existing underground infrastructure. Minor adverse impacts would occur as a result of extending infrastructure to the project site and accommodating the utility service demands of the Proposed Action alternative. Each utility provider offers sufficient capacity to accommodate the Proposed Action alternative.

Potable Water Supply – Downtown New London's water is fed by the Lake Brandegee main from the north and the 24-inch New London transmission main from the south. The two systems are connected by 16-inch mains within two blocks of the museum site. Only minimal expansion of the water distribution system would be needed to serve the museum. Adequate water supply can be made available to the site with the installation of approximately 550 linear feet of 8-inch main (Veolia, 2016).

The Proposed Action alternative will require potable water to support museum functions, including restroom facilities, drinking fountains, catered events, and janitorial services. A conservative estimate of projected water use based upon the anticipated size of the museum is 7,000 gallons per day (gpd). This is a modest amount in comparison to available potable drinking water supplies in the city of New London. In 2016, the average day demand for drinking water was 5.45 mgd. A demand of 7,000 gpd represents 0.13 percent of New London's current daily demand. Available water in the New London system is 6.98

mgd, resulting in a surplus of 1.53 mgd and an average day margin of safety of 1.28. A margin of safety of 1.15 is considered adequate.[1]

Sanitary Sewer – Wastewater Collection and Treatment – The sewer and water infrastructure in the city of New London's downtown is some of the oldest in the area. Despite its age, the systems have been well maintained and are in very good overall condition. In addition to good condition, only a very small percentage of the available sewer collection and water distribution system capacity are currently being utilized in the core downtown area. Only minimal wastewater collection improvements would be needed to serve the museum as described in Section 2.3.8. Adequate wastewater collection capacity can be made available to the site with the installation of approximately 600 linear feet of 8-inch sewer main and two manholes (Veolia, 2016).

Solid Waste Disposal – The City of New London provides solid waste collection and operates a Solid Waste and Recycling Center at 63 Lewis Street. Solid waste generation at the museum is anticipated to be largely affiliated with waste receptacles, restroom facilities, and food-related waste from vending and event waste.

Energy Sources – Long-term operation of the NCGM would utilize resources, including energy. The design would strive to be highly sustainable, with a goal of achieving the highest level of certification offered by the premier green building rating system organization, LEED. Through the design process, study of natural ventilation, on-site generation (wind and photovoltaic), and heat pump strategies will be considered in an effort to significantly reduce energy use and carbon footprint. Similarly, stormwater management measures would be designed with the goal and intent to achieve LEED platinum standards.

Communications – The museum will require telephone, broadband communication, and digital cable television services. The surrounding downtown New London area is currently served by such infrastructure, and new service to the museum is not anticipated to require significant utility upgrades.

4.14 TRANSPORTATION

4.14.1 NO ACTION ALTERNATIVE

No impacts to transportation systems would occur under the No Action alternative because no changes to operations, construction, or expansion would occur at the existing Coast Guard Museum.

4.14.2 PROPOSED ACTION ALTERNATIVE

Roadway Network

The Proposed Action alternative will not result in changes in the roadway network. Potential short-term impacts are anticipated due to heavy vehicles traversing the roads in close proximity to the site to deliver equipment as well as potential carry off of mud on tires related to traffic exiting the construction site. BMP measures identified in Section 2.4 will be undertaken to minimize impacts on the roadway network.

[1] Preliminary Integrated Report; Eastern Public Water Supply Management Area, March 14, 2018, Milone & MacBroom, Inc.

Traffic

Construction of the NCGM would result in temporary increases in vehicular traffic associated with trucks used for hauling materials and with worker transport to the project site. As described in Section 2.4, construction traffic control measures would be implemented during construction, and coordination would occur with the City of New London to identify measures to support construction traffic and parking. A traffic management plan would be developed prior to the commencement of construction. The construction traffic control measures would be developed in conjunction with the detailed NCGM design to address vehicular, pedestrian, and bicycle traffic and would maintain access in the project area, including to ferries along the downtown waterfront. Construction may involve locating a barge in the Thames River; however, this barge would be temporary and would not restrict navigation to surrounding ferry docks and piers.

Traffic-related impacts on the roadway networks surrounding the proposed laydown areas are anticipated to be relatively minor from a traffic volume standpoint. On a typical day during regular construction hours, a small number of large vehicles would haul materials between the laydown areas and the construction site. The construction traffic management plan to be developed would include specifics for any temporary access points that may be necessary to construct at the laydown areas and would address the least-impact routing of large trucks through the roadway network between the off-site laydown areas and the construction site. Contractor parking, described in Section 2.3.3, would also be discussed in the construction traffic management plan.

The *New London Downtown Transportation and Parking Study* (Milone & MacBroom, Inc., June 2017) included review of projected traffic volumes for the year 2021 that take into account new traffic that is expected to be generated by the NCGM after it has opened, as well as several other anticipated developments and ridership growth at the ferries, bus, and rail options in the downtown.

The NCGM is expected to attract residents, school children, tourists, Coast Guard personnel, and associated personnel and organizations. Most visitors are expected to arrive by car although some groups would likely arrive by ferry, train, or bus. Some trips to the NCGM will also likely be made on foot by people working, living, or visiting other downtown destinations nearby. According to White Oak Associates Museum Planners (2014), the NCGM is being designed to be staffed by approximately 34 staff/volunteers and to accommodate approximately 2,468 visitors on a typical summer weekend day. The NCGM is to be open 7 days a week with regular hours from 10 a.m. to 5 p.m. It will also likely be open late on some evenings to host events and be open some mornings before 10 a.m. for school sessions.

It is estimated that approximately 80 percent of visitors to the NCGM would arrive by automobile, typically in groups of two to three people per vehicle, and that the average visitor stay would be 1.5 hours. Based on the abovementioned projections from White Oak Associates Museum Planners, estimates were developed of the amount of new vehicle traffic that may be generated by the NCGM for the *New London Downtown Transportation and Parking Study*. Table 4.14-1 summarizes the NCGM vehicular trip generation estimates.

TABLE 4.14 -1
Estimated Vehicular Site-Generated Traffic

	NUMBER OF VEHICLE TRIPS								
	Typical Weekday Morning Peak Hour (9:30 – 10:30 a.m.)			Typical Weekday Afternoon Peak Hour (4:00 – 5:00 p.m.)			Typical Weekend Midday Peak Hour (11:00 a.m. to 12:00 p.m.)		
	To	From	Total	To	From	Total	To	From	Total
Proposed National Coast Guard Museum	150	20	170	20	150	170	150	150	300

During weekday mornings, trips associated with the NCGM would largely occur after the regular morning commuter period. Many of the vehicle trips associated with the NCGM are expected to be oriented to the Water Street Parking Garage. Visitors arriving to the NCGM by car may cause some increases in traffic delays at intersections in downtown New London. As described in Section 2.4, coordination would occur with the City of New London to identify appropriate improvements to support traffic operations in connection with the NCGM, such as signage to direct visitors to the museum and nearby parking; coordinating traffic signal timing adjustment improvements as necessary; and/or other measures to improve the efficiency of traffic flow along the existing street network.

Cumulative traffic impacts are discussed in Section 4.16.2. Also described in Section 4.16.2 are traffic-related improvements to the downtown that are expected to be necessary due in large part to the cumulative impacts of several anticipated developments and projects in New London.

Parking

The Water Street Parking Garage is the public parking facility that is nearest to the site of the proposed NCGM. Off-street public parking options are also available in the downtown area as well as on-street parking. Based on information provided by White Oak Associates Museum Planners, it is estimated that there may be as many as approximately 325 parked vehicles generated by the NCGM that would need to be accommodated within New London's downtown supply of public parking during museum peak times. Per the *New London Downtown Transportation and Parking Study* (Milone & MacBroom, Inc., 2017), it is estimated that the museum's parking peak would occur during afternoons. This is the time of day that existing downtown parking demands typically peak in New London. It is also noted that there are approximately 70 unpaved parking spaces at the site of the NCGM that are currently used by Cross Sounding Ferry that would need to be removed as a result of the museum. Users of those spaces are expected to be shifted to the public parking options nearby, further affecting the public parking system.

The Water Street Parking Garage may be over capacity when adding the projected NCGM parking demands, particularly during summer peak periods. As a result, some motorists who would otherwise park in the Water Street Parking Garage would have to park at other nearby public parking options in the downtown.

Nearby off-street public parking facilities include the Governor Winthrop Garage and the O'Neill-Tilly Lots. When including these and looking at all of the primary off-street public parking in downtown New London, of which there are approximately 1,700 parking spaces with an existing total peak summer

demand of approximately 1,260 parked vehicles, it is found that adding the estimated NCGM peak parking demand and the aforementioned Cross Sound Ferry parking demand would result in the off-street parking system being at capacity (approximately 1,655 parked vehicles within the 1,700 off-street public parking spaces, or 97 percent utilization).

In addition to the publicly available off-street parking, there are also additionally 525 on-street parking spaces nearby (currently unmetered but with time limits) according to the 2017 downtown transportation and parking study. According to a recent study by the Southeastern Connecticut Council of Governments (2014), approximately two-thirds of the on-street parking spaces in downtown New London are utilized at peak times (approximately 350 on-street parked vehicles in comparison to 525 on-street parking spaces). When adding all downtown off-street and on-street existing parking supply and projected future parking demands (existing peak summer demands + NCGM + the 70 Cross Sound Ferry parked vehicles), it is estimated that there would be approximately 2,005 parked vehicles within 2,225 parking spaces during peak periods in the summer for total downtown parking utilization of 90 percent. It should be noted again that during non-warm-weather periods of the year, total parking demands in downtown New London are generally lower than during summer peaks.

Funding is currently being sought by the City of New London for an expansion of the Water Street Parking Garage to add approximately 400 additional parking spaces. This would help address, as part of a multi-tiered approach, the cumulative parking impacts from numerous anticipated developments in downtown New London in addition to the proposed NCGM. This is discussed further in Section 4.16.2.

Public Transportation

It is anticipated that some visitors and staff at the museum may use nonautomobile transportation to get to and from the museum, particularly since the site is adjacent to Union Station (Shore Line East and Amtrak), the Southeast Area Transit (SEAT) New London hub, and the Greyhound Bus station. Riders of the Cross Sound Ferry and Fisher's Island Ferry may also visit the museum before departure or after their arrival and while passing through New London. Existing public transportation adjacent to the site of the NCGM is operating below capacity and will be negligibly affected by the NGCM.

Pedestrian Access

Some trips to the NCGM are expected to be made on foot by people working and/or living nearby and by people already visiting other destinations nearby that are within walking distance. Some visitors arriving to the NCGM on foot may also include casual visitors filling time while waiting for a train, bus, or ferry. The majority of destination visitors to the NCGM are expected to arrive by automobile, park at nearby public parking facilities, and walk between the public parking and the museum. Aside from limited on-street parking close to the NCGM, the Water Street Parking Garage is the nearest public parking option. The current pedestrian access from the Water Street Parking Garage to the site of the proposed NCGM is via the pedestrian crossing at Water Street/Atlantic Street and then via the at-grade railroad crossing at the eastern end of State Street. Once it is built, pedestrians will be able to also use the pedestrian overpass bridge that is to connect between the Water Street Parking Garage, Union Station, and the NCGM/Cross Sound Ferry terminal. A new pedestrian/traffic signal has been recommended at the intersection of Water Street at Atlantic Street as part of the downtown transportation and parking study in order to improve the surface pedestrian crossing between Parade Plaza and Union Station adjacent to the NCGM site.

4.15 HAZARDOUS SUBSTANCES

4.15.1 NO ACTION ALTERNATIVE

No impacts to hazardous substances would occur under the No Action alternative because no changes to operations, construction, or expansion would occur at the existing Coast Guard Museum.

4.15.2 PROPOSED ACTION ALTERNATIVE

Future construction of the NCGM would result in the use of hazardous materials in quantities that are typical of the construction industry. Construction would also involve the disturbance of the existing surface, excavations, and the disturbance of sediments in the adjacent Thames River.

As discussed in Section 3.15, a Phase I EDDA was conducted for the project site to identify potential sources of contamination. The study did not identify spills or leaks that would create a potential hazard for the project site. In addition, the Phase I EDDA did not identify evidence of the current or former presence of hazardous waste on the project site. However, previous uses of portions of the project site included a railroad freight house, coal storage, and a planing mill and lumber storage.

The Phase I EDDA concluded that the likely sources of contamination include the former railroad tracks and freight house; former coal storage; planing mill; upgradient underground storage tank; and transformers. The analysis found that the soils at the site are impacted by the following contaminants:

- VOCs at low levels, which indicate evidence of petroleum contamination
- Petroleum hydrocarbons at low concentrations, which indicate evidence of petroleum contamination to both surface soil and subsurface soil and are possibly from petroleum-impacted groundwater
- Various concentrations of semivolatile organic compounds (SVOCs), primarily polycyclic aromatic hydrocarbons (PAHs), which are likely a result of the observed coal material in subsurface soils.
- Various concentrations of metals, some of which (arsenic and lead) are present at concentrations greater than RSRs and other guidelines
- Minor concentrations of polychlorinated biphenyls (PCBs) below RSR criteria at two locations
- Asbestos and pesticides were not detected in soil samples.

A Phase II EDDA was conducted because of the potential for soil or groundwater contamination to be present on the project site or for sediment contamination of the adjacent Thames River. The scope of the investigation included collection and analysis of soil and groundwater samples taken from the project site, as well as analysis of sediment taken from the adjacent Thames River.

The investigation results noted that soil at the site consists of coarse sand and gravel with varying amounts of debris such as concrete, brick, and coal. Black coal material was observed at varying depths in one location, and large rocks or other subsurface obstructions were present in most locations. Groundwater is present at depths of between 4 and 6 feet below surface grade. A geotechnical evaluation indicated the presence of fill material to a depth of about 19 feet.

During the previous investigation, constituents detected polluted and contaminated soil at levels above natural background levels including petroleum-related and other volatile organic compounds (VOCs), semi-

volatile organic compounds (SVOC) consisting primarily of polycyclic aromatic hydrocarbons (PAHs), metals, total petroleum hydrocarbons and polychlorinated biphenyls. Constituents detected above RSR criteria in contaminated soil include PAHs, lead, and arsenic. Constituents detected above natural background levels in the groundwater samples are petroleum related VOCs, petroleum hydrocarbons, and metals.

A Phase II Environmental Analysis was completed in 2018 by GEI in conjunction with the geotechnical investigation. Fourteen test borings (B-01 through B-14) were conducted at the site between July and August 2018, using driven casing and rotary wash drilling procedures. Standard Penetration Tests were conducted, and split spoon samples were collected at maximum five-foot intervals. A GEI representative was on site to observe the drilling procedures and classify the soil samples. The GEI representative also recorded visual or olfactory impacts that were observed, if any. The results from this testing generated the protocol for soil management outlined below.

Operation of the NCGM would not require the storage of significant quantities of hazardous materials and would be limited to materials typically used for operation of similar facilities. These hazardous materials would be stored, labeled, and disposed of in accordance with applicable federal, state, and local regulations. Therefore, no significant impacts associated with the storage of hazardous materials would occur during operation of the Proposed Action alternative.

4.16 CUMULATIVE IMPACTS

Cumulative impacts are defined in 40 CFR, Part 1508.7, as impacts on the environment that result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or nonfederal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

4.16.1 PROJECTS CONSIDERED

Past, present, and reasonably foreseeable future actions were identified based on information obtained from the Coast Guard, government agencies, and readily available land-use planning and environmental documents. Past actions in the immediate project area primarily include the construction and maintenance of maritime transportation and recreation facilities along the New London waterfront. These past actions are assumed to have created the existing affected environment. Ongoing and current projects also primarily include the use and maintenance of maritime transportation facilities along the waterfront. Reasonably foreseeable future actions include specific projects for which environmental compliance is complete or underway, projects listed in short-range adopted land use or management plans, and those projects specifically identified by a land or resource managing agency to be reasonably foreseeable.

The following reasonably foreseeable projects were identified for the analysis of cumulative impacts in this FSEA:

- *Pedestrian Overpass* – The State of Connecticut has committed up to $20M in funding to support the planning, design, and construction of a pedestrian overpass that would enable pedestrians to access both the proposed NCGM and Cross Sound Ferry Services, as well as the Thames River waterfront. As proposed, the overpass would connect pedestrians from the Water Street Parking Garage to Union

Station, the active rail lines, City Pier, the NCGM, and the expanded Cross Sound Ferry operations to the north. The pedestrian overpass would complement overall improvements to New London's Regional Intermodal Transportation Center. Existing obstacles to pedestrian safety include vehicular traffic (including passenger, bus, and taxi) and rail traffic. Given the concentration of people, activities, and moving train and roadway traffic, there is a need for an overpass that would allow pedestrians to safely access and navigate the downtown/Union Station area without having to cross the rail lines at grade. The pedestrian overpass project was subject to environmental review under the Connecticut Environmental Policy Act (CEPA) and will undergo local and state permitting processes as the project proceeds.

- *Ferry Terminal Expansion* – Cross Sound Ferry Services is located immediately north of the NCGM site. In the past two decades, Cross Sound Ferry has added two high-capacity vehicle and passenger ferries and a high-speed ferry, augmented a vehicle and passenger ferry in width and height, and expanded its ridership by 30 percent. 2017 was the highest volume of service in Cross Sound Ferry's 42-year history, with over 1.4 million passengers and over 500,000 vehicles served. Cross Sound Ferry is planning to undergo a facility expansion to both maintain safe operation of its water-dependent facility and plan for continued growth. The facility expansion will include a new high-speed passenger ferry terminal. Bulkheading and fill will be required to support the expanded activities at the Cross Sound Ferry site.

- *Homeporting of the U.S. Coast Guard Cutter (USCGC) EAGLE* – City Pier is located directly in front of Union Station and serves as the focal point of the newly constructed linear waterfront park in downtown New London. The pier hosts a variety of vessels, including the USCGC *Barque* EAGLE. The Coast Guard is evaluating the possibility of homeporting the *Barque* EAGLE at City Pier.

- *Water Street Parking Garage Expansion* – The Water Street Parking Garage is located in the heart of the downtown New London waterfront adjacent to the City Prominade and directly across the street from the train station, Cross Sound Ferry, City Pier, and the future NCGM. The garage provides approximately 910 regular parking spaces plus a small adjacent 30-space surface lot. The garage is owned by the City of New London and operated by the New London Parking Authority (NLPA). It is used by the general public, ferry passengers, riders at Union Station, and General Dynamic Electric Boat (EB) employees. EB currently leases approximately 450 of the parking spaces during the winter and 300 spaces during the summer and provides an employee shuttle service between the garage, its office facility south of downtown, as well as Groton. The City of New London, in collaboration with numerous stakeholders, is actively seeking funding to expand the garage to add approximately 400 additional parking spaces.

- *Traffic and Transportation Improvements* – In 2017, the City of New London concluded a comprehensive Downtown Transportation and Parking Study to assess and plan for current and future transportation needs and to identify context-sensitive, multimodal, and safety improvements that support the city's future goals and vision as an economically successful, vibrant, sustainable, and unique place. A critical element of the analysis was a comprehensive assessment of parking in the downtown area, particularly in light of anticipated increased ridership on ferry, train, and bus services, and planned development, redevelopment, and downtown building reoccupancies in and around the downtown area. The parking strategy moving forward includes improving the efficiency of existing assets, managing demands, increasing use of nonautomobile transportation modes, and expansion of the Water Street Parking Garage. Garage expansion is just one of a multi-tiered

approach to achieving New London's vision. Traffic signal improvements, geometric roadway improvements, pedestrian and bicyclist improvements, safety improvements, and one-way to two-way conversions are also proposed.

- State Pier – The Connecticut Port Authority is planning improvements to the State Pier on the Thames River in New London, located up-river of the NCGM. Planned activities associated with this project include onshore and in-water demolition, onshore improvements (grading, construction of a retaining wall, drainage and stormwater treatment, and various other site improvements), dredging of the Thames River, placement of fill within approximately 7.4 acres, installation of bulkheading and sheeting, and numerous in-water facilities, including columns, wharf facilities lift platform, bollards, toe wall, lighting, piles, and gangways.

- Development and Redevelopment – Several potential private development and redevelopment projects in the downtown New London area will cumulatively impact transportation conditions. These were factored into the recently completed *New London Downtown Transportation and Parking Study* (Milone & MacBroom, Inc., June 2017) and include the retrofit of the St. Mary Star of the Sea School to become apartments, development of the 'Parcel J' vacant lot, and the possible reoccupancy of what is currently approximately 275,000 square feet of vacant building space in the downtown.

4.16.2 Evaluation of Cumulative Impacts

The potential cumulative impacts of the No Action and Proposed Action alternatives, in combination with other identified projects, are discussed below. If an alternative would have no or negligible direct or indirect impacts on a resource, that alternative is assumed to not contribute to any cumulative impact on that resource and is not discussed further in the evaluation of cumulative impacts presented in this section. Therefore, because both the No Action alternative and the Proposed Action alternative would have no or negligible impacts on minority or low-income populations or on hazardous materials and waste, neither alternative would contribute to any cumulative impact on these resources.

The Proposed Action alternative would adversely impact the following resources temporarily during construction: land use and recreation, air quality, noise, geophysical resources, water resources, biological resources, visual resources, public and occupational health and safety, infrastructure, and transportation. Construction associated with reasonably foreseeable future actions would also be expected to produce similar temporary impacts on these resources. BMPs and protection measures described in Section 2.4 would be implemented to further minimize potential construction impacts associated with the NCGM.

The reasonably foreseeable future actions would be subject to environmental review and permitting processes, which would include identification of measures to minimize construction-related impacts. Furthermore, overlap in construction activities with the future actions would be expected to be coordinated, especially for the pedestrian overpass project and NCGM, in accordance with the terms of the memorandum of agreement between the NCGMA, State of Connecticut, and the City of New London. Should there be any overlap, it would likely be relatively short in duration so that combined effects would not be cumulatively significant. Separate construction periods would prolong the duration of the effects; however, these impacts would be minor and minimized through BMPs and control measures and would not result in cumulatively significant effects. Therefore, adverse cumulative impacts from construction of the Proposed Action alternative and other cumulative actions would be minor.

Future actions could have cumulative environmental impacts in association with operation of the NCGM. These impacts may adversely impact the following resources: land use and recreation, air quality, water resources, historic and cultural resources, visual resources, public and occupational health and safety, and transportation. The reasonably foreseeable future actions would be subject to environmental review and permitting processes similar to those for the Proposed Action alternative, which would include identification of measures to minimize operational impacts. Potential impacts on these resources are evaluated below.

Land Use and Recreation – The Proposed Action alternative would result in minor impacts on land use and recreation. The ferry terminal project would be consistent with local plans and zoning regulations and the existing use of the site for ferry services. The pedestrian overpass project would also likely be consistent with local planning and zoning regulations and the existing transportation uses in the area. The pedestrian overpass project was subject to environmental review under CEPA and permitting processes would include identification of alternatives and measures to minimize land use impacts, such as on Union Station and surrounding downtown uses.

A small portion of the City Pier Plaza would be removed as part of the museum construction, which would be an indirect impact of the proposed federal action. City Pier has hosted Sailfest for nearly 40 years and provides a prominent waterfront feature in New London. The majority of the City Pier Plaza would remain following museum construction, and the area would remain conducive to hosting Sailfest in the future. The combined effect of the NCGM and the pedestrian overpass may result in minor beneficial impacts on recreation because the museum would offer a new opportunity for public use, with improved and safer access for the public provided by the pedestrian overpass. The Proposed Action alternative and future actions would not result in any cumulatively significant impacts on land use and recreation.

Air Quality – The Proposed Action alternative would result in minor impacts on air quality associated with air pollutant and GHG emissions. The ferry terminal project would not result in a significant increase in air pollutant or GHG emissions during operation because the terminal would serve to take additional drivers off the road, thereby reducing air emissions. Significant operation air pollutant and GHG emissions would not be associated with the pedestrian overpass project. The combined effect of the NCGM and the pedestrian overpass may result in minor beneficial impacts on air quality if the improved and safer access for the public provided by the pedestrian overpass results in greater pedestrian traffic and reduced vehicle trips. The Proposed Action alternative and future actions would not result in any cumulatively significant impacts on air quality or GHG emissions.

Water Resources – The Proposed Action alternative would result in minor impacts to surface water resources and floodplains. Future actions would create impervious surfaces that have the potential to increase stormwater runoff and would be constructed in a coastal flood hazard area. Future actions would be subject to environmental review and permitting processes. Compliance with applicable federal, state, and local permitting processes, adherence to floodplain management requirements, and implementation of BMPs to control stormwater runoff would minimize adverse effects on water resources associated with future actions. The Proposed Action alternative and future actions would not result in any cumulatively significant impacts on surface water resources and floodplains.

Historic and Cultural Resources – The pedestrian overpass and ferry terminal projects, in combination with the NCGM, have the potential to result in cumulative impacts on historic and cultural resources. This alternative would terminate immediately adjacent to the NRHP-listed Union Station. Indirect adverse effects on the visual connection between Union Station and the NRHP-listed Central Vermont Railroad Pier and to the adjacent NRHP-listed Fort Griswold may result from the cumulative effect of the pedestrian overpass project, the NCGM, and the ferry terminal project, as presented in current conceptual designs. As described in Sections 2.4 and 4.9.2, Section 106 consultation allowed SHPO to address potential effects of the NCGM. In addition, Section 106 consultation included the sponsor of the pedestrian overpass project as a consulting party to ensure that effects on historic resources from the pedestrian overpass, in combination with the NCGM, are addressed. A Memorandum of Agreement (MOA) was signed in 2021 between the USCG, CT SHPO, NCGMA, THPO representatives of the Mohegan and Mashantucket Pequot tribes, and New London Landmarks, Inc., in which design updates resulting from these coordination efforts are presented (Appendix D3). The MOA certifies that the proposed project shall comply with Section 106 and limit potential adverse effects to historic and cultural resources through continued coordination efforts during the final design and construction phases.

Visual Resources – The Proposed Action alternative would result in minor visual resource impacts because it would change the existing visual character of the downtown waterfront. The ferry terminal project is expected to be one or two stories. These alternatives would include pedestrian connections to the NCGM and ferry terminal project and would be consistent with the modern architectural style of these new buildings. As discussed in the analysis of cumulative historic and cultural resources impacts, consultation is ongoing with the Connecticut SHPO and other consulting parties and is expected to include design review to minimize impacts of the pedestrian overpass project on Union Station. Future actions would result in changes to the existing visual character of the downtown waterfront similar to those that would result from the NCGM; however, they would not obstruct scenic views or vistas, including from the Fort Groton area in Groton. The ferry terminal project would be less visible from surrounding downtown streets and locations than the pedestrian overpass and NCGM. Future actions would be subject to environmental review and permitting processes, which would include identification of alternatives and/or measures to minimize visual impacts. The Proposed Action alternative and future actions would not result in any cumulatively significant impacts on visual resources.

Public and Occupational Health and Safety – The Proposed Action alternative is not likely to result in impacts on public and occupational health and safety and (in accordance with EO 13045) on children's environmental health and safety. Future actions may result in minor increased demand for police and fire protection services; however, these demands would not be beyond levels anticipated and planned for by public service providers. They would not involve the storage of explosive materials. As discussed in the analysis of cumulative air quality impacts, future actions would not result in significant increases in air pollutant emissions during operation. No impacts to school and day care facilities or on residential and recreational areas in the project area would occur as a result of future actions. The Proposed Action alternative and future actions would not result in any cumulatively significant impacts on public and occupational health and safety or (in accordance with EO 13045) on children's environmental health and safety.

Transportation – The Proposed Action alternative by itself would result in relatively minor transportation impacts during operation associated with increased parking and traffic in New London. In addition to the Proposed Action alternative, the area projects discussed in Section 4.16.1 were largely analyzed in the

2017 downtown transportation and parking study, and as a result, this allows for an understanding of cumulative impacts.

- Roadway Network – The aforementioned *New London Downtown Transportation and Parking Study* analyzed intersection traffic operations using the cumulative traffic volume projections for the several developments (including the proposed Coast Guard Museum) in and around the downtown and determined that, at a minimum, adjustments should be made to the signal timings at the downtown intersections. By optimizing how the signals are programmed to be timed, future traffic flow within the downtown would be improved. As part of this, the Levels of Service during periods with peak traffic volumes at the downtown intersection are expected to be LOS D or better. Definitions of LOS are shown below in Table 4.16-1.

LOS is a qualitative measure describing driver satisfaction with a number of factors that influence the degree of traffic congestion including delay, traffic interruption, travel time, freedom of maneuverability, and driving discomfort. LOS is defined in categories ranging from LOS A to LOS F. The highest or best category, LOS A, indicates free-flowing traffic. The lowest category, LOS F, indicates substantial congestion, with stop-and-go traffic and long delays at intersections. Table 4.16-1 provides definitions of LOS for signalized intersections.

TABLE 4.16-1
Level of Service Descriptions

Level of Service	Description of Operation	Signalized Intersection Control Delay per Vehicle (s/veh)
A	LOS A describes operations with very low delay. This occurs when progression is extremely favorable, and most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.	≤ 10
B	LOS B describes operations with generally good progression and/or short cycle lengths. More vehicles stop than for LOS A, causing higher levels of average delay.	>10 – 20
C	LOS C describes operations with higher delays, which may result from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant at this level although many still pass through the intersection without stopping.	>20 – 35
D	LOS D describes operations with high delay, resulting from some combination of unfavorable progression, long cycle lengths, or high volumes. The influence of congestion becomes more noticeable, and individual cycle failures are noticeable.	>35 – 55
E	LOS E is considered the limit of acceptable delay. Individual cycle failures are frequent occurrences.	>55 – 80
F	LOS F describes a condition of excessively high delay considered unacceptable to most drivers. This condition often occurs when arrival flow rates exceed the LOS D capacity of the intersection. Poor progression and long cycle lengths may also be major contributing causes to such delay.	>80

Notes: LOS = level of service; s/veh = seconds per vehicle; Source: TRB, 2000

Tables 4.16-2 and 4.16.3 summarizes the overall LOS findings at the downtown intersection from the *New London Downtown Transportation and Parking Study.* Table 4.16-2 assumes that the one-way streets in the downtown would remain as one-way streets. Table 4.16.3 reflects conversion to two-way streets. As discussed further below, the downtown study also looked at future traffic operations if one-way streets in the downtown were to be converted to two way.

In addition to only adjusting the signal timings, the downtown study also assessed traffic operations under a scenario where intersections would be improved with upgraded signal equipment, modified signal-phasing operations, improved coordination of signals across multiple intersections, and minor geometric improvements at some downtown intersections. This would further improve overall traffic operations in the downtown in the future. The City of New London and stakeholders are currently seeking funding opportunities to undertake traffic, safety, and pedestrian-related improvements in the downtown.

The *New London Downtown Transportation and Parking Study* also reviewed multiple scenarios where all or some of the one-way streets in the downtown would be converted to operate with two-way traffic. Future traffic volumes were again projected to 2021. A preferred two-way conversion scenario was ultimately selected, which would make Eugene O'Neill Drive two way for most of its length, include the construction of a new crossover ramp to allow northbound traffic from Eugene O'Neill Drive to merge with northbound traffic on Water Street to the north of Governor Winthrop Boulevard, keep Water Street one way from State Street to Governor Winthrop Boulevard, allow for Bank Street north of Tilley Street to become a more pedestrian-friendly street with only one northbound vehicle travel lane, and include the many traffic signal equipment and operational improvements discussed above. Atlantic Street would additionally be converted to two way, and this would allow for a new point of vehicle egress from the Water Street Parking Garage directly to Atlantic Street and then to Eugene O'Neill Drive, which would improve conditions for motorists leaving this garage. The Water Street Parking Garage is expected to be used as the main parking area for the proposed Coast Guard Museum. The City of New London and stakeholders are currently seeking funding opportunities to undertake the traffic improvements to allow the preferred two-way conversion.

TABLE 4.16-2
Signalized Intersection Level of Service Summary
2021 Estimated Traffic Volumes
with No Conversion to Two-Way Streets

Overall Intersection LOS Results (AM/PM/SATURDAY)			
Intersection	No Improvements	With Optimized Signal Timings Only	With Geometric Improvements and/or Signal Equipment Adjustments
Blinman St at Bank St	B/C/C	B/C/C	B/C/C
Bank St at Sparyard St	A/A/A	A/A/A	A/A/A
Bank St at Tilley St	A/A/A	A/A/A	A/A/A
Tilley St at Green St	A/B/A	A/B/B	B/B/B
Bank St at State St	A/A/A	A/A/A	A/A/A
Water St at Atlantic St	-	-	B/B/A

Water St at Governor Winthrop Blvd	D/F/F	C/D/D	C/D/C
Ferry St at Governor Winthrop Blvd	D/B/E	B/C/C	A/B/A
Water St / Eugene O'Neill Dr at Crystal Ave	A/A/A	A/A/A	A/A/A
Eugene O'Neill Dr at State St	B/B/C	B/B/C	B/B/C
Eugene O'Neill Dr at Governor Winthrop Blvd	D/C/C	C/C/C	C/C/C
Union St at State St	B/B/B	B/B/B	B/B/B
Union St at Governor Winthrop Blvd	C/C/C	C/C/C	C/C/C
Huntington St at State St	B/B/B	A/B/B	A/C/B
Governor Winthrop Blvd/Broad St at Huntington St	C/C/C	B/C/C	C/C/C

TABLE 4.16-3
Signalized Intersection Level of Service Summary
2021 Estimated Traffic Volumes
with Conversion to Two-Way Streets

Overall Intersection LOS Results (AM/PM/SATURDAY) Peak Hours			
Intersection	Full Two-Way Conversion	Partial Two-Way Conversion	Preferred Two-Way Conversion
Bank St at Tilley St	A/A/A	A/B/A	A/A/A
Tilley St at Green St	B/C/B	B/B/B	B/B/B
Bank St at State St	B/B/B	C/C/C	A/A/A
S. Water St at State St	UNSIGNALIZED	B/B/B	UNSIGNALIZED
Water St at Atlantic St	B/C/B	A/B/A	A/B/A
Water St at Governor Winthrop Blvd	C/F/E	C/D/C	C/C/C
Ferry St at Governor Winthrop Blvd	A/A/A	A/B/A	A/A/A
Eugene O'Neill Dr at Governor Winthrop Blvd	D/D/C	C/C/C	D/C/C
Eugene O'Neill Dr at State St	B/C/C	C/C/C	B/B/B

- Parking – Cumulative future parking demands associated with the several developments (including the proposed Coast Guard Museum) in and around the downtown were projected as part of the *New London Downtown Transportation and Parking Study*. The future demand estimates included the proposed Coast Guard Museum as well as other development and ridership growth at the ferries, bus, and rail options in the downtown. Table 4.16-4 summarizes the future parking supply and demand analysis.

  Cumulative future parking demands in downtown New London were found to have the potential to overflow the public off-street parking supply to the point that it could be overcapacity at nearly 150 percent if no new additional parking supply is generated. To mitigate this, the downtown study made a number of recommendations including that the Water Street Parking Garage be expanded (lateral expansion to the east over the current small surface lot along Water Street), that the Governor Winthrop Garage be better utilized such as through public-private partnership between the city and garage owner, that private parking in the downtown become increasingly accessible to the public, that several improvements be made to the operations and management of the downtown public parking, and that use of non-automobile transportation in the downtown be increasingly supported

as this will be necessary to accommodate some of the travel demands to/from downtown New London. As part of this, all of the downtown public parking that is currently 'free' would likely become paid parking in the future. As mentioned above, funding for an expansion of the Water Street Parking Garage is currently being sought by the city and stakeholders.

TABLE 4.16-4
Future Off-Street Parking Supply and Demand Analysis - Downtown New London

	# of Spaces	Summer Friday			Summer Saturday		Summer Sunday
		9 am – 12 pm	1pm – 4pm	6pm-9pm	9am – 12pm	1pm-4pm	9am-12pm
TOTAL Existing Peak Summer Parking Demands[1]	1,696	797	1,005	964	893	1,261	799
Additional Future Parking Demands (estimated): 2021							
Cross Sound Ferry Parking Demands Shifted to Public System[2]	-	170	170	170	170	170	170
New Cross Sound Ferry Parking Demands associated with Ridership Growth[3]	-	100	200	100	200	300	250
Parking Demands associated with National Coast Guard Museum[3]	-	275	325	150	275	325	275
New Parking Demands: Ridership Growth at Fisher's Island Ferry, Shore Line East, Amtrak, Greyhound[3]	-	55	75	60	70	80	65
New Parking Demands: reoccupancy of vacant downtown building space[3]	-	220	215	475	135	375	130
TOTAL Future Peak Parked Vehicles	1,696	1,617	1,990	1,919	1,743	2,511	1,689
TOTAL Future Peak Utilization Rate		95%	133%*	113%	117%*	148%	99%

* Excludes count of the O'Neill-Tilley Lots, which were in the process of being refinished at the time of the Friday afternoon and Saturday morning counts
(1) See Table 3.14-1.
(2) Shifting parking demands: approximately 70 vehicles from the Cross Sound gravel lot where the NCGM is to be built + approximately100 Cross Sound parking spaces to be converted to ferry staging
(3) Additional parking demands associated with ridership growth and future development/redevelopment in downtown New London

As of the summer of 2016, the peak utilization rate of parking in downtown New London during the peak timeframe on Saturday afternoon was 74%. Factoring in future parking demand estimates attributable to (1) the NCGM; (2) ridership growth at nearby ferry operations; (3) lost parking at the NCGM site historically used by Cross Sound Ferry; (4) reoccupancy of vacant downtown building space; and (5) ridership growth from Shore Line East, Amtrak and Greyhound, existing parking supply could be over capacity during peak periods in the future. The City has recognized that parking in downtown New London will be challenging, even without the NCGM.

According to the New London Parking Authority, for the past several years has been actively engaged in the analysis and management of parking in the City of New London's downtown area in an effort to maximize efficiency and stabilize demand in peak parking periods. As a part of the assessment process, in 2016 the City retained consulting services to evaluate traffic and parking in downtown New London. As part of the effort, data was collected on the availability of parking, as well as current and future parking demand. This work was undertaken with the understanding that the proposed National Coast Guard Museum project would have a parking demand of 325 spaces. With the results of the analysis, actions were taken by Parking Authority to ease the parking burden in the downtown New London waterfront area, resulting in at least 350 spaces being freed up as well as the following:

- In 2016, the O'Neil-Tilley parking lots were out of service for refurbishing. These lots are now open to the public, providing approximately 201 spaces.

- In 2017, the Parking Authority embarked on a program to remove derelict vehicles in the Water Street Parking Garage. This effort resulted in approximately 50 vehicles being removed, thus freeing up those spaces within the parking facility.

- General Dynamics Electric Boat (EB) employs approximately three thousand five hundred (3,500) people in their New London location on Pequot Avenue. In an Agreement dated May 29, 2015 250) unreserved parking spaces in the Water Street Garage were leased to EB. Winter 2016, another 300 or more unreserved parking spaces were contracted by EB. Since that time, the Parking Authority has been working with EB to incentivize its employees through discounted rates to park closer to the Pequot Avenue facility, primarily via on-street parking in the Fort Trumbull area. This effort has resulted in a 50% reduction in EB employee use of the Water Street Parking Garage, to approximately 300 spaces. Moreover, the Parking Authority continues to collaborate with EB to further reduce their employee parking population in the Water Street Garage by utilizing newly acquired properties in Ft. Trumbull for commercial public parking.

- The Parking Authority is seeking to expand the Water Street Parking Garage, which would add approximately 350 spaces. Other measures currently being explored include increasing public accessibility of private parking; improvements to the operation and management of downtown public parking system; and fostering increasing use of non-automobile transportation. In the future, the Parking Authority will be seeking additional parking improvement measures as current vacant downtown buildings are redeveloped.

- Finally, a Maryland-based real estate investment firm in October 2018 unveiled its plan for development in Fort Trumbull that will feature a mixed use parking garage. The parking garage is anticipated to provide further relief to the parking demand in downtown New London.

In light of the above, the USCG that the NCGM will have minimal impact on parking in the downtown New London area and that adequate parking will be available. A letter dated November 1, 2018 from the New London Parking Authority supporting this determination is included in Appendix A.

- Public Transportation – Per the *New London Downtown Transportation and Parking Study* (Milone & MacBroom, Inc., 2017), rail and bus services could see approximately 300 new daily passenger trips within downtown New London by 2021. By comparison, the ferry providers (particularly Cross Sound Ferry) are projecting 10 times as many new daily passenger trips (approximately 3,000 new daily

trips) through New London by 2021. Cross Sound Ferry plans to build a new high-speed ferry terminal and to add another ferry to its fleet to accommodate ridership growth. Shore Line East is looking into possibly extending its rail service east of New London to Westerly, Rhode Island. Amtrak may start using new trains along its Northeast Corridor by 2021 and has an ambitious though yet to be fully determined vision to introduce high-speed rail service from New York to Boston by 2040. SEAT completed a study of its system in 2015 and may soon implement improvements to provide faster service on some of its routes. The existing Greyhound bus waiting area adjacent to Union Station will need to be revised as a result of the pedestrian overpass bridge project and at this time is expected to be shifted to the north along the east side of Water Street. While people visiting the NCGM will only minimally affect public transportation system ridership, these particular infrastructure and service improvements are nonetheless expected to well serve New London and Southeastern Connecticut into the future.

- Pedestrian Access – Pedestrian access to the Coast Guard Museum and nearby vicinity of the site is expected to be improved. The current pedestrian access to the site of the proposed Coast Guard Museum is via the pedestrian crossing at Water Street/Atlantic Street and then the at-grade railroad crossing at the eastern end of State Street. In the future, pedestrians are expected to have the option to use a pedestrian overpass bridge over Water Street. The pedestrian overpass addition is an infrastructure project that would not generate travel demands but would facilitate pedestrian movements from the Water Street Parking Garage to the NCGM and proposed ferry terminal and include termination points at Union Station. With this overpass bridge, pedestrian patterns would change, and pedestrian movements are expected to increase in this area. The pedestrian overpass bridge is to be sized to accommodate the cumulative pedestrian demands associated with the new ferry terminal, NCGM, Union Station ridership increases, as well as existing pedestrian volumes at the intermodal transportation center.

  Per the downtown transportation and parking study, the existing pedestrian crossings across Water Street near the site have also been recommended to be improved. The intersection of Water Street/ Atlantic Street is envisioned to be transformed into a fully signalized intersection with full traffic and pedestrian control, high-visibility treatment (textured pavement surface treatment and/or a raised intersection), and the existing mid-block crosswalk across Water Street being removed. The cumulative impact of these improvements would be positive.

4.17 GROWTH-INDUCING IMPACTS

Growth-inducing impacts include those characteristics of the project that may encourage and facilitate activities that would, either individually or cumulatively, impact the environment. Population increases, for example, may impose new burdens on community service facilities. Similarly, improving access routes may encourage growth in previously undeveloped areas.

4.17.1 NO ACTION ALTERNATIVE

The existing Coast Guard Museum would continue to operate from Waesche Hall on the Coast Guard Academy grounds, and no new construction or museum expansion would occur. Therefore, no significant growth-inducing impacts would occur as a result of the No Action alternative.

4.17.2 PROPOSED ACTION ALTERNATIVE

The Proposed Action alternative would involve the short-term employment of workers for construction of the NCGM. Construction workers and staff employed during operation of the museum are expected to be primarily from New London and the surrounding area; an influx of substantial workers for the project is not anticipated. Implementing the Proposed Action alternative would not require new housing in the project area or lead to the establishment of a significant number of new businesses. The short-term employment during construction, employment of staff for operation of the NCGM, and minor growth in new and existing businesses in the project area would result in minor short- and long-term economic growth. This growth is not expected to result in significant demands for community service facilities or infrastructure beyond capacities. Therefore, significant growth inducement would not result from implementing the Proposed Action alternative.

4.18 PROPOSED ACTION PERMITS AND APPROVALS SUMMARY

The Coast Guard and NCGMA have initiated coordination and consultation with a number of regulatory agencies with jurisdiction over the Proposed Action. As described previously, a number of preliminary protection measures have been identified through this process and are included in the Proposed Action to ensure that potential impacts on sensitive resources are avoided or minimized.

Refinements of the protection measures described in Sections 2.4.1 through 2.4.7 or additional terms and conditions to further reduce impacts may be required as part of future permits or approvals. The measures and conditions of approval developed through continuing consultation and coordination for the NCGM would avoid significant impacts on sensitive resources or reduce these impacts to less-than-significant levels. Permits and approvals that would be required for the Proposed Action are described below.

Magnuson-Stevens Fishery Conservation and Management Act – The Magnuson-Stevens Fishery Conservation and Management Act, passed in 1976 and reauthorized in 2006, is the primary law governing marine fisheries management in the United States. The Magnuson-Stevens Act requires federal agencies to consult with NOAA Fisheries when any activity proposed to be permitted, funded, or undertaken by a federal agency may have adverse effects on designated EFH. Based on initial coordination with NOAA Fisheries, the Coast Guard has included BMPs and project-incorporated protection measures in the Proposed Action to reduce significant adverse effects on EFH. Subsequent consultation with NMFS was conducted and an EFH assessment was conducted in 2019. Following these efforts towards offsetting potential impacts to EFH, NMFS provided two conservation recommendations. These included: (1) proposed mitigation for habitat loss; and (2) a Time-of-Year restriction. In response, the NCGMA hosted a shoreline clean-up effort in the vicinity of the proposed NCGM site as mitigation. The clean-up was completed in April 2021 and resulted in over 170 work hours. Following completion, a report was compiled and submitted to the NMFS. Correspondence with NMFS is included in Appendix C5.

Rivers and Harbors Act and Clean Water Act – Section 10 of the Rivers and Harbors Act of 1899 prohibits the unauthorized obstruction or alteration of any navigable water of the United States. Section 10 requires approval by the USACE for the placement of structures into navigable waters of the United States and for work in or affecting navigable waters of the United States. Section 404 of the Clean Water Act gives USACE the authority to regulate disposal of dredge or fill material in waters of the United States, including coastal wetlands, tidelands, and marine waters below the high-tide line. The NCGMA is required to secure USACE permits under these authorities. A permit from the USACE may include general or specific conditions, depending on the type of permit sought. Conditions may include measures to avoid impacts on a variety of resources such as protected species, historic resources, navigation, or tribal rights. Pursuant to Section 401

of the Clean Water Act, NCGMA will request a Water Quality Certificate (WQC) from the CT DEEP. In addition, a permit is likely to include conditions to avoid or minimize impacts on waters of the United States.

Since publication of the draft SEA, regulatory permit applications have been filed with the USACE and CT DEEP to authorize the portions of the museum project seaward of the high tide line (HTL) and coastal jurisdiction line (CJL). The NCGMA applied for an Individual Permit (IP) in June 2020 from the USACE for Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act. A public notice was published by the USACE in September 2020, which commenced a 30-day public comment period. The NCGMA received comments from FEMA, EPA and NOAA and has worked with the advisory agencies to address comments. One of the comments from FEMA requested the filing of a Conditional Letter of Map Revision (CLOMR) to document the change in shoreline geometry. The CLOMR was issued by FEMA in March 2022. As of April 2022, the IP is within the final stages of the review process.

In June 2020, the NCGMA applied for a Structures, Dredging, and Fill Permit and Section 401 Water Quality Certification through CT DEEP. CT DEEP is intended to issue a public notice identifying the permit decision in spring 2022. A 30-day public comment period will follow. The NCGMA filed a Flood Management Certification-Exemption with CT DEEP in February 2022 to allow for the receipt of state funding for the bulkhead. CT DEEP is intended to issue a public notice identifying the permit decision in spring 2022.

Coastal Zone Management Act – The federal Coastal Zone Management Act requires that when a federal agency undertakes an action in the coastal zone or an action on federal property that may affect resources in the coastal zone the activities must be consistent to the maximum extent practicable with state coastal zone management programs. The Proposed Action would affect resources in Connecticut's coastal zone boundary and is subject to consistency review. As such, the NCGMA, on behalf of the USCG, prepared a coastal consistency determination and submitted it to the CT DEEP Land and Water Resources Division in October 2020. Following submittal, comments were generated, and additional consultation efforts were deemed necessary. A revised Coastal Management Consistency Review Form/Determination was prepared, which incorporated comments provided from CT DEEP. The final coastal consistency determination was re-submitted to CT DEEP in May 2021. On August 24, 2021, CT DEEP issued a letter to the U.S. Coast Guard concurring with the determination that the activity as proposed is consistent with Connecticut's federally approved Coastal Management Program and will be conducted in a manner consistent with that program. A copy of that correspondence is included as Appendix B2.

National Historic Preservation Act – Section 106 of the National Historic Preservation Act (NHPA) requires federal agencies to consider and evaluate the effect that federal projects may have on historic properties under their jurisdiction. The NCGM is in the boundaries of one historic district listed on the National Register of Historic Places (NRHP) and in the viewshed of three other NRHP-listed properties. In 2014, the Coast Guard initiated consultation with the Connecticut State Historic Preservation Officer (SHPO) under Section 106 of the NHPA regarding the potential future construction of a NCGM on the property. Consultation was also initiated to review and evaluate potential effects on NRHP-listed or -eligible properties (Appendix D). At the time of the 2014 EA, discussions with SHPO anticipated the development of a programmatic agreement. Subsequent discussions with SHPO indicated that standard Section 106 consultation could proceed without the need for a formal programmatic agreement. This process proceeded, concluding in an executed Memorandum of Agreement (MOA) between the U.S. Coast Guard and the Connecticut State Historic Preservation Officer, with invited signatories from NCGMA, the Mohegan Tribe of Indians of Connecticut, the

Mashantucket Pequot Tribal Nation, and New London Landmarks, Inc. Based on consultation efforts, various design modifications were implemented as to minimize the effect of the undertaking on historic properties. A copy of the finalized MOA is included as Appendix D3.

Related Project Permitting – The proposed partial demolition of the City Pier Plaza will require a separate permit from CT DEEP. In that instance, the permittee will be the City of New London. The work will be privately funded through the NCGMA. The Mayor, City Council, and administrative officials in New London have been provided with detailed information concerning the proposed actions, schematic designs of the museum, and survey information related to the site and affected areas and have expressed concurrence with this approach. A letter of support from the city is included in the FSEA as Appendix A-11.

14.9 SUMMARY OF ENVIRONMENTAL CONSEQUENCES OF THE ALTERNATIVES

A summary of the environmental consequences of the No Action and Proposed Action alternatives is provided in Table 4.19-1. The Proposed Action Alternative includes the BMPs and project-incorporated protection measures outlined in Section 2.4 that would be implemented as part of the NCGM project to avoid or minimize potential impacts on the environment.

TABLE 4.19-1
Summary of Environmental Consequences of the Alternatives

Resource	No Action Alternative	Proposed Action Alternative
Land Use and Recreation	No impacts to land use or recreation resources	Future construction of the NCGM is consistent with the existing Waterfront Commercial land use designation; with the preferred maritime/nautical uses for the project site; and with the surrounding waterfront commercial, transportation, and recreational land uses in the project area. It would enhance public access to and along the waterfront and would not conflict with the continued recreational use in the surrounding area. Minor impacts to land use and recreation would occur.
Air Quality	No impacts to air quality	Future construction of the NCGM would result in minor, short-term impacts to air quality during construction. Operation of the NCGM would result in minor impacts associated with air pollutant and greenhouse gas emissions, primarily from vehicle trips by workers and museum patrons.
Noise	No impacts to the noise environment	Future construction of the NCGM would result in moderate, short-term adverse noise impacts to construction workers and to nearby businesses, residences, and visitors, from construction activities. NCGM operations would result in minor noise, primarily from visitors and vehicles, and would not result in a significant increase in current noise levels in the project area.

Geophysical Setting	No impacts to geology, topography, and soils	Minor, short-term impacts may occur to geophysical resources from ground-disturbing activities during construction.
Water Resources	No impacts to water resources	BMPs and protection measures would be implemented to minimize erosion and sedimentation associated with ground-disturbing activities. Activities that occur waterward of Mean High Water (MHW), such as pile driving, construction of bulkheading, placement of fill, and demolition of a portion of City Pier Plaza, would be subject to permits by USACE in accordance with Section 404 of the Clean Water Act and/or Section 10 of the Rivers and Harbors Act. This would include BMPs and protection measures to avoid significant adverse effects on waters of the United States. Implementation of the Proposed Action Alternative must comply with applicable floodplain management requirements because the site is within two coastal flood hazard zones. Minor impacts may occur to surface water resources and floodplains.
Coastal Resources	No impacts to coastal resources	Coastal resources are limited at the project site due to extensive past alteration. No inland wetlands or watercourses exist on the subject property, and the shoreline is armored with boulders and construction slag. This portion of shoreline is located within a developed landscape and is flanked by high-intensity water-dependent uses. Though a portion of the benthic environment will be filled, the concurrent installation of vertical sheet piling may mitigate the loss of benthos by providing vertical structure as substrate for a number of fouling species of organisms to colonize. Overall, the impacts of the proposed museum and adjacent shoreline improvements would be limited to the immediate construction area. For both the upland and in-water work, BMPs would be employed to avoid, minimize, and mitigate impacts to coastal resources.
Biological Resources	No impacts to biological resources	The construction and operation of the museum and the associated activities are not anticipated to have a significant adverse impact on biological resources. With the exception of a single tree, the project site is currently devoid of any vegetation or potential habitat for bird and bat species. To protect bird species that migrate through the area and along the Atlantic Flyway, bird-friendly glass will be installed to discourage birds from accidentally colliding into the building. The Proposed Action would adversely affect habitat within the Thames River by reducing habitat area. Given the degraded condition of the benthic environment in the project area, these

		impacts are anticipated to be minor. Minor, temporary adverse impacts would occur to fish and fish habitat as a result of erosion and runoff of sediments during construction. No wetlands or significant plant communities would be affected.
Benthic Habitat	No impacts to biological resources	Affected areas include the intertidal zone, which extends from 1.7 feet North American Vertical Datum (NAVD) to -0.9 feet NAVD (mean tidal range 2.6 feet), and the immediate subtidal zone, which extends from -0.9 feet NAVD to the limit of disturbance located at approximately -9.0 feet NAVD. Currently, the intertidal area is comprised of rubble and fill material that was used to stabilize the narrow interface between marine and terrestrial environments. Direct impact to the benthic environment will occur, including intertidal and sub-tidal environments. Of the total impact area, approximately two thirds are currently covered by the pile supported City Pier Plaza Promenade. Approximately 3,100 square feet of new encroachment will occur. To offset this encroachment, an approximate equivalent amount of existing City Pier Plaza promenade structure south of the proposed museum building will be removed to daylight the Thames River. Though a portion of the benthic environment will be filled, the concurrent installation of vertical sheet piling may mitigate the loss of benthos by providing vertical structure as substrate for a number of fouling species of organisms to colonize.
Historic and Cultural Resources	No impacts to historic and cultural resources	Construction of the NCGM would result in the introduction of visual elements amidst several NRHP-listed historic districts and individual historic properties. Consultation under Section 106 with the SHPO has identified numerous opportunities to avoid or lessen impact. Through this process, appropriate resolutions have been developed to avoid or lessen adverse impacts.
Visual Resources	No impacts to visual resources	The NCGM would change the existing visual character of the New London downtown waterfront but would be visually consistent with the types of urban improvements that have been made to the waterfront and with initiatives to enhance public waterfront access and maritime/nautical themes. The NCGM would not obstruct scenic views or vistas from important perspectives, including from Fort Griswold. Minor adverse, short- and long-term impacts to visual resources would occur.
Socioeconomics and Environmental Justice	No impacts to socioeconomic conditions or to any minority, low-	Future construction of the NCGM would result in employment of local and regional construction contractors and NCGM workers and would attract

	income, or Native American populations	museum visitors, resulting in direct, minor, short- and long-term, positive impacts to the regional economy. No significant adverse impacts that could disproportionately impact minority or low-income populations would occur. The Proposed Action alternative would not displace any residents or businesses.
Public and Occupational Health and Safety	No impacts to public and occupational health and safety	Minor noise and air emissions impacts would occur on public and occupational health and safety – and, in accordance with Executive Order 13045, on children's environmental health and safety.
Infrastructure	No impacts to infrastructure	Minor, adverse impacts would occur as a result of extending infrastructure to the project site and accommodating the utility service demands.
Transportation	No impacts to transportation systems	Future construction of the NCGM would result in increases in vehicular traffic and demand for parking. Existing roadways and intersections in downtown New London currently operate at acceptable levels of service, and the minor added traffic by the NCGM would not substantially degrade levels of service. Based on projected parking demand and supply, parking would be more limited than at present, but adequate parking would remain in the project area. Minor, adverse transportation impacts would occur during construction and operation.
Hazardous Substances	No impacts associated with hazardous substances	Based on an initial assessment and preliminary field sampling, little to no contamination is expected to be encountered on the site. Operation of the NCGM would not require the storage of significant quantities of hazardous materials. No significant impacts associated with hazardous materials would occur during construction or operation.

CHAPTER 5.0
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CHAPTER 6.0
LIST OF DOCUMENT PREPARERS

6.1 SLR INTERNATIONAL CORPORATION (FORMERLY MILONE & MACBROOM, INC.)

The primary author of the subject FSEA is the consulting firm of SLR International Corporation (formerly Milone & MacBroom, Inc.), a professional consulting firm comprised of engineers, planners, environmental scientists, landscape architects, and surveyors. A brief description and list of SLR staff involved with the preparation of this document follows.

Jeanine Armstrong Gouin, PE, U.S. Operations Manager – Ms. Gouin served as the project manager, contributor, and editor of the subject FSEA. Ms. Gouin holds a Bachelor of Science degree in civil engineering from the University of Connecticut and is a professional engineer licensed to practice in the State of Connecticut. Ms. Gouin's technical background includes water resources, water supply, environmental and ecological resources, and regulatory permitting.

Ellen Hart, MEM, Environmental Scientist – Ms. Hart served as an investigator and contributor to this FSEA. Ms. Hart holds a Bachelor of Arts degree in Environmental Geography from Colgate University and a Master of Environmental Management from Yale University's School of Forestry & Environmental Studies. Her technical background includes environmental permitting, environmental compliance, and water resources. Ms. Hart also contributed geographical information system (GIS) mapping.

Megan Raymond, MS, PWS – Ms. Raymond served as an investigator and contributor to the FSEA. Ms. Raymond, a registered soil scientist and professional wetland scientist, received a Bachelor of Science from Tufts University and a Master of Science from the College of William and Mary Virginia Institute of Marine Science. Her technical background includes wetlands, wildlife biology, water quality, and coastal resources.

Marlee Antill, MS, Environmental Scientist – Ms. Antill served as an investigator and contributor to this FSEA. Ms. Antill holds a Bachelor of Arts degree in Environmental Studies from the University of Vermont and a Master of Biology and Plant Science from the California State Polytechnic University, Pomona. Her technical background includes environmental permitting, botany, wetland ecology, and water resources.

Neil Olinski, PTP, Transportation Planner II – Mr. Olinski provided technical expertise in the area of traffic and parking assessment. He holds a Bachelor of Science degree in Environmental Design – Urban Studies from the University of Massachusetts.

Scott Bighinatti, MS, CFM – Mr. Bighinatti provided technical expertise in the areas of geology, water resources, flood mitigation, and land use assessment. He holds a Bachelor of Science and Master of Science degree in Natural Resource Management. His technical background includes groundwater and surface water resources, geophysical resources, socioeconomics and demographics, and environmental regulations, including NEPA and regulatory permitting processes and requirements at the local, state, and federal levels.

Matthew Rose – Mr. Rose contributed to GIS mapping for the project. He holds a Bachelor of Science degree in natural resources management.

Cece Saunders, President and Principal Investigator of Historical Perspectives, Inc. – Ms. Saunders led the FSEA's efforts on historic and archaeological assessment and the Section 106 review process. Ms. Saunders holds a Bachelor of Arts degree in Anthropology from Rollins College and a Master of Arts in Anthropology from the University of Connecticut.

Charles Klee, AIA, LEED AP, Principal at Payette Associates – Mr. Klee is the lead project architect and provided descriptive and graphic representations of museum and site elements. Mr. Klee holds a Bachelor of Science degree in Civil Engineering from Swarthmore College and a Master of Architecture from Carnegie Mellon University.

Jane Stahl, Principal at Jane K. Stahl Environmental Consulting – Ms. Stahl provided regulatory guidance related to coastal, water, and biological resources for the FSEA. As Deputy Commissioner of the Connecticut Department of Energy & Environmental Protection, Ms. Stahl was responsible for the state's Air, Waste, Water, and Long Island Sound Programs. She received a J.D. from The University of Connecticut School of Law, M.S. in Natural Resource Policy from the University of Michigan, and a B.A. in Environmental Studies from the State University of New York (SUNY) Stony Brook.

6.2 UNITED STATES COAST GUARD

Members of the U.S. Coast Guard provided input and oversight to the preparation of the 2014 EA as well as the 2018 FSEA. The following members participated in one or both documents:

Dean Amundson, Environmental Protection Specialist – M.S., Environmental Policy, 1996, University of California, Davis; B.A., Environmental Studies, 1990, Sonoma State University. 25 years of experience.

Frank Esposito, Attorney, USCG Office of The Judge Advocate General, International and Maritime Law, Environmental Law Division – LL M, Environmental Law, George Washington University, 1987; JD, University of Kentucky, 1978; B.S., Environmental Engineering, Cornell University, 1975. 35 years of experience.

Daniel Koski-Karell, Historical and Cultural Resources Specialist – Ph.D., Anthropology, 2003, Catholic University of America; M.A., Anthropology, 1976, Catholic University of America; B.A., Government and Archaeology, 1969, Cornell University. 42 years of experience.

Viviana Nazario, Civil Engineer – B.S. Civil Engineering, 2007, Penn State University. 10 years of experience.

Andrew Haley, Chief, Office of Environmental Management, Commandant (CG-47) – TBP from AH.

6.3 URS GROUP

The URS Group was the consulting firm responsible for the preparation of the 2014 EA, portions of which are reflected in the FSEA. The following individuals contributed:

Tracy L. Engle, PWS, Project Manager – M.S., Biology, 2003, John Carroll University; B.S., Natural Resource Management, 1992, The Ohio State University. 22 years of experience.

Christopher Wolf, Deputy Project Manager – M.A., Environmental Management, 2002, Griffith University; B.A., Regional and Town Planning, 1996, University of Queensland. 15 years of experience.

Mark Edwards, Program Development Manager, Cultural Resources Management Group – M.S., Historic Preservation, 1976, Columbia University; B.A., History, 1974, Lafayette College. 37 years of experience.

David Joe, EIT, Air Quality Engineer – M.S., Civil and Environmental Engineering, 2013, University of California, Davis; B.S., Civil and Environmental Engineering, 2009, University of California, Davis. 2 years of experience.

Jonathan Papp, GIS Specialist – B.A., Urban Planning, 2000, University of Cincinnati. 14 years of experience.

Scott Seibel, RPA, Archaeology Program Manager – M.Sc., Archaeomaterials, 1997, University of Sheffield; B.A., Archaeological Studies, 1996, The University of Texas at Austin. 16 years of experience.

Jeff Winstel, AICP, Principal Architectural Historian – M.S., Historic Preservation Planning, Eastern Michigan University; B.A., Fine Arts, The Ohio State University, 1985. 26 years of experience.

Rebecca Winterringer, Ecologist – M.S., Biology, 2003, Arkansas State University; B.S., Fisheries Science, 2000, Virginia Tech. 13 years of experience.

CHAPTER 7.0
LIST OF AGENCIES AND PERSONS CONTACTED

The following agencies, organizations, and individuals were contacted during the course of the NEPA process. Appendix A lists all entities contacted, both directly and in mailings.

7.1 FEDERAL AGENCIES

Federal Emergency Management Agency
Region 1
99 High Street
Boston, MA 02110

U.S. Army Corps of Engineers
New England District
696 Virginia Road
Concord, MA 01742

U.S. Coast Guard Academy
31 Mohegan Avenue
New London, CT 06320

7.2 FEDERALLY RECOGNIZED NATIVE AMERICAN TRIBES

Mashantucket Pequot Tribal Nation
Natural Resources Protection & Regulatory Affairs
PO Box 3202
Mashantucket, CT 06338-3202

The Mohegan Tribe of Indians of Connecticut
13 Crow Road
Uncasville, CT 06382

7.3 STATE AGENCIES

Connecticut Department of Economic and Community Development
450 Columbus Boulevard
Hartford, CT 06103

Connecticut Department of Energy and the Environment
79 Elm Street, 3rd Floor
Hartford, CT 06106-5127

Connecticut Office of Military Affairs
505 Hudson Street
Hartford, CT 06106

Connecticut Office of Policy and Management
Office of the Secretary
450 Capitol Avenue
Hartford, CT 06106-1379

Office of Connecticut State Archaeology
Unit 4023 University of Connecticut
Storrs, CT 06269

Office of the Attorney General of Connecticut
55 Elm Street
Hartford, CT 06106

State Historic Preservation Office
Department of Economic and Community Development
One Constitution Plaza, Second Floor
Hartford, CT 06103

7.4 LOCAL AGENCIES

City of Groton
Office of the Mayor
295 Meridian Street
Groton, CT 06340

City of New London
Office of the Mayor
181 State Street
New London, CT 06320

City of New London
Office of Development and Planning
181 State Street
New London, CT 06320

City of New London
City Council
181 State Street
New London, CT 06320

City of New London
New London Parking
161 Water Street
New London, CT 06320

7.5 INTEREST GROUPS

Amtrak
60 Massachusetts Avenue, NE
Washington, DC 20002

Block Island Express
P.O. Box 33
New London, CT 06320

Chamber of Commerce of Eastern Connecticut
914 Hartford Turnpike, Suite 206
Waterford, CT 06385

Connecticut Ornithological Association
314 Unquowa Road
Fairfield, CT 06824

Cross Sound Ferry Services, Inc.
P.O. Box 33
New London, CT 06320

Downtown New London Association
70 State Street
New London, CT 06320

Eastern Connecticut Conservation District
238 West Town Street
Norwich, CT 06360

National Coast Guard Museum Association, Inc.
239 Bank Street
New London, CT 06320

New London Landmarks
49 Washington Street
New London, CT 06320

RCDA, Renaissance City Development Association
216 Howard Street
New London, CT 06320

School District of New London Board of Education
134 Williams Street
New London, CT 06320

Southeastern Connecticut Council of Governments
5 Connecticut Avenue
Norwich, CT 06360

Thames River Heritage Park
15 Thames Street
Groton, CT 06340

Union Station
35 Water Street
New London, CT 06320

APPENDIX A
Coordination and Public Involvement Documentation

Appendix A5 – SEA Notice of Intent
Appendix A6 – Updated Agency and Stakeholder Mailing List
Appendix A7 – Scoping Meeting Presentation
Appendix A8 – Supplemental Scoping Comments
Appendix A9 – Public Comments on Draft SEA
Appendix A10 – Response to Public Comments
Appendix A11 – Post-Comment Period Correspondence

APPENDIX A5
SEA NOTICE OF INTENT

PUBLIC NOTICE
Notice of Intent to Prepare a Supplemental Environmental Assessment
National Coast Guard Museum Project
New London, Connecticut
June 15, 2017

Background: In March 2014, the U.S. Coast Guard (USCG) prepared an Environmental Assessment that analyzed the acquisition of a 0.34-acre parcel adjacent to Water Street in New London, Connecticut and construction of a new National Coast Guard Museum (NCGM). At that time, effects from construction and operation of a Museum were evaluated at a programmatic level, since critical details required for a full and complete analysis had not yet been developed. The 2014 Environmental Assessment concluded in a Finding of No Significant Impact. The land was subsequently acquired and is now owned by the USCG. The USCG intends to allow the National Coast Guard Museum Association (NCGMA) to construct the NCGM and accept the eventual donation of the Museum to the USCG for long-term operation. As part of preconstruction site analysis, the NCGMA has determined that additional land is necessary to accommodate the Museum and revisions to the initial concept plans are necessary.

At this time, the USCG with the significant assistance of the NCGMA, intends to prepare a Supplemental Environmental Assessment (SEA) for the purpose of evaluating the specific impacts related to construction and operation of the NCGM, including the acquisition of additional adjacent land; shoreline modifications; museum layout, design, and footprint; and ancillary utility and site improvements. Cumulative impacts of the proposed Museum in connection with other independent but related projects will also be evaluated. These include the proposed construction of a pedestrian bridge, Cross Sound Ferry terminal expansion, and the homeporting of the U.S. Coast Guard Cutter (USCGC) EAGLE.

The SEA will be developed in accordance with the requirements of the National Environmental Policy Act (NEPA) of 1969, the President's Council on Environmental Quality Regulations (40 Code of Federal Regulations [CFR] Parts 1500-1508), and the Coast Guard's procedures for implementing NEPA (COMDTINST M16475.1D). The SEA will also fulfill the requirement for project review under Section 106 of the National Historic Preservation Act of 1966 (36 CFR Part 800).

The SEA will assess the environmental impact of the proposed action and serve as a concise public document that provides sufficient evidence and analysis to determine if an Environmental Impact Statement (EIS) must be prepared, or if a Finding of No Significant Impact (FONSI) is appropriate.

Proposed Action: The Coast Guard proposes to allow the NCGMA to construct an approximately 70,000 to 80,000 square-foot museum with an at-grade entry level plus five to six stories to be located in downtown New London, Connecticut on land that is now or will be in the future owned by the U.S. Coast Guard. On completion of the museum, the Coast Guard intends to accept the donation of the museum and operate it in perpetuity. Specific proposed action elements that are the subject of the SEA include: (1) acquisition of approximately 2,000 square feet of land area to the south that is currently owned by the City of New London; (2) acquisition of approximately 12,200 square feet of land area that is currently owned by the State of Connecticut (8,900 square feet of which is currently covered by the City Pier platform); (3) minor property boundary adjustments; (4) construction of approximately 225 linear feet of bulkhead and fill along the shoreline of the Thames River; (5) demolition of approximately 3,300 square feet of the City Pier Plaza to provide compensatory open water; (6) completion of site and utility improvements on land and in the water to accommodate the Museum and water exhibits; and (7) construction and operation of the Museum.

Public Scoping Meeting and Comment Period: Through the NCGMA, the Coast Guard is seeking public input on the scope of environmental issues to be addressed in the SEA. The NCGMA has scheduled a public scoping meeting to discuss and solicit comments and suggestions regarding the proposal to construct and operate the Museum. The public scoping meeting will be held on June 22, 2017 at 7PM at the Lecture Room of the Science and Technology Magnet High School of Southeastern Connecticut, 490 Jefferson Avenue, New London, CT 06320. All are welcome to attend.

Alternatively, please submit your written comments by July 18, 2017 via USPS mail, fax, or electronic mail to:

NCGMA
c/o Milone & MacBroom, Inc.
Attention: Jeanine Gouin
99 Realty Drive
Cheshire, CT 06410
Fax: 203-272-9733
jgouin@mminc.com

APPENDIX A6
UPDATED AGENCY AND STAKEHOLDER MAILING LIST

LIST OF AGENCIES AND PERSONS CONTACTED

FEDERAL AGENCIES

Federal Emergency Management Agency
Region 1
99 High St.
Boston, MA 02110

NOAA Marine Fisheries Service, Northeast Region
Habitat Conservation Division
55 Great Republic Drive, Gloucester, MA 01930

U.S. Army Corps of Engineers
New England District
696 Virginia Road
Concord, MA 01742

U.S. Coast Guard Academy
31 Mohegan Avenue
New London, CT 06320

U.S. Environmental Protection Agency
Region 1
5 Post Office Square, Suite 100
Boston, MA 02109-3912

U.S. Fish & Wildlife Service
Northeast Regional Office
300 Westgate Center Drive, Hadley, MA 01035-9589

FEDERALLY RECOGNIZED NATIVE AMERICAN TRIBE

Eastern Pequot Reservation
391 Norwich Westerly Road
North Stonington, CT 06359

Mashantucket Pequot Tribal Nation
Natural Resources Protection & Regulatory Affairs
PO Box 3202
Mashantucket, CT 06338-3202

The Mohegan Tribe of Indians of Connecticut
13 Crow Road
Uncasville, CT 06382

Paucatuck Eastern Pequot Tribe
PO Box 370
Stonington, CT 06359

Schaghticoke Tribal Nation
PO Box 11
Kent, CT 06757

STATE AGENCIES

Connecticut Department of Economic and Community Development
450 Columbus Boulevard
Hartford, CT 06103

Connecticut Department of Energy and the Environment
79 Elm Street, 3rd Floor
Hartford, CT 06106-5127

Connecticut Department of Transportation
2800 Berlin Turnpike
P.O. Box 317546
Newington, CT 06131-7546

Connecticut Office of Military Affairs
505 Hudson Street
Hartford, CT 06106

Connecticut Office of Policy and Management
Office of the Secretary
450 Capitol Avenue
Hartford, CT 06106-1379

Office of Connecticut State Archaeology
Unit 4023 University of Connecticut
Storrs, CT 06269

Office of the Attorney General of Connecticut
55 Elm Street
Hartford, CT 06106

State Historic Preservation Office
Department of Economic and Community Development
One Constitution Plaza, Second Floor
Hartford, CT 06103

LOCAL AGENCIES

City of Groton
Office of the Mayor
295 Meridian Street
Groton, CT 06340

City of New London
Office of the Mayor
181 State Street
New London, CT 06320

City of New London
Office of Development and Planning
181 State Street
New London, CT 06320

City of New London
Recreation Department
120 Broad Street
New London, CT 06320

City of New London
City Council
181 State Street
New London, CT 06320

City of New London
New London Parking
161 Water Street
New London, CT 06320

INTEREST GROUPS

Amtrak
60 Massachusetts Avenue, NE
Washington, DC 20002

Block Island Express

PO Box 33
New London, CT 06320

Chamber of Commerce of Eastern Connecticut
914 Hartford Turnpike, Suite 206
Waterford, CT 06385

Connecticut Ornithological Association
314 Unquowa Road
Fairfield, CT 06824

Cross Sound Ferry Services, Inc.
PO Box 33
New London, CT 06320

Downtown New London Association
70 State Street
New London, CT 06320

Eastern Connecticut Conservation District
238 West Town Street
Norwich, CT 06360

National Coast Guard Museum Association, Inc.
239 Bank Street
New London, CT 06320

New England Central Railroad
20 West Avenue
Darien, CT 06820

New London Landmarks
49 Washington Street
New London, CT 06320

New London Main Street
311 State Street
New London, CT 06320

RCDA, Renaissance City Development Association
216 Howard Street
New London, CT 06320

School District of New London Board of Education
134 Williams Street
New London, CT 06320

Southeastern Connecticut Council of Governments
5 Connecticut Avenue
Norwich, CT 06360

Thames River Heritage Park
15 Thames Street
Groton, CT 06340

Union Station
35 Water Street
New London, CT 06320

INDIVIDUALS

Mr. Robert Fromer
P. O. Box 71
Windsor, Connecticut 06095-2205

APPENDIX A7
SCOPING MEETING PRESENTATION

MILONE & MACBROOM

National Coast Guard Museum Association, Inc.

Scoping Meeting

National Coast Guard Museum

NEPA Supplemental Environmental Assessment

490 Jefferson Avenue; New London, Connecticut | June 22, 2017

Agenda

- Welcome and Introduction

  Richard Grahn, President & CEO

  National Coast Guard Museum Association

- Overview of the Project

  Jeanine Armstrong Gouin, Milone & MacBroom, Inc.

  Charles Klee, Payette Associates

- Public Comment

  Please sign up if you would like to speak

  Feel free to compete a comment card

Purpose of Tonight's Meeting

- Provide background information on the planned NCGM
- Present the scope and objectives of the environmental review
- Provide information relative to schedule & future efforts

- Provide a forum for gathering input
- Understand the topics of public interest / concern
- Identify questions to be answered

Milone & MacBroom

Key Project Stakeholders & Participants

- U.S. Coast Guard – Sponsoring federal agency for the Supplemental NEPA EA
- National Coast Guard Museum Association – Responsible for the design and construction of the National Coast Guard Museum
- City of New London – Host community/nexus with City Pier
- Cross Sound Ferry – Shared public access, adjacent property owner, connection of museum and ferry terminal
- Greater New London Community – Residents, Business Owners, Community Organizations
- Payette Associates – Museum Architects
- Milone & MacBroom, Inc. – NEPA evaluation for the museum construction and operation

MILONE & MACBROOM

What is NEPA?

- National Environmental Policy Act of 1969 - Established a process for environmental impacts to be evaluated as an integral part of major federal actions
- A mechanism for planning and coordination among interested parties, including state and federal agencies, the community, and the general public
- A process of identifying and evaluating potential environmental impacts with the goal of avoiding, minimizing and mitigating them

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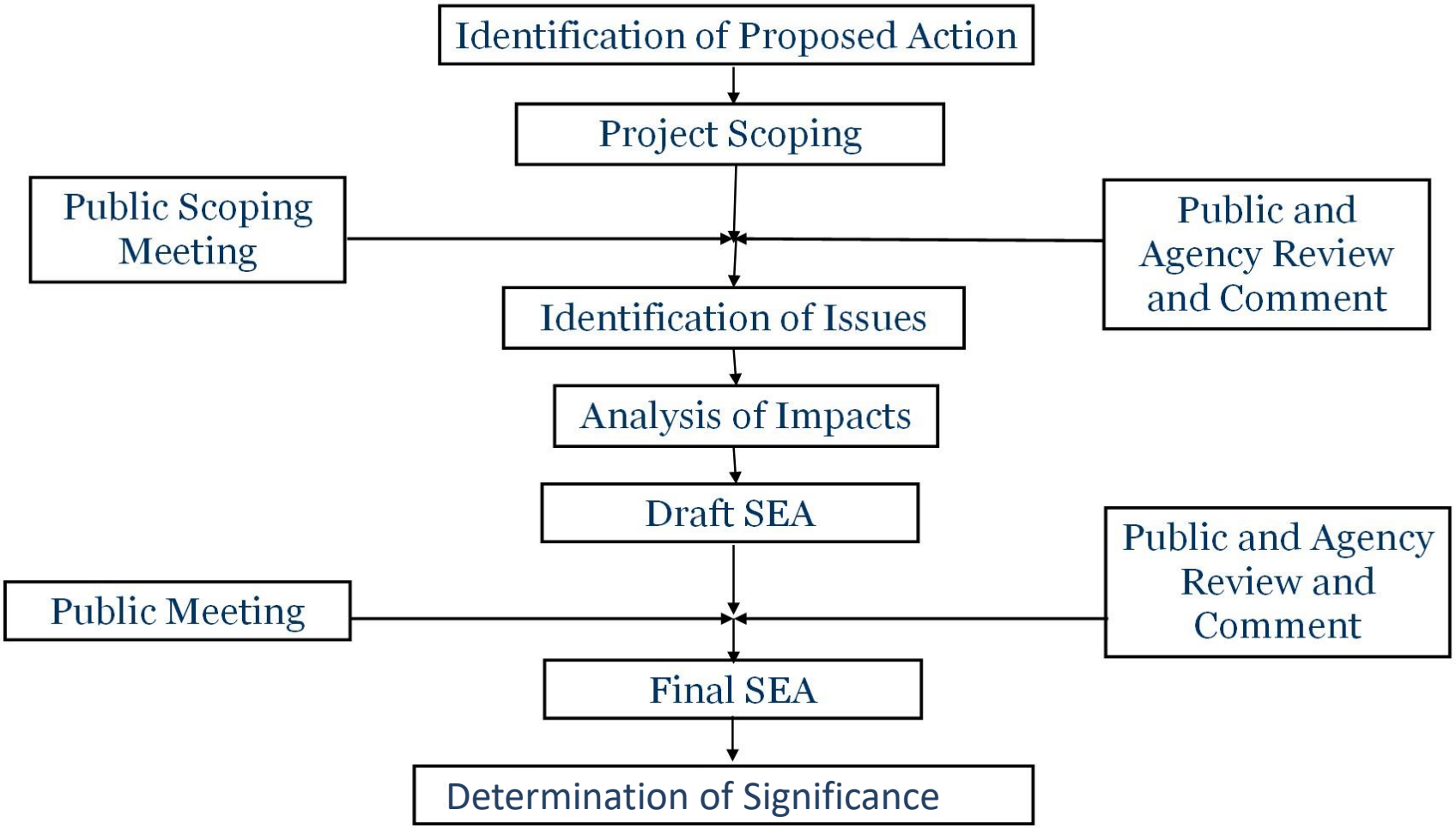
NEPA PROCESS



Prior Studies

- NEPA Environmental Assessment – Land Acquisition for the National Coast Guard Museum – March 2002
- NEPA Environmental Assessment – Proposed Coast Guard Acquisition and Operation of a Privately Constructed New Coast Guard Museum – November 2008
- NEPA Environmental Assessment – National Coast Guard Museum Land Transfer – March 2014
- CEPA Environmental Impact Evaluation – Pedestrian Overpass – July 2014
- Downtown New London Transportation Study – Nearing Completion

Scope of Supplemental EA

- Build upon (not duplicate) prior assessments and evaluations
- Specifically evaluate the effects of additional land acquisition, indirect effects of construction of the Museum by NCGMA, and operation of the Museum in perpetuity
- Evaluate compliance with federal laws, including Section 106 consultation under the National Historic Preservation Act of 1966
- Evaluate cumulative impacts of the proposed Museum along with other ongoing or planned projects in the downtown New London Area

Note: The analysis will not extend to off-site alternatives, as these have been previously evaluated with final site selection.

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Existing Coast Guard Museum

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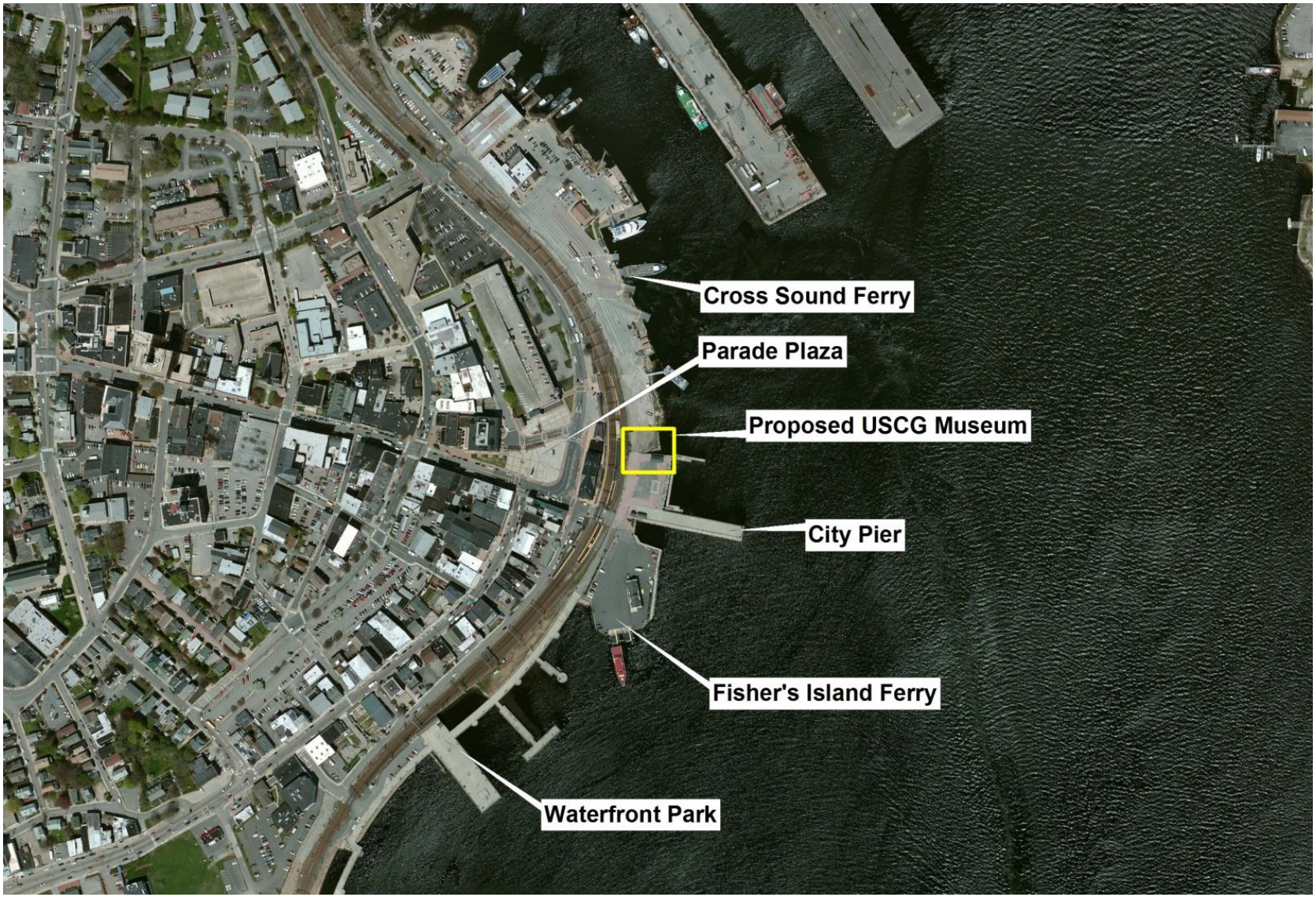
Project Setting



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Project Setting

MILONE & MACBROOM

Proposed Project Elements – USCG Actions

- Acquisition of Additional Land Area
  - ✓ ±2,000 square feet from the City of New London
  - ✓ ± 12,200 square feet from the State of Connecticut
  - ✓ Minor existing property boundary adjustments
- Agreement with NCGMA for Construction of the Museum
- Operation of the Museum in perpetuity (either by USGC or NCGMA)

Proposed Project Elements – NCGMA Actions

- Shoreline Modifications
  - ✓ ~224 feet of bulkhead and fill along the Thames River
  - ✓ Demolition of ~ 3,300 square feet of City Pier Plaza
- Construction of Museum
  - ✓ 70,000 to 80,000 square feet
  - ✓ At-grade entry level plus 5 to 6 stories
  - ✓ Site and Utility Improvements
- Operation of the Museum in perpetuity (either by USGC or NCGMA)

MILONE & MACBROOM

Related Projects

- Pedestrian Overpass
  - ✓ For the benefit of the Museum, ferry, and visitors to the waterfront
  - ✓ To be designed and constructed by the NCGMA
  - ✓ To be owned and operated by the City of New London
- Ferry Terminal Expansion
  - ✓ To be undertaken by Cross Sound Ferry Services
  - ✓ To be located immediately adjacent to and north of the planned Museum
  - ✓ Anticipated to share the pedestrian overpass
- USCGC EAGLE
  - ✓ 295-foot barque training cutter for future CG officers
  - ✓ USCG seeking a mooring location in proximity to the Museum
  - ✓ Final site selection TBD
- Traffic and Parking Improvements
  - ✓ Planned improvements by the City of New London

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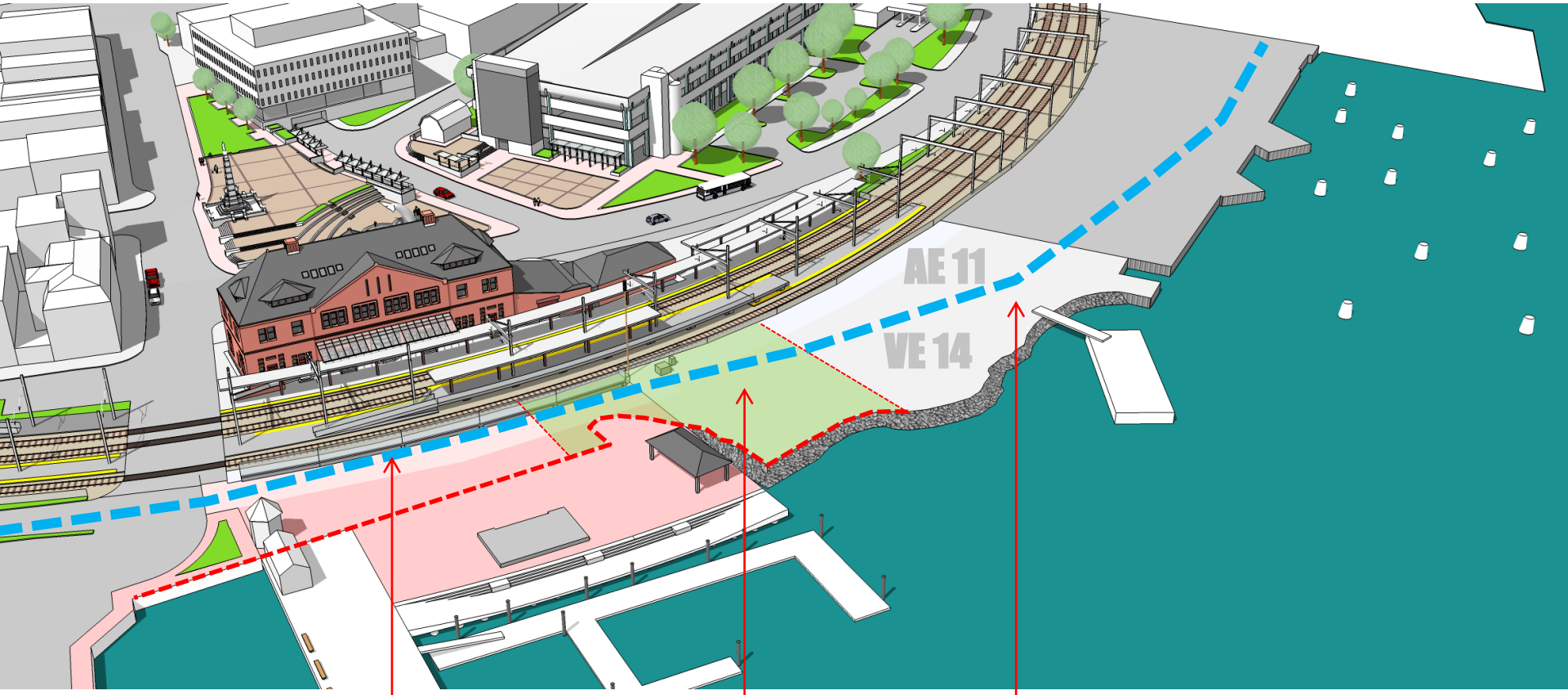
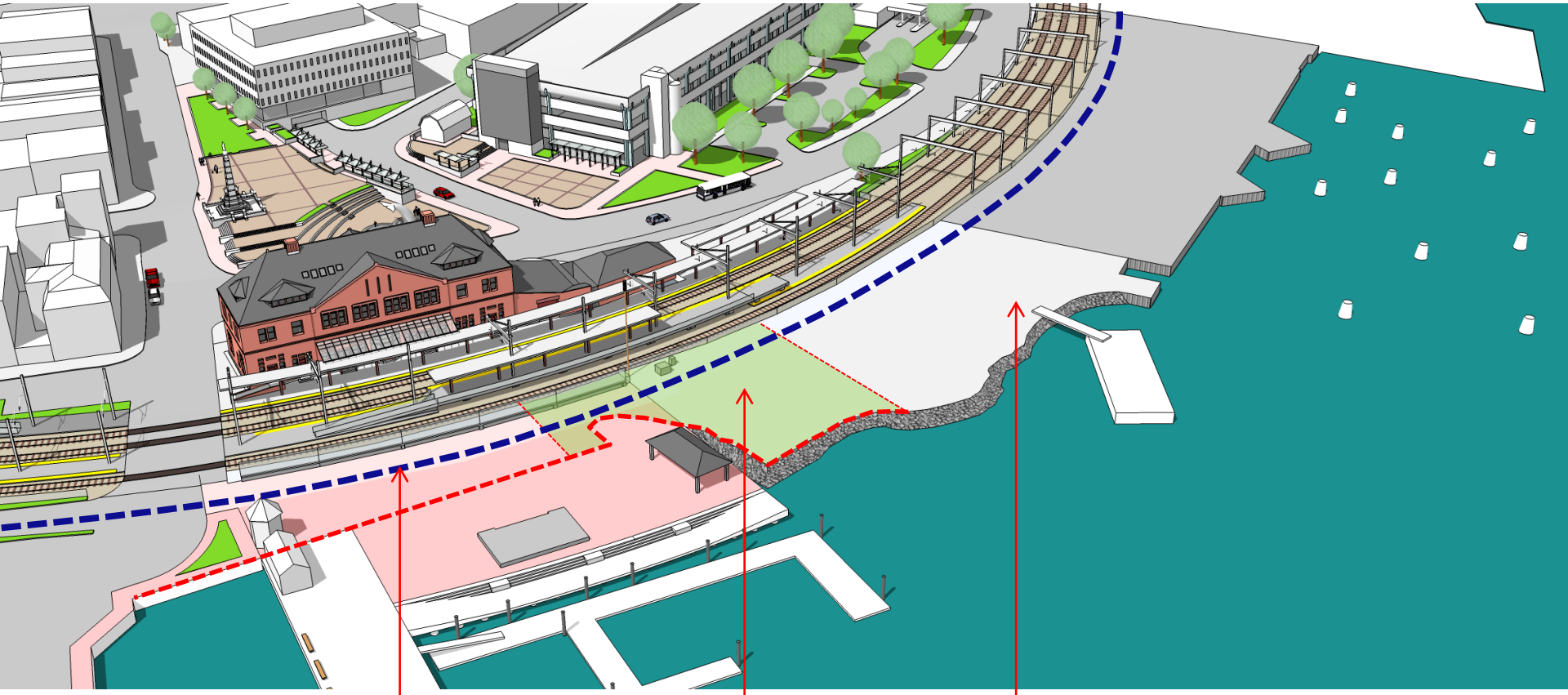

AE 11
VE 14
VE zone line
USCG Property
CSF property

SITE | EXISTING CONSTRAINTS



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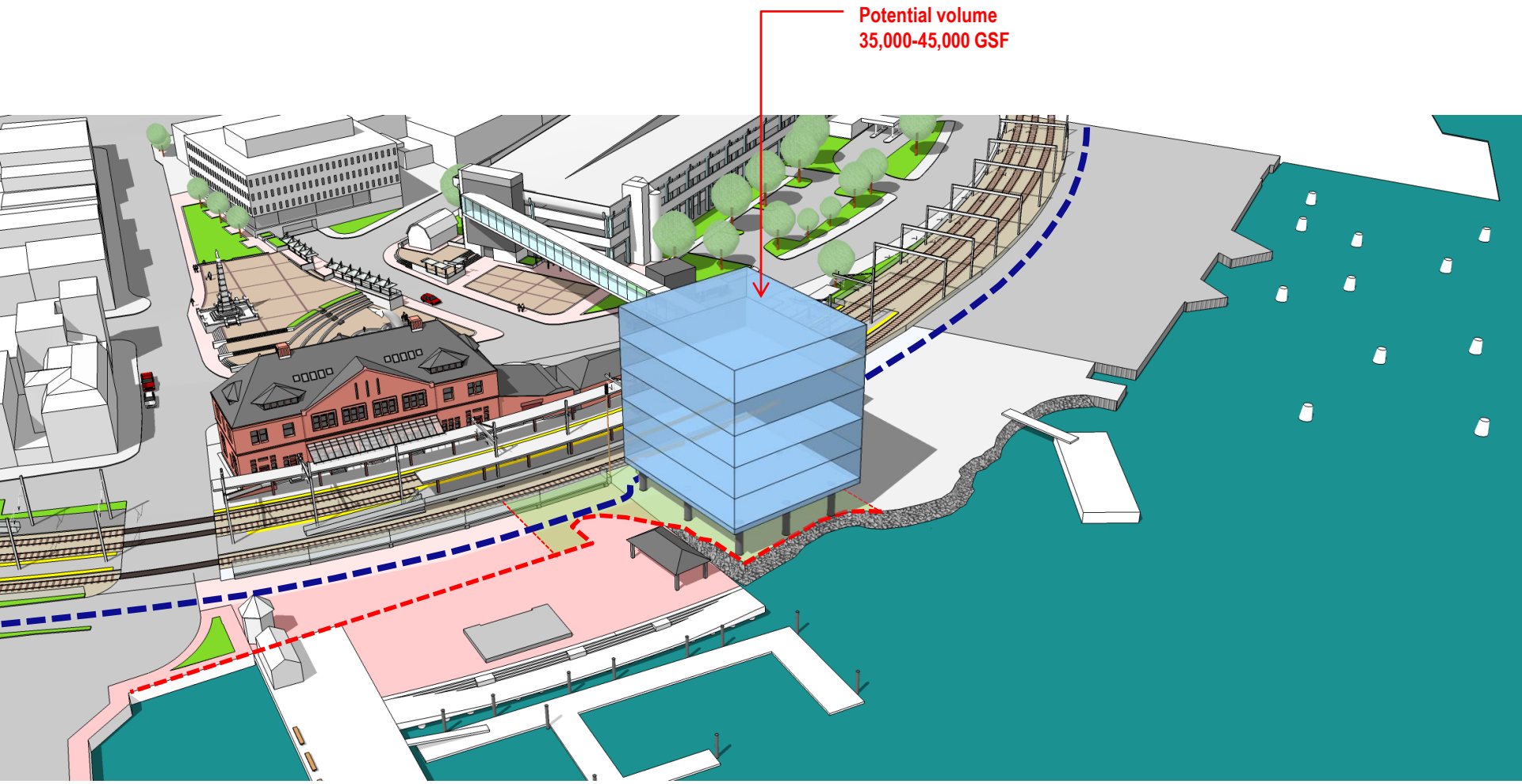
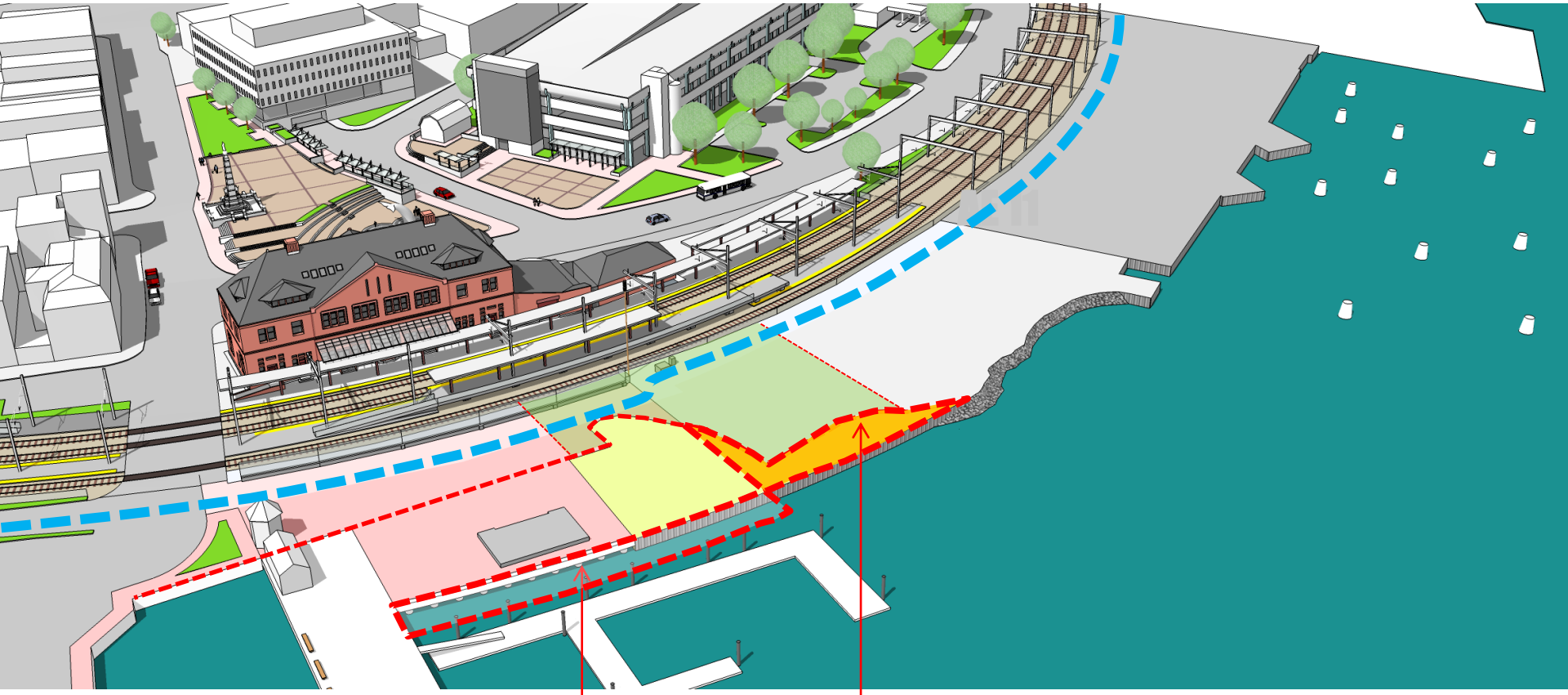


SITE | PROPOSED FILL

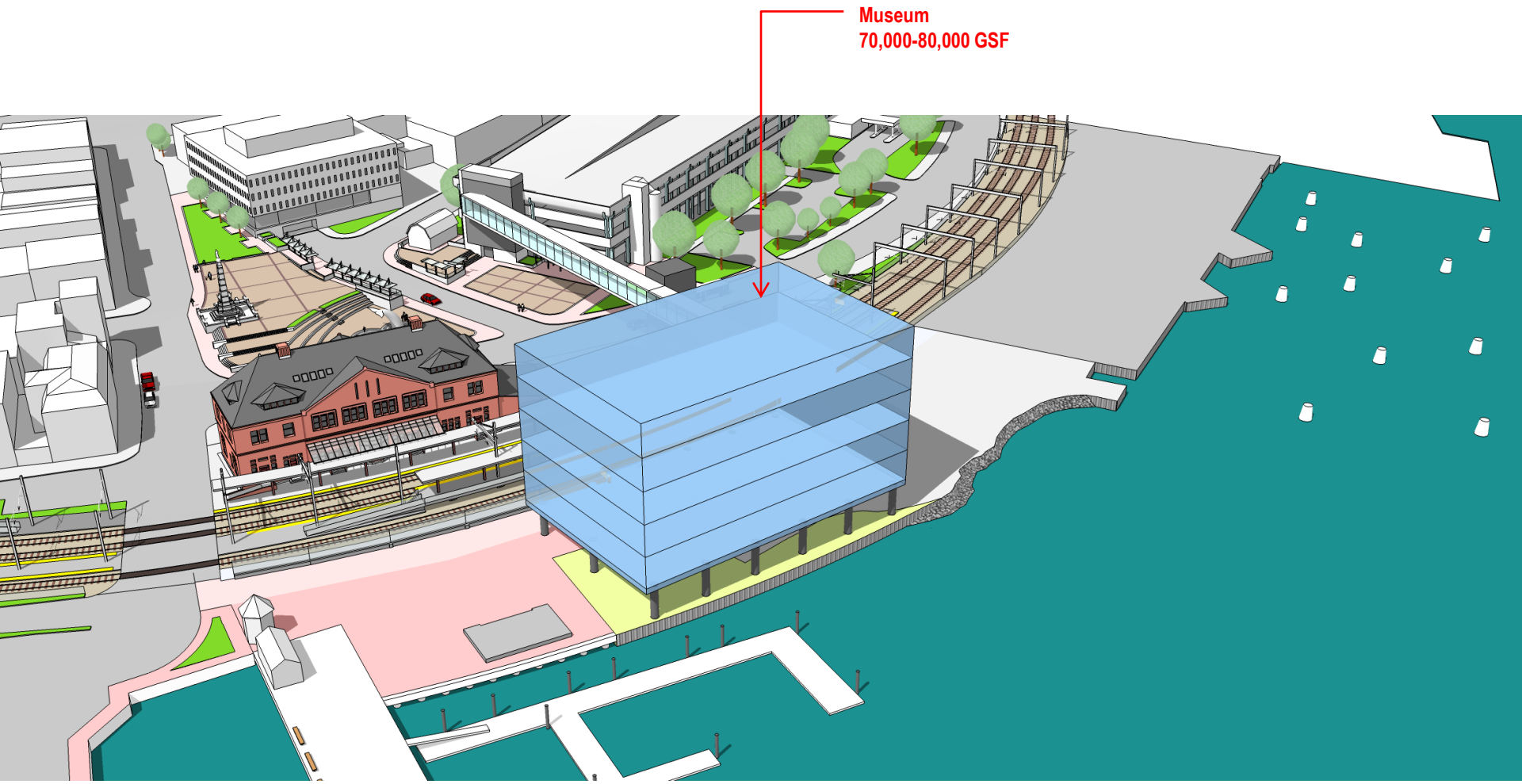


Waterward encroachment removed (3,300 sf)

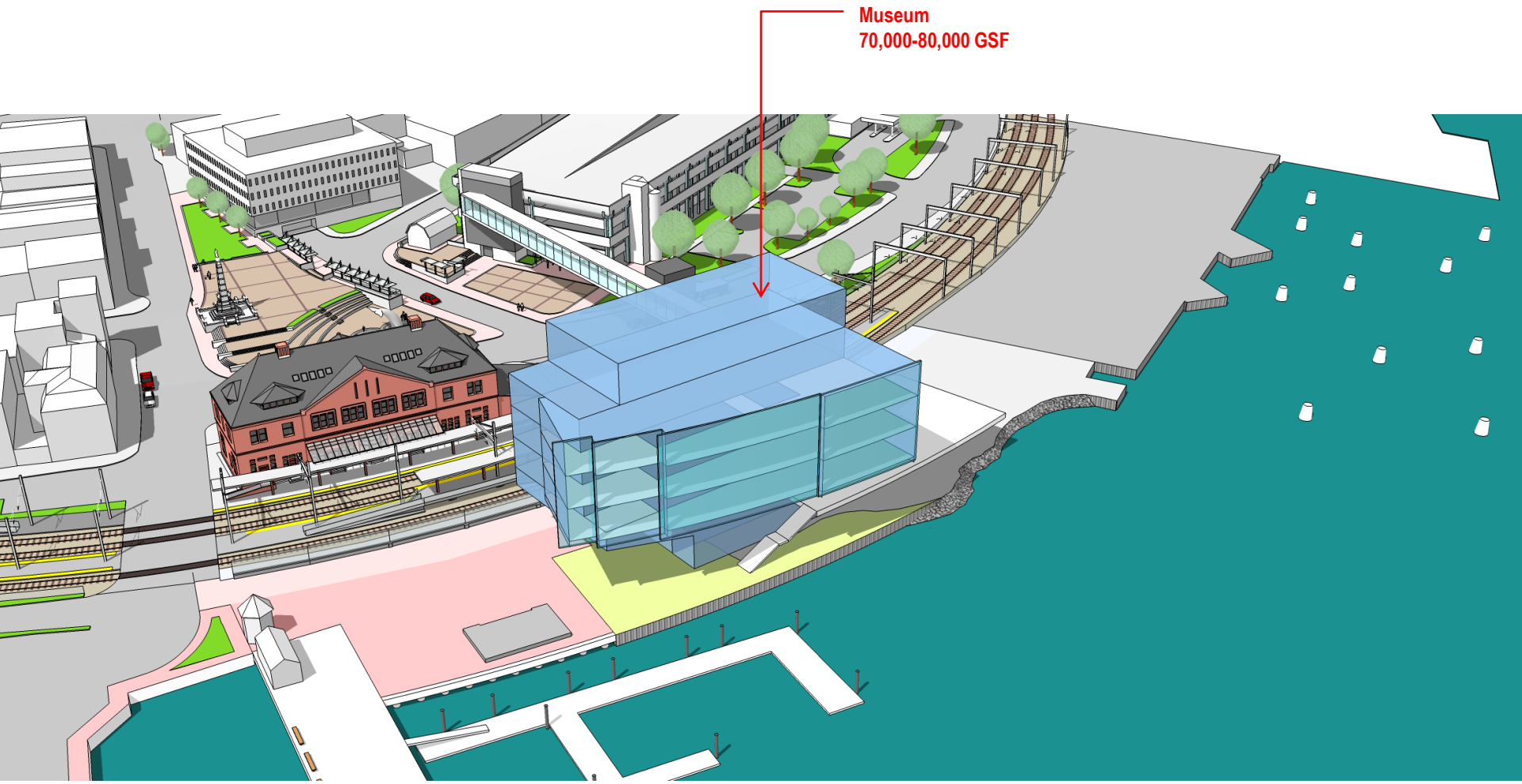
Waterward encroachment added (2,700 sf)

Net difference: 2,700 – 3,300 = – 600 sf

SITE | BUILDING MASS



SITE | BUILDING MASS




U. S. COAST GUARD
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U. S. COAST GUARD

Environmental Areas to be Evaluated

Physical

- Air Quality
- Noise & Light
- Traffic, Parking & Circulation
- Public Utilities
- Stormwater Drainage
- Solid & Hazardous Waste
- Aesthetics/Visual Resources
- Cultural Resources
- Topography

Natural

- Geology, Topography & Soils
- Surface Water
- Groundwater
- Floodplains
- Wetlands
- Aquatic Habitat
- Avian Habitat
- Fisheries
- Shoreline Features
- Plants & Wildlife/ State & Federally Listed Species

Socioeconomic

- Land Use & Zoning
- Local and Regional Planning
- Open Space
- Public Health & Safety/National Security
- Economy, Employment & Income
- Community Facilities & Services
- Environmental Justice

Timeline and Milestones

- **June 14, 2017** – Scoping Notice Published in The New London Day
- **June 22, 2017** – Public Scoping Meeting
- **July 18, 2017** – Close of Scoping Period
- **Fall 2017** – Anticipated Publication of Draft SEA & Public Comment Period
- **Late 2017** – Final SEA

Role of Stakeholders and the Public

- Provide knowledge and expertise on issues relevant to the project or the project area
- Raise any issues of concern
- Review and comment upon the Draft SEA when it is completed and published

Comments & Questions

Comments and questions regarding the project and/or the NEPA process may be directed to:

Jeanine Armstrong Gouin, Project Manager
Milone & MacBroom, Inc.
99 Realty Drive
Cheshire, CT 06410
f: 203-272-9733
jgouin@mminc.com

Process for Providing Comments Tonight

- Please sign up on the list if you wish to provide verbal comments tonight.
- Please keep your comments to five minutes or less.
- Be aware that we may be audibly recording your comments.
- We strongly encourage you to put comments in writing – either on the comment sheets provided or by email/letter on or before July 18, 2017.

APPENDIX A8
SUPPLEMENTAL SCOPING COMMENTS

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 1
5 POST OFFICE SQUARE, SUITE 100
BOSTON, MA 02109-3912

July 18, 2017

NCGMA
c/o Milone & MacBroom, Inc.
Attention: Jeanine Gouin
99 Realty Drive
Cheshire, CT 06410

RE: Scoping Comments in Response to Notice of Intent to Prepare a Supplemental Environmental Assessment, National Coast Guard Museum Project, New London, Connecticut

Dear Ms. Gouin:

In accordance with our responsibilities under the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act, we submit the following comments as part of the NEPA scoping process for the National Coast Guard Museum project. Our comments are based on the June 15, 2017 Notice of Intent (NOI) to Prepare a Supplemental Environmental Assessment (SEA) for the Project, information contained in the 2014 Environmental Assessment for the Coast Guard Museum project, and presentation slides from the June 22, 2017 public scoping meeting.

According to the NOI the project will include: the acquisition of land in New London, Connecticut; the construction of approximately 225 linear feet of bulkhead and fill along the shoreline of the Thames River; demolition of approximately 3,300 square feet of the City Pier Plaza to provide compensatory open water; completion of site and utility improvements on land and in the water to accommodate the museum and water exhibits; and construction and operation of the museum.

The construction and operation of the NCGM Project could result in a range of direct, indirect (secondary) and cumulative impacts. Based on our review of available information noted above, we believe the Coast Guard has identified many of the issues that should be considered in the SEA. Our attached comments identify specific issues we believe should be addressed in the forthcoming SEA related to construction period emissions, dredging, stormwater management, wetland impacts, and cumulative impacts and the resilience of the project to flooding and severe weather.

Thank you for the opportunity to provide scoping comments. We look forward to reviewing the SEA when it is available. Please contact me at 617-918-1025 with any questions regarding our comments.

Sincerely,

Timothy L. Timmermann
Associate Director, Office of Environmental Review

Enclosure

Scoping Comments for the National Coast Guard Museum Project

Background

The Coast Guard Museum project has been the subject of several Environmental Assessments and master planning exercises. During the course of those studies, a number of alternatives have been studied. The SEA would benefit from presentation of the history of these assessments and the planning process and an explanation of the key decision points that led to the current proposal. While we support incorporation of earlier documents by reference, presentation of a concise explanation of the basis for the consideration and elimination of alternatives would establish a helpful frame of reference for the SEA. Simply incorporating earlier documents by reference can create hurdles for the average reader who may not have earlier documents available for review.

The SEA would benefit from an up-to-date comparative analysis of all alternatives considered, including the resources potentially affected, the negative impacts anticipated and the methods of mitigation to address these negative impacts. A comparison of alternatives' direct, indirect and cumulative impacts would allow for the most meaningful assessment of each alternative.

In addition, should Coast Guard develop electronic versions of the SEA, links to reference documents would be helpful to the reader.

Construction Period Emissions

Construction of the project is likely to result in short term air impacts. Given public health concerns about diesel exhaust from heavy duty diesel trucks and other heavy duty construction equipment, EPA encourages a commitment to use diesel engines that employ the most current and cleanest diesel emission control technologies where possible. Alternatively, we encourage the use of diesel retrofits where practicable, along with the use of cleaner fuels and the institution of idle reduction measures to minimize emissions from diesel construction equipment. Retrofit technologies may include EPA verified emission control technologies and fuels and CARB-verified emission control technologies. A list of these diesel exhaust control technologies can be accessed at http://epa.gov/cleandiesel/verification/verif-list.htm.

The Northeast Diesel Collaborative has prepared model construction specifications to assist in developing contract specifications that would require construction equipment to be retrofitted with control devices and use clean fuels in order to reduce diesel emissions. The model construction specifications can be found on the Northeast Collaborative web site at URL address http://northeastdiesel.org/pdf/NEDC-Construcion-Contract-Spec.pdf. We recommend that you identify specific exhaust emission mitigation measures in the SEA and commit to implement these measures to help reduce and minimize the air quality impacts from construction activities. In addition, a list of diesel exhaust control technologies can be accessed at http://epa.gov/cleandiesel/verification/verif-list.htm.

To support efforts to minimize construction idling we suggest the list of approved idle reduction technologies found at: http://www3.epa.gov/smartway/forpartners/technology.htm. Additionally, operator training is encouraged to reduce unnecessary idling of equipment.

Permitting

Preparation of the SEA provides an excellent opportunity for the Coast Guard to develop and present information that will eventually be used to support project permitting. For example, where filling of wetlands is necessary, the Coast Guard will in its permitting application need to document to the Army Corps of Engineers that the chosen project meets the Clean Water Act Section 404(b)(1) guidelines. The SEA would benefit from the inclusion of information to demonstrate how the project is consistent with relevant regulatory requirements. This discussion could include a thorough discussion of the environmental resources affected by the project and measures that will be taken to avoid, minimize and mitigate for the impacts.

With regard to the actual assessment of impacts, EPA recommends that the analyses in the proposed SEA provide greater detail than that presented in previous EAs, which lacked detail both in terms of describing the resources present and in quantifying potential impacts. A more complete assessment of these issues will inform later permitting analyses as well as an assessment of whether the environmental impacts of the project are significant.

The SEA would also benefit by the inclusion of a quantitative description of all anticipated impacts, such as the amount and area of fill or dredging required for alternatives. Information regarding the source and type of the fill, as well as disposal options for dredge spoils, would be useful. Where exact amounts or areas of impacts are not available, estimates would suffice. For example, Section 4.6.2 of the 2014 EA mentions potential impacts from in-water work (such as pile driving and filling) but does not quantify impacts or discuss in detail measures to avoid or minimize these impacts. The future need for Corps permits was noted, but detailed descriptions and comparative analyses of potential impacts to aquatic resources for all on- and off-site alternatives was not provided. Filling in such gaps would make the SEA more valuable.

Cumulative Impacts

The public presentation at the scoping meeting of June 22, 2017 indicates that there are numerous reasonably foreseeable projects that are likely to have cumulative impacts on the environment associated with this project. For example, one foreseeable project involves the berthing of the Coast Guard's tall ship *Eagle* near the museum. The construction of a berthing area may involve dredging that may result in eelgrass, aquatic habitat and fisheries harm. A thorough look at the direct impacts of the project along with secondary and cumulative impacts will be necessary at some point in the environmental review process and providing basic information on those impacts in the SEA would be beneficial.

Stormwater Management

Stormwater runoff in urban and developing areas is one of the leading sources of water pollution in the United States. In recognition of this issue, Congress enacted Section 438 of the Energy

Independence and Security Act of 2007 (EISA) to require federal agencies to reduce stormwater runoff from federal development projects to protect water resources.

EPA has interpreted Section 438 to apply to the "sponsor of any development or redevelopment project involving a federal facility." The "sponsor" should generally be regarded as the federal department or agency that owns, operates, occupies or is the primary user of the facility and has initiated the development of the redevelopment project. EPA encourages the Coast Guard to incorporate the principles of Section 438 in the development and operation of the facility and to reflect how this may be possible in the SEA.

EPA developed materials for federal agencies implementing EISA Section 438 that may benefit the Coast Guard as it prepares the SEA. A particularly useful document, Technical Guidance on Implementing the Stormwater Runoff Requirements for Federal Projects, EPA 481-13-09-01 can be found at www.epa.gov/owow/nps/lid/section. It provides a step-by-step framework that will help federal agencies maintain pre-development site hydrology by retaining rainfall on-site through infiltration, evaporation/transpiration, and re-use to the same extent as occurred prior to development. The Technical Guidance provides background information, key definitions, case studies, and guidance on meeting the new requirements. EPA encourages the Coast Guard to use this guidance to supplement but not supplant applicable state and federal permit requirements, including the federal Construction General Permit.

In addition, EPA recommends that the SEA examine whether Total Maximum Daily Loads (TMDLs) have been developed for waters that will be affected by the project. Including an examination of water quality impacts in general and impacts to impaired waters that do not have TMDLs is also appropriate.

Need to update Policy and Regulatory Materials

EPA recommends that the Coast Guard update its list of all federal, state and local requirements relevant to the project to assure that they are current as of publication of the SEA. In that regard, EPA notes that the ozone designation for the area of Connecticut identified on pages 3-4 of the 2014 EA was changed in 2016 to moderate. (See 81 *Fed. Reg.* 26697, May 4, 2016).

Design Considerations

The SEA would benefit from a discussion of project design measures intended to address the potential for flooding/inundation and increased frequency and severity of coastal storms over the life of the project.

Connecticut Department of
ENERGY &
ENVIRONMENTAL
PROTECTION

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July 11, 2017

National Coast Guard Museum Association
c/o Milone and MacBroom
Attention: Jeanine Gouin
99 Realty Drive
Cheshire, Connecticut 06410

Dear Ms. Gouin:

Thank you for the opportunity to offer comments for the upcoming Supplemental Environmental Assessment for the National Coast Guard Museum Project. The Department of Energy and Environmental Protection (DEEP) has enjoyed and appreciates the very good working relationship which has been established with the National Coast Guard Museum Association and with Milone and MacBroom, and the pro-active measures to keep us well informed on this project.

DEEP Land & Water Resources Division (formerly OLISP) staff have attended several meetings with representatives from the National Coast Guard Museum Association and Milone & MacBroom to discuss the proposed project. At that time, LWRD staff identified that the proposed project will require the submission of a Structures, Dredging and Fill application pursuant to CGS Section 22a-361, a 401 Water Quality Certificate, and an adjudicatory hearing may be required upon receipt of a qualified petition. Furthermore, a Flood Management Certification and possibly exemption from DEEP will be required as well as required approvals from the U.S. Army Corps of Engineers.

As has been communicated previously, the DEEP LWRD staff have identified several key statutory and regulatory considerations associated with the project, chiefly as listed below.

- Since the proposed building lies within a VE-14 and AE-11 flood zones, it must meet the minimum standards for the more restrictive VE-14 flood hazard area as outlined in 44 CFR 60.3 (e).
- The shoreline alterations and the placement of fill within public trust waters of the State must be done in a manner that is consistent with the Connecticut Coastal Management Act. Specifically,
    - ❖ Section 22a-92(b)(2)(F) to manage coastal hazard areas so as to insure that development proceeds in such a manner that hazards to life and property are minimized and to promote nonstructural solutions to flood and erosion problems except in those instances where structural alternatives prove unavoidable and

necessary to protect existing inhabited structures, infrastructural facilities or water dependent uses;

- Section 22a-92(b)(2)(G) to promote, through existing state and local planning, development, promotional and regulatory programs, the use of existing developed shorefront areas for marine-related uses, including but not limited to, commercial and recreational fishing, boating and other water-dependent commercial, industrial and recreational uses;
- Section 22a-92(b)(2) (L) to promote the revitalization of inner city urban harbors and waterfronts by encouraging appropriate reuse of historically developed shorefronts, which may include minimized alteration of an existing shorefront in order to achieve a significant net public benefit, provided (i) such shorefront site is permanently devoted to a water dependent use or a water dependent public use such as public access or recreation for the general public and the ownership of any filled lands remain with the state or an instrumentality thereof in order to secure public use and benefit in perpetuity, (ii) landward development of the site is constrained by highways, railroads or other significant infrastructure facilities, (iii) no other feasible, less environmentally damaging alternatives exist, (iv) the adverse impacts to coastal resources of any shorefront alteration are minimized and compensation in the form of resource restoration is provided to mitigate any remaining adverse impacts, and (v) such reuse is consistent with the appropriate municipal coastal program or municipal plan of development;
- Section 22a-92(c)(1)(B) to disallow any filling of tidal wetlands and nearshore, offshore and intertidal waters for the purpose of creating new land from existing wetlands and coastal waters which would otherwise be undevelopable, unless it is found that the adverse impacts on coastal resources are minimal.

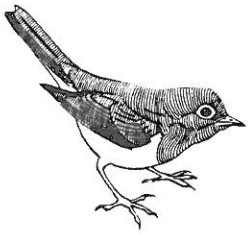
DEEP looks forward to continuing our productive working relationship as you develop a project design that comports with these requirements. We also look forward to reviewing the Supplemental Environmental Assessment for the National Coast Guard Museum and wish you well as you continue to develop this project. If you have any questions concerning these comments, please feel free to contact Micheal Grzywinski at (860) 424-3674 or at micheal.grzywinksi@ct.gov.

Sincerely,

Frederick L. Riese

Frederick L. Riese
Senior Environmental Analyst
Office of Environmental Review

cc: Brian Thompson, DEEP/LWRD
Micheal Grzywinski, DEEP/LWRD
Robert Hannon, DEEP/OPPD
John Gaucher, DEEP/LWRD



Connecticut
Ornithological
Association

314 Unquowa Road, Fairfield, CT 06824

July 12, 2017

NCGMA
c/o Milone & MacBroom, Inc.
Attention: Jeanine Gouin
99 Realty Drive
Cheshire, CT 06410

Re: Supplemental Environmental Assessment

To whom it may concern:

In our letter of February 25, 2017 (copy attached) we objected to the EIS of March, 2014 for the proposed Coast Guard Museum because it did not mention the effect of the building on migratory birds. We are disappointed to see that you do not plan to address this important issue in the supplemental assessment.

The proposed museum sits directly on the Atlantic Flyway, the preferred path for hundreds of millions of migrating birds who take this dangerous flight twice a year. Millions of birds are killed each year when they fly into glass surfaces, fooled by the reflection of the sky in the glass into thinking that their flight is unobstructed.

This issue has even garnered Federal attention with the introduction of the Federal Bird-Safe Buildings Act, now before Congress.

Please incorporate bird-friendly glass into your design and use it in this building.

Sincerely:

Stephen P. Broker, President
Connecticut Ornithological Association

Connecticut
Ornithological
Association

314 Unquowa Road, Fairfield, CT 06824

February 25, 2017

Payotte Architects
290 Congress Street
Boston, MA 02110

Re: Design of the proposed USCG Museum

Dear Sir or Madam;

The birding community has become aware of the proposed plans for the new Coast Guard Museum in New London Connecticut. Has there been any discussion of using "bird friendly" glass? Whereas the Environmental Assessment (March 2014) finds in section 3.8.2 that there are two bird species which might be affected, the federally endangered Roseate Tern and the threatened Piping Plover, Section 3.8.3 dismisses the possible impact on these species "since they are not expected to be present at the project site." The Environmental Assessment does not discuss a far more possible deleterious effect on birds.

The museum is sited in the path of the major migration route on the East Coast. Each spring and fall millions of migrating birds will fly through the project site. As birds do not recognize glass when the sky is reflected, many thousands die when they strike windows. A 2014 article in "Audubon" on line news magazine discusses the problem:

"Why do birds fly into glass?

Birds can't see glass. Instead, they see whatever happens to be reflected in its mirror-like surface. Often, this is open sky or trees, which, if you're a bird, are appealing (and perfectly safe) things to fly towards. It's estimated that between one hundred million and one billion birds die every year in collisions with manmade structures—one of the biggest killers of migratory birds.

What is bird-safe glass?

Bird-safe glass is specially designed to make glass a visible obstacle to birds. Luckily, it's possible to make glass visible to birds while still keeping it transparent enough for humans.

A variety of approaches, such as fritting, silk-screening, or ultraviolet coating, create a pattern that breaks up the reflectivity of the glass and alerts birds to its presence. More important than the technique used to create the pattern is its spacing: Testing has shown that the "2x4 rule" is most effective—meaning that the silk, coating or markings are added across the pane, spaced two inches apart horizontally, and four inches apart vertically. Research has shown that birds will not fly through spaces less than two inches high or 4 inches wide.

What does bird-safe glass look like?

Because the spacing is what counts, bird-safe glass can be designed to feature many different types of patterns and etchings.

For example, the Minneapolis Central Library used bird-safe glass that they designed to look like a forest. The glass was purchased from Viracon, a Minnesota-based company that's providing the glass for the Vikings Stadium.

As the library demonstrates, the Vikings could customize a bird-safe glass, perhaps using their logo.

Another company, German-based Arnold Glas, patterns its Ornilux bird protection glass with an ultraviolet-reflective coating. Birds can see the coating, but it is virtually invisible to humans.

Where can I buy bird-safe glass?

Many companies offer bird-safe glass, and the price is often just 5 percent higher than standard glass. Another option for limiting bird collisions is to construct buildings so that the glass is angled slightly downwards, and therefore won't reflect the skyline in the same manner."

Read the entire article here: http://www.audubon.org/news/what-does-bird-safe-glass-even-mean

Think of the impact on visitors when they see hundreds of bird carcasses littering the grounds each spring and fall and the man hours it would take to sweep them all up each day.

If bird friendly glass is not planned for the Museum, we respectfully ask that you consider it.

COA is a statewide organization of more than 500 members. It is an all volunteer organization with the mission of promoting interest in Connecticut birds, and collecting, preparing, and disseminating the best available scientific information on the status of Connecticut birds and their habitat. While COA is not primarily an advocacy organization, we work actively to provide scientific information and to support other conservation organizations in the state.

Sincerely,

Kathleen M. Van Der Aue, President
Connecticut Ornithological Association

ccs: Rob Klee, DEEP Commissioner
Milone & MacBroom
National Coast Guard Museum Association, Inc.

ROBERT FROMER
EJD, MSEE, P.C., P.E., R.E.P

Email: **saintrobert@comcast.net**

July 13, 2017

SENT VIA FAX TO: 203-272-9733
AND
ELECTRONIC MAIL TO: JGOUIN@MMINC.COM

National Coast Guard Museum Association
c/o Milone & MacBroom, Inc.
Attention: Jeanine Gouin
99 Realty Drive
Cheshire, CT 06410

Dear Ms. Gouin:

On June 15, 2017, the following Public Notice appeared in the Classified section of The Day newspaper: Notice of Intent to Prepare a Supplemental Environmental Assessment, National Coast Museum Project, New London, Connecticut. A copy of the notice was, also, sent to me by United States mail, postage paid, which I received on June 16, 2017.

The Public Notice contained in pertinent part the following background information:

> In March 2014, the U.S. Coast Guard ("USCG or CG") prepared an Environmental Assessment that analyzed the acquisition of a 0.34-acre parcel adjacent to Water Street in New London, Connecticut and construction of a new National Coast Guard Museum ("Museum"). At that time, effects from construction and operation of a Museum were evaluated at a programmatic level, since critical details required for a full and complete analysis had not yet been developed. The 2014 Environmental Assessment concluded in a Finding of No Significant Impact. The land was subsequently acquired and is now owned by the USCG. . . . As part of preconstruction site analysis, the National Coast Guard Museum Association ("NCGMA") has determined that additional land is necessary to accommodate the Museum and revisions to the initial concept plans are necessary. At this time, the USCG with the significant assistance of the NCGMA, intends to prepare a Supplemental Environmental Assessment ("SEA") for the purpose of evaluating the specific impacts related to construction and operation of the NCGM, including the acquisition of additional adjacent land; shoreline modifications; museum layout, design, and footprint; and ancillary utility and site improvements. Cumulative impacts of the proposed Museum in

> connection with other independent but related projects will also be evaluated. These include the proposed construction of a pedestrian bridge, Cross Sound Ferry terminal expansion, and the homeporting of the U.S. Coast Guard Cutter ("USCGC") EAGLE. . . . The SEA will assess the environmental impact of the proposed action and serve as a concise public document that provides sufficient evidence and analysis to determine if an Environmental Impact Statement (EIS) must be prepared, or if a Finding of No Significant Impact (FONSI) is appropriate.

The substance of the Proposed Action as stated in the Public Notice provides the following:

> The Coast Guard proposes to allow the NCGMA to construct an approximately 70,000 to 80,000 square-foot museum with an at-grade entry level plus five to six stories to be located in downtown New London, Connecticut on land that is now or will be in the future owned by the U.S. Coast Guard. . . . Specific proposed action elements that are the subject of the SEA include: (1) acquisition of approximately 2,000 square feet of land area to the south that is currently owned by the City of New London; (2) acquisition of approximately 12,200 square feet of land area that is currently owned by the State of Connecticut (8,900 square feet of which is currently covered by the City Pier platform); (3) minor property boundary adjustments; (4) construction of approximately 225 linear feet of bulkhead and fill along the shoreline of the Thames River; (5) demolition of approximately 3,300 square feet of the City Pier Plaza to provide compensatory open water; (6) completion of site and utility improvements on land and in the water to accommodate the Museum and water exhibits; and (7) construction and operation of the Museum.

I have carefully reviewed the public notice, the National and Connecticut Environmental Policy Acts pertaining to scoping for environmental issues. I offer my comments in the appended document.

Very truly yours,

Robert Fromer

Robert Fromer
Environmental Consultant & Private Attorney General

Attachment: Comments on scoping of issues to be considered in the Supplemental Environmental Assessment for the proposed new National Coast Guard Museum

COMMENTS ON SCOPING OF ISSUES TO BE CONSIDERED IN THE SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT FOR THE PROPOSED NEW NATIONAL COAST GUARD MUSEUM

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EXECUTIVE SUMMARY

Background

Environmental Assessments were prepared in 2002, 2008 and 2014 and resulted in Findings of No Significant Impact ("FONSI").

The United States Coast Guard ("USCG or CG") under the aegis of the United States Department of Homeland Security ("DHS") has three major roles: Maritime Safety, Maritime Security, and Maritime Stewardship. These responsibilities are carried out by highly trained men and women who perform these missions.

Section 98 of Title 14 of the United States Code ("14 USC 98") permitting establishment of a Museum did not legislatively find a need for the facility. Also, Congress neither mandated its creation nor established any specific form it may take whether physical or virtual. Further, Congress omitted statutorily establishing that the Museum is in the **National Interest**.

The prime purpose of the Museum is public education about the USCG. As a feasible and prudent alternative to the proposed physical Museum and proposed land acquisitions is the Virtual Coast Guard Museum ("VCGM") for the whole world. In this Digital Age, all artifacts can be scanned in 3-dimensions and provided in a Virtual Museum shown on the Internet. The Smithsonian Institution has scanned all its 130 million exhibits in 3-dimensions for global public display on the Internet alleviating the need for property acquisition and construction, operation and maintenance, and transportation, which saves considerable energy.

The purpose and need for the Museum can be readily achieved without design and construction of a 70,000 to 80,000 square foot building – expanded from 50,000 feet for Fort Trumbull, Parcel 4A proposal - and additional land acquisitions through the creation, development and operation of a VCGM and a new television channel originating from the Coast Guard Academy ("Academy"), which would still meet the statutory requirements.

In 2006, the USCG proposed to construct a museum on Parcel 1A in Fort Trumbull, New London, which only required 15,000 square feet. The current proposal triples the required space without any significant increase in the quantity and quality of exhibits.

The USCG already has numerous museums around the country with enumerable artifacts, which a downtown New London Museum should not collect and consolidate because it would result in potential museum closures. Congress never intended cannibalization of other museums. The existence of other museums would discourage

tourists from other parts of the country, which would deflate the projected number of tourists claimed by the National Coast Guard Museum Association ("NCGMA").

Scoping Process

A. Site Pre-selection. The scoping process initiated by public notice is continuation of a sham, pretentious, and contrived because Admiral Papp, former Commandant of USCG in close cooperation and coordination with Connecticut Governor Dannell Malloy, former City of New London Mayor Daryl Finizio, NCGMA, and Mr. Bob Ross, Executive Director of the Connecticut Office of Military Affairs, pre-selected the location proposed by the NCGMA to site the Museum on a parcel of land owned by the City of New London as the preferred location before incorporation in any official plans and before commencing preparation of the Environmental Assessment ("EA").

How can a project be planned for months at considerable expense before critical knowledge becomes available for decision-making?

B. Environmental Factors for Consideration. With climate change a given phenomena, the most significant environmental factor warranting quantification and analytical consideration is the projected *Embodied Energy* consumption and Green House Gases ("GHG") produced over the life cycle of the project - from *cradle to crave*. The purpose for such consideration is the need to substantially minimize both energy consumption and the production of GHGs.

Embodied (accumulated) energy is the total quantity of energy required to manufacture, and supply to the point of use, a product, material or service and disposal. It includes the energy expended from cradle to grave for: extracting raw materials; transporting, manufacturing, assembling and installing a specific material to produce a service or product and finally its disassembly, deconstruction and/or decomposition.

According to its legislative history, a museum is not a water dependent use; the Connecticut Coastal Management Act ("CCMA") prohibits locating a nonwater dependent use on a site suitable for such use because it would adversely impact "future water-dependent development opportunities" and "adversely impact future water-dependent development opportunities and activities." Locating the Museum at the site is inconsistent with the enforceable policies of CCMA. Federal properties are not exempt from provisions of the CCMA.

The railroad site is cramped - only one-third acre with little room for expansion. Traffic congestion in that area is terrible now, but an influx of possibly 200,000 to 1 million visitors per year - according to CG estimates - traveling mostly by car would cause gridlock on an unprecedented scale for the downtown, which already acts as a

chokepoint to downtown traffic. Placing the Museum in downtown New London is the equivalent of trying to put "two pounds of sausage in a one pound bag."

The selected site is at sea level and located in a floodplain, the area hard hit by the infamous 1938 hurricane. Photographs after the 38 hurricane depict significant damage at the Museum site.

Since the Museum is not a water dependent use, floodplain management is a moot issue.

As the planet warms and the seas rise, severe storms are expected to become even more destructive. A 1938-type hurricane will surely come again to this vulnerable area. It now appears that statutory and regulatory restrictions imposed under CCMA and the Federal Emergency Management Agency should prohibit building the Museum at the proposed location in light of alternatives. Since the location is in the Velocity Zone on the Federal Insurance Rate Map for New London, the structure must be raised on pilings to allow for storm tides and breaking waves. Also, the building cannot extend into the Thames River beyond the Mean High Water Mark. Parcel 4A in Fort Trumbull was raised to the 500-year flood level alleviating the need for special construction measures such as break away walls and special design specifications for water and wastewater piping systems.

According to a recent report from the Office of Inspector General ("OIG") of the Department of Homeland Security ("DHS"), the USCG is only capable of performing 14 of 23 functions because of inadequate resources and funding. In Section 98, Congress limited funding sources for the Museum. Therefore, the SEA should examine future funding and the number of visitors based on projections of future availability and costs of fuel.

The Intermodal Transportation Study prepared for the Southeastern Council of Government ("SCCOG") does not foresee the need for an elevated Pedestrian Overpass, and there has never been any evidence of any pedestrian accidents on Water Street necessitating such a walkway. Neither the USCG nor its supporters have demonstrated a public safety issue necessitating a walkway. Approximately seven (7) years ago, New London electors voted against such infrastructure using federal funds.

The SEA is premature for preparation because the relocation of the Academy's Museum to downtown is not contained in the 2006 USCG Academy Facilities Management Plan (updated in 2010), which violates due process of law. As a result, Admiral Papp's decision to locate the Museum downtown was arbitrary and capricious. The proposal is neither based on USCG generated selection criteria nor a site selection committee recommending the preferred downtown site. Further, in 2007, the Connecticut Department of Environmental Protection ("DEP"), now the Department of

Energy and Environmental Protection ("DEEP"), strongly recommended Fort Trumbull for the facility. **The USCG and supporters fail to comprehend the meaning of the "Planning Function," which is to plan rather than to justify.** It's never a good choice to give a law enforcement agency with a lot of power unfettered discretion.

The USCG, NCGMA and supporters display profound social and global irresponsibility in their collective desire to construct a building only for it to become vacant in less than 30 years because of very limited travel stemming from global depletion of fossil fuels due to declining geological reserves, increased population and demand. This represents the examples of exploiting resources today without consideration for future generations.

The proposed modernistic architecture for the Museum defiles, demeans, and denigrates the architecture and character of the railroad station - designed by Henry Hobson Richardson - which is on the *National Historic Register* - and surrounding buildings as well as the coastal views and vistas on both sides of the Thames River, which reside in the public domain. This is contrary to the Connecticut Coastal Management Act for coastal vistas and views. The Museum's design is simply insensitive and grotesque.

It's time for the USCG to develop its **Museum of the 21st Century for the World** instead of physical structures. Perhaps, the USCG's leadership can reinvent its focus to look forward and think outside-of-the-box. For example, a helicopter whose windows will be outfitted with virtual-reality screens will recreate storm conditions under which the Coast Guard rescues imperiled boaters. The USCG can show the same reality by selling helicopter simulation games or presenting it on the Internet without the need for a building.

How is the city, which has a historical record of extremely poor maintenance, going to maintain an elevated pedestrian walkway with an elevator when it can't even maintain city hall, a former city owned parking garage on Governor Winthrop Boulevard, and the existing overpass over Water Street west of the railroad station?

It is my professional opinion that the impacts to water dependency, future water dependent development opportunities and activities, energy consumption and production of GHGs, traffic and historical coastal views and vista is significant.

There are numerous feasible and prudent alternatives to the downtown New London parcel, which would result in far less environmental impacts and need for mitigation.

I. INTRODUCTION

The scoping process initiated by public notice is the continuation of a sham, pretentious, and contrived because former Admiral Papp, Commandant of USCG in close cooperation and coordination with Connecticut Governor Dannell Malloy, City of New London Mayor Daryl Finizio, the NCGMA[1] and Mr. Bob Ross, Executive Director of the Connecticut Office of Military Affairs, has already decided that the proposal by the Association to locate the Museum on a parcel of land owned by the City of New London, Connecticut is the preferred location before the preparation of the initial Environmental Assessment ("EA"). See **Attachments (1) and (2)**.[2] I am highly confident that Milone & MacBroom will prepare a Draft and Final SEA resulting in a FONSI because the facts will be tailored to support the vested interests of the NCGMA, which proposed and promotes the site and which is funding the SEA.

The USCG, under the aegis of DHS, has three major roles: Maritime Safety, Maritime Security, and Maritime Stewardship. These responsibilities are carried out by highly trained men and women who perform these missions. According to the NCGMA's website (www.coastguardmuseum.org), "the public is generally unaware of the scale and scope of the Coast Guard's operations." Accordingly, "The Museum will send a clear message both through its exhibits and its iconic image: Respect the past, engage the present and look to the future."

Title 14 USC 98 permitting establishment of a museum does neither mandate its creation nor establish any specific form it may take whether PHYSICAL or VIRTUAL.

There is no demonstrated need for a physical museum; it is not essential for the USCG to meet its missions and responsibilities. The Congress neither legislatively found a need for a Museum nor found it to be in the National Interest. The educational purpose of the Museum can be readily achieved without design and construction of a 70,000 to 80,000 square foot building through the creation, development and operation of a Virtual Museum over the Internet and a new television channel originating from the Coast Guard Academy.[3] The USCG proposed in 2006 to construct a museum on Parcel 1A in Fort Trumbull, which required only 15,000 square feet. The current proposal quadruples the required space without any significant increase in the quantity and quality of exhibits.

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[1] The NCMGA is a 501(c)3 Non-Profit Charitable Organization, which was formed in 2001 to raise funds and apply for and administer federal and state grants for the sole purpose of acquiring land, designing, constructing, developing exhibits and turning over to the US Coast Guard a national museum in the City of New London, Connecticut. Some NCGMA members are, also, members of the United States Coast Guard Foundation headquartered in Stonington, Connecticut.

[2] The letter and numerous e-mails were obtained pursuant to a Connecticut Freedom of Information Act request.

[3] The Weather Channel already televises "Coast Guard Alaska" showcasing its maritime rescue operations in Alaska.

With climate change a given phenomena, the most significant environmental factor warranting quantifiable analytical consideration is the projected energy consumption and greenhouse gases ("GHG") produced over the life cycle of the project - from "cradle to crave." The purpose for such consideration is the substantial minimization of both energy consumption and the production of GHGs.

There are numerous alternatives to the downtown New London parcel, which would result in far less environmental impacts and need for mitigation.

According to a report from the Office of Inspector General ("OIG") of DHS, the USCG is only capable of performing 14 of 24 functions because of inadequate resources and funding. In Section 98, Congress limited funding sources for the Museum. Therefore, the EA should examine future CG funding and project the expected quantity of "Embodied Energy" [4] from construction, operation, maintenance, repair, and visitor travel.

The Intermodal Transportation Study prepared for the Southeast Connecticut Council of Governments ("SCCOG") does not foresee the need for a Pedestrian Overpass, and there has never been evidence of any pedestrian accidents on Water Street necessitating such a walkway.

The EA is premature for preparation because the relocation of the Academy's museum to downtown is not contained in the 2006 Academy Facilities Management Plan (updated 2010), which violates due process of law.[5] As a result, Admiral Papp's decision to locate the Museum downtown was arbitrary and capricious.

The USCG, NCGMA and their pediculae display profound social and global irresponsibility in their collective desire to construct a building only for it to become vacant in less than 30 years because of limited travel stemming from global depletion of fossil fuels caused by declining geological reserves, increased population and demand. This represents examples of exploiting resources today without consideration of future generations.

Since the world has entered the Digital Age, all artifacts can be scanned in 3-dimensions and provided in a VCGM over the Internet alleviating the need for a structure. Scanning of artifacts would produce 3-dimensional holograms. See **Attachment (3)**.

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[4] Embodied (accumulated) energy is the total quantity of energy required to manufacture, and supply to the point of use, a product, material or service and disposal. It includes the energy expended from cradle to grave for: extracting raw materials; transporting, manufacturing, assembling and installing a specific material to produce a service or product and finally its disassembly, deconstruction and/or decomposition.

[5] An e-mail sent by CDR Quincy. L. Davis, Executive Assistant to the Director of Governmental and Public Affairs (CG-092) on December 30, 2013 stated that the USCG Academy's Facilities Master Plan updated in 2010 "[I]s the most recent."

The fundraising effort by the NCGMA would be better spent to support USCG operations and/or artifact digitization rather than building a monument to glorify high ranking officers, bureaucrats and politicians.

II. BACKGROUND

The 2002 Draft Environmental Impact Assessment ("DEIA"), Land Acquisition of Parcel 4A in Fort Trumbull for the Museum, November 2001, [Docket Number USCG-2001-10998] was noticed in the Federal Register ("FR") Document 01-29081 filed November 20, 2001 and cited as 66 FR 58547. The USCG provided notice of the 2002 Final EA and FONSI in the Federal Register / Vol. 67, No. 66, pg. 16486 / Friday, April 5, 2002.

The August 2008 Draft EA and FONSI[6] evaluated the individual and cumulative effects of Parcel 1: Fort Trumbull (Alternative 1), Parcel IA: Fort Trumbull (Alternative 2), Parcel 4A: Fort Trumbull (Alternative 3), Riverside Park (Alternative 4), and No Action (Alternative 5) with respect to a variety of NEPA criteria - 40 Code of Federal Regulations ("CFR") 1500-1508). On November 20, 2008, the CG issued its Final EA and FONSI.

On December 12, 13, and 14, 2013, the Day newspaper in New London, Connecticut published notice by USCG of its intent to prepare an EA for the proposed establishment of a museum in New London, Connecticut. The USCG intended to prepare the EA pursuant to the requirements of the National Environmental Policy Act ("NEPA") of 1969, the President's Council on Environmental Quality Regulations (40 Code of Regulations CFR Parts 1500-1508), and the CG's NEPA implementing procedures found in COMDTINST M16475.1D. The EA would, also, fulfill the requirement for project review under Section 106 of the National Historic Preservation Act of 1966 (36 CFR Part 800). The notice failed to cite that Presidential Executive Orders are, also, applicable.

In March 2014, the CG published its EA and FONSI for the purchase of the proposed downtown location.[7]

The USCG proposed to acquire land by gift from the City of New London for the new Museum. Following acceptance of the land, the USCG would allow the NCGMA to construct an approximately 50,000-square-foot, four- to five-story museum. The museum would, also, include additional exterior exhibits and space for artifact storage. Selected artifacts, documents, and staff would be transferred to the new Museum from the existing Exhibition Center in Forestville, Maryland, and the existing museum at the

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[6] Prepared by AMEC Earth & Environmental. Inc., One Plymouth Meeting. Suite 850, Plymouth Meeting, Pennsylvania 19462 AMEC Project# 32106-0136, Contract No. GS-I0E-0230J Order No. 24-06-G86EE8040 for USCG Headquarters, Washington, D. C.

[7] Prepared by URS Group, Inc., 1375 Euclid Avenue, Suite 600, Cleveland, OH 44116 for U.S. Coast Guard Environmental Management Division, Shore Infrastructure Logistics Center,1301 Clay Street, Suite 700N, Oakland, CA 94612 **under** IDIQ Contract No. HSCG83-07-D-3WF170, Task Order No. HSCG47-13-J-A17009

Coast Guard Academy ("Academy") in New London. The USCG claims that the existing museum lacks adequate space to display and properly curate USCG artifacts.

On completion of the new Museum, the USCG may accept the donation of the Museum and operate it in perpetuity.

The Public Notice further claimed that the SEA will serve as a concise public document that provides sufficient evidence and analysis to determine if an Environmental Impact Statement (EIS) must be prepared, or if a FONSI is appropriate.

III. APPLICABLE LAW

Title 14 US 98[8] provides that the USCG may establish the Museum. However, Congress did not envision that the Museum was essential because the statute does not contain mandatory language for its creation. Additionally, the statute, also, contains provisions limiting expenditures for engineering, design, construction, operation and maintenance of the Museum.

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[8] 14 United States Code §98. National Coast Guard Museum.

(a) Establishment.—The Commandant may establish a National Coast Guard Museum, on lands which will be federally owned and administered by the Coast Guard, and are located in New London, Connecticut, at, or in close proximity to, the Coast Guard Academy.

(b) Limitation on Expenditures. — (1) Except as provided in paragraph (2), the Secretary shall not expend any appropriated Federal funds for the engineering, design, or construction of any museum established under this section.

(2) The Secretary shall fund the operation and maintenance of the National Coast Guard Museum with nonappropriated and non-Federal funds to the maximum extent practicable. The priority use of Federal operation and maintenance funds should be to preserve and protect historic Coast Guard artifacts.

(c) Funding Plan.—Before the date on which the Commandant establishes a museum under subsection (a), the Commandant shall provide to the Committee on Commerce, Science, and Transportation of the Senate and the Committee on Transportation and Infrastructure of the House of Representatives a plan for constructing, operating, and maintaining such a museum, including:

(1) estimated planning, engineering, design, construction, operation, and maintenance costs;

(2) the extent to which appropriated, nonappropriated, and non-Federal funds will be used for such purposes, including the extent to which there is any shortfall in funding for engineering, design, or construction; and

(3) a certification by the Inspector General of the department in which the Coast Guard is operating that the estimates provided pursuant to paragraphs (1) and (2) are reasonable and realistic.

(d) Authority.—The Commandant may not establish a Coast Guard museum except as set forth in this section.

IV. COMMENTS ON SITE PRE-SELECTION

How can a project be planned for months at considerable expense before critical knowledge becomes available for decision-making? It sets planning on its head.

The Planning Proposal, Memorandum of Agreement, and Final EA (November 2008) for the Proposed Coast Guard Acquisition and Operation of a Privately Constructed New National Coast Guard Museum, New London, Connecticut and numerous articles in the Day newspaper clearly demonstrated that, in 2000, 2002 and 2006, the USCG had pre-selected Fort Trumbull as the preferred alternative before preparation of the EA[9, 10, 11, 12].

Without officially establishing the selection criteria by a site selection committee prior to the scoping effort, the USCG can create a matrix specifically designed to pre-select a preferred option during the preparation of an EA. Prior EAs thwarted the purposes embodied in Title 40 CFR Part 1500.1(b) and (c). As a result, the USCG should establish the selection criteria prior to commencement of environmental scoping, and the outcome of the scoping process should identify the rankings of environmental factors instead of tailoring the desired result to justify the preferred location.

The purpose of NEPA is to ensure systematic consideration of environmental risks at the early stages of planning before the USCG commits its resources to the particular use of a site. Because the project could "arguably damage the environment," the USCG has a duty to comply with NEPA's requirement for preparation of an environmental impact assessment, which requires a determination of the preferred alternative site determinatively concluded from the EA not presumptively because of corrupting political interferences on environmental planning. See Scenic Hudson Preservation Conference v. Federal Power Com., 354 F2d 608, 618-620 (1965, CA2). "[I]n viewing the public interest, the Commission's vision is not to be limited to the horizons of the private parties to the proceeding." Michigan Consolidated Gas Co. v. Federal Power Comm., 108 US App DC 409, 283 F2d 204, 224- 226, cert den 364 US 912, 81S Ct 276 (1960).

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[9] Title 40 CFR Part 1507.3 provides agency procedures for the scoping process and exceptions for actions requiring an EA but not necessarily an Environmental Impact Statement; nonetheless, the CG held a scoping session in New London for the 2002 EA.

[10] USCG 2000, United States Coast Guard (USCG). 2000. *National Coast Guard Museum Planning Proposal*. Prepared by CEU Providence. February 2000.

[11] USCG 2002, United States Coast Guard (USCG). 2002. *Final Environmental Assessment: Land Acquisition for the National Coast Guard Museum*. Prepared by Mangi Environmental Group. March 2002.

[12] State of Connecticut et al,, 2006, *Memorandum of Agreement*: Among the National Coast Guard Museum Association, Inc. (NCGMA), the New London Development Corporation (NLDC), the Corcoran Jennison Company, Inc, the United States Coast Guard (USCG), and the State of Connecticut. 28 April 2006.

An SEA should be prepared as close as possible to the time an agency proposes an action. The evaluation should be prepared early enough so that it can practically serve as an important contribution to the decision-making process and should not be used to rationalize or justify decisions already made. Preparation of an evaluation should not prevent an agency from conducting contemporaneous engineering, economic, feasibility and other studies which do not otherwise commit the agency to commence or engage in such action or limit the choice of reasonable alternatives.

The USCG and supporters fail to comprehend the meaning of the "Planning Function," which is to plan rather than justify. It's never a good choice to give a law enforcement agency with a lot of power unfettered discretion

The NCGMA pre-selected the downtown location for the Museum, which Admiral Robert J. Papp, former Commandant of theUSCG sanctioned and Connecticut Governor Dannell Mallloy, former New London Mayor Daryl Finizio, NCGMA, and Mr. Bob Ross, Executive Director of the Connecticut Office of Military Affairs ratified. [McDermott 2013, 2014]. Mayor Finizio, solicited and enticed the NCGMA and Admiral Papp to select the downtown location after USCG's unsuccessful efforts in 2011 to secure Riverside Park, New London as the preferred location.

The pre-selection occurred without revision of the Academy's 2006 Facilities Master Plan (updated in 2010) and before preparation of the EA. The Admiral granted *de facto* approval of downtown New London as the site without benefit of an appointed selection committee, which in 2006 recommended Parcel 1A in Fort Trumbull.

The NCGMA's commitment to funding for the Museum has caused the USCG to act in a most parochial, biased and partial mode geared to rubber-stamping the EA and FONSI irrespective of the impacts and consequences. No member of the local public has as much access to the USCG and influence as NCGMA members.[13] Former Admiral Papp has a conflict of interest, perceived or actual, with the NCGMA and its President as clearly demonstrated on its website showing the former Commandant bestowing the 2012 Spirit of Hope award on James Coleman. This too cozy relationship between Admiral Papp and Mr. Coleman and the NCGMA is analogous to the *Lord of the Rings* fellowship. The fellowship serves as a prime example of corruptible leadership for cadets where the ends justify the means. And, it thwarts the impartial preparation of the SEA.

[13] James "Jimmy" Coleman, Jr, President of the Board of Directors of the National Coast Guard Museum Association was presented with the 2012 Spirit of Hope award for his selfless dedication and unwavering leadership to establish a National Coast Guard Museum that will honor the commitment, accomplishments, and sacrifices of Coast Guard men and women. Coleman was among six recipients of the Spirit of Hope award one for each branch of the military and Secretary of Defense presented on Tuesday, November 19, 2013 during the 2012 Spirit of Hope Award Ceremony at the Pentagon Library in Washington, DC. [Source: www.coastguardmuseum.org]

The NCGMA will provide approximately $80 million in funding for purchase of the site, architectural and engineering design, permitting, development, and construction. Governor Malloy has committed the state of Connecticut to fund $20 million for design, permitting and construction of the Pedestrian Overpass to support the Museum. As a result, the NCGMA and its allies have provided the political impetus for the pre-selected location in downtown New London contrary to the Site Selection Committee appointed by the prior Commandant of the CG in 2006.

The NCGMA and its members are politically driving and spearheading the planning and decisions for locating the Museum in New London. A national fundraising company has been hired to begin raising the millions of dollars in private donations that will be required to build the museum. [Collins 2013] They are in the process of identifying and contacting major donors, including shipbuilders and big corporations that do work for the service, and fundraisers have been traveling the country. [Id.]

Plans are under way to hire a new Museum director, who will be based in New London. Some interviews for the new director position have been conducted. [Idem.]

The press releases [Collins 2013 and McDermott 2013] and the prior Memorandum of Understanding antedating the EA for the Fort Trumbull site permit a reasonable person to infer pre-selection for the current proposal. The collusive efforts of the political alliance is being forged in a new Memorandum of Agreement (Understanding), again, antedating the EA, which provides clear and persuasive circumstantial evidence supporting the inference that the USCG made the EA fit the pre-selected site in downtown contrary to the intent and purposes of the NEPA.

Although Admiral Papp said “he receives updates and is encouraged by what he hears, he has to stay out of the details, legally, while he is on active duty” [McDermott, 12/09/2013], nonetheless, he has actively participated in all stages and efforts to secure the proposed parcel. John Johnson, treasurer of the NCGMA said “the association is committed to holding a groundbreaking in early May [2018] because, while past commandants have advocated for a museum, Papp made it a top priority. [Id.] “The one who has done the most in such a short period of time to push this agenda forward has been Admiral Papp," he said. "That is the main reason why we want to have a ceremonial groundbreaking under his watch." [Id.]

Admiral Papp should have wisely: (1) halted preparation of the EA; (2) requested the NCGMA to cease all fund raising for the current proposal although it could continue such efforts for a New London location; (3) appointed a site selection committee to independently review the work of the 2006 committee in light of the downtown parcel; and (4) completely removed himself from all effort to secure the Museum location

A sad commentary on a federal agency chartered to protect the environment for current and future generations.

V. COMMENTS ON "THE MUSEUM OF THE NCGMA[14]"

A. Purpose and Need

On its webpage, the NCGMA claims that: "The public is generally unaware of the scale and scope of the Coast Guard's operations. The Museum will send a clear message both through its exhibits and its iconic image: Respect the past, engage the present and look to the future." In other words, the NCGMA's plan is to educate the public and provide a gathering place for current and former "Coasties"; however, neither the Congress nor the USCG has formerly adopted "The Museum of the Association's" plans. As a result, the default position is contained in the public notice, which is consolidation of existing artifacts held at the Academy and it' storage facility in Maryland.

B. Museum Design Concept

The NCGMA webpage claims that:

(1) The Museum building will be environmentally responsive; it will use advanced mechanical and structural systems; new materials and construction techniques; and incorporate energy conservation measures as visible building elements, thus evoking the Coast Guard's forward looking outlook and its role as steward of the natural environment.

Rebuttal: The Association's fairy godmother doesn't just show up at groundbreaking to go "poof" and magically the building appears. Two items are essential for producing a product – raw materials and a fuel source to process the materials. Ecological services from Nature are the foundation of the economy. Constructing a building when a no-build option is readily available and preferable is not environmentally responsive.

(2) The building is built on a plinth above the storm tide levels.

Rebuttal: However, it will not be designed to withstand historical earthquakes in Connecticut. The United State Navy's Degaussing Station at Fort Trumbull was designed for earthquake zone 2.

(3) On the top floor and roof, solar power generating equipment and other advanced sustainable systems will be further reminders of the CG's concern for the environment.

Rebuttal: Solar arrays still require fossil fuels for extraction of the raw materials and the processing into photovoltaic cells and arrays. Thereafter, it, also, requires fuels

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[14] Obtained from Association website: www.coastguardmuseum.org

to maintain and repair the arrays. The arrays only operate during daylight. For night time use, the arrays require battery storage or access to the electric grid.

(4) The pedestrian overpass provides a safe handicapped accessible connection between the Ferry Terminal and Museum on the waterfront and the public parking garage located to the west across the railroad tracks. It will be fully enclosed and have three access points: 1) adjacent to Union Station; 2) on the platform of the north-bound passenger track; and 3) between the Museum and the Ferry Terminal. The present rail crossing situation is less than satisfactory. When a train is in the station it is impossible to reach the other side of the tracks. Even when there is no train in the station, the route to the north-bound passenger platform (and to the water front) is circuitous. The overpass will be enclosed and protected from the weather.

Rebuttal: The Intermodal Transportation Study prepared for SCCOG does not even suggest an overpass. In fact, New London electors voted down an overpass to benefit Cross Sound Ferry – a large campaign contributor to the Democratic Party and candidates – in 2008. Further, there have never been any reported accidents to pedestrians accessing the ferry service or any other facilities on the waterfront. Additionally, after construction, the City of New London would obtain ownership of the overpass and the obligation for maintenance. The city has an atrocious track record for maintenance of its properties. Only persons unfamiliar with or uncaring of the city's maintenance record would make such ridiculous suggestions.

VI. ACADEMY FACILITIES MANAGEMENT PLAN

As part of the preliminary planning process before commencing preparation of an SEA, the Academy's Facilities Master Plan requires updating based on careful and meticulous study of all sites in New London from previously established site selection criteria instead of Admiral Papp's desires guided by the NCGMA and its treasurer's business interests. The current Plan strongly recommends moving the Academy's exhibits to a building in Fort Trumbull.

The 2007 Draft and 2008 Final Environmental Impact Statements for the Museum referenced *United States Coast Guard Museum Feasibility, Programming and Siting Study (USCG, 1999)*, prepared by Gale Associates, 33 Riverside Drive, Pembroke, Massachusetts 02359 and *Planning Proposal; Proposed National Coast Guard Museum (USCG, 2000).* Additionally, the USCG commissioned the *Strategic Master Plan; The National Coast Guard Museum*, New London, Connecticut, prepared by White Oaks Associates[15] (September 30, 2008).

In addition to the Academy's current Facilities Management Plan, prior USCG feasibility and planning studies, and the former DEP, strongly supported the construction of the Museum at Fort Trumbull according to **Attachment (2)**.

[15] White Oak Associates is an internationally prominent museum planner and producer for museum re-inventions, museum expansions and new museums for science centers, community museums, history museums, children's museums and special format theaters. White Oak Associates, P.O. Box 1164, Marblehead, Massachusetts 01945, web: www.whiteoakassoc.com, tel: (781) 639-0722

VII. NEPA SCOPING PROCESS FOR ENVIRONMENTAL EFFECTS

NEPA scoping is defined as: "[A] process that continues throughout the planning and early stages of preparation of an environmental impact statement. . . . Scoping is required for an environmental impact statement; scoping may be helpful during preparation of an environmental assessment, but is not required. . . . Scoping is an opportunity to introduce and explain the interdisciplinary approach and solicit information as to additional disciplines that should be included." 43 CFR 46.235(a).

"In scoping meetings, newsletters, or by other communication methods appropriate to scoping, the lead agency must make it clear that the lead agency is ultimately responsible for determining the scope of an environmental impact statement and that suggestions obtained during scoping are only options for the bureau to consider." 43 CFR 46.235(b)

VIII. THE ENVIRONMENTAL ASSESSMENT

Title 40 CFR Part 1500.1(b) provides in pertinent part as follows:

> "NEPA procedures must insure that environmental information is available to public officials and citizens **before decisions are made and before actions are taken**. . . ." (Emphasis added.) Further Part 1500.1(c) provides in pertinent part "[t]he NEPA process is intended to **help public officials make decisions** that are based on understanding of environmental consequences, and take actions that protect, restore, and enhance the environment. These regulations provide the direction to achieve this purpose." (Emphasis added.)

Title 40 CFR 1508.9(a) defines EA to mean:

> "[A] concise public document for which a Federal agency is responsible that serves to: (1) Briefly provide **sufficient evidence and analysis** for determining whether to prepare an environmental impact statement or a finding of no significant impact; and (2) aid an agency's compliance with the Act when no environmental impact statement is necessary." (Emphasis added,)

A. Significance of Impacts

Objective quantification and/or subjective description and analysis determine the significance / insignificance of environmental effects. Objective calculations are preferred; however, an EA is a hybrid of both.

Finding of no significant impact- means a document by a federal agency briefly presenting the reasons why an action, not otherwise excluded (40 CFR 1508.4) will not have a significant effect on the human environment and for which an environmental impact statement, therefore, will not be prepared. It shall include the environmental assessment or a summary of it and shall note any other environmental documents related to it (40 CFR 1501.7(a)(5). If the assessment is included, the finding need not repeat any of the discussion in the assessment but may incorporate it by reference. (40 CFR 1508.13)

"Significantly" as used in NEPA requires considerations of both context and intensity. (40 CFR 1508.27)

(a) *Context.* This means that the significance of an action must be analyzed in several contexts such as society as whole (human, national), the affected region, the affected interests, and the locality. Significance varies with the setting of the proposed action. For instance, in the case of a site-specific action, significance would usually depend upon the effects in the locale rather than in the world as a whole. Both short and long term effects are relevant.

(b) *Intensity*. This refers to the severity of impact. Responsible officials must bear

in mind that more than one agency may make decisions about partial aspects of a major action. The following should be considered in evaluating intensity:

(1) Impacts that may be both beneficial and adverse. A significant effect may exist even if the federal agency believes that at balance the effect will be beneficial.

(2) The degree to which the proposed action affects public health or safety.

(3) Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas.

(4) The degree to which the effects on the quality of the human environment are likely to be highly controversial.

(5) The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks.

(6) The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration.

(7) Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts.

(8) The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or m*ay* cause loss or destruction of significant scientific, cultural or historical resources.

(9) The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973.

(10) Whether the action threatens a violation of federal, state or local law or requirements imposed for the protection of the environment.. 43 Federal Register ("FR") 56003, Nov.29, 1978, 44 FR 874, Jan. 3,1979.

B. Impact Factors

Cumulative impact is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. 40 CFR 1508.7

Effects include: (a) Direct effects, which are caused by the action and occur at the same time and place; and (b) Indirect effects, which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects

on air and water and other natural systems, including ecosystems. Effects and impacts as used in these regulations are synonymous. Effects includes ecological impacts (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative. Effects may also include those resulting from actions which may have both beneficial and detrimental effects, even if on balance the agency believes that the effect will be beneficial. (40 CFR 1508.8)

1. Energy Consumption and Greenhouse Gases

It is my professional opinion, as set forth below, that computation of the total life cycle energy expenditures including significant externalities constitutes a significant impact in light of identified feasible and prudent alternatives.

The Museum is a glass enclosed structure. Glass is not a good insulator of impinging solar energy because in every direction, it increases energy use--particularly west facing glass that drives air conditioning and heating demands.

Title 40 CFR 1502.16(e) (Environmental consequences) requires discussion of "Energy requirements and conservation potential of various alternatives and mitigation measures." Additionally, the section entitled "Energy Supply and Natural Resources Development" in COMDTINST M16475.1D, Enclosure (1), Attachment 2, page 11, subdivision 10 requires Environmental Impact Statements ("EIS") to consider "whether the project or program will have any effect on either the production or consumption of energy and other natural resources, and discuss such effects if they are significant." Even though, the scoping is for an EA, not an EIS, the assessment should analytically address energy consumption and GHG production consistent with the purposes of NEPA and Presidential Executive Orders on the subject.

Parallel to NEPA is the Connecticut Environmental Policy Act ("CEPA") found in section 22a-1b, G.S. Subsection (c) requires scoping for an EA, and subdivision (7) requires "the effect of the proposed action on the use and conservation of energy resources," which may significantly affect the environment.

The legislative findings and purpose for energy planning in Connecticut is found in section 16a-1, G.S.,[16] and legislative findings and policy for energy utilization and policy is found in section 16a-35k, G.S.[17]

[16] It is found and declared that a shortage of energy supplies and resources exists in the state and the United States and that a critical shortage may be imminent, that the existence of such shortage is inimical to the public health, safety and welfare of the people of the state, that there is a necessity to implement the federal mandatory allocation order and other federal directives and federal statutes, establish contingency rationing plans for fuel oil, gasoline and other energy supplies and restrict the use of energy and that the necessity of enacting the provisions of this chapter to provide for equitable distribution and conservation of energy is declared as a matter of legislative determination.

Since energy consumption and GHG production are quantifiable terms, the EA should contain analysis for the life cycle energy consumption over the projected life of the Museum for the design, planning, extraction of raw materials; transportation, manufacture, assembly, installation, construction, operation, maintenance, repairs and ultimate disposal by either demolition, deconstruction, rehabilitation, etc. of each alternative to evaluate the option requiring the least consumption and producing the least amount of gases.

Energy consumption is the direct cause effectuating pollution, impairment or destruction of the air, water or other natural resources. There are a number of reasons for this:

First, although we are used to thinking in terms of monetary costs, each dollar of cost requires the consumption of energy for meaning to that dollar. For the nation as a whole, the cost is roughly about 5,000 kilocalories consumed per dollar spent, roughly half a liter of oil or its equivalent as some other fuel. Certain activities, such as construction, tend to be more energy intensive per unit dollar spent. Very careful assessments of these energy costs were made in the 1970s and are still useful when corrected for inflation. Spending large amounts of money requires spending large quantities of energy for that money to have meaning.

Second, any time energy is used there are environmental effects and consequences. These range from impacts at the extraction sites (e.g. oil facilities in Southern Louisiana, Alaska and Venezuela and coal mines in Wyoming or Pennsylvania) to processing, and fabrication facilities, transportation and consumption sites (e.g. cement, steel or bulldozer factories). For example, these impacts include

[17] The General Assembly finds that the state of Connecticut is severely disadvantaged by its lack of primary energy resources; that primarily as a result of past policies and tendencies, the state has become dependent upon petroleum as an energy source; that national energy policies do not preclude the recurrence of serious problems arising from this dependence during petroleum shortages; that the increase in oil prices since the 1973 oil embargo has had a major impact on the state; that the economy has suffered directly because of our dependence on petroleum and constraints upon the rate of conversion to alternatives; that other conventional sources of energy are subject to constraints involving supply, transportation, cost and environmental, health and safety considerations; and that the state must address these problems by conserving energy, increasing the efficiency of energy utilization and developing renewable energy sources. The General Assembly further finds that energy use has a profound impact on the society, economy and environment of the state, particularly in its impact on low and moderate-income households and interrelationship with population growth, high density urbanization, industrial well-being, resource utilization, technological development and social advancement, and that energy is critically important to the overall welfare and development of our society. Therefore, the General Assembly declares that it is the policy of the state of Connecticut to (1) conserve energy resources by avoiding unnecessary and wasteful consumption; (2) consume energy resources in the most efficient manner feasible. . . . The General Assembly declares that the energy policy is essential to the preservation and enhancement of the health, safety and general welfare of the people of the state and that its implementation therefore constitutes a significant and valid public purpose for all state actions.

terrain disruption, air pollution (e.g. sulfur dioxide emissions), water supply contaminations, and so forth.

Third, the impacts are essentially irrevocable changes to our atmosphere with possible severe climatic impacts. There is roughly one kilogram of CO_2 released per dollar of economic activity in the U.S. Thus, each unit of economic activity generates very long term disruption to our atmosphere since that carbon dioxide will stay in the atmosphere for an average of hundreds of years.

Fourth, the principal source of our energy use is fossil fuel, by definition non renewable. Our domestic petroleum and gas supplies are quite finite. For example, U.S. production of oil peaked in 1970 (as predicted byKing Hubbert in 1955). It has been declining steadily since then despite huge drilling investments, so that we now produce roughly half of what we did in the 70's. The difference comes from imported oil, which now represents approximately 60 percent of the Nation's supply. It is not clear when the total world oil production will peak, but it will be in 2007 (predicted by King Hubbert in 1968 and by Colin Campbell in 1998). It is hard to find a prediction made by any competent researcher that pushes the peak beyond about 2030 assuming continued economic growth, and most suggest sooner. Natural gas supplies are harder to predict but might not be too different form oil. Amongst the world authorities on these estimates are Cutler Cleveland and Robert Kaufmann, Director and Associate Professor of the Boston University Center for Energy and the Environment, who acknowledged the difficulty in validating the data from the major oil producing regions of the Middle East. See, also, [Rickover, 1957].

Thus, it is important to understand that there are many scientific, environmental, economic and political reasons for minimizing energy usage and waste, over the foreseeable time. There is a substantial probability of excessiveness, unreasonableness and capricious environmental harm unless the NEPA process includes a rational methodology for determining the preferred option contributing to the least predictive injury. Resource planning using analyzes, studies, assessments and evaluations afford a community the predictive opportunity to contemplate options preventing irretrievable and irreversible commitments of resources and environmental abuse. Historical resource planning has primarily concerned corrective considerations.

Life-cycle studies can be used as a means to identify and select the most efficient alternatives in order to reduce consumption of resources and lower the environmental impact in existing electricity generation and distribution systems. Comparative energy consumption assessments for the expected life of alternatives (i.e., a/k/a life-cycle energy consumption or embodied or accumulated energy consumption) provide the best scientific basis to use resource planning for selecting the preferred alternative. Without energy computations for the estimated life of buildings and structures, the NEPA process becomes quite irrational, unscientific and arbitrary. In my opinion, the CG runs the significant risk of unplanned, but preventable, pollution,

impairment or destruction of natural resources. Embodied (accumulated) energy is the total quantity of energy required to manufacture, and supply to the point of use, a product, material or service and disposal. It includes the energy expended from cradle to grave for: extracting raw materials; transporting, manufacturing, assembling and installing a specific material to produce a service or product and finally its disassembly, deconstruction and/or decomposition.

When evaluating the Museum, the USCG should perform and provide a life cycle energy analysis for the overpass and each of the Museum options for the purpose of selecting the alternative requiring the least energy expenditure and producing the least GHGs. Such analysis should include calculations of all embodied energy requirements used in construction materials, fabrication and manufacturing of components, maintenance and repair of the facility and ancillary work during its useful life, viz. cradle-to-grave. The analysis should, also, include the total fuel cycle energy required over the projected useful life of the facility. The boundary for both the energy calculations of the fuel cycle and materials for the facility construction and maintenance shall both be at the point of primary material extraction and include the energy consumed through the entire supply chain to final, but not be limited to, such subsequent steps as transportation, refinement and energy for delivery to the end consumer. For purposes of this paragraph, "facility energy" means the heat energy delivered by the facility contained in a fuel minus the life cycle energy used to produce the facility. "Fuel energy" means the heat energy contained in a fuel minus the energy used to extract the fuel from the environment, refine it to a socially useful state and deliver it to consumers, and "embodied energy" means the total energy used to build and maintain a process, expressed in calorie equivalents of one type of energy.

Life cycle assessment means the comprehensive examination of a product's environmental and economic aspects and potential impacts throughout its lifetime, including raw material extraction, transportation, manufacturing, use, and disposal."

Consider the life cycle steps requiring energy at each step to produce a simple pencil.[18]

[18] The standard pencil begins when a cedar tree is cut down. Ropes and gear tug it onto the bed of a truck or a rail car.

Think of all the numberless people and skills involved in mining ore to produce steel and refine the steel into saws, axes and motors.

Think of all the people who grow hemp, then transform it, through various stages, into a strong rope.

Think of the untold thousands of people who produce the coffee the loggers drink!

The logs are shipped to a mill and cut into slats. The slats are kiln-dried, tinted, waxed, then, kiln-dried again.

How many skills were needed to produce the tint and the kilns. What about electric power? What about the belts, motors and other parts at the mill?

The pencil slats are shipped to a factory. A complex machine cuts grooves into each. A second machine lays lead into every other slat. Glue is applied. Two slats are sealed together as one, then, cut into lengths that form pencils.

In his Presidential Executive Order entitled, *Federal Leadership in Environmental, Energy, and Economic Performance*, the President declared that the goals for all federal agencies is "[t]o establish an integrated strategy towards sustainability in the Federal Government and to make reduction of greenhouse gas emissions a priority for Federal agencies. . . ." Exec. Or. 13514, 74 Fed. Reg. 52117 (October 8, 2009)

In Section 2(f)(iv) of E.O. 13514, the President declared that it is the goal of all federal agencies to advance regional and local integrated planning by:

> "identifying and analyzing impacts from energy usage and alternative energy sources in all Environmental Impact Statements and Environmental Assessments for proposals for new or expanded Federal facilities under the National Environmental Policy Act of 1969, as amended (42 U.S.C. 4321 *et seq.*)"

The USCG needs to provide analysis of average distance traveled and energy consumed for the traveling public to the Museum from various places of departure around the country." The Association projects about 800,000 visitors per year while the 2006 EA projected only 200,000.

The NEPA and CMDTINST require the EA to look beyond the immediate site and building and to examine the entire life cycle of energy consumption and production of GHGs. A building cannot truly be called sustainable if its whole life cycle lacks sustainability. The owner of a building does not live up to modern environmental codes

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The lead alone is complex; it's not really lead. To produce it, graphite is mined in Ceylon. The graphite is, packed and shipped, then mixed with clay from Mississippi. It is treated with wetting 'agents — such as sulfonated tallow, which is formed when animal fats chemically react with sulfuric acid.

The pencil receives six coats of lacquer. Lacquer has numerous ingredients,' including castor oil. Think of all the chemists needed to create the paint — think of all the castor bean growers needed to produce, refine and ship the oil.

The brass end that holds the eraser in place is a marvel. Miners need to first extract zinc and copper from the earth. Experts transform those materials into sheet brass, which is then cut, stamped and affixed to the pencil.

That brings us to the eraser. It is made from "factice," a rubber-like product that is produced by rapeseed oil from the Dutch East Indies reacting with sulfur chloride.

To be sure, an awe-inspiring amount of work goes into producing a pencil. Millions of people collaborate to produce it — millions ply their unique trades and skills — yet they have no idea they are collaborating.

Each is merely changing his small piece of know-how for the money he needs to buy the goods and services he wants.

More amazing is this: No one person is capable of making a pencil. Not even the president of the pencil company.

No one person could possibly manage the millions of people — and the millions of decisions they make — who produce the ingredients that become a pencil.

Despite the absence of a mastermind, billions of pencils are made every year. They're produced with such humdrum efficiency that every one of us takes pencils for granted. It is a folly for any, man, or group of men, to think of producing something as incredibly complex as a pencil. How much harder must it be to produce a car — one that consumers will want to buy, anyhow?

of conduct without optimizing environmental protection in the whole chain upstream and downstream. Life-cycle studies contribute to a good platform for dialogue where different set of values and interests can be made clear.

2. Strategic Sustainability Performance Plan

Section 8 of E.O. 13514 requires that "each agency . . . develop, implement, and annually update an integrated Strategic Sustainability Performance Plan that will prioritize agency actions based on lifecycle return on investment. . . ." Each such Plan and update is subject to approval by the Office of Management and Budget Director under section 4 of the order with respect to the period beginning in fiscal year 2011 and continuing through the end of fiscal year 2021.

The EA should address this Plan in the consideration of alternatives for energy sustainability as an environmental factor. The USCG should provide the Plan prior to commencing the EA.

3. Earthquakes

It is my professional opinion, as set forth below, constitute a potential significant impact. The SEA needs to assess the potential for damage from earthquakes to the Museum. While the possibility of an earthquake seems remote in the New England region, it has the same vulnerability according to the Connecticut Department of Emergency Management and Homeland Security, Earthquakes The DEMHS Advisor, Volume 3, issue 6, April 2007:

> "The eastern half of the United States does not have as high a frequency of earthquakes as California and Japan, but this part of New England has had many history making tremors. The first recorded event in the New World was related to traders by the Native Americans already here. They said it happened in the vicinity of Moodus, CT, in 1568";
>
> "All that survives of the story is a tale of mass destruction of campsites and violent vertical shaking motion of the ground. Sermons are recorded from a service held in the town of Hampton, New Hampshire on October 29, 1727. They speak of the "terrible day of trouble" that happened the day before as a severe quake sounding like "thunder and lightening" rocked the village. The event created fissures in earth and buildings still visible today";
>
> "New England has the oldest record of earthquakes in the United States. The earliest settlers learned of seismic activity in this area, dating back to 1568, from the native Indians. This probably happened in the Moodus area. This area is still very active today. Almost 50% of all seismic activity in Connecticut since 1729

has occurred in the Moodus region. Tremors have been felt across the state for a long time";

"Connecticut is considered to be a Moderate seismic risk zone as defined by the Federal Emergency Management Agency. However, `Moderate' relates to the fact that earthquakes in the state have a relatively long reoccurrence interval and not that the earthquake magnitudes or impact on the population will necessarily be moderate";

"Connecticut has a population density that is 3.5 times greater than California's and has a hard base rock that transmits seismic waves over a large area much more efficiently. These facts place more people at greater risk since the built environment in this region is predominantly old, unreinforced masonry or is not seismically designed. The majority of these "mill" structures are amazingly strong and stiff for the normal vertical loads they were built to carry. In spite of this, brick is brittle material. Masonry walls will not fare well against the horizontal forces of an earthquake if it is not reinforced or braced in some way" and

"The chances that a damaging earthquake of magnitude 5.0 or greater will occur within the state in any one year are 1 in 20. The odds of an earthquake of magnitude 6.0 here are about 1 in 300 annually. By the year 2010, the accumulated probability for a magnitude 6.0 earthquake will have reached 85%. The Connecticut Earthquake Program is charged with the mission of earthquake risk management, i.e. reducing fatalities, injuries, and property damage resulting from an earthquake in Connecticut."

4. Floodplain Management

It is my professional opinion that the 500 year (0.2% annual recurrence) storm event may potentially cause significant damage to Museum property.

The selected site is at sea level and located in a floodplain, the area hard hit by the infamous 1938 hurricane. Photographs after the 38 hurricane depict significant damage at the Museum site.

As the planet warms and the seas rise, severe storms are expected to become even more destructive. A 1938-type hurricane will surely come again to this vulnerable area. It now appears that statutory and regulatory restrictions imposed under CCMA and the Federal Emergency Management Agency should prohibit building the Museum in the proposed location. Since the location is in the Velocity Zone on the Federal Insurance Rate Map for New London, the structure must be raised on pilings to allow for storm tides and breaking waves. Also, the building cannot extend into the Thames River beyond the Mean High Water Mark.

Presidential Executive Order 13690 of January 30, 2015 (establishing a federal flood risk management standard and a process for further soliciting and considering stakeholder input) amended E.O. 11988 issued on May 24, 1977 (Floodplain Management).

> "It is the policy of the United States to improve the resilience of communities and Federal assets against the impacts of flooding. These impacts are anticipated to increase over time due to the effects of climate change and other threats. Losses caused by flooding affect the environment, our economic prosperity, and public health and safety, each of which affects our national security.
>
> The Federal Government must take action, informed by the best-available and actionable science, to improve the Nation's preparedness and resilience against flooding. Executive Order 11988 of May 24, 1977 (Floodplain Management), requires executive departments and agencies (agencies) to avoid, to the extent possible, the long- and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative. . . . Incorporating this Standard will ensure that agencies expand management from the current base flood level to a higher vertical elevation and corresponding horizontal floodplain to address current and future flood risk and ensure that projects funded with taxpayer dollars last as long as intended. (Emphasis added)

(E.O 13690, Section 1. Policy, Jan. 30, 2015)

5. Traffic

It is my professional opinion that added traffic attributed to the Museum will constitute a significant impact to current traffic at the location.

The railroad site is cramped - only one-third acre with no room for expansion. Traffic congestion in that area is terrible now, but an influx of possibly 200,000 to 1 million visitors per year - according to CG estimates - traveling mostly by car would cause gridlock on an unprecedented scale for the downtown, which already acts as a chokepoint to downtown traffic.

6. Air Pollution

The SEA should project the quantity of air pollutants from the number of anticipated visitors to the Museum using different modes of transportation.

7. Feasible and Prudent Alternatives

The USCG should evaluate alternatives in the SEA, including the No Action Alternative and the above-described Proposed Action. The USCG should consider other reasonable alternatives identified during the public scoping process, e.g. Fort Trumbull and VCGM. The SEA should describe the need for the project, the alternatives, and the environmental impacts of the alternatives. The SEA should, also, contain a comparative analysis of the alternatives, a statement of the environmental significance / insignificance of the impacts expected from the alternatives, and a list of the agencies and persons consulted during the SEA preparation. I anticipate that the downtown site will be the preferred location upon its confirmation in the SEA.

(1) No Build Alternative.

(a) *Virtual Museum*. The feasible and prudent alternative of creating, operating and maintaining a Virtual CG Museum at the Academy over the Internet similar to the United State Naval Academy Museum and other museums on the world wide web to display the Academy's and Forrestville artifacts. A Google search for "virtual museums" revealed 317,000 +results; this clearly demonstrates the global trend towards Internet museums in 3-dimensional holographic imagery displayed to the entire world thereby eliminating the need for energy waste from transportation and buildings.

Elaborating further on a USCG Virtual Museum, the U.S. Air Force Museum at Wright-Patterson Air Force Base displays all its artifacts on the Internet. The Maritime Museum at Norfolk, Virginia displays its artifacts on the Internet and the Mystic Seaport Museum, Mystic, Connecticut displays its artifacts on the Internet. The benefits are obvious and the current virtual museums attract and will potentially attract far more corporate sponsors than fund raising for excessively costly anachronistic museum architecture more suitable to bygone eras.

It's time for the USCG to develop its **Museum of the 21st Century for the World** instead of, not in addition, physical structures. Perhaps, the USCG's leadership can reinvent its focus to look forward and think outside-of-the-box. A helicopter whose windows will be outfitted with virtual-reality screens will recreate storm conditions under which the USCG rescues imperiled boaters. The USCG can show the same reality by selling helicopter simulation games or presenting it on the Internet without the need for a building. Such museum would include cable television and satellite stations for displaying and interpreting the artifacts; and

(b) *No pedestrian Overpass*. Neither the USCG nor its supporters have demonstrated a public safety for such a walkway. Approximately four (4) years ago, New London electors voted against such infrastructure using federal funds. How is the city, which has a historical record of extremely poor maintenance, going to maintain a

pedestrian overpass with an elevator when it can't maintain city hall, a former city owned parking garage on Governor Winthrop Boulevard, and the existing overpass over Water Street west of the railroad station?

(2) Build Alternatives.

(a) The alternative of purchasing the railroad station for the Museum with a parking garage across the street and berthing for the Barque Eagle. [Collins 2013]. This suggestion appeared in my 2007 comments on the EA for Fort Trumbull, and the USCG has previously omitted its consideration;

(b) The alternative of siting the Museum on the 419-acre former Norwich State Hospital now owned by the towns of Preston and Norwich, which meets all the statutory requirements;

(c) The alternative is to site the facility at Fort Trumbull State Park as recommended in the Master Facilities Plan, 2006 - 2007 feasibility studies, USCG selection committee recommendation, and the DEP recommendations.

IX. CONNECTICUT COASTAL MANAGEMENT ACT

Section 307(c)(1) of the Coastal Zone Management Act of 1972 ("CZMA"), as amended, Subpart C of 15 Code of Federal Regulations (CFR) Part 930, and Section II, Part VII(c) of the State of Connecticut Coastal Management Program and Final Environmental Impact Statement requires consistency with the CZMA as implemented by Connecticut's Coastal Management Act ("CCMA"), which is cited as Section 22a-92 *et seq.* of the Connecticut General Statutes ("G.S.").

A. Impacts on Historic Coastal Views and Vistas

Based on the below, it is my professional opinion that the Museum would constitute a significant adverse impact on historic views and vista from its grotesque modernist design, which is uncharacteristic of the neighborhood and its history.

The buildings on Bank Street are historically significant and part of a combined Downtown New London Register District on the National Register of Historic Places.[19] The buildings constitute much of the downtown with individual buildings serving as contributing parts of the whole. Nowhere is New London's maritime heritage more evident than on Bank Street, named for the bank of the Thames River.

By adversely impacting the district's historic fabric, the Museum would likely contribute to future depreciation in the value of the buildings in the district.

Bank Street buildings are the same buildings that 19th century whalers saw when they sailed into port. Without that streetscape, Whaling City pride is just window dressing. Those Bank Street buildings are the windows. The Museum would forever diminish the integrity of downtown.

The scenic coastal views and vistas from both sides of the Thames River are considered in the public domain. The railroad station, designed by Henry Hobson Richardson, is on the National Historic Register as well as other buildings including the Superior Court on Huntington Street with a view from Groton. The architectural flavor of surrounding buildings except the city' parking garage is historic New London dating from Colonial times. The Museum's architectural features will block or degrade critical views and vistas; its impact will be an abomination of the historic structures contrary to the CCMA. It is the equivalent of trying to put "two pounds of sausage in a one pound bag."

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[19] The Historic District is comprised of the following streetscape: State Street, Golden Street, Pearl Street, Starr Street, Tilley Street, Methodist Street (South Side), River Front and Railroad Right of Way, Railroad Station to Spar Yard including 2 – 280 Bank Street, 11 Blinman Street and Firehouse (West Side), 51 – 73 Eugene O'Neill Drive (East Side), Green Street, Union Street from Pearl Street through Union Street Mall, Including 40 - 74 Washington Street (East Side), and 49 - 53 Washington Street (West Side).

" `Adverse impacts on coastal resources' include but are not limited to: degrading visual quality through significant alteration of the natural features of vistas and viewpoints." Section 22a-93(15)(F), G.S.

Visual impact assessment provides a process and standards for objective evaluation – thereby removing much of the subjectivity from the decision-making process and making the results more predictable.

Landscape impacts are defined as changes in "the character and quality of the landscape as a result of development". Consequently, a **landscape impact assessment** evaluates:

- Direct impacts from specific landscape elements;
- More subtle, or indirect, effects on the overall pattern of elements that shapes landscape character; and
- Impacts on generally accepted special interests or values such as designated landscapes or scenic views, conservation areas, public lands, and historic and cultural sites.

Visual impacts are a sub-set of landscapes. They relate solely to changes in views of the landscape and the resultant effects of those changes on people. Visual impact assessments address:

- The direct impacts of the proposed changes on views of the landscape due to intrusion or obstruction;
- The reaction of viewers who may be affected; and
- The overall impact on the view (which may range from degradation to enhancement).

Visual impact analyses grow from comparisons between existing settings and proposed changes. This allows individuals to evaluate how much change a landscape can absorb. (Richard Smardon 1987, 1988) has developed a system of visual analysis based on the elements of landscape compatibility, scale contrast, and spatial dominance. The steps in the process of landscape and visual impact assessment are very similar to those involved in the environmental assessment process as a whole.

For the analysis, a large and diverse group of people are provided with a series of images showing the existing landscape and how it would be affected by the proposed change as seen from a series of perspectives. The visual image of the constructed project within the landscape may be developed from computer-enhanced images or architectural renderings. Experience with visual impact assessments show that, when shown images of shorelines in various stages or types of development, the majority of people select the same image as being aesthetically preferable—suggesting that results from such a process can be considered reliable and repeatable.

Renderings of proposed structures or landscapes are common tools of architects. In the past these were drawn by hand, but photo-imaging software is making increasingly sophisticated mock-ups more accessible. Products range from static images of the proposed change to complicated images that allow the viewer to see the virtual structure from a continuous series of perspectives as if walking or "flying" through the landscape.

The critical elements that ensure a fair and valid comparison include:

- Clearly documenting the angle of view for the lens used,
- Noting the distance between the viewpoint and the object,
- Providing the aspect or angle of the viewer,
- Providing the location of the viewpoint from which the picture was taken, and
- Providing a sufficient number of views (generally six to seven) to ensure that the structure is seen in its full context (Smardon, 2003).

A simple technique for visualization is to "draw" in the structure or structures on an existing photograph using a photo-manipulation program such as Adobe Photoshop®.

As a result, the SEA should characterize the vistas and the aesthetic features of the coastal environment and evaluate their values. Next, the SEA should assess the visual impacts from the Museum on the values of such vista features.

Various forms of mitigation are available, the selection of which depends on the existing setting, its "visual character," plans for the area, and the values of the decision-making body. The generic preferences for coastal structures identified by Smardon (2003) can form a basis on which to overlay state or local standards. Common mitigation measures include:

- Measures to minimize harm should include, but not be limited to reducing visual intrusion and related aesthetic impacts;
- Reducing the length, height and overall size of the Museum;
- Maintaining a minimum distance between structures;
- Encouraging the use of "natural" or "traditional" materials and designs typically found in the specific type of landscape setting;
- Reducing the color or shadow contrast between the proposed structure and the surrounding landscape; or
- Minimizing "visual clutter."

The use of any of these techniques, or others that evolve during the planning process, will vary widely depending on the nature of the existing landscape and the plans for its future.

B. Water Dependency

Based on the below, it is my professional opinion that locating a nonwater dependent use on a site suitable for a water dependent use constitutes a significant adverse impact on "future water-dependent development opportunities" and "adverse impacts on future water-dependent development opportunities and activities" including but not limited to locating a non-water-dependent use at a site that is physically suited for a water-dependent use for which there is a reasonable demand.

In researching the legislative history of the CCMA, Section 22a-92, G.S. *et seq.*, I reviewed all the public acts since its inception in 1978 and investigated the transcripts of all legislative hearings and General Assembly debates for both houses.

The current version of the CCMA concerning the definition of "*water-dependent uses*" in Section 22a-93(16), G.S. resulted from Public Act 79-535. A copy of the legislative transcript history card, Public Act 79-535, proceedings of the Connecticut House of Representatives on Thursday, May 24, 1979 and Senate on Thursday May 31, 1979 for the 1979 session is available from the State Library. See 22 *House Proceedings* 29, pp. 10285-10313.

A museum is not a water dependent use on a site suitable for such use, but, rather a water enhanced use barred by Section 22a-93(16) and (17), G.S. The Museum cannot be made water dependent by attaching marine or tidal facilities to the land occupied by the Museum; the Museum must stand alone as water dependent. The proposed action seeks to expand the nonwater dependent use. The Museum is inconsistent with the enforceable policies of CCMA. See **Attachment (4)**. There is no exemption from the requirement for federal facilities.

"Water enhanced uses" means those uses which do not functionally require direct access to marine or tidal waters but which are enhanced by location in or adjacent to marine or tidal waters, and which may include but are not limited to nonwater based recreational and commercial uses and facilities, multiple family residential uses, hotel, tourist, convention and resort facilities, and other uses which provide general public access to marine or tidal water." (22 *House Proceedings* 10286.)

The Senate passed P.A. 79-535 without any deviations from the House version and unlike the House, which debated the distinction between "*water-dependent uses*" and "*water-enhanced uses*", it refrained from debate on this issue.

Robert Fromer

Robert Fromer
Environmental Consultant

Attachments: (1) Letter from Governor Malloy to Admiral Papp, 04/17/2003
(2) Connecticut DEP letter to USCG Commandant dated June 6, 2007
(3) Brett Zongker, Associated Press article: 01/04/2014
(4) Letter from John Wronowski, Cross Sound Ferry Service,to Gov. Malloy, Jan. 26, 2012

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Dannel P. Malloy

GOVERNOR
STATE OF CONNECTICUT

04/17/2013

Admiral Robert J. Papp, Jr.
Commandant, U.S. Coast Guard
USCG Headquarters
2100 2nd St. SW Stop 7000
Washington D.C. 20593-7000

Mr. James J. Coleman, Jr.
President, National Coast Guard Museum Association
321 St. Charles Avenue, 10th Floor
New Orleans, LA 70130

Dear Admiral Papp and Mr. Coleman,

It was an honor to join you on April 5th to celebrate the U.S. Coast Guard's announcement that the National Museum will be built in Connecticut's historic City of New London port. Connecticut is grateful to host this landmark museum, and we look forward to its successful completion.

The Connecticut Office of Military Affairs will be coordinating this effort on my behalf with the Connecticut Departments of Transportation, Economic and Community Development, Energy and Environmental Protection, and other agencies. I have directed the state agencies to collaborate and take the necessary steps to assist the Coast Guard, the National Coast Guard Museum Association, the City of New London, and other stakeholders in ensuring the process goes smoothly and efficiently.

We will be happy to provide the necessary guidance and support to your project managers throughout this project, and your staff is most welcome to contact Bob Ross of the Office of Military Affairs at (860) 270-8074 should they need further assistance.

Connecticut is thrilled to partner with the United States Coast Guard, the National Coast Guard Museum Association and the City of New London to build our newest national landmark. Thank you both for your support and high regard.

Sincerely,

Dannel P. Malloy
Governor

Cc: Hon. Daryl Finizio, Mayor, City of New London
Secretary Ben Barnes, CT Office of Policy and Management
Commissioner James Redeker, CT Department of Transportation
Commissioner Daniel Esty, CT Department of Energy and Environmental Protection
Commissioner Catherine Smith, CT Department of Economic and Community Development

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governor.malloy@ct.gov

Attachment (1) to comments of Robert Fromer dated July 13, 2017

STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION

June 6, 2007

Winston E. Leslie
Commandant (CG-092)
Headquarters, U.S. Coast Guard
2100 Second Street SW
Washington, DC 20593

Dear Commandant Leslie:

The Department of Environmental Protection has reviewed the Environmental Assessment prepared for the proposed future acquisition and operation of the new National Coast Guard Museum to be privately constructed in New London, Connecticut. The following comments are submitted for your consideration.

The evaluation of alternative sites for the new museum did not consider the proximity of Parcel 1A, the preferred site, to Fort Trumbull State Park. The Department believes that locating the museum on the Fort Trumbull peninsula would result in benefits to both the park and the museum, providing additional reasons for selection of this site. These benefits include:

- The state park is the site of the original Coast Guard Academy and the Coast Guard is represented in the state park's visitor center exhibits.
- The state park is within easy walking distance of the proposed museum. The connecting sidewalk from the waterfront, by Coast Guard Station New London, meets ADA accessible guidelines.
- There is a common historic focus between the museum and the state park.
- The park has sixteen acres of land that could augment museum events.
- The Coast Guard Barque Eagle uses the pier at the state park during two periods of the year, during which the public is invited to board.
- In early planning for the museum there were discussions about a joint entrance ticket for Fort Trumbull's exhibits and the Coast Guard Museum.

In order to take full advantage of the potential synergy between the museum and state park, it is recommended that the National Coast Guard Museum Association consult with the Department's State Park Division in the design of the facility. Similarly, the U.S. Coast Guard should consult with the State Park Division while planning the programming for the museum. The appropriate contact is Pamela Adams, Director of the State Park Division. She may be reached at (860) 424-3200 or pamela.adams@po.state.ct.us.

Section 5.12.1 concludes that "no construction or operational hazardous and toxic waste impacts are anticipated due to implementation of Alternative 1." Although historic spills and

leaks have occurred, "all contaminated materials have been successfully removed from the site and disposed of at an appropriate, off-site facility." Various previous site investigations are referenced, including the *Final Remedial Action Report, NUWC - Area A, Parcel F, New London, Connecticut*, dated March 13, 2002 and *Final Interim Soil Remedial Action Report, New London Development Corporation, Fort Trumbull MDP - Phase II, Remediation Area B, New London, Connecticut*, dated July 2, 2002. However, previous remediation activities, in accordance with the Connecticut Remediation Standard Regulations, resulted in soil remaining on-site that exceeds direct exposure criteria. These reports detail steps taken to render these soils inaccessible, as required by the regulations. In order to ensure continued compliance with the Connecticut Remediation Standard Regulations, the New London Development Corporation and/or the developer must submit a Development Remedial Action Plan (RAP) for the Department's review and approval prior to construction.

Portions of Parcel 1A were previously identified as Area B of the Fort Trumbull MDP and Area A, Parcel F of the former Naval Undersea Warfare Center. Specific requirements for the RAP for each of these areas follow.

Area B of the Fort Trumbull MDP - Phase II Remediation Area B

- A groundwater monitoring plan that includes provisions for the remediation of petroleum products.
- A site grading plan that demonstrates all soil will be rendered inaccessible at the conclusion of site development activities. The soil that exceeds the direct exposure criteria (DEC soil) at Area B was covered by a minimum of one foot of soil and must be rendered inaccessible by site development activities.
- A construction soil management plan that will ensure that any soil that exceeds the direct exposure criteria is either rendered inaccessible or properly disposed of at the conclusion of construction activities.
- Provisions and a schedule to record on the land records, an Environmental Land Use Restriction (ELUR) to restrict the exposure of DEC soil that will be rendered inaccessible by site construction. The ELUR will be recorded following the completion of construction.
- Measures to prevent vapor intrusion into the building. This is required because there is the potential for petroleum products floating at the top of the groundwater table.
- Provisions for signs providing notice that remediation is being conducted. Such signs must remain visible until all DEC soil is rendered inaccessible.
- Provisions to ensure that work activities meet all OSHA requirements, including OSHA 40-hour training.
- A contingency plan to address unknown contamination found during construction activities. Such a plan must include provisions to characterize the materials and determine if remedial measures are required.
- Measures to protect existing groundwater monitoring wells and coordinate the data requirements of the groundwater monitoring program with site development.
- Provisions for testing of any fill brought on site is required to demonstrate that the fill is clean.

- Provisions to submit for the Department's written approval a report that documents that the requirements of the RAP are met. This report will must include a draft ELUR for the Department's review and approval.

Former Naval Undersea Warfare Center Area A, Parcel F

- A construction soil management plan that will ensure that any soil that exceeds the direct exposure criteria is either rendered inaccessible or properly disposed of at the conclusion of construction activities.
- A request for a temporary release from the ELUR that is recorded on the land records for the site. This ELUR restricts the exposure of soil that exceeds the direct exposure criteria that is located below a depth of four feet below grade. The construction soil management plan will form the basis of the request for a temporary ELUR release.
- The DEC soil that remains at this parcel was covered with a minimum of four feet of soil. (Section 4.12.1.2 of the ESA incorrectly states that 4 inches of clean fill was placed at this parcel.) A warning fabric was placed as a barrier between the clean soil fill and the DEC soil that remains at the site.
- Measures to prevent vapor intrusion into the building. This is required because there is the potential for petroleum products floating at the top of the groundwater table.
- A post remediation groundwater monitoring plan.
- Provisions to ensure that work activities meet all OSHA requirements, including OSHA 40-hour training.
- A contingency plan to address unknown contamination found during construction activities. Such a plan must include provisions to characterize the materials and determine if remedial measures are required.
- Measures to protect existing groundwater monitoring wells and coordinate the data requirements of the groundwater monitoring program with site development.
- Provisions for testing of any fill brought on site is required to demonstrate that the fill is clean.
- Provisions to submit a report for the Department's written approval that documents that the requirements of the RAP are met. This report will form the basis for the restoration of the ELUR. The ELUR will be restored following the completion of construction.

In addition, an evaluation must be conducted to determine if the site is subject to the requirements of the Property Transfer Act pursuant to Section 22a-134 of the Connecticut General Statutes. If there are any questions regarding RAP requirements or the Property Transfer Act, Peter Hill of the Remediation Division is the appropriate contact. He may be reached at (860) 424-3912 or peter.hill@po.state.ct.us.

Page 5-8 states that "no jurisdictional wetlands or surface waters are located with the project study area. Therefore, no construction-related and/or operational impacts to these water resources would be anticipated." The document does indicate that a detailed site-specific erosion and sedimentation control plan will be implemented to mitigate construction impacts. However, there is no acknowledgement that stormwater runoff from the museum facility could impact water quality of the nearby Thames River or that mitigation or management measures will be implemented.

Traditional stormwater systems collect stormwater as rapidly as possible and quickly shunt it from upland areas to receiving waterbodies. This has resulted in widespread and significant pollution problems from both the materials picked up by the stormwater as it flows over developed land surfaces (non-point source pollution) and, in coastal locations, from the freshwater itself which, even if potable, is a pollutant (by virtue of volume) when introduced into a saline ecosystem. The latest emphasis in stormwater management is to try to minimize changes between pre- and post-development runoff rates and volumes by utilizing on-site retention and to pretreat discharges to remove total suspended solids, oils, greases, nutrients, pathogens and floatable debris.

The Department's typical recommendation for stormwater management follows. For this site, any infiltration of storm water system discharges must be directed away from locations where petroleum products are likely to be present floating at the top of the groundwater table.

Appropriate controls, designed to remove sediment and oil or grease typically found in runoff from parking and driving areas, should be included in any stormwater collection system to be installed or upgraded at the site. Non-structural measures to dissipate and treat runoff are strongly encouraged, including infiltration using pervious paving, sheetflow from uncurbed pavement to vegetated swales, water gardens, or depression storage areas. The Department recommends a stormwater management treatment train approach. Such a system includes a series of stormwater management best management practices (BMPs) that target the anticipated pollutants of concern. For example, parking lot runoff would be expected to contain petroleum hydrocarbons, heavy metals, sediment, organic material (leaves/grass clippings) and seasonally elevated temperatures. Potential structural stormwater BMPs include, but are not limited to, catch basin inserts, gross particle separators, deep sump catch basins fitted with passive skimmers, and/or detention/retention basins having adequate pre-treatment. For larger sites, a combination of structural and non-structural BMPs are typically most effective and practical. If more than 1 acre of pavement drains to a common discharge point, a gross particle separator should also be installed. Advanced designs for gross particle separators have been developed, incorporating cyclonic or swirl technology, that the Department believes are more effective in retaining medium to coarse grained sediments as well as floatables than standard designs. It is recommended that the appropriate variety of this type of unit with a cyclonic design be installed in conjunction with each outfall, depending on the size of the drainage area. Provisions should be made for the periodic maintenance of all stormwater management infrastructure that will be required to insure continued effectiveness of these control measures.

In order to reduce the impact of development and address stormwater quality issues, the Department strongly encourages the use of Low Impact Development measures. Consequently, we typically recommend the utilization of one, or a combination of, the following measures:

- The use of pervious pavement (which is very compatible for parking lot applications), or impervious pavement without curbs, to promote sheet flow of stormwater runoff,
- The use of vegetated swales, tree box filters, and/or infiltration islands to infiltrate and treat stormwater runoff (from building roofs and parking lots),
- The minimization of access road widths and parking lot areas to the maximum extent possible to reduce the area of impervious surface,

- If soil conditions permit, the use of dry wells to manage runoff from the building roofs, and
- The installation of rainwater harvesting systems to capture stormwater from building roofs for the purpose of reuse for irrigation.

For additional guidance, consult the *Connecticut Stormwater Quality Manual.* The manual provides guidance on the measures necessary to protect the waters of the state from the adverse impacts of post-construction stormwater runoff. The manual is intended for use as a planning tool and design guidance document by the regulated and regulatory communities involved in stormwater quality management and provides uniform guidance for developers and engineers on the selection, design, construction and maintenance of stormwater Best Management Practices. It includes site planning concepts to reduce or disconnect impervious surfaces in order to reduce or eliminate the need for structural stormwater controls. It also addresses criteria to consider when selecting stormwater treatment practices at a particular site, including effectiveness of particular practices, land use factors, physical/site feasibility factors and downstream resources. The manual is available on-line at:
http://www.ct.gov/dep/cwp/view.asp?a=2721&q=325704&depNav_GID=1654.

Stormwater discharges from construction sites where one or more acres are to be disturbed require a permit pursuant to 40 CFR 122.26. The Permitting & Enforcement Division has issued a *General Permit for the Discharge of Stormwater and Dewatering Wastewaters Associated with Construction Activities* that will cover these discharges. For projects disturbing five or more acres, registration describing the site and the construction activity must be submitted to the Department prior to the initiation of construction. A stormwater pollution control plan, including measures such as erosion and sediment controls and post construction stormwater management, must be prepared. For sites where more than 10 acres will be disturbed, the plan must be submitted to the Department. A goal of 80 percent removal of total suspended solids from the stormwater discharge shall be used in designing and installing stormwater management measures. Another requirement of this permit is that stormwater discharges located less than 500 feet from a tidal wetland must be discharged through a system designed to retain the volume of stormwater runoff generated by 1 inch of rainfall on the site. For construction projects with a total disturbed area between one and five acres, no registration is required as long as the project is reviewed by the town and receives written approval of its erosion and sediment control measures and it adheres to the *Connecticut Guidelines for Soil Erosion and Sediment Control.* If no review is conducted by the town or written approval is not provided, the permittee must register with the Department. For further information, contact the division at (860) 424-3018. A copy of the general permit as well as registration forms may be downloaded at:
http://www.ct.gov/dep/cwp/view.asp?a=2709&q=324212&depNav_GID=1643#StormwaterConstructionGP.

As noted on page 5-9, a Coastal Site Plan Review will be required in accordance with section 22a-105(c) of the Connecticut Coastal Management Act. The proper management of stormwater to mitigate potential impacts to the Thames River, as discussed above, will be a primary focus of the Department's review of the Coastal Site Plan. If there are any questions concerning consistency with Connecticut Coastal Management Act policies, John Gaucher of the

Office of Long Island Sound Programs is the appropriate contact. He may be reached at (860) 424-3660 or john.gaucher@po.state.ct.us.

Thank you for the opportunity to review this project. If there are any questions regarding these comments, please contact me at (860) 424-4111 or david.fox@po.state.ct.us.

Sincerely,

David J. Fox

David J. Fox
Senior Environmental Analyst
Office of Environmental Review

cc: Robert Kaliszewski, DEP/OPDD
Pamela Adams, DEP/SPD
Rob Clapper, DEP/SPD
John Gaucher, DEP/OLISP
Peter Hill DEP/RD

Smithsonian makes push in 3D imaging of artifacts

By Brett Zongker

Associated Press

POSTED: 01/04/2014 12:00:00 AM PST

WASHINGTON -- With most of its 137 million objects kept behind the scenes or in a faraway museum, the Smithsonian Institution has launched a new 3-D scanning and printing initiative to make more of its massive collection accessible to schools, researchers and the public worldwide.

A small team has begun creating 3-D models of some key objects representing the breadth of the collection at the world's largest museum complex. Some of the first 3-D scans include the Wright brothers' first airplane, Amelia Earhart's flight suit, casts of President Abraham Lincoln's face during the Civil War and a Revolutionary War gunboat. Less familiar objects include a former slave's horn, a missionary's gun from the 1800s and a woolly mammoth fossil from the Ice Age. They are pieces of history some people may hear about but rarely see or touch.

The Smithsonian unveiled its new 3-D viewer online last month with technology from 3-D design firm AutoDesk to give people a closer look at artifacts in their own homes. The data can also be downloaded, recreated with a 3-D printer and used to help illustrate lessons in history, art and science in schools. While some schools might acquire 3-D printers for about $1,000, other users may examine the models on their computers.

Smithsonian digitization director Gunter Waibel said museums are working to redefine their relationship with audiences to become more interactive.

"Historically, museums have just tried to push data out. It's been a one-way street," he said. "Now museums are really rethinking their relationship with their audience, and they're trying to empower their audiences to help them along whatever learning journey they're on."

TELLING STORIES

With the cost of 3-D scanning and printing equipment declining in recent years, Waibel said there's a new opportunity for museums to transform how they collect, curate and conserve artifacts and also how they educate. Three-dimensional models can help tell stories and create more engaging lessons, he said.

Smithsonian educators are building interactive tours to view 3-D models online. On the Wright Flyer aircraft from 1903, they have created hotspots to help explain its engine and wing design, and users can rotate the object in all directions for a closer look.

With two Lincoln masks, the 3-D viewer allows the user to adjust lighting levels to see the aging of the president's face over the course of the war. And a 3-D scan of a Chinese Buddha statue allows users to examine and unravel a story carved in its surface.

So far, the Smithsonian is devoting about $350,000 annually to 3-D digitization, with companies also donating equipment. But museum officials are working to raise $15 million going forward to move the 3-D lab from a suburban warehouse in Maryland to a new innovation center planned for the National Mall. There, the public could see the latest 3-D technology and even make their own 3-D prints of museum objects in a "maker lab."

Within minutes, a 3-D printer can create a plastic replica of an object by reproducing the digital model layer by layer. Other 3-D printers can reproduce objects in fiberglass, stone powder, ceramics, metal, rubber or other materials.

It's not clear how long it will take to create a large 3-D collection. The pace will depend on funding and scaling up techniques the 3-D lab has just begun creating, officials said. For other digitization efforts, the Smithsonian has engaged private partners and may even recruit volunteers to help. In total, the Smithsonian aims to eventually digitize 13 million objects in either 2-D or 3-D.

DIGITAL OUTREACH

Smithsonian Secretary Wayne Clough has made digitization of artifacts a high priority since he arrived in 2008, but only more recently has 3-D scanning and printing become affordable. In an interview, he said museums face a greater challenge than the digitization of documents in libraries or archives because museum artifacts are often three-dimensional.

In a new e-book published last year, Clough called on museums to speed up their work to innovate and digitize collections to make artifacts accessible for a generation born in the Internet age.

A strategic plan in 1927 once called for the Smithsonian to have an office in every state so it could reach more people, though that never came to pass . Now with more digital outreach, the museums could actually realize that dream, Clough said, with the potential to reach billions of people.

"If we look at this issue of reaching people, it's more important than ever before," Clough said, noting that museum visitation among minorities is already low. For museums that received government funding to get their start, he said governments are now saying "what's next?"

"What's next is you have to reach the schools," Clough said. "Your relevance is going to be really based in part on how much you're contributing to the educational process for young people."

While posting data online to easily replicate important artifacts might lead to some attempts to counterfeit objects to sell, Smithsonian officials said the data is provided only for educational and noncommercial use.

"People generally adhere to the terms of use, and we've had very few instances of the public misusing the content or ignoring the terms of use," said spokeswoman Sarah Sulick. "We recognize that new technologies may present new challenges, but we'll watch it carefully and take appropriate action if needed."

AUGMENTED REALITY

Other museums have also started digitizing artworks or making 3-D scans of sculptures. In New York, digital guru Sree Sreenivasan was hired this year as the first chief digital officer at the Metropolitan Museum of Art.

Smithsonian officials said they are making a unique push into scanning a wide variety of 3-D objects, ranging from an ancient whale fossil found in Chile to a 3-D image of a supernova in space.

Some of the latest 3-D technology also could transform the experience of visiting a museum. The Smithsonian is experimenting with new projections of augmented reality with 3-D imagery to help bring dinosaurs or historical figures to life in an exhibit.

"Wouldn't it be great to have Abraham Lincoln walking around talking to people?" Clough said. "It can be done."

Linking Long Island and New England for over 35 Years

January 26, 2012

Hon. Daniel P. Malloy
Governor
State of Connecticut
State Capitol
210 Capitol Avenue
Hartford, CT 06106

Dear Gov. Malloy,

The Director of the National Coast Guard Museum Association, Catherine Gook, recently came to Cross Sound Ferry to present a new alternative plan for the National Coast Guard Museum. The proposal includes an expanded Union Station connected, via a pedestrian bridge over the railroad tracks, to a large annex building that begins on City-owned property and juts out into the Thames River. While we are in favor of a USCG expansion and for a museum in New London, we are adamantly opposed to the current proposed location for the museum.

The plan eliminates our use of land we currently lease from the City that has been used to support waterborne transportation and interstate commerce for decades, obstructs our emergency right of way, infringes on our riparian water rights, and interferes with the safe navigation of our vessels. Furthermore, it obliterates our own plan for an expanded high-speed ferry service, which is on file on public record with the City for years. We believe, as we know you do, that waterborne transportation and shipbuilding and repair should be the primary purpose of New London's deep water port.

Cross Sound Ferry is recognized by the USCG as one of 12 High Capacity Vessel Owners/Operators in the U.S. As a large-scale operator, we are constantly in need of more space. The 1.5 million people and 500,000 vehicles we move annually already tax our limited parcel.

The land we do own was hard earned through various purchases over the past 35 years by members of three generations of my family. In fact, one such purchase granted us the riparian rights over the water onto which the plans call for the museum to be built. We have also leased the piece of property proposed for the museum annex building for over 20 years and have attempted to purchase it outright from the City on two separate occasions. While it may not be a large parcel, it is the last piece of commercial waterfront property available for any future growth of our ferry services.

2 Ferry Street, New London, CT 06320
Phone (860) 443-7394
Fax (860) 440-3492
www.longislandferry.com
An Affirmative Action / Equal Opportunity Employer

Attachment (4), page 1 to comments of Robert Fromer dated July 13, 2017

Prior to the downturn in the economy, Cross Sound had proposed a new high-speed/passenger-only ferry terminal with public observation deck along with two fixed piers for the docking of up to four vessels using that property. We currently have high-speed ferry operations to Orient Point, Long Island, Block Island and Montauk from New London. Previous and future destinations include Martha's Vineyard and New York.

In March 2010, ConnDOT released a transportation plan to address the current and future needs at the New London Transportation Center. Among the recommendations were increased accommodations for bus, rail and ferry services to meet the growing demand for transit. Identified in the plan was the need for an overhead pedestrian way to seamlessly connect the 1000 car Water Street parking garage, a new bus terminal, the railroad station and ultimately connect to Cross Sound's ferry terminal facilities.

The State appropriated $750,000 for the plan that was spearheaded by the Chamber of Commerce of Eastern Connecticut and overseen by the region's COG to address concerns that New London needed to be prepared for an increase in commuter rail service, ferry and bus service and to be able to meet future parking demands. The plan identified the parcel of land in question as part of the region's transportation hub. The proposed museum project stymies any growth opportunities for transportation at that site forever.

Using that piece of land for anything other than transportation not only puts an end to any future expansion of the waterborne component of the Transportation Center but also completely divides the center as it is currently situated. The proposed structure has the serious potential to harm existing ferry operations by obstructing navigation, access to and from the ferry terminals along with blocking the line of sight down the river for departing and returning ferries. There is also an issue with riparian rights along that piece of property.

We want you to know that we value the USCG as a partner and a neighbor in New London. We feel strongly that having the Academy in New London is nothing but a boon for the City and a USCG museum in New London will be a cornerstone attraction for the entire region. However, we cannot support this particular concept as it has been proposed. While there are other suitable and attractive locations for a national USCG museum in New London, the ferry services need to operate and grow at their current location, while enjoying synergies with connecting rail, bus, parking and other transportation amenities.[1]

While it appears this concept plan has been circulated for months, we were only made aware of these plans last Friday. We feel the State's and particularly Southeastern Connecticut's transportation needs were not duly considered while this concept plan was being developed. Before proceeding any further with these plans, the future needs of transportation in New London and the region need to be addressed.

[1]The New London Transportation Center is one of the only locations in the U.S. where high-speed trains are directly linked with high-speed ferries to multiple destinations. Amtrak Acela Express connects with up to 10 high-speed ferry departures daily during peak periods.

Gov. Malloy, we have sent along our concerns in a separate letter to Admiral Papp. We appreciate your input in this important issue and I await the opportunity to answer any questions.

Sincerely,

John P. Wronowski
Owner/President

Cc: Hon. Andrea Stillman
Hon. Andrew Maynard
Hon. Ernest Hewett
Hon. Ted Moukawsher
Hon. Elissa Wright
Hon. Tom Reynolds
Jay B. Levin
Mark H. Powers
Mark Brengan

Jeanine

2 July 2017

To: Jeanine Gouin , Milone & MacBroom

From: Nancy d'Estang, po 602, Old Mystic, Ct. 06372

Re: Comment regarding the proposed CGM

The 22 June piece in THE DAY, by Julia Bergman regarding public input into the CGM plans, is quite amusing—no--- actually alarming!

Enclosed is the "tip of the iceberg" --- documents, letters, government regulations, the Yale proposal for Fort Trumbull, FEMA data, DEEP regulations, etc., etc., etc. Copies of all of this plus much more textural material, are in the files of the Town, Admiral Sheer, the Ct. Preservation Society, etc. These date back to at least 2013, and include some of the many letters to the DAY editor since that time, to state and federal legislators, regulators, etc. Players MUST study this cache. Surely the public were not expected to repeat over and over and over the intelligent arguments and suggestions which have been made in the past; there was no reason to attend yet another hearing to solicit public input! Your offices will simply have to go through the past files. The PLAYERS not even known---responses to input have been received from only 1 or 2 in years!

At this time, I would like to add these items to the public input:

There have been many myths, lies (yes, indeed the Eagle docks at Fort Trumbull), exaggerations, and some fanciful artistic renderings regarding this museum. There MUST be truth; a scaled model and scaled drawings of proposals, which include the entire waterfront , river, train station, pedestrian bridge, GD, millstone, cargo docks, fishing piers, parking garage, statue, Parade plaza, historic school house, spouting whale, bus station, ferry docks, tall ships piers, and street side: Bank and State Streets, bars, restaurants and amenities. There has never been a discussion of the museum is actual CONTEXT.

The proposals MUST be put to public REFERENDUM---a democratic process, which does not exist. How do the "1 million annual visitors" get to this downtown location? Who pays for all of the infrastructure, amenities, maintenance, emergency vehicles, police, fire fighters, services, oversight , taxes, insurances, legal advisors---everything which will be required to move forward. Where will the displaced residents and small businesses go, which will not be able to carry this financial burden?

See and regard the enclosed packet with just a few of the items from "public input".

Thank you, Nd'

10 July 2017

To: Jeanine Gouin, Milone & MacBroom

From: Nancy d'Estang, PO 602, Old Mystic., Ct. 06372

Re: CGM

Please make these additions to my attached letter regarding your seeking public opinion:

1. The spent fuel rod storage at Millstone is another hazard to this already chaotic location at the train station.
2. John Conger, regarding Pentagon planning: "If I'm building an installation, do I build it on a flood plain, or higher ground?...Planning ahead of time, with some forethought, that's what we are doing".
3. Players and the public, looking at the FEMA maps , know that, not only is this location in a flood zone, it is also in a V zone (high wind velocity).
4. Three or four coast guard museums already exist. Fort Trumbull was such a location too. Fort Trumbull is still the logical location, as researched and recommended by the Yale Urban Design group...years ago.
5. Consider inexorable growth at the train station location.
6. Proposal to "create a bulk head...." defies nature, as is repeatedly demonstrated by coastal structures.
7. The public are weary of this illogical plan, benefiting the few.
8. Homeland Security must be rolling their eyes at this plan, having ruled NYC " too vulnerable for LNG storage/transport. NL is safer???

While these comments are subjective, it must be said that the information given by the players over the past years has often not been objective.

"An elephant on a mouse" is not rational.

June 19, 2017

You will recall that yesterday was cloudy and windy; there were very people in New London, and few tourists,except from the ferries. BUT, I was waiting for a train yesterday and noted these activities at the proposed site:

Ferries arriving at 3:10 and 3:25, passengers walking along the train tracks to municipal parking lot, not the garage.
Ferries departing 3:20 and 3:30. Passengers with luggage et al walking the opposite direction.
Amtrac to NY arriving 3:20
Shoreline East arriving from New Haven 3:25.
Amtrac to Boston 3:30

Traffic backed-up each time a train was due or departing; cars in a line from Bank Street all the way down to the Fishers Island ferry parking, Cars trying to get through from Bank St. filled the pedestrian crossings and the intersections.

Keep in mind this was a quiet day in New London,

What would the visitor to the proposed museum experience: Horns, whistles, bellls, dust, traffic jams, idling vehicles,fumes, ill manners, a darkened train station. What would he experience at Fort Trumbull? At least, clean air and a clear view over the water. Would he enjoy this tangle and chaos?

Guy urinating in the doorway of Flo's cafe.
Skate board/rider pulled down the hill at high speed by his dog, maneuvering among luggage, babies in strollers, children skipping along,

18 July 2016

To: New London/Coast Guard Museum leadership

While working on the proposal for the Coast Guard Museum, I trust that you will regard these publications and observations:

President Obama's directive on Flood Management: "The Federal Flood Risk Management Standard, Order 13690". And "Taking Action to Protect Communities and Reduce the Cost of Future Flood Disasters". Both on https://www.whitehouse.gov/administration/eop/ceq/Press Releases/January 30, 2015. (BE SURE TO ADD THE 2015.)

The Federal Flood zone maps at City Hall annex. It is essential to have these accurately interpreted—they are tricky.

The Yale Urban Design's "Fort Trumbull Vision" online. This is a comprehensive, professional proposal for development of income property, public open spaces, and the CGM.

The 2004 Federal designation of New London, Ct. as the home of the future CGM. (No specific site.)

The environmental impact statement regarding the proposed overpass: "NCGM Pedestrian Overpass" which contains these DEEP regulations: 4.9.2 "The downtown New London waterfront has been designated as a Conservation Area...because of its location in a floodplain. [State} Policy: "Discourage new development activities within floodway and floodplain areas...manage UNAVOIDABLE activities". 4.9.3: "State policy promotes long-term NON-INTENSIVE uses for projects within flood hazard areas... Intensive floodplain uses have been interpreted by the DEEP to include ...any INCREASE in square footage of office, retail, industrial, or business uses...."

Judy Benson's report on a CGM meeting, THE DAY, July 8, 2016

Neil Ruenzel's op ed piece in the DAY, July 3, 2016

The Royal Institute of Chartered Surveyors warns: "...proponents of large scale, complex, projects... long time frames, multiple stakeholders.....often oversell the benefits and undersell the costs and time required for the project. Risk management should be emphasized..."

In the case with the CGM, there only recently is some public discussion regarding the flood zone and the V zone; there has been no public discussion of the January 30, 2015, Federal Flood Risk Management Standard; no public discussion of the additional huge infrastructure costs and necessary New London upgrades. The additional millions needed from the Feds only now proposed and revealed.

Professional oversight of this complex undertaking must assure the highest ethical standards---for the environment, for sustainability, for design, for preservation, for a world-class urban plan equally benefitting the entire community---and not least--- control of debt and taxes. Who decides when projected debt and taxes are too much?

New London can afford no mistakes. For a light reminder of how bad projects can get, and to remind the players to keep things in budget, in context and historical perspective, see "The Great Exhibitionists"...attached.

Thank you for due diligence. Nancy d'Estang, PO 602, Old Mystic., Ct.

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Page D1

July 8 2012

Downtown site for CG museum seen as being not 'insurmountable'

Building would have to be elevated 16 feet because of flood plain

By JUDY BENSON
Day Staff Writer

New London — The outcome of a recent meeting between the representatives of the National Coast Guard Museum and the Federal Emergency Management Agency has left the door open to building at a site on the downtown waterfront in the federal flood zone.

FEMA and Coast Guard museum officials met last week in Boston to review requirements related to building at the site next to Union Station in the 100-year flood zone, so labeled because it has a 1 percent chance of [illegible] in a given year.

SEE DISCUSSIONS PAGE A3

flooding.

Also participating in the meeting were officials from the state Department of Energy and Environmental Protection, who issue permits for buildings in coastal areas.

"I don't think they ran into anything insurmountable," said Dennis Pinkham, spokesman for FEMA. "We've had other agencies that have had to build in flood plains, that had to change their designs" to comply with the regulations.

Dick Grahn, president of the National Coast Guard Museum Association, said the June 30 meeting was a productive discussion about flood plain regulations, FEMA's concerns about the location on the banks of the Thames River, and technical issues related to how best to comply with the regulations. The parties will meet again by phone July 14 to continue the discussions.

"FEMA wanted to think about how best to advise us," he said. "The upshot is that there's nothing insurmountable."

Pinkham said the regulations for building on a flood plain are developed and administered by the state and the city. Specific requirements are incorporated into the city's building and zoning regulations.

Kirk Kripas, the city's building official, said the occupied portion of the museum would have to be elevated at least 16 feet above the ground — about 1.5 stories high — to comply with the flood plain management regulations.

City zoning regulations also require that sewage and waste disposal systems be elevated above 14 feet, the base elevation of the 100-year flood.

Utility equipment, including furnaces, air conditioners, ventilation and circuit breakers, would also have to be elevated. The ground-level portion of the building would have to be

Discussions on museum site will continue

FROM A1

designed to let flood waters pass through, and utilities and plumbing would have to be flood-proofed, within water-tight walls and a supporting structure that can withstand water pressure of flooding.

Pinkham said the July 14 meeting will be a telephone conference call between FEMA, representatives of the museum association, the Coast Guard and DEEP.

"Discussions will continue on the proposed conceptual design for the museum," he said. "This is a work product meeting" and is not open to the public.

Grahn said the meetings with FEMA are among a series of meetings with agencies including DEEP, the Army Corps of Engineers and the state Historic Preservation Office to learn what requirements will have to be met to build the museum at the downtown site. The Historic Preservation Office will consider the museum's impact on Union Station, which is on the National Register of Historic Places.

Once details of all the requirements of the various agencies are determined, he said, the architect for the museum will develop a design.

"Then we'll attempt to cost it out," Grahn said. "Once we see what kinds of additional restrictions will be imposed, we'll have a roadmap for the design."

The museum association is hoping to raise more than $50 million for the project from private sources. Thus far, about $8 million has been raised, Grahn said.

In addition to the $8 million, the state has pledged $20 million for a pedestrian bridge over Water Street that would be part of the museum project. The museum association is also hoping the federal government will contribute $25 million toward the building, in addition to $5 million in federal funds for building exhibits that has received initial congressional approvals.

Grahn said building at a site of less than half an acre — surrounded by railroad tracks, the train station, the Cross Sound Ferry terminals, Water Street and City Pier — will be complicated, but nonetheless doable. He said the museum building will need to be large enough to house at least 60,000 square feet of exhibit space.

"We've been asked by the Coast Guard and the city to build at that site," Grahn said. "There are a lot of moving parts, but we've started to address all of them."

j.benson@theday.com

Don't dismiss museum location critics

By NEIL D. RUENZEL

In Tony Sheridan's guest commentary in the June 26 edition, "Coast Guard Museum site has broad support," we're told the National Coast Guard Museum's location is "settled." Wade Hyslop, in his June 14 commentary, informs the "misguided few" that the debate "is over."

These commentaries suggest that the matter of rising oceans, future hurricanes of the 1938 or Sandy magnitude, the need for permitting by the state environmental agency and approval from the Federal Emergency Management Agency are also "settled."

Having been present a number of years ago at the Fort Trumbull festivities announcing the National Coast Guard Museum, I've been taken aback by the shift to downtown. Some say the Kelo decision gave the Coast Guard cold feet since they didn't want to be tarred with that brush (even though the museum plot had no relationship to Kelo). Then the Coast Guard tried to purchase part of Riverside Park that abuts the Coast Guard Academy as a possible museum site. Nice idea, but New London voters shot that idea down. Shortly thereafter, New London decided they "loved" the Coast Guard and put up a few window signs in the railroad station saying so. Heartwarming. The next thing we know, a tiny hidden plot of flood plain becomes a terrific idea.

The artist's rendering accompanying Sheridan's letter shows the "glass menagerie" on a somewhat elevated site. Interesting. If we are to accept what the "many talented designers, planners, and engineers" have proposed, one has to ponder how many millions of dollars will be required for site work to build a foundation. Add that to the cost of the pedestrian bridge and you now have an accumulated waste of approximately one-third of the total museum cost. None of this would be necessary at Fort Trumbull.

The argument that ferries, trains, buses, and autos traveling through New London's transportation center will bring multitudes of museum visitors is just plain silly. There's a name for those folks: "Commuters." This argument would assume passengers deplaning at Bradley head for The New England Air Museum. Highly unlikely.

The National Coast Guard Museum Foundation, Council of Governments, and numerous state, local and federal political leaders have dug their heels in because they've painted themselves into a corner and now don't want to admit their folly. Lately, they've unleashed their Dobermans to scold the many area residents who have questioned the proposed location and to suggest that those who don't go along with their highly suspect plan puts the project in jeopardy.

I'm not without sympathy for downtown merchants and businesses who hope to benefit from the museum, however, they are being sold a bill of goods regarding regional traffic. They've been resilient through decades of magic shows offered up to "save" New London.

I have received dozens of unsolicited comments from fellow retired Coast Guard officers, including those of flag rank, supporting the position outlined in my April 29 letter to The Day.

Not surprisingly, I haven't heard any support for the downtown site. So, as "misguided" as the many people who have voiced opposition are, I would hope the powers that be would stop talking down at us.

Neil D. Ruenzel is the former director of communications for Electric Boat. He lives in East Lyme.

JUL 3, 2016

HOW TO WRITE LETTERS TO THE DAY

The Day encourages original letters to the editor not sent to other publications. The writer should limit the length to 200 words and submit no more than one letter every 15 days.

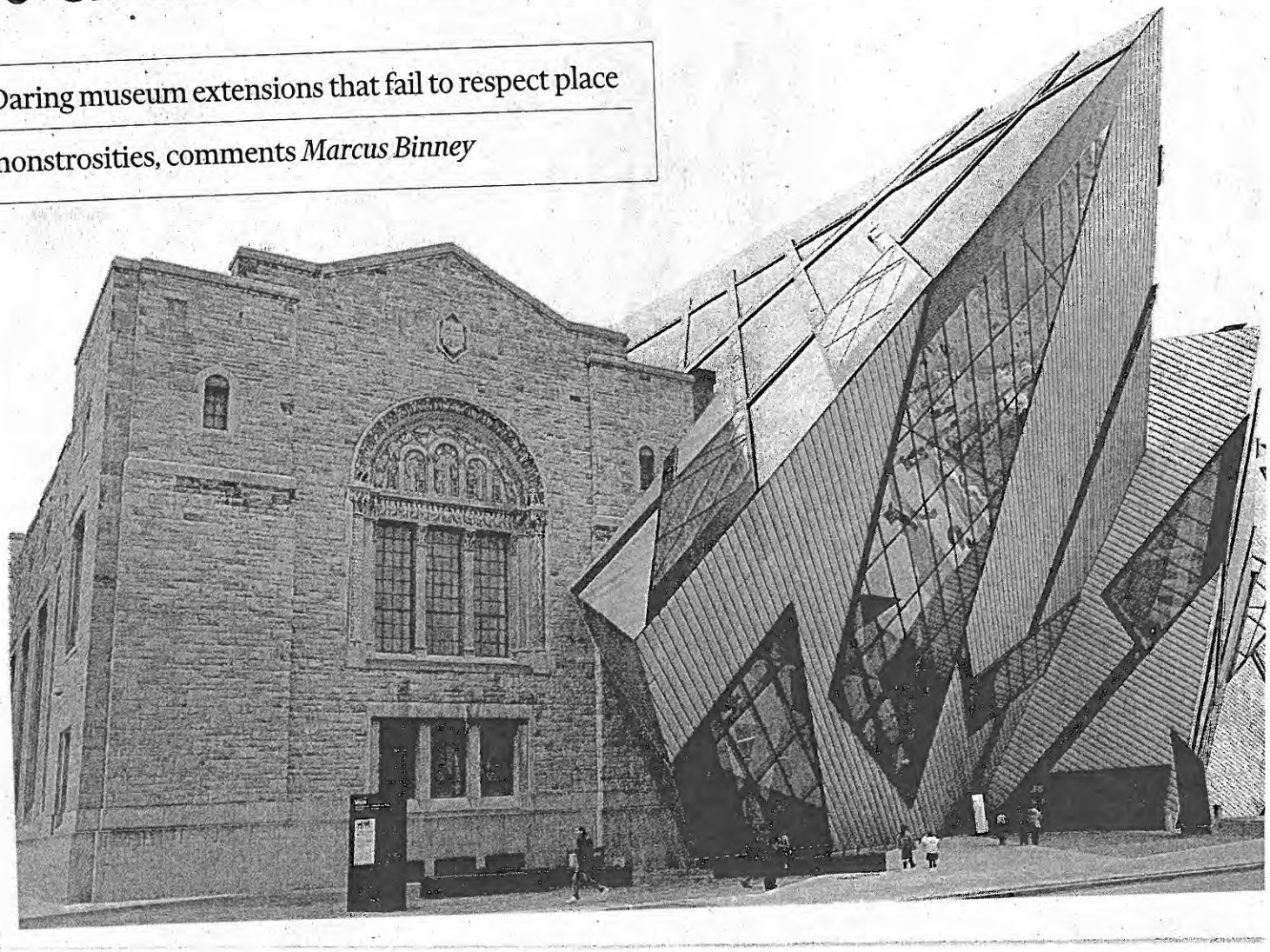
All letters should include the writer's full name, address and telephone number. The Day will edit for clarity, length, grammar, style and taste.

E-mail letters to:
letters@theday.com

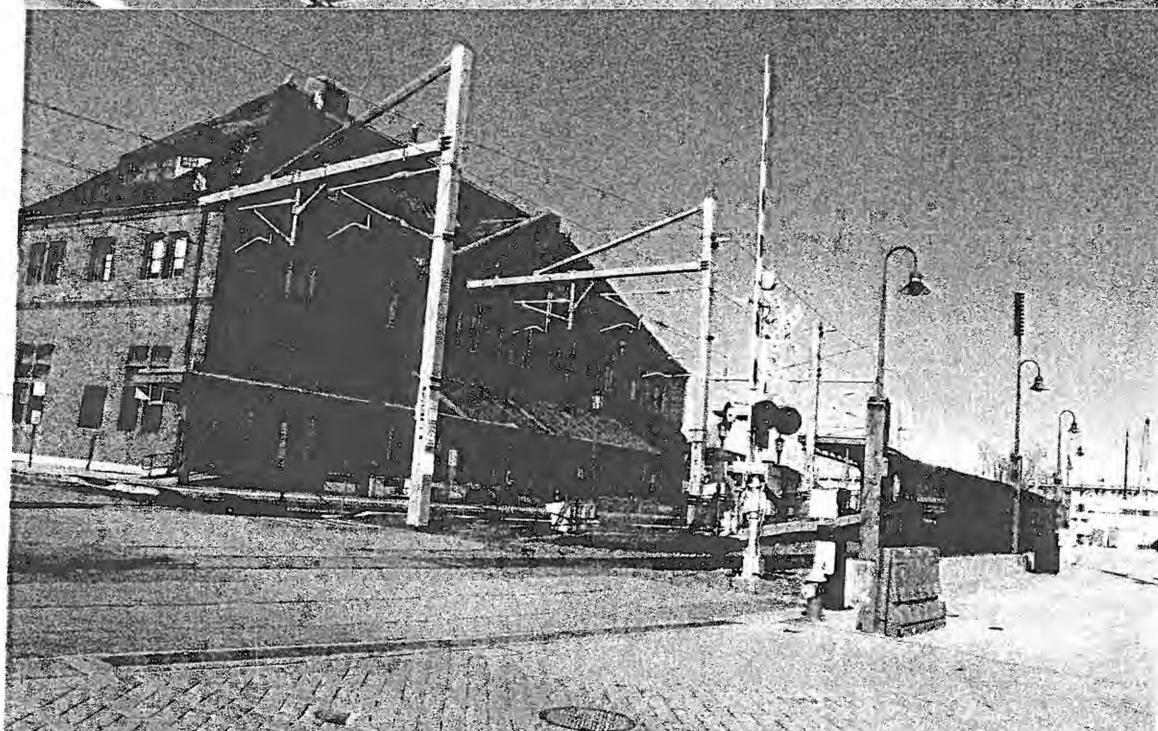
Mail letters to: The Day
P.O. Box 1231
New London, CT 06320

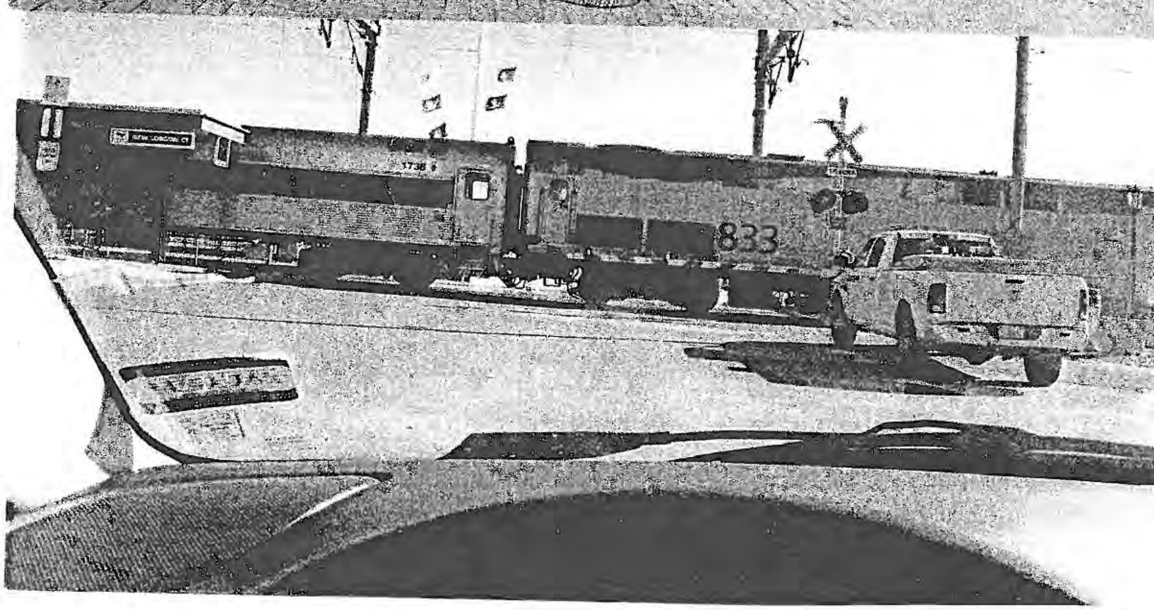
The great exhibitionists

Perspective: architecture | Daring museum extensions that fail to respect place and context can end up as monstrosities, comments *Marcus Binney*



ACTUAL CONTEXT DOWNTOWN LOCATION





The Fort Trumbull peninsula in New London, as seen from the air on April 28, 2014.

RCDA and Fort Trumbull are ready for development

VOL. 135, NO. 336 24 PAGES NEW ENGLAND NEWSPAPER OF THE YEAR NEW LONDON www.theday.com $1.00

Report: State's debt fifth worst

Pension obligations grow more than health care, bonding

By KEITH M. PHANEUF
The Connecticut Mirror

Long recognized as one of the most indebted of states, Connecticut's chief offset against that burden was its tremendous wealth.

But even weighed against personal income, what Connecticut owes to its bondholders and retired public-sector workers ranks as fi[fth] worst among the states, according to a new analysis by The Pew Charitable Trusts.

The report also found Connecticut followed a national trend between 2003 and 2013 as its pension debt worsened faster than any other long-term obligation, reaching its highest point in a decade.

"Although a number of states have taken steps in recent years to shore up their pension savings or cut costs by modifying benefits — mostly for new workers — unfunded pension [debt] grew more than debt or unfunded retiree health care costs," Pew researchers wrote.

The pension crisis is driven by a combination of factors, they added, including lower than expected investment returns and historic underfunding issues.

And while the report only uses data through 2013, it notes that strong investment earnings for many states in 2014 "may have been undercut by weak investment returns" in 2015 and 2016.

An investigation by The Day in 2014 found that retired Connecticut state employees received the highest annual pensions in the country in 2011, despite contributing less out of their paychecks than the national average.

That meant the state's pension system was the second-most underfunded in the United States, in worse shape than every other state's except Illinois'.

Can state afford heavy debt?

With one of the highest per capita incomes of any state, Connecticut i

SEE REPORT PAGE A

tion, a presidential nomin[ee] person."

This isn't specifically abou[t] though as Bouie notes, it migh[t] him. It's a problem for anyone the first to follow a president [JAY] who was widely perceived as h one area (or more). It was a pr my Carter in foreign policy ei[g]

stly, however, Jeb Bush's decision to le people who were calamitously wrong q as part of his foreign-policy team isn't him, or about the Bush family. It's about a blican Party that stubbornly refuses to achat Iraq was a disaster. If I'm correct that Paul doesn't have any real chance of being nated, then that's going to be a problem y of the viable Republican candidates.

Group raises questions about spent radioactive fuel stored at Millstone

By JUDY BENSON
Day Staff Writer

Waterford — Later this year, 75 tons of used radioactive fuel will be moved out of the pool of cooling water where it's been stored for nearly 30 years and into concrete and metal casks that sit on the property of the Millstone Power Station.

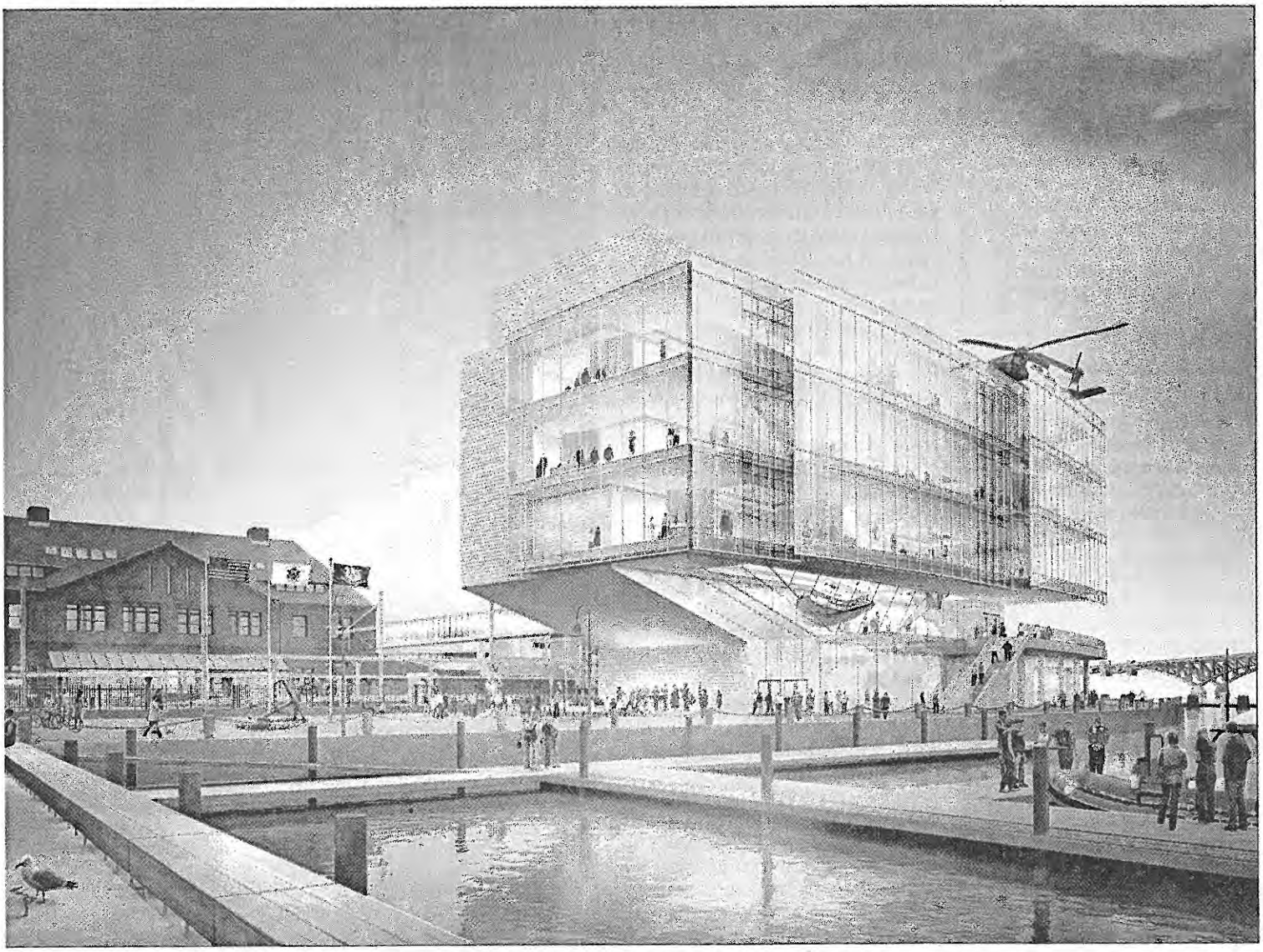
The 75 tons of spent fuel from Millstone Unit 3 will be the first batch of spent fuel to be moved from

The Day

ger is The Day's All-Area Boys' Cross Country Runner of the Year B1

VOL. 136, NO. 172 20 PAGES NEW LONDON www.theday.com $1.00

SHAPE OF THINGS TO COME



ed architectural designs of the New Coast Guard Museum in New London released Monday. RENDERINGS COURTESY OF PAYETTE ARCHITECTS

luseum design is on the rise

st renderings of Coast Guard site show ling with entrance 13 feet above water

A BERGMAN
f Writer

ondon — The National Coast Museum Association and the 's lead architect on Monday d proposed architectural that envision a four-story g perched high on the New waterfront.

The public unveiling at the at the Garde Arts Center, which several officials called a milestone in the development of the estimated $100 million museum, was cohosted by the Chamber of Commerce of Eastern Connecticut and the Southeastern Connecticut Cultural Coalition.

Charles Klee, principal at Boston-based architecture firm Payette, and members of the museum association stressed that the concept is in its infancy, and that a forthcoming environmental review, which will include public hearings to solicit comment, will ultimately determine the final design of the museum.

"These are design concepts that are likely to change dramatically over the course of the next year, year-and-half, two years as we design this building," Klee said.

Those who spoke Monday seemed set on using the event as evidence that the museum project is moving along. Some members of the public have raised concerns about the site given its location in a flood plain and lack of parking in the area, and have said Fort Trumbull would be a more viable option.

Museum association CEO Dick Grahn pointed to a collaboration among stakeholders "that really has

SEE COAST PAGE A3

DESTROYER DÉJÀ VU

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SEAN D. ELLIO
THE DAY

Now adults, childr

Temporary defense funding likely

Federal Flood Risk Management Standard

16 July 2016 | 18:27 | 20 KB

From:
Roxanneandrx <roxanneandrx@aim.com>

To:
d'Estang <napa@le-voila.fr>

Load external images

In the Fact Sheet, this document was referenced:

Federal Flood Risk Management Standard (FFRMS)

The purpose of this page is to provide information and materials related to the President's Executive Order 13690, "The Federal Flood Risk Management Standard" for federal agencies.

BACKGROUND: On January 30, 2015, the President signed Executive Order (E.O.) 13690, Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input, which amended E.O. 11988, Floodplain Management, issued in 1977. Consistent with the President's direction, the Federal Emergency Management Agency (FEMA), as Chair of the Mitigation Framework Leadership Group, published for public comment in the Federal Register Draft Guidelines to provide guidance to agencies on the implementation of Executive Orders 13690 and 11988 (80 FR 6530, February 5, 2015). After an extension, the public comment period lasted 90 days, during which FEMA and other members of the Mitigation Framework Leadership Group held eight in-person public listening sessions across the country and one public webinar, to ensure input from stakeholders and the public. The Mitigation Framework Leadership Group has considered stakeholder input and has provided the Water Resources Council with recommendations.

The Mitigation Framework Leadership Group developed the *Comment Response Document* which summarized and responded to input received from stakeholders during the open comment period for the *Draft Guidelines for Implementing Executive Order 11988, Floodplain Management, and Executive Order 13690, Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input dated January 28, 2015.*

The Comment Response Document provides an overview of the comments received and a summary of major themes that emerged from these comments. Within each theme, there are questions (in bold) that capture key concerns followed by further explanation of the issue and/ the response to the question or comment. Where appropriate, the response includes an explanation of any changes to the Guidelines (*italicized text*).

FEMA, the U.S. Army Corps of Engineers, and Housing and Urban Development (HUD) have produced fact sheets in response to several frequently asked questions regarding the intended scope of the President's Federal Flood Risk Management Standard (FFRMS) and the anticipated impacts to many of the programs of these agencies.

- The Applicability of Executive Order 136090 Fact Sheet responds to several frequently asked questions regarding the intended scope of the President's *FFRMS* and the potential impacts to the National Flood Insurance Program (NFIP).

- The U.S. Army Corps of Engineers produced talking points and a fact sheet, *Applicability of Floodplain Management and FFRMS Executive Orders to USACE Permitting Authorities*, in response to questions about Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act.

- HUD's Implementation of E.O. 13690 and the Federal Flood Risk Management Standard addresses the application of the FFRMS to single-family home mortgages for acquisition or refinancing of existing homes under the Federal Housing Administration or any other programs.

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This Section is Collapsed. Click to Expand An Introduction To The Federal Flood Risk Management Standard ("Standard")

This Section is Collapsed. Click to Expand Open Comment Until 12/17/15: FEMA's Implementation Of The Federal Flood Risk Managment Standard

This Section is Collapsed. Click to Expand Listening Sessions

This Section is Collapsed. Click to Expand Mitigation Framework Leadership Group

This Section is Collapsed. Click to Expand Documents

Last Updated: 11/19/2015 - 08:14

Fact sheet

16 July 2016 | 18:21 | 20 KB

From:

Roxanneandrx <roxanneandrx@aim.com>

To:

d'Estang <napa@le-voila.fr>

Dear love, here is the entire Fact Sheet. He meant, be sure to capture the entire date, January_30_2015 in his link , though it doesn't appear in blue so one has to take care to include the last four digits

https://www.whitehouse.gov/administration/eop/ceq/Press_Releases/January_30_2015

FACT SHEET: Taking Action to Protect Communities and Reduce the Cost of Future Flood Disasters

Across the country, extreme weather and other impacts of climate change are threatening the health, safety, and prosperity of our communities. This month, NOAA and NASA announced that 2014 was the hottest global year on record. And as the planet continues to warm, impacts like rising sea levels, intensified storms, and heavy downpours are contributing to an increased risk of flooding. President Obama is committed to ensuring that American communities thrive in the face of a changing climate. That is why, today, the President signed an Executive Order establishing a flood standard that will reduce the risk and cost of future flood disasters by requiring all Federal investments in and affecting floodplains to meet higher flood risk standards. By requiring that Federally funded buildings, roads and other infrastructure are constructed to better withstand the impacts of flooding, the President's action will support the thousands of communities that have strengthened their local floodplain management codes and standards, and will help ensure Federal projects last as long as intended.

This new Federal Flood Risk Management Standard, called for by the President's State, Local and Tribal Task Force on Climate Preparedness and Resilience, builds on the unprecedented actions President Obama has taken to support communities as they prepare for the impacts of climate change. Agencies will have flexibility in implementing the new Standard and will incorporate input from the public and stakeholders as they move forward, including through a series of public listening sessions across the country. This week, the Army Corps of Engineers released a comprehensive study that evaluates flood risks to the coastal areas affected by Hurricane Sandy and provides a framework to help communities address increasing flood risks. The study, which was called for by Congress, emphasizes the importance of improved planning, and notes that managing coastal storm risk is a shared responsibility by all levels of government. The Administration has made significant investments in resilient disaster recovery in the wake of devastating storms like Hurricane Sandy to ensure that infrastructure projects factor in climate impacts like rising sea levels, and to invest in making transit systems more resilient to flooding and extreme weather.

Flood Impacts on Communities

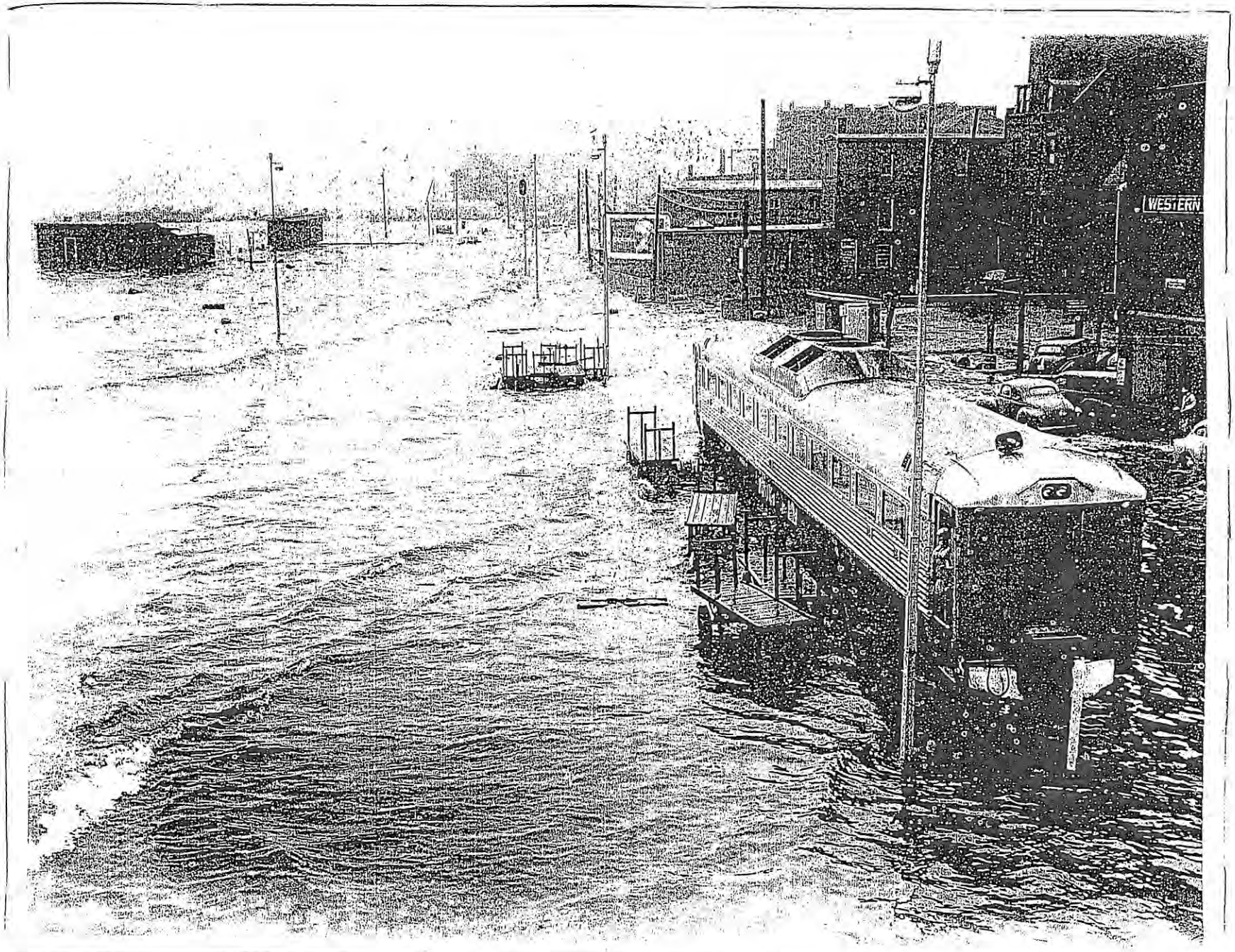
Program. Each agency will carefully consider how to appropriately apply this standard, and consider robust public input before deciding how to implement it.

To read the Executive Order, click here.

To read the flood-risk reduction standard, click here.

###

Hurrican Carol 8/31/54



NLPL

24 May 2016 From: Nancy d'Estang, PO 602, Old Mystic., Ct..

PLEASE see the attached map of the proposed Heritage Park in New London which shows the green, spacious, available land at Fort Trumbull. Surely this will affect your thinking regarding the proposed train station location of the Coast Guard Museum. (The Day 24 May 2016.)

During the past few years, many of us who are familiar with New London, with the train station, the train schedules, the congestion, the flood zone, climate change, DEEP regulations, and the low/medium income of New London—and the projected budget deficits—continue to be alarmed by the relentless march of the proposed Coast Guard Museum. Many letters, government documents, descriptive photographic evidence, plus alternative proposals , have been sent to dozens of the "players" leading this CGM plan. There has been virtually no response to the publics' concerns, no public hearings, no peep from Homeland Security, not from the climate change experts, not from the leaders of impacted transportation systems. The DEEP has not seen an application or a site plan.

Many years ago, New London engaged the Yale Urban Design Group to prepare a development plan for the Fort Trumbull area; they prepared an extensive proposal, which included a site for a Coast guard Museum, even a band shell, gracious lawns, water views and adequate parking. The entire site was planned to present a unified, expansive, gorgeous addition to New London. (The site reminds one of the distinctive, airy, beautiful, hilly location of Connecticut College, wisely chosen so many years ago.) The CGM could shine in a similar venue. Unfortunately, this Yale document seems to be unknown by the "players", including the staffs of government offices we have contacted.

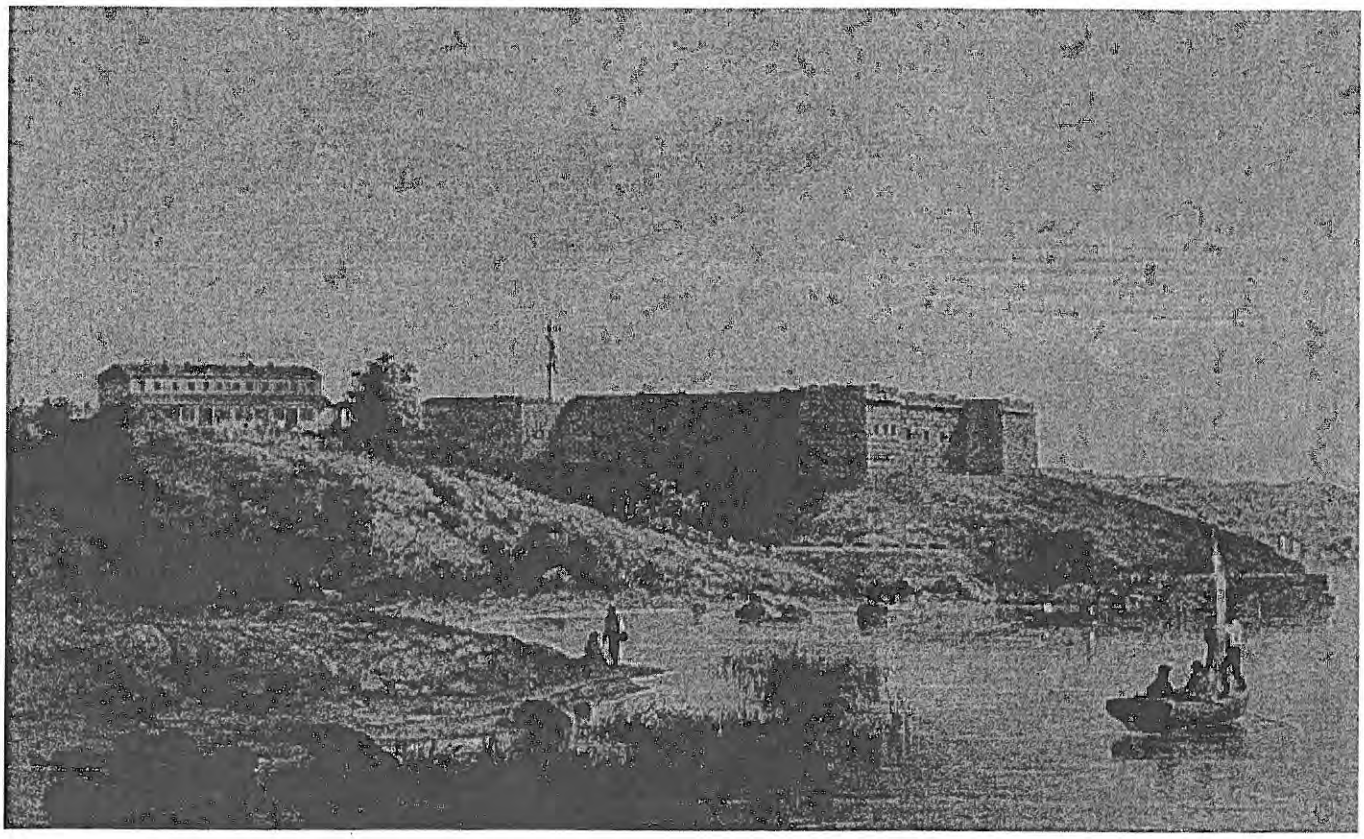
Has there been a walk-about of the two sites by the gentlemen who will plan and partially fund the proposed CGM; have they noticed the lack of maintenance, a decaying parking garage, tiny site, closed businesses, many trains per day (with the Shoreline proposed to add more); have they read of the deepening social problems facing New London? (See attached headlines.)

What happens in an emergency? EB, GD, subs, cargo docks, trains, buses, ferries, tall ships, Parade events---how do emergency personnel and equipment get to this spot? Homeland Security must be wringing collective hands.

There was to be no public funding for this endeavor, but it is recently revealed that a considerable amount of taxpayer money will be required. Why have there not been public hearings on this? Who upgrades the parking garage, who pays for the pedestrian bridge, who cleans the sidewalks, who collects the garbage, who fills the storefronts, who plants and maintains the flowers and trees? Who makes sense of a tiny area with a plaza, a statue, a whale, a pergola, an antique school, a landmark train station, a cut-off ferry dock behind rickety fencing? Why do the public see only artists' fanciful concepts rather than site plans?

Current and projected budget deficits and low income residents should cause further awakening.

Thank you for your attention and further research.

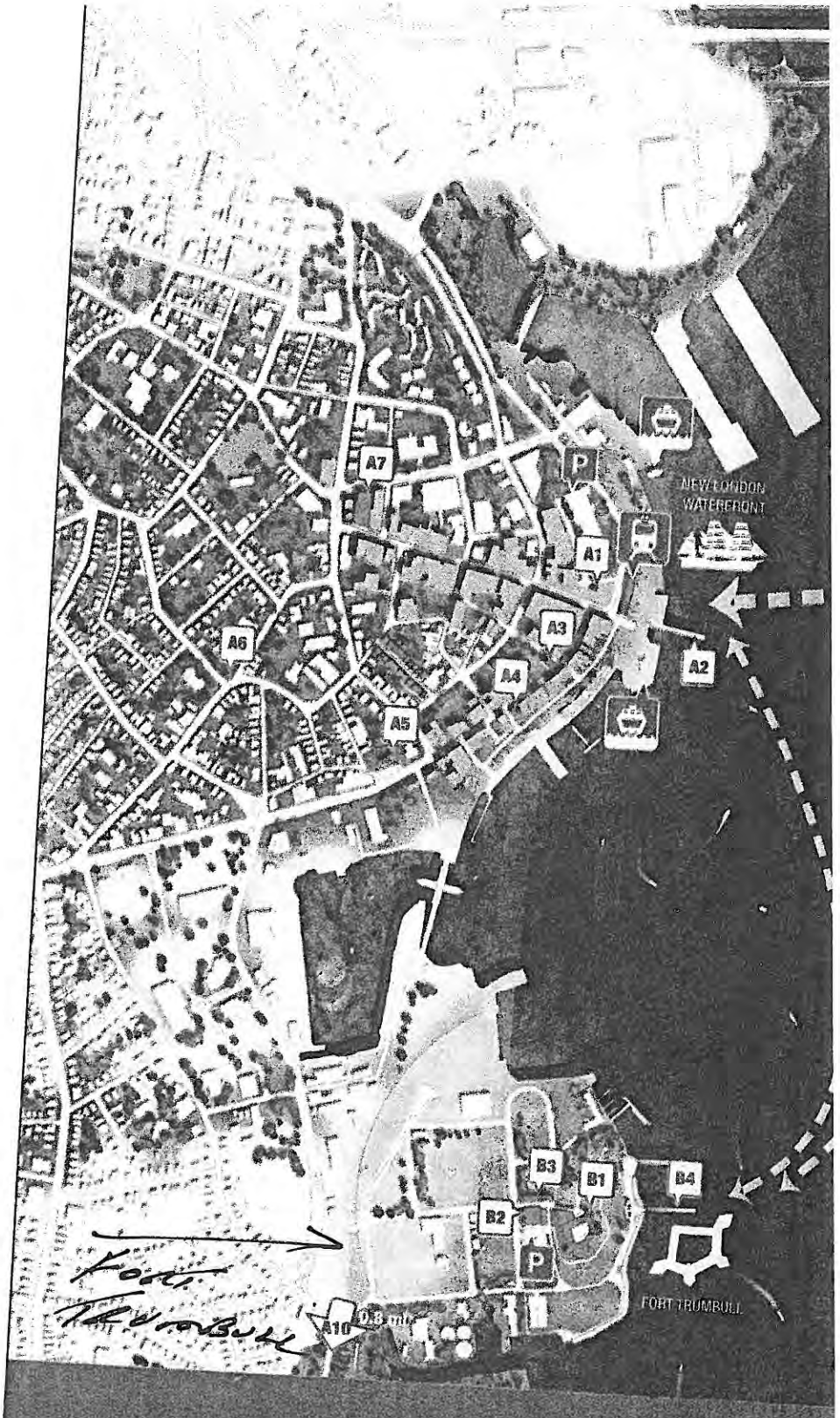


Fort Trumbull Vision

New London, CT

26 September, 2011

Yale Urban Design Workshop



Union Station/Amtrak/Shoreline East

Long Island and Fishers Island ferries

P Parking

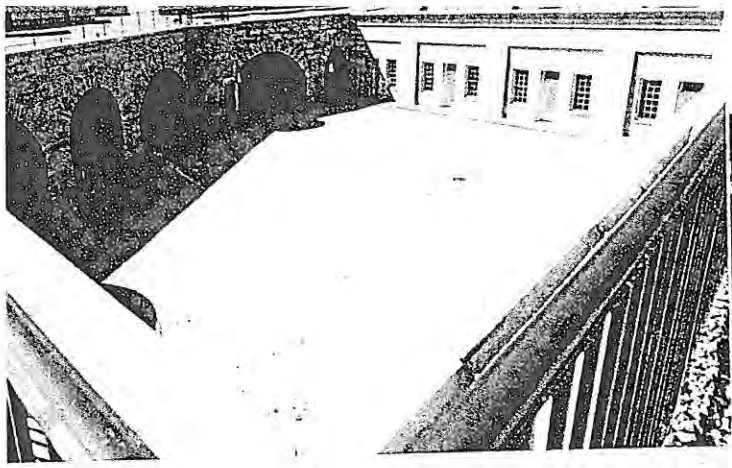
www.thamesriverheritagepark.org

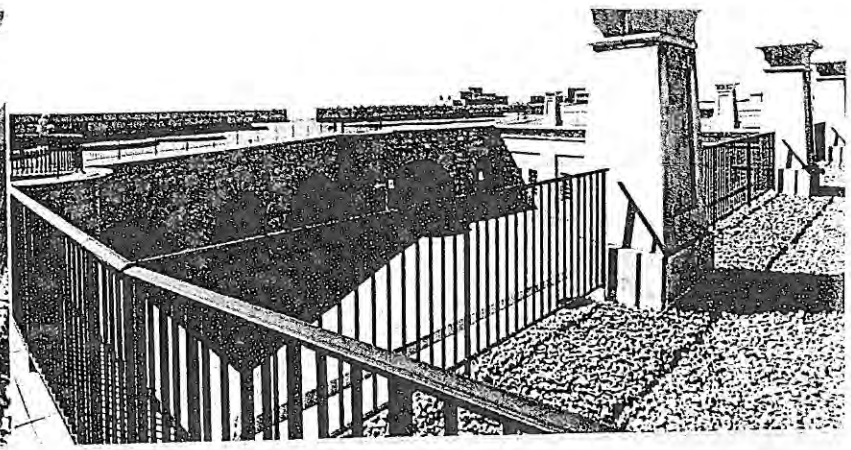
1 Waterfront Park, PO Box 851, New London, C

BY YALE URBAN DESIGN GROUP

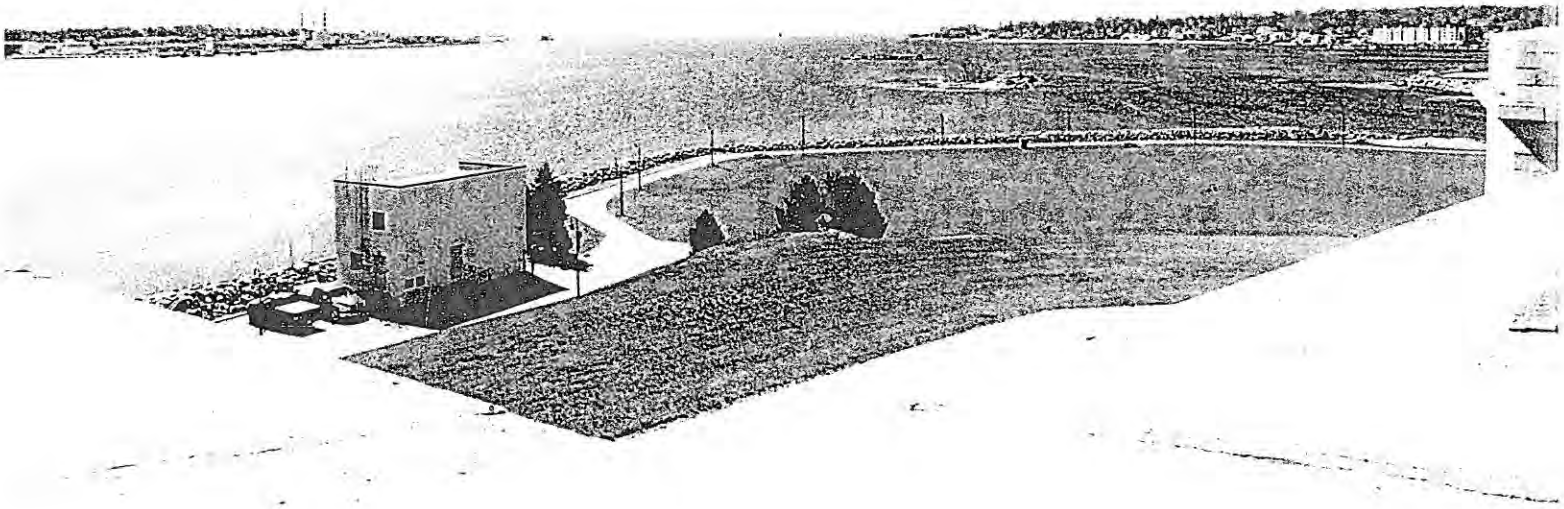
www.thamesriverheritagepark.org

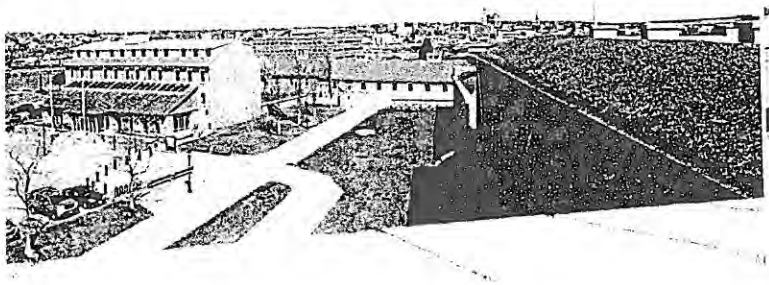
d657725

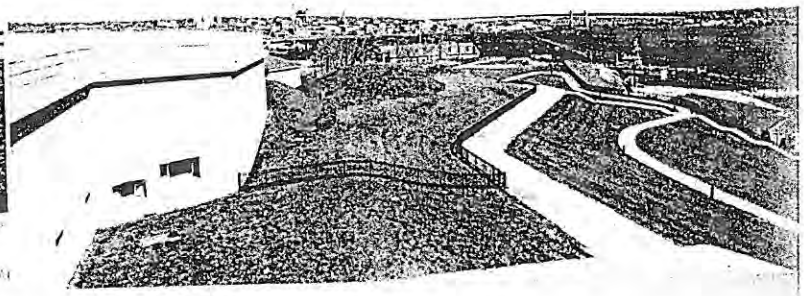




FORT TRUMBULL — JUNE 2016







1 July 2016

To: Mr. Tony Sheridan, president, Chamber of Commerce, Eastern Ct.

From: Betty Becker

Re: Coast Guard Museum

Sometimes letter writer are ill-informed, sometimes wrong, sometimes absolutely correct, and often authorities in their fields. Rather than their being dismissed at this crucial point in decision making, their words, often of wisdom, still need to be heard. The piece by David Collins today in THE DAY, page C1, is essential reading.

Note also that the DEEP reports, the Flood and V zone research are still going on. The site has not been firmly established.

It is incorrect for you to say that if the CGM does not go in downtown NL, it may be lost for Ct. The 2004 federal documents say that the CGM must be in New London, Ct. It is not site specific.

Further—the public have not been dealt with honestly or openly, as is noted from last Thursday's meeting when someone from the CG said: ' there is not enough water at Fort Trumbull for 'our boats'. Of course, that is not true—there is more water at Fort Trumbull than at the downtown location, as anyone can see by the charts online. A photo on the city web site shows the Eagle and Tall Ships tied up at the piers in Fort Trumbull. What does "our boats" mean? (Eagle, by the way, tours in summer and winters in Baltimore.:

So----research a bit more, remember your audiences, and think of who will pay for all of this. You must study the Yale Design Group's proposal of 2011 and know that they are just as capable in the Fort Trumbull study as in their much praised Heritage Park proposal. That group has "no skin in the game", no conflicts of interest, no political positions, and no money in it---and very little exposure, for some unknown reason.

Thank you for paying attention.

~~14 June~~ 22 July 2016

Considerations for: Coast Guard Museum Players, Tax Payers, City Planners, Government reps., media.

To avoid rubber stamping of this Coast Guard Museum project, those affected must:

Determine: who benefits, who will pay the costs, and what New London wants to be.

Determine: who wins, who loses. Is there a conflict of interest amongst the players

Study: Up-to-date Federal Flood Hazard zone maps and V zone maps; how they apply, how variances will be given

Study: climate change and sea level rise projections; find the consultants who really know the numbers and sites

Study: Certified plans, architectural drawings----for the underwater structural requirements, of the elevations, for the height. These must be available to the general public as well, since now the project calls for considerable public funding; the public must now be included, perhaps by a referendum.

Study: Fiscal issues/budget deficits of New London, the region, the state and local residents. All state residents are now involved. Will taxes be raised again?

Funding: for upgrades for parking garages, downtown buildings, sidewalks, abutting properties

Walk about: learn about the two sites: the train station and Fort Trumbull. Take an objective look.

Read: attached documents, photographs, opinion pieces, museums elsewhere

Read: Fort Trumbull Vision by the Yale Urban Design Group of the Yale School of Architecture; planning by professionals without the politics.

Read: DEEP environmental impact statement for the proposed Pedestrian Bridge. (Attached regulations.)

Regard: Homeland Security and emergency equipment concerns with this congested area: of EB, GM, Millstone, trains, ferries, cargo ships/docks, cruise ships, local business, Tourist and regular traffic, rapid exodus, "harbors of refuge"!

Design: How does this fit with the dignified and (quite) cohesive New London architecture? Stand at the Garde, look down State Street and try to envision it. Swirl down Bank Street ???? Picture that!

It appears that the museum is the consideration, rather than the views, the environment, the safety, the pleasure of thousands of people with kids in tow throwing frisbees across a lawn and of the hundreds of elements which will make it work---or not.

Thank you, Nancy d'Estang, Old Mystic; a tax payer

FRIDAY, MARCH 27, 2015 VOL. 134, NO. 269 60 PAGES

Survey says education needed on coastal storm risk

4-1-2015 DAY

LETTERS TO THE EDITOR

A risky location for Coast Guard Museum

No one can dispute the good and learned efforts by so many dedicated men and women who presently support and provide direction for the new up and coming National Coast Guard Museum in New London. However, historical research indicates that a portion of the site was underwater!

The Day publication of, "Looking Back, Volume 1, page 42," shows a photo taken in 1915 behind the train station during the Yale and Harvard regatta. The photo shows private vessels in an existing boat basin directly behind the train station. Aerial photos taken by the Fairchild Aerial Survey of New London in 1934 (online at CT Aerial Survey Finder Page 19340, photo No. 474) also shows that a portion the site was underwater. The boat basin was filled in at a later date.

Mandatory test borings may indicate that expensive pilings must be installed. The Pfizer complex located less than a mile away required months of structural pile work driven over time, for support.

The proud Coast Guard Motto is Semper Paratus (Latin: Always Ready). The directors seem to be ready to place the museum behind the train station but are they ready to incur extra costs for necessary structural work?

Never too late to send the design staff over to Fort Trumbull for a better location.

William C. Bucko Sr.
Montville

Security violation prompts greater scrutiny of Millstone

For the second time in less than a year, NRC cites Waterford facility

By JUDY BENSON
Day Staff Writer

Waterford — For the second time in less than a year, the Nuclear Regulatory Commission has cited the Millstone Power Station for a violation that merits additional inspections and oversight.

The NRC announced Thursday that it has finalized its decision on a security violation found during an inspection in November. The finding was first announced in January, but the NRC had not categorized the severity of the finding until after a meeting in February with officials from Millstone owner Dominion Resources.

During that meeting, Dominion disagreed with the NRC's assessment of the significance of the violation, according to a letter the NRC sent Thursday to David Heacock, president and chief nuclear officer of Dominion.

Despite Dominion's objections, the NRC determined that the violation was significant enough to be "greater than green." The NRC uses a four-tiered color coded system to categorize the severity of safety findings, with green being the lowest, followed by white, yellow and red. Because the violation relates to security, the NRC said it will not disclose the color code assigned to it, nor the nature of the violation.

The NRC said it will increase its oversight of Millstone, including assigning additional inspections of security systems and procedures. Three

SEE MILLSTONE PAGE C6

DAY, MARCH, 215

13 January 2015

To: The Day, 47 Eugene O'Neill Dr., New London, Ct.

From: Nancy d'Estang, PO 602, Old Mystic., Ct. 06372

It seems there are numerous issues with and opposition to the proposed Coast Guard Museum which must be addressed ; the media need to present and debate these for the public as well as for the players involved.

Foremost: present the "July 2014 Pedestrian Overpass" document which states that this water front location is "a conservation area...because it is in a flood plain", which the DEEP interprets to preclude "any increase in square footage of office, retail, industrial, or business uses...."

Present the Yale Urban Design Group's research: "Fort Trumbull Vision": ....."emphasize water-related uses and experiences ideally related to the history of the site...connected to the waterfront portion of the Waterfront Park... complementing and relating to the Fort Trumbull State Park...Fort Trumbull, the original home of the Coast Guard Academy..."

The public need to know: site plan, regulations, safety for the public in this congested area, crowd control, overpass design, necessary upgrade of the garage, future of the glorious Richardson station, how the modernist glass museum will build on the proud traditional architecture in New London, and details of the alternatives.

Thank you.

ADDED: EMERGENCY VEHICLES (HOMELAND) SECURITY

TO FORT PARK

12 September 2014

Since I last wrote to you, there have been several more articles and letters written in opposition to the Coast Guard Museum's intended location on the crowded lot behind the train station in New London – and its attendant overpass. With that information and the newly released "National Coast Guard Museum Pedestrian Overpass, July 2014", plus a re-reading of the "Fort Trumbull Vision--Yale Urban Design Workshop study" prompt me to write again. It seems that the Association has not seen the site plan drawings in the NCGMPO document which show a frightening intensity and proximity to the water-- hence the absurdity of building a major museum there. It seems clear that neither document has been carefully studied by those who are doggedly going forward with plans for the museum to be located behind the train station.

From the "NCGM Pedestrian Overpass":

4.9.2. "The downtown New London waterfront area has been designated as a Conservation Area....because of its location in a floodplain. [State] Policy: Discourage new development activities within floodway and floodplain areas..., manage any UNAVOIDABLE activities.....".

4.9.3. "State policy promotes long-term non intensive uses for projects within flood hazard areas....". "Intensive floodplain uses have been interpreted by the DEEP to include...any INCREASE in square footage of office, retail, industrial, or business uses...."

From "Fort Trumbull Vision":

Page 11: "Emphasize water-related uses and experiences.....proposed anchor uses...a cultural institution, ideally related to the history of the site, complementing and relating to Fort Trumbull State Park..." .....A new pedestrian bridge connected to the downtown portion of the Waterfront Park."

Page 25: "Development should emphasize the specific history of the site, including maritime history."

Page 29: "...thee is an opportunity to develop an almost continuous alternative pedestrian and bicycle route along Shaw's Cove....."

Page 41: "Anchor: Cultural Institution". ".....but the most compelling match for the site and its history would be the proposed Coast Guard Museum....not only was Fort Trumbull the original home of the Coast Guard Academy, but...the opportunities to exhibit historic vessels, interact with exhibitions ...easy access from Downtown New London, makes this use in this area a logical and exciting option...."

Page 60: "Construct a Coast Guard Band shell at Fort Trumbull."

APPENDIX A9
PUBLIC COMMENTS ON
DRAFT SEA

From: Bryan Doughty
To: Jeanine Gouin
Subject: Coast Guard Museum feedback
Date: Tuesday, July 31, 2018 8:32:32 PM

Dear Jeanine,

I would urge Milone and MacBroom to view feedback here:

https://www.theday.com/military-news/20180731/public-asked-to-weigh-in-on-latest-coast-guard-museum-designs

I would also strongly urge either Milone and MacBroom or the museum leaders to simply walk around New London or go to community events and ask for feedback. I am fairly sure representatives will get an earful.

Although I believe many residents, including myself, are in favor of this museum, many are strongly against the proposed location. I fall in this camp. How can one support a museum that appears not to care one iota about the resident's of their host city? For reference, simply search the word "Trumbull" on the page linked above and you will get the idea and quickly. Right museum, but wrong location.

Until this Museum truly starts listening to and communicating with the citizenry of New London, I cannot offer any support whatsoever. Sadly this comes from a Coast Guard spouse that takes great pride in the Coast Guard, but I take no joy in how the Museum has and continues to treat my home city.

A concerned a devoted citizen of New London,

Bryan Doughty
860 287-0909

From: James e andriopoulos
To: Jeanine Gouin
Subject: United States Coast Guard Museum Design
Date: Wednesday, August 01, 2018 5:27:19 AM

A few points on the design. The very modern design somewhat clashes with the architecture of the area. The overall size (It is massive) dwarfs almost everything around it and it appears there is a solid wall on the water and train station side which creates a barrier. Perhaps I am viewing this incorrectly but it should be open to essentially see through, enjoying the water views from all sides and the views of the historic downtown area.

I would prefer a design that fits a little more in with the downtown architecture (ca. 1781-1900) with some modern twists, more open and better use of the outdoor space for families to gather, a cafe with outdoor seating.

Evan J. Andriopoulos
Developing businesses one step at a time - at the speed of light.
evanandriopoulos@me.com

From: Bob Erickson
To: Jeanine Gouin
Subject: Coast guard museum
Date: Wednesday, August 01, 2018 3:48:17 PM

Sorry, but we don't like the design nor the location. Looks out of place, next to the railroad tracks. And a box at that.

Coast Guard Academy is architecturally attractive and nicely located beside the river. Union station is architecturally attractive.

But putting a highrise box there!!!??

Bob and Joanne Erickson
1 Oakwood Drive
Gales Ferry, Ct. 06335

From: Robert Fromer
To: Jeanine Gouin
Subject: NCGM Supplemental Environmental Assessment
Date: Wednesday, August 01, 2018 12:02:28 PM

I request a copy sent as an e-mail attachment.

Robert Fromer
E-mail: saintrobert@comcast.net

From: Robert Russo
To: Jeanine Gouin
Subject: Coast Guard Academy Museum
Date: Wednesday, August 01, 2018 11:21:44 AM

The Coast Guard Academy Museum should be located in the Fort Trumbull area rather than in downtown New London for the following reasons:

1. The huge structure will dominate the landscape blocking the view of the harbor and dwarfing the historic Union Railroad Station and downtown New London.

2. Parking, always at a premium, will be problem. Shuttle buses could take visitors to and from the museum and downtown New London. Visitors would then not only be able to enjoy the museum, but they also would be able to explore the city and patronize its merchants and restaurants.

Sincerely,

Robert P. Russo
7 Mayfield Terrace
East Lyme 06333

From:	Randy Terwilliger
To:	Jeanine Gouin
Subject:	CG museum
Date:	Wednesday, August 01, 2018 10:16:28 PM

I am sure you will be getting quite a few letters regarding the looks of the building, its not the best location for it etc. My comment is dealing with something that is much more black and white.

Parking will be a nightmare . The current , rather run down , parking facility often has issues accommodating the summer parking as it is .Throw in the cars that will be displaced by the museum itself, at least 100 ferry related park now where the actual building will be situated and then add in any parking that the museum itself draws as well as the normal visitor, ferry and downtown worker cars and there is no way that they will all be accommodated.

Another very significant problem with the current plan is the absolutely necessary $20,000,000 pedestrian bridge , money that the state of CT has much higher needs priority wise , and the location becomes even more ludicrous. Lets say for argument sake that the powers above come to their senses and see that there are better uses for that kind of money , especially when they are shutting down so many current quality of life programs throughout Connecticut ?. Yes the money is " promised " but it would not be the first time such a promise was broken. The bottom line is no bridge = NO museum .

If somehow all this eventually comes to fruition I can easily picture this real life situation. A out of town family of four drives into New London for the first time looking forward to a exciting weekend on Block Island. They have their tickets in hand, reservations set on the island and a Smart car reserved and waiting for them on Block. The have the car loaded with their two young children luggage for four , diaper bags, strollers and all the accessories that young ones require . They pull up at the appointed time at the designated parking facility and see a sign , LOT FULL. Being new to the area, what would they do now, how devastated would they feel ? Put yourself in that frame of mind and then tell me this is a good idea ?

There are other reasons why this entire situation could have been avoided by going to a more suitable location but I don't know of another one that is as cut and dry as this one.

Randy Terwilliger

From: ks1u@att.net
To: Jeanine Gouin
Subject: Coast Guard Museum
Date: Thursday, August 02, 2018 9:34:25 AM

Hello. My dad was in the Coast Guard for 38 years and most of my childhood was spent on the grounds of the Academy, something which I am very grateful for.

I have only one suggestion for the museum, it should be built on the property formerly owned by the "digestive doctors" midway down Bank Street. I believe the property is still for sale, is above the flood zone and contains far more parking than near the train station. Furthermore, the pedestrian traffic is not a problem like it would be if the museum were moved to Fort Trumbull, as others have suggested.

Thanks for listening.

George Blahun Jr
7 Mamacoke Road
Quaker Hill, CT 06375

From: ks1u@att.net
To: Jeanine Gouin
Subject: Re: Coast Guard Museum
Date: Thursday, August 02, 2018 9:51:59 AM
Attachments: Bank St.pdf

Hello again. I am sending the MLS sheet for the property I mentioned in my initial email about the museum location. Although I am a real estate broker, I have no connection with this property other than thinking it to be a better location for the museum.

George Blahun

7 Mamacoke Road
Quaker Hill, CT 06375

860-443-3333

224-258 Bank Street, New London, CT 06320

County: **New London**
MLS#: **E10014335**
Commercial For Sale Sub Property Type(s): **Investment, Office**

Status: **Active** List Price: **$1,900,000**
Last Update: **01/26/2017** Orig. List Price: **$280,000**
Tax Parcel#: **1999766** Days On Market: **1,301**

Walkscore is: - - 88 Very Walkable - Most errands can be accomplished on foot.

Description of the Property Containing the Space For Sale

Potential Short Sale: **No**
Location:
Acres: **2.43** In Flood Zone: **No** Fronts On:
Zoning: **CommBusinessDistrict** Elevation Certificate: **No**
Year Built: **1988** Number of Units: Conforming Use:
Property Tax: **$83,756** Mil Rate: **40.46** Number of Tenants: **1**
Assessed Value: **$2,070,110** Tax Year:**July 2017-June 2018**

Description of the Space For Sale

Present Use: Potential Use:
Stories: **3** Ceiling Height: Restrooms:**1** Overhead Doors: **0** Loading Docks: **0**
Business Included: ADA Compliant:

Features

Lot Description:
Construction: **Frame, Masonry, Other**
Foundation: Flooring: **Vinyl, Wall-to-Wall Carpet**
Roof:
Handicap Features: **Handicap Parking**
Commercial Features: **Elevator, Fire Suppression System**
Exterior Feat:

Utility Information

Available Utilities:
Electrical Voltage: Electrical Amperage: Electrical Phases: # of Electrical Services:
Heat Type: **Hot Air**, Fueled By: **Electric, Natural Gas**
Cooling: **Central Air**
Water & Sewer Service: **Public Water Connected**, Sewage System: **Public Sewer Connected**

Parking Information

Covered Spaces: Uncovered Spaces: **151** Total Spaces: **151**
Parking Spaces Per 1000 Sg. Ft. Parking Description: **Open, Parking Lot**

Square Foot Information

Total Square Feet: **51,000** Square Foot Source: Space is Subdividable **No**
Industrial Square Feet: Office Square Feet: Residential Square Feet:
Retail Square Feet: Warehouse Square Feet: Additional Space Available: **No**

Public Remarks

Office buildings on Thames River near Shaw's Cove Office Park. SALE PRICE REDUCED - now $1,900,000 includes four contiguous buildings / one integrated complex, total sl 50,000+/-. Class A & B offices. Easy access to I-95. Also - up to 13,000sf available for lease. See #E10016443

Marketing History

Current List Price: **$1,900,000** Last Updated: **01/26/17** Off Market Date: DOM: **1,301**
Previous List Price: **$2,800,000** Entered in MLS: **01/09/15** Contract Date: CDOM: **2,039**
Original List Price: **$280,000** Listing Date: **01/09/15** Expiration Date:

Showing & Contact Information

Showing & Contact Information

Showing Inst: **Call agent.**
Lockbox: **None/** Date Available: Bank Owned: **No**
Owner: Owners Phone: Occupied By:
Directions: **Downtown New London on the Thames River near Shaw's Cove Office Park. Former A&T building.**

Listing & Compensation Information

Listing Contract Type: **Exclusive Right to Sell/Lease** Service Type: **Full Service** Sign: **Yes**
Buyer's Agent Comp.: **$1**

Internet Listing Distribution Authorizations

The List Office has authorized display on: **RPR, Homes.com, Homesnap, IDX Sites, Realtor.com, Zillow Group**
The List Agent has authorized display on: **Homes.com, IDX Sites, Realtor.com, Homesnap, Zillow Group**

*** NOTE: This listing will only appear on those websites authorized by BOTH the List Office AND the List Agent. ***

Listing Agent/Broker Information

List Agent: **John Jensen (EJENSENJ)** Lic.#: Phone: **(860) 447-9570**
Website: http://www.pequotcommercial.com Email: **jjensen@pequotcommercial.com**
List Office: **Pequot Commercial (PEQUOT00)** Phone: **(860) 447-9570**
Website: http://www.pequotcommercial.com

If you believe there is a violation on this listing, click here to report the problem.

Property Type is one of 'Business For Sale', 'Commercial Lease', 'Commercial Sale'
Status is 'Active'
City is 'New London'
Ordered by City, Property Type, Status, Current Price
Found 55 results in 0.02 seconds.

From: livnonthesound@aol.com
To: Jeanine Gouin
Subject: Coast Guard Museum
Date: Thursday, August 02, 2018 2:32:56 PM

To Whom It May Concern,

I am a New London native who has lived in the New London area all my life. My husband, also a New London native, is a 32 year veteran of the U.S. Navy in submarines. Most of his service served from submarines here at the U.S. Submarine Base.

Regarding the placement of the new Coast Guard Museum in downtown New London:

A postage stamp of a lot with no room for expansion

Property acquisition of land that is submerged under water, to me unusable

Parking issues. Yes there is the parking garage but many people will not use it.

Building of a walkway that will be an eyesore. One was torn down years ago because of rust & low maintenance. Who will maintain this one?

Congestion from trains & ferries not suitable for museum atmosphere, children or families

My suggestions:

Build at Fort Trumbull where there is plenty of land & room for expansion of the museum. Also the site of the first Coast Guard Academy

Access to Fort Trumbull National Park where people can also review the history of the Coast Guard and their involvement in the history of New London

New London Coast Guard Station located at Fort Trumbull where people can see Coast Guard vessels from the park

Use the $20 million earmarked for the walkway and build a walkway from Fort Trumbull to downtown. Better use of the money

Less congestion at Fort Trumbull & better safety for children & families

Good luck! Not sure I will see any of this in my lifetime!

Mary M. Christina

From: christybob_41@aol.com
To: Jeanine Gouin
Subject: US Coast Guard Museum;
Date: Thursday, August 02, 2018 1:48:28 PM

The initiative to have the National USCG museum in
New London is wonderful! But; it belongs in the Fort Trumbull area where there is ample space. To stuff it in the currently proposed site next to a historic train station is foolish! I lived in New London, CT most of my life, and now at 77 years old hate to see yet another big screwup in downtown!
Master Chief Robert E. Christina USN Retired.
Sent from my iPhone

From: Bryan Doughty
To: Jeanine Gouin
Subject: Re: Coast Guard Museum feedback
Date: Thursday, August 02, 2018 8:44:50 AM

Dear Jeanine,

> Thank you for your email. We are logging all comments received and will be evaluating them following the close of the public notice period, which occurs on September 4, 2018.

Out of curiosity, will this be something public will be able to view?

I think it would be a great benefit to the museum in getting public buy-in to make all feedback publicly available to show how changes are possibly made based on public feedback. That is if public feedback is indeed a factor in decision making and I strongly believe that is not the case currently. As I indicated, I actually think the public is totally irrelevant and in fact based on quotes in The Day from Adm. Robert Papp it would seem like he would rather the public go away so the museum could be built without any public interference:

> The Day: Are you satisfied with the museum effort at this point?
>
> Papp: I'm beyond satisfied. I'm very happy with the efforts thus far. We've made great progress despite multiple obstacles — environmental, fundraising, and quite frankly part of it is negativity expressed by readers of The Day in the New London area. Revisiting the issue as to whether the museum should be at the waterfront or at Fort Trumbull or some other place is a waste of time and effort at this point. The Coast Guard has chosen the location and we're moving ahead with it.

https://www.theday.com/military/20170729/admiral-on-museum-coast-guard-has-chosen-location-and-is-moving-ahead

When one tries to run over the public you will ”frankly” get negative feedback. Even worse is when you tell the public that their feedback is essentially ”a waste of time and effort at this point”. The museum will continue to get negative feedback until they truly reach out to the public. The museum has not even attempted to become part of New London, but rather they are trying to occupy a space within New London.

Sadly and until proven wrong, as Adm. Papp has indicated, the ship has sailed and I believe he is right about the feedback.

Take care,

Bryan Doughty
860 287-0909

> On Aug 2, 2018, at 8:23 AM, Jeanine Gouin <jgouin@mminc.com> wrote:
>
> Jeanine Armstrong Gouin, P.E.
> Vice President


99 Realty Drive, Cheshire, CT 06410
203.271.1773 x 271 | mminc.com
Facebook | Instagram | LinkedIn | Twitter

From: Bryan Doughty <bvdpress@gmail.com>
Sent: Tuesday, July 31, 2018 8:32 PM
To: Jeanine Gouin <jgouin@mminc.com>
Subject: Coast Guard Museum feedback

Dear Jeanine,

I would urge Milone and MacBroom to view feedback here:

https://www.theday.com/military-news/20180731/public-asked-to-weigh-in-on-latest-coast-guard-museum-designs

I would also strongly urge either Milone and MacBroom or the museum leaders to simply walk around New London or go to community events and ask for feedback. I am fairly sure representatives will get an earful.

Although I believe many residents, including myself, are in favor of this museum, many are strongly against the proposed location. I fall in this camp. How can one support a museum that appears not to care one iota about the resident's of their host city? For reference, simply search the word "Trumbull" on the page linked above and you will get the idea and quickly. Right museum, but wrong location.

Until this Museum truly starts listening to and communicating with the citizenry of New London, I cannot offer any support whatsoever. Sadly this comes from a Coast Guard spouse that takes great pride in the Coast Guard, but I take no joy in how the Museum has and continues to treat my home city.

A concerned a devoted citizen of New London,

Bryan Doughty
860 287-0909

Mary Gadbois
358 Boston Post Rd
East Lyme, CT 06333

Aug. 2, 2018

attn:
Jeanne Goerin — Re: Coast Guard Museum

Saw the picture in The DAY of the proposed museum in New London. Need to comment. Can't believe what we saw.

This building is disgraceful. It does NOT fit in with the surrounding city and its environment, buildings, etc — certainly doesn't fit in next door to the historic train station by any means.

This building doesn't fit in with the surrounding communities either. It does not complement anything. It doesn't fit in with the beautiful Coast Guard buildings at the Academy or Fort Trumbull. What are you thinking?

We'd never go there. And we would not take out of state/town people there. We'd never contribute to it.

Please — go back and re-do it. Be more tasteful and respectful!

Mary & Bob Gadbois

From: George Grossomanides
To: Jeanine Gouin
Subject: U.S. Coast Guard Museum New London, Ct.
Date: Thursday, August 02, 2018 8:31:15 PM

Dear Ms. Gouin, I am a student of architecture and find the design choice of the proposed museum quite perplexing. Historically New London is a colonial seaport and has a classic brick train station located at the foot of State St. . The proposed design is a ultra-modern glass design that does not mesh well with the existing historical theme of the Whaling City. I feel it is too avant garde for this particular place and has no connection to the maritime history of our region. Also the coastal weather is also another obstacle. Please offer a more appropriate design. Sincerely yours, George S. Grossomanides, 189 Browning Rd. Norwich, Ct.06360

From: L. C.
To: Jeanine Gouin
Subject: coast guard museum
Date: Friday, August 03, 2018 10:25:59 PM

Fort Trumbull.

Because:

They destroyed a lovely neighborhood and people's lives for nothing, and this would actually be "something".

Because:

There's lot of space, it has a beautiful view of the river, it's next to a Fort, and you can do whatever you want with the parcel.

Because:

Downtown is nearly impossible to drive through (especially in that area) as it is, and yet it's a primary artery to I-95, rt. 32 and I-395. It is insane to build a massive building next to what is essentially an alleyway. And zero parking.

Because: have you seen that area flooded? I have. And it was no "100 year flood". It was super-storm Sandy. You'll have to rescue yourselves next big storm (which, thank you global warming, will not take another 100 years).

Because:

Nobody likes modern buildings; they'll get over it (or not), but the actual problem is: it's going to look like a giant pimple on a small face. The proportions are all off. One thing to be "modern". Another to look silly.

At the end of the commenting period, please provide us with a tally of how many "yea's" to the site/building you get, and how many "nay's". And then tell us what you decided.

Thank you.

Lisa Crowley
New London

Please include these comments →

ONLINE FEEDBACK

The planners of the U.S. Coast Guard Museum in New London released their new design plan for the waterfront structure this past week. Here is what some readers of theday.com had to say.

"I believe the Coast Guard Museum should be built at Fort Trumbull where that area could be added to with eating places, outdoor concerts like the Coast Guard Band and exhibits. A $20M bridge would not have to be built."
—LittleEyes

"Downsize the museum. Really downsize it. Then put it inside Union Station. Job done."
—Frank

"I think this is a done deal, and this getting the public's opinion is just a load of crap. This museum could be amazing and in the age of GPS that's just an excuse that no one will find it in Ft. Trumbull It should be built in Ft. Trumbull and for a lot less. That's just my opinion, not that it matters any."
—Maya

"Looks like a giant hot greenhouse. The train station is an architectural gem, soon to be defaced by this ugly monstrosity. Sort of reminds me of how the hideous expensive Quonset hut style exhibition building at the Seaport sticks out like a big sore thumb on Greenmanville Ave. in Mystic at the Seaport. Serves a purpose but at an expense to the eyes."
—Hobo

"Trying to jam a museum showcasing a multi-mission branch of the Armed Forces in a very small plot of land in a highly congested city area with limited parking, that is also attempting to reinvigorate the adjacent port, is a bad idea. A glass box on a floodplain that blocks the views of many other city and private enterprise endeavors."
-Chris Ford

"Yesterday on the NBC morning news they reported that the Pirelli building directly in front of IKEA was named 'Ugliest Building in Connecticut.' Not for long!"
—Rich Lather

"Design still ugly & out of place for the historic history of New London."
—Seacrest

RECEIVED
AUG - 9 2018
MILONE AND MACBROOM

United States Coast Guard
To Milone & MacBroom Inc.
Attn: Jeannie Jacelia
99 Realty Drive
Cheshire, CT 06410

HARTFORD CT 061
07 AUG 2018 PM 7 L

United States Coast Guard
% Milone & MacBroom, Inc.
ATTN: Jeanine Goulin
99 Realty Drive
Cheshire, CT 06410

You were kind enough to solicit comments on this project so here goes...

The museum should be built at Fort Trumbull to blend in with the other lovely history that's already there. We don't know who saved the stone museum buildings there from the wrecking ball but they should be immortalized as heroes. So if the town has the land tied up in legal proceedings let them get off their duffs and fix it. The Coast Guard Museum can wait a few; hopefully, it would be here long after we're all gone. There are so many things wrong with the currently proposed site. Where do you start? Some of the required land is under water and would require fill; it would still be in a flood zone. 20 million for a walkway? One can't even park a car to use the train during the week (or on the summer weekends when the ferries are busy). Next to our retained and historical train station it looks like a bad migraine!

The town says it's up to the Coast Guard; the Coast Guard says it's up to the town. Follow the money and you'll have the answer!

New London clings to the hope that the land will be their lottery ticket out of fiscal irresponsibility. The Coast Guard holds a grudge because years ago they wanted to buy some adjacent land south of the Academy and the town wouldn't sell it to them.

After the architectural nightmare the Seaport just built, almost anything goes for an edifice. At this point that's immaterial. It's the insane placement of the building. About the only thing crazier that has happened in the 45 years we've lived here is the overhead electric lines put in for the railroad. For the few minutes they saved in time between Washington and Boston, they could have shortened the layover in New Haven and not ruined the entire southern New England coastline.

People without axes to grind should make a field trip down here to see what's here; just like the objective gentlemen who saved the Submarine Base a few years back when all the politicians wanted to close it—for no tactical reasons.

You all have our prayers and support to sort out this dreadful mess. We can guarantee lots of meaningful $$ support if it's moved to the Fort. The New London and southeastern communities wholly support the Coast Guard, the Academy and the men and women who pass through there.

Thanks again for asking for input !

Fred & Ann
NEW LONDON, CT

8-6-18

From: Susan Munger
To: Jeanine Gouin
Subject: Coast Guard Museum
Date: Tuesday, August 07, 2018 5:36:05 PM

Construction of such a large building would disrupt downtown business. How many could survive several years of slowed traffic, parking challenges, dug up streets, dust, noise? Years ago a nice restaurant on Pequot Ave closed because no one wanted to deal with Pfizer construction. I find it hard to believe that downtown merchants are comfortable with what the proposed project would do for them. Not long ago a moving van couldn't make the turn in front of the train station and disrupted traffic for some time. New London is an old city with narrow, often curved streets (part of its charm) not built for monstrous construction projects. Put it in Ft Trumbull where land is ready to go, is steeped in Coast Guard history and current day Coast Guard Activity. A beautiful modern glass structure would fit there just fine. Visitors could then walk, drive, bike to our wonderful downtown. Win-win for all.
Susan

HAMFORD CT 061

07 AUG 2018 PM 1 L

USA FOREVER

UNITED STATES COAST GUARD
% MILONE & MACBROOM, INC.
ATTN: JEANINE GOULIN
99 REALTY DRIVE
CHESHIRE, CT
06410

RECEIVED
AUG - 9 2018
MILONE AND MACBROOM

06410-165699

From: Joan Ruitto
To: Jeanine Gouin
Subject: comments about the Coast Guard Museum from a resident
Date: Saturday, August 11, 2018 3:02:08 PM

Dear Ms. Gouin,

I would like to register my concern about the plan to construct the Coast Guard Museum in New London. This plan does nothing to make New London look like a whaling-fishing town. This was the reason a recent plan to renovate a downtown building was rejected. This is an opportunity missed for our town architecture to preserve our historical significance..
The parking plan is deficient and would negatively affect our city. The cost is exorbitant for a museum that would service very few people; while the state of Connecticut could make better use of its money in our schools. Headlines describe the fate of towns curtailing their education budgets that could use this state funding.
This project will probably follow the path of the South Street Seaport Museum in New York City which is now closed due to lack of attendance and cost of maintenance.
As a resident I deeply oppose this project.

Thank-you for providing a venue for comments.

Joan Ruitto
7 Rockbourne Lane
New London

From: David Andrew
To: Jeanine Gouin
Subject: Coast Guard Museum Design Comment
Date: Tuesday, August 14, 2018 6:49:46 PM

Attention: Jeanine Gouin
99 Realty Drive
Cheshire, CT 06410
Fax: 203-272-9733
jgouin@mminc.com

I am writing to submit comments on the design of the new Coast Guard Museum specifically in relationship to the multimodal hub of New London Station, the adjacent ferry docks, and the public spaces surrounding the station.

It is my belief that the design of the musuem and adjacent public spaces should enhance the public realm on both sides of the tracks and create a vibrant, welcoming, and socially active area.

I am concerned that this plan as currently formulated will fail to leverage the unique opportunites of this site other than by taking advantage of the panoramic river views which has been repeatedly promoted throughout the development of this project. I believe that it's location in downtown New London and immediate proximity to transit connections, local small businesses, and existing downtown public space should be recognized as the site's greatest assets and the design of the museum and space should seek to strengthen these connections in the interest of promoting the vitality of the immediate area.

Firstly, I feel that the most recent design will fail to create an attractive public space in front of the museum. The previous design allowed for a stronger northern edge to the plaza and appeared to include stepped seating, ideal for an outdoor gathering space. This new design, with a glass curtain wall reaching to the ground and an entrance to the museum there, diminishes the potential of the plaza area as it's own vibrant public space into just an entranceway. This area should be a vibrant gathering place where families, children, and local residents can linger and enjoy the views and the public life, with comfortable seating and amenities, such as water fountains, planters, and even a cafe. The glass walled facade of the museum fails to create an attractive boundary to the space.

Secondly, I am concerned by the design elements around the rail alignment, specifically what appears to be a concrete wall running between the easternmost track and the plaza and museum. I have been concerned since the beginning of this process by the lack of attention paid to the incredible opportunity brought about by the proximity to this valuable transportation asset, the Northeast Corridor, and the design for these structures

seem to display an indifference to the experience of people waiting on the platform, arriving by train, or simply those enjoying the views from the plaza to the train and vice versa. A concrete wall running along the track would create an unpleasant, dingy, and most of all loud (when diesel trains enter the station) experience for riders, and would create a visual barrier between the station and the water. Any infrastructure erected along the rail alignment in this area should be sensitively designed to maintain and enhance visual connections between the rail station and platforms with the museum, the plaza, and the water. The museum should embrace it's proximity and ease of access via rail and promote it as the best way to get to and from. Connecting Washington, New York, Providence and Boston, the NEC should be the preferred way to bring visitors to the museum and to nearby local businesses therefore enhancing the economic prospects of downtown.

Lastly, I would say that your team should reconsider the plan to extend a pedestrian bridge all the way to the parking garage. Connecting this pedestrian bridge to the garage is an invitation for people to drive to New London, park in the garage, and then proceed directly to the museum or ferries while bypassing any opportunity to patronize businesses or contribute to the street life of downtown New London. Any sort of development that creates such an umbilical connection to a parking structure while bypassing the public realm contributes further to automotive dependence on our society and makes it less likely for downtown businesses to gain benefits from the museum's arrival. The museum should be designed and promoted in such a way to encourage people to build a day in New London around it and to pair their museum experience with other local economic activities. Providing a direct bypass to the parking garage discourages that. Furthermore, the concept of grade separating pedestrian crossings to avoid obstructing busy roads is a relic of 1950's thinking that puts motorist convenience above all other factors. The museum should instead design an attractive landing for the pedestrian bridge at the foot of Union station and implement traffic calming improvements to the street crossing, as well as determine other improvements to make the plaza area a more vibrant, attractive pedestrian area. Wayfinding signs should point visitors who arrive by car, train, or boat towards local destinations. Lastly, this pedestrian bridge is likely to be a costly investment and that money could be spent more wisely on other aspects of the design.

Overall I hope that an updated version of this plan will better contribute to the downtown environment and seize the opportunities of being a transit adjacent site than the current plan. With the prospect of expanded commuter and regional rail service, and the potential for future rail service up the Thames River valley to connect to Mohegan, Norwich, Willimantic and Storrs, New London looks to remain a major multimodal transportation node for a long while. This is a tremendous asset to the museum and I hope that you take advantage of it accordingly.

Regards,

David Andrew

Frequent visitor to New London via car and train, for access to Block Island.

--

David Andrew
LinkedIn - Twitter

DEAR SIRS: 8/17/18

THE BUILDING YOU HAVE DESIGNED FOR THE US COAST GUARD MUSEUM IS. BEAUTIFUL.

IT WILL BE A CRIME TO HIDE IT BEHIND THE OUTDATED RAILROAD STATION, IT WILL BE SUBJECTED TO APPROX 50 TRAINS PER DAY. THE ONLY PEOPLE THAT WILL BE ABLE TO SEE THE MUSEUM WILL BE ON THE CROSS SOUND FERRIES.

PARKING HAS ALWAYS BEEN A PROBLEM IN NEW LONDON, AND ACCESIBILITY TO DOWNTOWN IS IMPOSSIBLE FROM RTE 95

DO THE COAST GUARD A FAVOR AND LOCATE THE BUILDING WHERE THERE IS PLENTY OF PARKING AND EASY ACCESS AS WELL AS VISIBILITY, SUGGESTED SITES ARE LISTED BELOW:

1. FORT TRUMBULL, PLENTY OF SPACE, NO NEED TO BUILD A NEW FOUNDATION AND SEA WALLS, PLENTY OF SPACE FOR PARKING AND SUPPORT FACILITIES. FORT TRUMBULL WAS THE ORIGINAL SITE OF THE USCG ACADEMY AND THE MERCHANT MARINE ACADEMY. THEY ALSO HAVE A LARGE DOCK FOR THE "EAGLE."
2. CRYSTAL APARTMENT AREA WHICH WILL BE DEMOLISHED SOON, UNKNOWN SIZE OF THE AREA BUT EASY ACCESS TO RTE 95 AND LOTS OF VISIBILITY, WALKING DISTANCE TO THE COAST GUARD ACADEMY.

THANKS FOR YOUR EFFORTS
SINCERLY
EDWARD J. RYAN
860-884-2255

EDWARD RYAN
190 Ann Ave.
Mystic, CT 06355

EDWARD RYAN
190 Ann Ave.
Mystic, CT 06355

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USPS

US COAST GUARD ACADEMY
C/O MILONE & MACBROOM INC
99 REALTY DRIVE

LETTERS TO THE EDITOR

8-20-2018

THE DAY

In so many ways, a bad location

This is in regards to the "Coast Guard museum new look," (Aug. 1). It is amazing to me that this museum proposal has been allowed to come this far without an intervention of common sense to stop this ill-advised monstrosity.

Not long ago a developer was stopped on a Bank Street renovation because his proposed demolition and replacement project was not in keeping with New London's historic look. Yet suddenly it is OK to build a four-story glass cube in the historic waterfront district that may fit Hartford's office building architecture but is completely out of place here.

The one-third acre site is inadequate and would not meet the zoning for a small house lot, let alone a building of this magnitude. The architect's sketch clearly demonstrates how foolish this site is with railroad tracks and train power cables adjacent to the building. Coupled with the fact the structure would be in a hundred-year flood plain, no available parking, need for a $20 million bridge at the taxpayers' expense, and the acquisition of an additional one-third acre that is mostly submerged land, makes the overall concept a really dumb idea.

This project does not need an environmental study. What it really needs is a new site and a new design.

Dan O'Donnell
Groton

PURPLE HEART
FOREVER USA

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AUG 27 2018
MILONE AND MACBROOM

United States Coast Guard
c/o Milone & MacBroom, Inc.
ATTN: JEANINE GOWIN
99 REALTY DRIVE
CHESHIRE, CT 06410

06410-165659

United States Coast Guard
c/o Milone & MacBroom Inc.
Attn. Jeanine Gouin

Dear Ms. Gouin,

August 22, 2018

You have requested written comments re: the proposed Coast Guard Museum in New London. I feel it needs to be examined from 3 points of view - aesthetically, practicality, and legally.

Aesthetically:
Why is the Union Station not in this picture ? Why not another picture showing the juxtaposition on the two buildings? This is a building on the National Historic Register and is presently the anchor for State Street. These buildings will be neighbors and it is important that they be looked at together. A 100 million dollar building of this magnitude needs space around it to be appreciated. It should not be squeezed onto 1/3 of an acre sharing a minimal space with another fine piece of architecture. This doesn't do either building justice.

Practicality:
I'm not convinced this is going to save New London. I feel the parking shortage that exists already will not be solved by creating a need for the additional number of spaces required to accommodate the number of people they are expecting to visit every year. Why not use their 1/3 of an acre to run a jitney to another location and also serve the people coming by train and boat with no car? There is just too much being shoe horned into an inadequate space.
The lack of funds is of course a huge practicality.

Legality:
I would assume the Coast Guard will want to set an example by respecting the regulations that have been set down for building on the waterfront and in the 100 year flood plain. Variances are only given out when the applicant has no alternative. Where is the "hardship" here? Just because the Coast Guard was given 1/3 of an acre on the waterfront it doesn't give them permission to build a 100 million building on it! They have other options.

I feel a lot more thought needs to be put into this decision

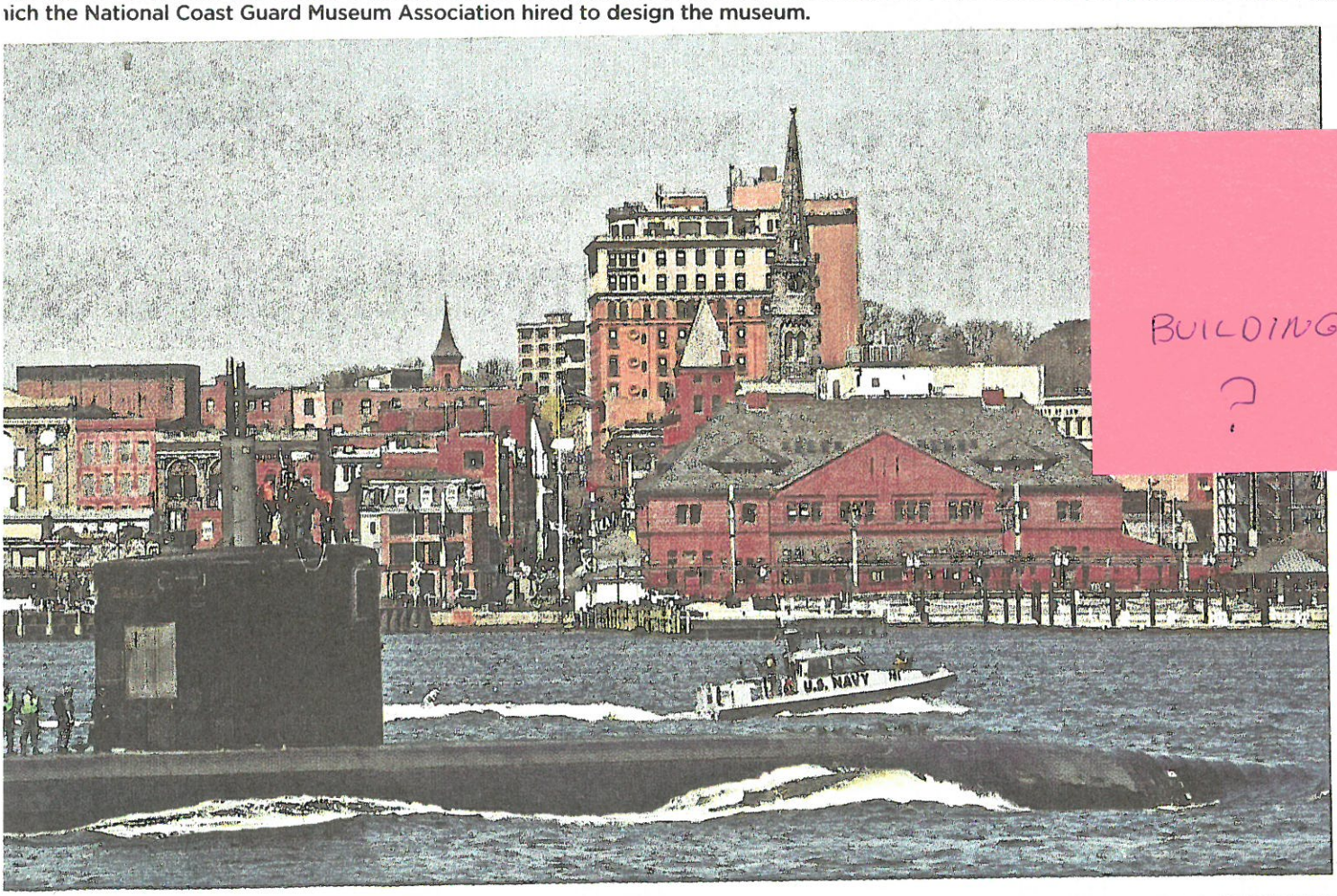
Sincerely,

Susanne Stutts

Susanne Stutts
10 Mill Pond Lane
Old Lyme CT, 06371
Former 24 year member, 8 as chairman of Old Lyme Zoning Board of Appeals

COURTESY OF NATIONAL COAST GUARD MUSEUM ASSOCIATION

e latest design, showing the proposed front entrance of the estimated $100 million National Coast Guard Museum planned for the ›wntown New London waterfront, is seen in this rendering released Tuesday. The designs are by Boston-based architecture firm Payette, ıich the National Coast Guard Museum Association hired to design the museum.



BUILDING
?

From: Penny Newbury
To: Jeanine Gouin
Subject: comment on environmental assessment of museum site
Date: Tuesday, August 28, 2018 10:51:13 AM

August 28, 2018

Jeanine Gouin
Milone & McBroom

Dear Ms. Gouin:

I'm writing to comment on the environmental assessment conducted by Milone & McBroom for the US Coast Guard regarding the proposed siting of a future Coast Guard museum in downtown New London. I was a bit cowed by the length of the document, but I plowed through it, as did many acquaintances. It proved, as studies that have come before it proved, that if those commissioning the study ask those preparing it the right questions, anything can be proven. That's not why I'm writing—to dispute your findings on projected noise levels, contradict encroachment assurances, or quibble with the number of birds that may fly into the glass. The "environmental assessment" was commissioned by an entity that wanted a certain result, and your office complied.

While the assessment has included the detailed and damning testimony of several reputable engineering, environmental and land use groups regarding the folly, short-sightedness, illegality and danger of locating that structure on this site, and their repeated assertions that Fort Trumbull was the original, and preferred, site, it does not seem to address any of these points in sufficient detail or propose appropriate solutions. The main concern of all these opposing entities, I would argue, is the LOCATION of the building. This assessment, obviously, was not funded by people or groups interested in anything but the downtown site, and so did not address the obvious and popular solution, preferring to twist itself into a pretzel defending what I'm sure you all in your heart of hearts know to be an idiotic, and frankly sinister, choice.

I've also read the arguments in favor of keeping the museum downtown—99% being purely economic. Those opposed to the site *are not opposed to the museum*, and neither am I. There is no reason why it cannot be placed at Fort Trumbull. There is every reason why its placement on .34 acres of historic waterfront with no visual tie-in to new London's past, present or future represents one of the most abhorrent affronts to the concepts of smart growth, liveability, sense of place, and every issue that city planners and adaptive reuse experts have been espousing nationally for the past two decades. It's probably not your fault, but seriously, what are you thinking? Haven't you seen the outpouring of condemnation from every corner regarding the placement of this museum—in whatever iteration including this latest?

There will be no hordes of tourists. There will be no awards for design. There will be nothing except a few very happy wealthier individuals who slammed this monstrosity down the throats of the people who live, work and revere downtown New London.

The assessment does not care whether Fort Trumbull is a better location in every regard, including its ability to host the *Eagle*. That's not why it was commissioned. But it is indeed a very big part of how this assessment should be evaluated—not in its own vacuum of fewer birds flying into windows and lack of nearby hazardous substances.

I'm not going to comment on the many superfluous sections of the report that seemed designed only to wear out the dedicated reader to the point that he/she gives up and says "Okay, fine, I guess

there’s so much information here that the site is indeed environmentally appropriate for that museum.”
Is that what this assessment is designed to do?
An environmental assessment can be dead-on correct, and still be 100% misleading, wrong, short-sighted, and bloodless. If any of its authors knew anything about this area, I mean really knew anything, they would see that.
Thank you for your time.
Penny Newbury
Noank, CT
(860) 245-4956

29 August 2018

To: Jeanine Gouin, Milone and Macbroom

Fax: 203-272-9733 Pages: 8

From: Nancy d'Estang, PO 602, Old Mystic, Ct. 06372 (Tax payer)

Re: Responding to CGM proposal for New London

MYTHS LIES MYOPIA

May I support the document by Robert Fromer, which has been submitted to you. I [illegible] with his professionalism and learned research/comments/facts.

I. The Yale Urban Design Group's "Fort Trumbull Vision" is a comprehensive plan which has been dismissed by THE PLAYERS as "not meeting the CG requirements". That seems unlikely; the site chosen at the train station certainly does not meet requirements as can be seen by the multitude of adjustments which need to be made at the site. This is a true urban plan: appropriate for a community of 47,000 residents, compatible with community affordability and tourist needs, easy to secure, includes transportation, air, space, trees, grass, wading pool, band shell, "soft edges", history with the CG, vistas, sustainable and profitable. Mr. Papp said at the outset that there was not enough water depth for EAGLE at Fort Trumbull. That is not true. There are photos of EAGLE docked at FT, as well as tall ships and cargo vessels. (A 500 + foot destroyer was headed up there this summer.) In addition, EAGLE is away most of the time, and winters in Baltimore annually for maintenance. Further the renowned Yale group has no skin in the game, therefore no conflict of interest.

II. Tony Sheridan and others have said that if the CG museum does not go at the train station site, it will not come to NL. That is not true, as can be seen in the Fromer document.

III. The August 1 DAY article said: 'the Coast Guard will determine whether there is a finding of no significant impact'. The "fox guarding the hen house"? This regards the environmental impact, one assumes. According to the Oxford, environmental includes: a set of circumstances or conditions, especially physical conditions in which a person or a community lives, works, develops; the region surrounding a place---context, setting.

IV. Who bears the cost of the infrastructure, the maintenance, the police, fire and ambulance protection, of the flooding, the trash pick-up, the traffic congestion, the businesses that close because of years of construction on this site?

V. Determinations by the Coast Guard thus far in this project do not inspire confidence. The facts of climate change, the tiny over-burdened vulnerable site chosen, the glitzy "not fair" design and materials, the unsustainable, non-securable, flood plain, high wind vulnerable location—do not build trust. It is as if the CG players are exempt from laws of nature.

federal and state law, from community, state and federal financial truths, transportation infrastructure, terrorist and I-95 truths! Is this a "players vs. payers" situation?

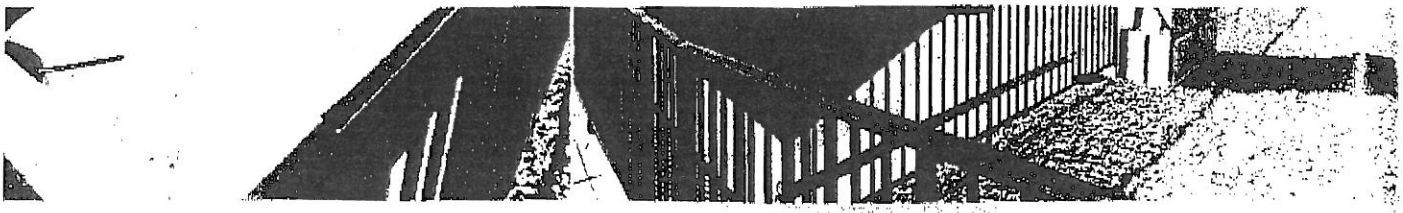
VI. Costs: the 100 million figure is still used in the Aug. 1 , 2018 article. It is expected that the digging will begin in 2021; the CG must have a projected cost for that time. When will that be revealed?

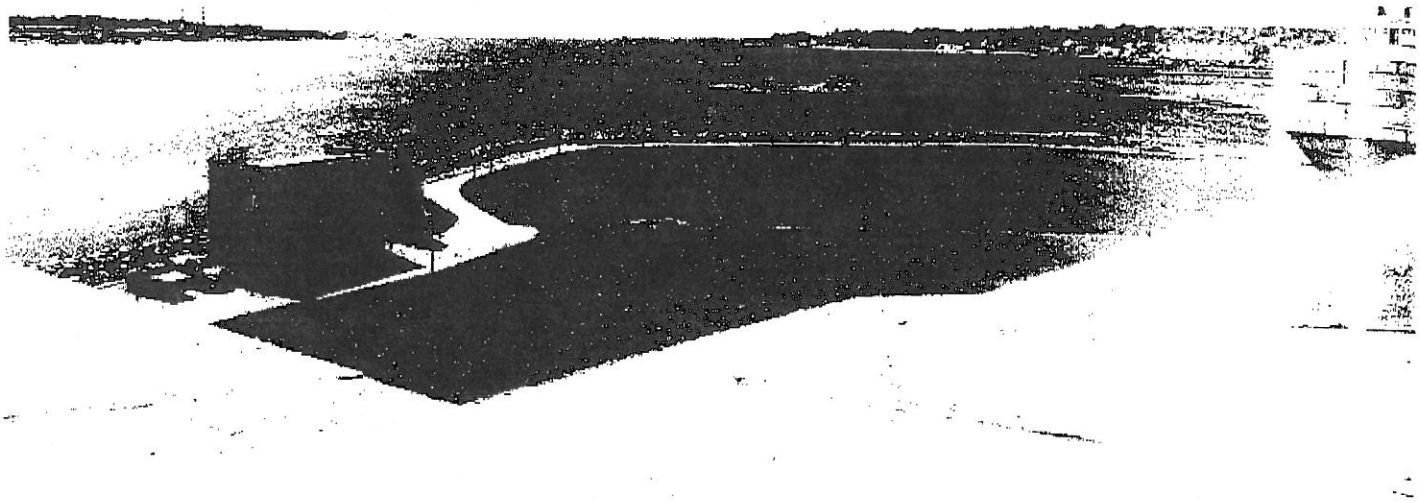
VII. Back to the proposed design itself: Does it fit the expectations of a major addition to New London? i.e. suits the community, has a social conscience, uses materials appropriate to its context in New London? The front page photo of the Richardson train station (The Day of 26 August) seems to tell all: the station is impressive, suitable, traditional , iconic and a lasting monument to the designer. There are now 3 trains every 15 minutes of these tracks. Although there had been plans to tear it down, the surrounding communities' residents have insisted on its preservation. (Surely PLAYERS could come up with ways to make it more useful and inviting!-----rather than forging ahead as "The Great Exhibitionists".

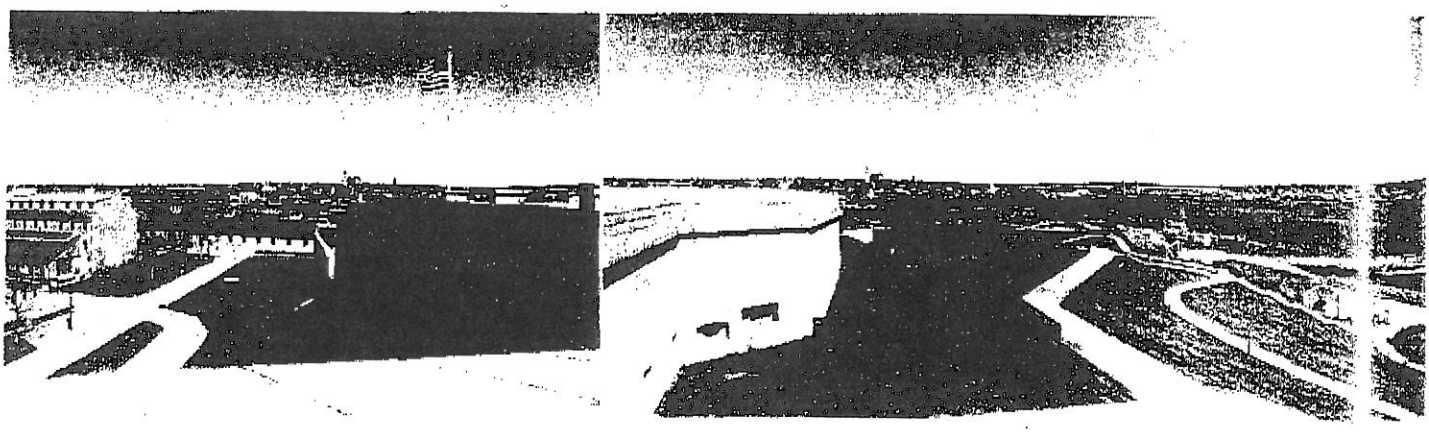
VIII. See attached article regarding the evolution in Westerly, as opposed to what is proposed by the CG for NL: "Sweet Song Playing Out in Westerly with Fundraising for ARTS CAMPUS" is a multifaceted project " which will include dance, book shop, art galleries, micro-cinema, class rooms, master classes, visiting musicians, the philharmonic —a project for all ages, all pocket books, all backgrounds—a multi- building re-use art campus. Note too that the art co-op has moved into the train station, reviving its use for passengers as well as gallery visitors now.

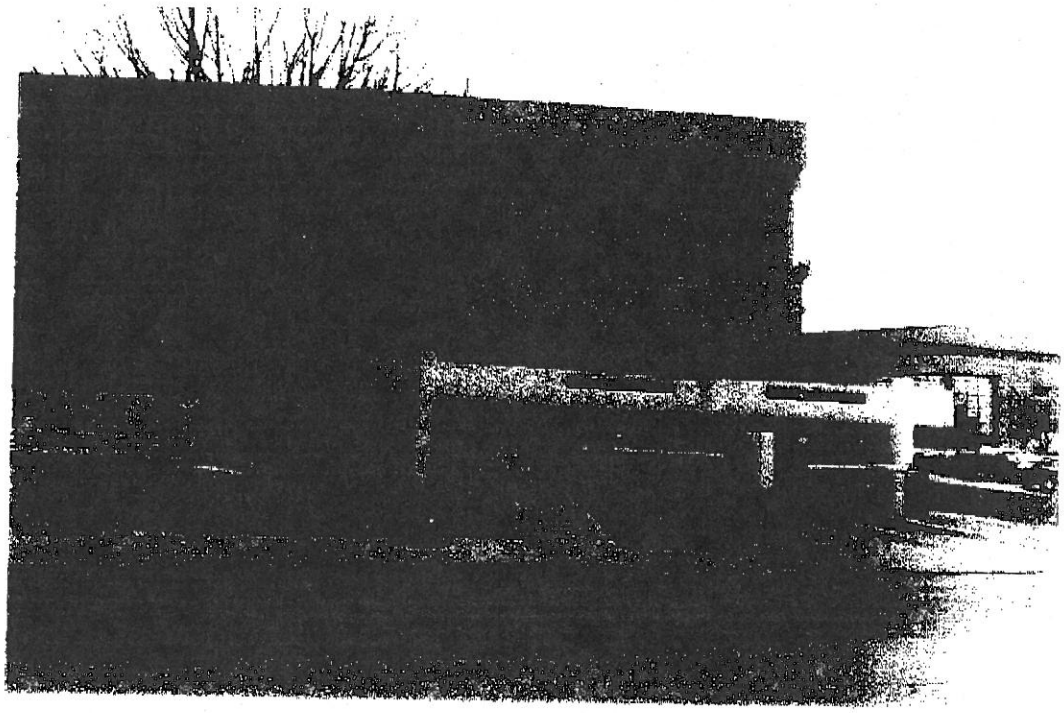
IX. Please do not make further mistakes in New London. Heed what is happening in Mystic where the residents' ideas for green, trees, comfort, hospitality, bike paths and diversity were dismissed.

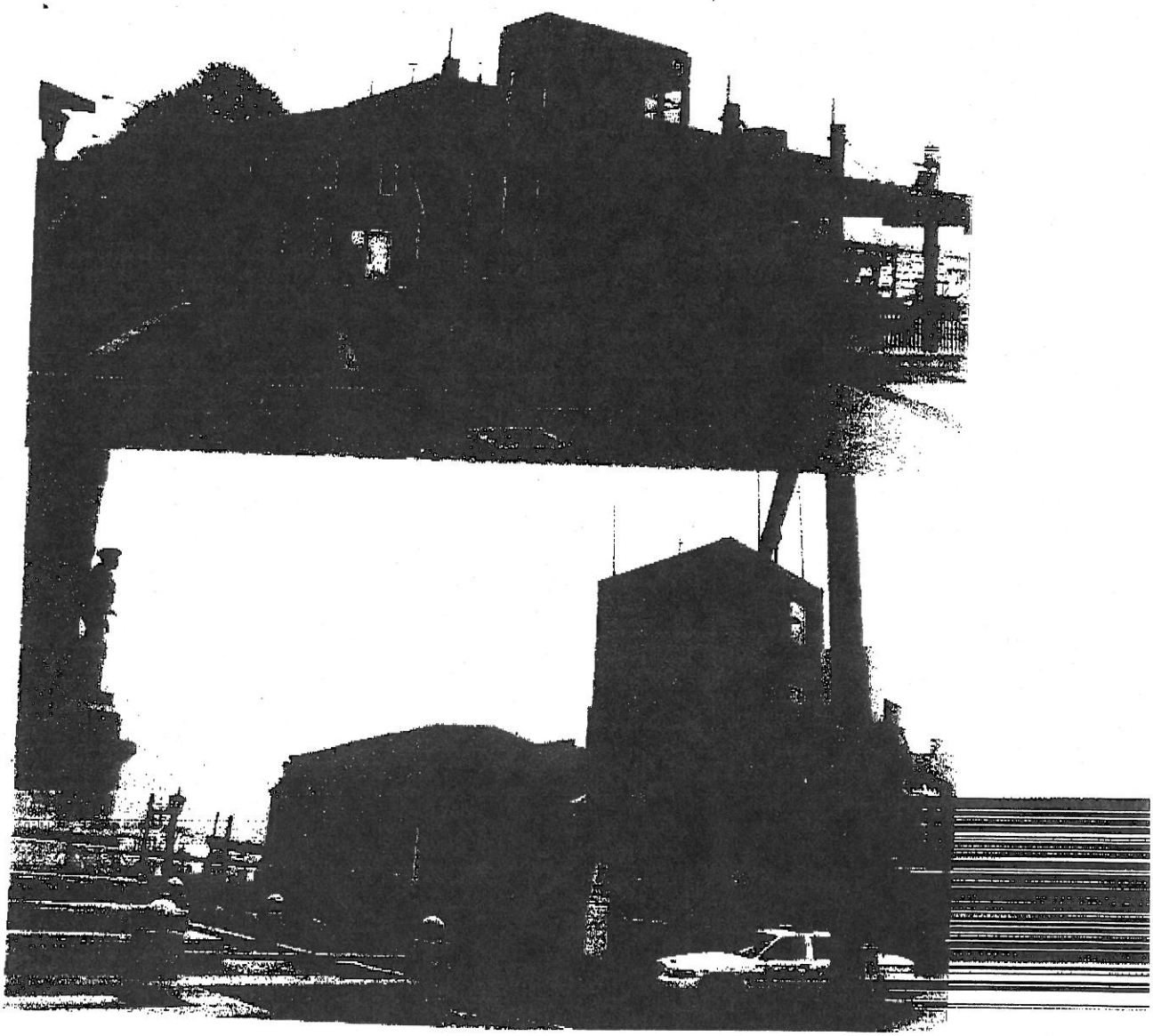
Thank you for regarding these remarks and this attached material.











4.9.2 Consistency with Conservation and Development Policies Plan for Connecticut

The downtown New London waterfront area has been designated as a Conservation Area under the *Conservation and Development Policies Plan for Connecticut* (2013-2018) because of its location within a floodplain. Growth Management Principle #5 of the Plan strives to promote and ensure the integrity of Environmental Assets critical to public health and safety. The following policy is of interest in light of the proposed pedestrian overpass:

Policy: Discourage new development activities within floodway and floodplain areas, manage any unavoidable activities in such areas in an environmentally sensitive manner and in compliance with applicable laws, and seek to prevent the loss of life and property by maintaining existing dikes, channels, dams, and other barriers, or removing such structures where removal would be a more cost-effective option for reducing threats to downstream property.

Consistent with the State Plan policy, the proposed overpass will be constructed to withstand flooding impacts and will be designed to be in full compliance with local building and excavation codes and coastal management policies and regulations. Additionally, the overpass will comply with state and federal policies and regulations as described in Section 4.9.3.

4.9.3 Consistency with State and Federal Regulations and Statutes

Because state funds are involved, this project must be certified as being in compliance with flood and stormwater management standards specified in Section 25-68 of the CGS and Section 25-68h-1 through 25-68h-3 of the Regulations of Connecticut State Agencies (RCSA).

State policy promotes long-term nonintensive uses for projects within flood hazard areas, with utilities located to discourage floodplain development. State policy regarding floodplain development is articulated in Section 25-68(b)(4) of the CGS, requiring that a proposed action promote long-term nonintensive floodplain uses and have its utilities located to discourage floodplain development. This policy invokes a higher standard than the engineering standards contained in federal or municipal floodplain regulations.

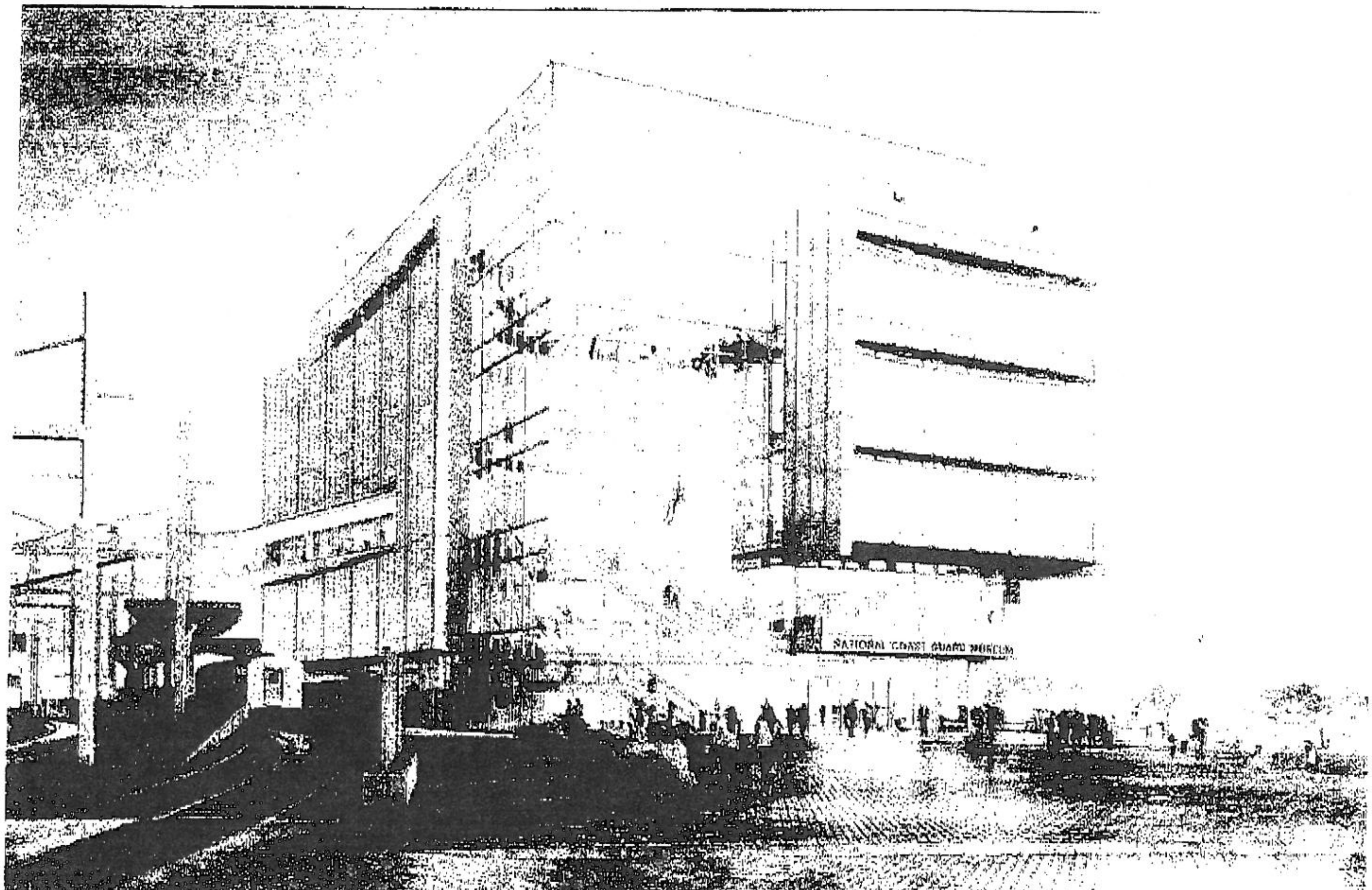
In order to certify the proposed action, it must be determined to be a nonintensive use of the floodplain. The determination of whether a specific proposal is considered nonintensive requires examination of numerous factors, including the existing state of the floodplain and its natural resources, the types of uses proposed for the floodplain area, the design of the entire proposal and the extent of encroachment into the floodplain, and the availability of alternatives to siting within the floodplain. In order to ensure compliance with state policy, any proposed development must not result in more intensive uses of the floodplain than presently exist.

Intensive floodplain uses have been interpreted by the DEEP to include:

08/29/2018 14:46 8607019173 RECEIVED 08/29/2018 02:41PM MINUTEMAN PAGE 06/08

ıew designs show a much more opaque structure on the waterfront side, with long met[illegible] breaking up the glass to help prevent bird strikes and to address concerns from the Coa[illegible]

Coast Guard Museum's new look



COURTESY OF NATIONAL [illegible]

ıatest design, showing the proposed front entrance of the estimated $100 million National Coast Guard Museum [illegible] **for the ıtown New London waterfront, is seen in this rendering released Tuesday. The designs are by Boston-based** [illegible] **ı the National Coast Guard Museum Association hired to design the museum.**

ılic comments sought he environmental ıact of construction

LIA BERGMAN
ːaff Writer

ʷ London — The Coast Guard, ːking public comment on a re- of the environmental impacts ːd to building the National Coast l Museum on the downtown wa- ınt, has released the museum's st design.

e review, officially known as a ːemental environmental assess- , is required under the National ːonmental Policy Act and out- the environmental impacts of ɔsed construction. It also details eed for the acquisition of an ad- nal 14,200 square feet of land, ı of which is submerged land beneath the City Pier platform and along the Thames River adjacent to the proposed site of the museum.

A draft version of the assessment will be available for comment for 30 days beginning today. After the public comment period, the Coast Guard will determine whether there is a finding of no significant impact, meaning the project can proceed, or will identify outstanding issues that need to be addressed.

The proposed site of the estimated $100 million museum is adjacent to Union Station on one-third of an acre of land that the city donated to the Coast Guard in 2014. The site is in a 100-year flood zone, which complicates the design and construction process.

Site testing began in mid-July and is expected to last about a month. The museum association recently hired two Connecticut based firms for pre-construction work.

An updated cost estimate for the project isn't expected until the design is finalized, with construction tentatively scheduled to begin in 2021. But that is subject to change. So far, $37.1 million has been raised by the National Coast Guard Museum Association, including $5 million from the federal government and $20 million from the state.

Environmental assessments were performed in 2002, 2008 and 2014, which concluded in a finding of no significant impact. It was after the 2014 assessment that the land adjacent to Union Station was transferred from the City of New London to the Coast Guard.

SEE COAST GUARD PAGE A5

HOW TO COMMENT

[illegible]

[illegible]

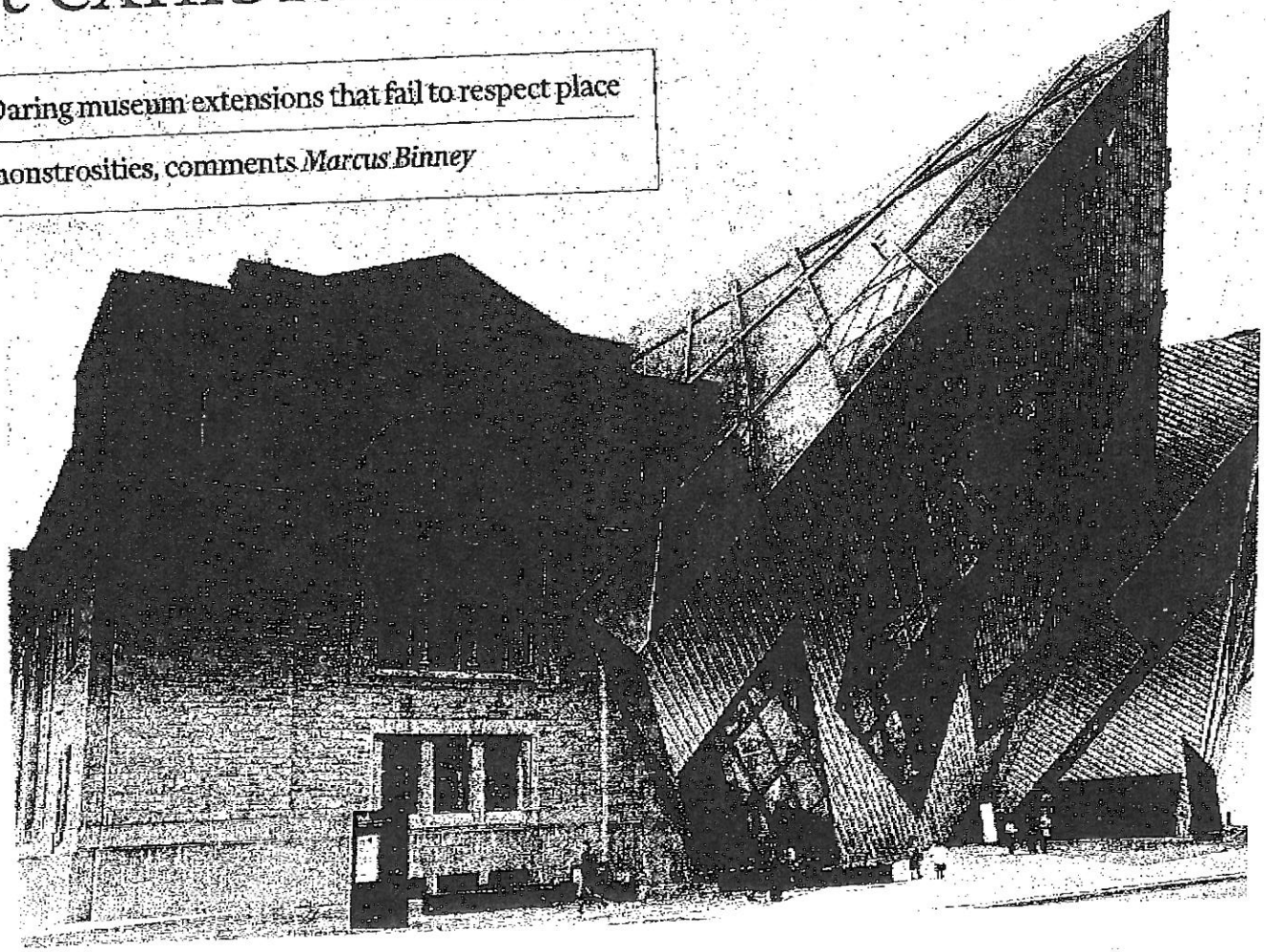
TUESDAY, AUGUST 28, 2018 VOL. 138, NO. 58 20 PAGES NEW ENGLAND NEWSPAPE

COMMUNITY OUTPOURING

House & Home

The great exhibitionists

Perspective: architecture | Daring museum extensions that fail to respect place and context can end up as monstrosities, comments *Marcus Binney*



ROBERT FROMER
EJD, MSEE, P.C., P.E.

E-mail: saintrobert@comcast.net

August 29, 2018

Sent via Fax to: 1 (203) 272-9733
Sent via Electronic Mail to: jgouin@mminc.com

Re: Comments on the Draft Supplemental Environmental Assessment for the proposed National Coast Guard Museum

United States Coast Guard
c/o Milone & MacBroom, Inc.
(Attention: Jeanine Gouin)
99 Realty Drive
Cheshire, CT 06410

Dear Ms Gouin:

My name is Robert Fromer, and I provide the following comments on the Draft Supplemental Environmental Assessment ("SEA") for the National Coast Guard Museum ("Museum") dated July 24, 2018. My commentary on the 2014 Environmental Assessment ("2014 EA") are incorporated herein and made a part thereof by reference.

The SEA is substantively and procedurally noncompliant with the National Environmental Policy Act ("NEPA") of 1969 and implementing regulations and instructions. Also, there are significant impacts justifying an Environmental Impact Statement ("EIS"). My comments debunk, refute and contradict the claims specifically made in the Cover Page and Introduction that the SEA and 2014 EA were developed in accordance with NEPA as implemented.

The Museum is still a fragile "glass palace" and illegally located on the waterfront. If climate change occurs according to the preponderance of scientific evidence, this Museum is "doomed."

Milone and MacBroom has prepared the SEA to justify the United States Coast Guard ("CG") issuing a Finding of No Significant Impact ("FONSI").

EXECUTIVE SUMMARY

Proposed Action

"The Proposed Action, as described in the SEA, consisted of United States CG acquisition, by gift, of a 0.34-acre parcel of land on Water Street in downtown New London, allowing the National Coast Guard Museum Association ("Association") to construct a museum on the acquired property, and potential acquisition and long-term operation of the museum by the CG. The CG acquired the 0.34-acre parcel from the City of New London in 2014. [C]hanges to the Proposed Action as evaluated in the subject SEA include the acquisition of additional land as well as changes to the museum design that affect its size, footprint, related in-water activities, and the overall relationship of the building to the surrounding area. Since construction of a museum would be an indirect effect of the proposed CG actions, the potential impacts of such construction and long term operation are evaluated herein." (Parenthetical added.)(SEA, section 2.3, p. 2-1)

"The conclusion of the … screening analysis is that, based on the museum needs and site constraints, an 80,000-square-foot museum can be accommodated at the project location and is large enough to support the critical functions of the facility. As such, an 80,000-square-foot museum is evaluated herein…. [T]he 80,000 square feet refers to the gross square footage of usable building area and does not include the open or enclosed areas on the ground level, which are intended to serve a loading dock, entrance, storage, and other unoccupied areas as allowed by Federal Emergency Management Agency ("FEMA") regulations for uses within a designated flood zone." (SEA, section 2.3, p. 2-2)

Museum Function and Programming

A Virtual Museum and the Fort Trumbull option can provide the same museum function and programming without the adverse environmental impacts of the downtown location.

Environmental Factors Considered

The Introduction in SEA lays out the process for the CG to acquire land and construct the Museum. However, neither the past nor the following comments will alter the predetermined decision made by Admiral Robert Papp in collaboration with the Association to irrationally and unreasonably locate the Museum in the downtown area.

Neither the SEA nor the 2014 EA considered the annual and life time energy consumption for heating/ventilation/air conditioning, embodied energy, nonwater dependency of the Museum, Greenhouse Gas ("GHG") production, and degradation of visual quality through significant alteration of the natural features of vistas and viewpoints in Chapter 4.0 (Environmental Consequences). Scenic vistas/viewpoints lie in the public domain. So, to the public, it appears that the CG performed due diligence when the scope of consideration is really quite limited and requires expansion of factors.

NEPA requires that all reasonable alternatives be rigorously explored and objectively evaluated. In addition, alternatives that are eliminated from detailed study must be identified, along with a brief discussion of the reasons for eliminating them.

Several alternatives cited in section 2.2 of the SEA were suggested during scoping for the 2014 EA. Alternatives suggested included a Virtual Museum over the Internet ... and Fort Trumbull State Park. A brief description of both alternatives, and the reason each was peremptorily eliminated from detailed assessments and evaluations of the factors in Chapters 3.0 and 4.0:

- Virtual Museum – Although a virtual museum may be a valuable tool for any museum, it does not meet the purpose and need to adequately preserve, record, and display the Coast Guard's history and artifacts. A virtual or web-based museum was considered in previous EAs prepared by the Coast Guard for the Museum, and this alternative was also eliminated from further analysis.

- Fort Trumbull State Park – As described previously, the Fort Trumbull alternatives have been considered in previous Coast Guard EAs. These alternatives have been incorporated by reference, and will be considered in the Coast Guard's decision on the Proposed Action.

Significance of Consequences

The finding of insignificance for the considered factors is not dispositive of the issue because the SEA omitted considering the significance of other specific environmental impacts and their cumulative effects. As a result, the significance of impacts is indeterminate because pre-selection of the site and failure to consider other primary environmental factors has resulted in the incompleteness of the SEA.

The SEA necessitates an expansion of the 2014 EA to include such other factors as consistency with coastal management, life-cycle energy consumption, GHG production, sea level rise attributed to climate change, and degradation of visual quality through significant alteration of natural vistas and viewpoints which are in the public domain.

Federal Statute Authorizing the Museum

In section 98 of Title 14 of the United States Code ("14 USC § 98") permitting establishment of the Museum, Congress did not establish a purpose and need for the facility. The Association crafted and tailored the purpose and need to suit its organizational mission. Also, Congress neither mandated creation of the Museum nor established of any specific form it may take — whether physical or virtual. Further, Congress omitted statutorily establishing that the Museum is in the **National Interest**. Finally, the statute requires locating the Museum in the [undefined] **vicinity** of City of New London ("City") and not limited to a location within the geographical boundaries of the City.

Purpose and Need

"The statement shall briefly specify the underlying purpose and need to which the agency is responding in proposing the alternatives including the proposed action." 40 CFR Sec. 1502.13 [Purpose and need]. The operative word is "**responding",** not **"creating**."

"The purpose of the Proposed Action is to establish a NCGM that is capable of adequately preserving, recording, and displaying the Coast Guard's history and artifacts and that would be established in accordance with 14 USC § 98 – privately constructed on land gifted to the Coast Guard in New London and in close proximity to the Coast Guard Academy. The need for the Proposed Action is based on the limited space and functional constraints of the existing Coast Guard Museum and the inability of the existing Coast Guard Museum to effectively tell the story of the Coast Guard." (SEA, Section 1.4, p. 1-7)

According to the Association's website, the prime purpose of the Museum is public education about the CG through exposure to its artifacts. A feasible and prudent alternative to the proposed Museum is a Virtual National Coast Guard Museum ("Virtual Museum") and television channel for the whole world. In this Digital Age, all artifacts can be scanned in 3-dimensions and provided on the Internet alleviating the need for a structure and transportation to the site. The Smithsonian Institution is scanning all of its 137 million exhibits in 3-dimensions for public display on the Internet alleviating the need to visit its sites, which would save considerable energy.

The SEA is creating the purpose and need and not in response to any Congressional act.

The purpose for the Museum only exists because of the obsession of Admiral Papp and Mr. Coleman. The purpose and need for the Museum can be readily achieved without design, siting, and construction of an 80,000 square foot building through the creation, development and operation of a Virtual Museum and a new television channel originating from the CG Academy, which would fully satisfy 14 USC § 98.

The SEA process is a sham, pretentious, and contrived because Admiral Papp, former Commandant of the CG, in close cooperation and coordination with Connecticut Governor Dannell Malloy, former City Mayor Daryl Finizio, the Association, and Mr. Bob Ross, Executive

Director of the Connecticut Office of Military Affairs, pre-selected the proposal by the Association to locate the Museum on a parcel of land owned by the City unilaterally decided based on the offer of land by the City that the proposed site is the preferred alternative before preparation of the 2014 EA and SEA. Once again, t**he SEA essentially justifies the site contrary to the planning purposes of NEPA.**

Environmental Impacts

Significance of Impacts

The significance of impacts is indeterminate because pre-selection of the site and failure to consider the environmental effects – adverse and beneficial - other primary environmental factors has resulted in the incompleteness of the SEA.

Coastal Resource Impacts

Consistency with Connecticut Coastal Management Act/Coastal Program

The Museum is a non-water dependent use as defined in Section 22a-93(16) of the Connecticut General Statutes ("CGS") on a site suitable for a water dependent use according to the Connecticut Coast Management Act ("CCMA") and its legislative history. As a result, the design and construction of the Museum for the proposed site is inconsistent with the goals and enforceable policies of CCMA. The issue of water dependency for the Fort Trumbull location is not pertinent because of the Riverwalk barring direct access to the Thames River.

In its letter to Governor Malloy dated January 26, 2012, Cross sound Ferry opposed the downtown location of the Museum adjoining its future potential ferry development and opportunities.

Tables 4.7-2, 4.7-3, and 4.7-4 contain significant false claims of applicability/non-applicability.

Prior to any final decision, the CG should submit an application to the Connecticut Department of Energy and Environmental Protection pursuant to Section 307(c)(1) of the federal Coastal Zone Management Act, as amended, Subpart C of 15 Code of Federal Regulations ("CFR") Part 930 and Section II, Part VII(c) of the federally approved Connecticut Coastal Management Program and Final Environmental Impact Statement. The application should request a review of the proposed Museum for consistency with the enforceable goals and policies of Connecticut's federally approved Coastal Management Program as contained in Sections 22a-90 through 22a-112 of the Connecticut General Statutes. The policies in the Coastal Management Act do not exempt any federal facility or use from the federal consistency requirements of Section 307 of the federal Coastal Zone Management Act. See **Appendix 1**.

The review should determine whether:

(a) The Museum is a water dependent use.
(b) The site is suitable or planned for location of a water dependent use.
(c) The Museum replaces a water dependent use with a non-water dependent use
(d) There would be an adverse impact on water-dependent Uses and Future Water-dependent Development Opportunities.
(e) There would be an Adverse Impact on Coastal Resources: Degradation of Visual Quality.

The SEA does not address the projected rise in sea level and its future impact on the Museum.

Visual Resource Impacts

The proposed modernistic architecture for the Museum defiles, demeans, and denigrates the architecture and character of the railroad station - designed by Henry Hobson Richardson - which is on the National Historic Register - and surrounding buildings as well as the coastal views and vistas on both sides of the Thames River, which reside in the public domain. This is contrary to the Connecticut Coastal Management Act for coastal vistas and viewpoints. The Museum's design is simply insensitive, garish, grotesque and incompatible with the surrounding architecture when viewed from any angle. It is out of character to the surrounding architecture.

Energy Resources

The CG is obligated to consider energy as a Chapter 3.0 Affected Resource with Chapter 4.0 Environmental Impacts from construction of the Museum.

With climate change a given phenomena, the most significant environmental factor warranting quantifiable analytical consideration is the projected energy consumption and greenhouse gases ("GHG") produced over the life cycle of the project - from "cradle to crave." The purpose for such consideration is the need to substantially minimize both energy consumption and the production of GHGs. It would be a gross waste of embodied energy for the CG to find it necessary to abandon the building in future years due to costs and limited fossil fuel supplies. This, also, constitutes a significant impact.

Alternatives

In the absence of selection criteria, the SEA only considered the No Action and Preferred alternatives without a comparative analysis of all feasible options. There is no ranking of the affected and consequential environmental factors with assigned weights for significance and other parameters. Hence, there is no comparative analysis for each of the other possible

alternatives as the objective/subjective basis for selecting the preferred alternative as the most feasible and prudent option.

There are numerous alternatives to the downtown New London parcel, which would result in far less environmental impacts and need for mitigation. Placing the Museum in downtown New London is the equivalent of trying to put "two pounds of sausage in a one pound bag."

The Virtual Museum would result in zero impacts. The Fort Trumbull site does not pose a water dependency issue because access to the Thames River is blocked by a publicly owned walkway (aka River Walk), which land locks the peninsula.

Transportation Impacts

The Intermodal Transportation Study prepared for the Southeastern Council of Government ("SCCOG") does not foresee the need for an elevated Pedestrian Overpass, and there has never been any evidence of any pedestrian accidents on Water Street necessitating such a walkway. Neither the USCG nor its supporters have demonstrated a public safety issue necessitating a walkway. Approximately four (4) years ago, New London electors voted against such infrastructure using federal funds.

At certain times of the day, Water and Bank Streets become traffic "choke points" worsened at SailFest

Historic Railroad Station

The proposed modernistic architecture for the Museum defiles, demeans, and denigrates the architecture and character of the railroad station - designed by Henry Hobson Richardson - which is on the National Historic Register - and surrounding buildings as well as the coastal views and vistas on both sides of the Thames River, which reside in the public domain. This is contrary to the Connecticut Coastal Management Act for coastal vistas and viewpoints. The Museum's design is simply insensitive, garish, grotesque and incompatible with the surrounding architecture.

Social Impacts

Is the Coast Guard, the guardian of the coast, really going to build their museum in a storm-prone flood plain with difficult access for the handicapped? The SEA should analyze the social impacts from the perspective of a handicapped person trying to wrestle with the idea of finding a parking space in a congested area, and negotiating a bridge/elevator complex to gain access.

Mitigation

In a separate section within Chapter 4.0 of a new Chapter 5.0, the SEA fails to address mitigation of adverse environmental impacts.

Conclusion

The SEA is creating the purpose and need and not in response to any Congressional act.

The above summarized commentary justifies preparation of an EIS. The Museum is not a water-dependent use according to the Connecticut Coastal Management Act and its legislative history on a site suitable for such use. This constitutes a significant individual impact in addition to the significant impacts from life-cycle energy consumption, GHG production, and the degradation of visual access.

The downtown location was predetermined and SEA is its justification.

Placing the Museum in downtown New London is the equivalent of trying to put "two pounds of sausage in a one pound bag."

All CG artifacts can be scanned into 3-dimension holographic images for worldwide viewing on the Internet. As a result, the Virtual Museum would result in zero impacts. The Fort Trumbull site does not pose a water dependency issue because access to the Thames River is blocked by a publicly owned River Walk, which land locks the peninsula.

It's time for the CG to develop its **Museum of the 21st Century for the World** instead of physical structures. Perhaps, the CG's leadership can reinvent its focus to look forward and think outside-of-the-box. For example, a helicopter whose windows will be outfitted with virtual-reality screens will recreate storm conditions under which the Coast Guard rescues imperiled boaters. The CG can show the same reality by selling helicopter simulation games or presenting it on the Internet without the need for a building.

I. INTRODUCTION

Sheet pilings are neither depicted nor identified in SEA Figures 2.3-1 and 2.3-2.

Public Notice

On August 1, 2018, the Day Publishing Company, New London, Connecticut published the Notice by the CG announcing the availability of the SEA for its proposed Museum in New London, Connecticut.[1]

Predetermination

Neither the following comments nor the findings in a possibly future EIS will alter the predetermined decision made by Admiral Robert Papp in collaboration with the Association to irrationally and unreasonably locate the Museum in the downtown area contrary to the planning purposes in NEPA. The downtown location was predetermined and SEA is its justification
.

[1] The United States Coast Guard (USCG) announces the availability of a Supplemental Environmental Assessment (SEA) for the proposed National Coast Guard Museum (NCGM) in New London, Connecticut. The SEA supplements the 2014 EA to address changes to the proposed action, including potential acquisition of land by the Coast Guard, and changes to the proposed Museum design by the National Coast Guard Museum Association, Inc…. a Connecticut non-profit corporation. The SEA was prepared pursuant to the requirements of the National Environmental Policy Act (NEPA) of 1969 and the implementing regulations (40 CFR parts 1500-1508), and the Coast Guard's NEPA implementing procedures (COMDTINST M16475.1D). The EA also fulfills the requirements or provides necessary analysis for review under Section 106 of the National Historic Preservation Act of 1966 (30 CFR Part 800), Section 7 of the Endangered Species Act of 1973, and the Connecticut Department of Energy and Environmental Protection's (CTDEEP) Coastal Consistency Review requirements. The Draft SEA describes the need for the project and the environmental impacts of the proposed action. The cumulative impacts of the proposed Museum in connection with other independent but related projects were also evaluated. The Draft SEA will serve as a concise public document to briefly provide sufficient evidence and analysis for determining the need to prepare an Environmental Impact Statement (EIS) or a FONSI.

II. APPLICABLE LAW

Title 14 USC § 98[2] provides that the USCG may establish the Museum. However, Congress did not envision that the Museum was essential because the statute does not contain mandatory language for its creation. Additionally, the federal statute, also, contains provisions limiting expenditures for engineering, design, construction, operation and maintenance of the Museum.

Title 40 Code of Federal Regulations ("CFR") Part 1500.1(b) provides in pertinent part as follows, "NEPA procedures must insure that environmental information is available to public officials and citizens **before decisions are made and before actions are taken**. . . ." (Emphasis added.) Further Part 1500.1(c) provides in pertinent part "[t]he NEPA process is intended to **help public officials make decisions** that are based on understanding of environmental consequences, and take actions that protect, restore, and enhance the environment. These regulations provide the direction to achieve this purpose." (Emphasis added.)

NEPA and COMINST

Purpose and Need

"The statement shall briefly specify the underlying purpose and need to which the agency is responding in proposing the alternatives including the proposed action." 40 CFR Sec. 1502.13 [Purpose and need]. The operative word is "**responding",** not **"creating**."

The SEA is creating the purpose and need and not in response to any Congressional act.

[2] 14 United States Code §98. National Coast Guard Museum.

(a) Establishment.—The Commandant may establish a National Coast Guard Museum, on lands which will be federally owned and administered by the Coast Guard, and are located in New London, Connecticut, at, or in close proximity to, the Coast Guard Academy.

(b) Limitation on Expenditures. — (1) Except as provided in paragraph (2), the Secretary shall not expend any appropriated Federal funds for the engineering, design, or construction of any museum established under this section.

(2) The Secretary shall fund the operation and maintenance of the National Coast Guard Museum with nonappropriated and non-Federal funds to the maximum extent practicable. The priority use of Federal operation and maintenance funds should be to preserve and protect historic Coast Guard artifacts.

(c) Funding Plan.—Before the date on which the Commandant establishes a museum under subsection (a), the Commandant shall provide to the Committee on Commerce, Science, and Transportation of the Senate and the Committee on Transportation and Infrastructure of the House of Representatives a plan for constructing, operating, and maintaining such a museum, including — (1) estimated planning, engineering, design, construction, operation, and maintenance costs;

(2) the extent to which appropriated, nonappropriated, and non-Federal funds will be used for such purposes, including the extent to which there is any shortfall in funding for engineering, design, or construction; and

(3) a certification by the Inspector General of the department in which the Coast Guard is operating that the estimates provided pursuant to paragraphs (1) and (2) are reasonable and realistic.

(d) Authority.—The Commandant may not establish a Coast Guard museum except as set forth in this

Pertinent definitions are found at: 40 CFR §1508.7 (cumulative impact); 40 CFR §1508.8 (direct and indirect effects); 40 CFR §1508.9 (environmental assessment); 40 CFR §1508.13 (finding of no significant impact); and 40 CFR §1508.18 (major federal action)[3]

Definition of Impacts

Title 40 CFR 1508.9(a) defines EA to mean: "[A] concise public document for which a Federal agency is responsible that serves to: (1) Briefly provide sufficient evidence and **analysis** for determining whether to prepare an environmental impact statement or a finding of no significant impact; and (2) aid an agency's compliance with the Act when no environmental impact statement is necessary." (Emphasis added,)

Cumulative impact is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. 40 CFR 1508.7

Effects include: (a) Direct effects, which are caused by the action and occur at the same time and place; and (b) Indirect effects, which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems. Effects and impacts as used in these regulations are synonymous. Effects includes ecological impacts (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative. Effects may also include those resulting from actions which may have both beneficial and detrimental effects, even if on balance the agency believes that the effect will be beneficial. 40 CFR 1508.8

[3] *Major federal action*.

Major federal action" includes actions with effects that may be major and which are potentially subject to federal control and responsibility. Major reinforces but does not have a meaning independent of significantly (§1508.27). . . .

(b) Federal actions tend to fall within one of the following categories:

(3) Adoption of programs, such as a group of concerted actions to implement a specific policy or plan; systematic and connected agency decisions allocating agency resources to implement a specific statutory program or executive directive. (Emphasis added.)

III. COMMENTS ON SITE PRE-SELECTION

The CG did not establish selection criteria for the preferred alternative prior to the scoping effort. See Fromer Comments in 2014 EA, Appendix F [Composition of Prior Selection Committee and Selection Criteria][4]. Neither did the CG establish selection criteria prior to preparation of SEA. And, the outcome of the scoping process neither identified the rankings nor assigned significance weights for environmental factors instead of tailoring the desired results to justify the preferred location.

The purpose of NEPA is to ensure systematic consideration of environmental risks at the early stages of planning before the CG commits its resources to the particular use of a site. Because the project could "arguably damage the environment," the CG has a duty to comply with NEPA's requirement for preparation of SEA, which requires a determination of the preferred alternative site determinatively concluded from the impacts not presumptively because of corrupting political interferences on environmental planning. See Scenic Hudson Preservation Conference v. Federal Power Com., 354 F2d 608, 618-620 (1965, CA2). "[I]n viewing the public interest, the Commission's vision is not to be limited to the horizons of the private parties to the proceeding." Michigan Consolidated Gas Co. v. Federal Power Comm., 108 US App DC 409, 283 F2d 204, 224- 226, cert den 364 US 912, 81S Ct 276 (1960).

The SEA does not practically serve as an important contribution to the decision-making process and was used to rationalize or justify decisions already made. Preparation of an evaluation should not prevent the CG from conducting contemporaneous engineering, economic, feasibility and other studies which do not otherwise commit the agency to commence or engage in such action or limit the choice of reasonable alternatives.

The CG and supporters fail to comprehend the meaning of the "Planning Function," which is to plan rather than justify the proposed action.

[4] Selection Committee scoring records not released under Fromer's Freedom of Information Act request; FOIA No. 01-2006, Oct 2, 2001.

IV. COMMENTS ON THE ENVIRONMENTAL FACTORS

The following comments pertain to the SEA, Chapter 4's environmental consequences:

1. Air Quality Impacts

Claim #1: "Air pollutant and GHG emissions associated with operation of the completed Museum would primarily be the result of vehicle trips by workers and museum patrons. The building itself would have very little local emissions." (SEA 4.3.2, page 4-4)

Rebuttal #1: This impact statement is purely subjective – merely unverified claims; it needs quantification and proof.

Claim #2: "The Museum heating system (anticipated to be a natural gas boiler/heating unit with additional power from photovoltaic units) would produce emissions; however, the emissions produced by this type of heating system would be minor. The building would have a diesel generator that would only run when being tested and during an emergency. As a result, the impact would be negligible relative to air emissions." (SEA 4.3.2, page 4-4)

Rebuttal #2: This impact statement is purely subjective – merely unverified claims; it needs quantification and proof.

"An air quality applicability analysis prepared in 2008 estimated that the annual emissions for the Museum during its operating lifetime would be approximately 11.5 tons per year (tpy) of NOX and 3.8 tpy of VOCs (Coast Guard, 2008a). This analysis included emissions associated with visitor trips based on an expected 200,000 annual visits by persons in an average group size of two. Although the estimated number of visits to the Museum at the new proposed location on the New London downtown waterfront is higher, these emissions estimates are still reasonable because the Proposed Action alternative has a greater potential for mass transit use, which would reduce total vehicle emissions even with greater museum attendance." (SEA 4.3.2, page 4-4)

Rebuttal #3a: This impact statement is purely subjective – merely unverified claims; it needs quantification and proof.

Rebuttal #3b: What is the statistical error in the 2008 estimation of emissions for 300,000, 400,000 visitors per year.

Rebuttal #3c: Quantify the potential mass transit use.

"Furthermore, the Museum would not result in an increase in GHG emissions directly associated with the Proposed Action alternative in excess of 25,000 metric tons, which is a factor when considering more detailed analysis under draft NEPA guidelines (CEQ, 2010).

Rebuttal #4: What is the source of the 25,000 metric ton – 55,000 lbs?

2. Coastal Resource Impacts

A. *Consistency with Connecticut Coastal Management Act and Coastal Program*

Before the expected FONSI, the CG should submit an application to the Connecticut Department of Energy and Environmental Protection pursuant to Section 307(c)(1) of the federal Coastal Zone Management Act, as amended, Subpart C of 15 Code of Federal Regulations ("CFR") Part 930 and Section II, Part VII(c) of the Connecticut Coastal Management Program and Final Environmental Impact Statement. The application should request a review of the proposed Museum for consistency with the enforceable policies of Connecticut's federally approved Coastal Management Program as contained in Sections 22a-90 through 22a-112 of the Connecticut General Statutes. The policies in the Coastal Management Act do not exempt any federal facility or use from the federal consistency requirements of Section 307 of the federal Coastal Zone Management Act. The review should determine the following:

(a) The Museum is a water dependent use.
(b) The site is suitable or planned for location of a water dependent use.
(c) The Museum replaces a water dependent use with a non-water dependent use
(d) There would be an adverse impact on water-dependent Uses and Future Water-dependent Development Opportunities

The Museum is not a water dependent use on a site suitable for such use because it does not require access to the Thames River. This constitutes a significant impact. It is considered a water-enhanced use because its proximity to the River enhances its value as a museum. Only, water dependent uses are permitted under the Connecticut Coastal Management Act and the legislative history establishing the Act and the U.S. Department of Commerce's approval of the Act and Connecticut's Coastal Management Program. As a coastal management policy, the Act requires that the CG, City and state give the "highest priority and preference to water- dependent uses." And, the Museum cannot be made a water dependent use by merely berthing the Barque Eagle at City Pier or providing public access, which already exists for the parcel. Additionally, sometime in the future Cross Sound Ferry may require additional land for its water-dependent activities and facilities, which, according to the Act, are in the national interest. See **2014 EA, Appendix C** (legislative history on water-dependent uses) and **Appendix D** (Connecticut House of Representatives proceedings on water-dependent uses). And, see [United States Department of Commerce. 1980].

In its letter to Governor Malloy dated January 26, 2012, Cross sound Ferry opposed the downtown location of the Museum adjoining its future potential ferry development and opportunities. See **Appendix 2**.

"To give highest priority and preference to uses and facilities which are dependent upon proximity to the water or the shorelands immediately adjacent to marine and tidal waters." (CGS, Section 22a-92(a)(3), (b)(1)(A), (b)(1)(C)).. The Museum is not dependent on water access, and SEA. As a result locating the Museum as currently planned is **ILLEGAL**.

The SEA does not address sea level rise[5] and its long term effect(s) on the Museum.

3. Visual Resource Impacts

Claim: "The Proposed Action alternative would result in minor adverse short- and long-term impacts to visual resources within the downtown New London area and potentially along the Groton waterfront." (SEA, 4.10.2, page 4-24)

Rebuttal: Appropriation of the landscape by the Museum would degrade visual quality unreasonably impair the visual quality of the shoreline through significant alteration of the natural features of vistas and view points, which are in the public domain, and unreasonably restricts physical or visual access to coastal waters. Visual access is a resource, which cannot be unreasonably restricted and which is in the national interest. As a result, the Museum is subject to restriction or exclusion because it can be sited outside the coastal boundary. This, also, constitutes a significant impact.

The proposed modernistic architecture for the Museum defiles, demeans, and denigrates the architecture and character of the railroad station - designed by Henry Hobson Richardson - which is on the National Historic Register - and surrounding buildings as well as the coastal views and vistas on both sides of the Thames River, which reside in the public domain. This is contrary to the Connecticut Coastal Management Act for coastal vistas and viewpoints. The Museum's design is simply insensitive, garish, grotesque and incompatible with the surrounding architecture when viewed from any angle. It is out of character to the surrounding architecture.

The scenic coastal views and vistas from both sides of the Thames River are considered in the public domain. The railroad station, designed by Henry Hobson Richardson, is on the National Historic Register as well as other buildings including the Superior Court on Huntington Street with a view from Groton. The architectural flavor of surrounding buildings except the city' parking garage is historic New London dating from Colonial times. The Museum's architectural features will block or degrade critical views and vistas; its impact will be an abomination of the historic structures contrary to Connecticut's Coastal Management Act. <u>It is the equivalent of trying to put "two pounds of sausage into a one pound bag."</u>

" `Adverse impacts on coastal resources' include but are not limited to: degrading visual quality through significant alteration of the natural features of vistas and view points." Section 22a-93(15)(F) of the Connecticut General Statutes ("G.S.").

Visual impact assessment provides a process and standards for objective evaluation – thereby removing much of the subjectivity from the decision-making process and making the results more predictable.

[5] "Rise in sea level" means the arithmetic mean of the most recent equivalent per decade rise in the surface level of the tidal and coastal waters of the state, as documented in National Oceanic and Atmospheric Administration online or printed publications for said agency's Bridgeport and New London tide gauges. (CGS, Section 22a-93(19))

Landscape impacts are defined as changes in "the character and quality of the landscape as a result of development". Consequently, a **landscape impact** evaluates:

- Direct impacts from specific landscape elements;
- More subtle, or indirect, effects on the overall pattern of elements that shapes landscape character; and
- Impacts on generally accepted special interests or values such as designated landscapes or scenic views, conservation areas, public lands, and historic and cultural sites.

4. Energy Resource Impacts

The CG is obligated to consider energy as a Chapter 3.0 Affected Resource with Chapter 4.0 Environmental Impacts from construction of the Museum.

Executive Order 13514[6] is an order entitled *Federal Leadership in Environmental, Energy, and Economic Performance* that President Barack Obama signed into law on October 5, 2009.

This executive order mandates that at least 15 percent of existing federal buildings and leases meet Energy Efficiency Guiding Principles by 2015, and that annual progress be made toward 100 percent conformance of all federal buildings, with a goal of 100% of all new federal buildings achieving zero-net-energy by 2030. The U.S. government is the largest consumer of energy in America. It has roughly 500,000 buildings, and most of these buildings are energy-inefficient.

The executive order states that "the Federal Government must lead by example ... increase energy efficiency; measure, report, and reduce their greenhouse gas emissions from direct and indirect activities ... design, construct, maintain, and operate high performance sustainable buildings in sustainable locations; strengthen the vitality and livability of the communities in which Federal facilities are located; and inform Federal employees about and involve them in the achievement of these goals."

"Zero-net-energy building" is defined in Executive Order 13514 as "a building that is designed, constructed, and operated to require a greatly reduced quantity of energy to operate, meet the balance of energy needs from sources of energy that do not produce greenhouse gases, and therefore result in no net emissions of greenhouse gases and be economically viable". **This edict is best accomplished by a Virtual Museum.**

Title 40 CFR 1502.16(e) (Environmental consequences) requires discussion of "Energy requirements and conservation potential of various alternatives and mitigation measures." Additionally, the section entitled "Energy Supply and Natural Resources Development" in COMDTINST M16475.1D, Enclosure (1), Attachment 2, page 11, subdivision 10 requires EIS

[6] Exec. Or. 13514, 74 Fed. Reg. 52117 (October 8, 2009)

to consider "whether the project or program will have any effect on either the production or consumption of energy and other natural resources, and discuss such effects if they are significant." Even though, the scoping is for an SEA, not an EIS, the assessment should analytically address energy consumption and GHG production consistent with the purposes of NEPA and Executive Orders on the subject.

Parallel to NEPA is the Connecticut Environmental Policy Act ("CEPA") found in section 22a-1b, G.S. Subsection (c) requires scoping for an EA, and subdivision (7) requires "the effect of the proposed action on the use and conservation of energy resources," which may significantly affect the environment.

The legislative findings and purpose for energy planning in Connecticut is found in section 16a-1, G.S.,[7] and legislative findings and policy for energy utilization and policy is found in section 16a-35k, G.S.[8]

Since energy consumption and GHG production are quantifiable terms, the SEA should contain analysis of the energy consumption over the projected life of the Museum for the design, planning, extraction of raw materials; transportation, manufacture, assembly, installation, construction, operation, maintenance, repairs and ultimate disposal by either demolition, deconstruction, rehabilitation, etc. of each alternative to evaluate the option requiring the least consumption and producing the least amount of gases.

Energy consumption is the direct cause effectuating pollution, impairment or destruction of the air, water or other natural resources. There are a number of reasons for this:

[7] It is found and declared that a shortage of energy supplies and resources exists in the state and the United States and that a critical shortage may be imminent, that the existence of such shortage is inimical to the public health, safety and welfare of the people of the state, that there is a necessity to implement the federal mandatory allocation order and other federal directives and federal statutes, establish contingency rationing plans for fuel oil, gasoline and other energy supplies and restrict the use of energy and that the necessity of enacting the provisions of this chapter to provide for equitable distribution and conservation of energy is declared as a matter of legislative determination.

[8] The General Assembly finds that the state of Connecticut is severely disadvantaged by its lack of primary energy resources; that primarily as a result of past policies and tendencies, the state has become dependent upon petroleum as an energy source; that national energy policies do not preclude the recurrence of serious problems arising from this dependence during petroleum shortages; that the increase in oil prices since the 1973 oil embargo has had a major impact on the state; that the economy has suffered directly because of our dependence on petroleum and constraints upon the rate of conversion to alternatives; that other conventional sources of energy are subject to constraints involving supply, transportation, cost and environmental, health and safety considerations; and that the state must address these problems by conserving energy, increasing the efficiency of energy utilization and developing renewable energy sources. The General Assembly further finds that energy use has a profound impact on the society, economy and environment of the state, particularly in its impact on low and moderate-income households and interrelationship with population growth, high density urbanization, industrial well-being, resource utilization, technological development and social advancement, and that energy is critically important to the overall welfare and development of our society. Therefore, the General Assembly declares that it is the policy of the state of Connecticut to (1) conserve energy resources by avoiding unnecessary and wasteful consumption; (2) consume energy resources in the most efficient manner feasible. . . . The General Assembly declares that the energy policy is essential to the preservation and enhancement of the health, safety and general welfare of the people of the state and that its implementation therefore constitutes a significant and valid public purpose for all state actions.

First, although we are used to thinking in terms of monetary costs, each dollar of cost requires the consumption of energy for meaning to that dollar. For the nation as a whole, the cost is roughly about 7 mega joules (i.e., 240,000 calories) consumed per dollar of development spent — ratio of the energy use of a country by the GDP for the same year— roughly half a liter of oil or its equivalent as some other fuel. [Murphy and Hall, 2011]. Certain activities, such as construction, tend to be more energy intensive per unit dollar spent. Very careful assessments of these energy costs were made in the 1970s and are still useful when corrected for inflation. Spending large amounts of money requires spending large quantities of energy for that money to have meaning. Therefore, for a $100 million museum, the Association will require approximately **100 trillion joules of energy** to develop the facility excluding the energy to operate, maintain and repair.

Second, any time energy is used there are environmental effects and consequences. These range from impacts at the extraction sites (e.g. oil facilities in Southern Louisiana, Alaska and Venezuela and coal mines in Wyoming or Pennsylvania) to processing, and fabrication facilities, transportation and consumption sites (e.g. cement, steel or bulldozer factories). For example, these impacts include terrain disruption, air pollution (e.g. sulfur dioxide emissions), water supply contaminations, and so forth.

Third, the impacts are essentially irrevocable changes to our atmosphere with possible severe climatic impacts. There is roughly one kilogram of CO_2 released per dollar of economic activity in the U.S. Thus, each unit of economic activity generates very long term disruption to our atmosphere since that carbon dioxide will stay in the atmosphere for an average of hundreds of years.

Fourth, the principal source of our energy use is fossil fuel, by definition non renewable. Our domestic petroleum and gas supplies are quite finite. For example, U.S. production of oil peaked in 1970 (as predicted by King Hubbert in 1955). It has been declining steadily since then despite huge drilling investments, so that we now produce roughly half of what we did in the 70's. The difference comes from imported oil, which now represents approximately 60 percent of the Nation's supply. It is not clear when the total world oil production will peak, but it will be in 2007 (predicted by King Hubbert in 1968 and by Colin Campbell in 1998). It is hard to find a prediction made by any competent researcher that pushes the peak beyond about 2030 assuming continued economic growth, and most suggest sooner. Natural gas supplies are harder to predict but might not be too different form oil. Amongst the world authorities on these estimates are Cutler Cleveland and Robert Kaufmann, Director and Associate Professor of the Boston University Center for Energy and the Environment, who acknowledged the difficulty in validating the data from the major oil producing regions of the Middle East. See, also, [Rickover, 1957].

Thus, it is important to understand that there are many scientific, environmental, economic and political reasons for minimizing energy usage and waste, over the foreseeable time. There is a substantial probability of excessiveness, unreasonableness and capricious environmental harm unless the NEPA process includes a rational methodology for determining the preferred option contributing to the least predictive injury. Resource planning using

analyzes, studies, assessments and evaluations afford a community the predictive opportunity to contemplate options preventing irretrievable and irreversible commitments of resources and environmental abuse. Historical resource planning has primarily concerned corrective considerations.

Life-cycle studies can be used as a means to identify and select the most efficient alternatives in order to reduce consumption of resources and lower the environmental impact in existing electricity generation and distribution systems. Comparative energy consumption assessments for the expected life of alternatives (i.e., a/k/a life-cycle energy consumption or embodied or accumulated energy consumption) provide the best scientific basis to use resource planning for selecting the preferred alternative. Without energy computations for the estimated life of buildings and structures, the NEPA process becomes quite irrational, unscientific and arbitrary. In my opinion, the CG runs the significant risk of unplanned, but preventable, pollution, impairment or destruction of natural resources. Embodied (accumulated) energy is the total quantity of energy required to manufacture, and supply to the point of use, a product, material or service and disposal. It includes the energy expended from cradle to grave for: extracting raw materials; transporting, manufacturing, assembling and installing a specific material to produce a service or product and finally its disassembly, deconstruction and/or decomposition.

When evaluating the Museum, the CG should perform and provide a life cycle energy analysis for the overpass — integral to the Museum — and each of the Museum options for the purpose of selecting the alternative requiring the least energy expenditure and producing the least GHGs. Such analysis should include calculations of all embodied energy requirements used in construction materials, fabrication and manufacturing of components, maintenance and repair of the facility and ancillary work during its useful life, viz. cradle-to-grave. The analysis should, also, include the total fuel cycle energy required over the projected useful life of the facility. The boundary for both the energy calculations of the fuel cycle and materials for the facility construction and maintenance shall both be at the point of primary material extraction and include the energy consumed through the entire supply chain to final, but not be limited to, such subsequent steps as transportation, refinement and energy for delivery to the end consumer. For purposes of this paragraph, "facility energy" means the heat energy delivered by the facility contained in a fuel minus the life cycle energy used to produce the facility. "Fuel energy" means the heat energy contained in a fuel minus the energy used to extract the fuel from the environment, refine it to a socially useful state and deliver it to consumers, and "embodied energy" means the total energy used to build and maintain a process, expressed in calorie equivalents of one type of energy.

Life cycle assessment means the comprehensive examination of a product’s environmental and economic aspects and potential impacts throughout its lifetime, including raw material extraction, transportation, manufacturing, use, and disposal.”

For example, consider the life cycle steps requiring energy at each step to produce a simple pencil.[9]

Executive Order

In his Executive Order, the President declared that the goals for all federal agencies are "[t]o establish an integrated strategy towards sustainability in the Federal Government and to make reduction of greenhouse gas emissions a priority for Federal agencies. . . ." In Section 2(f)(iv) of E.O. 13514, the President declared that it is the goal of all federal agencies to advance regional and local integrated planning by:

> "identifying and analyzing impacts from energy usage and alternative energy sources in all Environmental Impact Statements and **Environmental Assessments** for proposals for new or expanded Federal facilities under the National Environmental Policy Act of 1969, as amended (42 U.S.C. 4321 *et seq.*)" (Emphasis added.)

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[9] The standard pencil begins when a cedar is cut down. Ropes and gear tug it onto the bed of a truck or a rail car.

Think of all the numberless people and skills involved in mining ore to produce steel and refine the steel into saws, axes and motors.

Think of all the people who grow hemp, then transform it, through various stages, into a strong rope.

Think of the untold thousands of people who produce the coffee the loggers drink!

The logs are shipped to a mill and cut into slats. The slats are kiln-dried, tinted, waxed, then, kiln-dried again.

How many skills were needed to produce the tint and the kilns. What about electric power? What about the belts, motors and other parts at the mill?

The pencil slats are shipped to a factory. A complex machine cuts grooves into each. A second machine lays lead into every other slat. Glue is applied. Two slats are sealed together as one, then, cut into lengths that form pencils.

The lead alone is complex; it's not really lead. To produce it, graphite is mined in Ceylon. The graphite is, packed and shipped, then mixed with clay from Mississippi. It is treated with wetting 'agents — such as sulfonated tallow, which is formed when animal fats chemically react with sulfuric acid.

The pencil receives six coats of lacquer. Lacquer has numerous ingredients,' including castor oil. Think of all the chemists needed to create the paint — think of all the castor bean growers needed to produce, refine and ship the oil.

The brass end that holds the eraser in place is a marvel. Miners need to first extract zinc and copper from the earth. Experts transform those materials into sheet brass, which is then cut, stamped and affixed to the pencil.

That brings us to the eraser. It is made from "factice," a rubber-like product that is produced by rapeseed oil from the Dutch East Indies reacting with sulfur chloride.

To be sure, an awe-inspiring amount of work goes into producing a pencil. Millions of people collaborate to produce it — millions ply their unique trades and skills — yet they have no idea they are collaborating.

Each is merely changing his small piece of know-how for the money he needs to buy the goods and services he wants.

More amazing is this: No one person is capable of making a pencil. Not even the president of the pencil company.

No one person could possibly manage the millions of people — and the millions of decisions they make — who produce the ingredients that become a pencil.

Despite the absence of a mastermind, billions of pencils are made every year. They're produced with such humdrum efficiency that every one of us takes pencils for granted. It is a folly for any, man, or group of men, to think of producing something as incredibly complex as a pencil. How much harder must it be to produce a car — one that consumers will want to buy, anyhow?

The CG needs to provide analysis of average distance traveled and energy consumed for the traveling public to the Museum from various places of departure around the country." The Association projects about 800,000 visitors per year while the 2006 EA projected only 200,000.

The NEPA and CMDTINST require the EA to look beyond the immediate site and building and to examine the entire life cycle of energy consumption and production of GHGs. A building cannot truly be called sustainable if its whole life cycle lacks sustainability. The owner of a building does not live up to modern environmental codes of conduct without optimizing environmental protection in the whole chain upstream and downstream. Life-cycle studies contribute to a good platform for dialogue where different set of values and interests can be made clear.

5. Strategic Sustainability Performance Plan

Section 8 of E.O. 13514 requires that "each agency . . . develop, implement, and annually update an integrated Strategic Sustainability Performance Plan that will prioritize agency actions based on lifecycle return on investment. . . ." Each such Plan and update is subject to approval by the Office of Management and Budget Director under section 4 of the order with respect to the period beginning in fiscal year 2011 and continuing through the end of fiscal year 2021.

The SEA should address this Plan in the consideration of alternatives for energy sustainability as an environmental factor. The CG should provide the Plan prior to commencing the EA.

6. Earthquake Impacts

The SEA needs to assess the potential for damage from earthquakes to the Museum. While the possibility of an earthquake seems remote in the New England region, it has the same vulnerability according to the Connecticut Department of Emergency Management and Homeland Security, Earthquakes, The DEMHS Advisor, Volume 3, issue 6, April 2007:

> "The eastern half of the United States does not have as high a frequency of earthquakes as California and Japan, but this part of New England has had many history making tremors. The first recorded event in the New World was related to traders by the Native Americans already here. They said it happened in the vicinity of Moodus, CT, in 1568";
>
> "All that survives of the story is a tale of mass destruction of campsites and violent vertical shaking motion of the ground. Sermons are recorded from a service held in the town of Hampton, New Hampshire on October 29, 1727. They speak of the "terrible day of trouble" that happened the day before as a severe quake sounding like "thunder and lightening" rocked the village. The event created fissures in earth and buildings still visible today";

> "New England has the oldest record of earthquakes in the United States. The earliest settlers learned of seismic activity in this area, dating back to 1568, from the native Indians. This probably happened in the Moodus area. This area is still very active today. Almost 50% of all seismic activity in Connecticut since 1729 has occurred in the Moodus region. Tremors have been felt across the state for a long time";
>
> "Connecticut is considered to be a Moderate seismic risk zone as defined by the Federal Emergency Management Agency. However, `Moderate' relates to the fact that earthquakes in the state have a relatively long reoccurrence interval and not that the earthquake magnitudes or impact on the population will necessarily be moderate";
>
> "Connecticut has a population density that is 3.5 times greater than California's and has a hard base rock that transmits seismic waves over a large area much more efficiently. These facts place more people at greater risk since the built environment in this region is predominantly old, unreinforced masonry or is not seismically designed. The majority of these "mill" structures are amazingly strong and stiff for the normal vertical loads they were built to carry. In spite of this, brick is brittle material. Masonry walls will not fare well against the horizontal forces of an earthquake if it is not reinforced or braced in some way" and
>
> "The chances that a damaging earthquake of magnitude 5.0 or greater will occur within the state in any one year are 1 in 20. The odds of an earthquake of magnitude 6.0 here are about 1 in 300 annually. By the year 2010, the accumulated probability for a magnitude 6.0 earthquake will have reached 85%. The Connecticut Earthquake Program is charged with the mission of earthquake risk management, i.e. reducing fatalities, injuries, and property damage resulting from an earthquake in Connecticut."

7. Solid Waste Impacts

Claim: "Provide for waste management procedures and practices to prevent or reduce the discharge of pollutants. For solid or construction waste, this includes designated trash and bulk waste collection areas, recycling and segregation of materials whenever possible, proper segregation and disposal of hazardous material wastes, and daily cleanup of litter and debris. For sanitary and septic waste, this includes convenient and well-maintained toilet facilities." (SEA, 2.3.9, page 2-27) "Solid Waste Disposal – Solid waste disposal is currently provided under a private contract." (SEA, 3.13.1, page 3-31) "Solid Waste Disposal – Solid waste disposal is not currently provided to the project site; however, it is expected to be provided under a private contract." (SEA, 3.13.2, page 3-31) "Solid Waste Disposal – The City of New London provides solid waste collection and operates a Solid Waste and Recycling Center at 63 Lewis Street. Solid waste generation at the museum is anticipated to be largely affiliated with waste receptacles,

restroom facilities, and food-related waste from vending and event waste." (SEA, 4.13.2, page 4-35)

Rebuttal: Quantify the amount of waste to be generated for pre-and post construction and annually.

8. Feasible and Prudent Alternatives

No Build Alternative: The Virtual Museum.

"This section is the heart of the environmental impact statement. Based on the information and analysis presented in the sections on the Affected Environment (Sec. 1502.15) and the Environmental Consequences (Sec. 1502.16), it should present the environmental impacts of the proposal and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decisionmaker and the public. In this section agencies shall: (a) Rigorously explore and objectively evaluate all reasonable alternatives, and for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated." 40 CFR 1502.14 (a) (Alternatives including the proposed action).

The feasible and prudent alternative of creating, operating and maintaining a Virtual CG Museum and television channel at the Academy over the Internet similar to the United State Naval Academy Museum and other museums on the world wide web to display the Academy's and Forrestville artifacts. A Google search for "virtual museums" revealed 317,000 +results; this clearly demonstrates the global trend towards Internet museums in 3-dimensional holographic imagery displayed to the entire world thereby eliminating the need for energy waste from transportation and buildings. Elaborating further on a CG Virtual Museum, the U.S. Air Force Museum at Wright-Patterson Air Force Base displays all its artifacts on the Internet. The Maritime Museum at Norfolk, Virginia displays its artifacts on the Internet and the Mystic Seaport Museum, Mystic, Connecticut displays its artifacts on the Internet. The benefits are obvious and the current virtual museums attract and will potentially attract far more corporate sponsors than fund raising for an excessively costly and anachronistic Museum more suitable to bygone eras — energy is no longer cheap and plentiful.

It's time for the CG, operating with limited budgets, to develop its **Museum of the 21st Century for the World** instead of, not in addition to, physical structures. Perhaps, the CG's leadership can reinvent its obsession to look forward and think outside-of-the-box. A helicopter whose windows will be outfitted with virtual-reality screens will recreate storm conditions under which the CG rescues imperiled boaters. The CG can show the same reality by selling helicopter simulation games or presenting it on the Internet without the need for a building. Such museum would include cable television and satellite stations for displaying and interpreting the artifacts; and

9. Social Impacts

Is the Coast Guard, the guardian of the coast, really going to build their museum in a storm-prone flood plain with difficult access for the handicapped? The SEA should analyze the social impacts from the perspective of a handicapped person trying to wrestle with the idea of finding a parking space in a congested area, and negotiating a bridge/elevator complex to gain access.

10. Mitigation

"This section is the heart of the environmental impact statement. Based on the information and analysis presented in the sections on the Affected Environment (Sec. 1502.15) and the Environmental Consequences (Sec. 1502.16), it should present the environmental impacts of the proposal and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decisionmaker and the public. In this section agencies shall: (f) Include appropriate mitigation measures not already included in the proposed action or alternatives." 40 CFR Sec. 1502.14(f) (Alternatives including the proposed action).

V. CONCLUSION

No design, siting and construction details are needed to determine whether the Museum is a water dependent use according to the CCMA and its legislative history, which is a limiting factor for the downtown land acquisition. Similarly, no design, siting and construction details are needed to consider vista impacts, and energy consumption and GHG production in light of the Virtual Museum alternative and television channel, which would require no engineering, site development, construction, maintenance, and energy analysis for heating/ventilation/air conditioning.

The Museum is enclosed in glass, which is not an insulating material. Simple heat transfer calculations would predict the heat, ventilation and cooling loads during the different seasons.

Furthermore, according to the legislative history of CCMA, the Museum is unquestionably not a water-dependent use, but, rather, a water-enhanced use barred by CCMA, which gives highest priority and preference for water dependent uses.

The Fort Trumbull location, which the CG selected in 2008, has the same environmental consequences as the downtown location except for the water dependency issue. The Fort is unsuitable for water dependent uses because of the Riverwalk, which prohibits access to the Thames River.

Robert Fromer

Robert Fromer

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2 State of *Connecticut Coastal Management Program and Final Environmental Impact Statement*. United States Department of Commerce, National Oceanic and Atmospheric Administration, Office of Coastal Zone Management, 1980, 550 pp. (Available on the Internet by the title.)

APPENDIX 1

Cartoon

Published August 04. 2018 4:48PM| Updated August 05. 2018 8:49AM

APPENDIX 2

Cross Sound Ferry Letter

Linking Long Island and New England for over 35 Years

January 26, 2012

Hon. Dannel P. Malloy
Governor
State of Connecticut
State Capitol
210 Capitol Avenue
Hartford, CT 06106

Dear Gov. Malloy:

The Director of the National Coast Guard Museum Association, Catherine Cook, recently came to Cross Sound Ferry to present a new alternative plan for the National Coast Guard Museum. The proposal includes an expanded Union Station connected, via a pedestrian bridge over the railroad tracks, to a large annex building that begins on City-owned property and juts out onto the Thames River. While we are in favor of a USCG expansion and for a museum in New London, we are adamantly opposed to the current proposed location for the museum.

The plan eliminates our use of land we currently lease from the City that has been used to support waterborne transportation and interstate commerce for decades, obstructs our emergency right of way, infringes on our riparian water rights, and interferes with the safe navigation of our vessels. Furthermore, it obliterates our own plan for an expanded high-speed ferry service, which has been on public record with the City for years. We believe, as we know you do, that waterborne transportation and shipbuilding and repair should be the primary purpose of New London's deep water port.

Cross Sound Ferry is recognized by the USCG as one of 12 High Capacity Vessel Owners/Operators in the U.S. As a large-scale operator, we are constantly in need of more space. The 1.5 million people and 500,000 vehicles we move annually already tax our limited parcel.

The land we do own was hard earned through various purchases over the past 35 years by members of three generations of my family. In fact, one such purchase granted us the riparian rights over the water onto which the plans call for the museum to be built. We have also leased the piece of property proposed for the museum annex building for over 20 years and have attempted to purchase it outright from the City on two separate occasions. While it may not be a large parcel, it is the last piece of commercial waterfront property available for any future growth of our ferry services.

2 Ferry Street, New London, CT 06320
Phone (860) 443-7394
Fax (860) 440-3492
www.longislandferry.com

Prior to the downturn in the economy, Cross Sound had proposed a new high-speed/passenger-only ferry terminal with public observation deck along with two fixed piers for the docking of up to four vessels using that property. We currently have high-speed ferry operations to Orient Point, Long Island, Block Island and Montauk from New London. Previous and future destinations include Martha's Vineyard and New York.

In March 2010, ConnDOT released a transportation plan to address the current and future needs at the New London Transportation Center. Among the recommendations were increased accommodations for bus, rail and ferry services to meet the growing demand for transit. Identified in the plan was the need for an overhead pedestrian way to seamlessly connect the 1000 car Water Street parking garage, a new bus terminal, the railroad station and ultimately connect to Cross Sound's ferry terminal facilities.

The State appropriated $750,000 for the plan that was spearheaded by the Chamber of Commerce of Eastern Connecticut and overseen by the region's COG to address concerns that New London needed to be prepared for an increase in commuter rail service, ferry and bus service and to be able to meet future parking demands. The plan identified the parcel of land in question as part of the region's transportation hub. The proposed museum project stymies any growth opportunities for transportation at that site forever.

Using that piece of land for anything other than transportation not only puts an end to any future expansion of the waterborne component of the Transportation Center but also completely divides the center as it is currently situated. The proposed structure has the serious potential to harm existing ferry operations by obstructing navigation, access to and from the ferry terminals along with blocking the line of sight down the river for departing and returning ferries. There is also an issue with riparian rights along that piece of property.

We want you to know that we value the USCG as a partner and a neighbor in New London. We feel strongly that having the Academy in New London is nothing but a boon for the City and a USCG museum in New London will be a cornerstone attraction for the entire region. However, we cannot support this particular concept as it has been proposed. While there are other suitable and attractive locations for a national USCG museum in New London, the ferry services need to operate and grow at their current location, while enjoying synergies with connecting rail, bus, parking and other transportation amenities.[1]

While it appears this concept plan has been circulated for months, we were only made aware of these plans last Friday. We feel the State's and particularly Southeastern Connecticut's transportation needs were not duly considered while this concept plan was being developed. Before proceeding any further with these plans, the future needs of transportation in New London and the region need to be addressed.

[1]The New London Transportation Center is one of the only locations in the U.S. where high-speed trains are directly linked with high-speed ferries to multiple destinations. Amtrak Acela Express connects with up to 10 high-speed ferry departures daily during peak periods.

Gov. Malloy, we have sent along our concerns in a separate letter to Admiral Papp. We appreciate your input in this important issue and I await the opportunity to answer any questions.

Sincerely,

John P. Wronowski
Owner/President

Cc: Hon. Andrea Stillman
Hon. Andrew Maynard
Hon. Ernest Hewett
Hon. Ted Moukawsher
Hon. Elissa Wright
Hon. Tom Reynolds
Jay B. Levin
Mark H. Powers
Mark Brennan

From: Nancy Hennegan
To: Jeanine Gouin
Subject: Coast Guard Museum
Date: Wednesday, August 29, 2018 11:38:08 AM

Jeanine Gouin,

Regarding the museum, the plan is to build it in a flood zone. This is ENVIRONMENTALLY wrong. The $100 million dollar estimate does not take into account the future cost increases. The museum belongs at Fort Trumbull and the claim that the Eagle draws to much water for a dock space at the Fort is false. I hope we don't find LNG tankers at the Fort in the future. I imagine they draw at least as much water as the Eagle.

Nancy Hennegan

From: WILLIAM ANTONOWICZ
To: Jeanine Gouin
Subject: USCG Museum
Date: Thursday, August 30, 2018 3:36:23 PM

Dear Ms. Gouin,

I would like to make a few comments on the proposed location of the new Coast Guard Museum.

As a retired Coast Guardsman, I think the proposed location, in a high traffic limited parking area of downtown New London, is not a good idea for the following reasons.

1. It is proposed to be built in a flood plain area, with some of the proposed area still under water! I can visualize notices closing the museum due to potential flooding.
2. The access across the railroad tracks using an expensive bridge/elevator complex will be sure to cast doubts in the mind of anyone who is handicapped. Some people may attempt to defeat the bridge/elevator, putting them at risk in crossing the tracks, an unsafe condition.
3. There is no assurance there will be enough parking space in the garage available to those wishing to visit the museum.
4. The proposed location of the ultra modern proposed building is in an area of historic buildings, and will partially block the view of the pretty New London waterfront and the Thames River.
5. Except for those people making the location decision, and based on reviewing comments to the New London Day and also from people I know, most people don't like the proposed location of the museum. I would think the slow trickle of donations would tend to confirm this.

AS a suggestion, why not locate the museum in the historic Fort Trumbull area, the former home of the Coast Guard Academy? Due to a failed New London project, there is plenty of accessible space.

+ The land is all relatively flat, and the potential flooding would be minimized.
+ There would be no $20 million bridge/elevator complex required or a repairman with a toolbox, as patrons (handicapped and otherwise) could drive right up to the front door.
+ Since most of the land in the Fort Trumbull area has been cleared, parking and accessibility would not be a problem. No train tracks to walk across.
+ The Fort Trumbull area location would not create any conflict with any historical buildings, and would also enable the extra space if needed to present some older historical Coast Guard vessels in front, and immediate attraction and attention getter.
+ Based on the comments I have heard, I believe most people would be more approving of the Fort Trumbull area, which has the space to accomodate the museum grounds.

+ As another comment, I would like to see the former New London landmark, Hughies Restaurant, be re-established near the museum. Hughie was a former boxer from New London, and I visited the restaurant many times when attached to Coast Guard

Station New London. Hughies family still operates a restaurant in New London,

The addition of the Coast Guard Barque Eagle, when available, and the former slave ship Amistad, would add to the attractions. Thinking a ittle further, a motorized shuttle from Fort Trumbull would provide access to the downtown area restaurants and shops, and also to the Eagle downtown, and the Amistad.

Respectfully submitted,

William R. Antonowicz
28 Peachtree Hill Ave.
Ledyard, CT 06339
USN/USCG (ret)

From:	Lloyd Hutchins
To:	Jeanine Gouin
Subject:	Supplemental Environmental Assessment for Public Comment re Proposed USCG Museum-New London
Date:	Thursday, August 30, 2018 11:25:57 AM

The proposed location behind the New London train station is far inferior to a location close to the USCG's original home at Ft. Trumbull. The latter will provide room for expansion, parking and less risk of flooding from rising seas and storms. It will also not require a $10M+ pedestrian bridge. Think of an inspired design, like the Sydney Opera House, commanding the hill at Ft. Trumbull—people will come to see that. Include a band shell for the USCG Band.

Also, the artist conception does not reflect current Amtrak reality: it shows a third railroad track between the passenger platform for north-bound trains and the museum. There is no catenary of power lines above this third set of tracks, so these are diesel powered trains? In any event, that third set of tracks is too close to the building. Has Amtrak reviewed your plans for track right-of-way, building set-back, safety, access, etc? Have you considered the vibration impact of express trains on the museum?

Semper Paratus!

August 30, 2018

United States Coast Guard
c/o Milone & MacBroom Inc.
Attn.: Jeanine Gouin
99 Realty Drive
Cheshire, CT 06410
jgouin@mminc.com

Re: Supplemental Environmental Assessment (SEA) related to the planned construction of the National Coast Guard Museum

Dear Jeanine Gouin et al.,

The proposed building location of the National Coast Guard Museum would significantly damage the historic views of downtown New London from the water. Thousands of people arrive in New London by boat and are impressed by the progression of the waterfront from the lighthouses, passed Fort Trumbull, to the H. H. Richardson designed Union Station. We cannot afford to compromise the city's rich history by blocking it from view. Furthermore, with the increased likelihood of storm damage from climate change, building on top of an already overdeveloped and ageing waterfront would make New London even more vulnerable.

We urge you to reconsider the location of the museum. Fort Trumbull (Shaw Neck) seems to be the ideal location. Years ago the site was selected for development and abandoned. The proximity to Fort Trumbull State Park and Museum, the US Coast Guard Station, and the Coast Guard Research & Development Center could be incorporated into a museum campus with ample space for leisure, recreation, auxiliary services, parking, and future expansion. The public pathways and beautiful vistas around Fort Trumbull were clearly intended to connect to downtown New London via the Waterfront Park. Siting the new Coast Guard Museum at Fort Trumbull would be the perfect opportunity to realize this connection.

Access to the museum could be a short walk or bike ride from downtown. The funds from the State of Connecticut for a pedestrian bridge over the train tracks at Union Station could be reallocated to build this critical and overdue linkage at Shaw's Cove. Visitors will be able to take advantage of the new bike share program to quickly travel along the scenic waterfront between downtown and the museum. And of course, the Thames River Heritage Park Water Taxi provides another connection to downtown and to Groton's Fort Griswold Battlefield State Park.

Finally, at the Fort Trumbull site, there are numerous opportunities for ecological landscaping to increase coastal resiliency in an attractive and striking way, highlighting New London's growing reputation as a Sustainable CT leader. Visibility of the new museum and campus from train and ferry would serve as an inviting showcase for New London, making the National Coast Guard Museum and our historic seaport city a world class destination.

Sincerely,
Andrew Lopez | alopez6@conncoll.edu
& Maggie Redfern | mredfern@conncoll.edu

CC: Mayor Michael Passero <mpassero@ci.New-London.CT.US>
Laura Natusch, Executive Director of New London Landmarks <lnatusch@yahoo.com>

From: Timothy Pratt
To: Jeanine Gouin
Subject: Coast Guard Museum Public Comment
Date: Thursday, August 30, 2018 2:35:52 PM

To: United States Coast Guard
c/o Milone & MacBroom Inc.
Attn: Jeanine Gouin

From: Timothy Pratt
1288 River Rd
Mystic, CT 06355

Re: Proposed Coast Guard Museum Location

I wish to state my disagreement with the NCGMA's plan to construct a Coast Guard Museum on waterfront land adjacent to Union Station in downtown New London. I believe that locating the proposed museum in the Fort Trumbull State Park area is a far more logical choice.

Locating the museum downtown will seriously detract from the visual landscape of that area by overshadowing the historically important Union Station, obstructing views of the Thames River, and contributing to traffic congestion. It relies on the concept of the "pedestrian walkway," an expensive urban planning gimmick that is notorious for working better in theory than in practice.

The Fort Trumbull site, with a rich heritage of its own, has sweeping views of the Thames River and New London Harbor, Ledge Light, Groton Heights, and Fisher's Island Sound, all of which are strongly connected to the Coast Guard and its history. Visitors will have a greater sense of the vast maritime and shoreline environment in which the Coast Guard operates. The larger site allows for more flexibility in the design of the building, and, being at a higher elevation and further from the water's edge, will not be subject to the same engineering challenges and restrictions in this era of global warming and rising sea levels.

The process by which the downtown site was chosen was flawed and, apparently to me, driven by a misguided determination to be near the train station and ferry terminals, with the idea of diverting travelers using those facilities into visiting the museum. However, I believe most visitors to the museum will be coming on purpose, and by automobile, not train, bus, or ferry. For them driving to Fort Trumbull would be virtually the same as driving to the train station area. For those who do choose to visit by train or ferry, shuttles and water taxis to the museum would be an interesting, and even enjoyable, option. Ultimately, as the Fort Trumbull area is rebuilt, the new museum could become the centerpiece of an active residential and commercial district.

The Fort Trumbull site provides a setting with numerous advantages. I strongly urge the NCGMA to reconsider the proposed downtown location and to look to the future both from an environmental perspective, and in terms of how the museum can expand to tell the Coast Guard's story in the years to come.

Thank you for the opportunity to provide comment on this matter of great importance to the Coast Guard and our region.

From: nstrohla@gmail.com
To: Jeanine Gouin
Subject: re/proposed Coast Guard museum
Date: Thursday, August 30, 2018 9:04:26 AM

To Whom it may concern regarding the proposed Coast Guard Museum :

I totally reject the placement of the proposed Coast Guard Museum .

- As a former member of the Old Lyme planning and zoning commission, I can't believe that there are not some regulations that prevent its proposed placement.
- If nothing else it is WAY too close to the water and possible storm surges . Aren't we all preparing for the Oceans to rise due to global warming !
- Why destroy the waterfront now that is one of the main attractions of New London .
- Put the museum out on the Fort Trumbull property . Draw the folks that come to New London a little away from downtown . Think of the possibility of businesses that will grow from this short move ; more restaurants, a tour bus, the present water taxi .

Everything will not be crammed into one little area.

Nancy C. Strohla
18 Landing Rd.
Old Lyme, CT 06371

From: David Arnold
To: Jeanine Gouin
Subject: Comments regarding CG Museum proposed for downtown New London
Date: Friday, August 31, 2018 6:28:40 PM

I am a retired Coast Guard Officer. I have attended “informational” events concerning the proposal and followed the history of proposals of the past for another CG museum in addition to the existing museum at the CG Academy that had been moved and significantly expanded there since my graduation there in 1964. I have since then resided in the city of New London and nearby towns for a total of over 44 years.

I consider it a futile effort to submit this comment having seen how common sense, laws and regulations and obvious facts in the ongoing discussions of various plans and designs have been ignored by representatives and contractors who have been hired to sell the plan to the public and gain financial support for it. So many times the only answer to significant questions and common sense criticisms given by representatives is that the plan is a "done deal”.

I am aware of past claims and plans made by the Coast Guard Foundation which have been shown to be scams serving the ultimate interests of corporations and their leaders which the Coast Guard is charged to regulate. There is reason to believe that this may be another of such schemes given the irrationality of supportive justifications for the “done deal”.

In attempting to understand the history of this project one may speculatively conclude that what the plan for the construction adjacent to the RR station is really all about is to keep Fort Trumbull available for a deep water shipping port and tank terminal to divert risk and expense of expanding such activity in major cities of Boston or New York/New Jersey, thus decreasing the costs of the project and risks to major cities while increasing profits to such corporations as MateX Tank and Terminal and McQuarry International and increasing risks to residents in the vicinity of New London. It should be noted that the head of the grand plan that has been proposed is the owner of the RR station, has management influence and significant ownership in Matex and McQuarry International. These are major corporations in the business of operating tank terminals.

There have been many revelations of recent corruption of high level public officials who serve themselves and not the interest of the public. This may be another example. There have been in the local paper and meetings many questions and objections raised to this project for very good reasons by informed, knowledgeable , and concerned citizens. These voices have been ignored. This whole project has a terrible odor to it. If it is a "done deal” "in the public interest” and done despite public objections, those who are responsible and profit from it should bear the responsibility and costs of the consequences. It seems that the public comment is not consideredat all, even though it is these citizens who may ultimately pay the costs.

David Arnold

Connecticut Department of
ENERGY &
ENVIRONMENTAL
PROTECTION

79 Elm Street • Hartford, CT 06106-5127 www.ct.gov/deep Affirmative Action/Equal Opportunity Employer

To: Jeanine Gouin, c/o Milone and MacBroom
99 Realty Drive, Cheshire, Connecticut 06410

From: Linda Brunza- Environmental Analyst **Telephone:** 860-424-3739

Date: 9/4/2018 **Email**: Linda.Brunza@ct.gov

Subject: United States Coast Guard, Supplemental Environmental Assessment, National Coast Guard Museum, New London CT

Thank you for the opportunity to offer comments on the Supplemental Environmental Assessment (SEA) dated July 2018 for the National Coast Guard Museum in New London, Connecticut. The SEA was prepared to evaluate specific impacts related to the construction and operation of the National Coast Guard Museum. Construction and operation activities include the acquisition of adjacent land, shoreline modifications, museum layout, design and site improvements. The Department of Energy and Environmental Protection (DEEP) offers the following comments for your consideration.

Flood Management Certification

Section 2.3.13 of the document discusses that a pedestrian overpass will be constructed from the Water Street parking garage to the proposed museum with the possibility of utilizing state funds, if available. According to the Flood Insurance Rate Map the site where the pedestrian access bridge is to be located is within a FEMA designated 100-year flood zone of Long Island Sound. As defined by section 25-68b(8) of the Connecticut General Statutes (CGS), Flood Management Act, proposed state activity that uses any state or federal grant or loan and affects land use requires a Flood Management Certification from DEEP.

The state agency that proposes to conduct the activity or provides funds for the project must certify that the activities that are going to be undertaken will be in compliance with the state's floodplain and stormwater management standards specified in section 25-68d of the CGS and section 25-68h-2 through 25-68h-3 of the Regulations of Connecticut State Agencies (RCSA).

As part of the certification process the funding agency must certify that the activity complies with the National Flood Insurance Program and that the proposal promotes long-term non-intensive floodplain uses and has utilities located to discourage floodplain development. If an agency cannot meet any of these requirements which are found in the flood management statutes (section 25-68d) and / or regulations (section 25-68h-2 through 25-68h-3) the agency can request an exemption from these requirements. Construction of the pedestrian access bridge will require an exemption from section 25-68d (b) 4 of the CGS since the project is not promoting long-term non-intensive floodplain uses.

The pedestrian overpass is a separate but related action to the museum. According to Section 25-68b(d)(8) of the CGS, state actions are defined as both individual activities or and a sequence of planned activities. Although Flood Management Certification is a state authority and not directly required for the museum facility itself as a federal project, the standards of the Flood Management Act should be applied to the design of both the museum and the pedestrian access bridge to ensure a comprehensive approach is taken with both projects from a flood management perspective.
The application of standards in the Flood Management Act should be discussed in section 2.4.8 Permits and Approvals.

National Flood Insurance Program (NFIP) Compliance

Page 2-10 (Figure 2.3-6 Plan View of Museum Building) **and Page 4-8**
This ground floor level will be located below the base flood elevation (BFE). The narrative states that the ground floor level would be "generally unoccupied". The plan shows a loading dock with freight elevator, entrance lobby with passenger elevators, and rigging shop at this level. At this stage of design, no detail is provided as to finishing of these spaces or potential obstructions. FEMA regulations for VE zone structures contained in 44 CFR 60.3(e) state that areas below the BFE in VE zones must be free of obstruction and used solely for parking of vehicles, building access or storage. These areas cannot be finished spaces, but areas allowed to flood. As more detailed facility design progresses there should be close coordination with DEEP and FEMA to ensure compliance with NFIP requirements.

Land Acquisition

If the federal government desires to own the submerged lands, currently held by the State of Connecticut through DEEP, it will need to seek statutory authority for such acquisition. Further, this potential acquisition would not relieve the federal government from permitting requirements for building structures upon, filling, or dredging these submerged lands.

Authorization of Coastal Activities

In the discussion of Coastal Zone Management Act (CZMA) consistency review in Section 2.4.8, Permits and Approvals, it should be noted that because the museum when completed will be a Coast Guard facility the project is being reviewed as a direct federal action under the CZMA rather than under the state's Structures, Dredging and Fill regulatory authority. The regulatory status of the project has recently been clarified, therefore DEEP's July 17, 2017 comments based on the original Environmental Assessment are superseded by DEEP's September 4, 2018 comments.

Coastal Resources

Table 2.5-1 should more clearly describe loss of benthic habitat and public trust area caused by encroachment and filling. The discussion of this topic on p. 4-7 addresses the proposed removal of a portion of the City Pier promenade for the purpose of offsetting the losses caused by encroachment. Because the City of New London owns the pier structure, the City will be required to submit a Certificate of Permission application seeking approval to remove a portion of the existing authorized City Pier. The authorized work could be conducted by the Coast Guard. This permitting requirement should be discussed in section 2.4.8, Permits and Approvals.

Water Dependent Use and Public Access

The Connecticut Coastal Management Act includes policies regarding priority and preference for water dependent uses at waterfront sites (CGS Section 22a-92(a)(3). While the museum property will provide for some public recreational access to the waterfront, which is a water-dependent use, a museum building typically would not be considered a water-dependent use and would diminish the overall potential for other water-dependent use of the Site. Discussion of how the museum and its associated amenities will preserve existing and/or create new water-dependent uses at the site should be provided.

The increased use of the City Pier Plaza for museum-related activities may displace some existing public uses of the plaza. The SEA should provide further discussion of alteration of public use of the existing promenade used for public activities such as Sail Fest. Section 4.2.2 Recreation (p.4-2) should further detail the existing uses of the City Pier Plaza, specifically referencing the number of events held at the Plaza and attendance numbers if available and explain in more detail how the waterfront of the museum property would be used for public access and recreation. Agreement by the City of New London of the proposed modifications to and changing public use of City Pier Plaza should be indicated.

If you have any questions concerning these comments, please feel free to contact Micheal Grzywinski at (860) 424-3674 or at Micheal.Grzywinksi@ct.gov.

cc: Brian Thompson, DEEP/LWRD
Micheal Grzywinski, DEEP/LWRD
Robert Hannon, DEEP/OPPD
Nicole Lugli, DEEP/OPPD

ROBERT FROMER
EJD, MSEE, P.C., P.E.

E-mail: saintrobert@comcast.net

September 4, 2018

Sent via Electronic Mail to: jgouin@mminc.com

Re: Additional Comment on the Draft Supplemental Environmental Assessment for the proposed National Coast Guard Museum

United States Coast Guard
c/o Milone & MacBroom, Inc.
(Attention: Jeanine Gouin)
99 Realty Drive
Cheshire, CT 06410

Dear Ms Gouin:

The following Public Notice appeared today in The Day newspaper:

26737 Notice of Public Hearing Concerning the Update of a Sea Level Change Scenario Pursuant to Public Act 18-82. The Connecticut Department of Energy and Environmental Protection (DEEP) will hold a public hearing concerning the update of a sea level change scenario on Tuesday, October 2, 2018, at 6 p.m., in the Gina McCarthy Auditorium, Department of Energy and Environmental Protection, 79 Elm St., Hartford CT. All members of the public are invited to attend. PURPOSE OF PUBLIC HEARING in accordance with Public Act 18-82, the University of Connecticut shall update and publish the sea level change scenarios published by the National Oceanic and Atmospheric Administration (NOAA) in Technical Report OAR CPO-1, and the Commissioner of the Department of Energy and Environmental Protection shall publish the sea level change scenario for the state. Such sea level change scenario shall guide municipal and state planning in the manner described in Public Act 18-82, including its use in the following planning documents: 1. Municipal evacuation or hazard mitigation plans; 2. The state's civil preparedness plan and program; 3. Municipal plans of conservation and development; and 4. Revisions to the state's plan of conservation and development. The Connecticut Institute for Resilience and Climate Adaptation (CIRCA) at the University of Connecticut has updated the sea level change scenarios as required in Public Act 18-82 and recommends a sea level change scenario that anticipates that sea level will be **0.5 m (1foot 8 inches) higher than the national tidal datum in Long Island Sound by 2050.** The analysis supporting this recommendation is available in the draft report entitled Sea Level Rise in Connecticut by James O'Donnell, available online at: /2018/03/27/sea-level-rise-projections-for-the-state-of-connecticut-webinar-recording-available/ Prior to such scenario taking effect for the purposes described by Public Act 18-82, the Department of Energy and Environmental Protection and CIRCA shall conduct one public hearing concerning such update. The hearing will include a presentation by CIRCA followed by an informal question and answer session. The

public will then be invited to give comments on the proposed update. WRITTEN COMMENTS in addition to the public hearing, DEEP will also receive written comments during the period through and including Friday, October 5, 2018. Written comments may be submitted via email to https://circa.uconn.edu/2018/03/27/sea-level-rise-projections-for-the-state-of-connecticut-webinar-recording-available/ or sent to the Department of Energy and Environmental Protection, Attn. Brian Thompson, 79 Elm Street, Hartford, CT 06106. ADA PUBLICATION STATEMENT: The Connecticut Department of Energy and Environmental Protection is committed to complying with the Americans with Disabilities Act. To request an accommodation contact us at 860-418-5910 or Brian.Thompson@ct.gov September 4, 2018. Publishing Date Robert E. Kaliszewski, Deputy Commissioner Environmental Quality Branch(Emphasis added)

Comment: The Supplemental Environmental Assessment is obligated to fully address the consequences of a "0.5 m (1foot 8 inches) higher than the national tidal datum in Long Island Sound by 2050" and mitigation alternatives. The rise is not a singularity in 2050 but a continuous ever increasing rise.

Robert Fromer

APPENDIX A10

RESPONSE TO PUBLIC COMMENTS

Pre-Decisional and Deliberative Communication
Summary of and Response to Public Comments
National Coast Guard Museum NEPA Supplemental Environmental Assessment
April 25, 2019

INTRODUCTION

This document responds to comments received regarding the July 2018 Draft Supplemental Environmental Assessment (Draft SEA) for the National Coast Guard Museum (NCGM) in New London, Connecticut. The Draft SEA was made available for public comment from August 1, 2018 through September 4, 2018. The notice of availability was published in *The Day* newspaper publication, which is the predominant newspaper in the greater New London area. An electronic copy of the document was also made available on the National Coast Guard Museum Association's (NCGMA's) website and paper copies were available at the New London Public Library and at the offices of NCGMA. Comments were received from the Connecticut Department of Energy & Environmental Protection (CT DEEP), the State Historic Preservation Office (SHPO) and 30 individuals, some of whom provided several rounds of comment and others who anonymously provided comments and newspaper clippings. Table 1 presents a summary of all comments received (in chronological order). Copies are attached hereto and are included in their entirety in Appendix A9 of the Final SEA (FSEA). Where changes have been made to the analysis and/or SEA, the modified text is included herein. New text is indented, underlined, and shown in quotes. Added text is also underlined in the body of the FSEA.

TABLE 1
Summary of Public Comments Received on the Draft SEA – National Coast Guard Museum Project

Commenter	Date	Transmittal Mode
Doughty, Bryan[1]	07-31-18	Email
Andriopoulos, James E.	08-01-18	Email
Ericson, Bob and Joanne	08-01-18	Email
Fromer, Robert[1]	08-01-18	Email
Russo, Robert	08-01-18	Email
Terwilliger, Randy	08-01-18	Email
Blahun, George, Jr.	08-02-18	Email
Christina, Mary M.	08-02-18	Email
Christina Robert	08-02-18	Email
Doughty, Bryan[1]	08-02-18	Email
Gadbois, Mary	08-02-18	Email
Grossomanides, George	08-02-18	Email
Crowley, Lisa	08-03-18	Email
Online Feedback (Anonymous)	08-04-18	USPS
Fred & Ann (No Last Name Provided)	08-06-18	USPS
Munger, Susan	08-07-18	Email
Newspaper Clipping (Anonymous)	08-09-18	USPS
Ruitto, Joan	08-11-18	Email
Andrew, David	08-14-18	Email
Ryan, Edward	08-17-18	USPS
Letter to Editor (Anonymous)	08-20-18	USPS
Stutts, Susanne	08-22-18	USPS
Newberry, Penny	08-28-18	Email
D'Estang, Nancy	08-29-18	Facsimile
Fromer, Robert[1]	08-29-18	Email
Hennegan, Nancy	08-29-18	Email
Antonowicz, William	08-30-18	Email
Hutchins, Lloyd	08-30-18	Email
Lopez, Andrew	08-30-18	USPS
Pratt, Timothy	08-30-18	Email
Strohla, Nancy	08-30-18	Email
Arnold, David	08-30-18	Email
CT DEEP	09-04-18	Email
Fromer, Robert[1]	09-04-18	Email
State Historic Preservation Office	01-18-19	USPS

[1]Provided more than one round of comments.

Table 2 on the following page provides a compilation of the comment topics and/or concern expressed in the individual comment letters. Agency comments are responded to individually below. Remaining comments are responded to by topic in order of frequency of comments.

RESPONSE TO AGENCY COMMENTS

Response to CT DEEP Comments

The Connecticut Department of Energy & Environmental Protection (CT DEEP) relayed comments on six topics, each discussed in detail below.

1. *Flood Management Standards* – CT DEEP correctly noted that construction of a pedestrian public access project is proposed by NCGMA from the Water Street parking garage to the proposed NCGM with the possibility of using state funds. CT DEEP recognized that the overpass is a separate but related action to the museum. The location of the proposed pedestrian bridge is within a Federal Emergency Management Agency (FEMA) designated 100-year flood zone and requires a Flood Management Certification (FMC) or FMC Exemption from CT DEEP. CT DEEP recommended that, while an FMC is not required for the NCGM, the standards of the Flood Management Act should be applied to the design of the museum as well as the pedestrian bridge and that application of such standards should be discussed in SEA Section 2.4.8 under Permits and Approvals.

   Response: The overall approach to flood management and design considerations for the museum are discussed extensively throughout the SEA, including in Chapter 2.0 (Proposed Action and Alternatives, Section 2.3); Chapter 3.0 (Affected Environment, Section 3.6.2); and Chapter 4.0 (Environmental Consequences, Section 4.6.2). As indicated in the SEA, the NCGM will comply with the National Flood Insurance Program (NFIP) requirements as well as the eight-step decision-making process in compliance with Executive Order 11988.

   The U.S. Coast Guard (USCG) recognizes the importance of a comprehensive approach to flood management, and while the FMC requirements do not directly apply to federal projects, the application materials for the pedestrian access project will describe the flood management components of the NCGM to which the pedestrian bridge will provide access. The following language has been added to Section 4.6.2 of the FSEA for clarification:

   > "The proposed NCGM is being designed in recognition of present and past flood threats, climate change, and sea level rise. Conservative design standards would have the lowest structural member of the lowest floor of the museum constructed above the 100-year flood elevation or base flood elevation (BFE) plus a factor of safety or freeboard on top of that. Some guidance suggests an elevation that is 1.25 times BFE, or in the case of the NCGM, at elevation 17.5 feet (datum NAVD88). Other guidance suggests an elevation that is BFE plus 2 feet (or 16.0 feet NAVD88). Still other guidance suggests an elevation commensurate with the 500-year flood elevation (18.1 feet NAVD88).
   >
   > The design of the NCGM represents a conservative approach to flood mitigation. The lowest floor of the proposed NCGM will be at approximate elevation 23 feet or a full 9 feet above the BFE elevation, approximately 5 feet above the 500-year flood elevation, and well above published guidance measures. Structural design computations are being conducted using BFE plus 2 feet; and building design elements are NFIP (National Flood Insurance Program) compliant."
   >
   > The CT DEEP is considering Public Act 18-82 concerning an update of a sea level change scenario that anticipates a 36 inch rise in relation to the national tidal datum in Long Island Sound by 2050. The proposed elevation of the NCGM building is well above BFE plus the sea level rise projections for 2050 and beyond.

   The USCG does not believe that further discussion of the permitting requirements of the pedestrian bridge is necessary in the SEA for the NCGM. Additionally, it is noted that permitting requirements were fully presented in the 2014 Environmental Impact Evaluation prepared for the pedestrian overpass public access project pursuant to the Connecticut Environmental Policy Act (CEPA), available at: http://www.ct.gov/ceq/lib/ceq/NCGM_EIE.pdf.

TABLE 2
Nature of Public Comments Received on the Draft SEA – National Coast Guard Museum Project

Commenter	*Location*	*Architecture/ Design*	*Flood Zone/ Climate Change*	*Views/Mass/ Aesthetics*	*Parking/ Traffic*	*Pedestrian Bridge*	*Public Process*	*Regulatory Requirements*	*Shoreline Fill*	*Cost*	*Const. Impacts*
CT DEEP			✓					✓	✓		
Andriopoulos		✓		✓							
Andrew		✓				✓					
Antonowicz	✓	✓	✓	✓		✓					
Arnold	✓						✓				
Blahun	✓		✓								
Cartoon Clipping			✓								
Christine M.	✓				✓	✓			✓		
Christine R.	✓										
Crowley	✓	✓	✓	✓							
D'Estang	✓	✓	✓				✓			✓	
Doughty	✓						✓				
Ericson	✓	✓									
Fred & Ann	✓	✓	✓		✓	✓					
Fromer*	✓	✓	✓	✓		✓	✓	✓			
Gadbois	✓	✓									
Grossomanides		✓									
Hennegan	✓		✓								
Hutchins	✓	✓	✓			✓					
Letter to Editor	✓	✓	✓	✓		✓			✓		
Lopez	✓		✓								
Munger	✓										✓
Newberry	✓	✓									
Online Feedback	✓	✓			✓		✓				
Pratt	✓			✓	✓	✓					
Ruitto		✓			✓					✓	
Russo	✓			✓	✓						
Ryan	✓				✓						
Strohla	✓		✓	✓							
Stutts	✓		✓	✓	✓						
Terwilliger	✓				✓	✓					

*Additional concerns include NEPA procedural compliance, energy consumption, air emissions, alternatives/site selection, coastal consistency, water dependency, resiliency, earthquake impacts, solid waste impacts, and lack of mitigation.

2. *National Flood Insurance Program (NFIP) Compliance* – CT DEEP noted that FEMA regulations for VE zone structures state that areas below the base flood elevation (BFE) in VE zones must be free of obstruction and used solely for parking of vehicles, building access, or storage and that these areas cannot be finished spaces, but areas allowed to flood. CT DEEP recommended that as more detailed facility design progresses, there should be close coordination with CT DEEP and FEMA to ensure compliance with the National Flood Insurance Program (NFIP) requirements.

   Response: As indicated in the response to CT DEEP comment #1, the NCGM will comply with NFIP requirements. This is made clear in the SEA. The associated design elements are consistent with these requirements and will be reflected in future permit applications and authorizations, including permit programs administered by the Army Corps of Engineers (to which FEMA is an advisory federal agency). NFIP compliance is also addressed in the Coastal Consistency Determination (Final SEA Appendix B1), which will be submitted to CT DEEP for their concurrence.

3. *Land Acquisition* – CT DEEP noted that if the federal government desires to own the submerged lands currently held by the State of Connecticut through DEEP, it will need to seek statutory authority for such acquisition.

   Response: 14 USC §98 requires that the NCGM be built in the City of New London on land that is federally owned and administered by the Coast Guard. Thus, the USCG will seek ownership of currently submerged lands upon which fill will be placed. State ownership commences at the mean high water line (elevation 0.9-feet) and extends seaward. The USCG has engaged representatives of the State of Connecticut relative to legislative authority required to transfer submerged lands currently held by the state to be transferred to the USCG. The Office of the Attorney General is currently in the process of drafting legislative language that addresses conveyance of these currently submerged state-owned public trust lands to USCG owned land, following construction of bulkhead and fill.

4. *Authorization of Coastal Activities* – CT DEEP clarified comments made during the public scoping period, which occurred in June and July 2017, relative to the review of the proposed museum project as a direct federal action under the Coastal Zone Management Act rather than under the state's Structures, Dredging, and Fill regulatory authority.

   Response: The USCG concurs that the NCGM is not governed by the Structures, Dredging, and Fill regulatory process. The Coastal Consistency Determination is included in the Final SEA as Appendix B1 and is attached hereto.

5. *Coastal Resources* – DEEP suggested that Table 2.5-1 of the Draft SEA should more clearly describe the loss of benthic habitat and public trust area caused by encroachment and filling. Additionally, DEEP requested that the permitting associated with the removal of a portion of the City Pier Plaza Promenade for the purpose of offsetting the losses caused by encroachment be discussed in SEA section 2.4.8, Permits and Approvals.

   Response: The following narrative will be added to SEA Section 2.4.8, Permits and Approvals:

   > "The proposed partial demolition of the City Pier Plaza will require a separate permit from CT DEEP. In that instance, the permitee will be the City of New London. The work will be privately funded through the NCGMA. The Mayor, City Council, and administrative officials in New London have been provided with detailed information concerning the proposed actions, schematic designs of the museum, and survey information related to the site and affected areas and have expressed concurrence with this approach. A letter of support from the City is included in FSEA Appendix A and attached hereto."

   Benthic impacts are analyzed in Section 4.8 of the SEA. A new row has been included in summary Table 2.5-1 to address benthic habitat as follows:

Resource	No Action Alternative	Proposed Action Alternative
"Benthic Habitat"	"No impacts to biological resources"	"Affected areas include the intertidal zone, which extends from 1.7 feet North American Vertical Datum (NAVD) to -0.9 feet NAVD (mean tidal range 2.6 feet), and the immediate subtidal zone, which extends from -0.9 feet NAVD to the limit of disturbance located at approximately -9.0 feet NAVD. Currently, the intertidal area is comprised of rubble and fill material that was used to stabilize the narrow interface between marine and terrestrial environments. Direct impact to the benthic environment will occur, including intertidal and sub-tidal environments. Of the total impact area, approximately two thirds are currently covered by the pile supported City Pier Plaza Promenade. Approximately 3,100 square feet of new encroachment will occur. To offset this encroachment, an approximate equivalent amount of existing City Pier Plaza promenade structure south of the proposed museum building will be removed to daylight the Thames River. Though a portion of the benthic environment will be filled, the concurrent installation of vertical sheet piling may mitigate the loss of benthos by providing vertical structure as substrate for a number of fouling species of organisms to colonize."

6. *Water Dependent Use and Public Access* – CT DEEP requested additional discussion of how the museum and its associated amenities will preserve existing and/or create new water-dependent uses at the site, including further discussion on alteration of the public use of the existing promenade. CT DEEP requested additional discussion in SEA section 4.2.2 (Recreation), providing details on the current and historic activities at the City Pier Plaza and how the museum property would be used for public access and recreation, along with an indication that the City of New London is in agreement with the proposed changes.

   Response: Water dependent uses and public access are described in SEA Sections 3.2 (Affected Environment; Land Use and Recreation), 4.2 (Environmental Consequences; Land Use and Recreation), and 4.16.2 (Evaluation of Cumulative Impacts). As indicated in the SEA, a portion of the proposed NCGM will be constructed upon land that has historically been used for vehicular parking associated with the adjacent Cross Sound Ferry Services operation. This is an undeveloped gravel lot that has not historically been accessible to the public. The remainder of the proposed NCGM will be constructed on a portion of the existing City Pier Plaza. As presented in Sections 2.3.7 and 4.8.2 of the SEA, impacts would occur on the City Pier Plaza by virtue of:

   a. encroachment onto a portion of the existing plaza to accommodate the museum; and

   b. removal of approximately 3,100 square feet of existing plaza to provide additional open water for recreational use and to mitigate the proposed fill area along the river shoreline that would be displaced to construct bulkheading and fill.

   The following supplemental language has been added to Section 4.2.2 of the FSEA:

   "Approximately 10,650 square feet of City Pier promenade will be removed to accommodate the project, with 15,950 square feet remaining intact and available for public use following museum construction. An additional 5,800 square feet of outdoor public space will be created at ground level associated with the NCGM. This results in an effective public area that is nearly 80% of existing public space today. This combined area will remain open to public access.

   Unlike other waterfront buildings including museums or educational facilities, the NCGM will be the public's museum, affording meaningful public access to and through the structure itself. The museum will be free to all visitors during established regular hours of operation.

   Integral to the vision and design for the NCGM is connecting people with the waterfront, not only through unhindered waterfront access, but through documentation of the history of coastal waters, the role of the

USCG, and through water exhibits that would extend the NCGM's reach beyond the physical walls by bringing the visiting public outside to view in-water exhibits and activities. Outdoor and in-water exhibits, as well as interactive activities would be key elements of the museum, with scheduled demonstrations and displays providing opportunities for the public to interact with the shoreline and with Coast Guard members. The adjacent City Pier also provides opportunities for vessels to visit the area, providing opportunities to bring maritime watercraft to the museum visitor's experience.

The presence of the NCGM would be anticipated to increase patronage to the City Pier Plaza and City Pier; and visitation by museum patrons would be consistent with and augment public use of these facilities. In September of 2008, White Oak Associates, Inc. conducted a Strategic Master Plan for the NCGM. This study was updated in February of 2014. The conducted projected a tenfold increase in visitation to over 200,000 visitors annually. The museum would offer a new opportunity for public use and waterfront access. A publicly accessible waterfront area would replace the former private parking area, with an at-grade interface with the Thames River. Construction of the NCGM would not restrict pedestrian circulation along the river's edge. The at-grade level of the museum would provide open access to the waterfront and to City Pier Plaza.

Records are not kept on the visitation of City Pier or at the adjacent City Pier Plaza. Anecdotal observations over a number of years indicate that, with the exception of specific, limited festival days and events, the City Pier Plaza is underutilized and often empty or nearly so during the weekdays and off-season. At the same time, use of the plaza for events, particularly in the months of July and August, are important to the vitality and sense of community in downtown New London.

City Pier hosts numerous events, most notably the annual Sailfest, which occupies the pier itself, the adjacent City Pier Plaza, and the surrounding downtown area including Parade Park, with street vendors along Bank Street, Water Street, State Street, and surrounding areas. A recent study found that in 2018 Sailfest brought $58.2 M in economic value and 279,000 visitors to the Thames River Region. City Pier Plaza accepts the spill-over from the Pier during this event and has been used to accommodate support uses, such as beer tents. While a portion of the City Pier Plaza would be occupied by the future NCGM, additional waterfront area to the north of the current plaza would be open to the public, as would the museum proper. The focal point of Sailfest is City Pier and the docked vessels would be complemented by the presence of the NCGM and its maritime heritage.

Other historic activities occurring along the Thames River waterfront include the Thames River Heritage Park Taxi, Thames River Quest, Make Music, Blues and BBQ, and Downtown Live, all of which take place on the pier itself. Parade Plaza, across Water Street also hosts community activities, including weekly music events and the Nimble Arts Circus. Other events that take place in the downtown New London vicinity include The Currach Regatta, Blues and Brews Festival, Connecticut Family Festival, and the Connecticut Maritime Heritage Festival. These activities would continue unhindered following construction of the NCGM.

Given the proposed use and opportunities associated with the NCGM, impacts associated with the smaller plaza area are expected to be offset by the enhanced activity that would result from the museum's entrance facing the plaza. Public access across the site will be encouraged and overall public access would increase through the conversion of a historically private parking lot to a public museum space and sheltered riverwalk along the exterior of the museum at grade, providing outdoor space for waterfront visitors who are not necessarily museum visitors.

The NCGM will be an important feature of the historic, educational and cultural offerings in this waterfront community, and a contributing presence for the events and maritime activities that New London is known for. From its location adjacent to City Pier, the NCGM will be a visible addition, presenting additional venue opportunities for visitors. As evident with the Maritime Heritage Festival, Celebrate New London and other

water-focused events, New London has a long-standing relationship with the maritime community and the USCG."

Discussions with City representatives have been ongoing, with agreement by the City on the additional land acquisition proposed in the SEA as well as the demolition of a portion of the existing plaza. A letter of support from the City is included in FSEA Appendix A and attached hereto.

Response to Comments from the State Historic Preservation Office

The State Historic Preservation Office relayed comments on January 18, 2019 as part of the ongoing Section 106 consultation. In that letter, SHPO indicated that it anticipates that for the purposes of NEPA, there will be no significant impacts to historic resources. However, the information contained in the SEA did not fully satisfy the requirements of the Section 106 process. A significant number of their comments related to the characterization of existing conditions. The following narrative was added to Section 3.9.1 of the FSEA (No Action Alternative) to address their comments:

In 2017, the Hodges Square neighborhood, situated between the Academy and the I-95 corridor to the south, was officially recognized as a Historic District.

Native American and Colonial American settlement patterns along major waterways, such as the Thames River, are well documented. An extensive Thames River drainage archaeological survey by Harold Juli recorded one pre-contact site on the Coast Guard Academy campus, the Coast Guard Academy Rockshelter site (95-6), and another just to the north of the Academy, the Connecticut College Soccer Field site (95-4).

The following narrative was added to Section 3.9.2 of the FSEA (Proposed Action Alternative):

The historic resources APE, often referred to as a Study Area, takes into account direct and indirect effects (e.g. visual and contextual impacts). The APE, defined in consultation with SHPO, extends 2,250 feet from the project site and includes a number of recognized aboveground NRHP buildings, structures, and districts that surround the project area. As discussed below, the project site is on the waterfront and across the railroad tracks from the long-established Downtown New London Historic District. However, there are numerous individually NRHP-listed historic properties within the District, as well as many NRHP-listed properties and two smaller districts within the 2,250-foot APE that contribute to New London's significant heritage. The 2,250-foot historic resources APE include the districts, buildings, and structures listed in Table 3.9-1. Each is discussed below.

Across the Thames River and outside the 2,250-foot APE are two NRHP Districts that flank the Groton shoreline. The 50-acre NRHP-listed Groton Bank Historic District (National Register Information System [NRIS] 83001287) is on the opposite or eastern bank of the Thames River, below NRHP-listed Fort Griswold (NRIS 70000694), which is approximately 16 acres in area. Fort Griswold is marked by the prominently sited Groton Monument, a 135-foot-tall stone obelisk. These Groton historic district resources are separated from the project site by more than 2,500 feet and a broad expanse of a busy waterway, with the dominant railroad bridge and soaring I-95 crossings to the north of both.

The 8.3-acre NRHP-listed Central Vermont Railroad Pier (NRIS 04001551) is north of the Downtown District and across an open ferry channel from the project site but lies within the 2,250-foot APE. It is an earth-filled masonry structure. See Figure 3.9-1 for the location.

Two additional nationally recognized districts are within the 2,250 foot APE for historic resources: The four-property residential Whale Oil Historic District and the Coit Street Historic District on the southern perimeter of the Downtown Historic District. Each District, as well as individually listed Properties, are identified on Table 3.9-1, illustrated on Figure 3.9-1, and discussed below.

TABLE 3.9-1
Properties and Districts Listed on the National Register of Historic Places
within 2,250 Feet of the NCGM Project Site

NRIS #	NAME	ADDRESS	RESOURCE TYPE	COMMENTS
86000124	US Post Office - Main	27 Masonic Street	building	Not in a District
76001992	Acors Barns House	68 Federal Street	building	Not in a District
90001098	St. James Episcopal Church	125 Huntington Street	building	Not in a District
70000714	Whale Oil Row	105-119 Huntington Street	District	4 residential buildings
71000913	New London Railroad/Union Station	State Street	building	Adjacent to proposed museum and within Downtown New London Historic District
79002665 / 88000070	Downtown New London Historic District/aka Historic Waterfront District	(1979) Original bounds along Captain's Walk, Bank Street/Thames River, Tilley and Washington Streets. (1988) Boundary increase along Huntington, Washington and Jay Streets.; SW corner of Meridan and Gov. Winthrop Blvd.; along Bank and Sparyard Streets.	District	190 buildings in original 1979 designation, including buildings listed on NRHP independently of the Historic District (e.g., the New London Customhouse and the Shaw Mansion); 33 buildings added in the 1988 boundary increase
#040015510	Vermont Railroad Pier	State Pier Road	(earth-filled masonry) structure	NRHP Areas of Significance: Transportation and Engineering
70000706	New London Customhouse	150 Bank Street	building	Within the Downtown New London Historic District; serves as a museum
88000068	Coit Street Historic District	Roughly bounded by Coit, Washington, Tilby, Bank, and Reed	District	33-buildings district that abuts southern edge of the Downtown New London Historic District [Note: The abutting Coit Street West Historic District (2014) is beyond the 2,250-ft Study Area/APE]
82004377	Huntington Street Baptist Church	29 Huntington Street	building	Within the Downtown New London Historic District
70000712	New London Public Library	63 Huntington Street	building	Within the Downtown New London Historic District
70000705	New London County Courthouse	70 Huntington Street	building	Within the Downtown New London Historic District
70000713	Shaw Mansion	11 Blinman Road	building	Within the Downtown New London Historic District; serves as a museum

Historic Architectural Resources

Figure 3.9-1 depicts significant, National Register-listed historical resources within the 2,250-foot Area of Potential Effect (APE) of the project site. The APE has been defined as a reasonable sphere of concern for both contextual and visual perspectives. The APE includes maritime commercial resources within the Thames River waterfront, as well as civic structures on higher elevations within the downtown neighborhood. Each of the identified resources is presented in Table 3.9-1.

The 78-acre Downtown New London Historic District (National Register Information System [NRIS] 790026651/88000070, boundary increase) includes a total of 223 structures. The NCGM project site is within the extreme northeastern edge of this NRHP Historic District, as the commercial, residential, and civic properties transition into later industrial properties.

As noted on Table 3.9-1, a number of individually NRHP-listed properties are within the Downtown New London Historic District, including the New London Public Library, the Huntington Street Baptist Church, the Shaw Mansion, the U.S. Customhouse, and the neighboring Union Station. Of the individually listed NRHP properties outside of the Downtown New London Historic District, the closest is the Central Vermont Railroad Pier, discussed below.

The 8.3-acre NRHP-listed Central Vermont Railroad Pier (NRIS 04001551) is north and east of the downtown district and separated by an active ferry channel from the NCGM project site.

Archaeological Resources

Certain NRHP-listed properties, e.g., the Shaw Mansion and the U.S. Customhouse, are listed as archaeological resources with the Office of State Archaeology in addition to recognition as Historic Resources.

However, there are no pre-contact archaeological sites listed with the Office of State Archaeology within one mile of the NCGM project APE. This is undoubtedly due to the intense and extended development and occupation of the New London waterfront. Archeological sites are listed in Table 3.9-2 and are shown graphically in Figure 3.9-2.

Archaeological investigations and additional archaeological monitoring since 1992 have yielded the identification of historic archaeological sites. Three waterfront archaeological sites, 95-11, 95-12, and 95-16 are in proximity to the USCGM site. These site types (disturbed and/or deteriorating wharf/dock timbers), recovered collections, and comparability to the project APE have been taken into consideration when evaluating the archaeological potential for the APE to contribute significantly to our understanding of the past.

Local repositories accessed included the New London Public Library, Local History Collection, the Groton Public Library, the Connecticut Department of Economic and Community Development/State Historic Preservation Office (DECD/SHPO), and the Office of State Archaeology. Various on-line resources on New London history were also valuable repositories, e.g., the New London Country Historical Society (https://www.nlchs.org/) and the New London Landmarks, Inc. (https://www.newlondonlandmarks.org/archives-and-resources).

TABLE 3.9-2
CT Historic Archeologic Sites within One Mile of NCGM Location*

Site Reference	Name/Locations	Period of Significance	Comments	Inventory Form Author/Date
Groton: 59-102	Groton Marine Dock Marine Railway	Ca 1946-1975	Commercial and Industrial	Raber Asociates, 2006
Groton: 59-20	Fort Griswold	ca. 1781-1948	Revolutionary War battle site; 5-acre state park	CAS, 1979
New London: 95-1	Central Vermont Railroad Pier, at end of Thomas Griffin Road	1876 - 1946	An earth-filled granite block structure for steamship - rail freight interchange.	PAST, Inc. 2002
New London: 95-7	Allanach Carriage House,16 Cottage Street	ca.1890 - 1940	Domestic. Relocated in 1988 for State Project - site compromised	Historical Perspectives, Inc., 1982
New London: 95-8	Prentis - Palmer House, 18 Broad Street	ca.1845 - 1940	Domestic. Demolished in 1988 for State Project - site compromised	Historical Perspectives, Inc., 1982
New London: 95-9	Columbus Circle Gravestones, 20 ft. east of monument in traffic circle at Bank St. and Howard intersection.	Recovered Gravestone dated 1871	Remnants of former monument business in proximity to ConnDOT roadwork. NOT A CEMETERY SITE	Harold Juli, Connecticut College, 1979
New London: 95-10	New London Mills, Pequot Ave. south of Trumbull St.	est. 1850 - 1940	19th and/or 20th C. marine steel hulls within landfill soils. Not fully investigated.	PAST, Inc., 1990
New London: 95-11	South Water Street, North of 95-12 and U.S. Customhouse (150 Bank Steet)	18th - early 19th C.	Domestic artifacts (stoneware, creamware, Westerwald, kaolin pipe, delftware) within fill of possible displaced warf, dock or mooring timbers. Disturbed context.	PAST, Inc., 1992
New London: 95-12	South Water Street, North of U.S. Customhouse (150 Bank Steet)	ca. 1810-1860	Domestic scatter within fill of possible displaced warf, dock or mooring timbers. Disturbed context.	PAST, Inc., 1992
New London: 95-13	Shaw Mansion	1756	Merchant's house and the state's naval offices during American Revolutionary War. Currently, New London County Historical Soc. offices.	No files at OSA
New London: 95-14	U.S. Customhouse, 150 Bank Street	1833	Original granite wall enclosing the property identified during utility trench monitoring. Protected in situ.	PAST, Inc., 1992
New London: 95-16	Parade Plank Wharf, between Water Street and the Waterfront at foot of Parade	mid-19th to mid-20th C.	Approx. 15 deteriorated wooden piles remaining of plank wharf from period of shift in waterfront activities to accommodate introduction of rail traffic. Some artifacts in association.	ACS, G. Walwer, 1999
New London: 95-19	Frink's Wharf, Bank Street waterfront north of USCG pier	later 18th C. - early 20th C.	Wharf assoc. with major New London whaling family; Commercial and Industrial	ACS, G. Walwer, 1999
New London: 95-20	Turntable/Engine House, New Haven and New London Railroad, in Amtrak railyard off of Walbach	1852	Archaeological investigation of foundation remains of turntable and engine house. Designated a State Archaeological Preserve. Currently, a parking lot.	Historical Perspectives, 2001

*Historic Resources Inventory Forms and one-mile map provided by the Office of State Archeology (Brian Jones 4/12/19)

Laydown Areas During Construction

As discussed in Chapter 2, the project site is extremely limited by the river and the rail corridor and cannot support laydown and staging during construction. The contractors will rely on a combination of off-site staging and laydown areas, specifically an off-shore barge and one or more paved riverfront open lots. Four potential laydown areas along the waterfront have been identified, designated as A, B, C, and D. Figure 3.9-3 is a map of these four areas in relation to the project site; a close-up view of each potential laydown also follows (Figures 3.9-3 through 3.9-7). Land use at all of these paved locations consists of previously developed areas located in the vicinity of the project site as follows.

Area A lies west of Fairview Avenue on the Thames River in Groton. The site is located immediately beneath and to the north and south of the Gold Star Memorial Bridge. The site consists of a small brick building and a paved parking area. Individual residential homes are located on the eastern side of Fairview Avenue. The potential laydown area at Mohawk Northeast is presently developed with storage buildings and docking facilities (three piers), which would allow materials to be transported by barge. Deliveries to the project site via road could occur via Fairview Avenue, Bridge Street, Interstate 95, Eugene O'Neill Drive, and State Street.

Area B lies east of Eastern Avenue on the Thames River in New London immediately north of the Goldstar Memorial Bridge in an area of mixed residential/industrial uses. The potential laydown area is presently developed with storage buildings and soil piles. An at-grade railroad crossing is present, which would allow materials to be transported by barge (one pier) or truck. Deliveries to the project site via road would occur via industrial portions of Eastern Avenue, Lewis Street, Crystal Avenue, Eugene O'Neill Drive, and State Street.

Area C lies north of the project site at State Pier in New London. Surrounding land uses are industrial, and the pier is essentially covered by pavement and buildings. Access to the site is via State Pier Road and Crystal Avenue, and materials could be transported via barge to the project site.

Area D lies immediately north of the project site at Cross Sound Ferry in New London. Surrounding land uses are commercial or maritime. The site is heavily used for ferry transportation and in particular the queuing of ferry traffic.

SHPO had additional comments relative to the characterization and documentation of environmental consequences. The following narrative was added to Section 4.9.2 (Proposed Action Alternative) to address SHPO's comments:

The following evaluation is in compliance with federal guidelines for an assessment of adverse effects on historic properties (36 CFR 800.5). An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association.

Future construction of an elevated six-story, approximately 80,000-square-foot NCGM on the New London downtown waterfront would result in the introduction of visual elements that have the potential to diminish the significance of several NRHP-listed historic districts and individual historic properties, as per the National Historic Preservation Act (NHPA; Public Law 89-665; 54 U.S.C. 300101 et seq.). As detailed in the prior Section 3.9, the project site is immediately outside the boundaries of one NRHP-listed historic district and within 2,250 feet of two additional NRHP-listed districts and nine individually-listed NRHP properties in Downtown New London. See Table 3.9-1 for each of these recognized resources.

A related proposed pedestrian bridge to connect the NCGM with the inboard City of New London parking garage is funded by the State of Connecticut. The pedestrian bridge is undergoing a separate Section 106 (36 CFR 800.5) review consultation with SHPO.

Although the development of the NCGM would alter views in the New London Historic District, the conceptual design of the NCGM is intended to fit sympathetically in the transition from the historic district to the more industrialized properties to the immediately north along the waterfront. The final design details and materials will be decided in consultation with the State Historic Preservation Office. The new structure will be recognizably of this era but also broken down in scale to acknowledge its component parts and the scale of its urban context and its relationship to the waterfront. For example, the building will be more expressive from the Thames River viewpoint where it will obscure the view of the nearby parking garage but will express more quiet details from the Parade Plaza viewpoint where it is a backdrop for Richardson's iconic train station.

A critical component of the design process will be maintenance of the architectural integrity of the adjacent Union Station building and the neighboring historic district as a whole, as well as individual historic resources both during construction and the subsequent operation of the museum.

The project site is situated at the extreme northeastern edge of the Downtown Historic District, outboard of the railroad tracks that parallel the Thames River to the east. This is the transition point between the pre-1850 resources of historic, small-scale New London and the subsequent large-scale industrialization of the waterfront to meet the more rigorous demands of modern transportation, such as railroad yards and shipping piers, ferry slips, and massive parking garages.

The 1876 Central Vermont Railroad Pier (NRIS 04001551), north of the proposed museum site, projects in a southwesterly direction into the New London Harbor (Clouette, 2004:7-1). A character-defining feature of this structure is the waterfront and railroad track setting, which will not be affected by the NCGM project. The Pier's association with the Thames River transportation heritage will not be affected by the NCGM project.

Archaeological Resources

No formal archaeological survey has been conducted to date in the tightly limited project APE.

An extensive Thames River drainage archaeological survey by Harold Juli did record a number of pre-contact sites north of the active New London waterfront (Juli 1994). The two closest pre-contact sites identified by Julie include the Coast Guard Academy Rockshelter Site (95:006) and the more northerly Connecticut College Soccer Field Site (95:004). Again, these sites are far outside the project area and have not been subject to the extreme subsurface changes on the landfilled and manipulated waterfront between the railroad tracks and the river. As Julie concluded (1994:39), the Thames River drainage has been highly disrupted and bears an overall poor rating with respect to the integrity of pre-contact archaeological sites.

As noted in Table 3.9-2 and Figure 3.9-2, archaeological excavations and monitoring have been conducted south of the APE indicating that specific sections of the New London riverfront possess a high potential to contain buried historic archaeological resources related to the maritime history of New London. The archaeological sensitivity of the New London waterfront is not directly applicable to the relatively late landfilled lots outboard of the rail corridor north of State Street. The following discussion focuses on the distinction between the non-APE waterfront areas of high sensitivity and the APE.

The wider project area is well documented for hosting archaeological resources related to the maritime history of New London, which could include but not be limited to maritime suppliers and wharves, docks, and slips dating as early as the eighteenth century. Archaeological reports from the last forty years revealed buried resources instructive of this past, as noted in Table 3.9-2. However, it is critical to compare the location of the APE, outboard of the mid-nineteenth-century landfilled and bulkheaded rail corridor, and the eighteenth through the early twentieth century maritime wharves and businesses to the south (See Table 3.9-2 and Figure 3.9-2).

Mapped and recorded activities on the APE are related to industries that have been demonstrated to leave a minimal archaeological footprint: coal yards, lumber sheds, planing mills, warehouses, etc. These resource types do not typically leave behind distinctive foundations and/or associations that provide insights not gained through existing studies and/or documents (Hartgen Archeological Associates, Inc. and Historical Perspectives, Inc., 1995).

The wharves and piers of the post-1850 era reflect a growing standardization of joinery, cribbing, and bulkheading techniques. The earlier haphazard approach to development and a plethora of vernacular designs and building techniques along the waterfront gave way as the century progressed, particularly after the Civil War when improved port facilities were urgently needed, the size of new steamships required longer piers and deeper berths, use of steam-driven pile drivers expanded, and engineering techniques were increasingly standardized. The archaeological study of these later generations of more standardized wharves and piers has not proven to provide a window into local technological adaptations (Hartgen Archeological Associates, Inc. and Historical Perspectives, Inc., 1995).

Research and analysis indicate that the possibility for *in-situ* pre-contact archaeological resources east of the rail corridor is not anticipated (Saunders and Schneiderman-Fox, 2000). As noted, the Office of State Archaeology has no record of pre-contact archaeological resources within one mile of the project site.

Historic and Cultural Resources – In 2014, the Coast Guard initiated consultation with the Connecticut SHPO under Section 106 of the NHPA. Consultation was reinitiated in 2017 and is ongoing. The SHPO consultation correspondence is included as Appendix D.

Continued SHPO consultations through each phase of the design process will be undertaken in order to minimize or avoid any adverse effect to identified historic resources through choices on materials, signage, fenestration, etc.

Potential Impacts on Off-Site Staging and Laydown Areas – The off-site staging and laydown areas, in addition to an off-shore barge, have been identified (Figures 3.9-3 to 3.9-7). Each of the in-board staging and laydown sites, to be used primarily as storage of materials and equipment, is currently covered with asphalt, which will remain as a protection barrier against accidental subsurface impact. Given the lack of excavation and the asphalt surface to prevent disturbances, impacts to cultural resources are not anticipated in the off-site staging and laydown areas.

RESPONSE TO PUBLIC COMMENTS

Responses to public comments are provided below by topic. Refer to Table 2 for a cross-reference to commenters.

1. *Location* – Members of the public expressed concern relative to the location of the proposed museum. A significant number of commenters indicated a desire to see the museum constructed at Fort Trumbull or at another downtown location within the City of New London. Others indicated a concern related to the proximity to the train station.

   Response: As indicated in the SEA Section 1.3, the 2014 EA and earlier studies evaluated alternative locations for the NCGM. This was a decades long process that led to the selection of the current site. SEA Section 2.2 further described the legislation authorizing the establishment of the National Coast Guard Museum (14 USC §98), which requires that the museum be built in the City of New London on land that is federally owned and administered by the Coast Guard. Additionally, it is noted that the Coast Guard cannot solicit land, but rather land must be made available and offered to the Coast Guard. The selected site for the NCGM was identified following analysis of alternative sites that met these criteria. These analyses were conducted as part of the *Final Environmental Assessment: Proposed Coast Guard Acquisition and Operation of a Privately Constructed New National Coast Guard Museum (2008), the Strategic Master Plans: for the National Coast Guard Museum (2008 and 2014)* and

the 2014 NEPA Environmental Assessment for National Coast Guard Museum Project. These studies analyzed numerous locations for the museum, including the existing Coast Guard Museum in Waesche Hall at the Coast Guard Academy, Riverside Park, three locations in Fort Trumbull, and the downtown New London waterfront site.

Alternatives presented in the 2014 EA were evaluated using criteria the Coast Guard developed based on the requirements outlined in 14 USC §98. The following alternatives were studied and incorporated by reference into the 2014 EA:

- No Action
- Fort Trumbull Alternatives
- Riverside Park Alternatives
- Water Street (Selected Alternative)

Alternatives considered but eliminated from further study included the following:

- Virtual Museum
- Union Station
- Norwich State Hospital
- Fort Trumbull State Park

The Fort Trumbull site was found to be not viable.

The analysis contained in the 2014 EA resulted in a Finding of No Significant Impact (FONSI) and the site was subsequently gifted to the Coast Guard. Site analysis and ultimate selection was an extensive process that occurred over many years. The purpose of the SEA was to evaluate potential construction and operational impacts of the NCGM, and not to evaluate new or alternate sites. Therefore additional locations were not considered as part of the SEA.

2. *Architecture/Design (Including Views, Building Massing, and Aesthetics)* – Members of the public expressed concern relative to the museum building architecture, its overall size in comparison to surrounding buildings, and barriers to waterfront views from the land side and/or views of the downtown from the water.

   Response: The following narrative has been added to Section 2.3.2 of the FSEA:

   > "The Secretary of the Interior's Standards for the Treatment of Historic Properties provide architects and planners with general advisory guidelines and best practices to promote historic preservation. New construction adjacent to Union Station is being designed to be differentiated from the existing structure to maintain the station's historic character. The museum building design presents a quiet façade facing the train station and Parade Plaza, so that the museum would remain deferential and recessive to the train station. From the waterfront, the building would be more sculptural and expressive of its cultural significance to the city, but through its distinct and modern architectural language would complement, rather than compete with the historic train station.
   >
   > In response to early consultations with the State Historic Preservation Office (SHPO), the museum design is sensitive in how the new structures would interact with Union Station and the downtown area around Parade Plaza. The updated design includes an extension of the pedestrian bridge to the south, embedded within the volume of the museum. Pedestrian pathways for those people arriving at grade and from the bridge would be joined at the southwest corner of the building in a large, full-height entrance vestibule that would include an iconic rescue helicopter display. This soft corner of the building is being designed to provide a visual window into and through the museum from vantage points downtown and Union Station, as well as expand the view corridor between the two buildings toward the waterfront. This would allow for far greater openness as perceived from the train platform and a greater visibility of the full train station façade from the water.

Moving the museum entrance from the waterfront edge (as in earlier design iterations) to the south side of the building would provide for greater connection to the public realm at the ground level. Activating City Pier Plaza with the museum's entrance and glass atrium façade would encourage visitors to arrive at grade and increase pedestrian traffic at street level.

The waterfront site in the heart of New London provides a setting for the new museum that ensures the facility will contribute to and benefit from the vibrancy of the transportation hub and downtown business district. The rich history of New London is a significant factor to be considered in the design of the building. In particular, the structure is planned for the northern boundary of the City's historic district and is in direct dialog with Architect H.H. Richardson's celebrated train station.

The NCGM has been designed to ensure that the new museum would protect views to the train station and ensure it maintained its essential connection to the waterfront. To that end, the previous designs focused on glass and transparency to the waterfront, with a more closed-off attitude to the west facing the train station and downtown. The design was refined in response to consultation with the State Historic Preservation Office (SHPO) and public comments. The current design reflects this input through the following design features:

- Pedestrian Connector Path
  The pedestrian connector is required to extend from the parking garage to the waterfront providing access to points in-between including the train station north bound platform. Because it must pass between the catenary wire stanchions (train power line supports) placement of the connector is limited in the routes that can be mapped. Initially, the connector was slated to take a direct route from the parking garage to the waterfront. This required demolition of the existing brick bus station structure. While the SHPO determined during the 2014 Environmental Assessment process that this structure, while of interest, need not be preserved, the current design has been modified to avoid elimination of the existing brick structure while still maintaining access to the train platforms.

  The pedestrian connector now follows a sweeping path designed to stay as far north as possible, keeping well clear of the train station and reinforcing the sense of the Parade Plaza "urban room" that is currently defined by the train station to the east, older buildings on State Street to the south, and the more contemporary garage to the north. The pedestrian connector provides a natural extension of the garage demarcation and maintains a simple clarity of design and transparency that keeps it from competing with the existing architecture of New London.

  The new design for the connector also provides an extension to the south on the waterfront side so pedestrians can experience a comprehensive view of downtown New London and also an unfettered view of the train station from three sides.

- Connection to City Pier Plaza
  In response to the desire for the building to address the city as well as the waterfront, the design has been reconfigured so that the true front door now faces City Pier Plaza instead of the water. This reinforces the connection to the city and will create more activity on City Pier Plaza. This orientation will also help to define the museum and pedestrian connector as a natural terminus for the new river walk which currently extends from Shaw Cove up to the proposed site but then dead-ends at Cross Sound Ferry's property line and gravel parking lot.

  The new entrance also incorporates a multi-storied glass entrance vestibule on the southwest corner of the building. This placement is strategically selected to make the building feel lighter and more transparent as it nears the train station. This is particularly driven to provide views through the

building expanding the view to the train station from the waterfront and to the waterfront from the train platform and pedestrian connector.

Reinforcing the idea that the museum connects back to the City and train station, the glass entrance will include the signature Coast Guard exhibit of a helicopter with a suspended rescue swimmer.

- Waterfront Elevation
  The design of the museum has been understated when viewed from the City and more interactive when viewed from the water. This led to expanses of glass and transparency along the riverfront. In response to feedback received, the design has moved to a quieter, more sculptural expression that is defined by a pattern of repeated curved "sail" elements. This new approach allows the building to be transparent with vast expanses of glass near the train station, and then more opaque and restrained along the water's edge so that the building can more naturally fit in with the New London skyline and riverfront.

- Parade Plaza Elevation
  The attitude of the building as it faces the train station and Parade Plaza has similarly been studied and updated over the course of the design evolution. Most notably, the design incorporates a section of the pedestrian connector that cuts through the building providing continued views of Parade Plaza and the train station along the length of its eastern elevation.

  Following discussions with the SHPO, the general approach of the façade is to keep it neutral and preserve the idea of a backdrop for the train station. With the extensive transparency of entrance on the southeastern corner and the views into the pedestrian connector, the building addresses the urban context without overshadowing the train station. The intent is to keep the rest of the façade neutral and suppress the expression of other elements such as windows or other articulations.

Architecturally, it is understood that any new construction within the New London historic district will have an impact. The museum will be larger than its immediate neighbors, but its size has been reduced in response to this context. The goal is that this design will respond to the historic fabric and, within the constraints imposed by the site, be a respectful and reserved neighbor. From Parade Plaza, the building has a recessive posture. From the waterfront, the design is more textured, but more subdued than previous design concepts. The waterfront view is designed to work in conjunction with the view to the train station so that new and old are seen in partnership with one another.

This approach to the design is consistent with the Secretary of the Interior's Standards for the Treatment of Historic Properties which strive to preserve historic assets and ensure that new interventions remain distinct rather than copy traditional designs. The Standards are set to help instruct how new construction can be incorporated as a modification to a historic building or within a historic district, such as New London. Seen through the lens of the Standards, the museum design employs a modern architectural language so will not be confused with the City's historic architectural fabric. The site is also at the northern tip of the historic district, so with the careful planning of its relationship to the train station, the museum obscures very little of the City's historic skyline.

Even with the level of attention, and the hope that the project will bring significant benefit to the city through its operation, design efforts reflect additional measures that "mitigate" or compensate for unavoidable impacts. In many cases, development projects might document historic structures that are to be demolished, but that is not applicable in this instance. The pedestrian connector, however, provides an opportunity to convey the story of New London's past. Projecting curated panels on the north face of the pedestrian connector walls, the historic context can be explained as visitors are experiencing the panoramic view of the business district on the south facing glass of the connector. "

3. *Parking/Traffic* – Members of the public expressed concern relative to lack of parking in downtown New London available to future museum visitors.

   Response: As reported in SEA Section 3.14 (Affected Environment), 4.14 (Environmental Consequences) and 4.16 (Cumulative Impacts), approximately 325 parked vehicles generated by the NCGM would need to be accommodated within New London's downtown supply of parking during museum peak times. The SEA made use of peak summer parking demand data and analysis as presented in the *New London Downtown Transportation and Parking Study* (Milone & MacBroom, Inc., 2017). This assessment relied on data that was current at that time. The following additional narrative has been added to Section 4.16.2 of the FSEA:

   "As of the summer of 2016, the peak utilization rate of parking in downtown New London during the peak timeframe on Saturday afternoon was 74%. Factoring in future parking demand estimates attributable to (1) the NCGM; (2) ridership growth at nearby ferry operations; (3) lost parking at the NCGM site historically used by Cross Sound Ferry; (4) reoccupancy of vacant downtown building space; and (5) ridership growth from Shore Line East, Amtrak and Greyhound, existing parking supply could be over capacity during peak periods in the future. The City has recognized that parking in downtown New London will be challenging, even without the NCGM.

   According to the New London Parking Authority, for the past several years has been actively engaged in the analysis and management of parking in the City of New London's downtown area in an effort to maximize efficiency and stabilize demand in peak parking periods. As a part of the assessment process, in 2016 the City retained consulting services to evaluate traffic and parking in downtown New London. As part of the effort, data was collected on the availability of parking, as well as current and future parking demand. This work was undertaken with the understanding that the proposed National Coast Guard Museum project would have a parking demand of 325 spaces. With the results of the analysis, actions were taken by Parking Authority to ease the parking burden in the downtown New London waterfront area, resulting in at least 350 spaces being freed up as well as the following:

   - In 2016, the O'Neil-Tilley parking lots were out of service for refurbishing. These lots are now open to the public, providing approximately 201 spaces.

   - In 2017, the Parking Authority embarked on a program to remove derelict vehicles in the Water Street Parking Garage. This effort resulted in approximately 50 vehicles being removed, thus freeing up those spaces within the parking facility.

   - General Dynamics Electric Boat (EB) employs approximately three thousand five hundred (3,500) people in their New London location on Pequot Avenue. In an Agreement dated May 29, 2015 250) unreserved parking spaces in the Water Street Garage were leased to EB. Winter 2016, another 300 or more unreserved parking spaces were contracted by EB. Since that time, the Parking Authority has been working with EB to incentivize its employees through discounted rates to park closer to the Pequot Avenue facility, primarily via on-street parking in the Fort Trumbull area. This effort has resulted in a 50% reduction in EB employee use of the Water Street Parking Garage, to approximately 300 spaces. Moreover, the Parking Authority continues to collaborate with EB to further reduce their employee parking population in the Water Street Garage by utilizing newly acquired properties in Ft. Trumbull for commercial public parking.

   - The Parking Authority is seeking to expand the Water Street Parking Garage, which would add approximately 350 spaces. Other measures currently being explored include increasing public accessibility of private parking; improvements to the operation and management of downtown public parking system; and fostering increasing use of non-automobile transportation. In the future, the Parking Authority will be seeking additional parking improvement measures as current vacant downtown buildings are redeveloped.

- Finally, a Maryland-based real estate investment firm in October 2018 unveiled its plan for development in Fort Trumbull that will feature a mixed use parking garage. The parking garage is anticipated to provide further relief to the parking demand in downtown New London.

In light of the above, the USCG that the NCGM will have minimal impact on parking in the downtown New London area and that adequate parking will be available. A letter dated November 1, 2018 from the New London Parking Authority supporting this determination is included in FSEA Appendix A."

4. *Pedestrian Bridge* – Members of the public commented on the need for and cost of the proposed pedestrian bridge. Some of these comments were in the context of the lack of need for such a structure were the museum located at Fort Trumbull. One commenter indicated that the walkway would be an eyesore. Another member of the public urged that the bridge not be constructed over Water Street such that visitors would not be discouraged to spend time in the downtown area visiting local merchants.

   Response: It is noted that the pedestrian bridge is a separate but related project and not part of the USCG proposed action. This structure is discussed in SEA Section 4.16.1 under the cumulative impact analysis. The pedestrian bridge underwent separate environmental review under the Connecticut Environmental Policy Act (CEPA) and is currently undergoing Section 106 consultation as part of the NCGM consultation with SHPO. The structure would be funded, in whole or in part, by the State of Connecticut via the Department of Economic and Community Development (DECD) and would be constructed by the National Coast Guard Museum Association (NCGMA). Neither federal nor local New London taxpayer dollars will be used for its construction.

   The purpose of the pedestrian bridge is to provide a safe accessible connection between the proposed NCGM, the adjacent multimodal transportation hubs, parking, and area attractions and businesses along New London's downtown waterfront area. Existing obstacles to pedestrian safety include vehicular traffic (including passenger, bus, and taxi) and rail traffic. Given the concentration of people, activities, and moving train and roadway traffic, there is a need for an overpass that will allow pedestrians to safely access and navigate the downtown area (CEPA EIE, July 2014). The pedestrian bridge will have dropdown points on the eastern side of Water Street to serve the train station and on the water side of the active rail line. The two existing railroad crossings occur at-grade and require pedestrians to physically walk across the active tracks.

   In response to early consultations with SHPO, the pedestrian bridge design is sensitive in how the new structures would interact with Union Station and the downtown area around Parade Plaza. First, the pedestrian bridge would run in a curve that swings to the north, staying as far away from the train station as possible. This curved path of the bridge would define the northeast edge of Parade Plaza, preserving the sense of the outdoor "room" of open space that is flanked by the parking garage on the north and anchored by the train station's front elevation on the east. The bridge would also provide a prominent view into the downtown New London business district and an unencumbered view of the train station from three sides. No changes have been made in the FSEA on this topic.

5. *Public Process* – A number of individuals expressed dismay that their comments would not be considered or heeded and/or that public feedback would not be made available once it is received.

   Response: As documented in the 2014 EA and the 2018 Draft SEA, public involvement has been integral to the NEPA review process through public notification, individual and public meetings, and availability of draft and final documents. Refer to FSEA Sections 1.5 and 7.1 through 7.5. The design of the NCGM has undergone significant changes that were a direct result of public and agency comment. Refer to the response to item #2 above. The FSEA will include copies of all public comment received and the document will be made available to the public.

6. *Regulatory Requirements* – One member of the public commented that (1) the SEA is procedurally noncompliant with NEPA; (2) that the site was pre-selected; (3) that statements in the Draft SEA are purely

subjective; (4) that the museum would be illegally located on the waterfront; and (5) that Congress did not stablish a specific purpose and need for the facility.

Response: Both the 2014 EA and the 2018 Draft SEA have been undertaken in conformance with NEPA regulations and USCG guidance documents. This process is documented in the Draft and Final SEA. The SEA outlines the measures that were taken to comply with NEPA as well as the process for site selection, consistent with the statutory authorization. As presented in the SEA Section 1.1, the initial 0.34 acres of land was donated by the City of New London in 2014. As such, the SEA only modifies the site that was already selected. Data is presented in the SEA to support the statements made therein. The NCGM will seek all required approvals and permits prior to its construction, including a federal coastal consistency determination. Finally, the establishment of the NCGM was authorized by Congress. Federal actions of the nature described in the SEA do not require a further act of Congress.

7. *Shoreline Fill* – One member of the public noted that acquisition of land that is submerged under water will be unusable.

   Response: As presented in the SEA Section 2.3, the proposed action includes the placement of fill on top of land that is currently submerged under water. While this fill will not be used as structural support for the NCGM structure, it will support at-grade public access to both the museum and the waterfront and will eliminate the potential for watercraft to gain access beneath the museum, a security requirement for federal buildings. An approximately 3,100-square-foot area of City Pier Plaza promenade would be removed to provide open water in recognition that approximately the same area of currently open water would be filled to support the development of the NCGM. As noted in the SEA, necessary authorization for the intended action will be sought from the authorities having jurisdiction, including the City of New London, CT DEEP, and the Army Corps of Engineers.

8. *Cost* – Several commenting public members identified a high cost associated with the NCGM.

   Response: As presented in the SEA, the NCGM would be constructed using private funds raised by the NCGMA. The USCG would bear the cost of the museum exhibits with federal funds to the extent appropriated and the intent is for the CG to own and operate the museum. The separate but related pedestrian bridge would be constructed using State dollars through the CT DECD. Following construction, the intent is that the City of New London will take over ownership, operation, and maintenance of the pedestrian bridge. That intent is documented in a Memorandum of Agreement dated February 19, 2014 among the NCGMA, the USCG, the City of New London, and the State of Connecticut.

9. *Construction Related Impacts* – At least one member of the public commented on the disruption of downtown businesses during construction that could take several years to complete. Specific topics of concern included slowed traffic, parking challenges, dug up streets, dust, and noise.

   Response: Construction impacts have been extensively evaluated in the SEA and appropriate measures have been included in the proposed action that would minimize construction related impacts. These include off-site staging areas, the use of river access, and designation of dedicated vehicular access plans. As stated in the Draft SEA, a Maintenance and Protection of Traffic Plan would be developed prior to construction. Refer to SEA Sections 2.3. (Proposed Action), 2.4 (Best Management Practices and Project-Incorporated Protection Measures, 4.3 (Air Quality), and 4.4 (Noise).

APPENDIX A11

POST-COMMENT PERIOD CORRESPONDENCE

PARK NEW LONDON
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AUTHORITY
ADMINISTRATIVE OFFICES

November 1, 2018

Richard J. Grahn, Esq., President/CEO
National Coast Guard Museum Association, Inc.
78 Howard Street, Suite A
New London, CT 06320

RE: National Coast Guard Museum/Pedestrian Access Project
City of New London, Connecticut

Dear Mr. Grahn:

The New London Parking Authority ("Parking Authority") for the past several years has been actively engaged in the analysis and management of parking in the City of New London's ("City") downtown area in an effort to maximize efficiency and stabilize demand in peak parking periods. As a part of the assessment process, in 2016 the City retained consulting services to evaluate traffic and parking in downtown New London. As part of the effort, data was collected on the availability of parking, as well as current and future parking demand. This work was undertaken with the understanding that the proposed National Coast Guard Museum project would have a parking demand of three hundred twenty-five (325) spaces. With the results of the analysis actions were taken by Parking Authority to ease the parking burden in the downtown New London waterfront area, resulting in at least three hundred fifty (350) spaces being freed up as well as the following:

- In 2016, the O'Neil-Tilley parking lots were out of service for refurbishing. These lots are now open to the public, providing approximately two hundred one (201) parking spaces.
- In 2017, the Parking Authority embarked on a program to remove derelict vehicles in the Water Street Parking Garage. This effort resulted in approximately fifty (50) vehicles being removed, thus freeing up those spaces within the parking facility.
- General Dynamics Electric Boat (EB) employs approximately three thousand five hundred (3,500) people in their New London location on Pequot Avenue. In an Agreement dated May 29, 2015 two hundred and fifty (250) unreserved parking spaces in the Water Street Garage were leased to EB. Winter 2016, another three hundred plus (300+) unreserved parking spaces were contracted by EB. Since that time, the Parking Authority has been working with EB to incentivize its employees through discounted rates to park closer to the Pequot Avenue facility, primarily via on-street parking in the Fort Trumbull area. This effort has resulted in a 50% reduction in EB employee use of the Water Street Parking Garage, to approximately three hundred (300) spaces. Moreover, the Parking Authority continues to collaborate with EB to further reduce their employee parking population in the Water Street Garage by utilizing newly acquired properties in Ft. Trumbull for commercial public parking.

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- The Parking Authority is seeking to expand the Water Street Parking Garage, which would add approximately three hundred and fifty (350) parking spaces. Other measures currently being explored include increasing public accessibility of private parking; improvements to the operation and management of downtown public parking system; and fostering increasing use of non-automobile transportation. In the future, the Parking Authority will be seeking additional parking improvement measures as current vacant downtown buildings are redeveloped.

- Finally, a Maryland-based real estate investment firm several weeks ago unveiled its plan for development in Fort Trumbull that will feature a mixed use parking garage. The parking garage is anticipated to provide further relief to the parking demand in downtown New London.

Given the recent efforts undertaken by the New London Parking Authority, as well as ongoing efforts and planned improvements moving forward, it is the Parking Authority's opine that the National Coast Guard Museum will have minimal impact on parking in the downtown area and that adequate parking will be available.

Very truly yours,

Carey. E. Redd II, CAPP
Director of Parking/CEO
New London Parking

City of New London
Office of the Mayor
181 State Street • New London, CT 06320 • Phone (860) 447-5201 • Fax (860) 447-7971

October 31, 2018

Richard J. Grahn, Esq., President/CEO
National Coast Guard Museum Association, Inc.
78 Howard Street, Suite A
New London, CT 06320

RE: National Coast Guard Museum/Pedestrian Access Project
City of New London, New London County, Connecticut

Dear Mr. Grahn:

This letter is intended to express the City's favorable position regarding the proposed National Coast Guard Museum and the related public access improvements as outlined in the draft Supplemental Environmental Analysis published on August 2, 2018. I want to acknowledge that over the past two years, presentations have been made by the Museum Association to the Mayor, the City Council, city planners, and the public regarding the proposed museum design and public access improvements to the site all in accordance with the February 19, 2014 Memorandum of Agreement among the National Coast Guard Museum Association, Inc. (NCGMA), the United States Coast Guard (USCG), the City of New London, and the State of Connecticut.

As a result of those presentations, we understand that the work is envisioned to proceed in stages with which we support, consisting of:

a. consolidated design, permitting, and possible land transfers for the museum, bulkhead and fill, and the public access features of the project, including an elevated pedestrian walkway to safely deliver patrons from the city owned parking garage, across Water Street, to the AMTRAK platform, the museum, Cross Sound Ferry and the waterfront, as well as to return those patrons to engage with businesses in downtown New London;

b. site work for the public access improvements, including opening access to the river by removing a portion of the City Pier Plaza for creation of possible public water attractions, as well as creation of an arc of bulkhead from City Pier to the property of Cross Sound Ferry to the north and adding an approximately equivalent amount of fill to provide appropriate shoreline stabilization for the project, reconfiguring the existing retaining wall, emergency siren, and utility services to maintain and improve the emergency access along the railroad right of way, and removing a portion of the floating docks during construction. We concur with the view that construction of these public access improvements should occur first and be timed so as to minimize to the fullest extent possible disruption of the traditional activities on the waterfront;

c. site work for the museum consisting of foundation pilings and storm water retention facilities;

d. site work for the pedestrian bridge to be coordinated with AMTRAK and the City of New London;

e. commencement of coordinated construction of the museum and public access walkway; and

f. no additional request for City funding.

While the City has not yet been asked to formally authorize all of the activities as outlined above, and cannot do so until final designs, permits, and other authorizations, including those required from the City Council, have been obtained, I am pleased to report that the City endorses the project as proposed and requests that the development team proceed with the final design for our review and permitting in the manner proposed.

Very truly yours,

Michael E. Passero
Mayor

Connecticut
still revolutionary

Department of Economic and Community Development

State Historic Preservation Office

January 18, 2018

Note: The date of this correspondence is incorrectly listed as January 18, 2018. The actual date was January 18, 2019.

Mr. Dean Amundson
Environmental Planning
United States Coast Guard
1301 Clay Street, Suite 700N
Oakland, CA 94612-5203

Subject: Supplemental Environmental Assessment
United States Coast Guard Museum
New London, Connecticut

Dear Mr. Amundson,

The United States Coast Guard (USCG) will be acquiring land and allowing the United States Coast Guard Museum Association, Inc. (USCGMA) to construct an approximately 80,000 square foot museum on the parcel, which subsequently will be donated to the USCG upon completion. As a result of the proposed actions, the USCG has taken a streamlined approach to the project by integrating the requirements of the National Environmental Policy Act with Section 106, the implementing regulations of the National Historic Preservation Act, (36 CFR 800). The USCG initiated consultation with the Connecticut State Historic Preservation Office (SHPO) during 2014 regarding the above-referenced undertaking. Since that time, the museum designs and requirements have been refined and have been presented to the public in the Supplemental Environmental Assessment (SEA) dated July 2018. SHPO has reviewed this document, understands the purpose and need of the project, and offers no objection to the proposed preferred build alternative. This office recognizes that consultation is ongoing and offers the following comments and corrections to the SEA:

- Section 3.9, page 3-18, update the legal reference for compliance with the National Historic Preservation Act from 16 USC 470f to its new location 54 USC 306108.
- Section 3.9.2, page 3-19, states that different Areas of Potential Effect (APE) were developed, but there is no information as to how they were developed or what they encompass. Specifically, does the archaeological APE take into consideration proposed temporary or permanent utility corridors? What is the extent of the APE for aboveground resources? The SEA states that both direct and indirect effects of the proposed museum were taken into account, but there is no explanation of either APE or methods employed to determine the APE. Please elaborate on the development and actual extent of all APEs used for analysis.

- Section 3.9.2, page 3-19, references Section 106 correspondence with SHPO regarding the APEs, but the appendix does not contain such correspondence. Please correct the incongruence.
- Section 3.9.2, page 3-19, SHPO is concerned about the summary of relevant National Properties being taken into consideration. First, the Downtown New London Historic District is in the National Register Information System (NRIS) as resource #79002665. The SEA refers to it as NRIS #88000070, which is a nomination for a boundary increase to the district. SHPO does not know if the author considered both properties in the discussion or if it only represents one portion of the district.
- Section 3.9.2, page 3-19, states that, "a detailed evaluation of potential effects on historic resources was not performed" for the laydown areas. SHPO request information as to whether or not **any** analysis had been completed for the laydown areas. If so, SHPO requests that this information be presented, at a minimum in the form of a table. SHPO does not have adequate information to concur with recommendations regarding the laydown areas at this time. SHPO also recognizes that as construction plans change, the laydown areas may need to be adjusted. An appropriate summary now can facilitate any review of future changes so that there are no impacts to the construction schedule. This comment is repeated for Section 4.9.2, page 4-23.
- Section 3.9.2, page 3-19, Figure 3.9.-1 is described as showing "noteworthy historical architectural resources." Please explain the criteria used to define something as noteworthy?
- Section 3.9.2, pages 3-21 to 3-22, only discuss four of the National Register listed properties located in the vicinity of the project parcel. There is no explanation as to why only these four properties and not all properties are included in this discussion or depicted in the referenced figure. SHPO records indicate that there are at least 10 National Register Properties, including two districts, which also should be depicted on Figure 3.9-1. Many of the missing properties are in closer proximity than ones given consideration for analysis. Please provide an explanation for why all historic properties were not considered. In particular, why was the individually listed New London Railroad Station, the source of all consultation with SHPO, **not** given special consideration? SHPO is deeply concerned about the lack of detail, understanding, and consideration given to National Register listed properties that may be impacted by the proposed museum. Was an architectural survey or any relevant architectural fieldwork completed as part of the analysis? Are there any properties not listed, but eligible for listing with the APE for the undertaking?

- Section 3.9.2, pages 3-22 through 25, while SHPO appreciates the cartographic analysis and consideration of previous cultural resources investigations, known archeological sites are not included in the discussion. As with the discussed prior investigations, this information should be used to inform any management decisions. Were previously reported archaeological sites taken into consideration? SHPO records indicate that there are 10 archeological sites reported within ½ mile of the proposed museum location. When compared to other locations in the state, this is a considerable amount of information and should be used to inform management decisions.
- Section 4.9.2, page 4-19, please change the opening sentence from "will diminish" to "has the potential to diminish." Because not all design choices have been made and not all historic properties were taken into consideration, SHPO does not have information to support such a definitive statement.
- Section 4.9.2, page 4-19, it may be important to clarify that the language being used for evaluation of the proposed action alternative is relative to the National Historic Preservation Act. It is likely that the proposed action will have no significant impact pursuant to the National Environmental Policy Act.
- Section 4.9.2, page 4-19, Table 4.9-1, what are the record numbers referenced after the property name in the table? If a record number is to be included, please use the standard National Register Information System number. Also, please refer to prior comments regarding the singular consideration of these four historic properties.
- Section 4.9.2, page 4-19, Table 4.9-1, are the listed "character-defining feature(s)" described in the National Register nomination as character defining features? Or, are these listed impacts referencing diminished aspects of integrity? Please refer to 36 CFR 800.5 and explain.
- Section 4.9.2, page 4-19, Table 4.9-1, to SHPO's knowledge, no determination of effect has been made because the potential exists for continued design changes. In addition, and elaborated upon below, SHPO has concerns regarding the determination of effects presented in the SEA.
- Section 4.9.2, page 4-19, the description presented for the New London Downtown Historic District appears to be from the nomination for a boundary increase to the district. Was the entire district taken into consideration because the boundary descriptions do not appear to match SHPO files? In addition, the last two sentences of the first paragraph describe coming down Broad Street. It would appear that the reference is actually to State Street. Please clarify or correct.

- Section 4.9.2, pages 4-19 and 4-20, the proposed museum is located outside the northeastern boundary of the Downtown New London Historic District. The historic setting at this location quickly gives way to modern development. This should be taken into consideration when discussing potential effects.
- Section 4.9.2, pages 4-19 to 4-23, while SHPO acknowledges that the proposed museum will have a visual effect on adjacent historic properties, SHPO does not agree that the presented arguments for an adverse effect have been established or are appropriate relative to information provided in the National Register nomination. Simply being visible from a historic property does not qualify as an adverse effect. Again, please refer to 36 CFR 800.5.
- Section 4.9.2, pages 4-22 and 4-23, as noted in the SEA, design choices are still to be decided before assessments can made regarding the compatibility of design. This discussion has been ongoing and SHPO looks forward to additional discussions regarding design decisions to minimize impacts to historic resources, especially the New London Railroad Station, a property individually listed on the National Register of Historic Places and situated immediately adjacent to the proposed project parcel.
- Section 4.16.1, pages 4-41 and 4-42, SHPO appreciates the brief discussion and analysis of future related projects. This office primarily has been concerned with the pedestrian overpass project. During prior consultation, SHPO requested that the overpass be moved as far north as possible to give space to the New London Railroad Station, that the overpass should have as few support pillars as possible, and that the construction materials and design choices should be sympathetic to the New London Railroad Station. SHPO supports the configuration depicted in the SEA, but understands that final design decisions remain outstanding. Again, SHPO looks forward to additional consultation regarding these design decisions to minimize impacts to historic resources

SHPO appreciates USCG, and the USCGMA on their behalf, to streamline the NEPA and Section 106 processes; however, the documentation provided in the SEA does not satisfy the requirements of Section 106. To date, SHPO consultation only has been conducted through telephone or in-person meetings. Because this office is discouraged by 1) the conflicting findings of effect throughout the document, 2) an inaccurate discussion of historic properties that may be impacted, 3) an apparent misunderstanding of how to apply the criteria of adverse effect (36 CFR 800.5), or 4) specific analysis of ancillary facilities; we request a formal cultural resources management report pursuant to Section 106. The report should be a professionally written technical document that demonstrates knowledge and understanding of the cultural environment, consideration of previously completed investigations, identification of listed and eligible

resources that may be impacted by the project, a detailed analysis of the effects of the project on the identified cultural resources, methods employed, and comprehensive management recommendations. However, based on our discussions and knowledge of the project as presented in the SEA, SHPO anticipates that for the purposes of the National Environmental Policy Act, there will be no significant impacts to historic resources.

SHPO appreciates the opportunity to review and comment upon this project and our office looks forward to additional consultation as the project moves forward. For additional information, please contact me at (860) 500-2329 or catherine.labadia@ct.gov.

Sincerely,

Catherine Labadia
Deputy State Historic Preservation Officer

cc (via email): Pulver, NCGMA
Saunders, Historical Perspectives

APPENDIX B

Coastal Consistency Determination

Appendix B1 – Coastal Management Consistency Review Form for Federal Action

Appendix B2 – CT DEEP Concurrence Determination

APPENDIX B1

COASTAL MANAGEMENT CONSISTENCY REVIEW FORM FOR FEDERAL ACTION

Connecticut Department of
Energy & Environmental Protection
Bureau of Water Protection & Land Reuse
Office of Long Island Sound Programs

Coastal Management Consistency Review Form for Federal Activities

Use of this form, although not mandatory, will facilitate coastal consistency review analysis by the Federal agency and result in submission of sufficient information for comprehensive review by the Department of Energy and Environmental Protection (DEEP) Office of Long Island Sound Programs (OLISP). It is anticipated that submittal of a completed form with indicated supplemental materials will, in most instances, eliminate the need for further information. The form should be used in conjunction with the *Reference Guide to Coastal Policies and Definitions* (DEEP-OLISP-GUID-200). The *Instructions and Guidance for Completing the Federal Coastal Consistency Review Form for Federal Activities* (DEEP-OLISP-INST-300) explains how to complete this form and provides several critical definitions and pertinent guidance. Once completed, please submit this form with the appropriate supporting documentation to: CT DEEP-OLISP, 79 Elm Street, Hartford, CT 06106-5127. For further information or assistance in completing this form, please contact us at the address above or by phone at 860-424-3034.

Part I: Federal Agency and Contact Identification

Agency Name: **United States Coast Guard**

Mailing Address: **1301 Clay Street; Suite 700N**

City/Town: **Oakland** State: **CA** Zip Code: **94612-5203**

Business Phone: **(510) 637-5541** ext. **N/A** Fax: **(510)637-5500**

Agency Contact: **Dean Amundson** Title: **Env. Planning Program Manager**

E-Mail: **Dean.J.Amundson@uscg.mil**

Identification of Primary Contact for correspondence if other than Agency Contact noted above:

Company Name: **Milone & MacBroom, Inc.**

Mailing Address: **99 Realty Drive**

City/Town: **Cheshire** State: **CT** Zip Code: **06410**

Business Phone: **203.271.1773** ext. **250** Fax: **(203) 272-9733**

Contact Person: **Megan B. Raymond** Title: **Lead Environmental Scientist**

E-Mail: **MRaymond@mminc.com**

Part II: Review Type and Project Title

Type of Review (check one):

☒ Federal Development Project ☐ Negative Determination

☐ Other Federal agency activity (specify general type):

Project Title or Other Identification:

National Coast Guard Museum

Part III: Other DEEP Involvement with the Project

Is any component of this activity directly regulated by DEEP separate from the Federal Coastal Consistency Process (e.g., 401 Water Quality Certification)? ☒ Yes ☐ No

If yes, list below all DEEP permits, certifications, or other authorizations being pursued for this activity, and describe the regulated activity/ies:

Natural Diversity Database (NDDB) State Listed Species Review

☐ Check if additional sheets are attached to this page

Has any other unit of the DEEP been contacted regarding this activity? ☒ Yes ☐ No

If yes, please identify other Departmental contacts:

Bureau of Natural Resources Wildlife Division

☐ Check if additional sheets are attached to this page

Part IV: Detailed Project Information

1. Description of Proposed Activity

Describe the proposed federal activity including its purpose and all related actions. For site-specific activities, such actions might include: site clearing, grading, demolition, and other site preparations; percentage of increase or decrease in impervious cover from existing conditions resulting from the activity; phasing, timing, and method of proposed construction; and new uses and changes from existing uses. For site-specific activities proposed at waterfront sites, provide detailed information regarding any water-dependent uses proposed. For non-site specific activities, include a complete description of the proposed activity and its purpose.

The U.S. Coast Guard (USCG or Coast Guard) is proposing to allow the National Coast Guard Museum Association (NCGMA) to construct an approximately 80,000 square-foot museum on a 0.34-acre site in downtown New London, Connecticut on land owned by the Coast Guard. The proposed federal action, as described in the 2014 Environmental Assessment (EA) under the National Environmental Policy Act (NEPA), consisted of USCG acquisition, by gift, of a 0.34-acre parcel of land on Water Street in downtown New London, allowing the National Coast Guard Museum Association (NCGMA) to construct a museum on the acquired property, and potential acquisition and long-term operation of the museum by the U.S. Coast Guard (USCG).

The USCG acquired the 0.34-acre parcel from the city of New London in 2014. At that time, a Coastal Consistency Review application was submitted to CT DEEP but was not acted upon. Changes to the proposed action as evaluated in the 2018 Supplemental Environmental Assessment (SEA) include the acquisition of additional land as well as changes to the museum design that affect its size, footprint, related in-water activities, and the overall relationship of the building to the surrounding area. Since construction of a museum and shoreline improvements will be an indirect effect of the proposed Coast Guard actions, the potential impacts of such construction and long-term operation are evaluated herein.

☐ Check if additional sheets are attached to this page

Part IV: Detailed Project Information (cont.)

2. Is the Project Site-Specific?

☒ Yes Please continue with Part IV and fill out all subsequent parts of the form.

☐ No Skip to Part V: Identification of Applicable Enforceable Policies

3. Location Information

a. Project Address, Location, or Affected Area: **Water Street near Union Station**

City/Town: **New London** State: **CT** Zip Code: **06320**

b. Agency's interest in property, if any:

☐ fee simple ☐ option ☐ lessee ☐ easement ☐ not applicable

☒ other (specify): **Property Owner**

c. Is the activity proposed at a waterfront site (includes tidal wetlands frontage) or within coastal, tidal or navigable waters? ☒ Yes ☐ No

If yes, name the affected coastal, tidal or navigable waters:

Thames River

d. If off-site effects on coastal uses and/or resources are anticipated, identify the address or location(s) of such effects and attach a map (8 ½" x 11" format) indicating this area:

N/A

☐ Check if additional sheets are attached to this page

☐ Check here to indicate map is enclosed.

e. If the Federal project is site specific, identify and describe the existing land use on and adjacent to the site of the proposed activity and any anticipated location(s) of off-site effects on coastal resources or uses. Clearly differentiate between the descriptions of on-site and off-site areas. Include any existing structures and significant features at either location.

The project site is currently an existing compacted gravel parking lot, and the northern portion of the pile-supported City Pier Plaza. City Pier Plaza is a public pier that provides waterfront access with no other amenities. Adjacent to the site is Union Railroad Station.

☒ Check if additional sheets are attached to this page

f. Indicate the area of the project site: **0.34** ☒ acres or ☐ square feet

g. Indicate the area of any anticipated off-site effects: **N/A**

☐ acres or ☐ square feet or ☐ other units (specify units):

Part IV: Detailed Project Information (cont.)

4. Project Plans

If the proposed Federal activity is a "Federal Development Project", or other site specific activity, please provide project plans in 8 ½" x 11" format that clearly and accurately depict the following items, and check the appropriate boxes to indicate that the information is included in this review package:

- ☒ Project location
- ☒ Existing and proposed conditions, including buildings and grading
- ☒ Coastal resources on and contiguous to the site
- ☒ High Tide Line [as defined in CGS § 22a-359(c)], Mean High Water, and Mean Low Water elevations and contours (for parcels abutting coastal waters and/or tidal wetlands only)
- ☒ Soil erosion and sediment controls
- ☒ Stormwater management measures
- ☒ Ownership and type of use on adjacent properties
- ☒ Reference datum (i.e., National Geodetic Vertical Datum, Mean Sea Level, etc.)

If a Spill Prevention, Control, and Containment Plan (SPCC) has been developed for this site, please provide a copy in the review package and check here to indicate its inclusion ☐

Part V: Identification of the Applicable Enforceable Policies

In this Part, there are four tables which should be completed by checking the appropriate boxes in each. Table 1: *Coastal Resources and Associated Enforceable Policies*, is to identify on-site, adjacent, and/or potentially affected State-statutorily defined coastal resources. Table 2: *Coastal Uses and Associated Enforceable Policies*, is to identify existing and proposed State-statutorily defined coastal uses potentially affected by the project. Table 3a: *Potential Adverse Impacts on Coastal Resources* and Table 3b: *Potential Adverse Impacts on Water-dependent Uses and Opportunities* is to identify State-statutorily-defined adverse impacts.

Table 1

Coastal Resources and Associated Enforceable Policies	On-site	Adjacent	Affected by the proposed Federal activity**
General Coastal Resources* - Definition: CGS § 22a-93(7) Policy: CGS § 22a-92(a)(2)	☒	☒	☒
Beaches & Dunes - Definition: CGS § 22a-93(7)(C) Policies: CGS §§ 22a-92(b)(2)(C) and 22a-92(c)(1)(K)	☐	☐	☐
Bluffs & Escarpments - Definition: CGS § 22a-93(7)(A) Policy: CGS § 22a-92(b)(2)(A)	☐	☐	☐
Coastal Hazard Area - Definition: CGS § 22a-93(7)(H); Policies: CGS §§ 22a-92(a)(2), 22a-92(a)(5), 22a-92(b)(2)(F), 22a-92(b)(2)(J), 22a-92(c)(1)(K), and 22a-92(c)(2)(B)	☒	☒	☐
Coastal Waters, Estuarine Embayments, Nearshore Waters, Offshore Waters - Definitions: CGS §§ 22a-93(5), 22a-93(7)(G), 22a-93(7)(K), and 22a-93(7)(L); Policies: CGS §§ 22a-92(a)(2) and 22a-92(c)(2)(A)	☒	☒	☐
Developed Shorefront - Definition: CGS § 22a-93(7)(I); Policy: CGS § 22a-92(b)(2)(G)	☒	☒	☐
Freshwater Wetlands and Watercourses - Definition: CGS § 22a-93(7)(F) Policy: CGS § 22a-92(a)(2)	☐	☐	☐
Intertidal Flats - Definition: CGS § 22a-93(7)(D) Policies: CGS § 22a-92(b)(2)(D) and 22a-92(c)(1)(K)	☐	☐	☐
Islands - Definition: CGS § 22a-93(7)(J) Policy: CGS § 22a-92(b)(2)(H)	☐	☐	☐
Rocky Shorefront - Definition: CGS § 22a-93(7)(B) Policy: CGS § 22a-92(b)(2)(B)	☐	☐	☐
Shellfish Concentration Areas - Definition: CGS § 22a-93(7)(N) Policy: CGS § 22a-92(c)(1)(I)	☐	☒	☐
Shorelands - Definition: CGS § 22a-93(7)(M) Policy: CGS § 22a-92(b)(2)(I)	☐	☐	☐
Tidal Wetlands - Definition: CGS § 22a-93(7)(E) Policies: CGS §§ 22a-92(a)(2), 22a-92(b)(2)(E), and 22a-92(c)(1)(B)	☐	☐	☐

* The General Coastal Resource Policy is applicable to all proposed activities within Connecticut's coastal boundary and coastal area.

** The coastal resources affected by the project can be on-site, adjacent, or further removed from the project site.

Table 2

Coastal Uses and Associated Enforceable Policies	
☒	General Development* - CGS §§ 22a-92(a)(1), 22a-92(a)(4), and 22a-92(a)(9)
☐	Boating - CGS § 22a-92(b)(1)(G), 22a-92(b)(1)(H), and 22a-92(b)(1)(I)
☒	Coastal Recreation and Access - CGS §§ 22a-92(a)(2), 22a-92(a)(6), 22a-92(c)(1)(J), and 22a-92(c)(1)(K)
☒	Coastal Structures and Filling - CGS § 22a-92(a)(2), 22a-92(b)(1)(D), 22a-92(c)(1)(B), 22a-92(c)(1)(K), and 22a-92(c)(2)(B)
☒	Cultural Resources – CGS § 22a-92(b)(1)(J)
☐	Dams, Dikes and Reservoirs - CGS § 22a-92(a)(2)
☐	Dredging and Navigation - CGS §§ 22a-92(a)(2), 22a-92(c)(1)(C), 22a-92(c)(1)(D), and 22a-92(c)(1)(E)
☐	Energy Facilities - CGS §§ 16-50g and 16-50p(a)
☒	Fisheries - CGS § 22a-92(c)(1)(I)
☐	Flooding and Erosion - CGS § 22a-92(a)(5)
☐	Fuel, Chemicals and Hazardous Materials - CGS §§ 22a-92(a)(2), 22a-92(b)(1)(C), 22a-92(b)(1)(E) and 22a-92(c)(1)(A)
☐	Facilities and Resources which are in the National Interest - Definition CGS § 22a-93(14) - Policy CGS 22a-92(a)(10)
☐	Intergovernmental Coordination - CGS § 22a-92(a)(9)
☐	Open Space and Agricultural Lands - CGS § 22a-92(a)(2)
☐	Ports and Harbors – CGS § 22a-92(b)(1)(C)
☐	Sewer and Water Lines - CGS § 22a-92(b)(1)(B)
☐	Solid Waste - CGS § 22a-92(a)(2)
☒	Transportation - CGS §§ 22a-92(b)(1)(F), 22a-92(c)(1)(F), 22a-92(c)(1)(G), and 22a-92(c)(1)(H)
☒	Water-dependent Uses** - Definition CGS § 22a-93(16) - Policies CGS §§ 22a-92(a)(3) and 22a-92(b)(1)(A)

* The General Development Policy is applicable to all proposed activities within Connecticut's coastal boundary and coastal area.

** The Water-Dependent Uses Policies are applicable to all activities proposed at waterfront sites, including those sites with only tidal wetlands frontage.

Identification of State Statutorily Defined Potential Adverse Impacts

In Tables 3a and 3b, identify the adverse impact categories that apply to the proposed Federal activity. The "Applicable" column **must be checked** if the proposed activity has the **potential** to generate any of the State-statutorily defined adverse impacts, even if the activity is designed to avoid such impacts. Also indicate, by checking the appropriate boxes, whether the potential adverse impacts have been avoided or minimized and whether any resource compensation is proposed.

Table 3a

Potential Adverse Impacts on Coastal Resources	Applicable	Impacts Are Avoided	Impacts Are Minimized	Compensation Is Proposed	Not Applicable
Characteristics and Functions of Resources - CGS § 22a-93(15)(H)	☒	☐	☒	☐	☐
Coastal Flooding - CGS § 22a-93(15)(E)	☒	☒	☐	☐	☐
Coastal Waters Circulation Patterns - CGS § 22a-93(15)(B)	☒	☐	☒	☐	☐
Drainage Patterns - CGS § 22a-93(15)(D)	☒	☒	☐	☐	☐
Patterns of Shoreline Erosion and Accretion - CGS § 22a-93(15)(C)	☒	☒	☐	☐	☐
Visual Quality - CGS § 22a-93(15)(F)	☒	☐	☒	☐	☐
Water Quality - CGS § 22a-93(15)(A)	☒	☒	☐	☐	☐
Wildlife, Finfish, Shellfish Habitat - CGS § 22a-93(15)(G)	☒	☒	☐	☐	☐

Table 3b

Potential Adverse Impacts on Water-dependent Uses and Opportunities	Applicable	Impacts Are Avoided	Impacts Are Minimized	Compensation Is Proposed	Not Applicable
Locating a non-water-dependent use at a site physically suited for, or planned for location of, a water-dependent use - CGS § 22a-93(17)	☐	☐	☐	☐	☒
Replacing an existing water-dependent use with a non-water-dependent use - CGS § 22a-93(17)	☐	☐	☐	☐	☒
Siting a non-water-dependent use which would substantially reduce or inhibit existing public access to marine or tidal waters - CGS § 22a-93(17)	☐	☐	☐	☐	☒

Part VI: Consistency Analysis

Explain how the proposed activity is consistent with all of the applicable enforceable policies identified in Part V, why any remaining adverse impacts resulting from the proposed activity or use have not been mitigated, and why the project as proposed is consistent with the enforceable policies of Connecticut's Coastal Management Program*.* If an adverse impact **may** result from the proposed Federal activity, describe what project design features may be used to eliminate, minimize, or mitigate the potential for adverse impacts. For proposed Federal Development Projects, please describe the stormwater best management practices that will be utilized. Such systems should be designed to meet the guidance provided in the accompanying instructions.

No work is proposed on the subject parcel or potential laydown areas that would degrade any of the interests identified within the CAM zone. Construction of the proposed museum represents redevelopment of an urban waterfront parcel and includes significant meaningful public access to and along the waterfront. Museum design and construction will be FEMA/NFIP compliant, based on conservative estimates of sea level rise and flood hazards. The constructed museum and related site improvements will not increase impervious area on the site, since its current state is largely hard pack gravel, which for the past several decades has been used as parking overflow. The museum construction will replace parking lot/conctrete plaza runoff with relatively clean roof runoff. The site design incorporates water quality enhancements such as a light colored roof to ensure the discharge from the site will not modify existing water chemistry and a stormwater cistern. Though some fill seaward of the coastal jurisdiction line is proposed, this improvement will not impair the integrity of adjacent coastal resources and is considered in scale with the adjacent developed shorefront areas.

☒ Check if additional sheets are attached to this page

Part VII: Level of Consistency and Identification of Legal Authority that Prohibits Full Consistency, if Applicable

Federal regulations allow Federal activities to be less than fully consistent with a State's enforceable policies **only** if "full consistency is prohibited by existing law applicable to the Federal Agency" [15 CFR 930.32]. Please check the appropriate box below to indicate the activities degree of consistency.

☒ Project is *fully* consistent with Connecticut's enforceable policies

☐ Project is *not fully* consistent with Connecticut's enforceable policies, but is consistent to the maximum extent practicable

If the proposed Federal Activity described in this form is not *fully* consistent with Connecticut's enforceable policies, but only consistent to the maximum extent practicable, in accordance with 15 CFR 930.32, please identify and describe the statutory provisions, legislative history, or other legal authority which limits the federal agency's discretion to comply fully with Connecticut's Coastal Management Program. Please attach additional pages if necessary. Attach copies of the relevant statutory provisions, legislative history, or other legal authority cited.

☐ Check if additional sheets are attached to this page

Part VIII: Coastal Zone Management Act Consistency Statement

Note: This Part *must* be completed for all submissions

In this Statement "Federal Agency" means:

United States Coast Guard

and "the project" means:

National Coast Guard Museum

This document provides the State of Connecticut Coastal Management Program with the required Consistency Determination under CZMA Section 307(c)(1) [or (2)] and 15 CFR Part 930, Subpart C, for the project described in this *Coastal Mangement Consistency Review Form for Federal Activities*. This determination is provided by the Federal Agency identified above. The information in this Consistency Determination is provided pursuant to 15 CFR Section 930.39. The Federal Agency has determined that the project affects the land or water uses or natural resources of Connecticut as described above. Based on the information, data, and analysis included in the *Coastal Mangement Consistency Review Form for Federal Activities* for the project, the Federal Agency has determined that the proposed activity is consistent to the maximum extent practicable with the enforceable policies of the Connecticut Coastal Management Program as evaluated in this form.

Pursuant to 15 CFR Section 930.41, the Connecticut Coastal Management Program has 60 days from receipt of this form in which to concur with or object to this Consistency Determination, or to request an extension under 15 CFR Section 930.41(b).

Part IX: Certifying Signatures

"I have personally examined and am familiar with the information submitted in this document and all attachments thereto, and I certify that based on reasonable investigation, including my inquiry of the individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief."

Signature of Certifier	Date
Dean J. Amundson Name of Certifier (print or type)	**Env. Planning Program Manager** Title (if applicable)
Signature of Preparer	Date
Megan B. Raymond Name of Preparer (print or type)	Lead Environmental Scientist Title (if applicable)

CONSISTENCY WITH APPLICABLE STATUTORY COASTAL GOALS AND POLICIES

1.0 BACKGROUND

1.1 Description of Project

The U.S. Coast Guard (USCG or Coast Guard) is proposing to allow the National Coast Guard Museum Association (NCGMA) to construct an approximately 80,000 square-foot museum on a site in downtown New London, Connecticut on land owned by the Coast Guard. The proposed federal action, as described in the 2014 Environmental Assessment (EA) under the National Environmental Policy Act (NEPA), consisted of USCG acquisition, by gift, of a 0.34-acre parcel of land on Water Street in downtown New London, allowing the National Coast Guard Museum Association (NCGMA) to construct a museum on the acquired property, and potential acquisition and long-term operation of the museum by the U.S. Coast Guard (USCG).

The USCG acquired the 0.34-acre parcel from the city of New London in 2014. At that time, a Coastal Consistency Review application was submitted to CT DEEP and DEEP concurred that initial acquisition was consistent to the maximum extent practicable, but only for land acquisition. Changes to the proposed action as evaluated in the 2018 Supplemental Environmental Assessment (SEA) include the acquisition of additional land as well as changes to the museum design that affect its size, footprint, related in-water activities, and the overall relationship of the building to the surrounding area. Since construction of a museum and shoreline improvements will be an indirect effect of the proposed Coast Guard actions, the potential impacts of such construction and long-term operation are evaluated herein.

The proposed NCGM will provide a public educational space on the waterfront that will add to the historical narrative within the City of New London, strengthen the relationship between the USCG and New London, draw visitors to New London and the waterfront, and improve public access to the waterfront by transit and foot via an associated pedestrian bridge that is being permitted and constructed separately by the National Coast Guard Museum Association (NCGMA). The construction of the museum will allow the public to experience the past, present, and future significance of the USCG and the services it has provided to our nation and will allow the U.S. Coast Guard (USCG) to properly preserve, record and display USCG artifacts currently stored elsewhere. It is expected that the NCGM will draw an additional 200,000 visitors to the waterfront area on an annual basis. Many of these individuals are also expected to utilize one or more of the various intermodal transportation hubs within the downtown New London area.

1.2 Coastal Zone Management Overview and Applicability

The U. S. Coast Guard (Coast Guard) owns the subject upland property and its attendant riparian rights. The Coast Guard intends to authorize the National Coast Guard Museum Association, Inc. to engage in the construction of the Museum, including the proposed placement of bulkhead and fill, for the sole purpose of offering said improvements to the Coast Guard as a gift upon completion. In order to comply with the requirements of the federal statute authorizing the establishment of a National Coast Guard Museum (14 USC 98), it is anticipated that the State of Connecticut will convey, and the Coast Guard will accept title to the submerged public trust lands necessary for such anticipated work.

While land, the use of which is by law subject solely to the discretion of or which is held in trust by the Federal Government, is by definition excluded from the coastal zone (16 U.S.C. 1453(1)), the Coast Guard

acknowledges that allowing the development of a NCGM on its property, including the exclusive use of its riparian rights for such development, is a federal activity that may affect the coastal zone and impact boundaries beyond the federal property, and therefore subjects the development of the NCGM to federal coastal consistency requirements and determination of consistency to the maximum extent practicable within the enforceable provisions of the Connecticut Coastal Management Act.

As used in this analysis, the terms "proposed project," "project site," or "on-site" include activities that will occur on and adjacent to the existing 0.34 acre parcel, in recognition that the Coast Guard intends to acquire additional land from both the City of New London and the State of Connecticut, such that the entire museum proper will be owned by the Coast Guard.

The proposed project was evaluated within the context of legislative goals and policies described in the CCMA. The CCMA sets forth policies established for federal and state agencies in carrying out their responsibilities within or affecting resources within the coastal boundary. Specific to the proposed project is CGS Section 22a-92(c)(1)(L). The policy is: *to promote the revitalization of inner city urban harbors and waterfronts by encouraging appropriate reuse of historically developed shorefronts, which may include minimized alteration of an existing shorefront in order to achieve a significant net public benefit, provided:*

(i) such shorefront site is permanently devoted to a water dependent use or a water dependent public use such as public access or recreation for the general public and the ownership of any filled lands remain with the state or an instrumentality thereof in order to secure public use and benefit in perpetuity;

(ii) landward development of the site is constrained by highways, railroads or other significant infrastructure facilities;

(iii) no other feasible, less environmentally damaging alternatives exist;

(iv) the adverse impacts to coastal resources of any shorefront alteration are minimized and compensation in the form of resource restoration is provided to mitigate any remaining adverse impacts; and

(v) such reuse is consistent with the appropriate municipal coastal program or municipal plan of development.

Commentary and Analysis:

Development of the NCGM on this site is consistent with the provisions of CGS Section 22a-92(c)(1)(L). The shorefront site will be permanently devoted to a water dependent public use; landward development is constrained by the active rail lines associated with Union Station; no other feasible, less environmentally damaging alternatives exist, as demonstrated in the 2014 EA and 2018 SEA alternatives analyses; the adverse impacts have been minimized and will be compensated in the form of daylighting of a portion of the City Pier Plaza; and finally, the NCGM is consistent with planning documents and regulations of the City of New London.

1.3 Description of the Project

The proposed activities include the following:

- Removal of approximately 1,080 cubic yards (CY) (1,065 square feet (SF)) of rubble from Thames River shoreline;
- Removal of approximately 500 CY (5,330 SF) of existing concrete platform from the City Pier Plaza;
- Removal of 85 16" steel encased concrete piling beneath City Pier Plaza;
- Construction of approximately 272 linear feet (LF) of steel sheet pile bulkhead with concrete cap to elevation 6.5 feet NAVD88, including 100 LF of open shoreline, 70 LF of previous City Pier Plaza shoreline, 77 LF of return that abuts the remaining City Pier Plaza and a 25-foot return at northern bulkhead extent;
- Placement of approximately 2,020 CY (5,330 SF) of fill in previous City Pier Plaza footprint; and
- Placement of approximately 1,025 CY (3,270 SF) of fill in the intertidal and subtidal Thames River to a water depth of approximately 10 feet.

The project site is located along the western side of the Thames River on the downtown New London waterfront adjacent to Water Street near Union Station. The project site is located within the Connecticut coastal boundary (CT DEEP, 2014a), and includes coastal resources categorized in the Connecticut Coastal Management Manual.

The site lies between an existing parking lot and the northern portion of the pile-supported City Pier Plaza. The development of the museum would require shoreline alteration of 170-linear feet of Thames River bank. Currently, the bank is comprised of approximately 100-linear feet of small boulders and construction rubble and 70-feet of shallow slope rip-rap stabilization beneath City Pier Plaza. To accommodate construction of the museum, the northern portion– approximately 8,900 square feet of the pile-supported supported City Pier Plaza will be removed. Steel-sheeting will be installed approximately 19-feet west of the existing seaward extent of the City Pier Plaza to create a new shoreline configuration. Following installation of the sheet piling, the area will be backfilled to elevation 6.5-feet NAVD and land supportive of the proposed museum building will be created. Proposed activities are depicted on site plans entitled *National Coast Guard Museum* dated October 15, 2018 and attached hereto.

2.0 COASTAL RESOURCES OVERVIEW

A number of coastal resources, as identified in the Connecticut Coastal Management Acct (CCMA), are located adjacent to the project site. In addition to general resources, applicable to all proposed activities within a coastal zone, the following resources have been identified adjacent to the project site:

Coastal Hazard Area – A coastal hazard area includes land areas inundated during coastal storm events or subject to erosion induced by such events. Coastal flood hazard areas generally include all areas designated as A-zones and V-zones by FEMA. Developed shorefronts include harbor areas that have been highly engineered and developed, resulting in the functional impairment or substantial alternation of their natural physiographic features of systems. The NCGM will be constructed over an existing gravel parking lot as well as a portion of the existing City Pier Plaza and adjacent Thames River, which is classified as an estuarine embayment (CT DEP, 2000a). The site lies within FEMA-designated AE and VE flood zones, which extend up to 11-feet and 14-feet NAVD88 respectively. The flood zone areas are mapped as Coastal Flood Hazard areas per the CCMA.

Coastal Waters, Estuarine Embayments, and Nearshore Waters – The Thames River is considered an estuarine embayment and nearshore coastal waters (Long Island Sound) are located off-site to the south.

Developed Shorefront – Given the number of marine transportation facilities and supporting infrastructure in the project area, the waterfront is highly engineered and considered Developed Shorefront, which is defined as *"harbor areas which have been highly engineered and developed resulting in the functional impairment or substantial alteration of their natural physiographic features or systems.*" Specifically, the nature of the 0.34 acre property as a sparsely vegetated parking area with an armored bank is consistent with the definition of developed shorefront. Seaward of the rubble bank, the Thames River is mapped as an *Estuarine Embayment* and to the south at the confluence with Long Island Sound, *Nearshore Waters* exist. A summary of the aquatic environment adjacent to the proposed project site and relation to the proposed activities follows.

The intertidal area is located adjacent to a developed shorefront and consists of a shallow profile rubble strewn bank and a stony, coarse sand beach and extends to the mean low water elevation -1.9 feet NAVD88. Clumps of rock weed *(Fucus spp)* colonize the rubble and fill material along the shoreline. Remnant sheet piling, refuse, pilings and other fill material is located within the intertidal zone and extends seaward. The variable condition of the shoreline is reflective of a modified and engineered shoreline profile. No tidal wetlands are located on or adjacent to the proposed project site.

Shellfish Concentration Areas – The subtidal work area extends from approximately elevation -1.9 to -5 feet NAVD 1988. Remnant construction slag is located in the subtidal zone as well as rubble eroded from the shoreline. Refuse exists in this area as well. No submerged aquatic vegetation (SAV) is present within or adjacent to the shoreline. A small portion of a mapped shellfish concentration area is located within the project site. The mapped shellfish area supports commercially viable hard clams *(Mercenia mercenia)*. However, the subtidal area adjacent to the NCGM site has not been actively harvested for shellfish in decades. The consistent sediment resuspension resulting from adjacent ferry operations is not conducive to shellfish settlement. Also, the consistent boat traffic in this area may present navigational conflicts to active shellfishing. In concert, the condition of the benthic habitat in water and upland uses is inconsistent with a commercially viable shellfish bed in this location. This observation is further supported by the Connecticut Aquaculture mapping, which designates the project area as a "prohibited" area for shellfishing.

Analysis of potential impacts to each of these resource areas is included in the sections that follow:

3.0 Consistency with Policies

The following analysis is organized in a manner that is consistent with the 2014 Coastal Consistency Determination associated with this project for acquisition of land, with which DEEP concurred. Relevant policies are presented, followed by commentary and analysis that demonstrates consistency.

Policy: *CGS § 22-92(a)(2) To preserve and enhance coastal resources in accordance with the policies established by chapters 439, 440, 446i, 446k, 447, 474 and 477.*

Policy: *CGS § 22a-92(a)(5) To consider in the planning process the potential impact of a rise in sea level, coastal flooding and erosion patterns on coastal development so as to minimize damage to and*

destruction of life and property and minimize the necessity of public expenditure and shoreline armoring to protect future new development from such hazards.

Policy: *CGS § 22a-92(b)(2)(F) To manage coastal hazard areas so as to ensure that development proceeds in such a manner that hazards to life and property are minimized and to promote nonstructural solutions to flood and erosion problems except in those instances where structural alternatives prove unavoidable and necessary to protect commercial and residential structures and substantial appurtenances that are attached or integral thereto, constructed as of January 1, 1995, infrastructural facilities or water dependent uses.*

Commentary and Analysis:

The project area is mapped by the Federal Emergency Management Agency (FEMA) within the VE Zone and the AE zone. The A zone indicates the Special Flood Hazard Area, while the V zone indicates, "*high hazard areas along coastlines that are subject to high water levels and wave action from strong storms and hurricanes*." The museum building will lie within both zones, and as a result, the requirements of the more restrictive VE zone will apply.

The proposed NCGM will be constructed in a manner that is consistent with the National Flood Insurance Program (NFIP) requirements for the development of new buildings within A zones to ensure that developments will not increase the flood hazard on other properties.

Until recently, projects proposed on federally owned lands were subject to the requirements of EO 11988 (Floodplain Management). To comply, an eight-step process must be completed for actions taking place within a floodplain or wetland. EO 11988 requires that to the extent possible the long- and short-term adverse impacts associated with the occupancy and modification of floodplains are avoided, and the direct and indirect support of floodplain development is avoided wherever there is a practicable alternative. Under EO 11988, actions must be taken to reduce the risk of flood loss; to minimize the impact of floods on human safety, health, and welfare; and to restore and preserve the natural and beneficial values served by floodplains in carrying out their functions (FEMA, 2017b). The eight step process is as follows:

Step 1: Determine whether the proposed action is located in a 100-year floodplain – The project site was determined to be located in the FEMA 100-year floodplain.

Step 2: Notify the public at the earliest possible time of a proposal to consider an action in a floodplain and involve the affected and interested public in the decision-making process – The public was notified of the proposal to consider an action in a floodplain through the initial public scoping and review of the 2014 NEPA Environmental Assessment and more recently relation to the 2018 NEPA Supplemental Environmental Assessment.

Step 3: Identify and evaluate practicable alternatives to locating the proposed action in a floodplain – Numerous alternative sites were considered for placement of the NCGM, as presented in the 2014 EA and 2018 SEA along with numerous prior studies.

Step 4: Identify the potential direct and indirect impacts associated with the occupancy or modification of the floodplain – Direct impacts from coastal flooding include inundation of the site as well as wave action. Indirect impacts would occur if visitors were present during these conditions. Areas below the BFE within

the VE zone will be free of obstruction and used solely for building access and storage. They will not be finished spaces, but rather allowed to flood. The first-floor "occupied" level of the museum will be constructed well above the 0.2 percent occurrence (500-year) flood elevation, thus reducing the potential for direct impacts. The museum will not be open to visitors during extreme storm events, thus minimizing indirect impacts. In addition, the museum will establish a weather and flood monitoring program, and detailed evacuation plans will be created for instances of potential flooding.

Step 5: Where practicable, design or modify the proposed action to minimize the potential adverse impacts within the floodplain and to restore and preserve its natural and beneficial values – The waterfront site and the museum are being designed with a focus on minimizing potential adverse impacts within the floodplain upon consultations with state and federal environmental regulators. The at-grade construction will be limited to building access and a loading dock area with a freight elevator. In accordance with FEMA requirements, the area under the building will be enclosed with breakaway curtain walls. The entry level of the building will be approximately 17 feet above the City Pier Plaza (above the 500-year flood elevation). The structural design of the museum will allow floodwaters to pass unhindered at ground level. The at-grade-level building features will include egress stairs and a loading dock, including a freight elevator. The at-grade construction will be enclosed by a material designed to detach from the framing under high flood loads. The stairs and elevator will have a more robust design for life safety and integrity of operation but will be structurally autonomous so as to protect the integrity of the building's primary structure. The exterior of the museum will be constructed at grades similar to current conditions so as to not impact the current floodplain function. Indirect flood hazard impacts will not occur as a result of the proposed NCGM. The driving factor on coastal flooding is backwater conditions from Long Island Sound. The area is not located in a floodwater storage zone, and construction of the proposed museum and related shoreline improvements will not worsen flooding at adjacent properties.

Step 6: Reevaluate the proposed action to determine: (1) where it is still practicable in light of its exposure to flood hazards in the floodplain, the extent to which it will aggravate the current hazards to other floodplains, and its potential to disrupt floodplain values; and (2) whether alternatives preliminarily rejected at Step 3 are practicable in light of the information gained in Steps 4 and 5 – Based on extensive analysis and design assessment relative to flood hazards, construction of the NCGM at the subject site is believed to be practicable, will not aggravate current hazards to other floodplains or disrupt existing floodplain values, and remains the preferred location for the future NCGM. Given the nexus of the Coast Guard mission and history, the location of the museum in relation to the water is and continues to be an important factor in its siting.

Step 7: If the reevaluation results in a determination that there is no practicable alternative to locating the proposal in the floodplain, publish a final notice – A final notice was published via the SEA, informing the public of the details of the Proposed Action alternative, including those design elements specifically pertaining to the floodplain environment.

Step 8: Implement the action – The project will proceed to implementation following successful conclusion of regulatory permitting and approvals and fundraising.

On January 30, 2015, President Obama issued Executive Order (EO) 13690. It modified an earlier Executive Order in place since 1977 (EO11988, Floodplain Management) to establish a new Federal Flood Risk Management Standard (FFRMS) for federal taxpayer-funded projects and actions. The new standard required a climate-informed forward look to ensure that federal investments in or near floodplains are

protected in the future. Aimed at increasing resilience against flooding and helping to preserve the natural values of floodplains, the FFRMS directed approaches that would take into account both current and future flood risk to ensure that projects last as long as intended.

In August 2018, Executive Order (EO) 13690, which established the Federal Flood Risk Management Standard, was revoked by Section 6 of EO 13807, *Establishing Discipline and Accountability in the Environmental Review and Permitting Process for Infrastructure*. EO 13807 did not revoke or otherwise alter EO 11988. For the purposes of selecting a design elevation, the guidance provided in EO 13690 has been considered as follows:

The FFRMS offers options for determining the vertical and horizontal extent of a floodplain in planning. The preferred option is an approach that incorporates the use of climate-informed science ("climate informed science approach" or CISA) when providing estimates of future flooding. The other approaches are using freeboard ("freeboard value approach" or FVA) or using the 0.2% annual chance flood elevation, often called the 500-year floodplain (0.2 Percent Floodplain Approach [PFA]).

Federal agencies have developed somewhat different draft procedures for implementation of the FFRMS. Individual agency guidance (much of it in draft form) is presented below:

- The USACE allows use of CISA, FVA, and 0.2PFA to characterize risk and delineate the floodplain. However, additional statements in the guidance state that "*all Corps actions subject to the FFRMS will utilize the CISA approach*" and "*for critical actions that are not subject to the FFRMS, the vertical elevation and horizontal floodplain extent for critical actions will be based on the 0.2 percent annual chance flood*." The USACE guidance defines the 1% annual chance flood as "*equivalent to the 1 percent flood in the North Atlantic Coast Comprehensive Study (NACCS)*."

- Regarding the use of the FFRMS as a design standard, the USACE guidance states that *"… this vertical elevation will not be used as a design standard or to provide a minimum vertical elevation for use in the planning or design of Corps projects that involve horizontal infrastructure including but not limited to riverine, harbor, and coastal facilities; seawalls; jetties; revetments; engineered beaches and dunes; levees; and interior drainage facilities.*" However, the guidance further states that "*though not intended to be used as an explicit design standard, the identified vertical flood elevation and corresponding horizontal extent of the floodplain must be considered when implementing the eight-step decision making process.*"

- FEMA proposes to "*use the FFRMS-FVA as the baseline approach for both critical and non-critical FEMA federally-funded projects*." FEMA reasons that this will help standardize its procedures in both non-disaster and post-disaster conditions, and the use of freeboard tends to compensate for unknown factors. Furthermore, the CISA is not as well established for noncoastal flood risks. FEMA is "not proposing to use the FFRMS-0.2PFA because of the limited national availability of information on the 0.2 percent annual chance flood elevation."

- FEMA states that the FVA is the 100-year BFE plus 3 feet for critical actions and the 100-year BFE plus 2 feet for non-critical actions.

- In its conclusion, FEMA explains that "*FEMA proposes to combine approaches and use the FFRMS-FVA to establish the floodplain for non-critical actions and allow the use of the FFRMS-FVA floodplain or the FFRMS-CISA for critical actions, but only if the elevation established under FFRMS-CISA is higher*

than the elevation established under FFRMS-FVA. This proposal balances flexibility with standardization…."

In terms of the NCGM project:

- The CISA Design Approach = Independent Study
- The FVA Design Approach = 100-year floodplain elevation+ 2 feet = 16 feet
- The 0.2 PFA Design Approach = 500-year floodplain elevation = 18 feet

The proposed entry level of the NCGM will be approximately 17 feet above the City Pier Plaza at elevation ±23 feet, which is a full five feet above the 500-year flood elevation and more conservative than any published guidance as described above.

The National Flood Insurance Program (NFIP) outlines requirements for the development of new buildings within A zones to ensure that developments will not increase the flood hazard on other properties. Table 1 on the following page paraphrases the NFIP guidelines from the document, "*Managing Floodplain Development through the National Flood Insurance Program" (FEMA, 2017a), as discussed in "Unit 5, The NFIP Floodplain Management Requirements, Section F. New Buildings in V Zones*." Table 1 demonstrates how each requirement will be achieved.

TABLE 1
NFIP Requirements for Zone V

NFIP Requirement/ Guidance	Proposed Action Alternative Compliance
The new building cannot be over open water.	The proposed museum will be located entirely within upland areas and will not extend over open water of the Thames River.
All new construction and substantial improvements to buildings in V Zones must be elevated on pilings, posts, piers, or columns so that the lowest horizontal structure member of the lowest floor (excluding the pilings or columns) is elevated to or above the base flood level.	The first-floor entryway will consist of foundational piers designed to withstand storm force level winds and flooding. The piers will be drilled into and attached to the underlying bedrock to provide structural strength and ensure that the piers are not affected by any lateral movement of the surrounding soil material due to erosion. The building features within the entryway will be limited to a set of stairs, a bank of elevators to access the museum from this level, and a loading dock. These stairs and elevators will be designed to satisfy life safety requirements and enclosed within breakaway curtain walls designed to break away under storm forces without causing any damage to the museum building structure or nearby facilities. The stairs and elevator bank will have a more robust design so as to provide an adequate fire escape route but would be designed to break away under severe flooding conditions without impacting the integrity of the building.
Fill is not allowed for structural support for buildings within V Zones because of the severe erosion potential of such locations.	No fill will be placed for the purposes of structural support.
The design of the supporting foundation must account for wind loads in combination with the forces that accompany the base flood.	The design of the foundation will account for wind loads and the forces of a base flood.

TABLE 1
NFIP Requirements for Zone V

NFIP Requirement/ Guidance	Proposed Action Alternative Compliance
A registered professional engineer or architect must develop or review the structural design, specification, and plans for construction and certify that the design and planned methods of construction are in accordance with accepted standards of practice for meeting the above provisions.	A registered professional engineer and architect will be responsible for the design and certify that the design and planned methods of construction are in accordance with accepted standards of practice.
Any walls below the lowest floor in a building in a V Zone should give way under wind and water loads without causing collapse, displacement, or other damage to the elevated portion of the building or the supporting pilings and columns.	The walls of the entryway will be constructed of a material that is designed to break away under storm forces without causing damage to the museum building structure or nearby facilities.
A breakaway wall shall have a design safe loading resistance of not less than 10 and no more than 20 pounds per square foot. Use of breakaway walls which exceed a design safe loading resistance of 20 pounds per square foot (either by design or when so required by local or state codes) may be permitted only if a registered professional engineer or architect certifies that the designs proposed meet certain conditions.	A registered professional engineer and architect will design the walls of the entryway and ground-level facilities to meet these standards.

The first floor of the museum will be located 5 feet above the 500-year flood elevation, thus significantly exceeding FEMA's design requirements. An estimate of Sea Level Rise over time for Connecticut is presented on the CT DEEP website. A 2080, an estimate of 36 inches or 3 feet was estimated (https://www.ct.gov/deep///cwp/view.asp?q=480782&deepNav_GID=2022, 2018). The currently proposed design allows for this level of increase.

Policy: *CGS § 22a-92(a)(6) To encourage public access to the waters of Long Island Sound by expansion, development and effective utilization of state-owned recreational facilities within the coastal area that are consistent with sound resource conservation procedures and constitutionally protected rights of private property owners.*

Commentary and Analysis:

Site access under existing conditions since the USCG acquired the downtown New London waterfront parcel in 2014 and for many years prior has been restricted except immediately to the south via the City Pier Plaza. A future NCGM will extend public access to the north and will accommodate pedestrian friendly entrances from the ground as well as from the proposed pedestrian overpass bridge.

Unlike other waterfront buildings including museums or educational facilities, the NCGM will be the public's museum, affording meaningful public access to and through the structure itself. The museum will be free to all visitors during established regular hours of operation. After-hours event opportunities will be provided through corporate events, receptions, weddings, and special engagements, bringing additional visitors to the waterfront location.

Integral to the vision and design for the NCGM is connecting people with the waterfront, not only through unhindered waterfront access, but through documentation of the history of coastal waters, the role of

the USCG, and through water exhibits that will extend the NCGM's reach beyond the physical walls by bringing the visiting public outside to view in-water exhibits and activities. Outdoor and in-water exhibits, as well as interactive activities would be key elements of the museum, with scheduled demonstrations and displays providing opportunities for the public to interact with the shoreline and with Coast Guard members. The adjacent City Pier also provides opportunities for vessels to visit the area, providing opportunities to bring maritime watercraft to the museum visitor's experience.

The NCGM is anticipated to increase patronage to the City Pier Plaza and City Pier; and visitation by museum patrons would be consistent with and augment public use of these facilities. The museum would offer a new opportunity for public use and waterfront access. A publicly accessible waterfront area would replace the former private parking area, with an at-grade interface with the Thames River. Construction of the NCGM would not restrict pedestrian circulation along the river's edge. The at-grade level of the museum would provide open access to the waterfront and to City Pier Plaza.

Policy: *CGS § 22a-92(b)(2)(J) To maintain the natural relationship between eroding and depositional coastal landforms and to minimize the adverse impacts of erosion and sedimentation on coastal land uses through the promotion of nonstructural mitigation measures. Structural solutions are permissible when necessary and unavoidable for the protection of infrastructural facilities, cemetery or burial grounds, water-dependent uses, or commercial and residential structures and substantial appurtenances that are attached or integral thereto, constructed as of January 1, 1995, and where there is no feasible, less environmentally damaging alternative and where all reasonable mitigation measures and techniques have been provided to minimize adverse environmental impacts.*

Commentary and Analysis:

The project site is set along the developed shorefront of the Thames River in downtown New London. Broken concrete rubble covers this portion of the shoreline and adjoining waterfront land to the north and south is improved with ferry docks and the City Plaza and City Pier respectively. The developed site will be stable and not subject to adverse impacts of erosion and sedimentation. BMPs are proposed during construction to minimize erosion and sedimentation. Given the nature of the shoreline and site conditions, structural solutions in the form of bulkheading would be constructed for the protection of the NCGM from shoreline erosion.

Policy: *CGS § 22a-92(c)(1)(K) To require as a condition in permitting new coastal structures, including but not limited to, groins, jetties or breakwaters, that access to, or along, the public beach below mean high water must not be unreasonably impaired by such structures and to encourage the removal of illegal structures below mean high water which unreasonably obstruct passage along the public beach.*

Commentary and Analysis:

The shoreline along this segment of the Thames River is developed and does not include a public beach.

Policy: *CGS § 22a-92(c)(2)(B) To maintain, enhance, or, where feasible, restore natural patterns of water circulation and fresh and saltwater exchange in the placement or replacement of culverts, tide gates or other drainage or flood control structures.*

Commentary and Analysis:

The NCGM project will not involve construction of culverts, tide gates, or other drainage or flood control structures that would interfere with patterns of water circulation or fresh and saltwater exchange. Currently on the museum site, much of the subsurface material is comprised of fill material with a surface material of compacted crushed stone. The remainder of the site is covered by the concrete City Pier Plaza. Due to the nature of these materials, little infiltration occurs on the property, with stormwater flowing overland to the Thames River. Except for a small drainage system associated with the promenade, there are no drainage systems currently located within the museum project area.

3.2 Coastal Waters, Estuarine Embayments, Nearshore Waters, Offshore Waters

Policy: CGS § 22-92(a)(2) To preserve and enhance coastal resources in accordance with the policies established by chapters 439, 440, 446i, 446k, 447, 474 and 477.

Policy: CGS § 22-92(c)(2)(A) To manage estuarine embayments so as to ensure that coastal uses proceed in a manner that assures sustained biological productivity, the maintenance of healthy marine populations and the maintenance of essential patterns of circulation, drainage and basin configuration; to protect, enhance and allow natural restoration of eelgrass flats except in special limited cases, notably shellfish management, where the benefits accrued through alteration of the flat may outweigh the long-term benefits to marine biota, waterfowl, and commercial and recreational finfisheries.

Commentary and Analysis:

The coastal resources on the Thames River shoreline are largely comprised of developed shorefront reflective of the engineered environment. The proposed in-water work will encroach on the Thames River with the placement of sheet pile bulkhead and fill. No tidal wetlands or submerged aquatic vegetation are located along the shoreline. During construction, measures will be implemented to avoid temporary impacts. In the long term, the biological productivity, marine populations, and maintenance of patterns of circulation, drainage, and basin configuration will be maintained.

The shoreline adjacent to the project site is located within a developed landscape and is flanked by high intensity, water dependent uses. The construction of a new bulkhead will target the autumn and winter months or utilize appropriate confinement techniques to avoid potential conflicts with economically important organism reproduction in the estuary. Though a portion of the benthic environment will be filled, the concurrent installation of vertical sheet piling may mitigate the loss of benthos by providing vertical structure as substrate for a number of fouling species of organisms to colonize. Potential species may include bryozoans, barnacles, hydroids, sponges, ascidians, and blue mussels, which are characteristic lower estuary fouling species (Whitlach, 1994, 1998). In turn, these fouling species may provide food and habitat for some species of fish common to this area, such as cunner and blackfish. A number of studies have demonstrated that fauna associated with pilings and permanent in-water structures provide a substantial percentage of the food content for cunners and blackfish (Steimle and Ogren, 1982).

3.3 Developed Shorefront

Policy: *CGS § 22a-92(b)(2)(G) To promote, through existing state and local planning, development, promotional and regulatory programs, the use of existing developed shorefront areas for marine-related uses, including but not limited to, commercial and recreational fishing, boating and other water-dependent commercial, industrial and recreational uses.*

Commentary and Analysis:

The NCGM will be constructed within a developed shorefront area surrounded by water dependent uses, including the ferry operations to the north and City Pier immediately to the south. The nautical theme of the museum will embrace the history of the USCG and will take advantage of its waterfront location to showcase vessels and demonstration exhibits. Notably, the NCGM will provide public access to and along the Thames River for passive recreation and will provide educational learning opportunities through in-water and water-related exhibits. While the construction and operation of the NCGM will not be subject to local permitting, museums with nautical themes are permitted in the City of New London Waterfront Development zoning district.

The project represents an ideal redevelopment mechanism for this section of shoreline. As stewards of the sea, the USCG is intrinsically linked to water dependence. The museum will provide a showcase for this history and the adjacency of dock space will allow for an opportunity to demonstrate examples of Coast Guard activities. This piece of land contains 170-linear feet of frontage on the Thames River located between two active ferry terminals and the City Pier dockage. In that that the museum will enhance greater understanding of the Coast Guard's mission and overall knowledge of the ocean and coastal environmental without adding to navigational congestion in this area is an ideal balance between existing and proposed uses. As described above, the project maintains consistency with the CCMA by not adversely impacting coastal resources, providing general public access to and along the waterfront and supporting the revitalization of the New London waterfront.

3.4 General Development

Policy: *CGS § 22a-92(a)(1) To ensure that the development, preservation or use of the land and water resources of the coastal area proceeds in a manner consistent with the rights of private property owners and the capability of the land and water resources to support development, preservation or use without significantly disrupting either the natural environment or sound economic growth.*

Commentary and Analysis:

The NCGM project will involve construction on the New London downtown waterfront. The project will not significantly impact coastal or other natural resources. The project will not infringe upon the rights of private property owners in the area and will not significantly disrupt the natural environment or sound economic growth. In fact, the NCGM is expected to result in positive economic impacts on the surrounding area (see consistency with CGS § 22a-92(a)(4) outlined below) and enhance the sue of private lands to the north (Cross Sound Ferry) as well as public facilities to the south (City Pier and City Pier Plaza).

Policy: *CGS § 22a-92(a)(4) To resolve conflicts between competing uses on the shorelands adjacent to marine and tidal waters by giving preference to uses that minimize adverse impacts on natural coastal resources while providing long term and stable economic benefits.*

Commentary and Analysis:

The NCGM project will minimize adverse impacts on coastal resources and is expected to result in positive social and economic impacts on the surrounding area, including through the employment of local and regional construction contractors, employment of approximately 30 full-time and part-time staff during operation, and through visitation by approximately 200,000 museum patrons each year. The NCGM is also planned to be integrated with public spaces. Table 2 on the following page summarizes the on-site alternatives analysis that led to the selection of the proposed project.

TABLE 2
Alternative Comparison Matrix

Practicability Category	Factor	50,000 Cantilever Alternative	30,000 – 40,000 sf Alternative	90,000 – 100,000 sf Alternative	70,000 – 80,000 sf Alternative
Availability	Owned or available for gift, use agreement or conveyance	YES	YES	YES	YES
Logistics	Sufficient Museum Size	NO	NO	YES	YES
	FEMA Compatible	NO	YES	YES	YES
Cost/Economics	Acquisition/ Use does not Require USCG Expenditure	YES	YES	YES	YES
	Size/Design supports economic sustainability	NO	NO	NO	YES
Environmental Factors	Wetland Impacts	NO	NO	NO	NO
	Impacts to Federally Listed T&E Species	NO	NO	NO	NO
	Fill required	NO	NO	YES	YES
	Open Water Impacts	NO	NO	YES	YES
	Encroachment in previously modified in-water areas	N/A	N/A	YES	YES
	Commensurate area of open water available for daylighting	N/A	N/A	NO	YES
	Least Environmentally Damaging Practicable Alternative	NO	NO	NO	YES

Policy: *CGS § 22a-92(a)(9) To coordinate planning and regulatory activities of public agencies at all levels of government to ensure maximum protection of coastal resources while minimizing conflicts and disruption of economic development.*

Commentary and Analysis:

The Coast Guard has prepared a NEPA EA (2014) and SEA (2018) evaluating the potential environmental impacts of acquiring additional lands and allowing construction and operating the NCGM. Public involvement and agency coordination activities were initiated at the beginning of the preparation of the initial EA in 2014 and at the beginning of the preparation of the SEA in 2017 to ensure that information was provided to the general public and agencies, and that input from these parties was received and considered as the EA and SEA were prepared. Both the Draft EA and the Draft SEA were made available to the public as part of this process.

Consultation and coordination have extensively occurred at all levels of government, including the City of New London, State of Connecticut, and federal agencies. Numerous meetings have taken place with the City of New London, the Connecticut DEEP, the State Historic Preservation Office, the Department of Economic & Community Development, the Army Corps of Engineers, and FEMA. A Memorandum of Agreement has been executed to ensure that the proposed NCGM is well integrated with the city, and with the proposed pedestrian overpass being funded by the State of Connecticut.

3.5 Coastal Structures and Filling

Policy: CGS § 22a-92(a)(2) To preserve and enhance coastal resources in accordance with the policies established by chapters 439, 440, 446i, 446k, 447, 474 and 477.

Policy: CGS § 22a-92(b)(1)(D) To require that structures in tidal wetlands and coastal waters be designed, constructed and maintained to minimize adverse impacts on coastal resources, circulation and sedimentation patterns, water quality, and flooding and erosion, to reduce to the maximum extent practicable the use of fill, and to reduce conflicts with the riparian rights of adjacent landowners.

Commentary and Analysis:

The NCGM will be built on a parcel along the downtown waterfront. The project will maintain riparian rights of adjacent landowners. In-water work is expected to include pile driving, filling, and other improvements to the outboard (river) side of the project site, which is currently covered with broken concrete rubble on the northern portion and covered by the City Pier Platform on the northern portion. Multiple alternative iterations of museum design have been analyzed to avoid, minimize and mitigate the areal extent of fill in coastal waters. BMPs and project-incorporated protection measures have been developed in consultation with regulatory agencies to avoid significant adverse effects on coastal waters. These BMPs include measures to control erosion and sedimentation. The project site will be stabilized following the completion of ground-disturbing construction activities, and construction will be undertaken using measures to avoid erosion and sedimentation.

In accordance with Section 438, *Stormwater Runoff Requirements for Federal Projects of the Energy Independence and Security Act* (EISA), a rainwater cistern has been incorporated into the proposed museum design. The proposed cistern will capture and reuse stormwater allowing for rainwater harvesting. The cistern will meet the 95th percentile rainfall event and will be located in the building for gray water reuse (toilet flushing). A high level overflow pipe from the cistern will be connected to the existing stormwater collection system. Stormwater management at the NCGM is anticipated to meet the green infrastructure/low impact development techniques encouraged in the EISA. No new stormwater

outfalls are proposed. An additional measure proposed to manage stormwater includes selecting a light color for the proposed roofing material to minimize potential heating of the stormwater runoff.

The project will result in no conflicts with the riparian rights of adjacent land owners.

Relative to flooding, refer to the discussion under § 22a-92(b)(2)(F) beginning on page 5 of this document.

Policy: *CGS § 22a-92(c)(1)(B) To disallow any filling of tidal wetlands and nearshore, offshore and intertidal waters for the purpose of creating new land from existing wetlands and coastal waters which would otherwise be undevelopable, unless it is found that the adverse impacts on coastal resources are minimal.*

Commentary and Analysis:

No tidal wetlands occur adjacent to the project site and therefore no filling of such resource will occur; however, coastal waters would be filled. Given the condition of the shoreline and adjacent high intensity water dependent uses, redevelopment of this area is not expected to result in adverse impacts to coastal resources. Land adjoining the project site on the downtown New London waterfront has been developed for automobile parking and loading for ferries (Cross Sound Ferry, Block Island Express, and Fisher Island Ferry), and a waterfront park and boat docks (City Pier Plaza and City Pier). Approximately 3,045 cubic yards of fill is proposed associated with shoreline improvements. Of that, approximately 2,020 cubic yards will be placed beneath the existing City Pier Plaza and approximately 1,025 cubic yards would be placed in what is currently open shoreline within the proposed project site. The project has been designed to minimize adverse impacts to adjacent coastal resources in the short and long term through the use of best construction practices during construction, stormwater management, and consistency with NFIP regulations. The project employs innovative techniques in shoreline design to effectively balance removal of existing structures with proposed structures thus limiting the footprint of direct Thames River disturbance. The adverse impacts that may result from the small amount of fill has been evaluated and minimal (See SEA Sections 4.7.2 and 4.8.2).

3.6 Cultural Resources

Policy: *CGS § 22a-92(b)(1)(J) To require reasonable mitigation measures where development would adversely impact historical, archaeological, or paleontological resources that have been designated by the state historic preservation officer.*

Commentary and Analysis:

Section 106 consultation with the State Historic Preservation Officer (SHPO) began in 2014 and is ongoing. In response to initial discussions with SHPO, a series of improvements were made, including connection of pedestrian pathways for those people arriving at grade and from the pedestrian bridge. These two pathways will be joined at the southwest corner of the building in a large, full-height entry vestibule that will include an iconic rescue helicopter display. Perhaps most importantly, a quiet façade will face towards the train station and Parade Plaza, so that the museum will remain deferential and recessive to the train station. From the waterfront, the building will be more sculptural and expressive of its cultural significance to the city, but through its distinct and modern architectural language will complement, rather than compete with the historic train station. Taken in the aggregate, this approach

minimizes impact of the project on the Historic District and the train station. Consultation with SHPO has resulted in changes in the project and will ultimately lead to an effects determination and concurrence by the SHPO, incorporating mitigation measures.

3.7 Water Dependent Uses

Policy: CGS § 22a-92(a)(3) To give high priority and preference to uses and facilities which are dependent upon proximity to the water or the shorelands immediately adjacent to marine and tidal waters.

Commentary and Analysis:

The proposed NCGM and associated uses will provide meaningful, general public access to and along the waterfront. No adverse impacts on future water-dependent development are anticipated. The proposed project approach maintains consistency with the legislative goals and policies. The proposed NCGM will not conflict with existing waterfront transportation or recreation uses adjacent to the project site. A water dependent use will not be replaced by the project. Although a portion of City Pier Plaza will be removed in work related to this project, the public access provided by that portion of pier will be replaced by the public plaza associated with the museum and enhanced by the continuum of access throughout the museum site. The project will also be consistent with preferred maritime/nautical uses outlined in the City of New London Plan of Conservation and Development and Zoning Regulations. Museums with nautical themes are permitted in the City of New London Waterfront Development zoning district. The downtown waterfront location will potentially allow for the exhibition of decommissioned Coast Guard vessels, potentially including homeporting the Barque Eagle at City Pier (under separate action). The museum is expected to encourage visitation and public access to the downtown New London waterfront.

Policy: CGS § 22a-92(b)(1)(A) To manage uses in the coastal boundary through existing municipal planning, zoning and other local regulatory authorities and through existing state structures, dredging, wetlands, and other state siting and regulatory authorities, giving highest priority and preference to water-dependent uses and facilities in shorefront areas.

Commentary and Analysis:

See consistency with water-dependent use criteria outlined above for CGS § 22a-92(a)(3).

4.0 POTENTIAL ADVERSE IMPACTS ON COASTAL RESOURCES

4.1 Coastal Flooding

Policy: CGS § 22a-93(15)(E) Increasing the hazard of coastal flooding through significant alteration of shoreline configurations or bathymetry, particularly within high velocity flood zones.

Commentary and Analysis:

The proposed NCGM will not result in increased hazard of coastal flooding through alteration of shoreline configurations or bathymetry. Neither the shoreline configurations nor bathymetry will be significantly altered. As described under the analysis of consistency with CGS § 22a-92(a)(5) under Coastal Hazard Areas, the design of the NCGM will not only comply with, but will exceed applicable NFIP regulations and requirements and will accommodate future potential sea level rise.

4.2 Coastal Waters Circulation Patterns

Policy: CGS § 22a-93(15)(B) Degrading existing circulation patterns of coastal waters through the significant alteration of patterns of tidal exchange or flushing rates, freshwater input, or existing basin characteristics and channel contours.

Commentary and Analysis:

The project will not significantly alter circulation patterns in the Thames River, nor will it affect tidal exchange, flushing rates, freshwater input, or existing basin characteristics and channel contours, except immediately adjacent to the existing rubble shoreline. The USCG is seeking USACE (Section 404 and/or Section 10) and DEEP (Section 401) permits and approvals for in-water work. BMPs and project-incorporated protection measures have been developed and are presented in the SEA. Any additional BMPs required by USACE or DEEP during the course of permit review will be incorporated as well. Collectively, these will avoid significant adverse effects on the Thames River.

4.3 Drainage Patterns

Policy: CGS § 22a-93(15)(D) Degrading natural or existing drainage patterns through the significant alteration of groundwater flow and recharge and volume of runoff.

Commentary and Analysis:

The project will not significantly alter groundwater flow or recharge volume of runoff. The development will take place in an urban developed environment and will make use of existing drainage systems. No new outfalls will be constructed to the Thames River and existing drainage patterns will be maintained.

4.4 Patterns of Shoreline Erosion and Accretion

Policy: CGS § 22a-93(15)(C) Degrading natural erosion patterns through the significant alteration of littoral transport of sediments in terms of deposition or source reduction.

Commentary and Analysis

Localized impacts of the NCGM and shoreline modifications will be limited to the immediate construction area. The minimal impact from the proposed fill in open water in a heavily impacted subtidal area will be offset by an approximately equal amount of newly-daylighted open water/subtidal area. For both the upland and in-water work, best management practices will be employed. In the upland areas, these measures include standard sedimentation and erosion controls (e.g., geotextile siltation fencing and haybales in accordance with the *2002 Connecticut Guidelines for Sedimentation and Erosion Control* guidelines). For the in-water portion of work, sedimentation impacts beyond the immediate work area will be managed with turbidity curtains and floating booms to minimize any temporary aquatic impacts during construction. Construction will target the autumn and winter months to minimize impacts to coastal habitats.

Broken concrete rubble covers this portion of the shoreline and adjoining waterfront land is improved with ferry docks and the City Plaza and City Pier. The proposed NCGM will not significantly alter littoral transport of sediments along the Thames River.

4.5 Visual Quality

Policy: CGS § 22a-93(15)(F) Degrading visual quality through significant alteration of the natural features of vistas and viewpoints.

Commentary and Analysis

The aesthetic character of the downtown New London waterfront area is predominantly centered on the architecture and significance of the buildings located within the historic district, including Union Station, which serves as an anchor within the district. Future construction of the NCGM will result in temporary changes to the visual character of the project area, typical of those associated with construction activity and staging.

The NCGM design does not compete with historic architecture. Rather, construction of a modern building will occur along the downtown waterfront over what is now a gravel-and-dirt parking lot that is mostly level, over portions of the City Pier Plaza, and adjacent to the Thames River. The size and architectural style of the NCGM will contrast with the older structures, but also integrate into the fabric of downtown New London through the scale of its articulation and active program. Nighttime lighting required for safety and security will also expand usage of the site into the evening hours. These changes will be most visible from surrounding properties, including from the City Pier Plaza and City Pier, boats and ferries on the Thames River, and passing trains; and from scenic views of the New London downtown waterfront in Groton, particularly from the Fort Griswold area.

The NCGM will be less visible from many downtown New London streets and locations because the project site is obscured by Union Station and other downtown buildings and the building will be intentionally recessive from this vantage point. The project vicinity along the downtown waterfront is urbanized, and mostly consists of commercial and industrial buildings and structures. Some change will occur within the visual landscape surrounding the project site; however, these changes are not considered to be significant. Additionally, the NCGM will not obstruct scenic views or vistas from the historic Fort Griswold area in Groton. BMPs and protection measures will also be implemented to minimize impacts associated with glare and nighttime lighting required for safety and security.

The museum building is proposed to be modern in style with a combination of exterior materials including a combination of glass and opaque exterior panels, and the use of materials that are resistant to the corrosive forces of salt water, such as stainless steel and coated metals. The opaque façade planned for the west side of the building facing Union Station is intended to serve as a quiet foil, retaining the significant visual impact of Union Station. The aesthetic, height and style of the NCGM will contrast with, rather than replicate the surrounding historic, industrial/commercial, and public uses within the downtown waterfront area.

The NCGM will be fully visible from the Thames River, the Cross Sound Ferry Terminal, the City Pier Plaza and from the Amtrak railroad tracks. Only the uppermost floors of the museum will be visible from Water Street, the Parade Plaza and the Water Street parking garage. As most development and traffic within New London is located on the Water Street side of the Amtrak station and beyond, the NCGM will be

mostly obstructed by this intervening building. During nighttime hours, light emanating from the building as well as lighting surrounding the building for visibility and safety purposes will alter the existing visual environment. However, this alteration will not be significant.

Further, the proposed project takes places within a developed landscape and will impair any vista or viewpoints. An elevated viewing platform is proposed at the eastern extent of the pedestrian access walkway that will allow for access to vistas and viewpoints of the Thames River not currently realized by the existing shoreline construct. The addition of this feature provides an appreciable improvement to public access of the shoreline.

4.6 Water Quality

Policy: CGS § 22a-93(15)(A) Degrading water quality through the significant introduction into either coastal waters or groundwater supplies of suspended solids, nutrients, toxics, heavy metals or pathogens, or through the significant alteration of temperature, pH, dissolved oxygen or salinity.

Commentary and Analysis

The proposed project will not result in short term or long term activities that would degrade water quality through the significant introduction of suspended solids, nutrients, toxics, heavy metals, or pathogens, or through the significant alteration of temperature, pH, dissolved oxygen or salinity. The existing site is hard packed gravel and concrete, and is nearly impervious, with stormwater discharging to the Thames River via sheet flow. The proposed museum will incorporate water quality conducive measures, such as a light roof to limit temperature increases and use of a stormwater cistern to capture the first flush of stormwater. The anticipated capacity is 10,000 gallons. There will be no vehicular parking on the site, and no appreciable increase in impervious surfaces.

Construction associated with the NCGM will involve ground-disturbing activities, particularly site preparation that has the potential to result in sedimentation of the Thames River; however, BMPs to control erosion and sedimentation have been incorporated into the project design. The project site will be stabilized following the completion of ground-disturbing construction activities, and the site design will include standard design measures to avoid erosion and sedimentation during operation of the NCGM.

4.7 Wildlife, Finfish, Shellfish Habitat

Policy: CGS § 22a-93(15)(G) Degrading or destroying essential wildlife, finfish or shellfish habitat through significant alteration of the composition, migration patterns, distribution, breeding or other population characteristics of the natural species or significant alteration of the natural components of the habitat.

Commentary and Analysis

The proposed project involves direct fill of 8,600 SF of land seaward of the high tide line. The majority of this area is currently covered with the pile-supported City Pier Plaza. The shoreline reconfiguration will lie approximately 19 feet west of the current extent of City Pier Plaza. To achieve this, approximately 3,100 SF of the plaza are proposed to be daylighted enhancing the opportunity for natural restoration of habitat and recruitment of endemic species. These shoreline modifications are limited spatially and are not expected to adversely impact population dynamics within the Thames River food web. The installation of

the bulkhead may provide an additional habitat niche as well. A number of studies have demonstrated that fauna associated with pilings and permanent in-water structures provide a substantial percentage of the food content for cunners and blackfish (Steimle and Ogren, 1982).

The coastal resources on the shoreline are largely comprised of developed shorefront reflective of the engineered environment. No submerged aquatic vegetation or tidal wetlands exist in proximity to the site. The Coast Guard has determined that, pursuant to Section 7 of the Endangered Species Act and its implementing regulations at 50 CFR Part 402, the proposed project will have no effect on any listed species or designated critical habitat.

A review request form was submitted to the CTDEEP Natural Diversity Data Base (NDDB) regarding the currently proposed museum on August 10, 2017. In a letter dated August 22, 2017, the CTDEEP stated that no negative impacts to State-listed species (RCSA Sec. 26-306) are anticipated as a result of the Proposed Action Alternative.

4.8 Potential Adverse Impacts on Water-Dependent Uses and Opportunities; Locating a non-Water Dependent Use at a Site Physically Suited for, or Planned for Location of, a Water Dependent Use

Policy: *CGS § 22a-93(17) Adverse impacts on future water-dependent development opportunities" and "adverse impacts on future water-dependent development activities" include but are not limited to (A) locating a non-water-dependent use at a site that (i) is physically suited for a water-dependent use for which there is a reasonable demand or (ii) has been identified for a water-dependent use in the plan of development of the municipality or the zoning regulations; (B) replacement of a water-dependent use with a non-water-dependent use, and (C) siting of a non-water-dependent use which would substantially reduce or inhibit existing public access to marine or tidal waters.*

Commentary and Analysis

A portion of the existing site use is a gravel parking area that does not support a water dependent use. The proposed museum will provide public access to and along and use of the waterfront in an area from which the public has been previously excluded. The maritime museum exhibits that document the history of the Coast Guard will include in-water displays and/or interactions. Although a portion of City Pier Plaza will be removed in work related to this project, the public access provided by that portion of pier will be replaced by the public plaza associated with the museum and enhanced by the continuum of access throughout the museum site.

5.0 SUMMARY OF FINDINGS

The proposed NCGM has been designed to maintain consistency with the Connecticut Coastal Management Act (CCMA) as described in Connecticut General Statutes Section 22a-90 through 22a-112 and thus achieve Federal coastal consistency. The primary resources on the subject property are comprised of developed shorefront and coastal hazard areas. Language in the CCMA stipulates eight adverse impacts that must be avoided in the course of site development. The following summarizes how these adverse impacts will be avoided to maintain consistency with the CCMA.

1) *Degrading water quality through the significant introduction into either coastal waters or groundwater supplies of suspended solids, nutrients, toxics, heavy metals or pathogens, or through*

the significant alteration of temperature, pH, dissolved oxygen or salinity [Connecticut General Statutes (CGS) section 22a-93(15)(A)].

The proposed project manages this potential adverse impact by employing modern and innovative stormwater management and best management practices during construction. The nature of the site redevelopment and long-term use of the property as a museum demonstrates a low potential to negatively impact water quality, provided stormwater management exists.

2) *Degrading existing circulation patterns of coastal waters through the significant patterns of tidal exchange or flushing rates, freshwater input, or existing basin characteristics and channel contours [CGS section 22a-93(15)(B)].*

The proposed project demonstrates a low potential to adversely impact circulation patterns. Modifications to the proposed shoreline will be limited to 3,270 square feet of currently open shoreline. No new stormwater outlets to the Thames River are proposed. The project will tie into the existing city storm sewer system located south of the project site.

3) *Degrading natural erosion patterns through the significant alteration of littoral transport of sediments in terms of deposition or source reduction [CGS section 22a-93(15)(C)].*

Significant alteration to littoral transport is not anticipated. The shoreline is currently largely occupied by a pile supported structure to the south and to the north, the short-length of open shoreline lies at a recessed westerly position compared to the seaward face of the plaza. This area contributes minimally to the overall sediment budget to the Thames River and thus, its conversion to a steel sheet piling condition is not anticipated to affect natural erosion patterns.

4) *Degrading natural or existing drainage patterns through the significant alteration of groundwater flow and recharge and volume of runoff [CGS section 22a-93(15)(D)].*

The volume of stormwater generated by the proposed project is essentially equal to the volume generated by existing impervious materials on the property. To this end, the proposed project is not anticipated to significantly alter natural and existing drainage patterns. No modifications are proposed that would impact groundwater flow or recharge.

5) *Increasing the hazard of coastal flooding through significant alteration of shoreline configurations or bathymetry, particularly within high velocity flood zones [CGS section 22a-93(15)(E)].*

The proposed project represents a minor alteration of shoreline configuration within a velocity zone. Due to the source of coastal flooding, this modification will not result in an increase in base flood elevation on the NCGM property or the surrounding localized area. The project is designed to not only meet but exceed NFIP standards. Additionally, the installation of a proposed pedestrian bridge by NCGMA adjacent to the northern face of the building will provide an elevated means of egress from the Thames River floodplain.

6) *Degrading visual quality through significant alteration of the natural features of vistas and viewpoints [CGS section 22a-93(15)(F)].*

The proposed NCGM will be constructed within a developed landscape. Impacts to vistas or viewpoints will not be significant. An elevated viewing platform is proposed at the eastern extent of the pedestrian access walkway that will allow for access to vistas and viewpoints of the Thames River not currently realized by the existing shoreline construct. The addition of this feature provides an appreciable improvement to public access of the shoreline, which is anticipated to provide additional public viewing opportunities.

7) *Degrading or destroying essential wildlife, finfish or shellfish habitat through significant alteration of the composition, migration patterns, distribution, breeding or other population characteristics of the natural species or significant alteration of the natural components of the habitat [CGS section 22a-93(15)(G)].*

The proposed NCGM project involves direct fill of 8,600 SF of land that is located seaward of the HTL/CJL. The majority of this fill area is currently covered with the pile-supported City Pier Plaza. The shoreline reconfiguration will lie approximately 19 feet west of the current extent of City Pier Plaza. To achieve this, approximately 3,100 square feet of the plaza are proposed to be daylighted enhancing the opportunity for natural restoration of habitat and recruitment of endemic species. These shoreline modifications are limited spatially and are not expected to adversely impact population dynamics within the Thames River food web. The installation of the bulkhead may provide an additional habitat niche as well. A number of studies have demonstrated that fauna associated with pilings and permanent in-water structures provide a substantial percentage of the food content for cunners and blackfish (Steimle and Ogren, 1982).

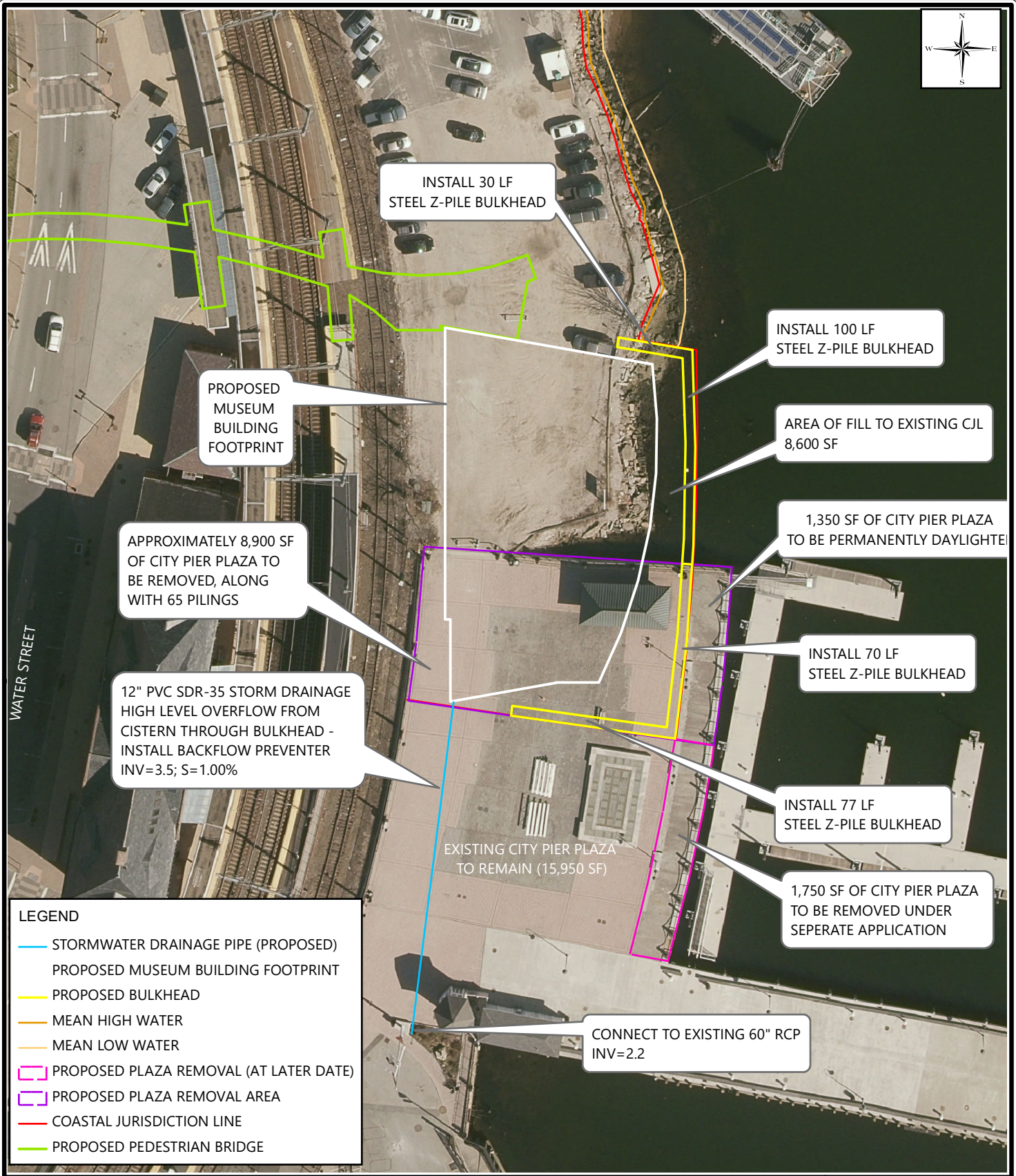
8) *Degrading tidal wetlands, beaches and dunes, rocky shorefronts, and bluffs and escarpments through significant alteration of their natural characteristics or function [CGS section 22a-93(15)(H)].*

No tidal wetlands, beaches or dunes, rocky shorefront, bluffs or escarpments are located on the subject site. Coastal resources affected by the project include developed shorefront and coastal hazard area. Due to the proximity of the subject site to tidal wetlands, rocky shorefront, beaches and dunes and bluffs or escarpments, there is minimal potential for the project adversely impacts these resources.

Conclusion

The proposed project will result in minor shoreline modifications to the Thames River to accommodate construction of the National Coast Guard Museum. The project has been designed to minimize adverse impacts to adjacent coastal resources in the short and long term through the use of best construction practices during construction, stormwater management, and consistency with NFIP regulations. The project employs innovative techniques in shoreline design to effectively balance removal of existing structures with proposed structures thus limiting the footprint of direct Thames River disturbance. In light of the forgoing analysis, the USCG finds that this project is consistent to the maximum extent practicable with the enforceable policies of the CZMA and the CCMA.

MXD: Y:\5139-01\Maps\Figure 1 - Proposed Conditions.mxd



MILONE & MACBROOM
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PROPOSED CONDITIONS

NATIONAL COAST GUARD MUSEUM

MAP G12 / BLOCK 108 / LOT 1.0 / UNIT 1
NEW LONDON, CONNECTICUT

SOURCE: 2016, CT DEEP ORTHOIMAGERY

DATE: 02 NOVEMBER 2018		
SCALE: 1 " = 60 '		
PROJ. NO.: 5139-01		
DESIGNED MBR	DRAWN KFK	CHECKED MBR

DRAWING NAME:

FIG. 1

NATIONAL COAST GUARD MUSEUM

NEW LONDON, CONNECTICUT

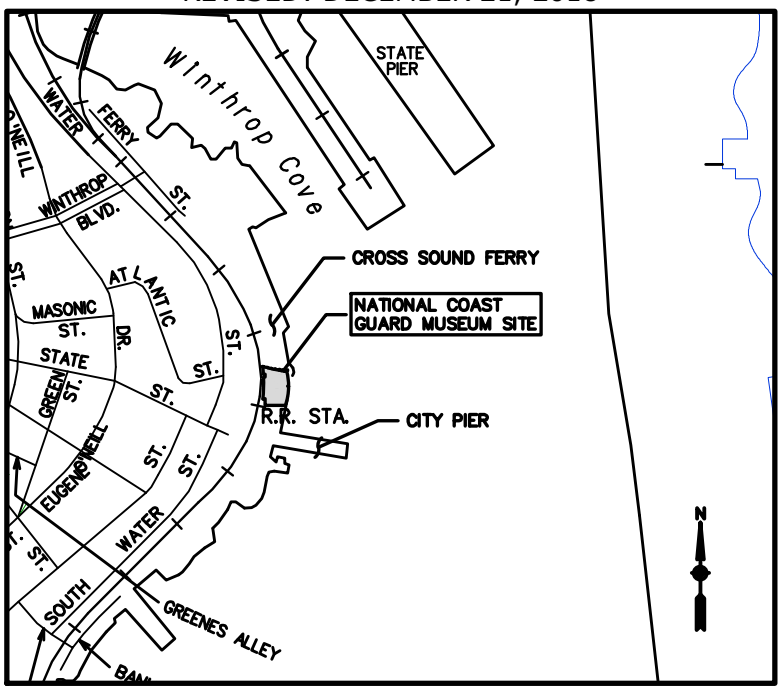
COASTAL 401 WATER QUALITY CERTIFICATION

OCTOBER 2018

REVISED: DECEMBER 21, 2018

NOTES:

1. NAVD 88 DATUM
2. MHW = 1.8' (NGVD 29), 0.9' (NAVD 88)
   MLW = -0.9' (NGVD 29), -1.7' (NAVD 88)
   CJL = 3.10' (NGVD 29), 2.10' (NAVD 88)
3. TOPOGRAPHY AND PLANIMETRIC FEATURES ARE FROM FIELD SURVEY PREPARED BY MILONE AND MACBROOM, INC.



PROJECT VICINITY MAP

NOT TO SCALE

LEGEND

· · ·	EDGE OF WATER
70	MAJOR CONTOUR
68	MINOR CONTOUR
	TREE LINE
	UTILITY POLE
	PILING

LIST OF DRAWINGS:

PREPARED FOR:

NATIONAL COAST GUARD MUSEUM ASSOCIATION, INC.
321 ST. CHARLES AVENUE 10TH FLOOR
NEW ORLEANS, LOUISIANA 70130
BUSINESS PHONE: 860-443-4200

MILONE & MACBROOM
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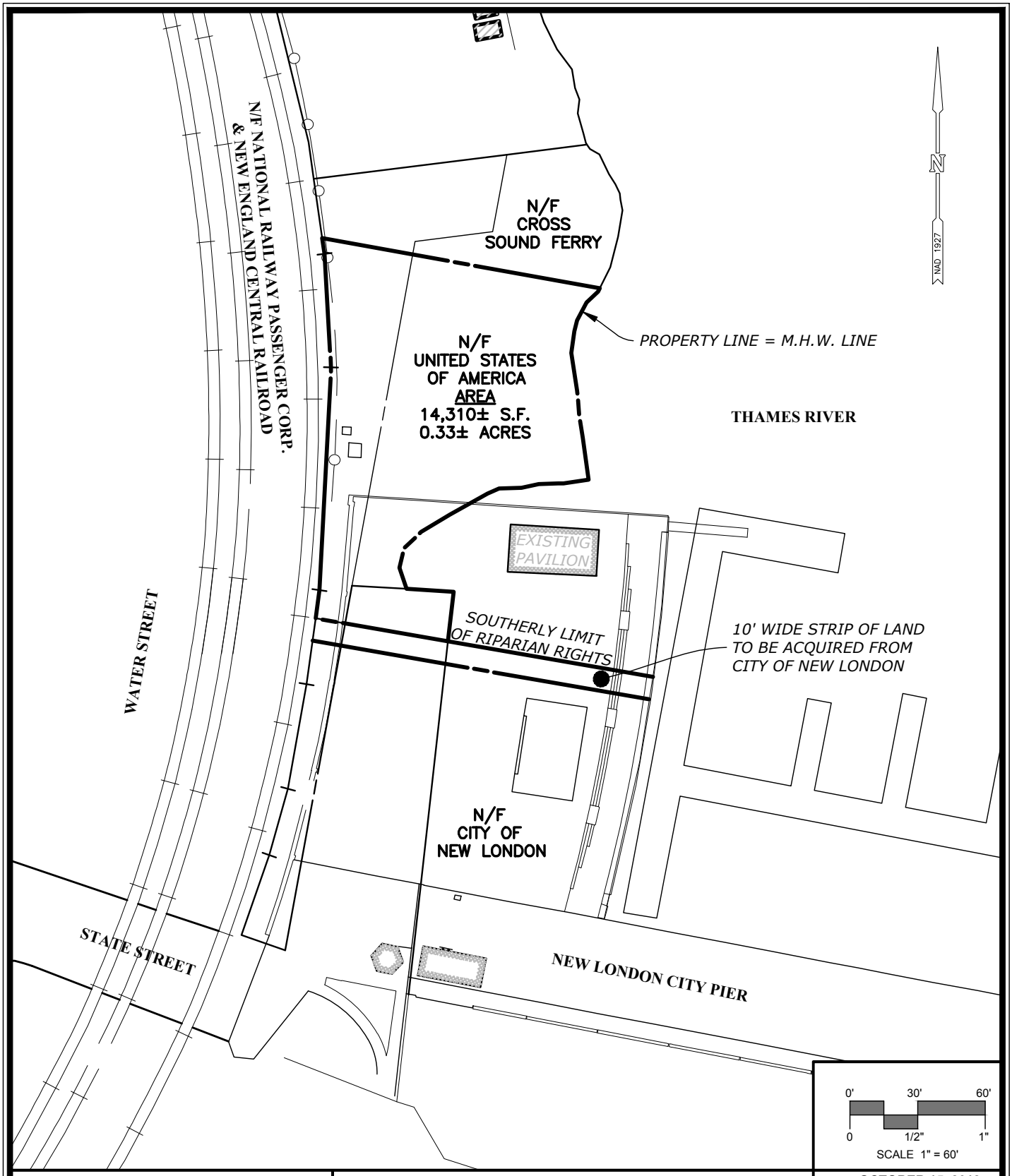
NATIONAL COAST GUARD MUSEUM		LOCATION: MBLU: G12/ 108/ 1.0/1 / WATER STREET, NEW LONDON, CONNECTICUT
ON: THAMES RIVER	TITLE SHEET	DATE: OCTOBER 15, 2018
AT: NEW LONDON, CT		SCALE: NONE
		PROJ. NO.: 5139-01
		SHEET: 01



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PARCEL MAP

NATIONAL COAST GUARD MUSEUM

MBLU: G12/ 108/ 1.0/1 /
WATER STREET
NEW LONDON, CONNECTICUT

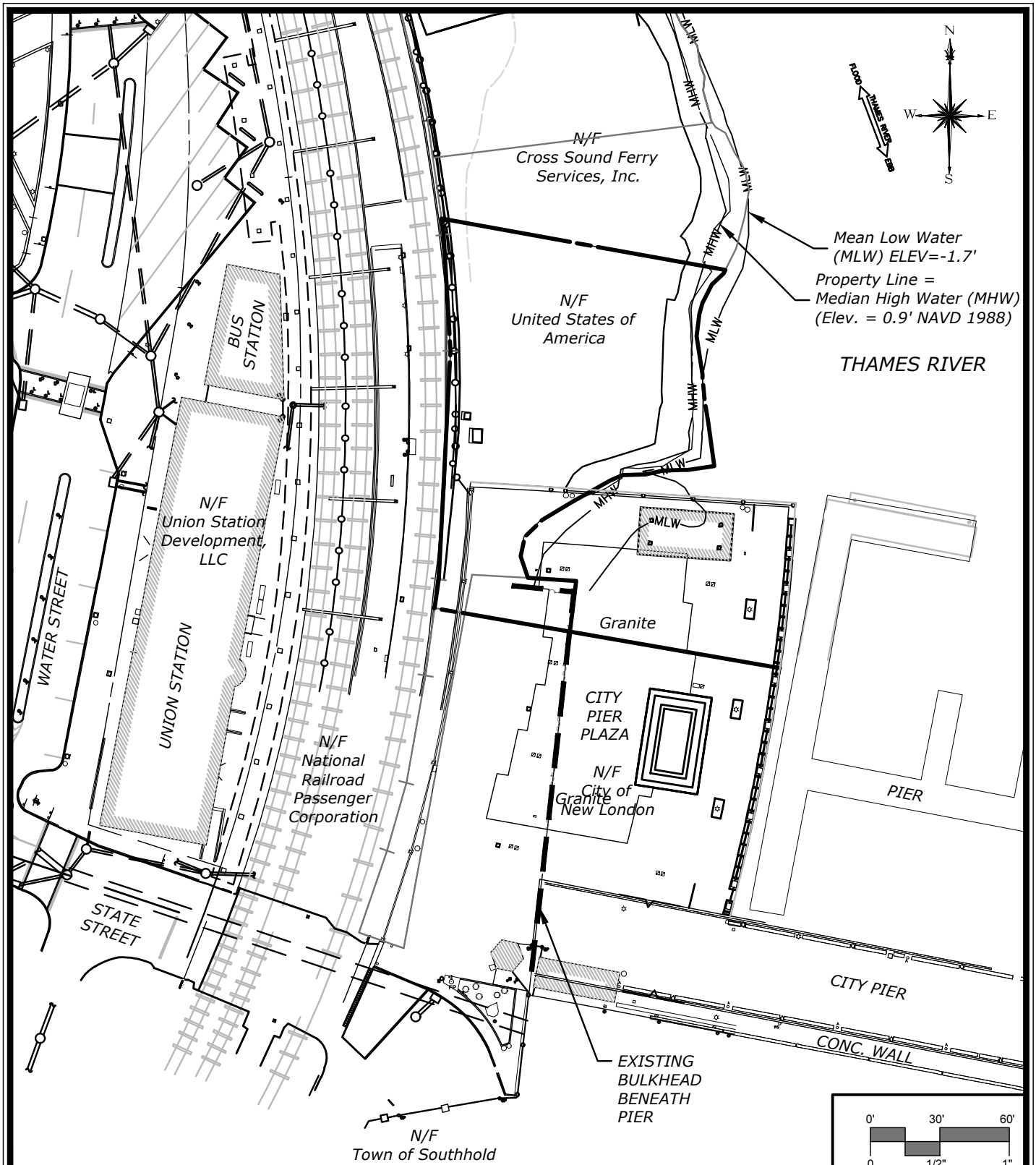
PROJECT PHASE: **FOR PERMITTING** REV: **---**

DATE	**OCTOBER 15, 2018**
SCALE	**1" = 60'**
PROJ. NO.	**5139-01**

DESIGNED	DRAWN	CHECKED
RE	**TT**	**TD**

DRAWING NAME:

02



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203.271.1773
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SITE PLAN - EXISTING CONDITIONS

NATIONAL COAST GUARD MUSEUM

MBLU: G12/ 108/ 1.0/1 /
WATER STREET
NEW LONDON, CONNECTICUT

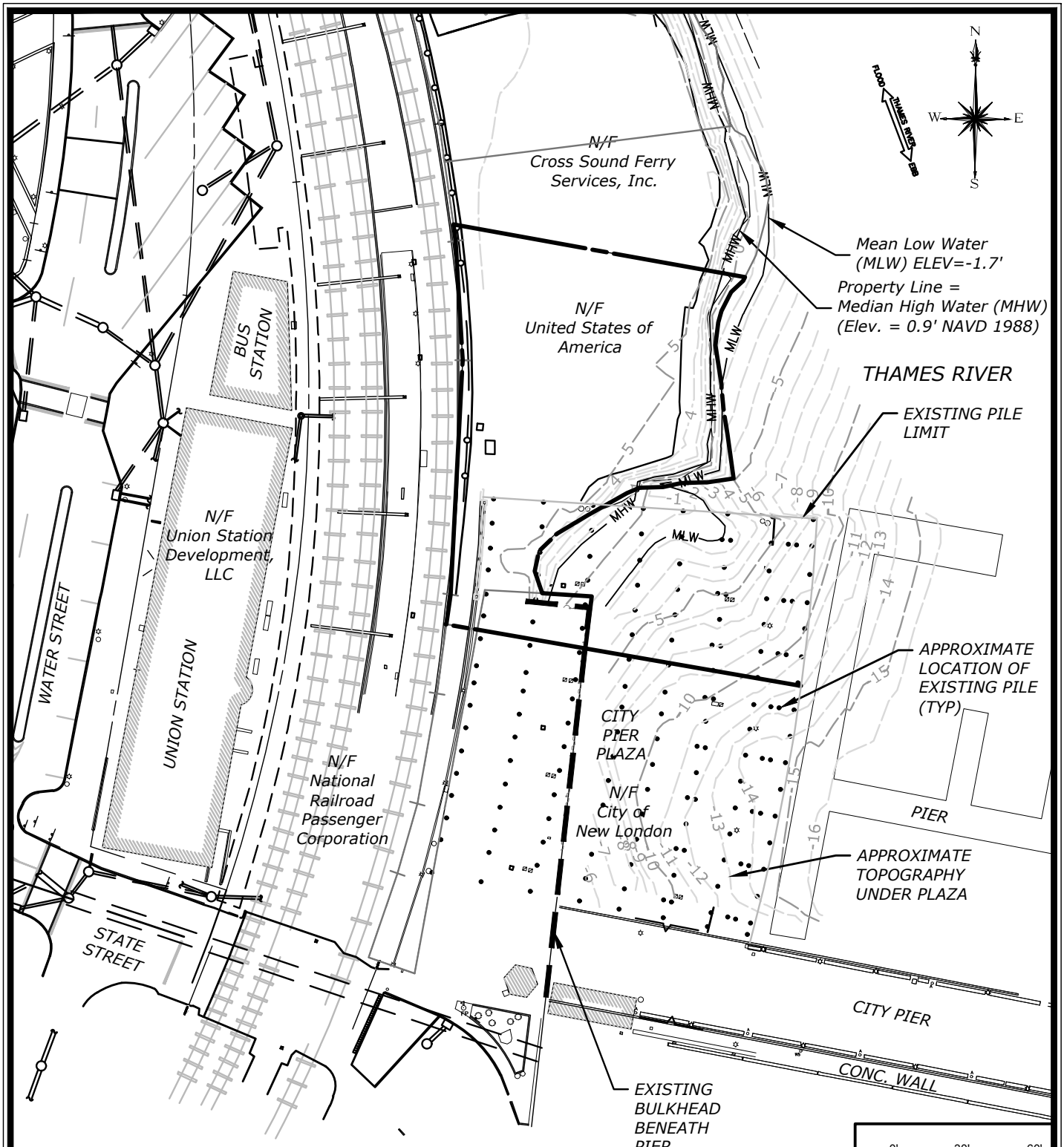
PROJECT PHASE: **ENVIRONMENTAL PERMIT** REV: **---**

DATE	**OCTOBER 15, 2018**
SCALE	**1" = 60'**
PROJ. NO.	**5139-01**

DESIGNED	DRAWN	CHECKED
RE	**TT**	**TD**

DRAWING NAME:

03



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SITE PLAN - EXISTING CONDITIONS

NATIONAL COAST GUARD MUSEUM

MBLU: G12/ 108/ 1.0/1 /
WATER STREET
NEW LONDON, CONNECTICUT

PROJECT PHASE: **ENVIRONMENTAL PERMIT** REV: **---**

DATE	**OCTOBER 15, 2018**
SCALE	**1" = 60'**
PROJ. NO.	**5139-01**

DESIGNED	DRAWN	CHECKED
RE	**TT**	**TD**

DRAWING NAME:

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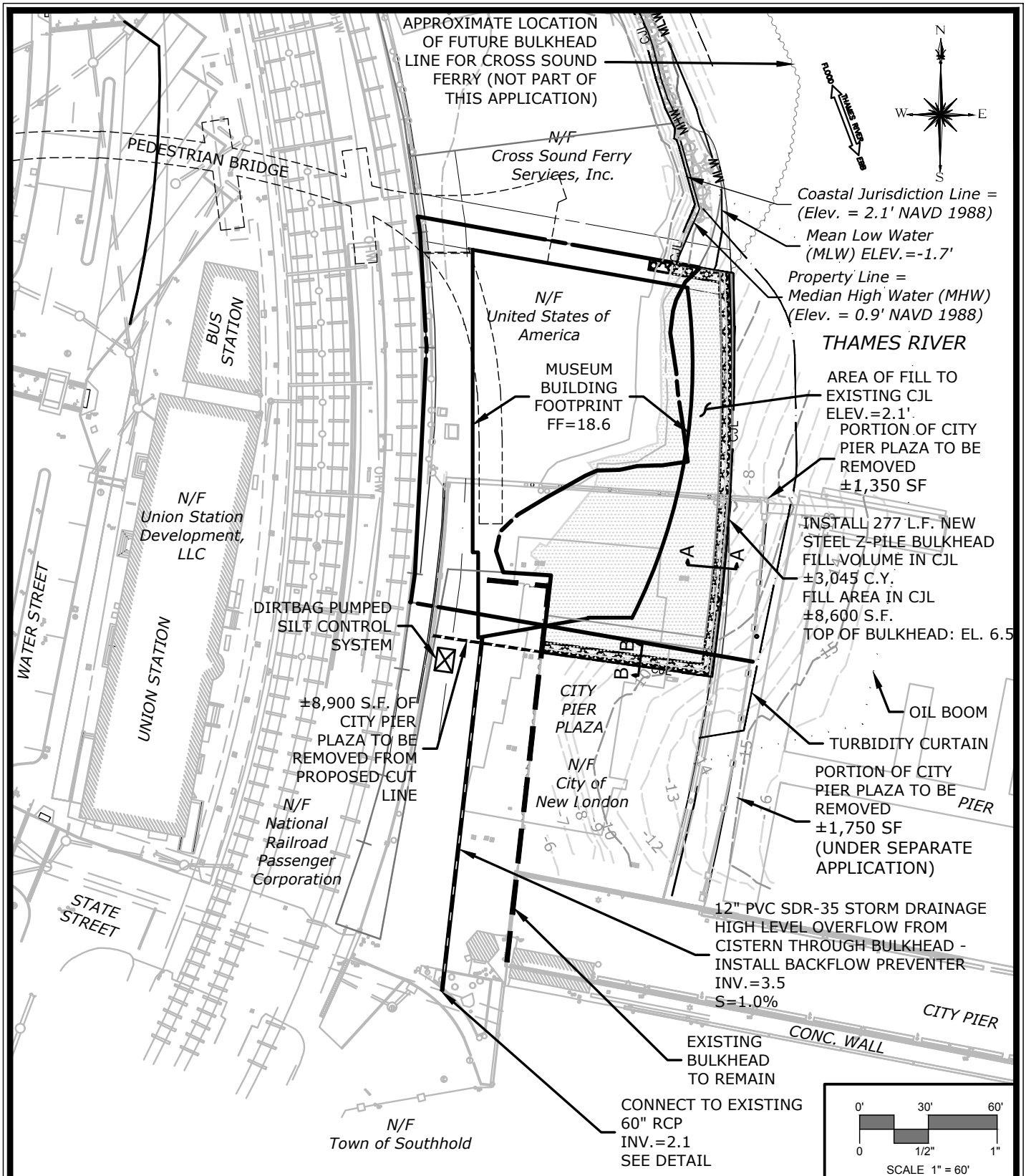

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SITE PLAN - PROPOSED CONDITIONS

NATIONAL COAST GUARD MUSEUM

MBLU: G12/ 108/ 1.0/1 /
WATER STREET
NEW LONDON, CONNECTICUT

PROJECT PHASE: **ENVIRONMENTAL PERMIT** REV: **12/21/2018**

DATE	**OCTOBER 15, 2018**
SCALE	**1" = 60'**
PROJ. NO.	**5139-01**

DESIGNED	DRAWN	CHECKED
RE	**TT**	**TD**

DRAWING NAME:

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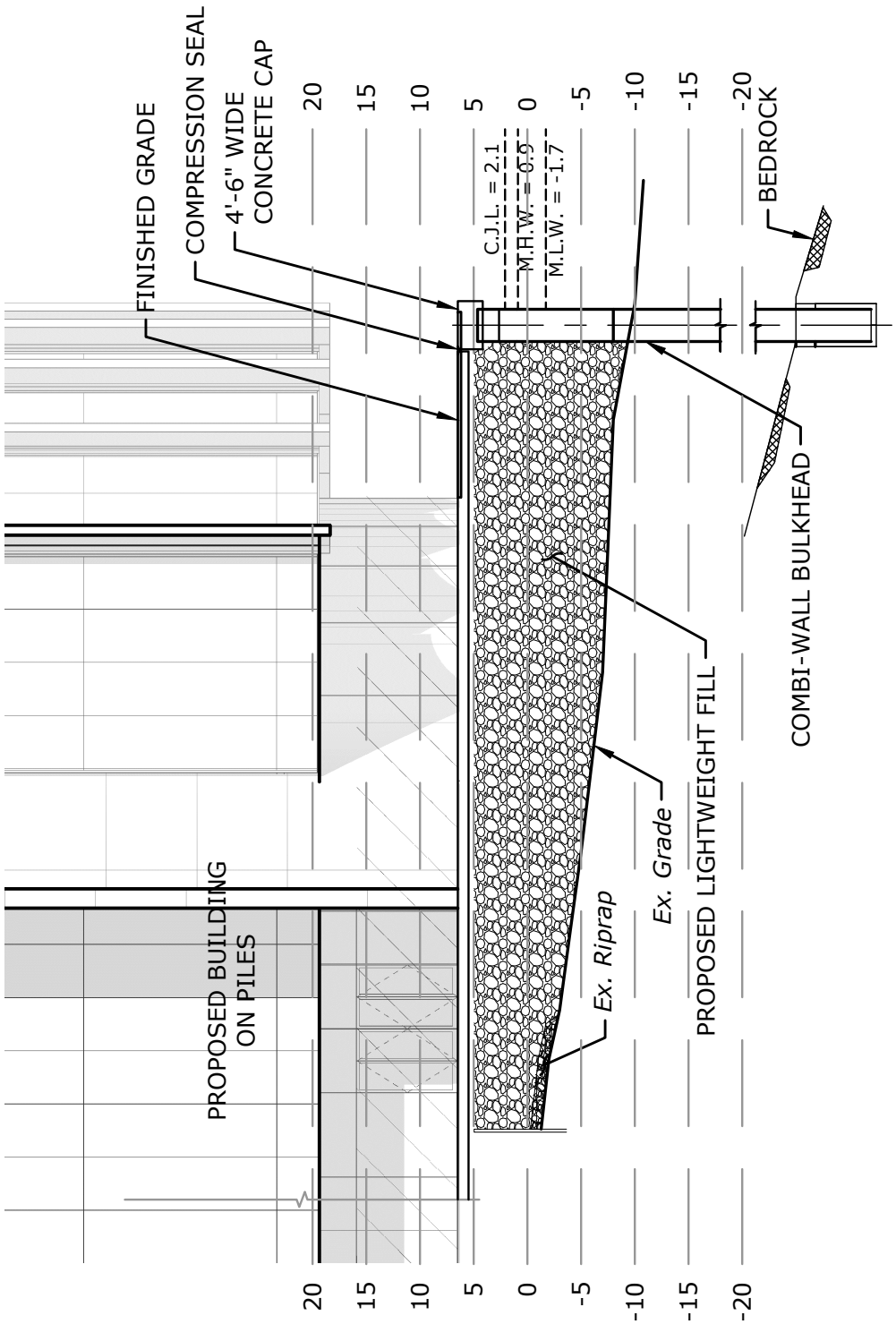

SECTION A-A

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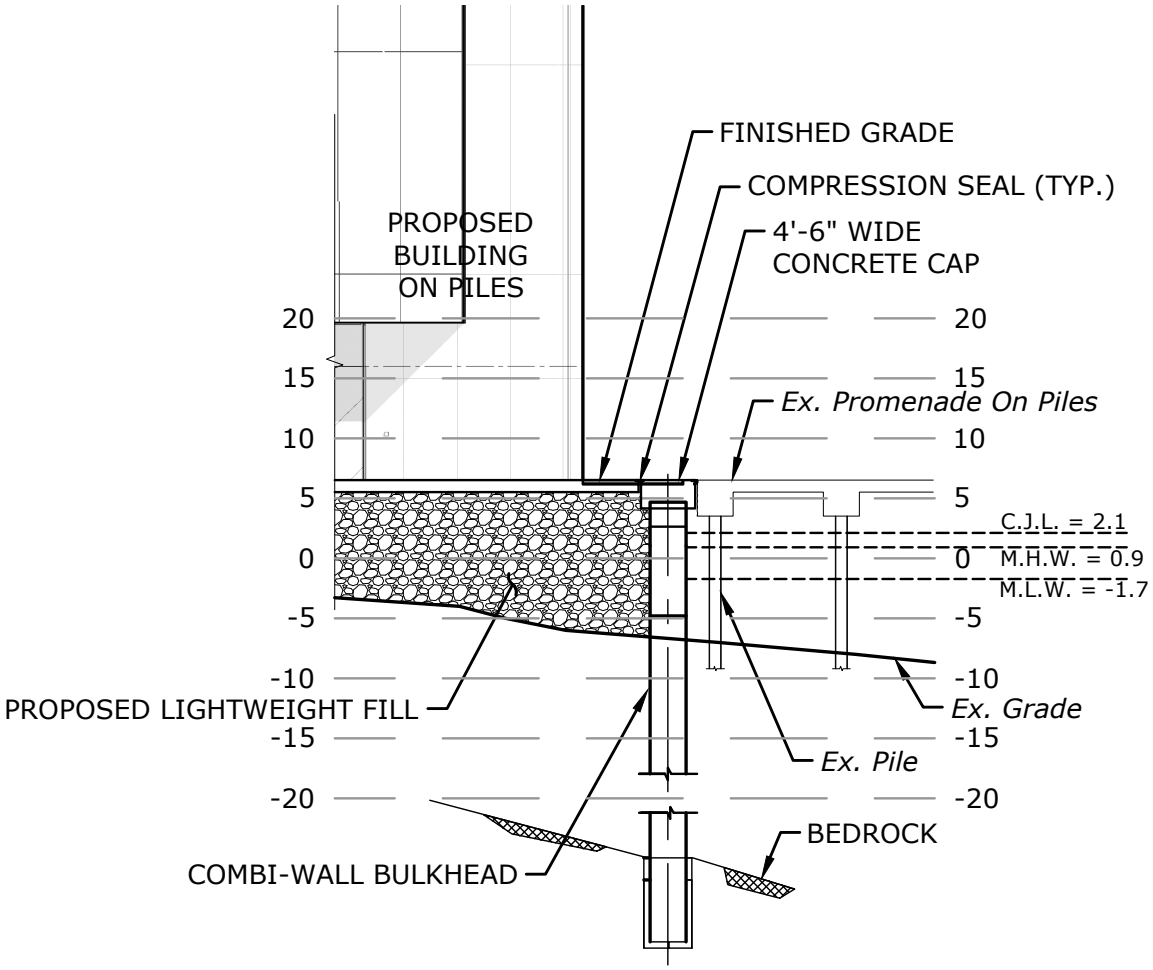
SECTION A-A

NATIONAL COAST GUARD MUSEUM

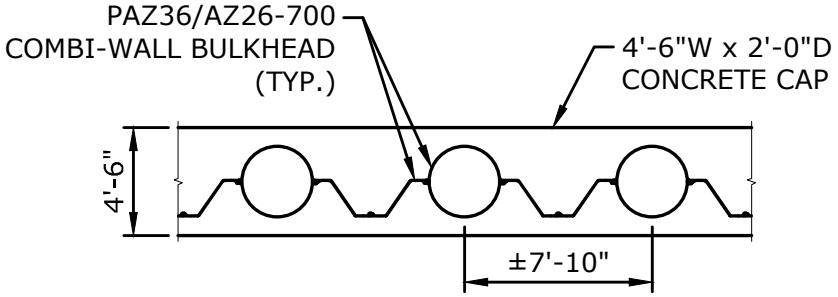
MBLU: G12/ 108/ 1.0/1 /
WATER STREET
NEW LONDON, CONNECTICUT

PROJECT PHASE: **ENVIRONMENTAL PERMIT** REV:

DATE **OCTOBER 15, 2018**			
SCALE **1/16" = 1'-0"**			
PROJ. NO. **5139-01**			
DESIGNED **KP**	DRAWN **NP**	CHECKED **KP**	
DRAWING NAME: **06**			



SECTION B-B



STEEL BULKHEAD - PLAN

SCALE: ⅛"=1'-0"

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SECTION B-B

NATIONAL COAST GUARD MUSEUM

MBLU: G12/ 108/ 1.0/1 /
WATER STREET
NEW LONDON, CONNECTICUT

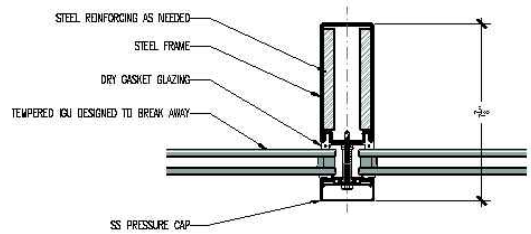
PROJECT PHASE: **ENVIRONMENTAL PERMIT** REV: **---**

DATE	**OCTOBER 15, 2018**
SCALE	**1" = 60'**
PROJ. NO.	**5139-01**

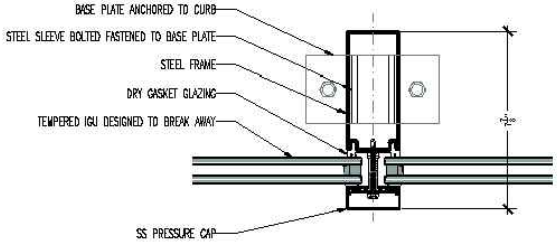
DESIGNED	DRAWN	CHECKED
KP	**NP**	**KP**

DRAWING NAME:

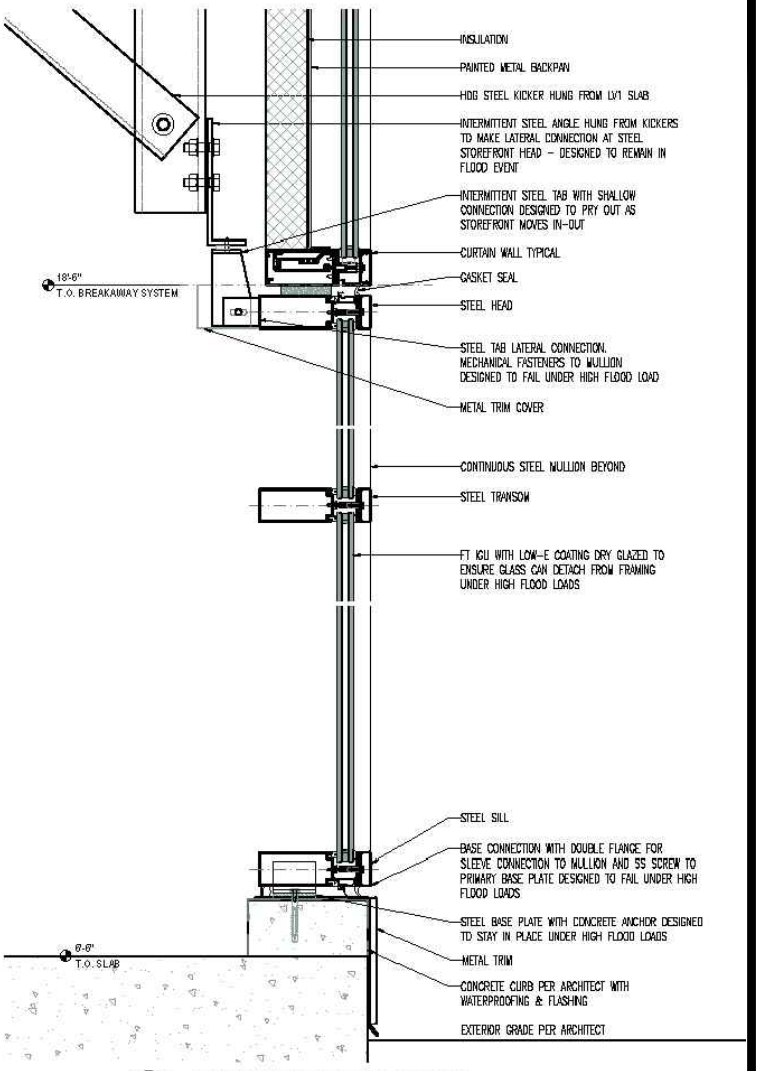
07



3 PODIUM SF MULLION - TYPICAL
PLAN [SCALE 1:10]



2 PODIUM SF MULLION - BASE CONNECTION
PLAN [SCALE 1:10]



1 PODIUM BREAKAWAY STOREFRONT
SECTION [SCALE 1:16]

NOTE:
BREAKAWAY CURTAINWALL DETAIL IS TYPICAL AT MUSEUM BUILDING AND PEDESTRIAN BRIDGE STAIR ENCLOSURE AT GRADE.

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BREAKAWAY CURTAIN WALL

NATIONAL COAST GUARD MUSEUM

MBLU: G12/ 108/ 1.0/1 /
WATER STREET
NEW LONDON, CONNECTICUT

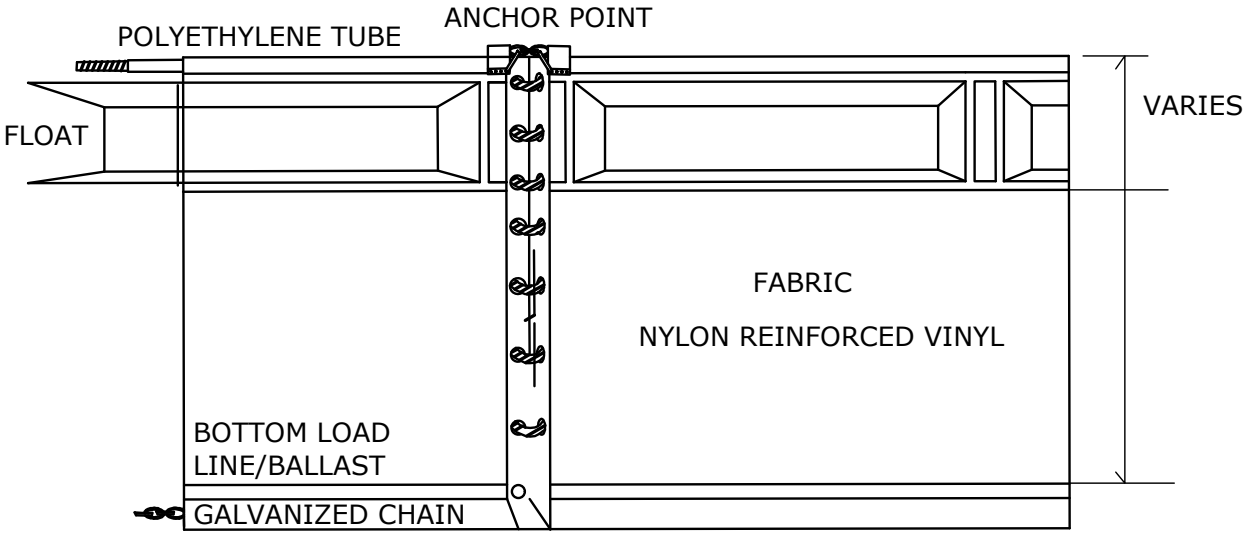
PROJECT PHASE: **ENVIRONMENTAL PERMIT** REV: **---**

DATE	**OCTOBER 15, 2018**
SCALE	**NOT TO SCALE**
PROJ. NO.	**5139-01**

DESIGNED	DRAWN	CHECKED
RE	**TT**	**TD**

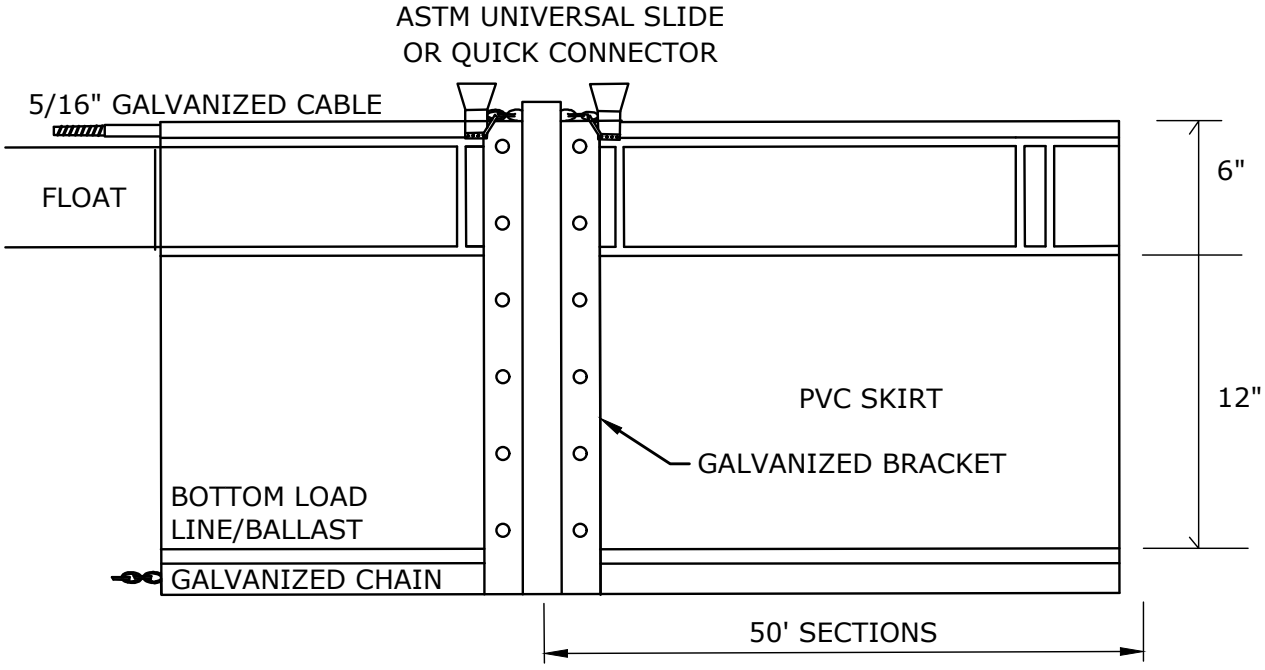
DRAWING NAME:

08



TURBIDITY CURTAIN

NOT TO SCALE



OIL BOOM

NOT TO SCALE

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TURBIDITY CURTAIN/OIL BOOM

NATIONAL COAST GUARD MUSEUM

MBLU: G12/ 108/ 1.0/1 /
WATER STREET
NEW LONDON, CONNECTICUT

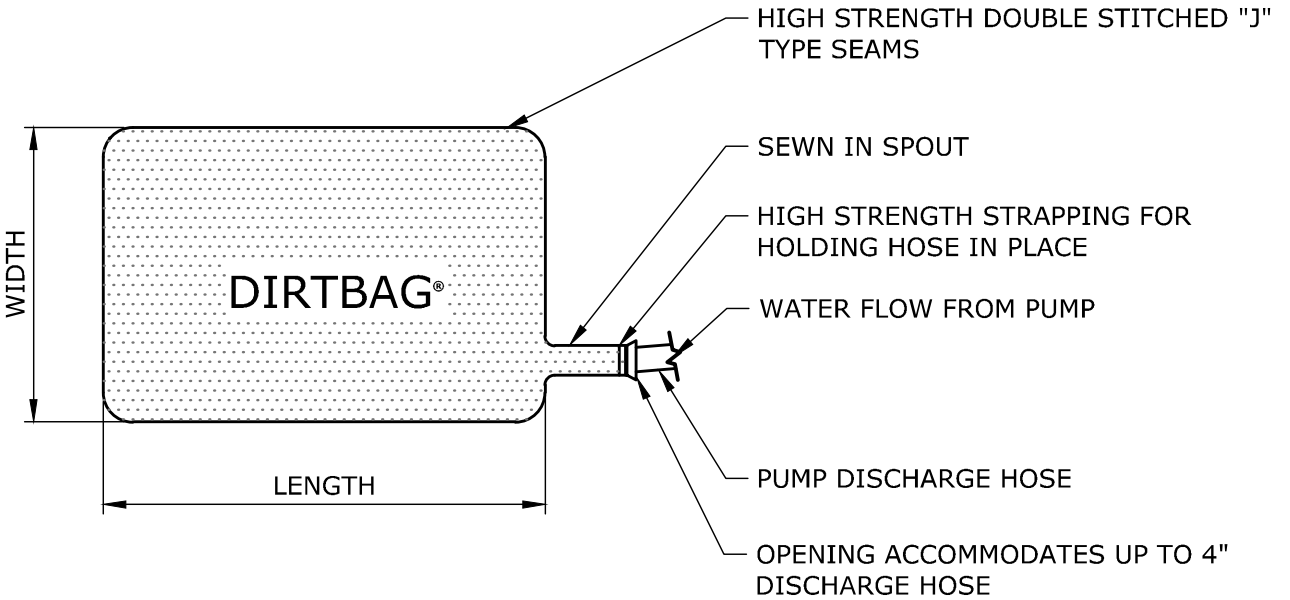
PROJECT PHASE: **ENVIRONMENTAL PERMIT** REV: **---**

DATE	**OCTOBER 15, 2018**
SCALE	**NOT TO SCALE**
PROJ. NO.	**5139-01**

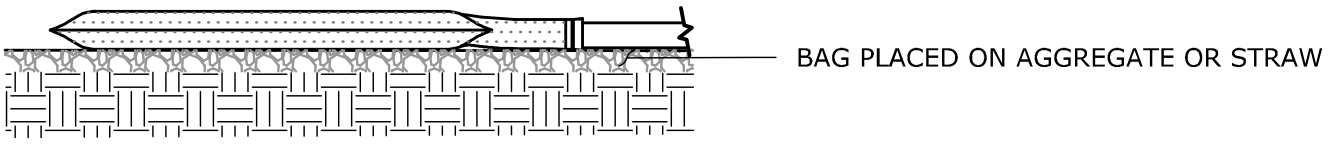
DESIGNED	DRAWN	CHECKED
RE	**TT**	**TD**

DRAWING NAME:

09



TOP VIEW



SIDE VIEW

DIRTBAG PUMPED SILT CONTROL SYSTEM

NOT TO SCALE

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DIRTBAG PUMPED SILT CONTROL SYSTEM

NATIONAL COAST GUARD MUSEUM

MBLU: G12/ 108/ 1.0/1 /
WATER STREET
NEW LONDON, CONNECTICUT

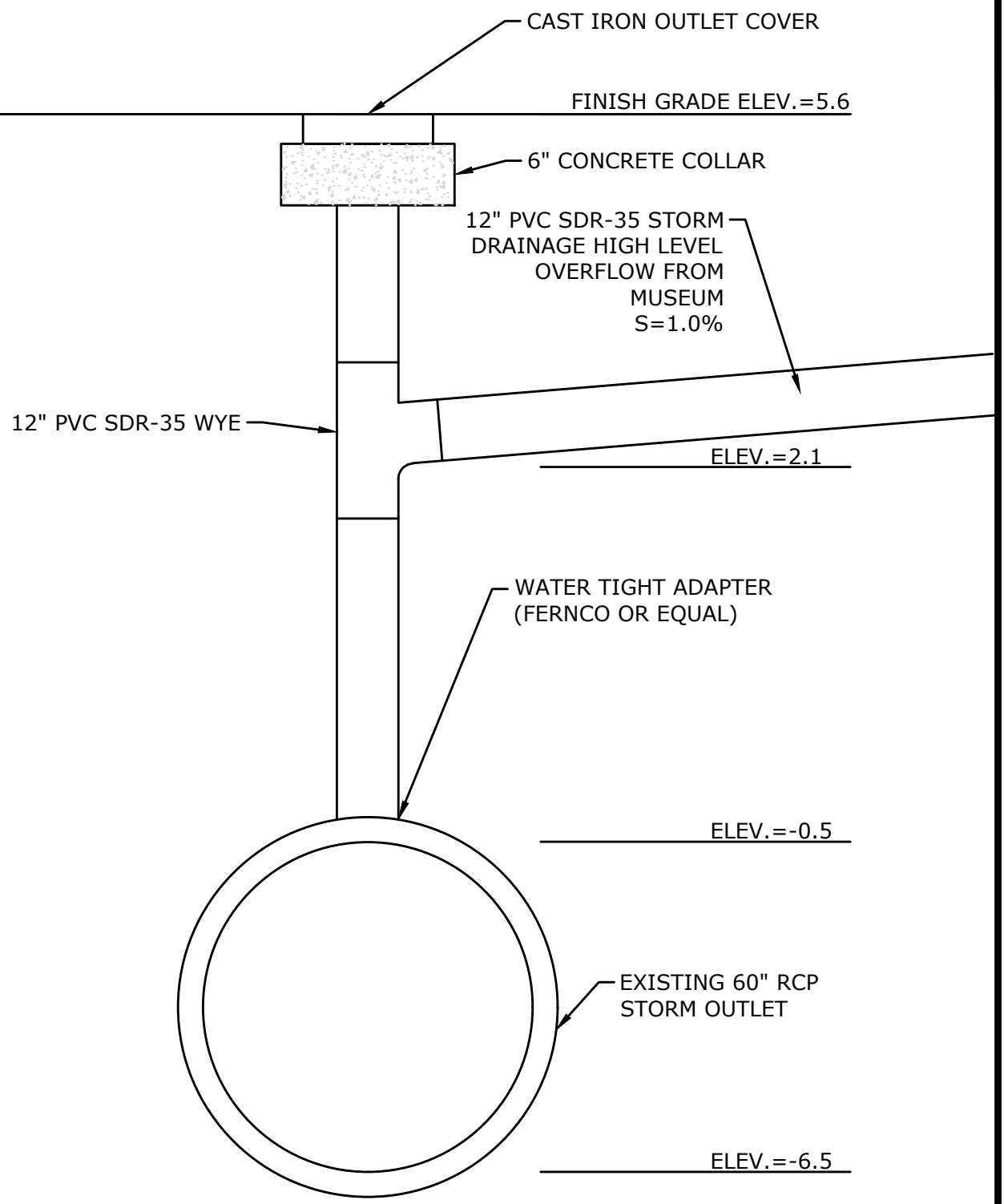
PROJECT PHASE: **ENVIRONMENTAL PERMIT** REV: **---**

DATE	**OCTOBER 15, 2018**
SCALE	**NOT TO SCALE**
PROJ. NO.	**5139-01**

DESIGNED	DRAWN	CHECKED
RE	**TT**	**TD**

DRAWING NAME:

10



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PIPE CONNECTION TO EXISTING 60" RCP

NATIONAL COAST GUARD MUSEUM

MBLU: G12/ 108/ 1.0/1 /
WATER STREET
NEW LONDON, CONNECTICUT

PROJECT PHASE: **ENVIRONMENTAL PERMIT** REV: **---**

DATE	**OCTOBER 15, 2018**
SCALE	**NOT TO SCALE**
PROJ. NO.	**5139-01**

DESIGNED	DRAWN	CHECKED
RE	**TT**	**TD**

DRAWING NAME:

11

APPENDIX B2

CT DEEP CONCURRENCE DETERMINATION

Connecticut Department of
ENERGY &
ENVIRONMENTAL
PROTECTION

79 Elm Street • Hartford, CT 06106-5127 www.ct.gov/deep Affirmative Action/Equal Opportunity Employer

Date: August 24, 2021

Andrew Haley, Chief, Office of Environmental Management
United States Coast Guard
2703 Martin Luther King Jr. Avenue SE, Stop 7714
Washington, DC 20591-7103

RE: Federal Coastal Consistency #201913666-FCC
Coast Guard Museum, New London

Dear Mr. Haley:

The Department of Energy & Environmental Protection ("Department") has reviewed your request for federal consistency concurrence to construct an approximately 80,000 square foot building to serve as the National Coast Guard Museum on property that is located off Water Street in New London, CT pursuant to section 307(c)(1) of the Coastal Zone Management Act of 1972, as amended, and Subpart C of 15 Code of Federal Regulations ('CFR'), Part 930. Specifically, as described in the submitted application and shown on the enclosed thirteen (13) sheets of plans prepared by Milone & MacBroom for the United States Coast Guard. Based on a review of the proposed activities as indicated on the plans and described on the revised application materials received by the Department on May 24, 2021, we concur with your determination that the activity as proposed is consistent with Connecticut's federally approved Coastal Management Program and will be conducted in a manner consistent with that program.

Please be aware that construction of the proposed National Coast Guard Museum is contingent upon receiving approval for #20207398-SDFWQC which seeks approval to remove existing structures, install a steel sheetpile bulkhead and placement of fill material landward of the bulkhead.

Please be advised that any subsequent modifications to the proposed activity, regardless of their magnitude or impact, constitute a new application for the purposes of federal consistency certification. Accordingly, all such modifications must be submitted to this Department for a coastal consistency concurrence pursuant to 15 CFR 930.50.

Thank you for providing a consistency determination and supporting information for our review. Should you have any questions regarding this consistency determination please contact Micheal Grzywinski in the Land & Water Resources Division at 860-424-3674 or micheal.grzywinski@ct.gov.

Sincerely,

Brian P. Thompson, Director
Land & Water Resources Division
Bureau of Water Protection & Land Reuse

Enclosures: Thirteen (13) sheets of plans
cc: Andrew Haley, US Coast Guard, Andrew.s.haley@uscg.mil
RW Pulver, National Coast Guard Museum Association, rwpulver@coastguardmuseum.org
Elizabeth Varner, US Coast Guard, Elizabeth.C.Varner@uscg.mil
Joshua Folckemer, US Coast Guard, Joshua.D.Folckemer@uscg.mil
Andrew Wright, US Coast Guard, Andrew.J.Wright@uscg.mil
Jeanine Armstrong Gouin, SLR Consulting, jgouin@slrconsulting.com
Megan Raymond, SLR Consulting, mraymond@slrconsulting.com
Jane Stahl, jkstahl@comcast.net

Diane Ray, ACOE, Diane.M.Ray@usace.army.mil
Michael Passero, New London Mayor, mpassero@newlondonct.org
Allison Castellan, NOAA, Allison.castellan@noaa.gov
Robert Fromer, saintrobert@comcast.net
File #201913666-FCC, New London

NATIONAL COAST GUARD MUSEUM

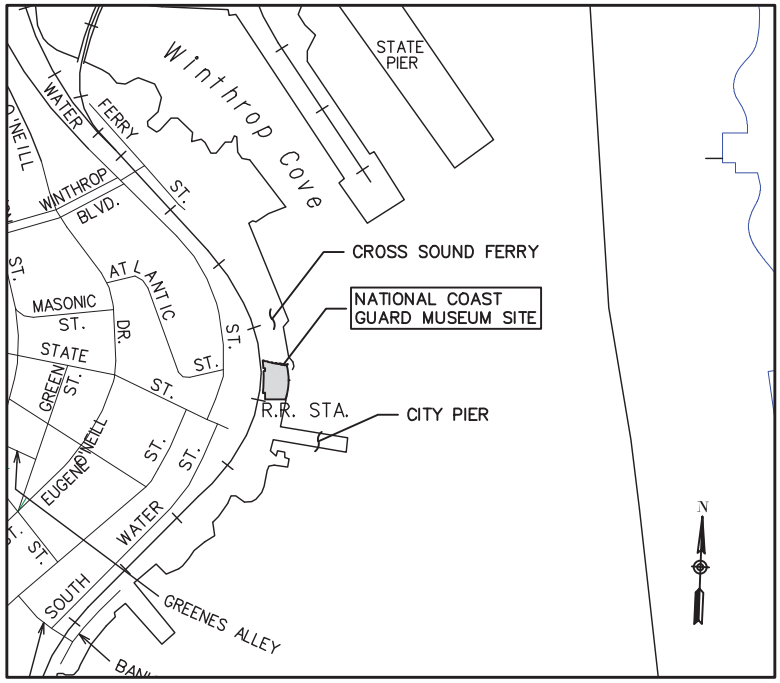
NEW LONDON, CONNECTICUT

401 WATER QUALITY CERTIFICATION AND STRUCTURES, DREDGING & FILL PERMIT APPLICATION

JUNE 2020

NOTES:

1. NAVD 88 DATUM
2. MHW = 1.8' (NGVD 29), 0.9' (NAVD 88)
   MLW = -0.9' (NGVD 29), -1.7' (NAVD 88)
   CJL = 3.10' (NGVD 29), 2.10' (NAVD 88)
3. TOPOGRAPHY AND PLANIMETRIC FEATURES ARE FROM FIELD SURVEY PREPARED BY MILONE AND MACBROOM, INC.



PROJECT VICINITY MAP

NOT TO SCALE

LEGEND

	EDGE OF WATER
70	MAJOR CONTOUR
68	MINOR CONTOUR
	TREE LINE
	UTILITY POLE
	PILING

LIST OF DRAWINGS:

PREPARED FOR:

NATIONAL COAST GUARD MUSEUM ASSOCIATION, INC.
78 HOWARD STREET
SUITE A
NEW LONDON, CT 06320
BUSINESS PHONE: 860-443-4200

SEAL AND SIGNATURE

Kishor Patel

STATE OF CONNECTICUT KISHOR PATEL No. 23980 LICENSED PROFESSIONAL ENGINEER

P.E. CT# 23980

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99 REALTY DRIVE
CHESHIRE, CT 06410
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NATIONAL COAST GUARD MUSEUM

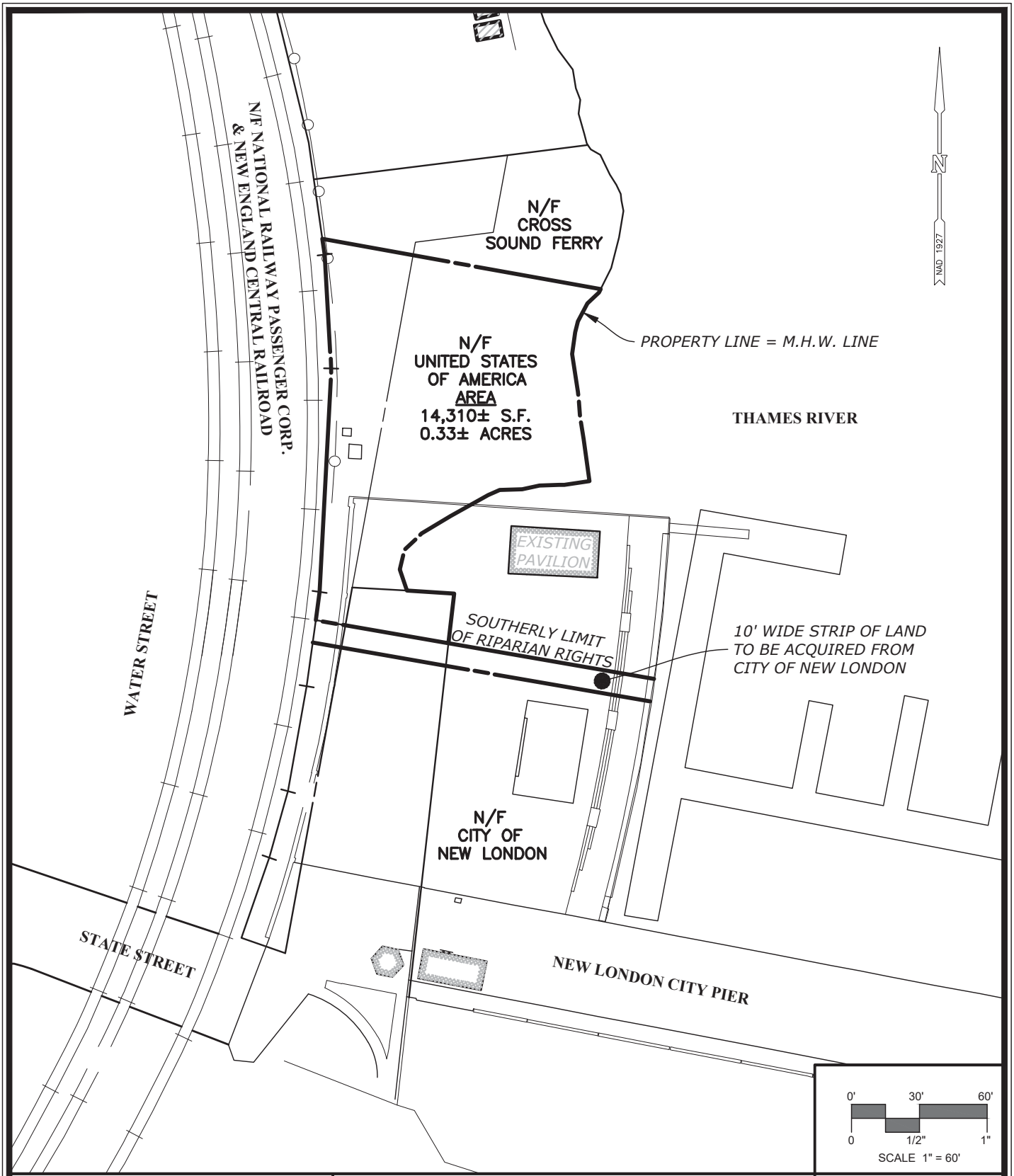
ON: THAMES RIVER
AT: NEW LONDON, CT

TITLE SHEET

LOCATION
MBLU: G12/ 108/ 1.0/1 /
WATER STREET
NEW LONDON, CONNECTICUT

DATE **JUNE 2020**
SCALE **NONE**
PROJ. NO. **5499-05**

SHEET **01**



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PARCEL MAP

NATIONAL COAST GUARD MUSEUM

MBLU: G12/ 108/ 1.0/1 /
WATER STREET
NEW LONDON, CONNECTICUT

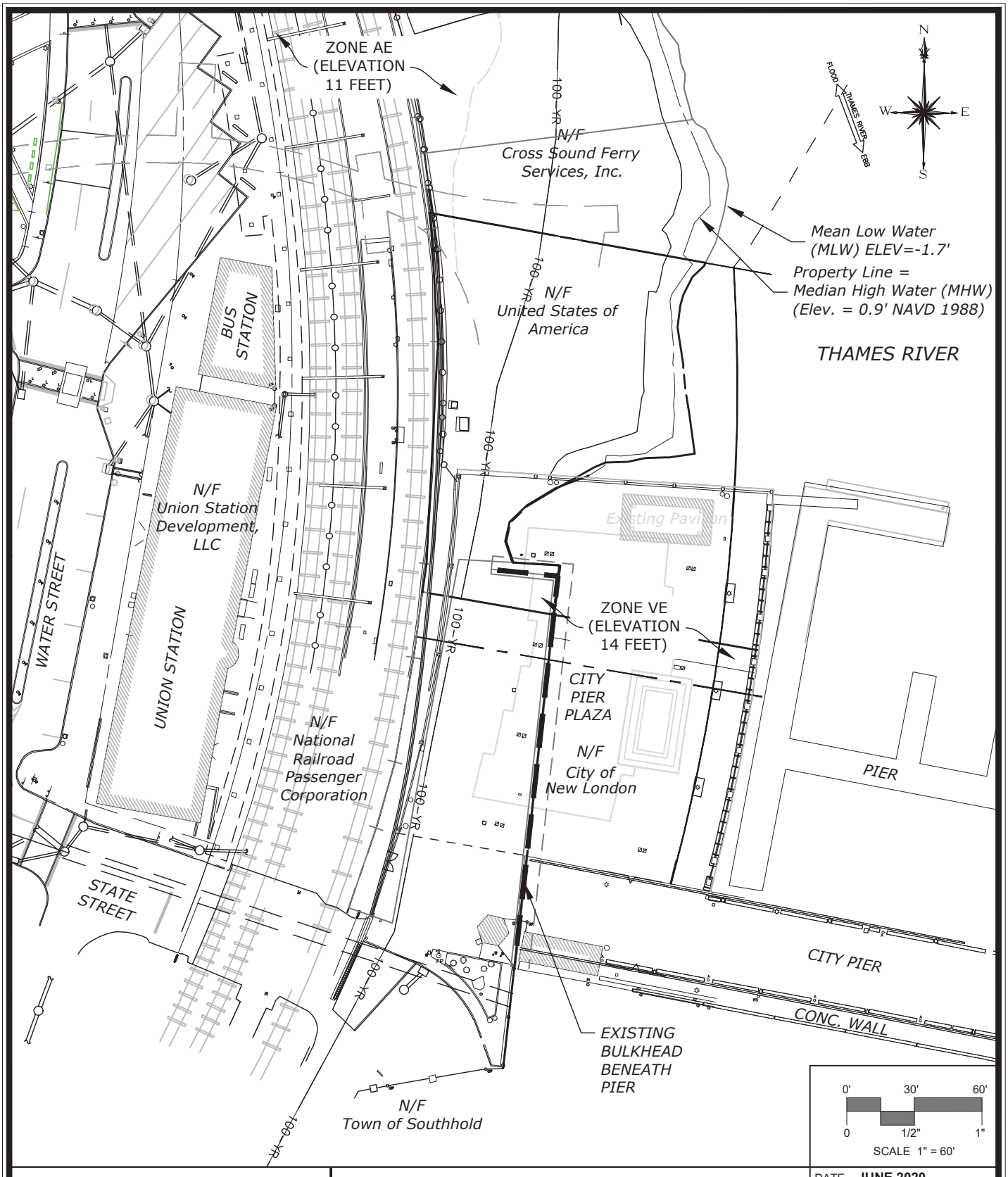
PROJECT PHASE: **ENVIRONMENTAL PERMIT** REV: **---**

DATE	**JUNE 2020**
SCALE	**1" = 60'**
PROJ. NO.	**5499-05**

DESIGNED	DRAWN	CHECKED
RE	**TT**	**TD**

DRAWING NAME:

02



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SITE PLAN - EXISTING CONDITIONS

NATIONAL COAST GUARD MUSEUM

MBLU: G12/ 108/ 1.0/1 /
WATER STREET
NEW LONDON, CONNECTICUT

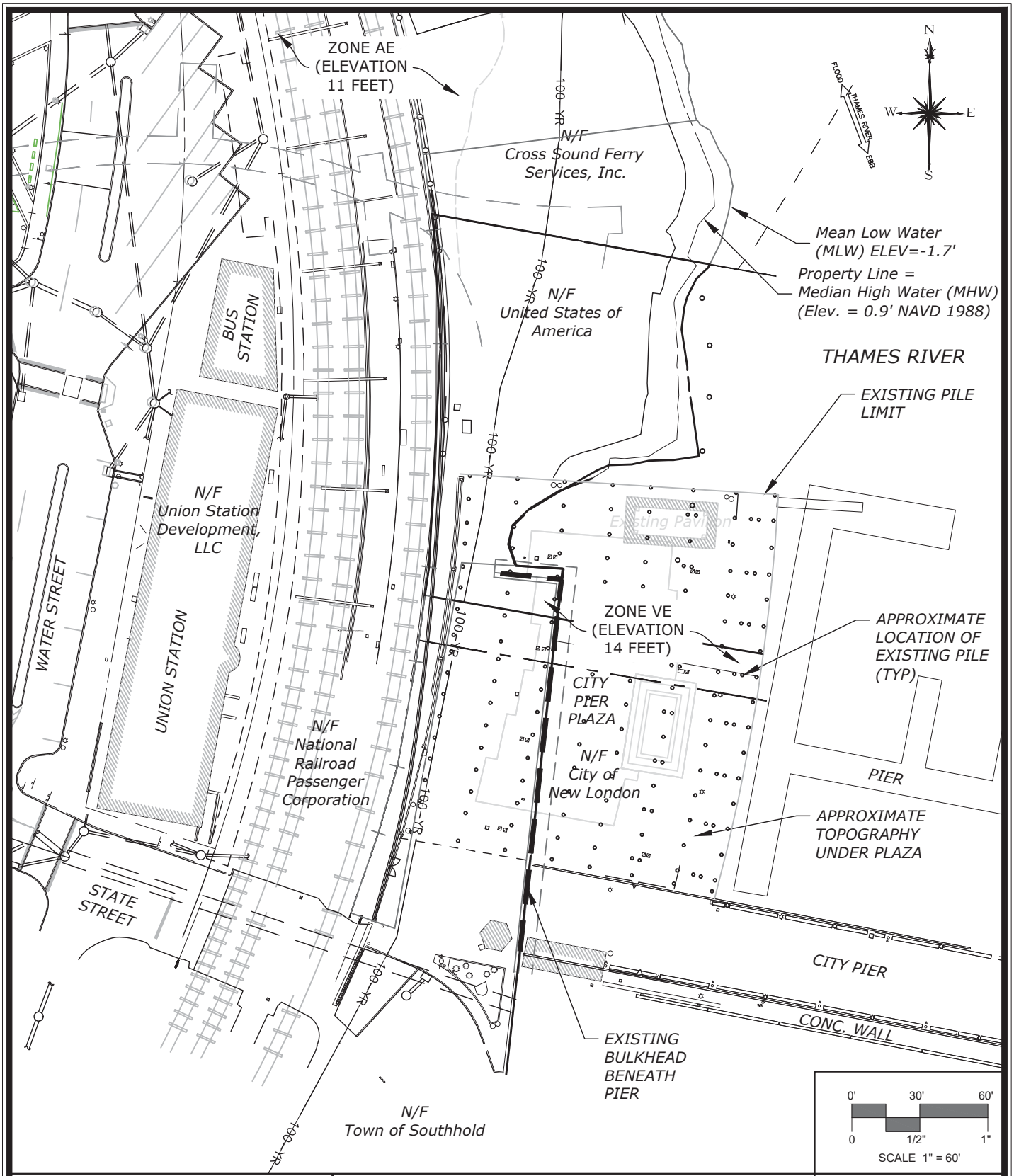
PROJECT PHASE: **ENVIRONMENTAL PERMIT** REV: **---**

DATE	**JUNE 2020**
SCALE	**1" = 60'**
PROJ. NO.	**5499-05**

DESIGNED	DRAWN	CHECKED
RE	**TT**	**TD**

DRAWING NAME:

03



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SITE PLAN - EXISTING CONDITIONS

NATIONAL COAST GUARD MUSEUM

MBLU: G12/ 108/ 1.0/1 /
WATER STREET
NEW LONDON, CONNECTICUT

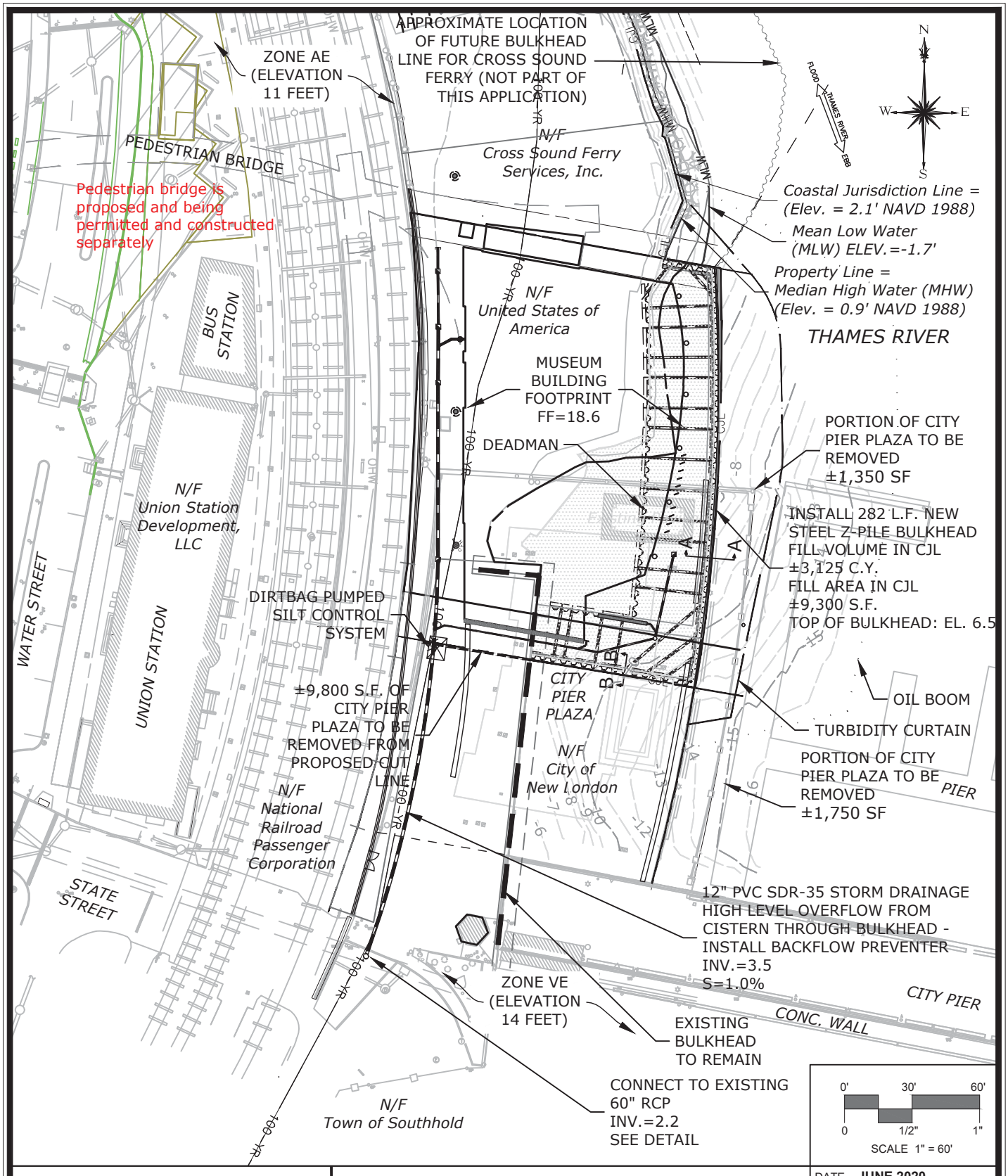
PROJECT PHASE: **ENVIRONMENTAL PERMIT** REV: **---**

DATE	**JUNE 2020**
SCALE	**1" = 60'**
PROJ. NO.	**5499-05**

DESIGNED	DRAWN	CHECKED
RE	**TT**	**TD**

DRAWING NAME:

04



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SITE PLAN - PROPOSED CONDITIONS

NATIONAL COAST GUARD MUSEUM

MBLU: G12/ 108/ 1.0/1 /
WATER STREET
NEW LONDON, CONNECTICUT

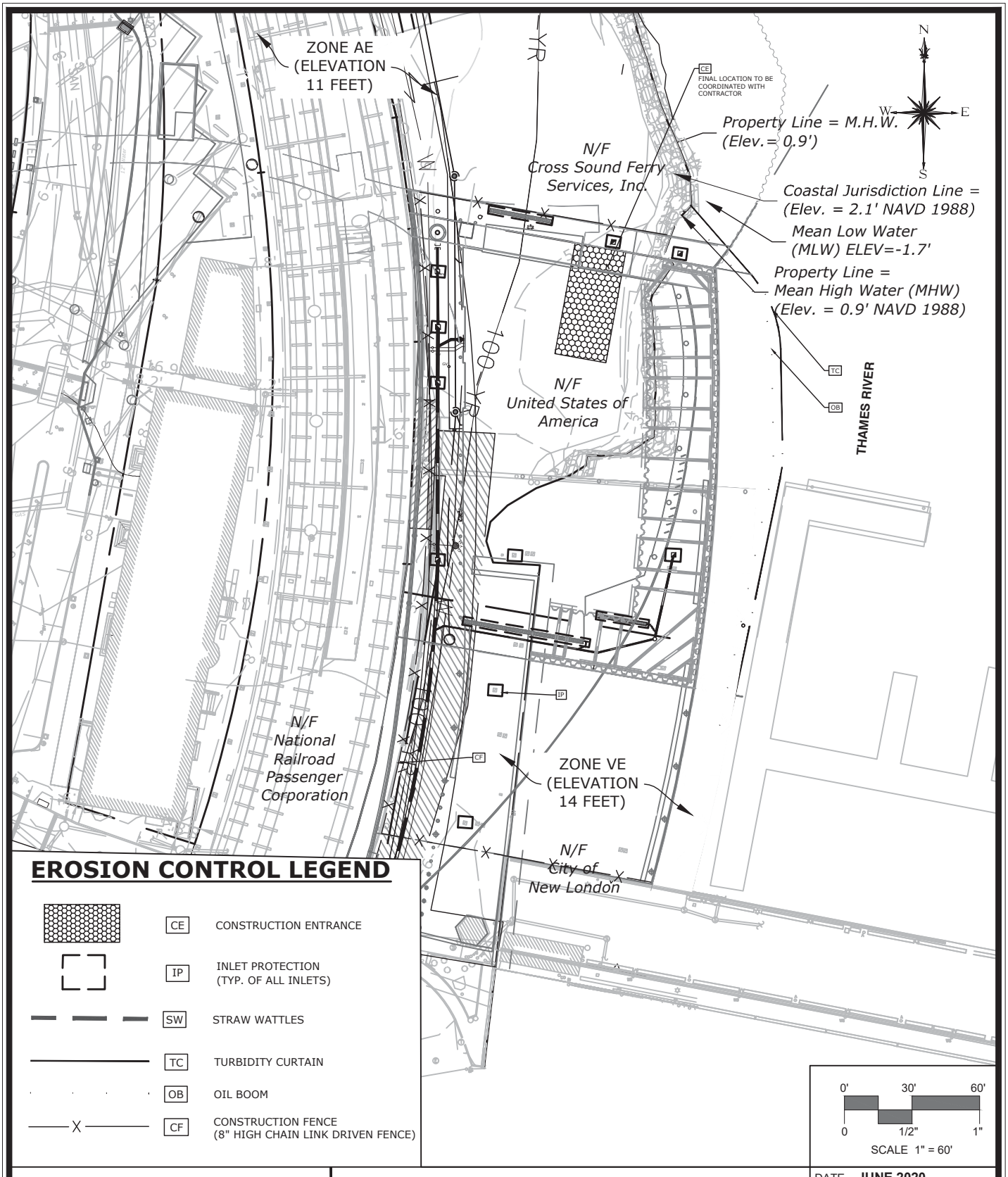
PROJECT PHASE: **ENVIRONMENTAL PERMIT** REV:

DATE	**JUNE 2020**
SCALE	**1" = 60'**
PROJ. NO.	**5499-05**

DESIGNED	DRAWN	CHECKED
RE	**TT**	**TD**

DRAWING NAME:

05



EROSION CONTROL LEGEND

	CE	CONSTRUCTION ENTRANCE
	IP	INLET PROTECTION (TYP. OF ALL INLETS)
	SW	STRAW WATTLES
	TC	TURBIDITY CURTAIN
	OB	OIL BOOM
X	CF	CONSTRUCTION FENCE (8" HIGH CHAIN LINK DRIVEN FENCE)

0' 30' 60'
0 1/2" 1"
SCALE 1" = 60'

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SEDIMENT AND EROSION CONTROL PLAN

NATIONAL COAST GUARD MUSEUM

MBLU: G12/ 108/ 1.0/1 /
WATER STREET
NEW LONDON, CONNECTICUT

PROJECT PHASE: **ENVIRONMENTAL PERMIT** REV:

DATE	**JUNE 2020**
SCALE	**1" = 60'**
PROJ. NO.	**5499-05**

DESIGNED	DRAWN	CHECKED
RE	**TT**	**TD**

DRAWING NAME:

06

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SECTION A-A

NATIONAL COAST GUARD MUSEUM

MBLU: G12/ 108/ 1.0/1 /
WATER STREET
NEW LONDON, CONNECTICUT

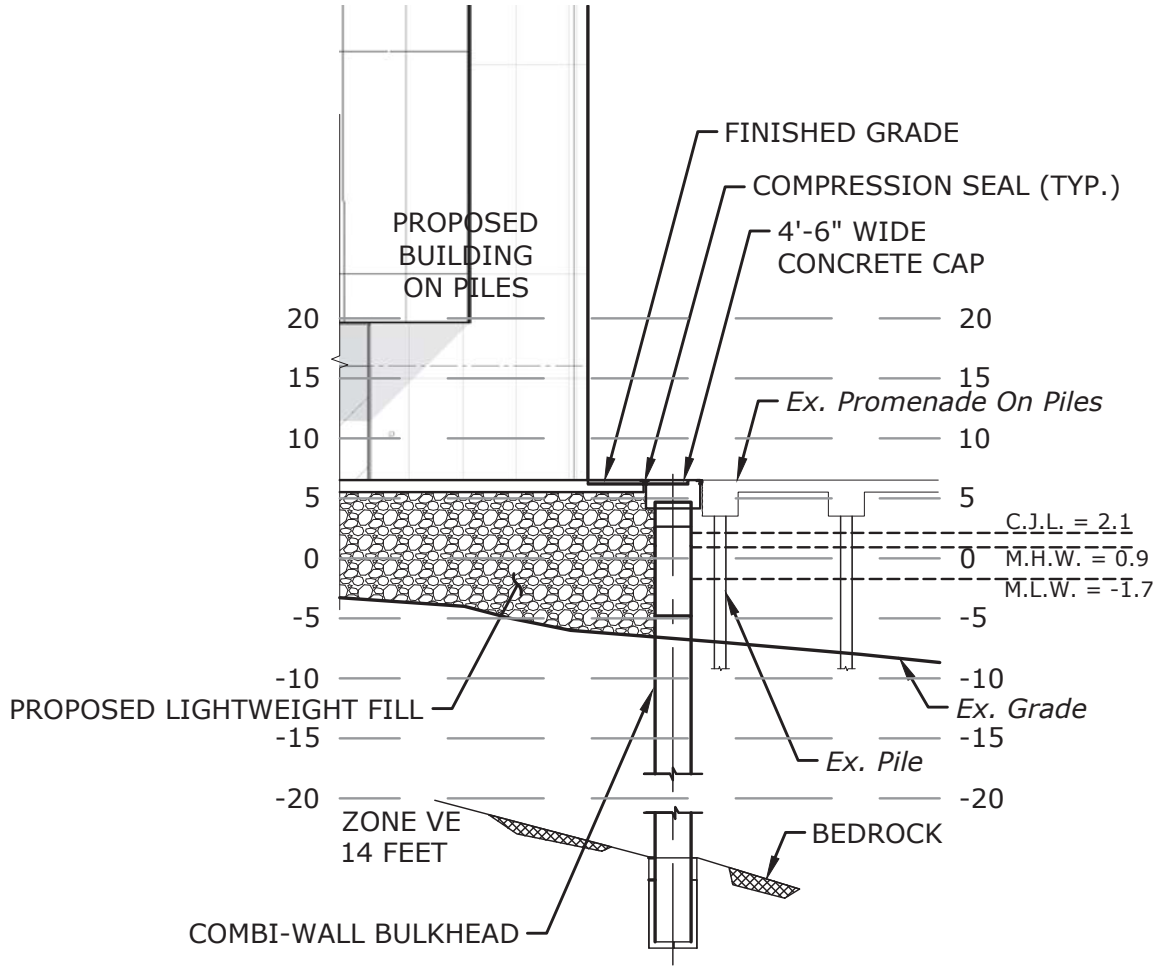
PROJECT PHASE: **ENVIRONMENTAL PERMIT** REV: 7/23/2019

DATE	**JUNE 2020**
SCALE	**1/16" = 1'-0"**
PROJ. NO.	**5499-05**

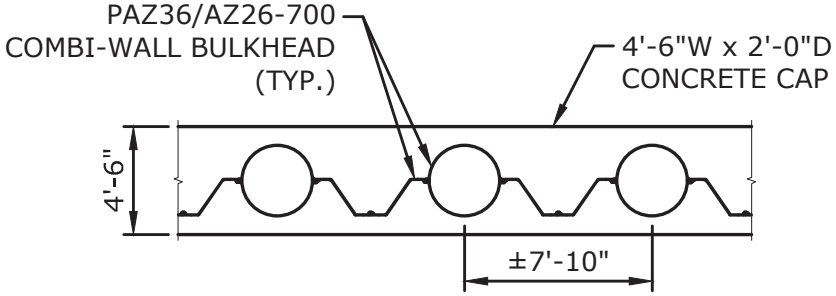
DESIGNED	DRAWN	CHECKED
KP	**NP**	**KP**

DRAWING NAME:

07



SECTION B-B



STEEL BULKHEAD - PLAN

SCALE: ⅛"=1'-0"

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SECTION B-B

NATIONAL COAST GUARD MUSEUM

MBLU: G12/ 108/ 1.0/1 /
WATER STREET
NEW LONDON, CONNECTICUT

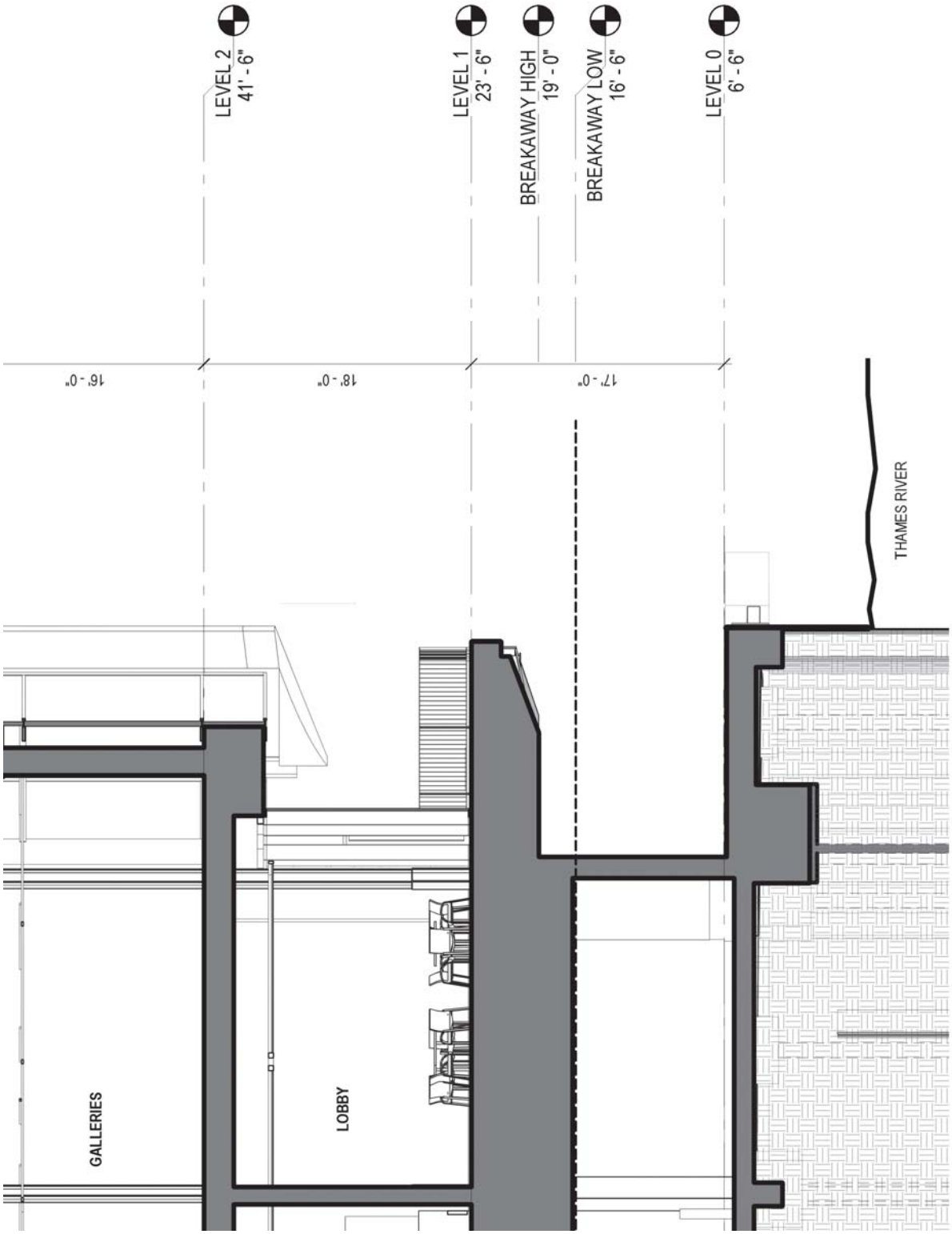
PROJECT PHASE: **ENVIRONMENTAL PERMIT** REV: **---**

DATE	**JUNE 2020**
SCALE	**1" = 60'**
PROJ. NO.	**5499-05**

DESIGNED	DRAWN	CHECKED
KP	**NP**	**KP**

DRAWING NAME:

08



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MUSEUM SECTION VIEW

NATIONAL COAST GUARD MUSEUM

MBLU: G12/ 108/ 1.0/1 /
WATER STREET
NEW LONDON, CONNECTICUT

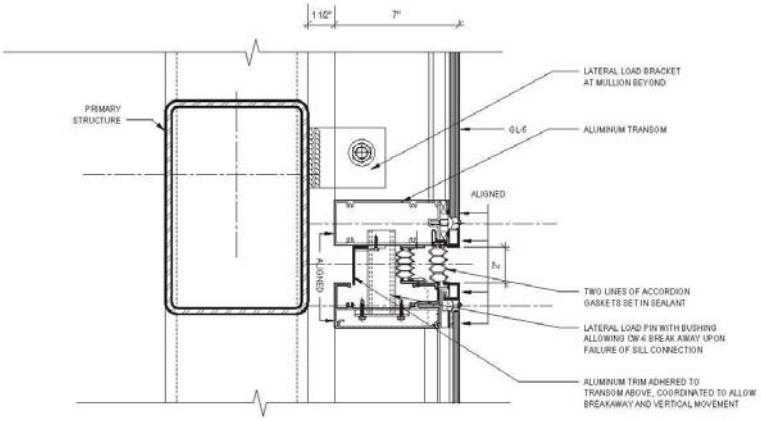
PROJECT PHASE: **ENVIRONMENTAL PERMIT** REV: **---**

DATE	**JUNE 2020**
SCALE	**NOT TO SCALE**
PROJ. NO.	**5499-05**

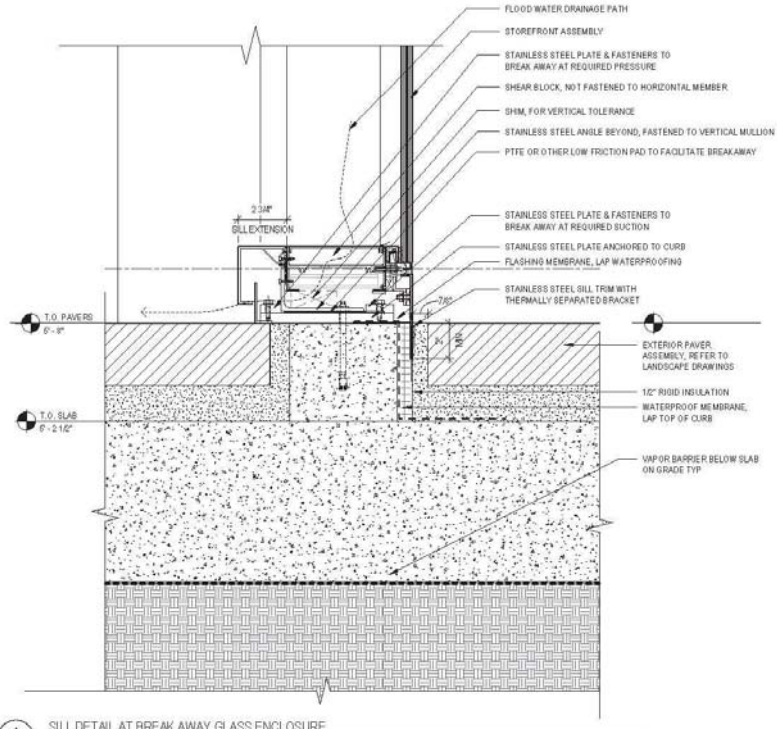
DESIGNED	DRAWN	CHECKED
RE	**TT**	**TD**

DRAWING NAME:

09



2 HEAD DETAIL AT BREAK AWAY GLASS ENCLOSURE
SCALE: 1 1/2" = 1'-0"



1 SILL DETAIL AT BREAK AWAY GLASS ENCLOSURE
SCALE: 1 1/2" = 1'-0"

MILONE & MACBROOM
99 REALTY DRIVE
CHESHIRE, CT 06410
203.271.1773
WWW.MMINC.COM

BREAKAWAY CURTAIN WALL

NATIONAL COAST GUARD MUSEUM

MBLU: G12/ 108/ 1.0/1 /
WATER STREET
NEW LONDON, CONNECTICUT

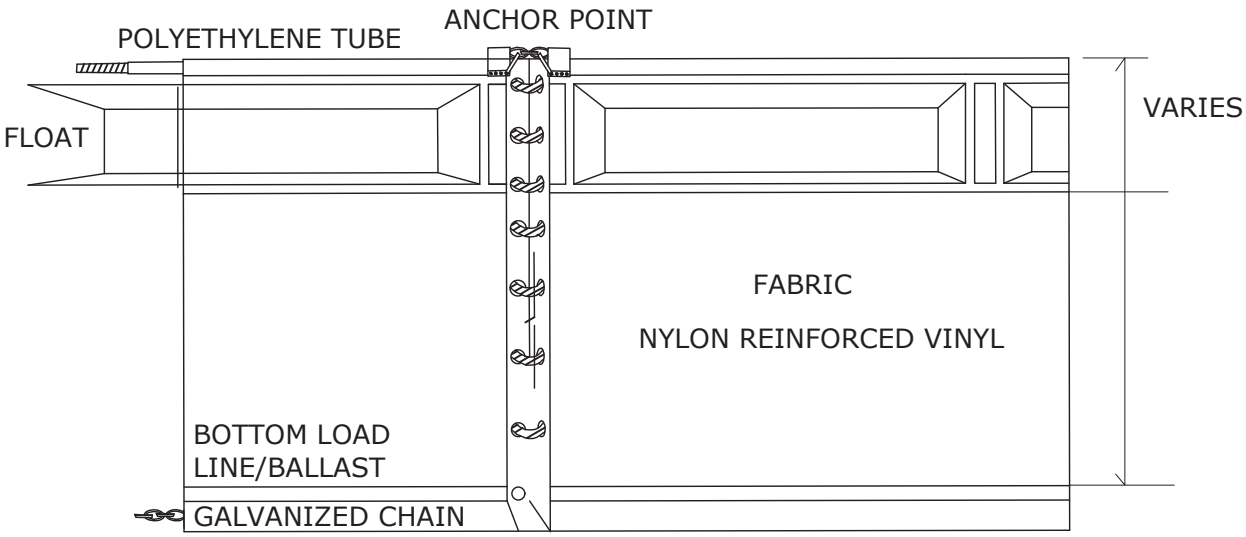
PROJECT PHASE: **ENVIRONMENTAL PERMIT** REV: **---**

DATE	**JUNE 2020**
SCALE	**NOT TO SCALE**
PROJ. NO.	**5499-05**

DESIGNED	DRAWN	CHECKED
RE	**TT**	**TD**

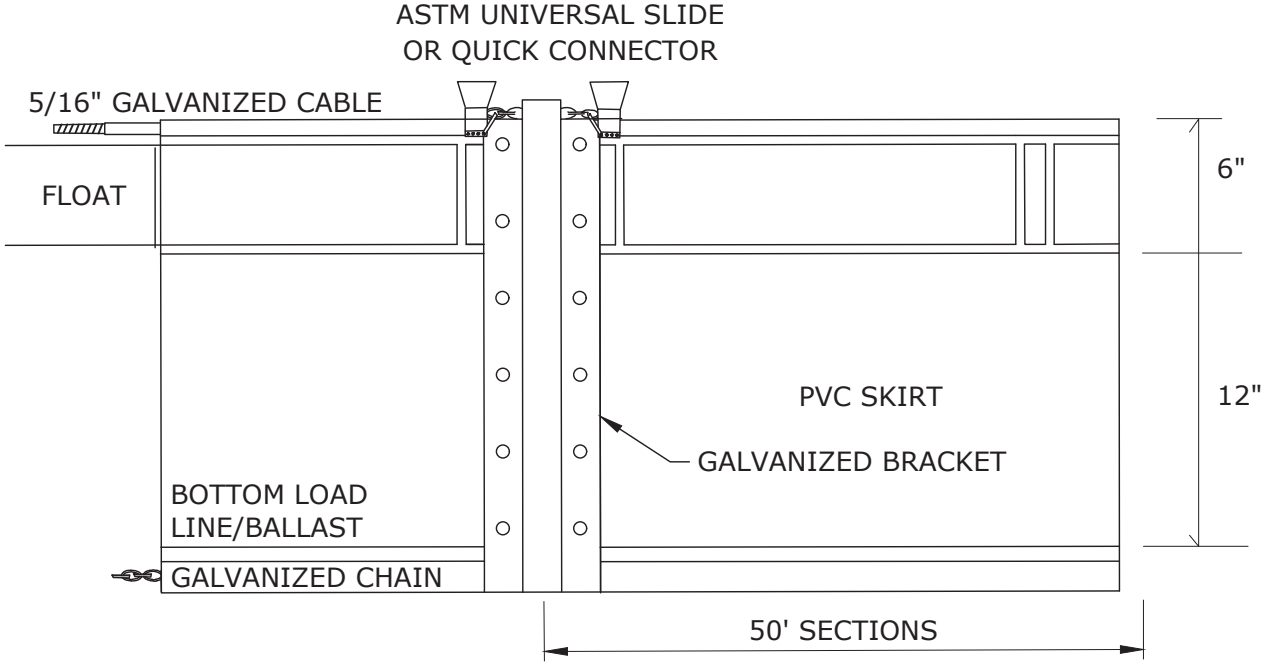
DRAWING NAME:

10



TURBIDITY CURTAIN

NOT TO SCALE



OIL BOOM

NOT TO SCALE

MILONE & MACBROOM
99 REALTY DRIVE
CHESHIRE, CT 06410
203.271.1773
WWW.MMINC.COM

TURBIDITY CURTAIN/OIL BOOM

NATIONAL COAST GUARD MUSEUM

MBLU: G12/ 108/ 1.0/1 /
WATER STREET
NEW LONDON, CONNECTICUT

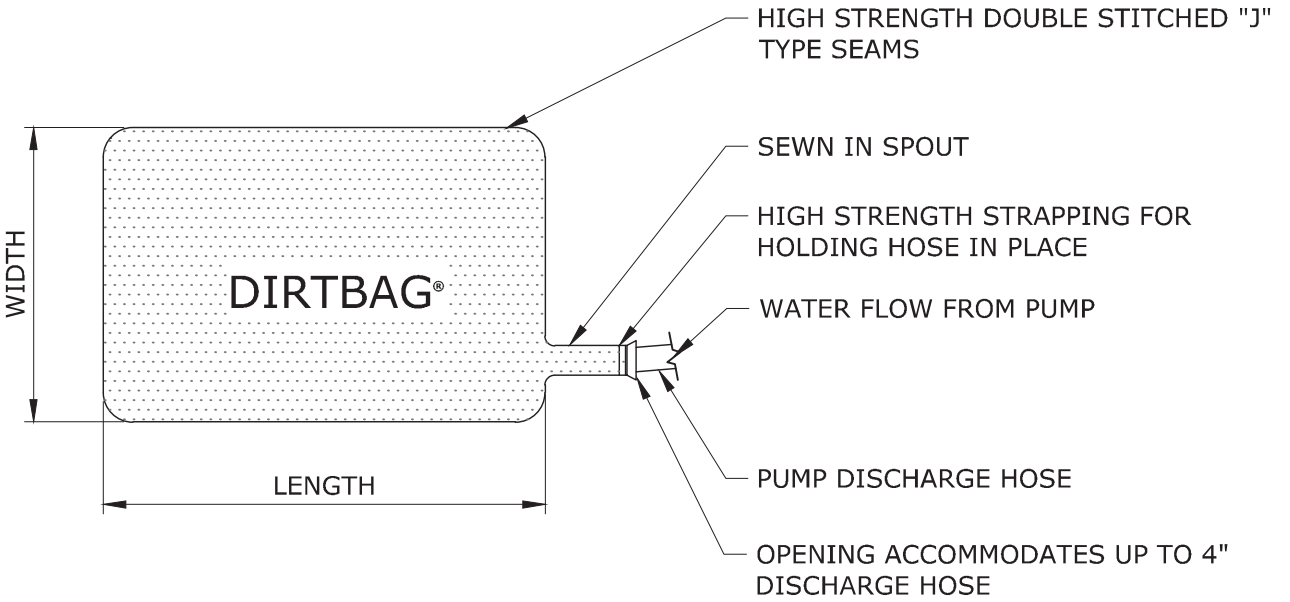
PROJECT PHASE: **ENVIRONMENTAL PERMIT** REV: **---**

DATE	**JUNE 2020**
SCALE	**NOT TO SCALE**
PROJ. NO.	**5499-05**

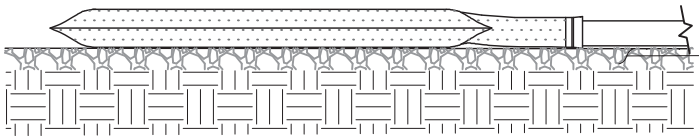
DESIGNED	DRAWN	CHECKED
RE	**TT**	**TD**

DRAWING NAME:

11



TOP VIEW



SIDE VIEW

DIRTBAG PUMPED SILT CONTROL SYSTEM

NOT TO SCALE

MILONE & MACBROOM
99 REALTY DRIVE
CHESHIRE, CT 06410
203.271.1773
WWW.MMINC.COM

DIRTBAG PUMPED SILT CONTROL SYSTEM

NATIONAL COAST GUARD MUSEUM

MBLU: G12/ 108/ 1.0/1 /
WATER STREET
NEW LONDON, CONNECTICUT

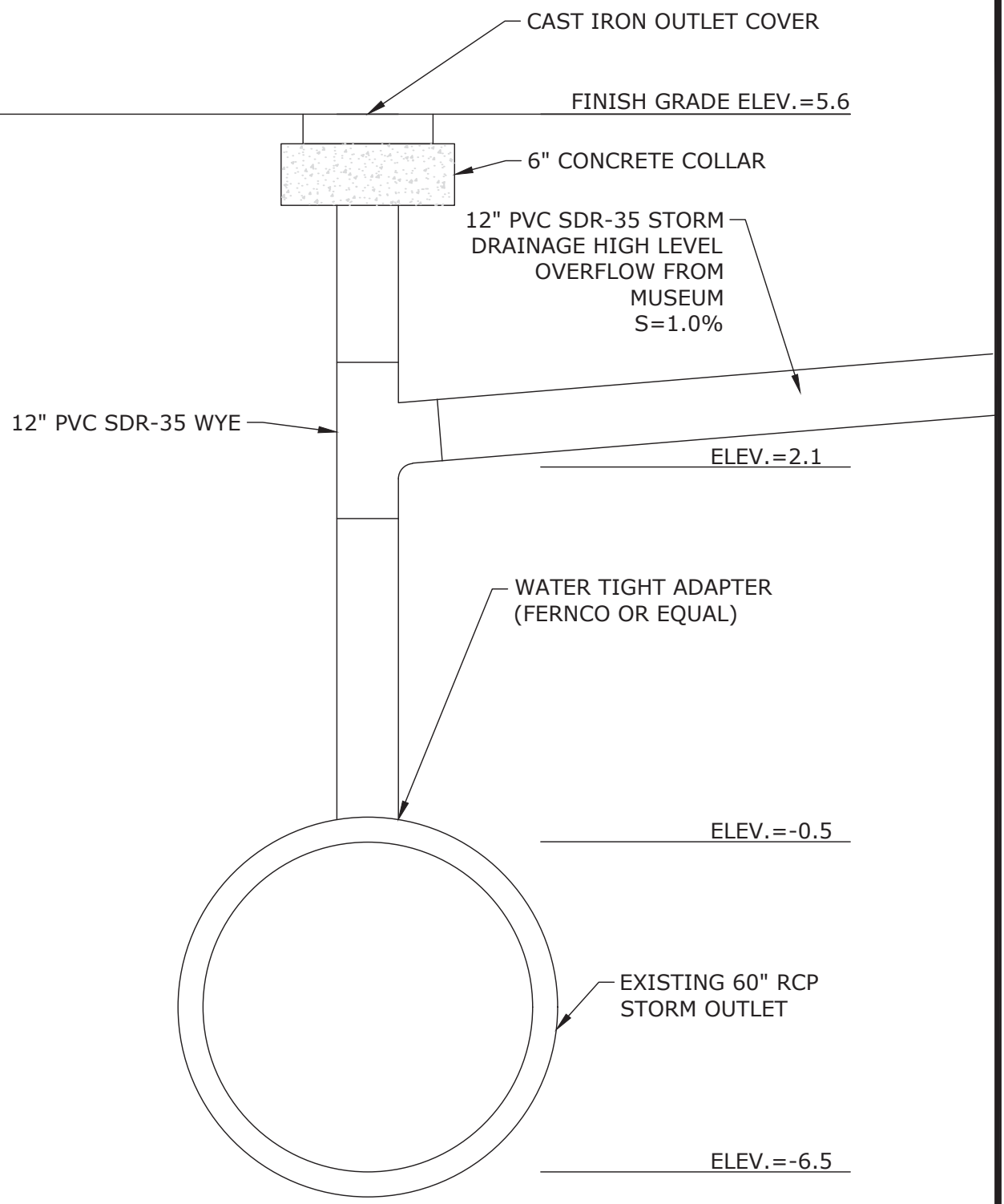
PROJECT PHASE: **ENVIRONMENTAL PERMIT** REV: **---**

DATE	**JUNE 2020**
SCALE	**NOT TO SCALE**
PROJ. NO.	**5499-05**

DESIGNED	DRAWN	CHECKED
RE	**TT**	**TD**

DRAWING NAME:

12



MILONE & MACBROOM
99 REALTY DRIVE
CHESHIRE, CT 06410
203.271.1773
WWW.MMINC.COM

PIPE CONNECTION TO EXISTING 60" RCP

NATIONAL COAST GUARD MUSEUM

MBLU: G12/ 108/ 1.0/1 /
WATER STREET
NEW LONDON, CONNECTICUT

PROJECT PHASE: **ENVIRONMENTAL PERMIT** REV: **---**

DATE	**JUNE 2020**
SCALE	**NOT TO SCALE**
PROJ. NO.	**5499-05**

DESIGNED	DRAWN	CHECKED
RE	**TT**	**TD**

DRAWING NAME:

13

APPENDIX C

Biological Resources

Appendix C3 – 2017 Natural Diversity Data Base Request

Appendix C4 – 2017 Natural Diversity Data Base Response

Appendix C5 – EFH Correspondence

Appendix C6 – 2020 Natural Diversity Data Base Response

Appendix C7 – CT DEEP Fisheries Consultation

Appendix C8 - 2019 NOAA Letter of Concurrence

APPENDIX C3
2017 NATURAL DIVERSITY DATABASE REQUEST

Connecticut Department of
Energy & Environmental Protection
Bureau of Natural Resources
Wildlife Division

CPPU USE ONLY
App #:_____
Doc #:_____
Check #: No fee required
Program: Natural Diversity Database **Endangered Species**
Hardcopy _____ **Electronic** _____

Request for Natural Diversity Data Base (NDDB) State Listed Species Review

Please complete this form in accordance with the instructions (DEEP-INST-007) to ensure proper handling of your request.
There are no fees associated with NDDB Reviews.

Part I: Preliminary Screening & Request Type

Before submitting this request, you must review the most current Natural Diversity Data Base "State and Federal Listed Species and Significant Natural Communities Maps" found on the DEEP website. These maps are updated twice a year, usually in June and December.

Does your site, including all affected areas, fall in an NDDB Area according to the map instructions:

☒ Yes ☐ No **Enter the date** of the map reviewed for pre-screening: **08/01/2017**

This form is being submitted for a :

☒ *New* NDDB request ☐ *Renewal/Extension* of a NDDB Request, ***without*** *modifications and within* ***two years*** *of issued NDDB determination* (no attachments required) [*CPPU Use Only - NDDB-Listed Species Determination #* 1736]	☐ *New* **Safe Harbor Determination** (optional) must be associated with an application for a GP for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities ☐ *Renewal/Extension* of an existing Safe Harbor Determination ☐ With modifications ☐ Without modifications (no attachments required) [*CPPU Use Only - NDDB-Safe Harbor Determination #* 1736]
Enter NDDB Determination Number for Renewal/Extension:	Enter Safe Harbor Determination Number for Renewal/Extension:

Part II: Requester Information

***If the requester is a corporation, limited liability company, limited partnership, limited liability partnership, or a statutory trust, it must be registered with the Secretary of State. If applicable, the name shall be stated **exactly** as it is registered with the Secretary of State. Please note, for those entities registered with the Secretary of State, the registered name will be the name used by DEEP. This information can be accessed at the Secretary of the State's database CONCORD.* (www.concord-sots.ct.gov/CONCORD/index.jsp)

If the requester is an individual, provide the legal name (include suffix) in the following format: First Name; Middle Initial; Last Name; Suffix (Jr, Sr., II, III, etc.).

If there are any changes or corrections to your company/facility or individual mailing or billing address or contact information, please complete and submit the Request to Change company/Individual Information to the address indicated on the form.

1. Requester*

Company Name: **Milone & MacBroom, Inc.**

Contact Name: **Ellen Hart**

Address: **213 Main Street, Suite 102**

City/Town: **New Paltz** State: **NY** Zip Code: **12561**

Business Phone: **845-633-8153** ext.

E-mail: **ehart@mminc.com

**By providing this email address you are agreeing to receive official correspondence from the department, at this electronic address, concerning this request. Please remember to check your security settings to be sure you can receive emails from "ct.gov" addresses. Also, please notify the department if your e-mail address changes

a) Requester can best be described as:

☐ Individual ☐ Federal Agency ☐ State agency ☐ Municipality ☐ Tribal

☒ *business entity (* if a business entity complete i through iii):

i) Check type ☒ corporation ☐ limited liability company ☐ limited partnership ☐ limited liability partnership ☐ statutory trust ☐ Other:

ii) Provide Secretary of the State Business ID #: 0160851 This information can be accessed at the Secretary of the State's database (CONCORD). (www.concord-sots.ct.gov/CONCORD/index.jsp)

iii) ☐ Check here if your business is **NOT** registered with the Secretary of State's office.

b) Acting as (Affiliation), pick one:

☐ Property owner ☐ Consultant ☐ Engineer ☐ Facility owner ☒ Applicant

☐ Biologist ☐ Pesticide Applicator ☐ Other representative:

2. List Primary Contact to receive Natural Diversity Data Base correspondence and inquiries, if different from requester.

Company Name:

Contact Person: Title:

Mailing Address:
City/Town: State: Zip Code:

Business Phone: ext.

**E-mail:

Part III: Site Information

This request can only be completed for one site. A separate request must be filed for each additional site.

1. SITE NAME AND LOCATION

Site Name or Project Name: **National Coast Guard Museum**

Town(s): **New London**

Street Address or Location Description:
181 State Street

Size in acres, or site dimensions: **0.34 acres**

Latitude and longitude of the center of the site in decimal degrees (e.g., 41.23456 -71.68574):

Latitude: **41.353968** Longitude: **72.092552**

Method of coordinate determination (check one):

☐ GPS ☒ Photo interpolation using CTECO map viewer ☐ Other (specify):

2a. Describe the current land use and land cover of the site.

Gravel parking area bordered by a waterfront public plaza lined with pavers to the south, railroad tracks to the west, additional gravel parking area to the north and the Thames River to the east.

b. Check all that apply and enter the size in acres or % of area in the space after each checked category.

☐ Industrial/Commercial _____ ☐ Residential _____ ☐ Forest _____

☐ Wetland _____ ☐ Field/grassland _____ ☐ Agricultural _____

☒ Water 20% ☐ Utility Right-of-way _____

☐ Transportation Right-of-way _____ ☒ Other (specify): **80% gravel parking lot**

Part IV: Project Information

1. PROJECT TYPE:

Choose Project Type: Other , If other describe: **Museum for the US Coast Guard**

2. Is the subject activity limited to the maintenance, repair, or improvement of an existing structure within the existing footprint? ☐ Yes ☒ No If yes, explain.

Part IV: Project Information (continued)

3. Give a detailed description of the activity which is the subject of this request and describe the methods and equipment that will be used. Include a description of steps that will be taken to minimize impacts to any known listed species.

   The Coast Guard proposes to allow the NCGMA to construct an approximately 70,000 to 80,000 square-foot museum with an at-grade entry level plus five to six stories to be located in downtown New London, Connecticut on land that is now or will be in the future owned by the U.S. Coast Guard. On completion of the museum, the Coast Guard intends to accept the donation of the museum and operate it in perpetuity. The proposed action includes the following action elements: (1) acquisition of approximately 2,000 square feet of land area to the south that is currently owned by the City of New London; (2) acquisition of approximately 12,200 square feet of land area that is currently owned by the State of Connecticut (8,900 square feet of which is currently covered by the City Pier platform); (3) minor property boundary adjustments; (4) construction of approximately 225 linear feet of bulkhead and fill along the shoreline of the Thames River; (5) demolition of approximately 3,300 square feet of the City Pier Plaza to provide compensatory open water; (6) completion of site and utility improvements on land and in the water to accommodate the Museum and water exhibits; and (7) construction and operation of the Museum.

4. If this is a renewal or extension of an existing Safe Harbor request *with* modifications, explain what about the project has changed.

5. Provide a contact for questions about the project details if different from Part II primary contact.

   Name:

   Phone:

   E-mail:

Part V: Request Requirements and Associated Application Types

Check *one* box from either Group 1, Group 2 *or* Group 3, indicating the appropriate category for this request.

Group 1. If you check one of these boxes, complete Parts I – VII of this form and submit the required attachments A and B.

- ☐ Preliminary screening was negative but an NDDB review is still requested
- ☐ Request regards a municipally regulated or unregulated activity (no state permit/certificate needed)
- ☐ Request regards a preliminary site assessment or project feasibility study
- ☐ Request relates to land acquisition or protection
- ☐ Request is associated with a *renewal* of an existing permit, with no modifications

Group 2. If you check one of these boxes, complete Parts I – VII of this form and submit required attachments A, B, *and* C.

- ☒ Request is associated with a *new* state or federal permit application
- ☐ Request is associated with modification of an existing permit
- ☐ Request is associated with a permit enforcement action
- ☐ Request regards site management or planning, requiring detailed species recommendations
- ☐ Request regards a state funded project, state agency activity, or CEPA request

☐ **Group 3.** If you are requesting a **Safe Harbor Determination**, complete Parts I-VII and submit required attachments A, B, and D. Safe Harbor determinations can only be requested if you are applying for a GP for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities

If you are filing this request as part of a state or federal permit application(s) enter the application information below.

Permitting Agency and Application Name(s):
USCG, NEPA review

State DEEP Application Number(s), if known: _____

State DEEP Enforcement Action Number, if known: _____

State DEEP Permit Analyst(s)/Engineer(s), if known: _____

Is this request related to a previously submitted NDDB request? ☒ Yes ☐ No

If yes, provide the previous NDDB Determination Number(s), if known: **unknown**

Part VI: Supporting Documents

Check each attachment submitted as verification that *all* applicable attachments have been supplied with this request form. Label each attachment as indicated in this part (e.g., Attachment A, etc.) and be sure to include the requester's name, site name and the date. **Please note that Attachments A and B are required for all new requests and Safe Harbor renewals/extensions with modifications.** Renewals/Extensions with no modifications do not need to submit any attachments. Attachments C and D are supplied at the end of this form.

☒ Attachment A:	**Overview Map:** an 8 1/2" X 11" print/copy of the relevant portion of a USGS Topographic Quadrangle Map clearly indicating the exact location of the site.
☒ Attachment B:	**Detailed Site Map:** fine scaled map showing site boundary and area of work details on aerial imagery with relevant landmarks labeled. (Site and work boundaries in GIS [ESRI ArcView shapefile, in NAD83, State Plane, feet] format can be substituted for detailed maps, see instruction document)
☒ Attachment C:	**Supplemental Information, Group 2 requirement (attached, DEEP-APP-007C)** ☒ Section i: Supplemental Site Information and supporting documents ☒ Section ii: Supplemental Project Information and supporting documents
☐ Attachment D:	**Safe Harbor Report Requirements, Group 3 (attached, DEEP-APP-007D)**

Part VII: Requester Certification

The requester *and* the individual(s) responsible for actually preparing the request must sign this part. A request will be considered incomplete unless all required signatures are provided.

"I have personally examined and am familiar with the information submitted in this document and all attachments thereto, and I certify that based on reasonable investigation, including my inquiry of the individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief."

Signature of Requester (a typed name will substitute for a handwritten signature)	Date
Name of Requester (print or type)	Title (if applicable)
Ellen M Hart Signature of Preparer (if different than above)	**8/8/2017** Date
Milone & MacBroon, Inc. (Ellen Hart) Name of Preparer (print or type)	**Environmental Scientist** Title (if applicable)

Note: Please submit the completed Request Form and all Supporting Documents to:

CENTRAL PERMIT PROCESSING UNIT
DEPARTMENT OF ENERGY & ENVIRONMENTAL PROTECTION
79 ELM STREET
HARTFORD, CT 06106-5127

Or email request to: **deep.nddbrequest@ct.gov**

Attachment C: Supplemental Information, Group 2 requirement

Section i: Supplemental Site Information

1. Existing Conditions

Describe all natural and man-made features including wetlands, watercourses, fish and wildlife habitat, floodplains and any existing structures potentially affected by the subject activity. Such features should be depicted and labeled on the site plan that must be submitted. Photographs of current site conditions may be helpful to reviewers.

The project site consists of a gravel parking area. It is devoid of any plant life, but is bordered to the east by the Thames River. The proposed action includes the construction of approximately 225 linear feet of bulkhead and fill along the shoreline of the Thames River . Demolition of approximately 3,300 square feet of the City Pier Plaza, which was constructed above water within the Thames River, is proposed to provide compensatory open water and benefit river habitat. See attached photos.

☒ **Site Photographs (optional) attached**

☒ **Site Plan/sketch of existing conditions attached**

2. Biological Surveys

Has a biologist visited the site and conducted a biological survey to determine the presence of any endangered, threatened or special concern species ☐ Yes ☒ No

If yes, complete the following questions and submit any reports of biological surveys, documentation of the biologist's qualifications, and any NDDB survey forms.

Biologist(s) name: _____

Habitat and/or species targeted by survey: _____

Dates when surveys were conducted: _____

☐ **Reports of biological surveys attached**

☐ **Documentation of biologist's qualifications attached**

☐ **NDDB Survey forms for any listed species observations attached**

Section ii: Supplemental Project Information

1. Provide a schedule for all phases of the project including the year, the month and/or season that the proposed activity will be initiated and the duration of the activity.

The proposed action involves the following actions: acquisition of land, including a portion of City Pier that was constructed above the Thames River; minor property boundary adjustments; construction of approximately 225 linear feet of bulkhead and fill along the shoreline of the Thames River; demolition of approximately 3,300 square feet of the City Pier Plaza to provide compensatory open water; completion of site and utility improvements on land and in the water to accommodate the Museum and water exhibits; and construction and operation of the Museum. All of these activities are anticipated to take 2 years or more to complete.

2. Describe and quantify the proposed changes to existing conditions and describe any on-site or off-site impacts. In addition, provide an annotated site plan detailing the areas of impact and proposed changes to existing conditions.

The site will be transformed from a gravel parking lot to a 70,000 to 80,000 square foot building with associated outdoor features and utility improvements. Please see attached photolog and site plan.

☒ **Annotated Site Plan attached**

Attachment D: Safe Harbor Report Requirements

Submit a report, as Attachment D, that synthesizes and analyzes the information listed below. Those providing synthesis and analysis need appropriate qualifications and experience. A request for a safe harbor determination shall include:

1. **Habitat Description and Map(s), including GIS mapping overlays, of a scale appropriate for the site, identifying:**

    - wetlands, including wetland cover types;
    - plant community types;
    - topography;
    - soils;
    - bedrock geology;
    - floodplains, if any;
    - land use history; and
    - water quality classifications/criteria.

2. **Photographs** - The report should include photographs of the site taken from the ground and also all reasonably available aerial or satellite photographs and an analysis of such photographs.

3. **Inspection** - A visual inspection(s) of the site should be conducted, preferably when the ground is visible, and described in the report. This inspection can be helpful in confirming or further evaluating the items noted above.

4. **Biological Surveys** - The report should include all biological surveys of the site where construction activity will take place that are reasonably available to a registrant. A registrant shall notify the Department's Wildlife Division of biological studies of the site where construction activity will take place that a registrant is aware of but are not reasonably available to the registrant.

5. **Based on items #1 through 4 above, the report shall include a Natural Resources Inventory of the site of the construction activity.** This inventory should also include a review of reasonably available scientific literature and any recommendations for minimizing adverse impacts from the proposed construction activity on listed species or their associated habitat.

6. **In addition, to the extent the following is available at the time a safe harbor determination is requested, a request for a safe harbor determination shall include and assess:**

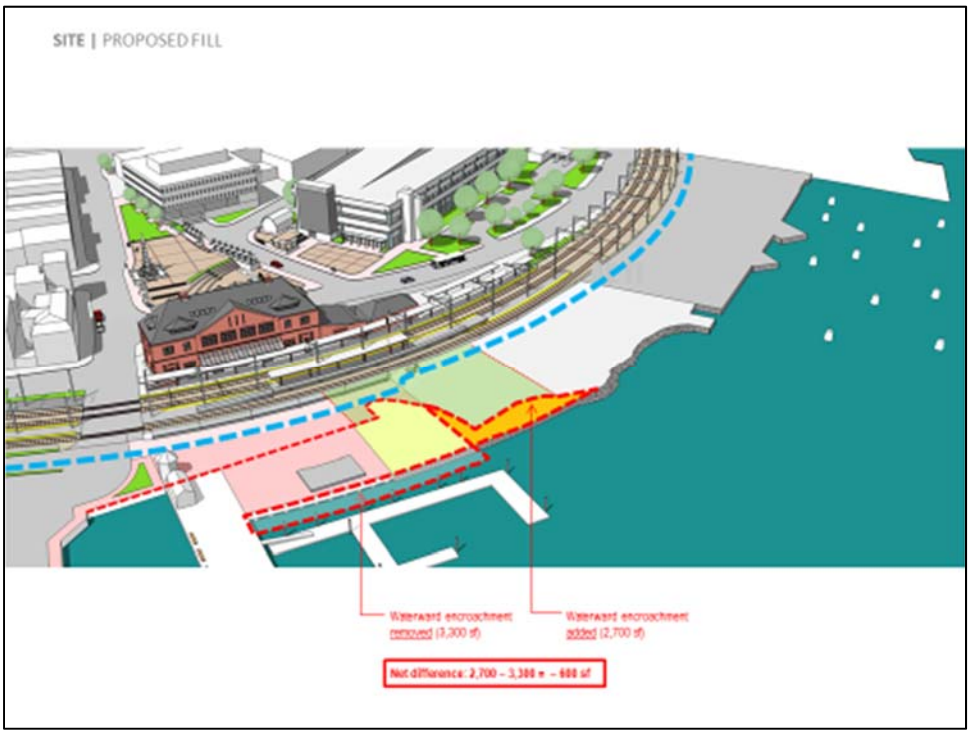
    - Information on Site Disturbance Estimates/Site Alteration information
    - Vehicular Use
    - Construction Activity Phasing Schedules, if any; and
    - Alteration of Drainage Patterns

Existing Conditions: View of Site from South and West

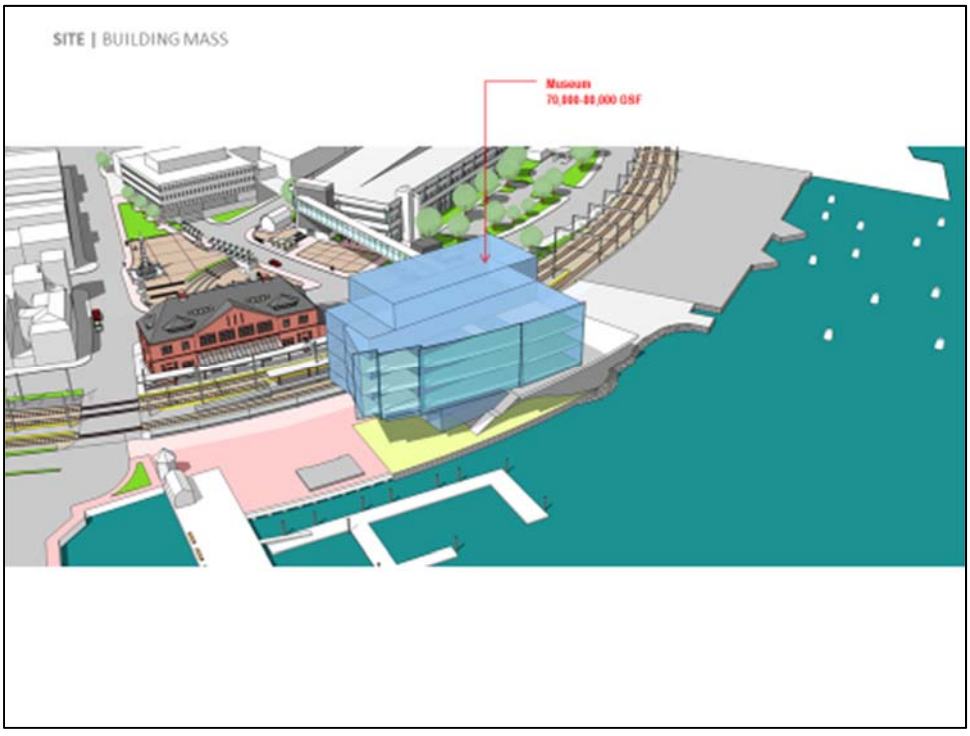
Existing Conditions: View of Site from South

Existing Conditions: View of Site from South and East

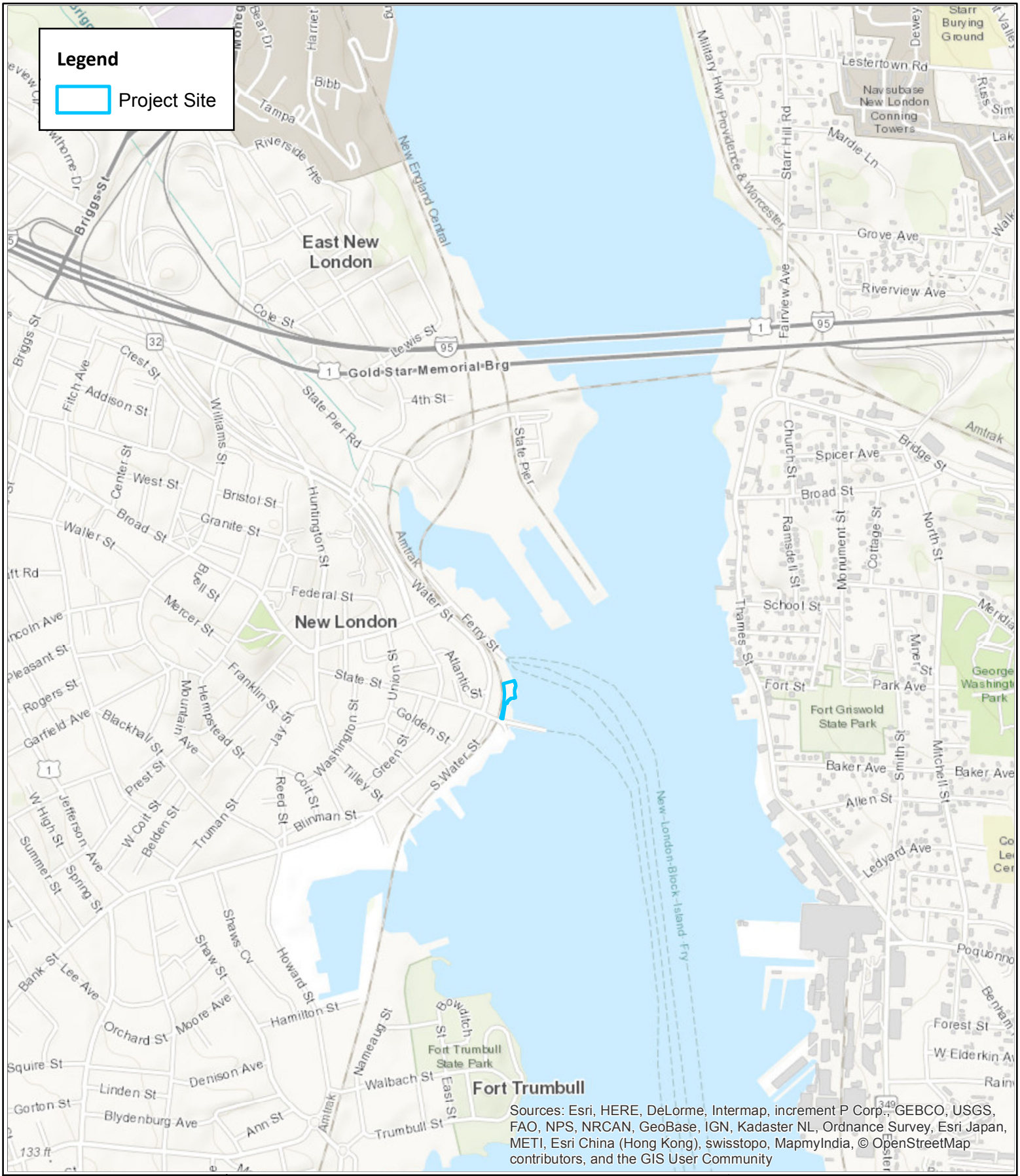
Existing Conditions: View of City Pier overhang from Site



Project Site with Proposed Lot Line Changes



Proposed Layout



SOURCE(S):
CT Ortho, 2016

Figure 1: Project Location

LOCATION:
New London, CT

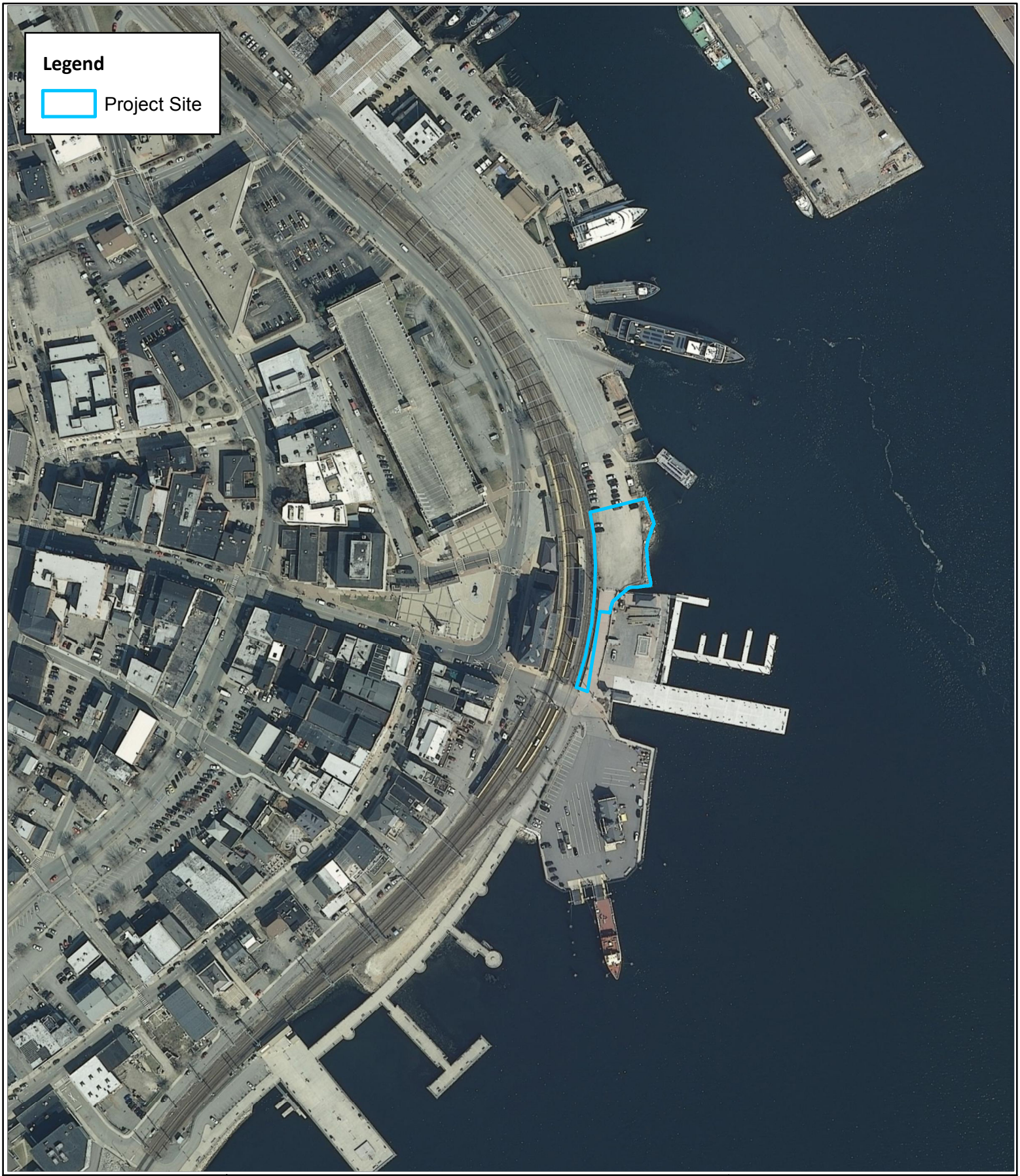
N

Project Study Area
National Coast Guard Museum

MXD: Q:\Projects\5499-03 USCG Museum\GIS\MAPS_MDX\Topo_Project_Location.mxd

Map By: EMH
MMI#: 5499-03
Original: 3/30/2017
Revision: 8/3/2017
Scale: 1 inch = 1,265.96 feet

MILONE & MACBROOM
99 Realty Drive Cheshire, CT 06410
(203) 271-1773 Fax: (203) 272-9733
www.miloneandmacbroom.com



SOURCE(S):
CT Ortho, 2012

Figure 2: Aerial Map

LOCATION:
New London, CT

N

Project Study Area
National Coast Guard Museum

MXD: Q:\Projects\5499-03 USCG Museum\GIS\MAPS_MDX\Project Location.mxd

Map By: EMH
MMI#: 5499-03
Original: 3/30/2017
Revision: 3/30/2017
Scale: 1 inch = 250 feet

MILONE & MACBROOM
99 Realty Drive Cheshire, CT 06410
(203) 271-1773 Fax: (203) 272-9733
www.miloneandmacbroom.com

APPENDIX C4
2017 NATURAL DIVERSITY DATABASE RESPONSE

Connecticut Department of
ENERGY &
ENVIRONMENTAL
PROTECTION

79 Elm Street • Hartford, CT 06106-5127 www.ct.gov/deep Affirmative Action/Equal Opportunity Employer

August 22, 2017

Ellen Hart
Milone & Macbroom, Inc.
213 Main Street, Suite 102
New Paltz, NY 12561
ehart@mminc.com

Project: Construction of National Coast Guard Museum off Water Street at the south end of Ferry Street in New London
NDDB Determination No.: 201706176

Dear Ellen Hart,

I have reviewed Natural Diversity Data Base (NDDB) maps and files regarding the area delineated on the map provided for the proposed Construction of National Coast Guard Museum off Water Street at the south end of Ferry Street in New London, Connecticut. I do not anticipate negative impacts to State-listed species (RCSA Sec. 26-306) resulting from your proposed activity at the site based upon the information contained within the NDDB. The result of this review does not preclude the possibility that listed species may be encountered on site and that additional action may be necessary to remain in compliance with certain state permits. This determination is good for two years. Please re-submit a new NDDB Request for Review if the scope of work changes or if work has not begun on this project by August 22, 2019.

Natural Diversity Data Base information includes all information regarding critical biological resources available to us at the time of the request. This information is a compilation of data collected over the years by the Department of Energy and Environmental Protection's Natural History Survey and cooperating units of DEEP, private conservation groups and the scientific community. This information is not necessarily the result of comprehensive or site-specific field investigations. Consultations with the Data Base should not be substitutes for on-site surveys required for environmental assessments. Current research projects and new contributors continue to identify additional populations of species and locations of habitats of concern, as well as, enhance existing data. Such new information is incorporated into the Data Base as it becomes available.

Please contact me if you have further questions at (860) 424-3592, or dawn.mckay@ct.gov . Thank you for consulting the Natural Diversity Data Base.

Sincerely,

Dawn M. McKay

Dawn M. McKay
Environmental Analyst 3

APPENDIX C5

EFH CORRESPONDENCE

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
GREATER ATLANTIC REGIONAL FISHERIES OFFICE
55 Great Republic Drive
Gloucester, MA 01930-2276

June 12, 2020

Brendan Deyo
Chief Office of Environmental Management
United States Coast Guard Stop 7714
2703 Martin Luther King JR Ave SE
Washington, DC 20593-7714

RE: National Coast Guard Museum, New London, CT

Dear Chief Deyo:

We have reviewed the provided Essential Fish Habitat (EFH) assessment dated October 19, 2019, and supplemental information provided on April 7, 2020, for the National Coast Guard Museum project within the Thames River in New London, CT. The project involves the fill of approximately 9,300 square feet (SF) of tidal waters and habitats for the installation of a bulkhead to support upland development of the property. Specifically, the project proposes to fill 6,020 SF of shoreline within the existing dock configuration and 3,280 SF of existing open shoreline and shallow subtidal habitats. The removal of a 3,100 SF section of the existing pier is proposed as mitigation for the loss of tidal waters that would occur from the proposed fill.

The Magnuson-Stevens Fishery Conservation and Management Act (MSA) and the Fish and Wildlife Coordination Act require Federal agencies to consult with one another on projects like this. Because the project involves Essential Fish Habitat (EFH), the consultation process is guided by the EFH regulatory requirements under 50 CFR 600.920, which mandates the preparation of EFH assessments and generally outlines your obligations. Based upon the provided information, we have determined that this project would result in adverse impacts to EFH. Therefore, pursuant to 50 CFR 600.920(i)(5), we are providing our EFH conservation recommendations based on the information we have received. We offer the following comments and recommendations on this project pursuant to the above referenced regulatory process.

Essential Fish Habitat Comments

The Thames River contains productive fishery habitats that support numerous important living marine resources including federally managed finfish and diadromous fish spawning migrations. In particular, the benthic communities around the project area support early life history stage winter flounder and summer flounder EFH, as well as summer flounder habitat of particular concern (HAPC). The proposed project would result in a direct, permanent loss of 9,300 SF of such habitats through the proposed placement of fill for the bulkhead installation.

This area of the Thames River is designated EFH for all life stages of winter flounder, including habitat for spawning adults and developing eggs and larvae, as well as juvenile life history stages. The presence and importance the Thames River for early life history stages of winter flounder early life history stages is well documented. Of particular concern for this project is that winter flounder spawn in shallow, tidal waters (Pereira *et al.* 1999). The designated winter flounder egg EFH for this project area includes subtidal waters from the shoreline to a maximum depth of 5 meters. Due to the importance of intertidal habitats for juvenile winter flounder, the New England Fishery Management Council has recently updated the juvenile winter flounder EFH designation to include intertidal habitats, in addition to subtidal habitats. The winter flounder larvae designation includes all reaches of the tide. Therefore, the proposed project would result in the permanent loss of 9,300 SF of designated sensitive life history stage winter flounder EFH.

The Mid-Atlantic Fishery Management Council designation for summer flounder habitat area of particular concern (HAPC) includes all areas where juvenile or adult summer flounder EFH is designated, and features SAV and/or macroalgae. Based on the provided information, the proposed bulkhead footprint would overlap with the designated summer flounder HAPC. In your supplemental information letter, dated November 25, 2019, you stated that due to impacts to primary production beneath the existing pier, the habitat is "largely absent macrophytic algae [but, rock] weed (Fucus spp.) exists in patches within the open portion of shoreline." However, we maintain that that all areas within the proposed bulkhead footprint that currently support macroalgae are consistent with the summer flounder HAPC. In addition to the 9,300 sf of impacts to winter flounder EFH stated above, the filling of such habitats as a result of the bulkhead installation would result in a permanent loss of summer flounder HAPC.

Currently, you have proposed the removal of 3,100 SF of pier as mitigation for the permanent loss of 9,300 SF of intertidal and subtidal habitats. In your April 7, 2020 letter, you indicate that the Army Corps of Engineers has verbally concurred with the proposed mitigation. While we agree that some level of benefit may be realized by the removal of the 3,100 SF section of pier, we do not agree that it will serve as appropriate mitigation for the proposed loss of tidal resources. For large piers, where shading may result in adverse impacts to tidal resources (e.g. eelgrass or macroalgae), minimization and/or mitigation is necessary to reduce and/or offset losses, and the removal of a pier from such areas may be considered for mitigation purposes. For this project however, we disagree with the utilization of a pier removal as mitigation for the proposed permanent losses. There does not appear to be any potential secondary benefit (e.g. increased lighting) to the remaining area under the existing pier as it will be converted to fill as part of the bulkhead installation. Additionally, there is minimal potential habitat benefit to the area that will be "daylighted" in the proposed pier removal area as it is located within the footprint of the floating dock configuration where vessel traffic may occur and adjacent to a large floating dock, diminishing any potential for any accrual of benefits from its removal.

Further, winter flounder typically spawn in the winter and early spring although the exact timing is temperature dependent and thus varies with latitude (Able and Fahay 1998). Winter flounder have demersal eggs that sink and remain on the bottom until they hatch. Once deposited on the substrate, these eggs are vulnerable to sedimentation with decreased hatching success of eggs observed when covered in as little as 1 mm of sediment and burial in sediments greater than 2.5 mm have been shown to cause no hatch (Berry *et al*. 2011). Winter flounder larvae are negatively buoyant (Pereira *et al.*

1999), and are typically more abundant near the bottom (Able and Fahay 1998). These life stages are less mobile and thus more likely to be affected adversely by the placement of fill in tidal waters and the associated turbidity impacts. To protect winter flounder sensitive life history stages, we typically recommend fill and silt producing activities be conducted outside the time of year spawning, egg and larval development occur in a project area In your supplemental information letter dated November 25, 2019, the proposed construction management strategies to minimize impacts to in-water resources includes the working during low tide conditions to the extent possible and the installation of a silt curtain. As depicted on the revised project plans, the proposed silt curtain will extend well into the shallow subtidal, to depths up to -14 or -15' NAVD88. Due to the potential for spawning winter flounder and hatched larvae to bypass sediment and turbidity controls, as well as the temporal loss of spawning habitat contained within such controls, we do not support using such controls to complete dredging activities throughout the spawning and early life history development stages.

Essential Fish Habitat Conservation Recommendations

Section 305(b)(2) of the MSA requires all federal agencies to consult with us on any action authorized, funded, or undertaken by that agency that may adversely affect EFH. The Thames River been identified as EFH under the MSA for multiple federally-managed species. We recommend, pursuant to Section 305(b)(a)(A) of the MSA, that you adopt the following EFH conservation recommendations:

1. To offset the permanent loss of 9,300 SF of summer flounder HAPC and winter flounder sensitive life history stage EFH a comprehensive compensatory mitigation plan should be developed and provided for our review and comment.

2. To minimize adverse effects to winter flounder sensitive life history stage habitat within and adjacent to the project area, no dredging or in-water work should occur from January 1 to May 31, of any calendar year.

Please note that Section 305(b)(4)(B) of the MSA requires you to provide us with a detailed written response to these EFH conservation recommendations, including a description of measures you adopt for avoiding, mitigating or offsetting the impact of the project on EFH. In the case of a response that is inconsistent with our recommendations, Section 305(b)(4)(B) of the MSA also indicates that you must explain your reasons for not following the recommendations. Included in such reasoning would be the scientific justification for any disagreements with us over the anticipated effects of the proposed action and the measures needed to avoid, minimize, mitigate or offset such effects pursuant to 50 CFR 600.920(k).

Please also note that a distinct and further EFH consultation must be reinitiated pursuant to 50 CFR 600.920(l) if new information becomes available or the project is revised in such a manner that affects the basis for the above EFH conservation recommendations.

Endangered Species Act

A consultation, pursuant to section 7 of the Endangered Species Act (ESA) of 1973, as amended, may be necessary. Under the ESA, if the proposed project has the potential to affect listed species or

designated critical habitat, and it is being approved, permitted or funded by a Federal agency, the lead Federal agency, or their designated non-Federal representative, is responsible for determining whether the proposed action may affect the listed species or designated critical habitat. In this situation, you are responsible for this determination. If you determine the proposed action may affect listed species under our authority, the determination along with justification for their determination should be sent to the attention of the ESA Section 7 Coordinator at nmfs.gar.esa.section7@noaa.gov (NMFS Greater Atlantic Regional Fisheries Office, Protected Resources Division (PRD), 55 Great Republic Drive, Gloucester, MA 01930). After reviewing this information, we would then be able to conduct a consultation under section 7 of the ESA. If you determine the proposed action will not affect listed species under our authority, no further consultation with us is necessary. Should you have any questions about these comments or about the section 7 consultation process in general, please contact Zach Jylkka at Zachary.Jylkka@noaa.gov or (978) 282-8467

Conclusion

In summary, we recommend a compensatory mitigation plan be developed for all permanent impacts and provided for our review and comment. Further, no fill or in-water silt producing activities should occur from January 1 to June 30, inclusive, of any calendar year. We look forward to your response to our EFH conservation recommendations on this project. Should you have any questions regarding our EFH recommendations or Fish and Wildlife Coordination Act comments, please contact
Alison Verkade at (978) 281-9266 or alison.verkade@noaa.gov.

Sincerely,

Louis A. Chiarella
Assistant Regional Administrator
for Habitat Conservation

cc: Zachary Jylkka, PRD
Diane Ray, USACOE
Steve Gephard, CT DEEP
Tom Nies, NEFMC
Chris Moore, MAFMC
Lisa Havel, ASMFC
Lieutenant Chris Mohnke, USCG
Megan Raymond, Milone and MacBroom
Captain Wes Pulver, National Coast Guard Museum

References

Able, K.W. and Fahay, M.P. 1998. First year in the life of estuarine fishes in the middle Atlantic Bight. Rutgers University Press, New Brunswick, NJ.

Berry, W.J., Hinchey, E.K., Rubinstein, N.I., Klein-MacPhee, G. 2004. Winter flounder, P*seudopleuronectes americanus*, hatching success as a function of burial depth in the laboratory. Ninth flatfish biology conference- poster presentation; 2004 Dec 1-2; Westbrook, CT. Woods Hole (MA): Northeast Fisheries Science Center Reference Document 04-13.
Nightingale B and Simenstad CA. 2001. Dredging activities: marine issues. Olympia (WA): Washington Department of Fish and Wildlife. White Paper. 119 p + appendices.

Pereira, J.J. R. Goldberg, J.J. Ziskowski, P.L. Berrien, W.W. Morse, and D.L. Johnson. 1999. Essential Fish Habitat Source Document: Winter Flounder, *Pseudopleuronectes americanus*, Life History and Habitat Characteristics. U.S. Dep. Commer., NOAA Technical Memorandum NMFS-NE-138.

Wilber D, Brostoff W, Clarke D, and Ray G. 2005. Sedimentation: potential biological effects of dredging operations in estuarine and marine environments. DOER Technical Notes Collection. Vicksburg (MS): US Army Engineer Research and Development Center. ERDC TN-DOER-E20.14 p.

U.S. Department of Homeland Security

United States Coast Guard

Commandant
United States Coast Guard

2703 Martin Luther King Jr. Ave SE
Washington, DC 20593-7103
Staff Symbol: CG-092
Phone: (719) 554-4072

5090
March 5, 2021

Ms. Alison T. Verkade
National Marine Fisheries Service
Greater Atlantic Regional Fisheries Office
Habitat Conservation Division
55 Great Republic Drive
Gloucester, MA 01930

Dear Ms. Verkade:

Thank you for your thorough review of the Coast Guard's Essential Fish Habitat assessment for the National Coast Guard Museum (NCGM) project. We appreciate the ongoing consultation and guidance that you've provided in conjunction with this project. After extensive internal review and discussion, we would like to offer the following, in response to your recommendations:

1) The National Coast Guard Museum Association (Association) has drafted a plan (Enc. A) to coordinate a volunteer shoreline clean-up on the Thames River in the vicinity of New London, CT in support of tidal resource loss mitigation due the NCGM project. Upon completion, the Association will provide a final report documenting the impacts of the clean-up. Additionally, the Museum will feature exhibits highlighting the Coast Guard's mission of protecting the environment which include living marine resources.

2) The Coast Guard and Association acknowledge the prohibition on dredging and in-water work between February 1st and May 31st and Association will adhere to the work window during project scheduling.

Please feel free to reach out to me or Senior Chief Joshua Folckemer at Joshua.D.Folckemer@uscg.mil. Thank you for your time and continued support!

Sincerely,

Mr. Andrew Haley
Chief
Office of Environmental Management (CG-47)

Situation:
The National Coast Guard Museum Association (NCGMA), a 501(c) 3, non-profit Charitable Organization that was formed in 2001 to raise funds and apply for and administer federal and state grants for the sole purpose of acquiring land, designing, constructing, collaborating with the U.S. Coast Guard on exhibits, and turning over to the U.S. Coast Guard a national museum in the City of New London, CT.

In preparation of the 2014 National Coast Guard Museum Environmental Assessment, the Coast Guard initiated coordination activities with NOAA Fisheries by letter in December 2013. In response NOAA Fisheries response indicated that the Thames River was designated an Essential Fish Habitat (EFH) for a number of federally managed species, including windowpane flounder, scup, and bluefish. The response also required the preparation of an EFH assessment.

The Coast Guard completed an EFH Assessment in October 2019 and provided supplemental information in April 2020. Per the June 12, 2020 NOAA Fisheries letter to the U.S. Coast Guard, it was noted that the proposed mitigation plan for the loss of tidal waters; the removal of 3,100 square feet of existing pier (daylighting), was not agreed upon as sufficient mitigation for the loss of tidal resources. Recommendations from the National Fisheries Service (NMFS) included no in-water and any dredging work from February 1 to May 31 of any calendar year and to provide a comprehensive compensatory mitigation plan for NMFS review and comment.

The NCGMA agrees to adhere to the recommended seasonal work window provided in the June 12, 2020 letter. Due to financial and legal constraints associated with the proposed project, the NCGMA is unable to provide additional direct mitigation or habitat compensation. After continued consultation with NMFS, the NCGMA will conduct a shoreline clean-up in the vicinity of the project area.

Mission:
In addition to the daylighting a portion of the City Pier plaza, sponsor a volunteer shoreline clean-up on the Thames River in the vicinity of New London, CT in support of tidal resource loss mitigation due to the National Coast Guard Museum project. It should be noted, that in addition to the mitigation plan below, additional benefit from the future National Coast Guard Museum will include an exhibit highlighting the Coast Guard's mission of protecting the environment which will include a Living Marine Resource gallery.

Execution:
The NCGMA will plan and coordinate a one-time volunteer shoreline clean-up to mitigate the tidal resource loss of 9,300 square feet. The clean-up will be held on a date prior to July 31, 2021, pending any unforeseen delays in regards to coordinating volunteers as a result of ongoing COVID-19 restrictions.

Action:
1. NCGMA will coordinate efforts of volunteers from local community organizations, Coast Guard units and affiliated associations to conduct shoreline clean-up.
2. The NCGMA will coordinate no less than 100 work hours collecting trash and debris. All collected items will be properly disposed of.
3. The proposed area for this shoreline clean-up is public accessible areas of the Thames River between the northern property line of the U.S. Coast Guard Academy and south to Ocean Beach Park, see Fig 1. The NCGMA will provide all required tools/items for the shoreline clean-up, (i.e., trash bags, etc.).

Fig 1.

4. Upon completion, the NCGMA will provide a written final report documenting the approximate total amount of trash collected, total number of volunteer hours, with before and after photographs of the areas impacted by the shoreline clean-up.

5. NCGMA POC: CAPT Mark Walsh, USCG (Ret.), mwalsh@coastguardmuseum.org, 860-443-4200.

Mark B. Walsh
Chief Operating Officer
National Coast Guard Museum Association, Inc.

NATIONAL COAST GUARD MUSEUM ASSOCIATION
78 Howard Street, Suite A | New London, CT 06320 | 860-443-4200 | CoastGuardMuseum.org

SUBJECT: NATIONAL COAST GUARD MUSEUM ASSOCIATION EFH MITIGATION THAMES RIVER SHORELINE CLEAN UP AFTER ACTION REPORT

1. Per the National Coast Guard Museum Association (NCGMA) Thames River Shoreline Clean-up action plan, NCGMA collaborated with Fort Trumbull State Park, the City of New London, and with fellow non-profit, Save Ocean Beach to hold a shoreline clean up of the Thames River in New London, CT.

2. The clean up was held on Saturday April 24th, and held in conjunction with Earth Day (Apr 22nd). Sixty-Eight volunteers from the local community provided 2.5 hours of service each in support of the event, for a total of 170 work hours. Our goal was 100 hours.

3. See Fig 1 for areas targeted during the clean up:

Fig 1

4. About 30 bags of trash and debris were collected across all sites; and properly disposed of through the City of New London, Fort Trumbull State Park, and Ocean Beach. Other natural debris (brush, sticks, etc.) approximately four pick-up trucks worth; was collected and piled as requested by the City and Parks.

5. See Fig 2 for a few images from the event:

Fig 2

6. NCGMA POC: CAPT Mark Walsh, USCG (Ret), Chief Operating Officer, (860) 443-4200.

APPENDIX C6

2020 NATURAL DIVERSITY DATA BASE RESPONSE

Connecticut Department of
ENERGY &
ENVIRONMENTAL
PROTECTION

79 Elm Street • Hartford, CT 06106-5127 www.ct.gov/deep Affirmative Action/Equal Opportunity Employer

April 30, 2020

Megan B. Raymond
Milone and MacBroom Inc
95 Church St, 7th fl
New Haven, CT 06510
mraymond@mminc.com

Project: Construction of National Coast Guard Museum, 181 State Street in New London, CT
NDDB Determination No.: 202005519

Dear Ms. Raymond,

I have reviewed Natural Diversity Data Base maps and files regarding the area delineated on the map provided for the construction of the National Coast Guard Museum, including installation of a ~282ft bulkhead along the Thames River and demolition of 3300 sqft of the City Pier Plaza in New London, Connecticut. According to our records, there are populations of State and Federally Endangered Atlantic and Shortnose Sturgeon as well as Special Concern Blueback herring (*Alosa aestivalis*) that occur in the Thames River.

Please be advised that a DEEP Fisheries Biologist will review the permit applications you may submit to DEEP regulatory programs to determine if your project could adversely affect state listed fish. DEEP Fisheries Biologists are routinely involved in pre-application consultations with regulatory staff and applicants in order to identify potential fisheries issues and work with applicants to mitigate negative effects, including to endangered species. If you have not already talked with a Fisheries Biologist about your project, you may contact the Permit Analyst assigned to process your application for further information, including the contact information for the Fisheries Biologist assigned to review your application. This determination is good for two years. Please re-submit an NDDB Request for Review if the scope of work changes or if work has not begun on this project by April 30, 2022.

Natural Diversity Data Base information includes all information regarding critical biological resources available to us at the time of the request. This information is a compilation of data collected over the years by the Department of Energy and Environmental Protection's Natural History Survey and cooperating units of DEEP, private conservation groups and the scientific community. This information is not necessarily the result of comprehensive or site-specific field investigations. Consultations with the Data Base should not be substitutes for on-site surveys required for environmental assessments. Current research projects and new contributors continue to identify additional populations of species and such new information is incorporated into the database as it becomes available. The result of this review does not preclude the possibility that listed species may be encountered on site and that additional action may be necessary to remain in compliance with certain state permits.

Please contact me if you have further questions at (860) 424-3378, or deep.nddbrequest@ct.gov . Thank you for consulting the Natural Diversity Data Base.

Sincerely,

Karen Zyko
Environmental Analyst

APPENDIX C7

CT DEEP FISHERIES CONSULTATION

Connecticut Department of
Energy & Environmental Protection
Bureau of Natural Resources
Fisheries Division

DEEP Fisheries Consultation Form

To the Applicant - Prior to the submission of your license application to the Connecticut Department of Energy & Environmental Protection (DEEP) Water Planning and Management Division (WPMD) or Land and Water Resources Division (LWRD), please complete Part I below and e-mail the following to deep.inland.fisheries@ct.gov:

1. this completed DEEP *Fisheries Consultation Form*;
2. a site location map,
3. a PDF version of the proposed project plans including a site survey of existing conditions (if available), and
4. photos of the site.

Fisheries Division staff will contact you if further details are needed. Once the Fisheries Division staff returns the completed form to you, please include the form, and any signed plans (if applicable) in your license application submittal to DEEP.

Part I: Applicant and Site Information (*to be completed by APPLICANT)*

1. Applicant/Registrant Information

Name: National Coast Guard Museum Association, Inc.
Mailing Address: 78 Howard Street
City/Town: New London State: CT Zip Code: 06320
Business Phone: 860.443.4200 Ext.: _____
Contact Person: Wes Pulver Phone: 860.443.4200 Ext: 128
E-mail Address: rwpulver@coastguardmuseum.org

2. Engineer/Surveyor/Agent Information (list as applicable)

Name: Milone & MacBroom, Inc.
Mailing Address: 195 Church Street, 7th Floor
City/Town: New Haven State: CT Zip Code: 06320
Business Phone: 203.344.7887 Ext.: _____
Contact Person: Megan B. Raymond Phone: 203.344.7889 Ext: _____
E-mail Address: mraymond@mminc.com
Service Provided: Ecological consulting and permitting

3. Site Location:

Name of Site: National Coast Guard Museum
Address of Site or Location Description: Water Street
City/Town: New London State: CT Zip Code: 06320
Parcel Location/Tax Assessor's Reference: Map G12 Block 108 Lot 1.0
Name of Stream or Waterbody: Thames River

4. **Activity:** Check the box best describing your activity: (check all that apply):

- ☒ new public/fishing access;
- ☐ new docks and marinas on the Connecticut River;
- ☐ coastal/tidal dredging projects;
- ☐ activities in inland/non-tidal waterbodies and watercourses;
- ☐ withdrawal of water from a non-tidal/inland river, stream, pond or lake;
- ☐ withdrawal of water from a wetland, marsh, swamp, or bog hydrologically connected to a non-tidal/inland river, stream, pond or lake;
- ☐ withdrawal of groundwater from stratified drift deposits hydrologically connected to a non-tidal/inland river, stream, pond or lake.

Note: Fisheries consultation is **not required** for docks and marinas on Long Island Sound.

Part I: Applicant and Site Information (*to be completed by APPLICANT) (continued)*

5. **DEEP Pre-application Contact:** Indicate name of permit analyst or engineer, if applicable.
   Micheal Grzywinski

6. **Project Description:** Provide or attach a brief, but thorough, description of the project including any measures to protect, enhance or restore fish populations:

   Installation of 282-linear feet of steel sheetpiling bulkhead and 9,300 sq. ft. of fill on Thames River for National Coast Guard Museum. Project will daylight a portion of City Pier Plaza to mitigate for open shoreline alteration. More than half of the project area is currently encumbered by City Pier Plaza.

Part II: Fisheries Determination *(To be completed by DEEP Fisheries Staff only)*

To Fisheries Staff - This completed consultation form is required to be submitted as part of an application to DEEP. The application has not yet been submitted to DEEP. Please review the enclosed materials and determine whether the project will significantly impact any fisheries or fisheries habitat. You may provide comments or recommendations regarding the proposal. Send this completed form to the applicant and copy the DEEP analyst, if known, or the applicable WPMD/LWRD Supervisor. If the proposed work **WILL** significantly impact any fisheries and/or habitat or if you have any comments or concerns regarding the regulatory review for this project, contact the DEEP analyst, if known, or the applicable WPMD/LWRD Supervisor.

DEEP FISHERIES DIVISION DETERMINATION

Date Consultation Form received: _____

Please check applicable boxes and return the completed Consultation Form to the applicant:

- ☐ I have determined that the work described in Part I of this form and attachments **WILL NOT** significantly impact any fisheries and/or habitat;
- ☐ I have determined that the work described in Part I of this form and attachments **WILL NOT** significantly impact any fisheries and/or habitat **if the below Recommendations are followed**; and/or,
- ☐ I have determined that the work described in Part I of this form and attachments **WILL NOT** significantly impact any fisheries and/or habitat **if the design features shown on the attached plans are incorporated**. Fisheries staff to sign and date plans and return to the applicant with the completed Consultation Form.

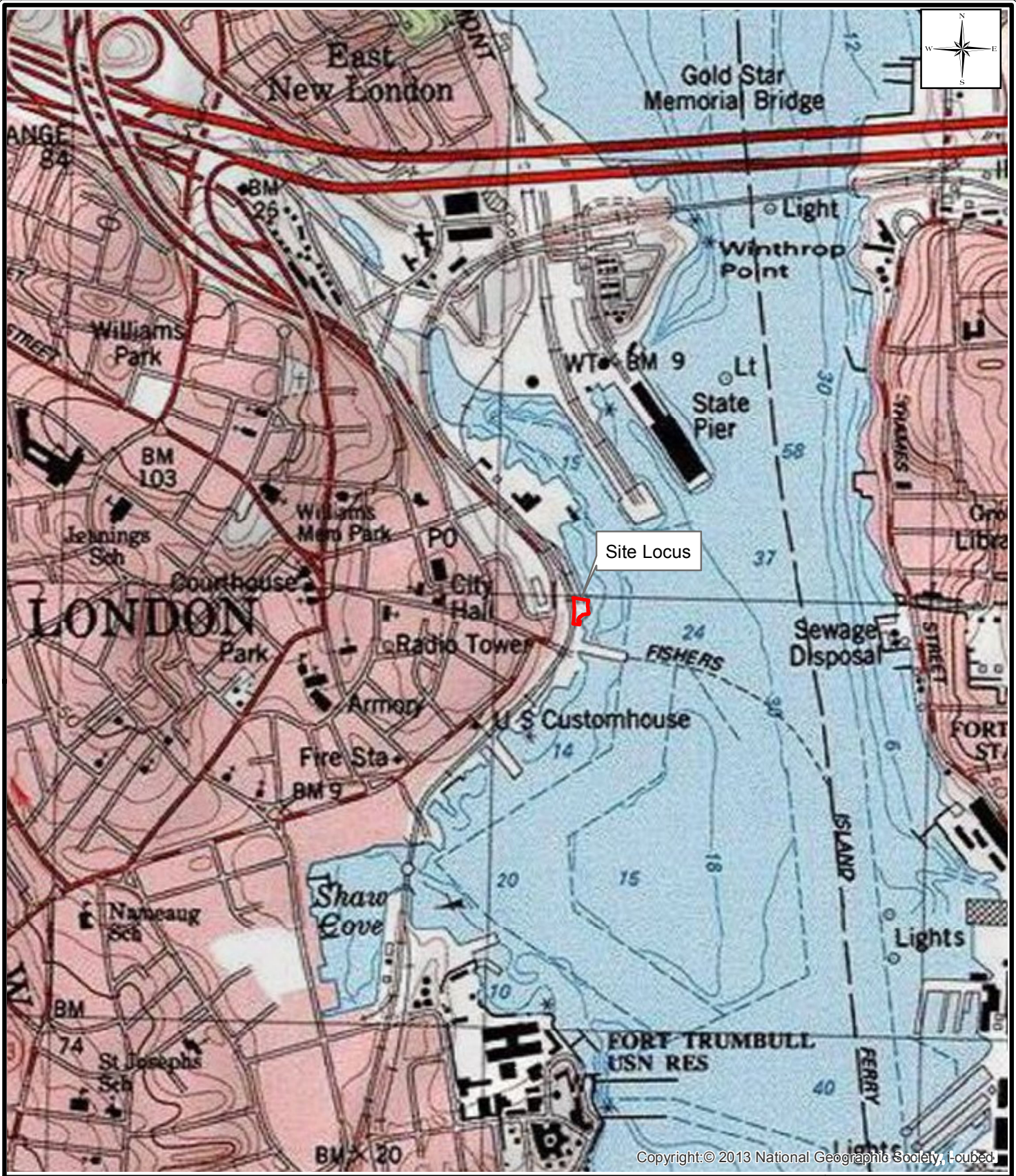
COMMENTS/RECOMMENDATIONS (or check here if these are attached following this page: ☐):

_____

"By entering my name below, I agree that I am providing my legal signature, and am legally bound by the determination above."

Signature of Fisheries Division Staff	Date
Print Name of Fisheries Division Staff	Title

MXD: Y:\5139-01\Maps\5139-01_USGS_Locus Map.mxd



MILONE & MACBROOM
99 Realty Drive
Cheshire, Connecticut 06410
(203) 271-1773
www.mminc.com

USGS LOCUS MAP

NATIONAL COAST GUARD MUSEUM

WATER STREET
NEW LONDON, CONNECTICUT

SOURCE: USGS

DATE: OCTOBER 10, 2018		
SCALE: 1 " = 1,000 '		
PROJ. NO.: 5139-01		
DESIGNED HLP	DRAWN HLP	CHECKED MBR

DRAWING NAME:

FIG. 1

MILONE & MACBROOM

PHOTOGRAPHIC LOG

Client Name:	**Site Location:**	**Project No.**
National Coast Guard Museum Association	New London, CT	5499-05

Photo No.	**Date:**
1	9/13/17

Direction Photo Taken:
North

Description:
Area of proposed bulkhead, looking toward Cross Sound Ferry dock.

Photo No.	**Date:**
2	6/19/18

Direction Photo Taken:
South

Description:
Area of proposed bulkhead, looking toward City Pier.

MILONE & MACBROOM

PHOTOGRAPHIC LOG

Client Name:	**Site Location:**	**Project No.**
National Coast Guard Museum Association	New London, CT	5499-05

Photo No.	**Date:**
3	8/24/18

Direction Photo Taken:
Northwest

Description:
View of NCGM site from City Pier, railroad right of way in background.

Photo No.	**Date:**
4	8/9/18

Direction Photo Taken:
South

Description:
Riprap, cement piles and underside of promenade of City Pier. A remnant timber pile is visible on left.

MILONE & MACBROOM

PHOTOGRAPHIC LOG

Client Name:	**Site Location:**	**Project No.**
National Coast Guard Museum Association	New London, CT	5499-05

Photo No.	**Date:**
5	4/11/17

Direction Photo Taken:
Northeast

Description:
Existing condition of shoreline with rip-rap, construction slag, coarse sandy beach, and remnant timber piles.

Photo No.	**Date:**
6	4/11/17

Direction Photo Taken:
Northeast

Description:
Existing site condition.

NATIONAL COAST GUARD MUSEUM

NEW LONDON, CONNECTICUT

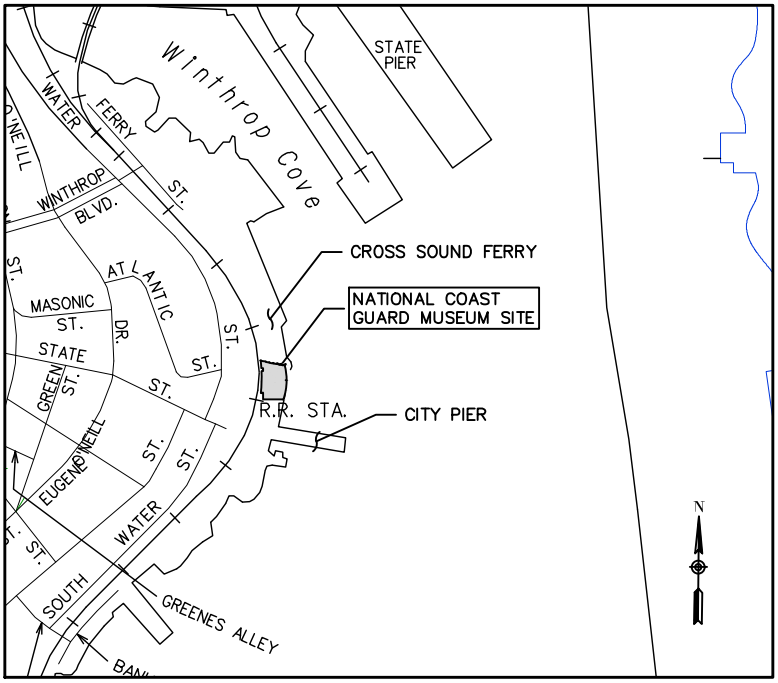
COASTAL 401 WATER QUALITY CERTIFICATION

OCTOBER 2018

REVISED: DECEMBER 21, 2018

NOTES:

1. NAVD 88 DATUM
2. MHW = 1.8' (NGVD 29), 0.9' (NAVD 88)
   MLW = -0.9' (NGVD 29), -1.7' (NAVD 88)
   CJL = 3.10' (NGVD 29), 2.10' (NAVD 88)
3. TOPOGRAPHY AND PLANIMETRIC FEATURES ARE FROM FIELD SURVEY PREPARED BY MILONE AND MACBROOM, INC.



PROJECT VICINITY MAP

NOT TO SCALE

LEGEND

EDGE OF WATER	
70	MAJOR CONTOUR
68	MINOR CONTOUR
	TREE LINE
	UTILITY POLE
	PILING

LIST OF DRAWINGS:

PREPARED FOR:

NATIONAL COAST GUARD MUSEUM ASSOCIATION, INC.
321 ST. CHARLES AVENUE 10TH FLOOR
NEW ORLEANS, LOUISIANA 70130
BUSINESS PHONE: 860-443-4200

MILONE & MACBROOM
99 REALTY DRIVE
CHESHIRE, CT 06410
203.271.1773
WWW.MMINC.COM

NATIONAL COAST GUARD MUSEUM

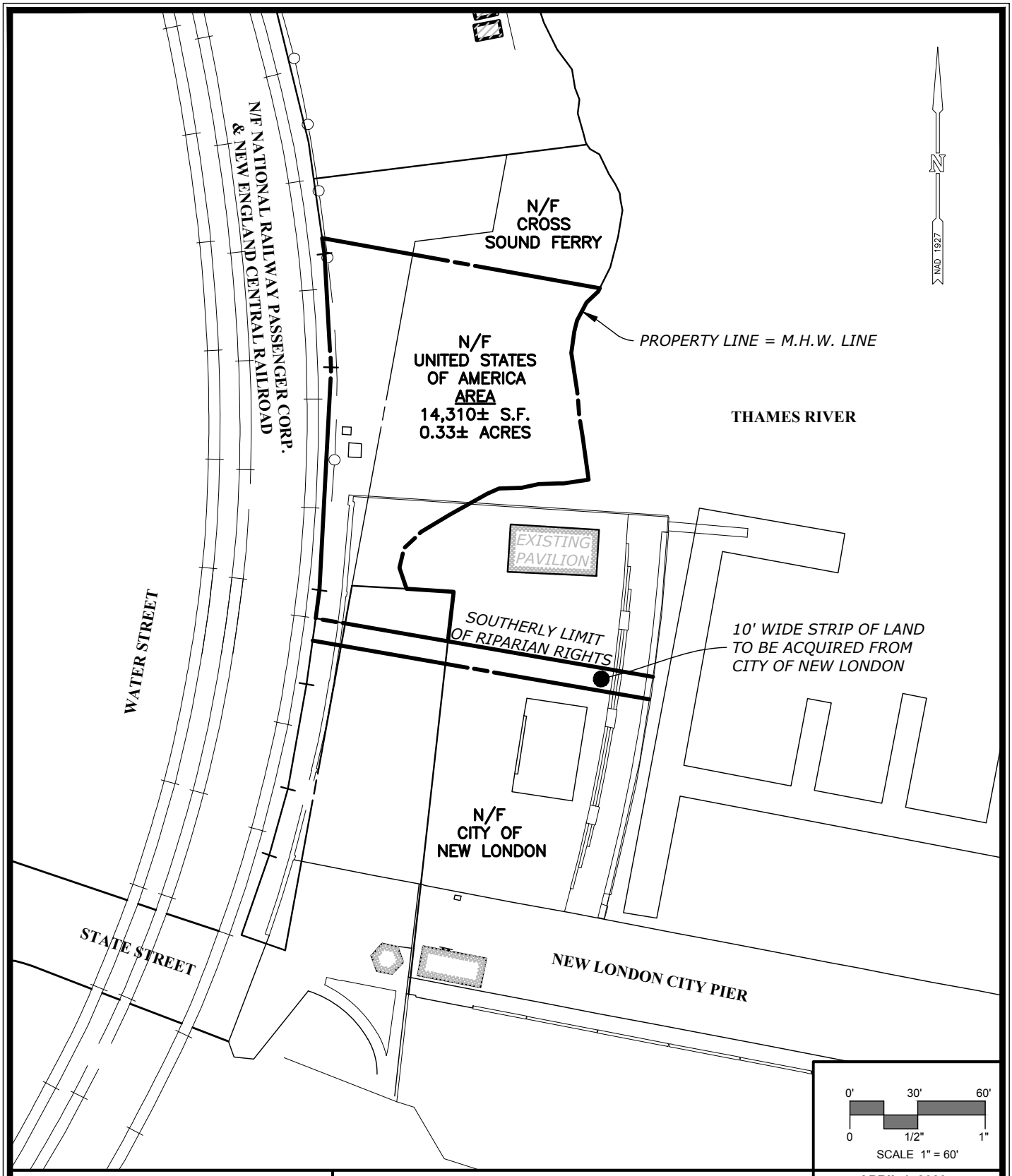
LOCATION
MBLU: G12/ 108/ 1.0/1 /
WATER STREET
NEW LONDON, CONNECTICUT

ON: THAMES RIVER
AT: NEW LONDON, CT

TITLE SHEET

DATE **APRIL 1, 2020**
SCALE **NONE**
PROJ. NO. **5139-01**

SHEET **01**



MILONE & MACBROOM

99 REALTY DRIVE
CHESHIRE, CT 06410
203.271.1773
WWW.MMINC.COM

PARCEL MAP

NATIONAL COAST GUARD MUSEUM

MBLU: G12/ 108/ 1.0/1 /
WATER STREET
NEW LONDON, CONNECTICUT

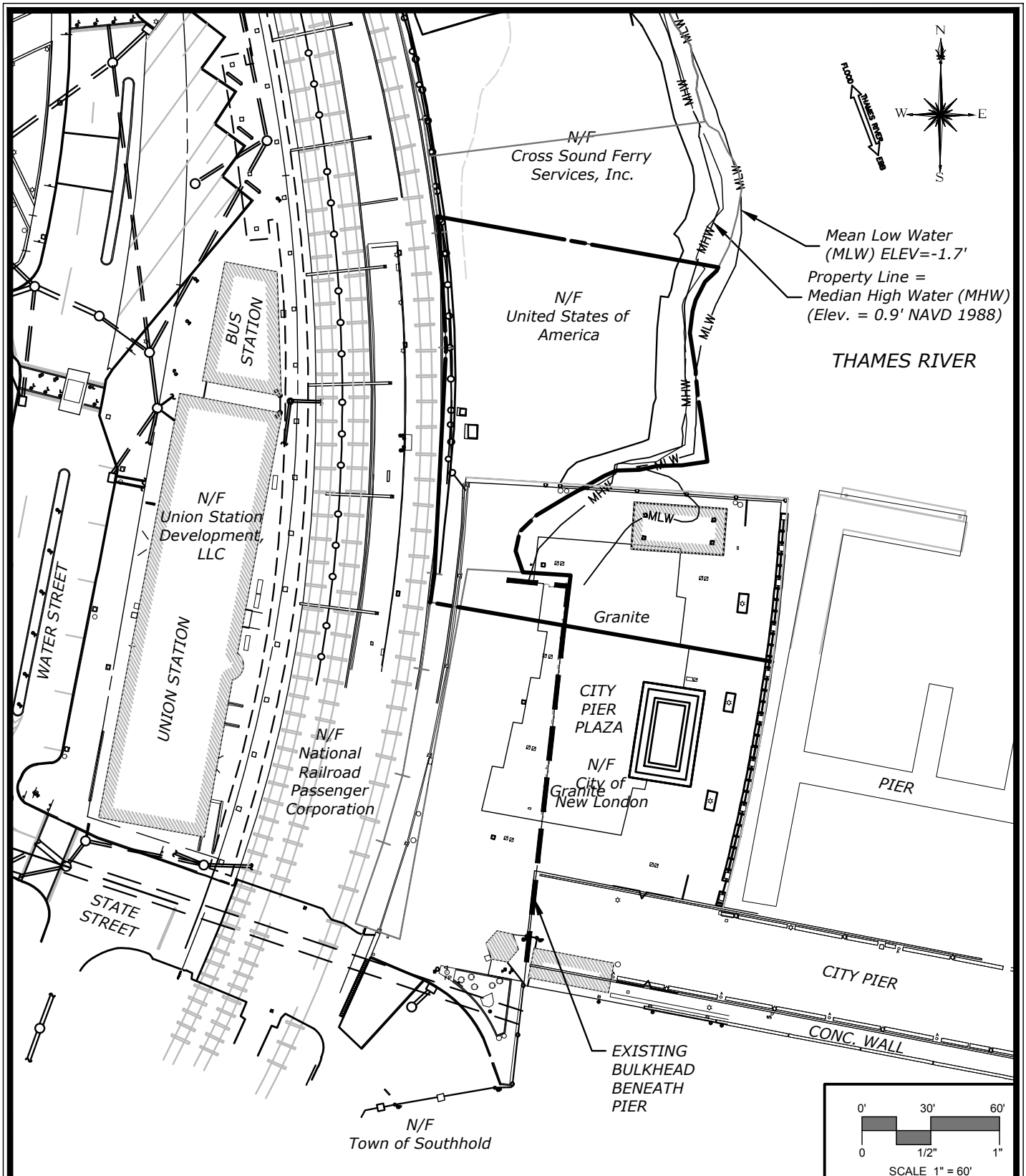
PROJECT PHASE: **ENVIRONMENTAL PERMIT** REV: **---**

DATE	**APRIL 1, 2020**
SCALE	**1" = 60'**
PROJ. NO.	**5139-01**

DESIGNED	DRAWN	CHECKED
RE	**TT**	**TD**

DRAWING NAME:

02



MILONE & MACBROOM
99 REALTY DRIVE
CHESHIRE, CT 06410
203.271.1773
WWW.MMINC.COM

SITE PLAN - EXISTING CONDITIONS

NATIONAL COAST GUARD MUSEUM

MBLU: G12/ 108/ 1.0/1 /
WATER STREET
NEW LONDON, CONNECTICUT

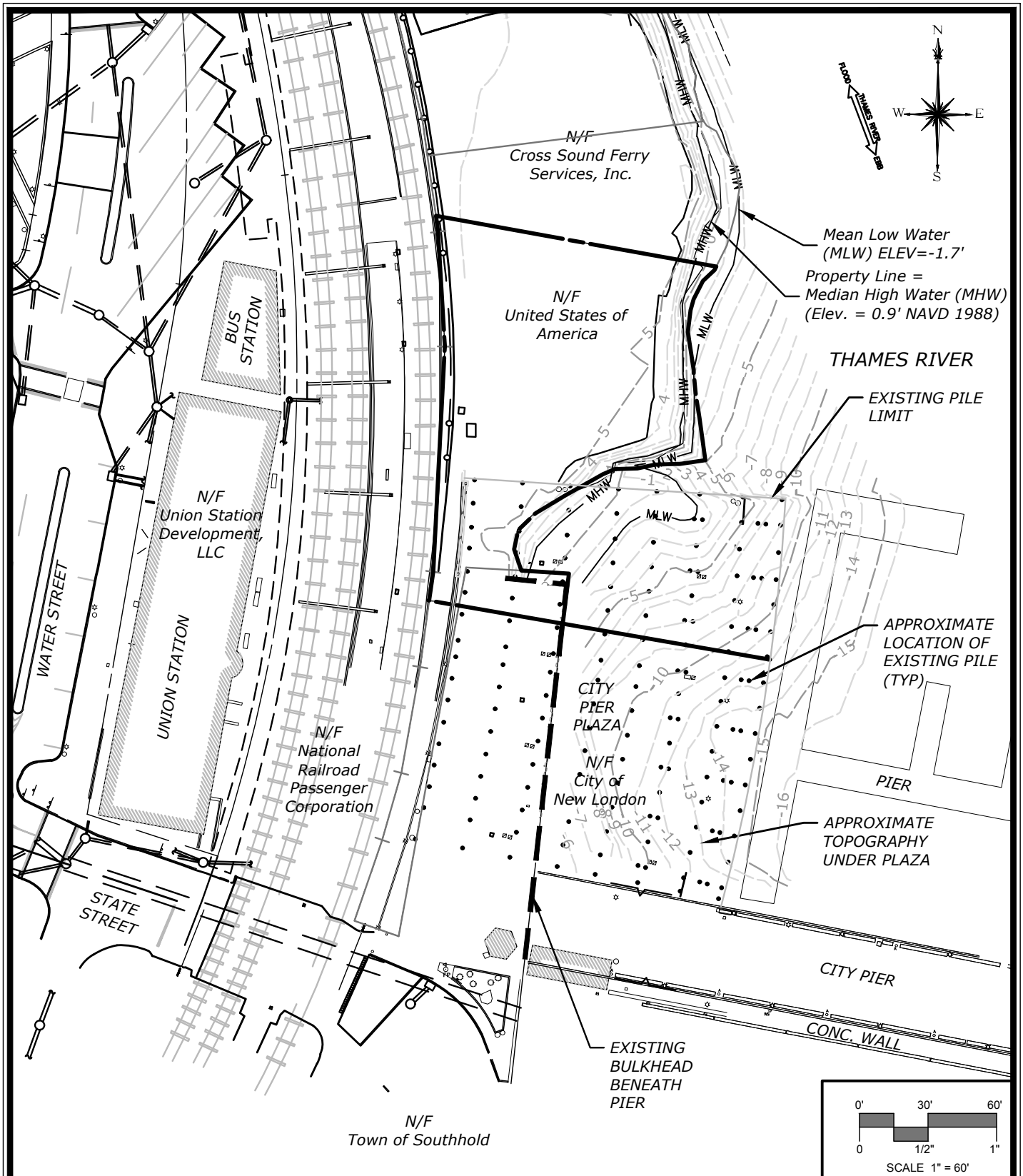
PROJECT PHASE: **ENVIRONMENTAL PERMIT** REV: **---**

DATE	**APRIL 1, 2020**
SCALE	**1" = 60'**
PROJ. NO.	**5139-01**

DESIGNED	DRAWN	CHECKED
RE	**TT**	**TD**

DRAWING NAME:

03



0' 30' 60'
0 1/2" 1"
SCALE 1" = 60'

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99 REALTY DRIVE
CHESHIRE, CT 06410
203.271.1773
WWW.MMINC.COM

SITE PLAN - EXISTING CONDITIONS

NATIONAL COAST GUARD MUSEUM

MBLU: G12/ 108/ 1.0/1 /
WATER STREET
NEW LONDON, CONNECTICUT

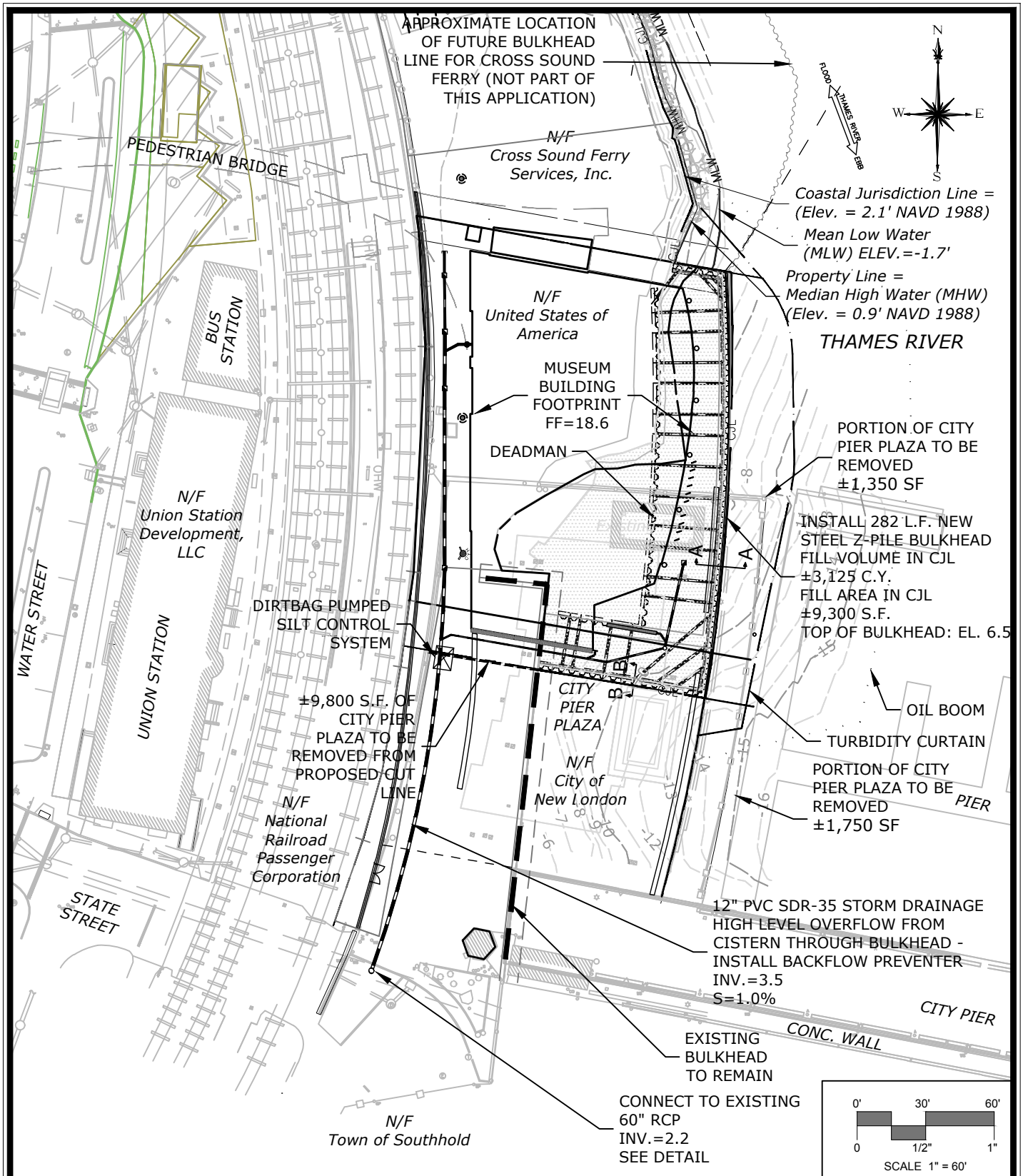
PROJECT PHASE: **ENVIRONMENTAL PERMIT** REV: **---**

DATE	**APRIL 1, 2020**
SCALE	**1" = 60'**
PROJ. NO.	**5139-01**

DESIGNED	DRAWN	CHECKED
RE	**TT**	**TD**

DRAWING NAME:

04



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CHESHIRE, CT 06410
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SITE PLAN - PROPOSED CONDITIONS

NATIONAL COAST GUARD MUSEUM

MBLU: G12/ 108/ 1.0/1 /
WATER STREET
NEW LONDON, CONNECTICUT

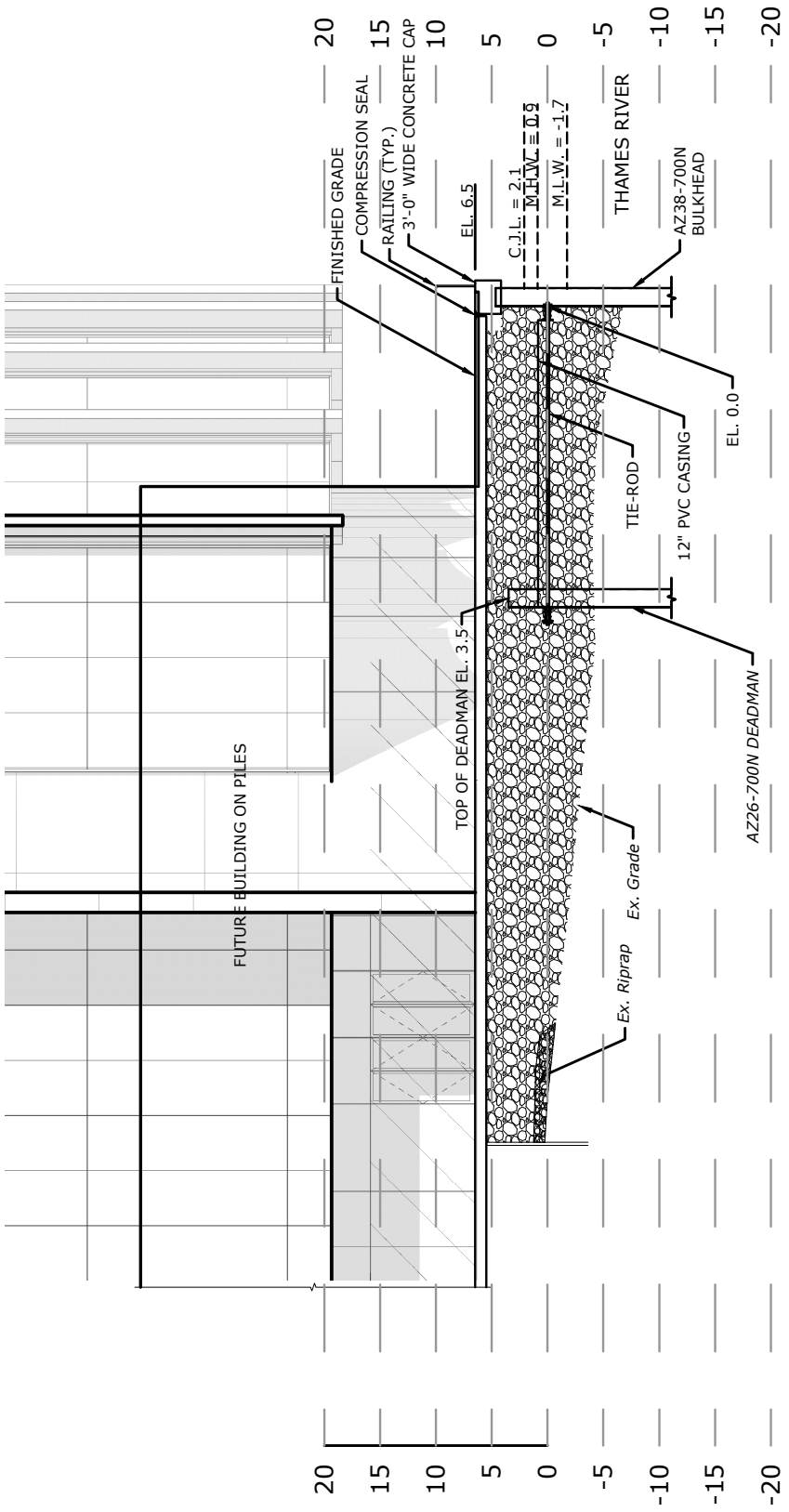
PROJECT PHASE: **ENVIRONMENTAL PERMIT** REV:

DATE	**APRIL 1, 2020**
SCALE	**1" = 60'**
PROJ. NO.	**5139-01**

DESIGNED	DRAWN	CHECKED
RE	**TT**	**TD**

DRAWING NAME:

05



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SECTION A-A

NATIONAL COAST GUARD MUSEUM

MBLU: G12/ 108/ 1.0/1 /
WATER STREET
NEW LONDON, CONNECTICUT

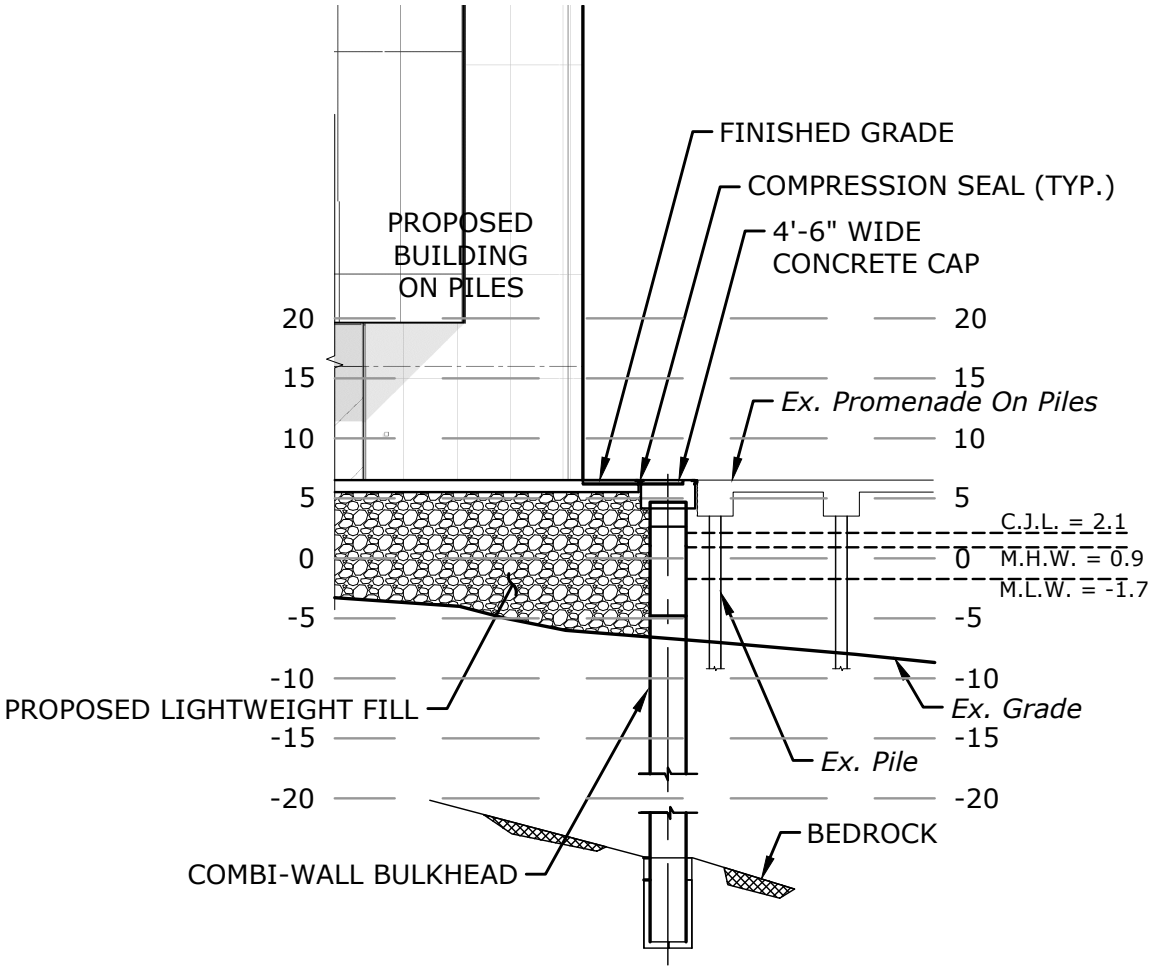
PROJECT PHASE: **ENVIRONMENTAL PERMIT** REV: ---

DATE	**APRIL 1, 2020**
SCALE	**1/16" = 1'-0"**
PROJ. NO.	**5139-01**

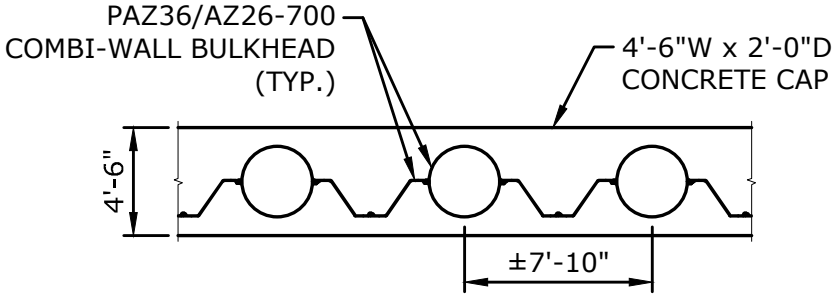
DESIGNED	DRAWN	CHECKED
KP	**NP**	**KP**

DRAWING NAME:

06



SECTION B-B



STEEL BULKHEAD - PLAN

SCALE: ⅛"=1'-0"

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SECTION B-B

NATIONAL COAST GUARD MUSEUM

MBLU: G12/ 108/ 1.0/1 /
WATER STREET
NEW LONDON, CONNECTICUT

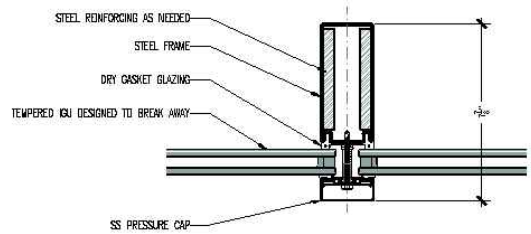
PROJECT PHASE: **ENVIRONMENTAL PERMIT** REV: **---**

DATE	**APRIL 1, 2020**
SCALE	**1" = 60'**
PROJ. NO.	**5139-01**

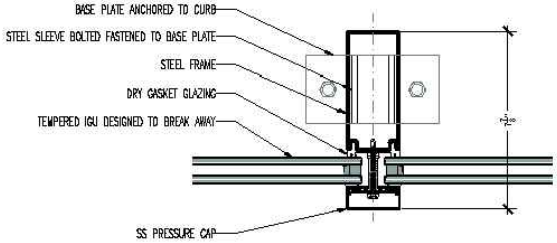
DESIGNED	DRAWN	CHECKED
KP	**NP**	**KP**

DRAWING NAME:

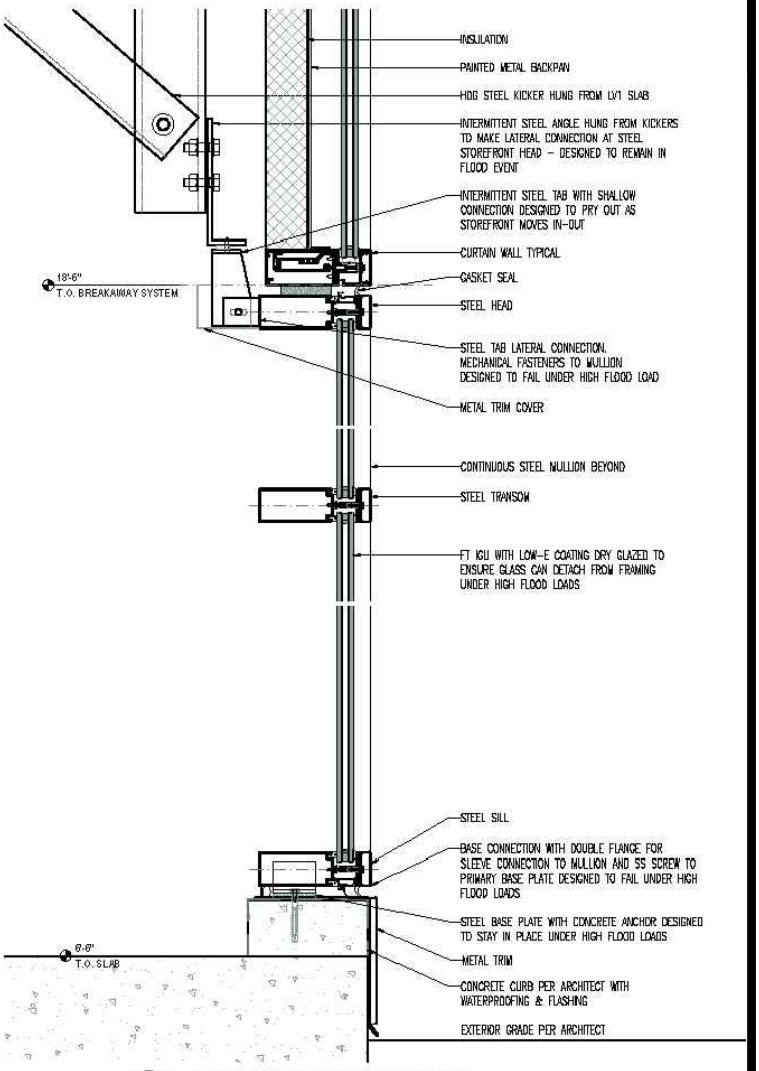
07



3 PODIUM SF MULLION - TYPICAL
PLAN [SCALE 1:10]



2 PODIUM SF MULLION - BASE CONNECTION
PLAN [SCALE 1:10]



1 PODIUM BREAKAWAY STOREFRONT
SECTION [SCALE 1:16]

NOTE:
BREAKAWAY CURTAINWALL DETAIL IS TYPICAL AT MUSEUM BUILDING AND PEDESTRIAN BRIDGE STAIR ENCLOSURE AT GRADE.

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BREAKAWAY CURTAIN WALL

NATIONAL COAST GUARD MUSEUM

MBLU: G12/ 108/ 1.0/1 /
WATER STREET
NEW LONDON, CONNECTICUT

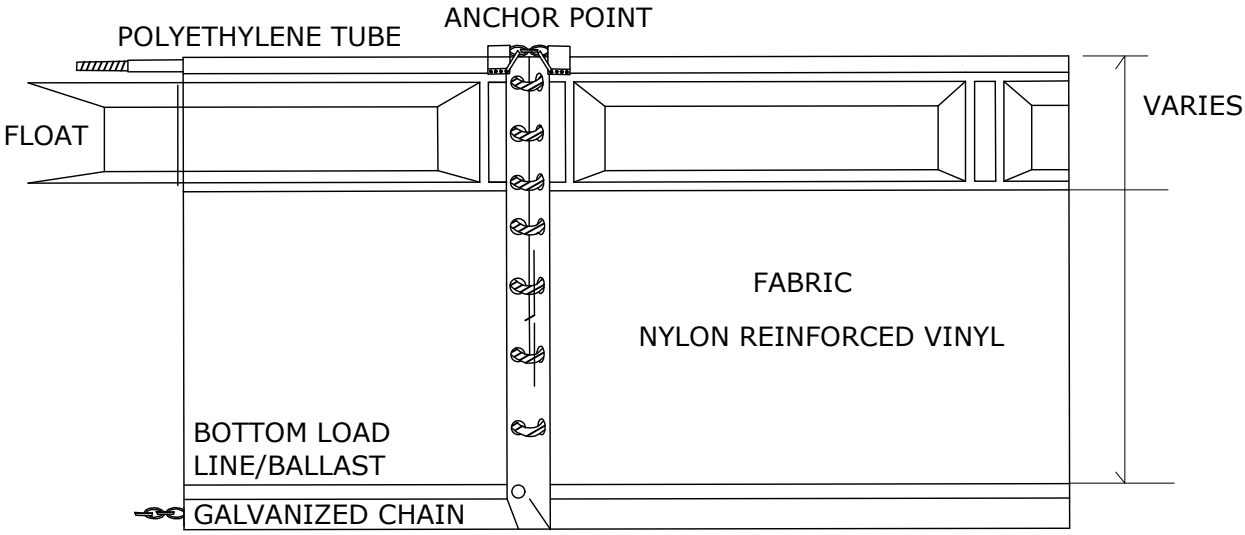
PROJECT PHASE: **ENVIRONMENTAL PERMIT** REV: **---**

DATE	**APRIL 1, 2020**
SCALE	**NOT TO SCALE**
PROJ. NO.	**5139-01**

DESIGNED	DRAWN	CHECKED
RE	**TT**	**TD**

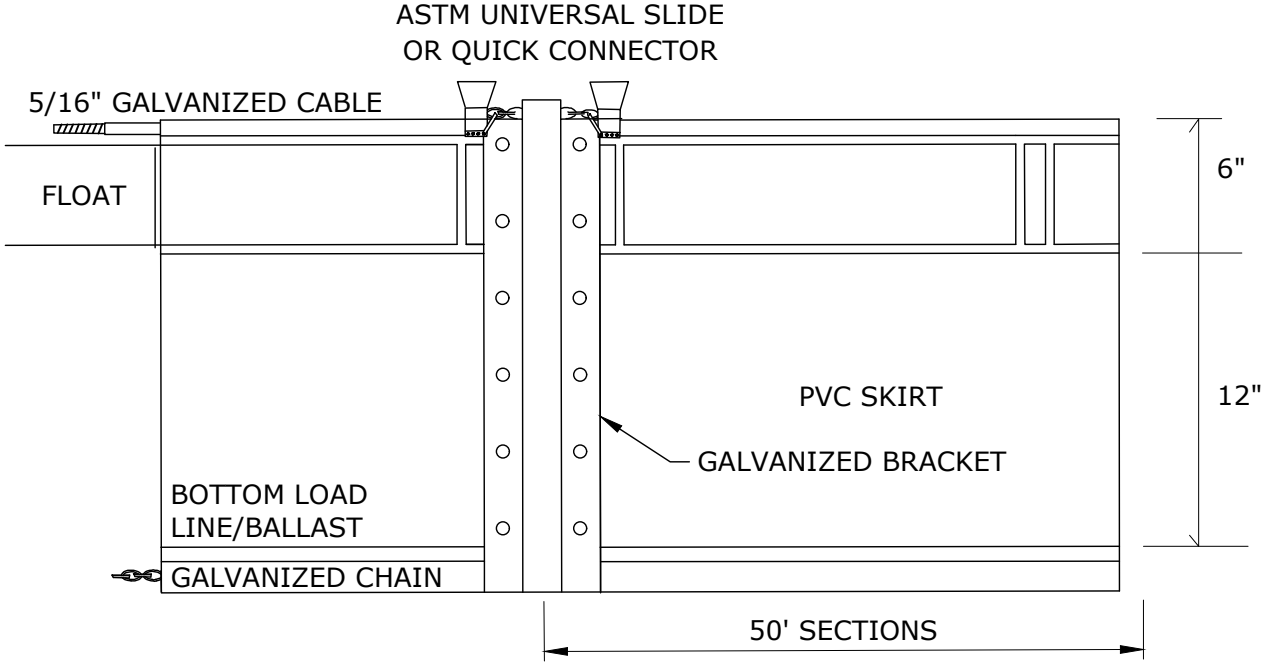
DRAWING NAME:

08



TURBIDITY CURTAIN

NOT TO SCALE



OIL BOOM

NOT TO SCALE

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CHESHIRE, CT 06410
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TURBIDITY CURTAIN/OIL BOOM

NATIONAL COAST GUARD MUSEUM

MBLU: G12/ 108/ 1.0/1 /
WATER STREET
NEW LONDON, CONNECTICUT

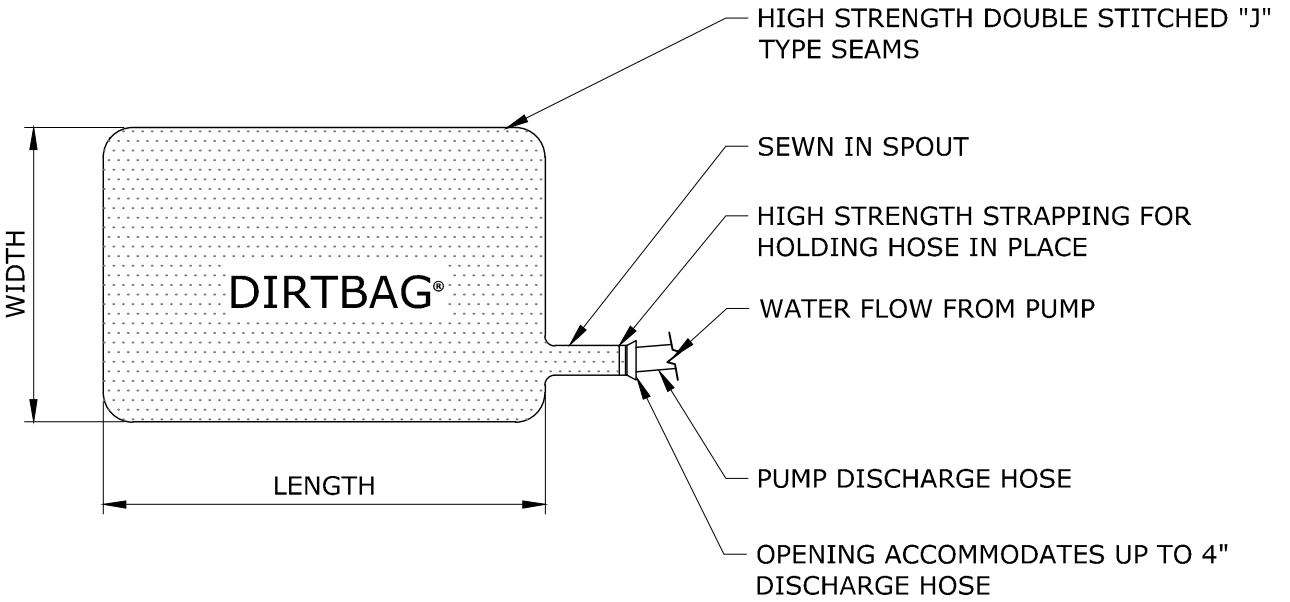
PROJECT PHASE: **ENVIRONMENTAL PERMIT** REV: **---**

DATE	**APRIL 1, 2020**
SCALE	**NOT TO SCALE**
PROJ. NO.	**5139-01**

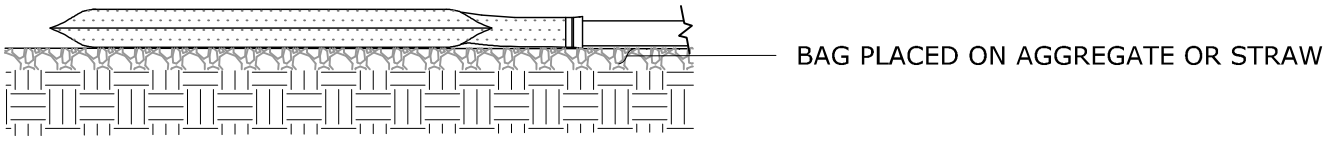
DESIGNED	DRAWN	CHECKED
RE	**TT**	**TD**

DRAWING NAME:

09



TOP VIEW



SIDE VIEW

DIRTBAG PUMPED SILT CONTROL SYSTEM

NOT TO SCALE

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203.271.1773
WWW.MMINC.COM

DIRTBAG PUMPED SILT CONTROL SYSTEM

NATIONAL COAST GUARD MUSEUM

MBLU: G12/ 108/ 1.0/1 /
WATER STREET
NEW LONDON, CONNECTICUT

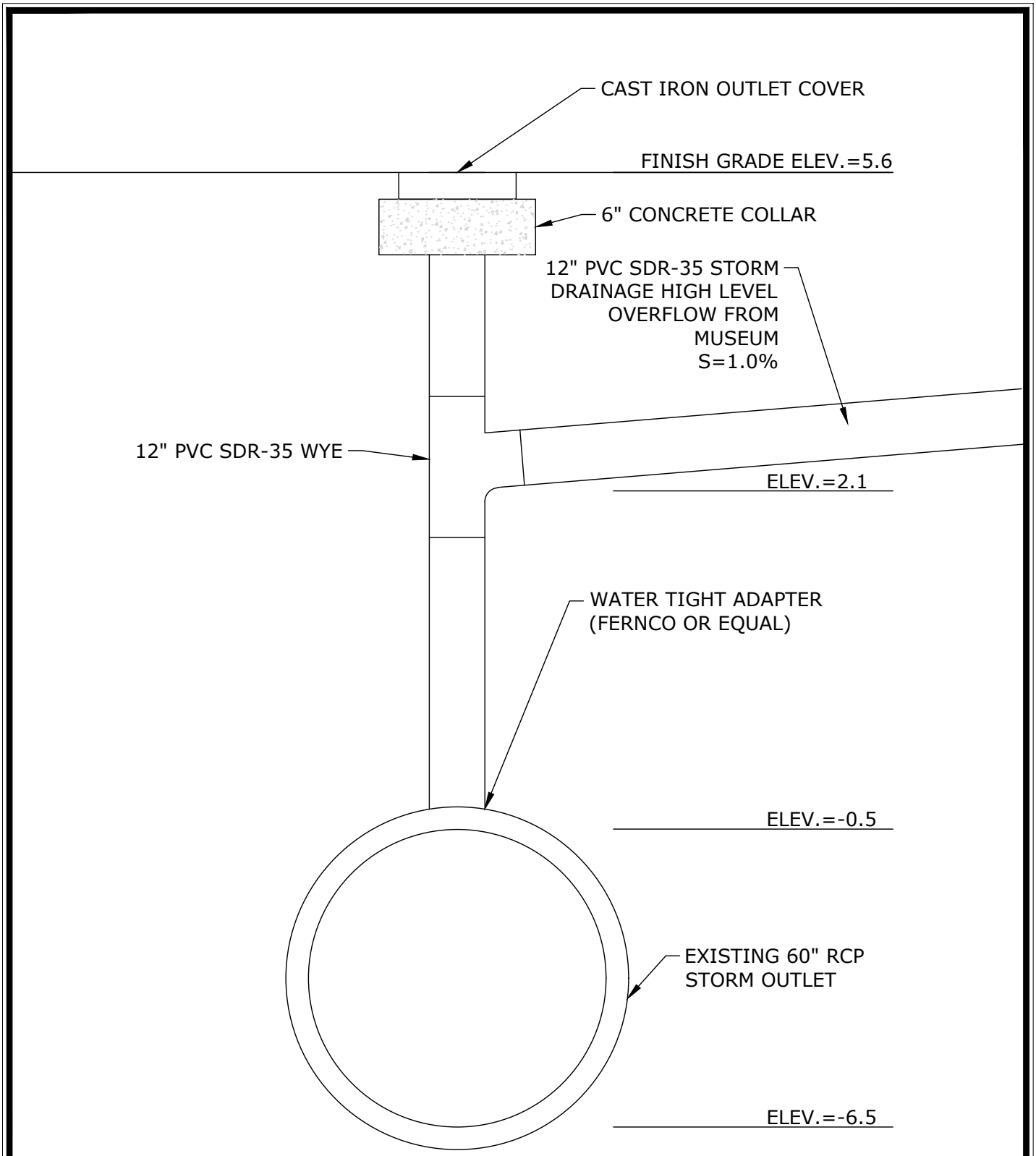
PROJECT PHASE: **ENVIRONMENTAL PERMIT** REV: **---**

DATE	**APRIL 1, 2020**
SCALE	**NOT TO SCALE**
PROJ. NO.	**5139-01**

DESIGNED	DRAWN	CHECKED
RE	**TT**	**TD**

DRAWING NAME:

10



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PIPE CONNECTION TO EXISTING 60" RCP

NATIONAL COAST GUARD MUSEUM

MBLU: G12/ 108/ 1.0/1 /
WATER STREET
NEW LONDON, CONNECTICUT

PROJECT PHASE: **ENVIRONMENTAL PERMIT** REV: **---**

DATE	**APRIL 1, 2020**
SCALE	**NOT TO SCALE**
PROJ. NO.	**5139-01**

DESIGNED	DRAWN	CHECKED
RE	**TT**	**TD**

DRAWING NAME:

11

Connecticut Department of
Energy & Environmental Protection
Bureau of Natural Resources
Fisheries Division

DEEP Fisheries Consultation Form

To the Applicant - Prior to the submission of your license application to the Connecticut Department of Energy & Environmental Protection (DEEP) Water Planning and Management Division (WPMD) or Land and Water Resources Division (LWRD), please complete Part I below and e-mail the following to deep.inland.fisheries@ct.gov:

1. this completed DEEP *Fisheries Consultation Form*;
2. a site location map,
3. a PDF version of the proposed project plans including a site survey of existing conditions (if available), and
4. photos of the site.

Fisheries Division staff will contact you if further details are needed. Once the Fisheries Division staff returns the completed form to you, please include the form, and any signed plans (if applicable) in your license application submittal to DEEP.

Part I: Applicant and Site Information (*to be completed by APPLICANT)*

1. Applicant/Registrant Information

Name: National Coast Guard Museum Association, Inc.
Mailing Address: 78 Howard Street
City/Town: New London State: CT Zip Code: 06320
Business Phone: 860.443.4200 Ext.: _____
Contact Person: Wes Pulver Phone: 860.443.4200 Ext: 128
E-mail Address: rwpulver@coastguardmuseum.org

2. Engineer/Surveyor/Agent Information (list as applicable)

Name: Milone & MacBroom, Inc.
Mailing Address: 195 Church Street, 7th Floor
City/Town: New Haven State: CT Zip Code: 06320
Business Phone: 203.344.7887 Ext.: _____
Contact Person: Megan B. Raymond Phone: 203.344.7889 Ext: _____
E-mail Address: mraymond@mminc.com
Service Provided: Ecological consulting and permitting

3. Site Location:

Name of Site: National Coast Guard Museum
Address of Site or Location Description: Water Street
City/Town: New London State: CT Zip Code: 06320
Parcel Location/Tax Assessor's Reference: Map G12 Block 108 Lot 1.0
Name of Stream or Waterbody: Thames River

4. **Activity:** Check the box best describing your activity: (check all that apply):

- ☒ new public/fishing access;
- ☐ new docks and marinas on the Connecticut River;
- ☐ coastal/tidal dredging projects;
- ☐ activities in inland/non-tidal waterbodies and watercourses;
- ☐ withdrawal of water from a non-tidal/inland river, stream, pond or lake;
- ☐ withdrawal of water from a wetland, marsh, swamp, or bog hydrologically connected to a non-tidal/inland river, stream, pond or lake;
- ☐ withdrawal of groundwater from stratified drift deposits hydrologically connected to a non-tidal/inland river, stream, pond or lake.

Note: Fisheries consultation is **not required** for docks and marinas on Long Island Sound.

Part I: Applicant and Site Information (*to be completed by APPLICANT) (continued)*

5. **DEEP Pre-application Contact:** Indicate name of permit analyst or engineer, if applicable.
   Micheal Grzywinski
6. **Project Description:** Provide or attach a brief, but thorough, description of the project including any measures to protect, enhance or restore fish populations:

   Installation of 282-linear feet of steel sheetpiling bulkhead and 9,300 sq. ft. of fill on Thames River for National Coast Guard Museum. Project will daylight a portion of City Pier Plaza to mitigate for open shoreline alteration. More than half of the project area is currently encumbered by City Pier Plaza.

Part II: Fisheries Determination *(To be completed by DEEP Fisheries Staff only)*

To Fisheries Staff - This completed consultation form is required to be submitted as part of an application to DEEP. The application has not yet been submitted to DEEP. Please review the enclosed materials and determine whether the project will significantly impact any fisheries or fisheries habitat. You may provide comments or recommendations regarding the proposal. Send this completed form to the applicant and copy the DEEP analyst, if known, or the applicable WPMD/LWRD Supervisor. If the proposed work **WILL** significantly impact any fisheries and/or habitat or if you have any comments or concerns regarding the regulatory review for this project, contact the DEEP analyst, if known, or the applicable WPMD/LWRD Supervisor.

DEEP FISHERIES DIVISION DETERMINATION

Date Consultation Form received: 4/23/20

Please check applicable boxes and return the completed Consultation Form to the applicant:

- ☐ I have determined that the work described in Part I of this form and attachments **WILL NOT** significantly impact any fisheries and/or habitat;
- ☑ I have determined that the work described in Part I of this form and attachments **WILL NOT** significantly impact any fisheries and/or habitat **if the below Recommendations are followed**; and/or,
- ☐ I have determined that the work described in Part I of this form and attachments **WILL NOT** significantly impact any fisheries and/or habitat **if the design features shown on the attached plans are incorporated.** Fisheries staff to sign and date plans and return to the applicant with the completed Consultation Form.

COMMENTS/RECOMMENDATIONS (or check here if these are attached following this page: ☑):

See attached sheet

"By entering my name below, I agree that I am providing my legal signature, and am legally bound by the determination above."

Bruce H Williams — Signature of Fisheries Division Staff

5/28/20 — Date

Bruce H Williams — Print Name of Fisheries Division Staff

EP Fisheries Biologist — Title

COMMENTS/RECOMMENDATIONS:

Consistent with previous recommendations for projects in this area the Fisheries Division recommends that the installation or removal of piles below MHW, including sheet piles for bulkheads and wooden piles for piers, be prohibited from February 1 to May 15 to protect Winter Flounder spawning, eggs, and early life stages.

APPENDIX C8

2019 NOAA LETTER OF CONCURRENCE

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Silver Spring, MD 20910

MAY 2 0 2019

Jeanine Gouin, PE
Vice President
Milone & Macbroom
195 Church Street
New Haven, CT 06510

May 20, 2019

Dear Ms. Gouin,

On April 12, 2019, Megan Raymond submitted an email to NMFS on behalf of the National Coast Guard Museum Association. The email regarded a proposed shoreline construction project which included shoreline pile driving and fill near the City Pier and Cross Sound Ferry Terminal in the Thames River, New London, CT. Megan Raymond's email included a request that NMFS concur with the conclusion that take of marine mammals during the planned activity is not an expected outcome and thus an incidental take authorization (ITA) pursuant to section 101(a)(5) of the Marine Mammal Protection Act (MMPA) is not warranted for the activity.

The planned shoreline pile driving would include vibratory driving of metal sheet piles along approximately 247 feet of the shore line, with approximately 177 feet of these piles being driving in water at most 5 to 8 feet deep. Pile driving is planned to occur over a 4 week or less period during the summer of 2020.

Using the practical spreading model and proxy pile driving sound source values provided by the California Department of Transportation (CalTrans 2015), NMFS determined that the Level B harassment zone would be at most 4642 meters. However, the presence of structures nearby the planned work site greatly limits the areas to which sound is expected to propagate, limiting the total ensonified area to less than 1 kilometer squared. The National Coast Guard Museum Association has indicated that it would be willing to observe this area during pile installation in order to shutdown sound generating activity if marine mammals are present.

Additionally, information on marine mammal use in the area, shows that harbor seals (*Phoca vitulina*) and gray seals (*Halichoerus grypus*) are the only species expected to occur in the Thames River. Both of these species are expected to be rare occurrences in the area during the summer and there are no reported haul-outs or preferred habitats adjacent to the planned work site.

Based on the small amount of planned in water activity, constrained area where sound impacts could possibly result in take by Level B harassment, expected low presence of marine mammals, and planned monitoring and mitigation measures, NMFS concurs with the National

Coast Guard Museum Association conclusion that the likelihood of marine mammal take resulting from the planned shoreline vibratory pile driving is so low as to be discountable; therefore, we agree that an ITA is not warranted for these activities. In the event of unanticipated incidental take of a marine mammal, the National Coast Guard Museum Association should contact our office immediately to provide notification of the incident and to work through the necessary steps to ensure MMPA compliance moving forward, which could include submitting a request for an ITA. Please contact the NMFS Office of Protected Resources Permits and Conservation Division if you have any questions at 301-427-8401.

Sincerely,

Jolie Harrison, Chief
Permits and Conservation Division
Office of Protected Resources

APPENDIX D

Cultural Resources

Appendix D1 – Section 106 Initiation Letter

Appendix D2 – Section 106 Consultation Correspondence

Appendix D3 – Memorandum of Understanding

APPENDIX D1
SECTION 106 INITIATION LETTER

U.S. Department of Homeland Security
United States Coast Guard

Commanding Officer
United States Coast Guard
Shore Infrastructure Logistics Center

300 East Main Street, Suite 800
Norfolk, VA 23510-9104
Staff Symbol: EMD/da
Phone: (510) 637-5541
Email: Dean.J.Amudnson@uscg.mil

5090

Mr. Daniel T. Forrest
State Historic Preservation Officer
Director of Arts and Historic Preservation
Department of Economic and Community Development
One Constitution Plaza, 2nd Floor
Hartford, CT 06103

Dear Mr. Forrest,

The purpose of this letter is to initiate consultation for the new National Coast Guard Museum in New London, Connecticut, pursuant to Section 106 of the National Historic Preservation Act and its implementing regulations, 36 Code of Federal Regulations (CFR) Part 800 "Protection of Historic Properties (Section 106)." The United States Coast Guard (USCG) proposes to acquire, by gift, land from the City of New London for the construction and operation of the new National Coast Guard Museum. This letter describes the undertaking, historic development, site history, and cultural resource management analysis methods that will be applied to the project.

The USCG has contracted with URS Group, Inc. (URS) to assist with environmental studies for the new museum, including the preparation of an Environmental Assessment under the National Environmental Policy Act. The URS cultural resources management team will conduct investigations to determine the presence of historic and above-ground properties defined as those that are listed, or are eligible for listing, in the National Register of Historic Places (NRHP). In addition, URS will conduct a site visit to determine the area of potential effects (APE) for the undertaking. All work will be conducted or directed by staff who meet or exceed the *Secretary of the Interior's Professional Qualification Standards* (36 CFR Part 61) in Architectural History, History, and/or Archaeology. Resumes for project personnel will be provided upon request.

As defined in 36 CFR part 800.16(d), the APE is "the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if such properties exist. The Area of Potential Effects is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking." Although planning and design for the new museum has not yet advanced to the stage where all project effects can be fully evaluated, the majority of project effects can be reasonably assessed. The APE for indirect or visual effects is based on sight lines from other NRHP-listed or NRHP-eligible properties, and the concept design presented on the National Coast Guard Museum Association, Inc. (NCGMA) website, www.coastguardmuseum.org. The

archaeological APE is being determined with assistance from your agency, as per the email sent to Ms. Stacey Vario on November 11, 2013.

Description of the Undertaking

The undertaking consists of the USCG's acquisition by gift of a 0.49-acre waterfront property from the City of New London. Following acceptance of the gift of land, the USCG would allow construction of the museum by the NCGMA. Upon completion of the new museum, the USCG may accept the donation of the museum from the NCGMA and operate it in perpetuity. Per 26 United States Code 501(c)(3), the NCGMA is a tax-exempt non-profit charitable organization, and was established in 2001 for the sole purpose of raising funds and applying for and administering federal and state grants for acquiring land, designing, constructing, developing exhibits, and turning over to the USCG the National Coast Guard Museum in New London, Connecticut.

The project site is in New London, on the west bank of the Thames River, parallel to Water Street and on the south end of Ferry Street (Attachment 1, Figures 1 and 2). The irregularly-shaped lot is improved with a gravel and dirt parking lot. The area surrounding the site is developed with active railroad tracks and overhead electrical catenary, commercial and industrial properties, and a paved parking area for adjacent ferries. South of the site is a public plaza (City Pier Plaza), pier (City Pier), and several boat docks. The Fisher Island Ferry dock and building are located south of City Pier Plaza.

The museum concept design, as presented on the NCGMA website, is a modern, approximately 50,000-square-foot, four- to five-story glass structure.[1] The building exhibit space would project over the water's edge (Attachment 2, Figures 1 and 2). The museum would also include additional exterior exhibits and space for artifact storage. Selected artifacts, documents, and staff would be transferred to the new museum from the existing Exhibition Center in Forestville, Maryland, and the existing USCG Museum at the USCG Academy in New London. The existing USCG Museum lacks adequate space to display and properly curate USCG artifacts.

The concept design on the NCGMA website also shows an enclosed pedestrian bridge over the National Passenger Railroad Corporation (Amtrak) railroad tracks that would connect with another contemporary glass structure adjacent to the northern elevation of the 1884 Union Station freight depot building. This pedestrian bridge is an independent project that is being undertaken by the State of Connecticut and would provide access to the museum and to improve access to New London's regional intermodal transportation center.

Historic Development

This area of New London has long been associated with shipping. In 1660, John Coit built the first and largest Colonial-era shipyard in New London. During the Revolutionary War, New London became a center of privateering, a legalized form of piracy that resulted in the raiding and seizing of British ships and property. In 1781, the infamous American traitor, Benedict Arnold, led the British in an attack on New London to stop privateering. The British burned New London and then attacked and seized Fort Griswold, which is across the Thames River, in

[1] "The Association: About NCGMA" available at www.coastguardmuseum.org. Accessed November 9, 2013.

the Battle of Groton Heights. Following the Revolutionary War, New London was active in West Indies trade until it became unprofitable. In 1799, yellow fever broke out in New London and the town was nearly decimated.[2]

By 1820, New London's whaling era was underway, and in the following 40 years, New London became one of the three great whaling ports in the world, along with New Bedford and Nantucket. Oil from sperm whales was used for making candles and in oil lamps. It burned brightly and did not produce a foul odor as oil from other whales did. Before the discovery and production of petroleum, sperm whale oil was in great demand.[3] At one time, New London was home to more than 260 whaling vessels that went out on more than 1,000 voyages and employed approximately 3,000 seamen. New London had the second-largest whaling fleet in the world and the whaling industry was very profitable.[4]

During the 19th century, buildings and the shipyard were constructed directly adjacent to the railroad tracks east of Bank Street near present day South Water Street.[5] In 1889, the bridge crossing the Thames River was completed and, at the time, was the longest double-track railroad drawbridge in the world.[6]

In the latter part of the 19th century and in the early 20th century, the land around New London became a resort area. Due to its access to steamships and railroads, and its location between New York City and Boston, New London attracted the wealthy elite, and provided them with access to the Long Island Sound and an escape from the heat and congestion of major cities. The 1852 Peqout House Hotel was a grand hotel of the Victorian era that catered to the wealthy of New York and Boston. In the 20th century, waterfront construction began to include housing developments, not only resorts. When streetcar lines were built, early 20th century developments such as Neptune Park Neighborhood provided local citizens with access to recreational opportunities on the waterfront.[7]

In 1910, the Electric Boat Company was established in New London. In the same year, Fort Trumbull was vacated. The fort had been occupied by the military since 1790. Also in the same year, the United States Revenue Cutter School of Instruction, originally established by Alexander Hamilton to ensure the collection of tariffs, moved its land-based campus from Curtis Bay, Maryland, to Fort Trumbull. When the Revenue Cutter Service merged with the U.S. Life Saving Service in 1915, the USCG was established. In 1932, the Coast Guard Academy campus was developed.[8]

The Great Hurricane of 1938 devastated the Northeast coast, including New London. A local contemporary account described the aftermath as "a holocaust in which a hurricane, flood, and fire combined to leave hundreds of homeless and jobless with damage estimated up to

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2 Edgerton, Frederick W., "A Very Short History of New London," Unpublished manuscript, 1949.
3 Pees, Samuel T., "Whale Oil" Available at www.petroleumhistory.org/OilHistory/pages/Whale/whale.html. Accessed, November 10, 2013.
4 Edgerton, Ibid.
5 Ruddy, John J. *Images of America, New London*, Arcadia Press. p. 111.
6 Ibid. p. 61.
7 Clark, Kristen Havrilla, draft NRHP Nomination: "Neptune Park", New London Landmarks, 2008.
8 "Academy History." Available at www.cga.edu. Accessed November 9, 2013.

$4,000,000. It was the greatest disaster in the history of eastern Connecticut."[9] The fire spread rapidly, completely destroying 12 to 14 buildings.[10]

During World War II, Groton, across the Thames River from New London, became known as the Submarine Capital of the World.[11] The Electric Boat Company became a subsidiary of the New London Ship and Engine Company in 1925. In 1941, the South Yard opened (renamed the Victory Yard) and produced 74 fleet-type submarines, more than any yard in America. In 1944, the yard launched a new sub every two weeks. These submarines were responsible for 39 percent of all Japanese shipping destroyed in the Pacific during World War II.[12]

Following World War II, in 1947, the Electric Boat Company became General Dynamics. In 1952, the new company was contracted to build the world's first nuclear submarine, *The Nautilus*, which was launched in 1954.[13]

Site History

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[10] Ibid.
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[12] Ibid.
[13] History of the USS NAUTILUS (SSN 571) Available at http://www.ussnautilus.org/nautilus/index.shtml, Accessed November 15, 2013.

Methodology

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SUBJ: INITIATION OF SEC 106 CONSULTATION – NATIONAL COAST GUARD MUSEUM PROJECT, NEW LONDON, CONNECTICUT

All appropriate and available published resources will be used. URS will also provide a written cultural history of the project area, including information on previously recorded sites within the historic above-ground APE and the archaeological APE.

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We look forward to continuing consultation with the Connecticut SHPO on this project. For additional information or any inquiries regarding this material, please contact Mr. Dean Amundson of my staff at (510) 637-5541, or URS Architectural Historian, Jeff Winstel at (301) 820-3380 or jeff.winstel@urs.com.

Sincerely,

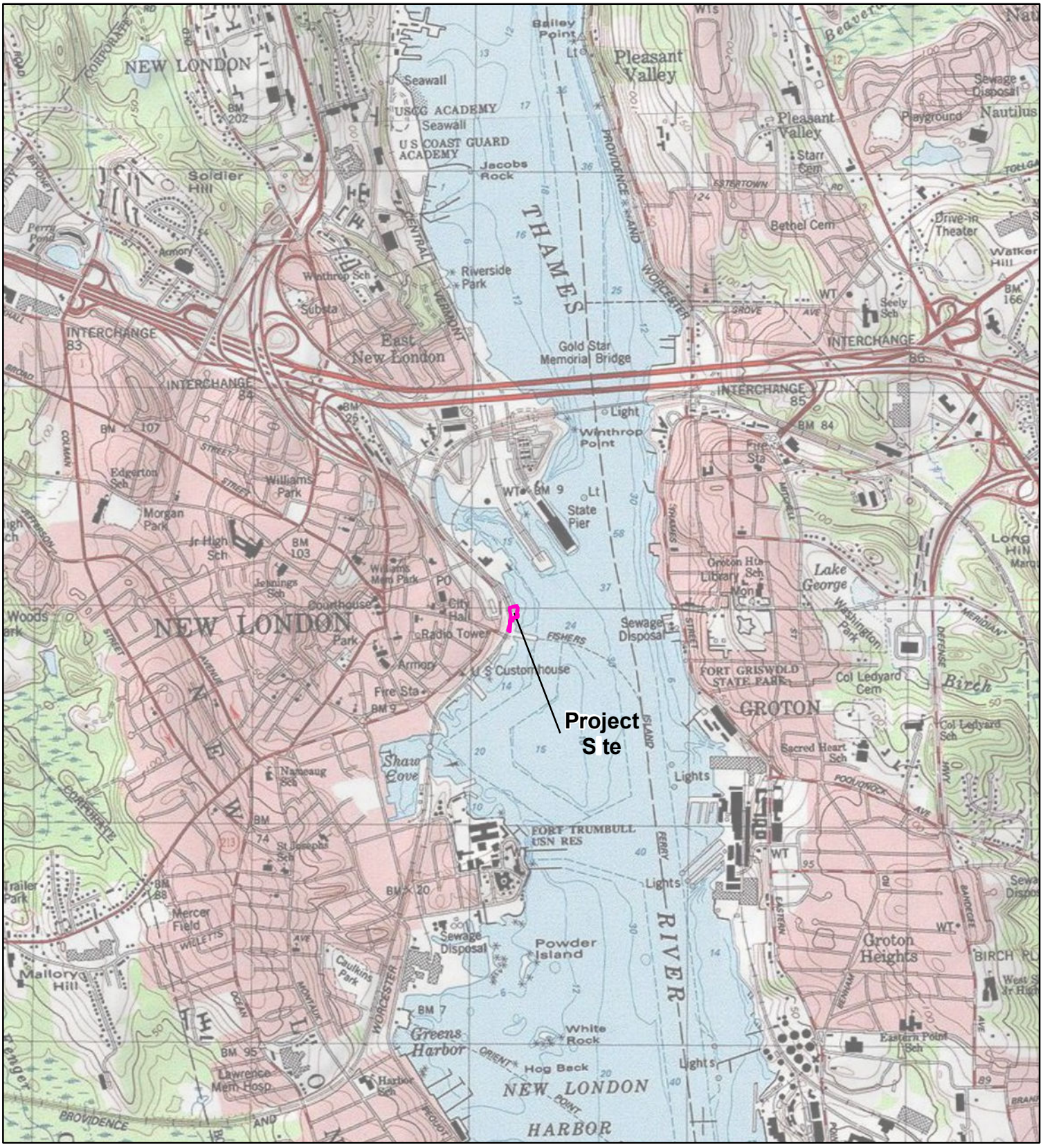
John Poland
USCG SILC
Environmental Management Division Chief
By Direction

Enclosure:
(1) Attachment 1, Project Location
(2) Attachment 2, Concept Design for NCGM
(3) Attachment 3, Sanborn Maps

Copy: w/o Enclosures

CG47
CG SILC
CEU Providence

ATTACHMENT 1



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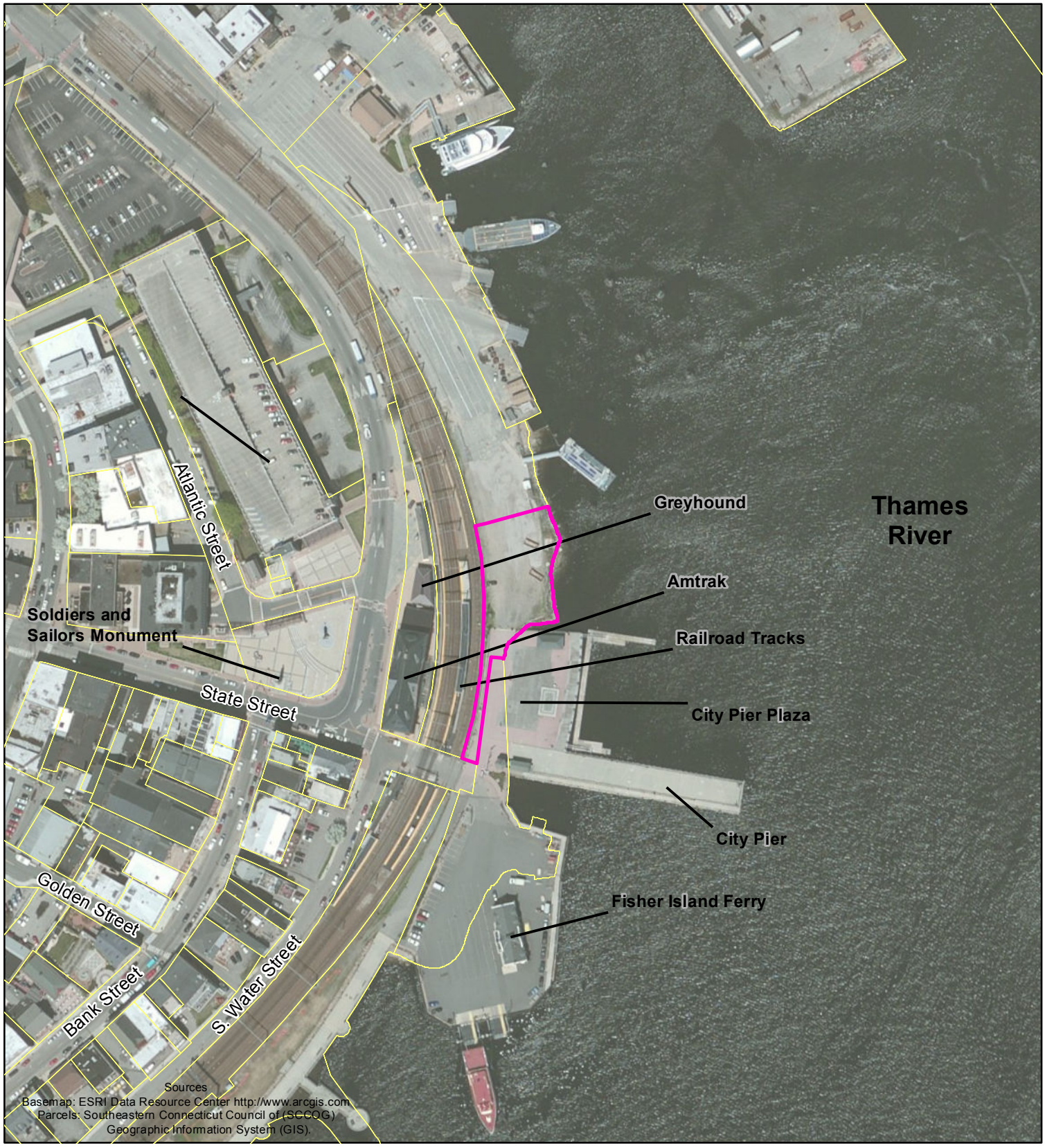
0 500 1,000 2,000 Feet

Project Location

National Coast Guard Museum
New London, Connecticut

URS

Attachment 1, Figure 1



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Project Site

0 50 100 200 Feet

Project Vicinity

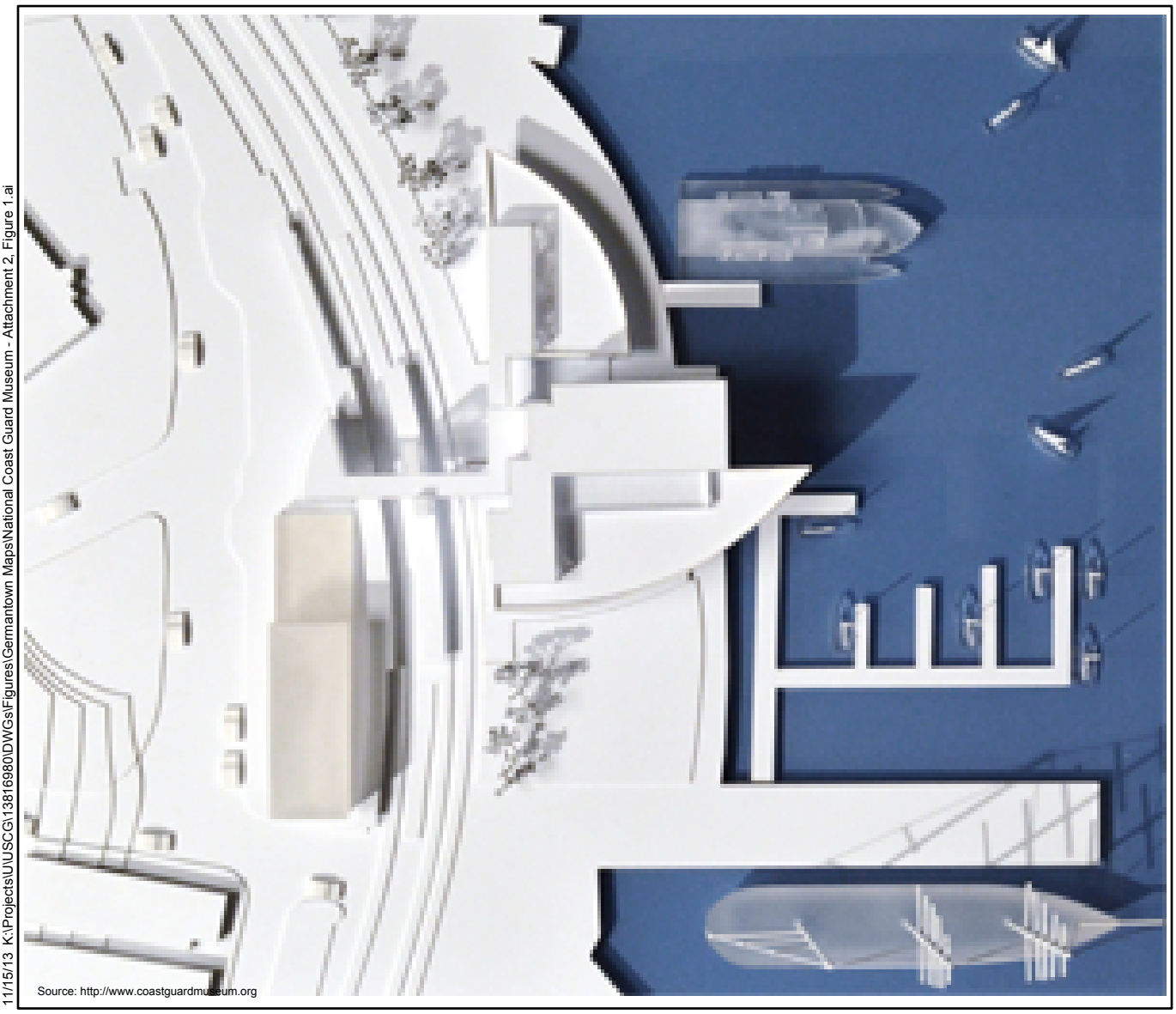
National Coast Guard Museum
New London, Connecticut

URS

Attachment 1, Figure 2

ATTACHMENT 2

11/15/13 K:\Projects\UUSCG\13816980\DWGs\Figures\Germantown Maps\National Coast Guard Museum - Attachment 2, Figure 1.ai



Source: http://www.coastguardmuseum.org

Not to Scale

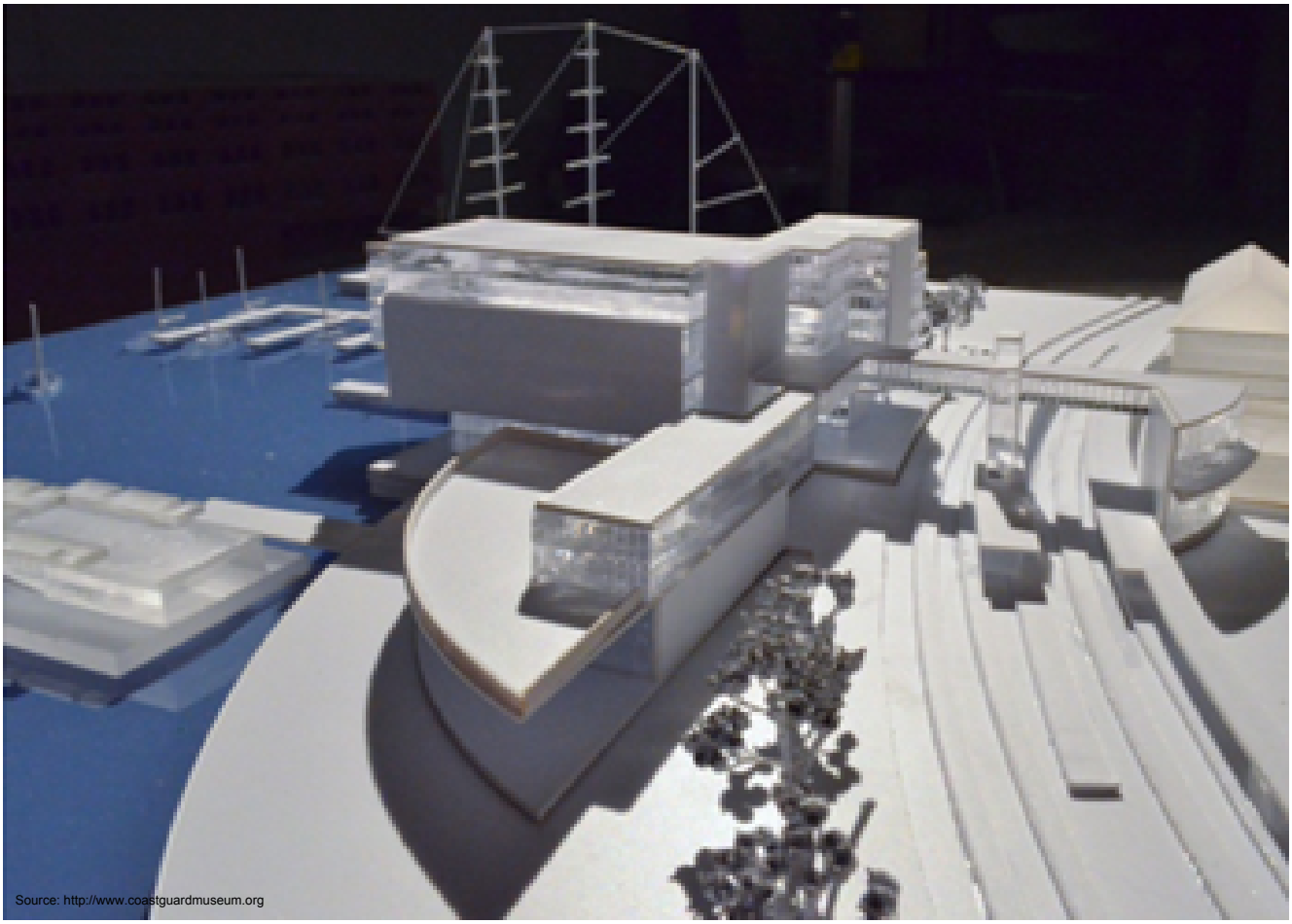
Concept Design Model - Plan View

National Coast Guard Museum
New London, Connecticut

URS

Attachment 2, Figure 1

11/15/13 K:\Projects\UUSCG\13816980\DWGs\Figures\Germantown Maps\National Coast Guard Museum - Attachment 2, Figure 2.ai



Concept Design Model -
Isometric View (Looking South)

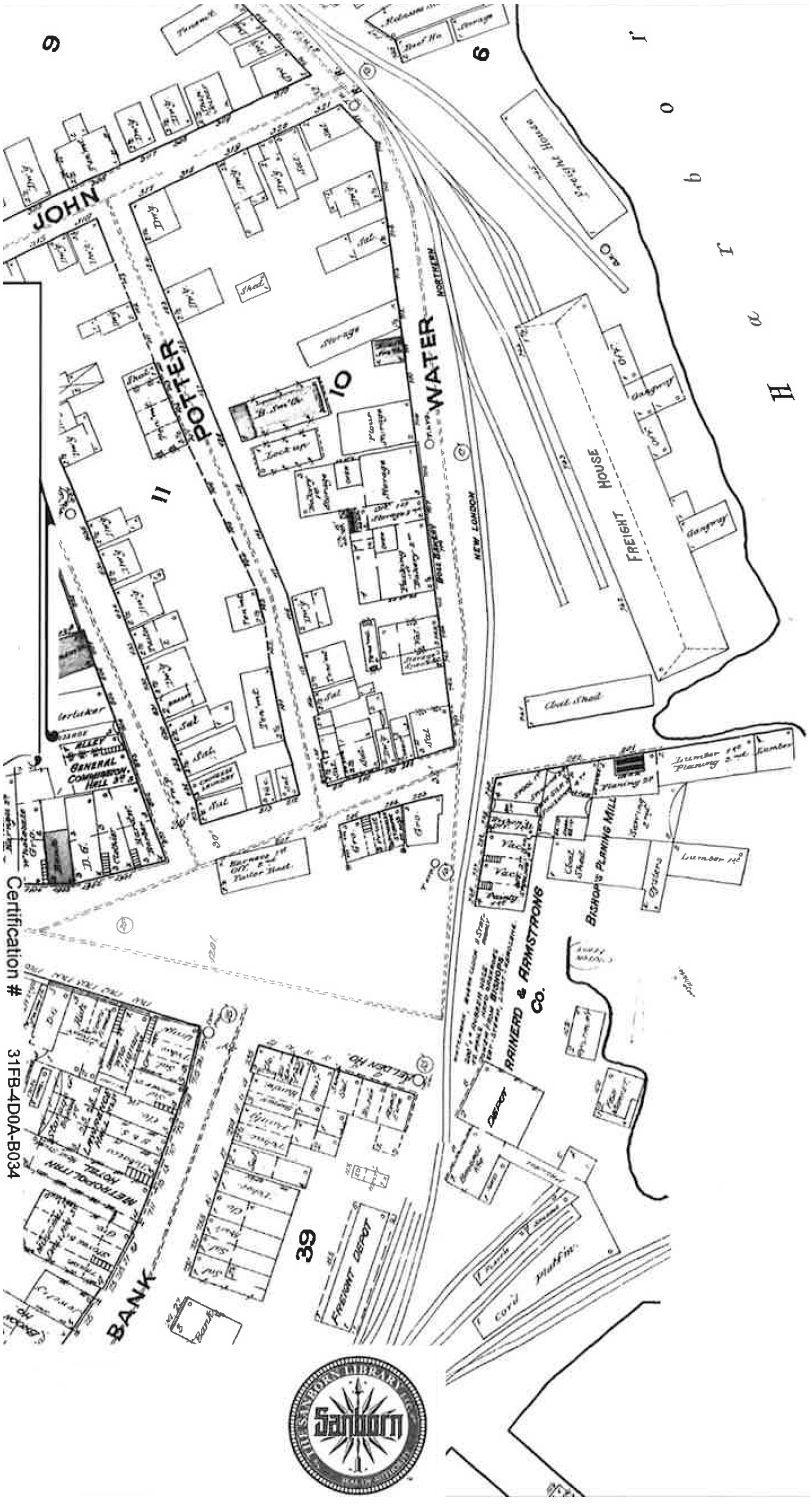
National Coast Guard Museum
New London, Connecticut

Not to Scale

URS

Attachment 2, Figure 2

ATTACHMENT 3



Source: Environmental Data Resources Inc.

11/15/13 K:\Projects\U\USCG\13816980\DWGs\Figures\Germantown Maps\National Coast Guard Museum - Attachment 3, Figure 1.ai

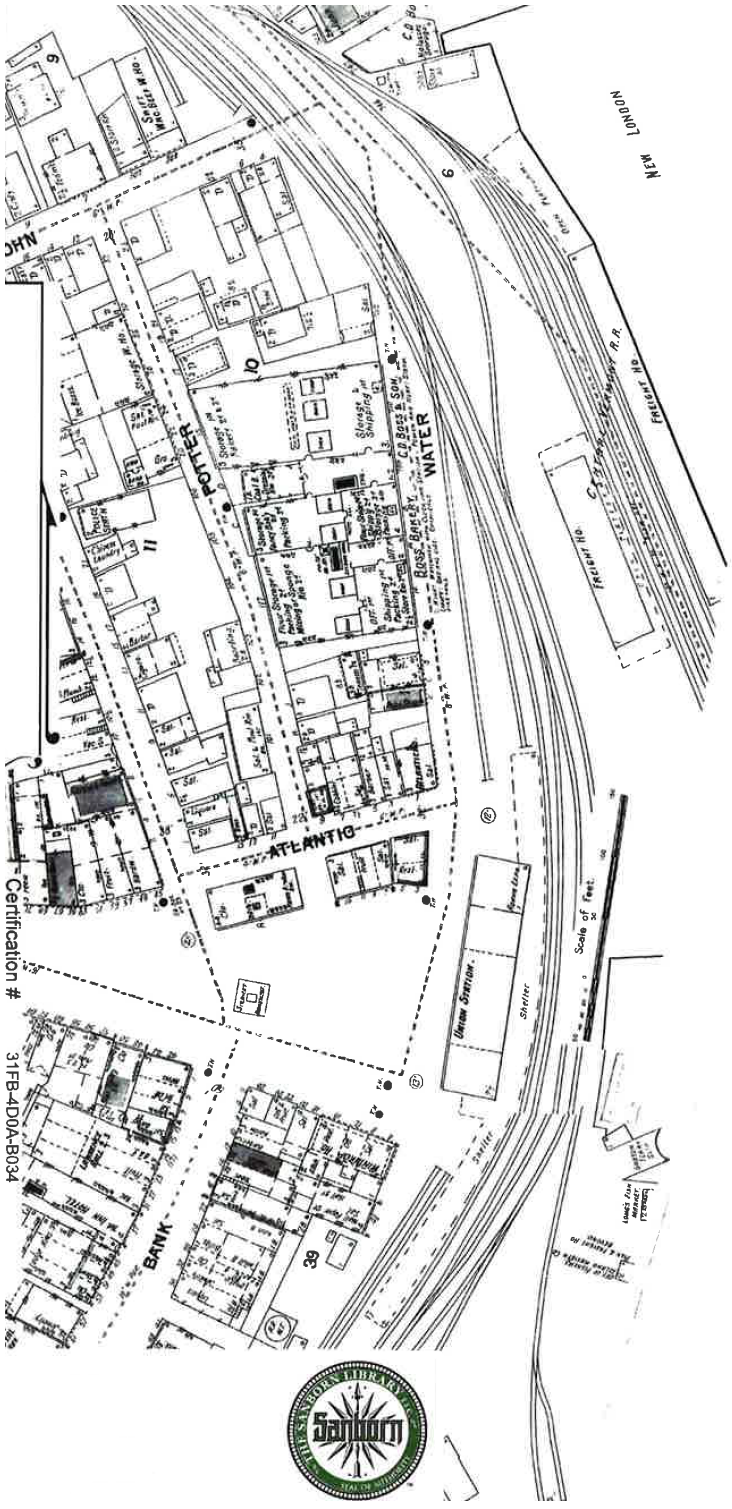
1884 Sanborn Fire Insurance Map

Not to Scale

National Coast Guard Museum
New London, Connecticut

URS

Attachment 3, Figure 1



Source: Environmental Data Resources Inc.

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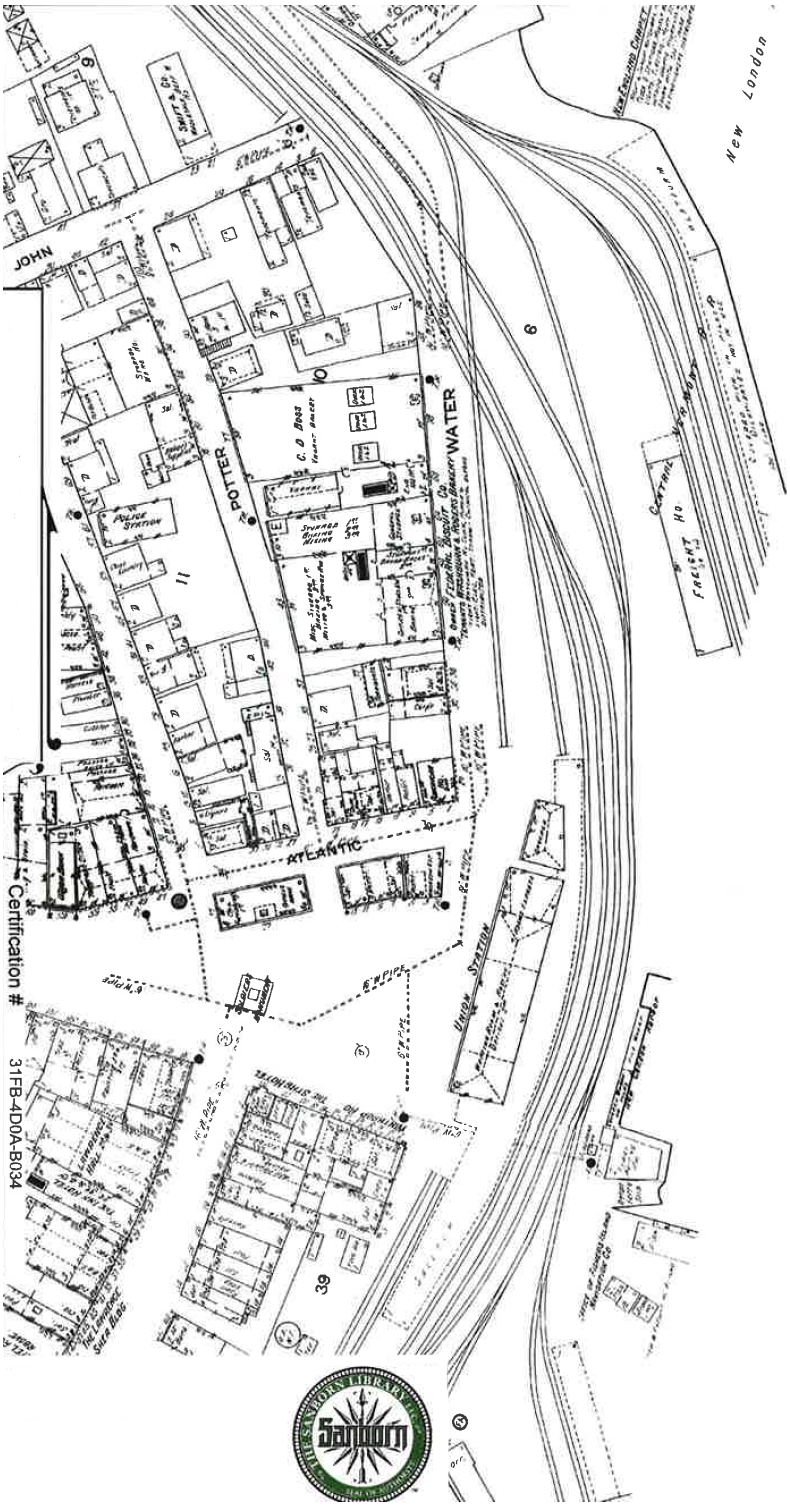
1901 Sanborn Fire Insurance Map

Not to Scale

National Coast Guard Museum
New London, Connecticut

URS

Attachment 3, Figure 2



Source: Environmental Data Resources Inc.

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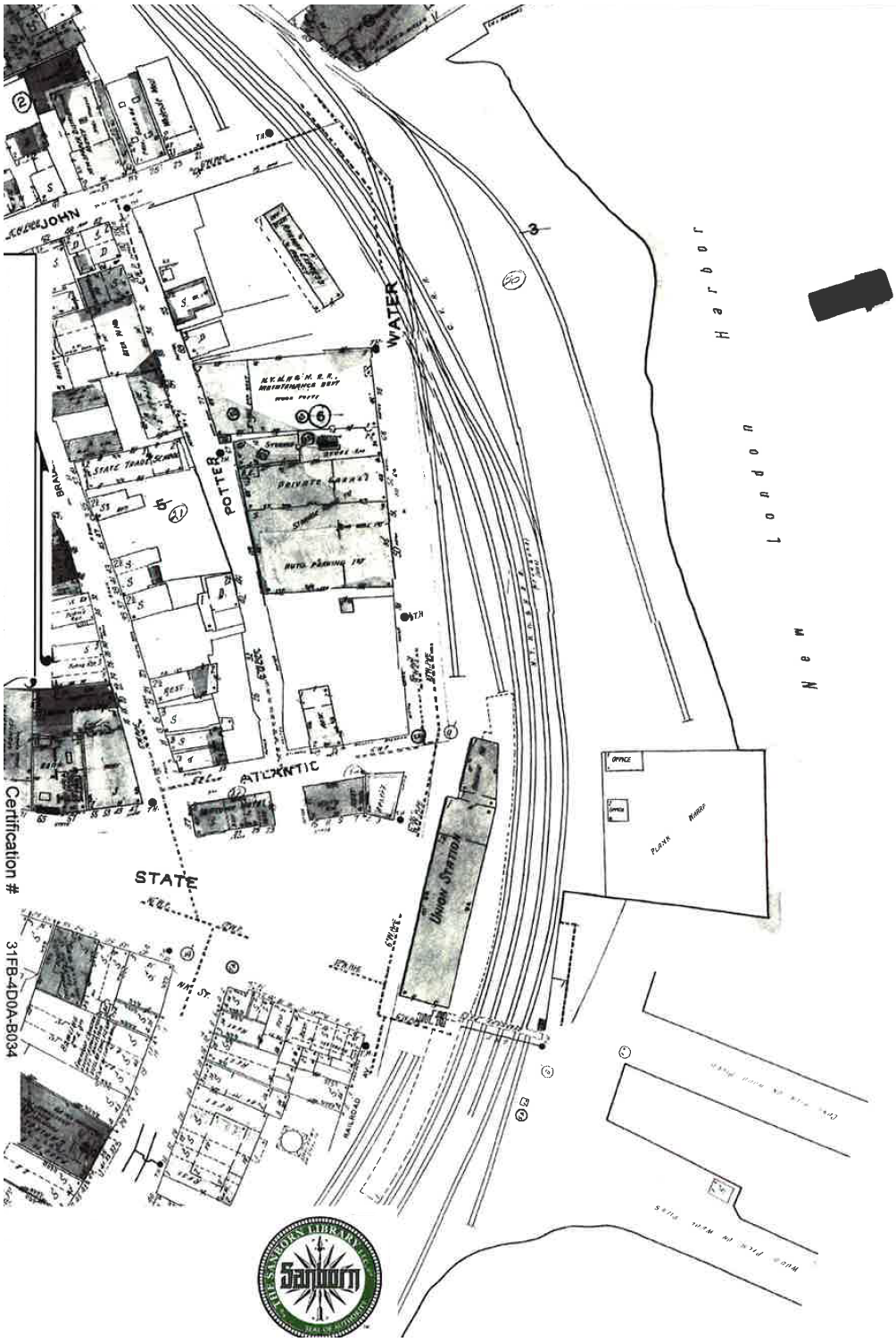
1912 Sanborn Fire Insurance Map

Not to Scale

National Coast Guard Museum
New London, Connecticut

URS

Attachment 3, Figure 3



Source: Environmental Data Resources Inc.

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1951 Sanborn Fire Insurance Map

Not to Scale

National Coast Guard Museum
New London, Connecticut

URS

Attachment 3, Figure 4

U.S. Department of Homeland Security
United States Coast Guard

Commanding Officer
United States Coast Guard
Shore Infrastructure Logistics Center

300 East Main Street, Suite 800
Norfolk, VA 23510-9104
Staff Symbol: EMD/da
Phone: (510) 637-5541
Email: Dean.J.Amudnson@uscg.mil

5090

Mr. Daniel T. Forrest
State Historic Preservation Officer
Director of Arts and Historic Preservation
Department of Economic and Community Development
One Constitution Plaza, 2nd Floor
Hartford, CT 06103

Dear Mr. Forrest,

The purpose of this letter is to initiate consultation for the new National Coast Guard Museum in New London, Connecticut, pursuant to Section 106 of the National Historic Preservation Act and its implementing regulations, 36 Code of Federal Regulations (CFR) Part 800 "Protection of Historic Properties (Section 106)." The United States Coast Guard (USCG) proposes to acquire, by gift, land from the City of New London for the construction and operation of the new National Coast Guard Museum. This letter describes the undertaking, historic development, site history, and cultural resource management analysis methods that will be applied to the project.

The USCG has contracted with URS Group, Inc. (URS) to assist with environmental studies for the new museum, including the preparation of an Environmental Assessment under the National Environmental Policy Act. The URS cultural resources management team will conduct investigations to determine the presence of historic and above-ground properties defined as those that are listed, or are eligible for listing, in the National Register of Historic Places (NRHP). In addition, URS will conduct a site visit to determine the area of potential effects (APE) for the undertaking. All work will be conducted or directed by staff who meet or exceed the *Secretary of the Interior's Professional Qualification Standards* (36 CFR Part 61) in Architectural History, History, and/or Archaeology. Resumes for project personnel will be provided upon request.

As defined in 36 CFR part 800.16(d), the APE is "the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if such properties exist. The Area of Potential Effects is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking." Although planning and design for the new museum has not yet advanced to the stage where all project effects can be fully evaluated, the majority of project effects can be reasonably assessed. The APE for indirect or visual effects is based on sight lines from other NRHP-listed or NRHP-eligible properties, and the concept design presented on the National Coast Guard Museum Association, Inc. (NCGMA) website, www.coastguardmuseum.org. The

archaeological APE is being determined with assistance from your agency, as per the email sent to Ms. Stacey Vario on November 11, 2013.

Description of the Undertaking

The undertaking consists of the USCG's acquisition by gift of a 0.49-acre waterfront property from the City of New London. Following acceptance of the gift of land, the USCG would allow construction of the museum by the NCGMA. Upon completion of the new museum, the USCG may accept the donation of the museum from the NCGMA and operate it in perpetuity. Per 26 United States Code 501(c)(3), the NCGMA is a tax-exempt non-profit charitable organization, and was established in 2001 for the sole purpose of raising funds and applying for and administering federal and state grants for acquiring land, designing, constructing, developing exhibits, and turning over to the USCG the National Coast Guard Museum in New London, Connecticut.

The project site is in New London, on the west bank of the Thames River, parallel to Water Street and on the south end of Ferry Street (Attachment 1, Figures 1 and 2). The irregularly-shaped lot is improved with a gravel and dirt parking lot. The area surrounding the site is developed with active railroad tracks and overhead electrical catenary, commercial and industrial properties, and a paved parking area for adjacent ferries. South of the site is a public plaza (City Pier Plaza), pier (City Pier), and several boat docks. The Fisher Island Ferry dock and building are located south of City Pier Plaza.

The museum concept design, as presented on the NCGMA website, is a modern, approximately 50,000-square-foot, four- to five-story glass structure.[1] The building exhibit space would project over the water's edge (Attachment 2, Figures 1 and 2). The museum would also include additional exterior exhibits and space for artifact storage. Selected artifacts, documents, and staff would be transferred to the new museum from the existing Exhibition Center in Forestville, Maryland, and the existing USCG Museum at the USCG Academy in New London. The existing USCG Museum lacks adequate space to display and properly curate USCG artifacts.

The concept design on the NCGMA website also shows an enclosed pedestrian bridge over the National Passenger Railroad Corporation (Amtrak) railroad tracks that would connect with another contemporary glass structure adjacent to the northern elevation of the 1884 Union Station freight depot building. This pedestrian bridge is an independent project that is being undertaken by the State of Connecticut and would provide access to the museum and to improve access to New London's regional intermodal transportation center.

Historic Development

This area of New London has long been associated with shipping. In 1660, John Coit built the first and largest Colonial-era shipyard in New London. During the Revolutionary War, New London became a center of privateering, a legalized form of piracy that resulted in the raiding and seizing of British ships and property. In 1781, the infamous American traitor, Benedict Arnold, led the British in an attack on New London to stop privateering. The British burned New London and then attacked and seized Fort Griswold, which is across the Thames River, in

[1] "The Association: About NCGMA" available at www.coastguardmuseum.org. Accessed November 9, 2013.

the Battle of Groton Heights. Following the Revolutionary War, New London was active in West Indies trade until it became unprofitable. In 1799, yellow fever broke out in New London and the town was nearly decimated.[2]

By 1820, New London's whaling era was underway, and in the following 40 years, New London became one of the three great whaling ports in the world, along with New Bedford and Nantucket. Oil from sperm whales was used for making candles and in oil lamps. It burned brightly and did not produce a foul odor as oil from other whales did. Before the discovery and production of petroleum, sperm whale oil was in great demand.[3] At one time, New London was home to more than 260 whaling vessels that went out on more than 1,000 voyages and employed approximately 3,000 seamen. New London had the second-largest whaling fleet in the world and the whaling industry was very profitable.[4]

During the 19th century, buildings and the shipyard were constructed directly adjacent to the railroad tracks east of Bank Street near present day South Water Street.[5] In 1889, the bridge crossing the Thames River was completed and, at the time, was the longest double-track railroad drawbridge in the world.[6]

In the latter part of the 19th century and in the early 20th century, the land around New London became a resort area. Due to its access to steamships and railroads, and its location between New York City and Boston, New London attracted the wealthy elite, and provided them with access to the Long Island Sound and an escape from the heat and congestion of major cities. The 1852 Peqout House Hotel was a grand hotel of the Victorian era that catered to the wealthy of New York and Boston. In the 20th century, waterfront construction began to include housing developments, not only resorts. When streetcar lines were built, early 20th century developments such as Neptune Park Neighborhood provided local citizens with access to recreational opportunities on the waterfront.[7]

In 1910, the Electric Boat Company was established in New London. In the same year, Fort Trumbull was vacated. The fort had been occupied by the military since 1790. Also in the same year, the United States Revenue Cutter School of Instruction, originally established by Alexander Hamilton to ensure the collection of tariffs, moved its land-based campus from Curtis Bay, Maryland, to Fort Trumbull. When the Revenue Cutter Service merged with the U.S. Life Saving Service in 1915, the USCG was established. In 1932, the Coast Guard Academy campus was developed.[8]

The Great Hurricane of 1938 devastated the Northeast coast, including New London. A local contemporary account described the aftermath as "a holocaust in which a hurricane, flood, and fire combined to leave hundreds of homeless and jobless with damage estimated up to

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2 Edgerton, Frederick W., "A Very Short History of New London," Unpublished manuscript, 1949.
3 Pees, Samuel T., "Whale Oil" Available at www.petroleumhistory.org/OilHistory/pages/Whale/whale.html. Accessed, November 10, 2013.
4 Edgerton, Ibid.
5 Ruddy, John J. *Images of America, New London*, Arcadia Press. p. 111.
6 Ibid. p. 61.
7 Clark, Kristen Havrilla, draft NRHP Nomination: "Neptune Park", New London Landmarks, 2008.
8 "Academy History." Available at www.cga.edu. Accessed November 9, 2013.

$4,000,000. It was the greatest disaster in the history of eastern Connecticut."[9] The fire spread rapidly, completely destroying 12 to 14 buildings.[10]

During World War II, Groton, across the Thames River from New London, became known as the Submarine Capital of the World.[11] The Electric Boat Company became a subsidiary of the New London Ship and Engine Company in 1925. In 1941, the South Yard opened (renamed the Victory Yard) and produced 74 fleet-type submarines, more than any yard in America. In 1944, the yard launched a new sub every two weeks. These submarines were responsible for 39 percent of all Japanese shipping destroyed in the Pacific during World War II.[12]

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Connecticut Commission on Culture and Tourism, Historic Preservation and Museum Division	Hartford, Connecticut	Local History Files, New London Landmarks, Box 1134, New London, Connecticut. Historic Perspectives, Inc., 2001. "New London Engine House and Turntable, Archaeological Filed Study." *The New London Plan*, Herbert S. Swan, New York, 1928. *Historic Resources Inventory and Determination Report for the United States Cast Guard Academy*, New London, Connecticut. Carmelina Como Kanzales, 1996. *New London, A History of its People in Celebration of New London's 350th Anniversary*. Greenhorne & O'Mara Inc., 1996.

SUBJ: INITIATION OF SEC 106 CONSULTATION – NATIONAL COAST GUARD MUSEUM PROJECT, NEW LONDON, CONNECTICUT

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Sincerely,

John Poland
USCG SILC
Environmental Management Division Chief
By Direction

Enclosure:
(1) Attachment 1, Project Location
(2) Attachment 2, Concept Design for NCGM
(3) Attachment 3, Sanborn Maps

Copy: w/o Enclosures

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APPENDIX D2
SECTION 106 CONSULTATION CORRESPONDENCE

U.S. Department of Homeland Security
United States Coast Guard

Commanding Officer
United States Coast Guard
Shore Infrastructure Logistics Center

1301 Clay Street, Suite 700N
Oakland, CA 94612-5203
Staff Symbol: SILC-EMD
Phone: (510) 637-5541
Fax: (510) 637-5500
Email: Dean.J.Amundson@uscg.mil

5090

January 26, 2018

Ms. Marissa Turnbull, Tribal Historic Preservation Officer
Mashantucket Pequot Tribal Nation
National Resources Protection & Regulatory Affairs
P.O. Box 3202
Mashantucket, CT 06338-3202

Dear Ms. Trumbull:

The United States Coast Guard (Coast Guard) is reaching out to you to solicit your input on the updated proposal for construction of a National Coast Guard Museum in New London, Connecticut. In 2014, pursuant to Section 106 of the National Historic Preservation Act of 1966 (36 CFR Part 800) (NHPA), the Coast Guard requested consultation with the Mashantucket Pequot Tribal Nation for the proposed Museum construction. The Coast Guard is now seeking to reinitiate consultation with the Mashantucket Pequot Tribe due to changes in the proposed Museum design and layout.

In 2014, the Coast Guard prepared an Environmental Assessment (EA) under the National Environmental Policy Act (NEPA) to evaluate the potential impacts of acquisition of a 0.34-acre parcel adjacent to Water Street in New London, Connecticut and construction, in concept, of the Museum by the National Coast Guard Museum Association (NCGMA). At that time, Ms. Kathleen Knowles, the Mashantucket Pequot Tribal Nation Tribal Historic Preservation Officer, responded to the Coast Guard that New London, Connecticut is part of the historic properties of religious and cultural significance to the Tribe, located on ancestral, aboriginal lands of the Mashantucket Pequot Tribe. Further, the Mashantucket Pequot Tribe requested information on the amount of ground disturbance and requested to be provided with copies of the EA and other relevant materials. Copies of the 2014 EA were subsequently provided to the Tribe.

Since that time, the NCGMA has further developed the Museum design and, based on siting constraints, is also proposing the acquisition of additional land by the Coast Guard adjacent to the parcel acquired in 2014. The additional land includes approximately 700 square feet of upland area, which is outboard of the Northeast rail corridor and, according to deep soil tests, is composed of fill. The additional land also includes approximately 8,200 square feet of submerged land (5,200 square feet of which is currently beneath the City Pier platform). These submerged lands would be filled. The attached plan shows the general footprint and layout of the proposed Museum.

The Coast Guard is currently undertaking a Supplemental Environmental Assessment (SEA) under NEPA, which will soon be available for public review. In parallel with that process, design details are being advanced and will be included in the SEA when it is published. The Mashantucket Pequot Tribal Nation will be notified when the document becomes available.

Through the NCGMA, the Coast Guard is continuing to seek input from the Mashantucket Pequot Tribal Nation on the scope of issues to be addressed as the museum project moves forward, as part of the NEPA process, and through consultation pursuant to Section 106 of the NHPA. If you have any comment or concerns regarding the proposed action, please provide them via USPS mail, fax, or electronic mail to the following.

NCGMA
c/o Milone & MacBroom, Inc.
Attention: Jeanine Gouin
99 Realty Drive
Cheshire, CT 06410
Fax: 203-272-9733
jgouin@mminc.com

Or if you have any concerns regarding consultation with the Coast Guard, please contact me at the address above. Thank you for your consideration of this issue.

Sincerely,

Dean Amundson
USCG SILC
Environmental Planning Program Manager
By Direction

Encl: (1) National Coast Guard Museum Location Map

Copy: CGD ONE (DM)
COMDT (CG47)
CG SILC
CG Academy
CG CEU Providence

U.S. Department of Homeland Security
United States Coast Guard

Commanding Officer
United States Coast Guard
Shore Infrastructure Logistics Center

1301 Clay Street, Suite 700N
Oakland, CA 94612-5203
Staff Symbol: SILC-EMD
Phone: (510) 637-5541
Fax: (510) 637-5500
Email: Dean.J.Amundson@uscg.mil

5090

January 26, 2018

Mr. James Quinn, Tribal Historic Preservation Officer
Mohegan Tribe of Indians of Connecticut
13 Crow Road
Uncasville, CT 06382

Dear Mr. Quinn:

The United States Coast Guard (Coast Guard) is reaching out to you to solicit your input on the updated proposal for construction of a National Coast Guard Museum in New London, Connecticut. In 2014, pursuant to Section 106 of the National Historic Preservation Act of 1966 (36 CFR Part 800) (NHPA), the Coast Guard requested consultation with the Mohegan Tribal Nation for the proposed Museum construction. The Coast Guard is now seeking to reinitiate consultation with the Mohegan Tribal Nation due to changes in the proposed Museum design and layout.

In 2014, the Coast Guard prepared an Environmental Assessment (EA) under the National Environmental Policy Act (NEPA) to evaluate the potential impacts of acquisition of a 0.34-acre parcel adjacent to Water Street in New London, Connecticut and construction, in concept, of the Museum by the National Coast Guard Museum Association (NCGMA). At that time, The Mohegan Tribal Nation stated, in a December 26, 2014 email, that the project would not impact any resources of cultural, religious or historical significance to the Mohegan Tribe; however, the Tribe requested more detailed design plans when they became available.

Since that time, the NCGMA has further developed the Museum design and, based on siting constraints, is also proposing the acquisition of additional land by the Coast Guard adjacent to the parcel acquired in 2014. The additional land includes approximately 700 square feet of upland area, which is outboard of the Northeast rail corridor and, according to deep soil tests, is composed of fill. The additional land also includes approximately 8,200 square feet of submerged land (5,200 square feet of which is currently beneath the City Pier platform). These submerged lands would be filled. The attached plan shows the general footprint and layout of the proposed Museum.

The Coast Guard is currently undertaking a Supplemental Environmental Assessment (SEA) under NEPA, which will soon be available for public review. In parallel with that process, design details are being advanced and will be included in the SEA when it is published. The Mohegan Tribal Nation will be notified when the document becomes available.

Through the NCGMA, the Coast Guard is continuing to seek input from the Mohegan Tribal Nation on the scope of issues to be addressed as the museum project moves forward, as part of the NEPA process, and through consultation pursuant to Section 106 of the NHPA. If you have any comment or concerns regarding the proposed action, please provide them via USPS mail, fax, or electronic mail to the following.

NCGMA
c/o Milone & MacBroom, Inc.
Attention: Jeanine Gouin
99 Realty Drive
Cheshire, CT 06410
Fax: 203-272-9733
jgouin@mminc.com

Or if you have any concerns regarding consultation with the Coast Guard, please contact me at the address above. Thank you for your consideration of this issue.

Sincerely,

Dean Amundson
USCG SILC
Environmental Planning Program Manager
By Direction

Encl: (1) National Coast Guard Museum Location Map

Copy: CGD ONE (DM)
COMDT (CG47)
CG SILC
CG Academy
CG CEU Providence

U.S. Department of Homeland Security
United States Coast Guard

Commanding Officer
United States Coast Guard
Shore Infrastructure Logistics Center

1301 Clay Street, Suite 700N
Oakland, CA 94612-5203
Staff Symbol: SILC-EMD
Phone: (510) 637-5541
Fax: (510) 637-5500
Email: Dean.J.Amundson@uscg.mil

5090

January 26, 2018

Ms. Laura Matush, Executive Director
New London Landmarks
49 Washington Street
New London, CT 06320

Dear Ms. Matush:

The United States Coast Guard (Coast Guard) is reaching out to you to initiate consultation and solicit your input on the proposal for construction of a National Coast Guard Museum in New London, Connecticut pursuant to the National Environmental Policy Act (NEPA) and Section 106 of the National Historic Preservation Act of 1966 (36 CFR Part 800) (NHPA).

In 2014, the Coast Guard prepared an Environmental Assessment (EA) under NEPA to evaluate the potential impacts of acquisition of a 0.34-acre parcel adjacent to Water Street in New London, Connecticut and construction, in concept, of the Museum by the National Coast Guard Museum Association (NCGMA). Since that time, the NCGMA has further developed the Museum design and, based on siting constraints, is also proposing the acquisition of additional land by the Coast Guard adjacent to the parcel acquired in 2014. The additional land includes approximately 700 square feet of upland area, which is outboard of the Northeast rail corridor and, according to deep soil tests, is composed of fill. The additional land also includes approximately 8,200 square feet of submerged land (5,200 square feet of which is currently beneath the City Pier platform). These submerged lands would be filled. The attached plan shows the general footprint and layout of the proposed Museum.

The Coast Guard is currently undertaking a Supplemental Environmental Assessment (SEA) under the NEPA process and will soon be publishing the document for public review. In parallel with that process, design details are being advanced and will be included in the SEA when it is published. New London Landmarks will be notified when the document becomes available.

Through the NCGMA, the Coast Guard is continuing to seek input from New London Landmarks on the scope of issues to be addressed as the museum project moves forward, as part of the NEPA process, and pursuant to Section 106 of the NHPA. If you have any comment or concerns regarding the proposed action, please provide them via USPS mail, fax, or electronic mail to the following.

NCGMA
c/o Milone & MacBroom, Inc.

Attention: Jeanine Gouin
99 Realty Drive
Cheshire, CT 06410
Fax: 203-272-9733
jgouin@mminc.com

Or if you have any additional concerns or questions, please contact me at the address above. Thank you for your consideration of this issue.

Sincerely,

Dean Amundson
USCG SILC
Environmental Planning Program Manager
By Direction

Encl: (1) National Coast Guard Museum Location Map

Copy: CGD ONE (DM)
COMDT (CG47)
CG SILC
CG Academy
CG CEU Providence

Connecticut
still revolutionary

Department of Economic and Community Development

State Historic Preservation Office

March 20, 2018

Mr. Dean Amundson
Environmental Planning
United States Coast Guard
1301 Clay Street, Suite 700N
Oakland, CA 94612-5203

Subject: United States Coast Guard Museum
New London, Connecticut

Dear Mr. Amundson,

The United States Coast Guard (USCG) initiated consultation with the State Historic Preservation Office (SHPO) pursuant to Section 106 of the National Historic Preservation Act (36 CFR 800) during 2014 regarding the proposed museum referenced above. At that time, SHPO reviewed an Environmental Assessment and concluded that the proposed museum could result in potential adverse effects on historic properties. Because of the complexity of the undertaking, the early stages of its development, and the many parties involved, a Programmatic Agreement (PA) was requested by this office to define the procedures for discovery, review, and timing related to the project and its appurtenances. Since that time, SHPO has engaged in consultation with several representatives of the National Coast Guard Museum Association: including, but not limited to, Richard Grahn, Charles Klee, and Cece Saunders. These meetings have been conducted in good faith, have provided our office with the necessary information to complete a comprehensive review, and have set a path forward to confidently move forward with this project without the execution of a PA. SHPO appreciates the meaningful design modifications that have been made to date based on our concerns to avoid adverse impacts to historic properties.

SHPO appreciates the opportunity to review and comment upon this project and our office looks forward to additional consultation as the project moves forward. For additional information, please contact me at (860) 500-2329 or catherine.labadia@ct.gov.

Sincerely,

Catherine Labadia
Deputy State Historic Preservation Officer

cc (via mail): Barnes, OPM

cc (via email): Grahn, NCGMA
Saunders, Historical Perspectives

Connecticut
still revolutionary

Department of Economic and Community Development

State Historic Preservation Office

January 18, 2018

Mr. Dean Amundson
Environmental Planning
United States Coast Guard
1301 Clay Street, Suite 700N
Oakland, CA 94612-5203

Subject: Supplemental Environmental Assessment
United States Coast Guard Museum
New London, Connecticut

Dear Mr. Amundson,

The United States Coast Guard (USCG) will be acquiring land and allowing the United States Coast Guard Museum Association, Inc. (USCGMA) to construct an approximately 80,000 square foot museum on the parcel, which subsequently will be donated to the USCG upon completion. As a result of the proposed actions, the USCG has taken a streamlined approach to the project by integrating the requirements of the National Environmental Policy Act with Section 106, the implementing regulations of the National Historic Preservation Act, (36 CFR 800). The USCG initiated consultation with the Connecticut State Historic Preservation Office (SHPO) during 2014 regarding the above-referenced undertaking. Since that time, the museum designs and requirements have been refined and have been presented to the public in the Supplemental Environmental Assessment (SEA) dated July 2018. SHPO has reviewed this document, understands the purpose and need of the project, and offers no objection to the proposed preferred build alternative. This office recognizes that consultation is ongoing and offers the following comments and corrections to the SEA:

- Section 3.9, page 3-18, update the legal reference for compliance with the National Historic Preservation Act from 16 USC 470f to its new location 54 USC 306108.
- Section 3.9.2, page 3-19, states that different Areas of Potential Effect (APE) were developed, but there is no information as to how they were developed or what they encompass. Specifically, does the archaeological APE take into consideration proposed temporary or permanent utility corridors? What is the extent of the APE for aboveground resources? The SEA states that both direct and indirect effects of the proposed museum were taken into account, but there is no explanation of either APE or methods employed to determine the APE. Please elaborate on the development and actual extent of all APEs used for analysis.

- Section 3.9.2, page 3-19, references Section 106 correspondence with SHPO regarding the APEs, but the appendix does not contain such correspondence. Please correct the incongruence.
- Section 3.9.2, page 3-19, SHPO is concerned about the summary of relevant National Properties being taken into consideration. First, the Downtown New London Historic District is in the National Register Information System (NRIS) as resource #79002665. The SEA refers to it as NRIS #88000070, which is a nomination for a boundary increase to the district. SHPO does not know if the author considered both properties in the discussion or if it only represents one portion of the district.
- Section 3.9.2, page 3-19, states that, "a detailed evaluation of potential effects on historic resources was not performed" for the laydown areas. SHPO request information as to whether or not **any** analysis had been completed for the laydown areas. If so, SHPO requests that this information be presented, at a minimum in the form of a table. SHPO does not have adequate information to concur with recommendations regarding the laydown areas at this time. SHPO also recognizes that as construction plans change, the laydown areas may need to be adjusted. An appropriate summary now can facilitate any review of future changes so that there are no impacts to the construction schedule. This comment is repeated for Section 4.9.2, page 4-23.
- Section 3.9.2, page 3-19, Figure 3.9.-1 is described as showing "noteworthy historical architectural resources." Please explain the criteria used to define something as noteworthy?
- Section 3.9.2, pages 3-21 to 3-22, only discuss four of the National Register listed properties located in the vicinity of the project parcel. There is no explanation as to why only these four properties and not all properties are included in this discussion or depicted in the referenced figure. SHPO records indicate that there are at least 10 National Register Properties, including two districts, which also should be depicted on Figure 3.9-1. Many of the missing properties are in closer proximity than ones given consideration for analysis. Please provide an explanation for why all historic properties were not considered. In particular, why was the individually listed New London Railroad Station, the source of all consultation with SHPO, **not** given special consideration? SHPO is deeply concerned about the lack of detail, understanding, and consideration given to National Register listed properties that may be impacted by the proposed museum. Was an architectural survey or any relevant architectural fieldwork completed as part of the analysis? Are there any properties not listed, but eligible for listing with the APE for the undertaking?

- Section 3.9.2, pages 3-22 through 25, while SHPO appreciates the cartographic analysis and consideration of previous cultural resources investigations, known archeological sites are not included in the discussion. As with the discussed prior investigations, this information should be used to inform any management decisions. Were previously reported archaeological sites taken into consideration? SHPO records indicate that there are 10 archeological sites reported within ½ mile of the proposed museum location. When compared to other locations in the state, this is a considerable amount of information and should be used to inform management decisions.
- Section 4.9.2, page 4-19, please change the opening sentence from "will diminish" to "has the potential to diminish." Because not all design choices have been made and not all historic properties were taken into consideration, SHPO does not have information to support such a definitive statement.
- Section 4.9.2, page 4-19, it may be important to clarify that the language being used for evaluation of the proposed action alternative is relative to the National Historic Preservation Act. It is likely that the proposed action will have no significant impact pursuant to the National Environmental Policy Act.
- Section 4.9.2, page 4-19, Table 4.9-1, what are the record numbers referenced after the property name in the table? If a record number is to be included, please use the standard National Register Information System number. Also, please refer to prior comments regarding the singular consideration of these four historic properties.
- Section 4.9.2, page 4-19, Table 4.9-1, are the listed "character-defining feature(s)" described in the National Register nomination as character defining features? Or, are these listed impacts referencing diminished aspects of integrity? Please refer to 36 CFR 800.5 and explain.
- Section 4.9.2, page 4-19, Table 4.9-1, to SHPO's knowledge, no determination of effect has been made because the potential exists for continued design changes. In addition, and elaborated upon below, SHPO has concerns regarding the determination of effects presented in the SEA.
- Section 4.9.2, page 4-19, the description presented for the New London Downtown Historic District appears to be from the nomination for a boundary increase to the district. Was the entire district taken into consideration because the boundary descriptions do not appear to match SHPO files? In addition, the last two sentences of the first paragraph describe coming down Broad Street. It would appear that the reference is actually to State Street. Please clarify or correct.

- Section 4.9.2, pages 4-19 and 4-20, the proposed museum is located outside the northeastern boundary of the Downtown New London Historic District. The historic setting at this location quickly gives way to modern development. This should be taken into consideration when discussing potential effects.
- Section 4.9.2, pages 4-19 to 4-23, while SHPO acknowledges that the proposed museum will have a visual effect on adjacent historic properties, SHPO does not agree that the presented arguments for an adverse effect have been established or are appropriate relative to information provided in the National Register nomination. Simply being visible from a historic property does not qualify as an adverse effect. Again, please refer to 36 CFR 800.5.
- Section 4.9.2, pages 4-22 and 4-23, as noted in the SEA, design choices are still to be decided before assessments can made regarding the compatibility of design. This discussion has been ongoing and SHPO looks forward to additional discussions regarding design decisions to minimize impacts to historic resources, especially the New London Railroad Station, a property individually listed on the National Register of Historic Places and situated immediately adjacent to the proposed project parcel.
- Section 4.16.1, pages 4-41 and 4-42, SHPO appreciates the brief discussion and analysis of future related projects. This office primarily has been concerned with the pedestrian overpass project. During prior consultation, SHPO requested that the overpass be moved as far north as possible to give space to the New London Railroad Station, that the overpass should have as few support pillars as possible, and that the construction materials and design choices should be sympathetic to the New London Railroad Station. SHPO supports the configuration depicted in the SEA, but understands that final design decisions remain outstanding. Again, SHPO looks forward to additional consultation regarding these design decisions to minimize impacts to historic resources

SHPO appreciates USCG, and the USCGMA on their behalf, to streamline the NEPA and Section 106 processes; however, the documentation provided in the SEA does not satisfy the requirements of Section 106. To date, SHPO consultation only has been conducted through telephone or in-person meetings. Because this office is discouraged by 1) the conflicting findings of effect throughout the document, 2) an inaccurate discussion of historic properties that may be impacted, 3) an apparent misunderstanding of how to apply the criteria of adverse effect (36 CFR 800.5), or 4) specific analysis of ancillary facilities; we request a formal cultural resources management report pursuant to Section 106. The report should be a professionally written technical document that demonstrates knowledge and understanding of the cultural environment, consideration of previously completed investigations, identification of listed and eligible

resources that may be impacted by the project, a detailed analysis of the effects of the project on the identified cultural resources, methods employed, and comprehensive management recommendations. However, based on our discussions and knowledge of the project as presented in the SEA, SHPO anticipates that for the purposes of the National Environmental Policy Act, there will be no significant impacts to historic resources.

SHPO appreciates the opportunity to review and comment upon this project and our office looks forward to additional consultation as the project moves forward. For additional information, please contact me at (860) 500-2329 or catherine.labadia@ct.gov.

Sincerely,

Catherine Labadia
Deputy State Historic Preservation Officer

cc (via email): Pulver, NCGMA
Saunders, Historical Perspectives

APPENDIX D3

MEMORANDUM OF UNDERSTANDING

MEMORANDUM OF AGREEMENT
BETWEEN THE UNITED STATES COAST GUARD
AND THE CONNECTICUT STATE HISTORIC PRESERVATION OFFICER
REGARDING THE NATIONAL COAST GUARD MUSEUM

WHEREAS, The parties to this Memorandum of Agreement (MOA) are the United States Coast Guard (USCG), the Connecticut State Historic Preservation Officer (CT SHPO), the National Coast Guard Museum Association, Inc. (NCGMA), Mohegan Tribe and Mashantucket Pequot Tribe; and

WHEREAS, The purpose of this Agreement is that the USCG intends to carry out establishment of the National Coast Guard Museum in New London, Connecticut, under the authority and pursuant to 14 U.S.C. § 316, "National Coast Guard Museum," and

WHEREAS, the undertaking consists of USCG coordinating with the NCGMA regarding the design and construction of the National Coast Guard Museum and State of Connecticut's Pedestrian Bridge museum connector by the NCGMA. Upon completion of construction, the USCG may accept the gift of and operate the National Coast Guard Museum; and

WHEREAS, USCG prepared a supplemental environmental assessment (SEA) draft to fulfill the requirements of the National Environmental Policy Act and analyze potential adverse effects to historic and cultural resources. The SEA draft was released for a 30-day public comment period and received comments were reviewed and addressed in a revised draft; and,

WHEREAS, USCG has defined the undertaking's area of potential effects (APE) as the museum footprint and nearby terrain within 2,250 feet of the project location; and

WHEREAS, USCG has determined that the undertaking may have an adverse visual effect on Union Station (train station) and the Downtown New London Historic District, which are listed in the National Register of Historic Places (NRHP), and has consulted with the CT SHPO and potentially affected Tribes pursuant to 36 C.F.R. Part 800, the regulations implementing Section 106 of the National Historic Preservation Act (NHPA) (54 U.S.C. § 306108); and

WHEREAS, USCG has consulted with the CT SHPO, Mohegan Tribe, Mashantucket Pequot Tribe, NCGMA, and New London Landmarks regarding the effects of the undertaking on historic properties and has invited the Mohegan Tribe, Mashantucket Pequot Tribe and NCGMA to sign this MOA as an invited signatory and New London Landmarks as a concurring party pursuant to 36 C.F.R. 800.6(c)(2)(iii); and

WHEREAS, in accordance with 36 C.F.R. §800.6(a)(1), USCG has notified the Advisory Council on Historic Preservation (ACHP) of its adverse effect determination with specified documentation, and the ACHP has chosen not to participate in the consultation pursuant to 36 C.F.R. § 800.6(a)(1)(iii); and

NOW, THEREFORE, USCG and the SHPO agree that the undertaking shall be implemented in accordance with the following stipulations in order to take into account the effect of the undertaking on historic properties.

STIPULATIONS

The USCG is responsible for coordinating with the NCGMA in completion of the following measures:

I. The segment of the bridge that connects to the southern edge of the museum will be curved, providing new protected views of the train station from three sides. This segment is referred to as the "museum connector."

II. The museum site will be located as far to the north as possible to maximize views of the train station from the water.

III. A glass corner will be created at the entrance to the museum on the south to dematerialize the building at the corner closest to the train station and to maximize views of the water from the train platform, as well as, views of the train station from the water.

IV. Building panels utilized on the exterior of the museum will be light colored terra cotta to contrast in color with the train station's brick, and also to refer back to more traditional materials used at the turn of the twentieth century.

V. Curated display panels will be permitted on non-glass walls of the pedestrian bridge and museum connector. The USCG will work with exhibit design contractors to determine the appropriate historic USCG content for the museum connection segment. While the NCGMA will work with the consulting parties to determine an appropriate theme for the balance of the pedestrian bridge.

VI. The museum building's west facing wall will be designed to be visually quiet and neutral, to remain simple and non-distracting in order to provide a neutral backdrop to Union Station when viewed from Parade Plaza.

VII. Museum naming with lighting may be included on the west wall. The architecture and signage on the west side of the museum building will remain plain (with the exception of the museum connector).

VIII. POINT(s) OF CONTACT

The Point(s) of Contact for this Memorandum of Agreement are the following:

A. Chief, Office of External Outreach and Heritage (CG-0923)
(202) 372-4562 NCGM@uscg.mil
B. Museum Director, National Coast Guard Museum (CG-0923M)
(202) 372-4585 NCGM@uscg.mil
C. Facilities Director, National Coast Guard Museum (CG-0923M)
(202) 372-3001 NCGM@uscg.mil
D. Government and Tribal Liaison (CG-0923)
(202) 372-4569 NCGM@uscg.mil
E. Chief, Office of Environmental Management (CG-47)
(202) 372-1821 NCGM@uscg.mil
F. Deputy SHPO, Connecticut State
(860) 500-2380 Jonathan.Kinney@ct.gov
G. President, National Coast Guard Museum Association Inc.
(860) 443-4200 rwpulver@coastguardmuseum.org
H. THPO, Mohegan Tribe of Indians of Connecticut
(860) 862-6893 jquinn@moheganmail.com
I. THPO, Mashantucket Pequot Tribal Nation
(860) 396-7570 MEJohnson@mptn-nsn.gov
J. Executive Director, New London Landmarks
(860) 442-0003 director@newlondonlandmarks.org

IX. OTHER PROVISIONS

Nothing in this agreement is intended to conflict with current law or regulations or the directives of the United States Coast Guard or Department of Homeland Security. If a stipulation, term or condition of this Agreement is inconsistent with such authority, then that *stipulation, term or condition shall be invalid, but the remaining stipulations*, terms and conditions of this Agreement shall remain in full force and effect.

X. DURATION

This MOA will expire if its terms are not carried out within five (5) years from the date of its execution. Prior to such time, USCG may consult with the other signatories to reconsider the terms of the MOA and amend it in accordance with Stipulation XV below.

XI. POST-REVIEW DISCOVERIES

If properties are discovered that may be historically significant, the USCG identifies unanticipated effects on historic properties, or upon inadvertent discoveries of archaeological site/s or human remains during the site development, the USCG shall consult with SHPO or Tribal Historic Preservation Officer (THPO) to determine the way forward.

XII. MONITORING AND REPORTING

Each twelve (12) months following the execution of this MOA until it expires or is terminated, USCG shall work with the NCGMA to provide all parties to this MOA a summary report detailing work undertaken pursuant to its terms. Such report shall include any scheduling changes proposed, any problems encountered, and any disputes and objections received in USCG's efforts to carry out the terms of this MOA.

XIII. DISPUTE RESOLUTION

Should any signatory or concurring party to this MOA object at any time to any actions proposed or the manner in which the terms of this MOA are implemented, USCG shall consult with such party to resolve the objection. If USCG determines that such objection cannot be resolved, USCG will:

A. Forward all documentation relevant to the dispute, including the USCG's proposed resolution, to the ACHP. The ACHP shall provide USCG with its advice on the resolution of the objection within thirty (30) days of receiving adequate documentation. Prior to reaching a final decision on the dispute, USCG shall prepare a written response that takes into account any timely advice or comments regarding the dispute from the ACHP, signatories and concurring parties, and provide them with a copy of this written response. USCG will then proceed according to its final decision.

B. If the ACHP does not provide its advice regarding the dispute within thirty (30) days, the USCG may make a final decision on the dispute and proceed accordingly. Prior to reaching such a final decision, USCG shall prepare a written response that takes into account any timely comments regarding the dispute from the signatories and concurring parties to the MOA, and provide them and the ACHP with a copy of such written response.

C. USCG's responsibility to carry out all other actions subject to the terms of this MOA that are not the subject of the dispute remain unchanged.

XIV. AMENDMENTS

This MOA may be amended when such an amendment is agreed to in writing or via email by all signatories. The amendment will be effective on the date a copy signed by all of the signatories is filed with the ACHP.

XV. TERMINATION

If any signatory to this MOA determines that its terms will not or cannot be carried out, that party shall immediately consult with the other signatories to attempt or develop an amendment per Stipulation XIV, above. If within thirty (30) days (or another time period agreed to by all signatories) an amendment cannot be reached, any signatory may terminate the MOA upon written notification to the other signatories.

Once the MOA is terminated, and prior to work continuing on the undertaking, USCG must either (a) execute an MOA pursuant to 36 C.F.R. § 800.6 or (b) request, take into account, and respond to the comments of the ACHP under 36 C.F.R. § 800.7. USCG shall notify the signatories as to the course of action it will pursue.

Execution of this MOA by the USCG and SHPO and implementation of its terms evidence that USCG has taken into account the effects of this undertaking on historic properties and afforded the ACHP an opportunity to comment.

SIGNATORIES:

UNITED STATES COAST GUARD

Digitally signed by WRIGHT.ANDREW.J.1005813740
Date: 2021.05.06 17:06:06 -04'00'

_____ Date

CAPT Andrew Wright, Chief (CG-0923)

CONNECTICUT STATE HISTORIC PRESERVATION OFFICER

_____ Date 9/22/21

Mr. Jonathan Kinney, Deputy SHPO

INVITED SIGNATORY:

NATIONAL COAST GUARD MUSEUM ASSOCIATION, INC.

_____ Date

CAPT Wes Pulver (USCG Ret.), President

MOHEGAN TRIBE OF INDIANS OF CONNECTICUT

_____ Date

Mr. James Quinn, Tribal Historic Preservation Officer

MASHANTUCKET PEQUOT TRIBAL NATION

Michael E. Johnson Date 9/17/21

Mr. Michael Johnson, Deputy Tribal Historic Preservation Officer

Date
Historic Preservation Officer

CONCURRING PARTIES:

NEW LONDON LANDMARKS, INC.

Laura Natusch Date 08/11/2021

Ms. Laura Natusch, Executive Director

APPENDIX E FEMA

Consultation

Appendix E1 – FEMA Related Correspondence

Appendix E2 – Wave Analysis

Appendix E3 – FEMA CLOMR Application

Appendix E4 - Issued CLOMR

APPENDIX E1

FEMA RELATED CORRESPONDENCE

U.S. Department of Homeland Security
FEMA Region I
99 High Street, 6th Floor
Boston, MA 02110

FEMA

October 1, 2020

Robert J. DeSista
Chief, Policy and Technical Support Branch
Regulatory Division
U.S. Army Corps of Engineers
696 Virginia Road
Concord, MA 01742-2751

Attention: Diane M. Ray

RE: Public Notice File Number**:** NAE-2016-00120
National Coast Guard Museum Association (NCGMA), 2 Water Street, New London, Connecticut.

Dear Mr. DeSista:

This letter is in response to your request for comments on the referenced Public Notice by the National Coast Guard Museum Association (NCGMA) for a Section 404 permit to place fill in US waters in New London, Connecticut at 2 Water Street.

The work involves**:**

1. Removal of approximately 1,080 cubic yards (CY) (over an area of 1,065 square feet (SF)) of rubble from the Thames River shoreline.

2. Removal of approximately 6,020 SF of existing concrete platform from City Pier Plaza.

3. Removal of 85 16-inch steel encased concrete piling beneath City Pier Plaza.

4. Construction of approximately 282 linear feet (LF) of steel sheet pile bulkhead with concrete cap to elevation 6.5 feet NAVD88, including 100 LF of open shoreline, 85 LF of previous City Pier Plaza shoreline, 98 LF of return that abuts the remaining City Pier Plaza and a 30-foot return at northern bulkhead extent.

5. Placement of approximately 2,060 CY (over an area of 6,020 SF) of fill in the previous City Pier Plaza footprint.

6. Placement of approximately 1,065 CY (over an area of 3,125 SF) of fill in the intertidal and subtidal Thames River to a water depth of approximately 10 feet.

This project includes work that is proposed in Special Flood Hazard Areas (SFHAs) designated on the community's Flood Insurance Rate Maps (FIRMs) and therefore, the work is subject to the provisions of Executive Order (E.O.) 11988 and the minimum requirements of the National Flood Insurance Program (NFIP).

The minimum requirements of the NFIP are in place to protect both lives and property from the potential dangers of flooding. Proper enforcement of these requirements will, over a period of time, reduce the burden on the taxpayer for flood relief payments. Compliance with these requirements is both mandated by law and in the interest of every flood-prone property owner. We suggest that the USACE should consider noncompliance with the standards of the NFIP as a very serious matter in evaluating Section 404 permits.

E.O. 11988 requires the U.S. Army Corps of Engineers (USACE) to employ the eight-step decision-making process outlined in Further Advice on Executive Order 11988 Floodplain Management when reviewing this project for impacts on floodplains. In the case of projects such as these, involving substantial development within flood plain areas, we strongly recommend that the E.O. 11988 process be followed closely and completely.

The proposed work is to occur in a velocity zone (VE 14). The minimum Federal Regulations for floodplain development identified in 44 CFR 60.3(e) must be met to achieve compliance with the NFIP. These requirements include, but are not limited to:

- Provide that all new construction within Zones V1-30, VE, and V on the community's FIRM is located landward of the reach of mean high tide (44 CFR 60.3(e)(3));

- Provide that all new construction and substantial improvements in Zones V1-30 and VE, and also Zone V if base flood elevation data is available, on the community's FIRM, are elevated on pilings and columns so that (i) the bottom of the lowest horizontal structural member of the lowest floor is elevated to or above the base flood level (44 CFR 60.3(e)(4));

- Provide that all new construction and substantial improvements within Zones V1-30, VE, and V on the community's FIRM have the space below the lowest floor either free of obstruction or constructed with non-supporting breakaway walls, open wood lattice-work, or insect screening intended to collapse under wind and water loads without causing collapse, displacement, or other structural damage to the elevated portion of the building or supporting foundation system. For the purposes of this section, a breakaway wall shall have a design safe loading resistance of not less than 10 and no more than 20 pounds per square foot. Use of breakaway walls which exceed a design safe loading

resistance of 20 pounds per square foot (either by design or when so required by local or State codes) may be permitted only if a registered professional engineer or architect certifies that the designs proposed meet the following conditions:

(i) Breakaway wall collapse shall result from a water load less than that which would occur during the base flood; and,

(ii) the elevated portion of the building and supporting foundation system shall not be subject to collapse, displacement, or other structural damage due to the effects of wind and water loads acting simultaneously on all building components (structural and non-structural). Water loading values used shall be those associated with the base flood. Wind loading values used shall be those required by applicable State or local building standards.

Such enclosed space shall be useable solely for parking of vehicles, building access, or storage. (44 CFR 60.3(e)(5));

- Prohibit the use of fill for structural support of buildings within Zones V1-30, VE, and V on the community's FIRM (44 CFR 60.3(e)(6)).

Based on review of "National Coast Guard Museum, Construction Documents – Volumes 1 & 2" (Payette Architects, October 2019) and drawings completed and submitted as a part of this Public Notice (Milone & MacBroom, June 2020), the following items in the proposed development are of concern and would make the project non-compliant as it relates to the NFIP or lack sufficient detail necessary to complete a review:

The entirety of the proposed building is currently not located landward of the reach of mean high tide. Under current site conditions, the entirety of the proposed building will not be landward of the reach of mean high tide, making the proposed development of the site non-compliant with 44 CFR, 60.3(e)(3). The proposed development includes the installation of a new bulkhead and placement of fill behind the bulkhead, creating new land under a portion of the proposed building. The creation of new land by itself does not alter the location of the Mean High Water (Tide) line as established by the National Oceanic and Atmospheric Administration (NOAA). NOAA is the regulatory authority for identifying the limits of Mean High Water (Tide), delineation of this line and as such, it cannot be altered through any FEMA map change process. If and when the location of Mean High Water (Tide) for this site is relocated and recognized by both NOAA and the State of Connecticut, Department of Energy and Environmental Protection, this office will again review for compliance with 44 CFR, 60.3(e)(3)).

Elevator protection system. Installing detection systems with one or more float switches in elevator shafts will prevent elevator cabs from descending into floodwater, providing a safer system while minimizing costly repairs or replacement. A float switch system or another system that provides the same level of safety is required, per ASME A17.1, for all elevators where there is a potential for the elevator cab to descend below the BFE during flood conditions. The FEMA Region I office requests the applicant provide

additional information regarding the controls for the elevator which demonstrate the elevator cab will not be exposed to flood waters.

Equipment for moving goods at the loading dock. The receiving area is currently proposed to be at the same elevation as Level 0. A loading dock lift platform is noted on Payette drawing A2.00. The FEMA Region I office requests that the applicant provide more information on the flood protection portions of the electrical and mechanical system for the scissor lift.

Two 5,000-gallon rain storage tanks and two fuel tanks below ground. For underground tanks, if the flood forces exceed the combined weight of the tank, the fuel (contents) within, and any soils (and/or other materials) above the tank, the tank can be displaced. Tank displacement can damage fuel lines and cause fuels to be discharged. Buoyant forces are proportional to the volume of floodwater displaced. As more of the tank is submerged, the buoyant forces increase. Once a tank is fully submerged, buoyant forces are maximized because greater flood depths do not displace greater amounts of floodwater. Submerged tanks can be crushed by flood forces. Unlike buoyant forces that are maximized when a tank is fully submerged, compressive forces continue to increase as flood depths increase. Therefore, tanks exposed to deeper floodwater are much more prone to crushing failure. Underground tanks can be exposed to greater compressive loads than those placed at grade. Due to insufficient data on Payette drawing A2.00, the FEMA Regional office requests that the applicant provide more information regarding the tanks and anchoring mechanism which demonstrates the ability to resist pressure and buoyancy forces caused by the base flood.

In addition to the above requirements, the FEMA Region I office recommends the following mitigation strategies to further reduce impacts from flood events:

Flood openings in breakaway walls. Per *ASCE 24-14. 2.7.1.1:* In order to protect buildings from flood events with less hydrodynamic pressure than the base flood, flood openings that equalize hydrostatic forces are recommended. Openings allow for the automatic entry and exit of all floodwaters in breakaway walls.

External power transformer on slab, Payette drawing E1.00. From *FEMA P-348 Edition 2, Protecting Building Utility Systems From Flood Damage (February 2017)*: Flood protection for transformers can be challenging. Elevation is the preferred method to reduce flood risk. However, since transformers need to be physically located close to the building's electrical service equipment in order to reduce the voltage loss that occurs in service laterals, elevation may be difficult unless the service equipment is elevated as well. Dry floodproofing is an option, outside of the V Zone, when it includes and protects a suitable serviceable area. Floodwalls or flood barriers installed too close to the transformer generally limit access; several feet of working space are typically needed around transformers. Vehicle access is also required when transformers need to be replaced. Additionally, pump systems are required to remove seepage and address rainwater that accumulates inside the protected area. When transformers cannot be elevated or dry floodproofed and other portions of the electrical system can be protected

from flood damage, actions that facilitate transformer replacement can reduce functional downtime. For example, preemptive coordination with the utility to verify that new transformers can be obtained, and access can be provided for replacement, will reduce service interruptions.

In addition to the VE zone requirements and mitigation suggestions identified above, pursuant to 44 CFR 60.3(e), development in the Special Flood Hazard Area (SFHA) is also required to meet the following regulations:

> **44 CFR 60.3(a)(4):** Review subdivision proposals and other proposed new development, including manufactured home parks or subdivisions, to determine whether such proposals will be reasonably safe from flooding. If a subdivision proposal or other proposed new development is in a flood-prone area, any such proposals shall be reviewed to assure that:
>
> i. all such proposals are consistent with the need to minimize flood damage within the flood-prone area,
> ii. all public utilities and facilities, such as sewer, gas, electrical, and water systems are located and constructed to minimize or eliminate flood damage, and
> iii. adequate drainage is provided to reduce exposure to flood hazards.

This means ensuring that flood waters will not inundate the proposed development causing damage nor will the development cause flood waters to damage other land and/or properties.

Given the complexity of the proposed project, we recommend that in accordance with 44 CFR 65.8, Review of Proposed Projects, the applicant file for and get approval for a Conditional Letter of Map Revision (CLOMR). The applicant may request FEMA's comments on whether a proposed project, if built as proposed, would justify a map revision. FEMA's comments will be issued in the form of a letter, termed a Conditional Letter of Map Revision, in accordance with 44 CFR part 72.

In accordance with NFIP Technical Bulletin 5, Free-of-Obstruction Requirements (March 2020), the CLOMR analysis must demonstrate that the proposed project will not lead to damaging flood and wave conditions on site or any adjacent sites. Through public notice, FEMA has been made aware of and previously commented on two adjacent projects: CT Port Authority Project (Public Notice File No. NAE-2018-02161), and Cross Sound Ferry Services Inc. Project (Public Notice File No. NAE-2018-00981). The engineering analysis to prove no impact should demonstrate the impact of the NCGMA project itself as well as the cumulative impact of all three projects combined.

If the proposed work is performed, and changes to the data provided under the NFIP will occur, Section 65.3 of the NFIP regulations requires an affected community to submit, within six months of the date the work is completed, information related to the as-built conditions. Such a submission is necessary so that risk premium rates and floodplain management requirements will be based upon current flood hazard data.

We recommend that the applicant not receive a 404 Permit for this project until the following is provided/obtained:

1. The applicant files for and receives approval for a Conditional Letter of Map Revision (CLOMR).

2. An engineering analysis that demonstrates the proposed project will not increase hazards on-site or onto adjacent properties and is certified by a licensed professional engineer. The engineering analysis should demonstrate the impact of the NCGMA project itself as well as the cumulative impact of this project combined with the CT Port Authority Project (Public Notice File No. NAE-2018-02161) and Cross Sound Ferry Services Inc. Project (Public Notice File No. NAE-2018-00981).

3. A written plan/proposal detailing how the requirements of 44 CFR, 60.3(e)(3) will be met.

4. Additional design details for the:
    - Elevator protection system.
    - Loading dock equipment.
    - 5000-gallon below ground rain storage tanks and fuel tanks.

For further information concerning the NFIP, you can contact the State NFIP Coordinator, Diane Ifkovic, with the Connecticut Department of Energy and Environmental Protection at (860) 424-3537. If you have any questions concerning or would like further clarification of the information contained in this letter, please contact feel free to contact Daisy Sweeney, Floodplain Management and Insurance Branch Chief at Daisy.Sweeney@fema.dhs.gov, or Kerry Bogdan, Risk Analysis Branch Chief at Kerry.Bogdan@fema.dhs.gov. Thank you for your continued support of the National Flood Insurance Program.

Sincerely,

Daisy Sweeney
Floodplain Management and Insurance Branch Chief, FEMA Region I

cc: Diane Ifkovic, CT State NFIP Coordinator
Kirk Kripas, Building Official, City of New London

MILONE & MACBROOM

October 16, 2020

Mr. Robert J. DeSista, Chief, Policy and Technical Support Brand
Ms. Diane Ray, Senior Project Manager
U. S. Army Corps of Engineers New England District
696 Virginia Road
Concord MA 01742

RE: National Coast Guard Museum
New London, Connecticut
NAE-2016-00120
MMI #5499-05-01

Dear Mr. DeSista and Ms. Ray:

We are in receipt of the October 1, 2020, letter from Federal Emergency Management Agency (FEMA) Region I (Kathleen Sweeny) regarding the National Coast Guard Museum Association's Section 404 Permit application. We recognize that, while the actions included in the permit application do not include construction of the museum, FEMA has provided extensive comments on the associated upland use of this site, including the museum building itself. We provided responses to their requests below, by topic.

1. Executive Order 11988

The eight-step process outlined in Executive Order (EO) 11988 was followed by the Coast Guard in its evaluation of the museum. A summary of that process appears in their Coastal Management Consistency Determination and is provided below:

Step 1: Determine whether the proposed action is located in a 100-year floodplain – The project site was determined to be located in the FEMA 100-year floodplain.

Step 2: Notify the public at the earliest possible time of a proposal to consider an action in a floodplain and involve the affected and interested public in the decision-making process – The public was notified of the proposal to consider an action in a floodplain through the initial public scoping and review of the 2014 National Environmental Policy Act (NEPA) Environmental Assessment (EA) and more recently in relation to the 2018 NEPA Supplemental Environmental Assessment (SEA).

Step 3: Identify and evaluate practicable alternatives to locating the proposed action in a floodplain – Numerous alternative sites were considered for placement of the National Coast Guard Museum (NCGM) as presented in the 2014 EA and 2018 SEA along with numerous prior studies.

Step 4: Identify the potential direct and indirect impacts associated with the occupancy or modification of the floodplain – Direct impacts from coastal flooding include inundation of the site as well as wave action. Indirect impacts would occur if visitors were present during these conditions. Areas below the Base Flood Elevation (BFE) within the VE zone will be free of obstruction and used solely for building access and storage. They will not be finished spaces but rather allowed to flood. The first-floor

"occupied" level of the museum will be constructed well above the 0.2 percent occurrence (500-year) flood elevation, thus reducing the potential for direct impacts. The museum will not be open to visitors during extreme storm events, thus minimizing indirect impacts. In addition, the museum will establish a weather and flood monitoring program, and detailed evacuation plans will be created for instances of potential flooding.

Step 5: Where practicable, design or modify the proposed action to minimize the potential adverse impacts within the floodplain and to restore and preserve its natural and beneficial values – The waterfront site and the museum are being designed with a focus on minimizing potential adverse impacts within the floodplain upon consultations with state and federal environmental regulators. The at-grade construction will be limited to building access and a loading dock area with a freight elevator. In accordance with FEMA requirements, the area under the building will be enclosed with breakaway curtain walls. The entry level of the building will be approximately 17 feet above the City Pier Plaza (above the 500-year flood elevation). The structural design of the museum will allow floodwaters to pass unhindered at ground level. The at-grade-level building features will include egress stairs and a loading dock, including a freight elevator. The at-grade construction will be enclosed by a material designed to detach from the framing under high flood loads. The stairs and elevator will have a more robust design for life safety and integrity of operation but will be structurally autonomous so as to protect the integrity of the building's primary structure. The exterior of the museum will be constructed at grades similar to current conditions so as to not impact the current floodplain function. Indirect flood hazard impacts will not occur as a result of the proposed NCGM. The driving factor on coastal flooding is backwater conditions from Long Island Sound. The area is not located in a floodwater storage zone, and construction of the proposed museum and related shoreline improvements will not worsen flooding at adjacent properties.

Step 6: Reevaluate the proposed action to determine: (1) where it is still practicable in light of its exposure to flood hazards in the floodplain, the extent to which it will aggravate the current hazards to other floodplains, and its potential to disrupt floodplain values; and (2) whether alternatives preliminarily rejected at Step 3 are practicable in light of the information gained in Steps 4 and 5 – Based on extensive analysis and design assessment relative to flood hazards, construction of the NCGM at the subject site is believed to be practicable, will not aggravate current hazards to other floodplains or disrupt existing floodplain values, and remains the preferred location for the future NCGM. Given the nexus of the Coast Guard mission and history, the location of the museum in relation to the water is and continues to be an important factor in its siting.

Step 7: If the reevaluation results in a determination that there is no practicable alternative to locating the proposal in the floodplain, publish a final notice – A final notice was published via the SEA, informing the public of the details of the proposed action alternative, including those design elements specifically pertaining to the floodplain environment.

Step 8: Implement the action – The project will proceed to implementation following successful conclusion of regulatory permitting, approvals, and fundraising.

On January 30, 2015, President Obama issued EO 13690. It modified an earlier EO in place since 1977 (EO 11988, Floodplain Management) to establish a new Federal Flood Risk Management Standard (FFRMS) for federal taxpayer-funded projects and actions. The new standard required a climate-informed forward look to ensure that federal investments in or near floodplains are protected in the

future. Aimed at increasing resilience against flooding and helping to preserve the natural values of floodplains, the FFRMS directed approaches that would take into account both current and future flood risk to ensure that projects last as long as intended.

In August 2018, EO 13690, which established the FFRMS, was revoked by Section 6 of EO 13807, *Establishing Discipline and Accountability in the Environmental Review and Permitting Process for Infrastructure*. EO 13807 did not revoke or otherwise alter EO 11988. For the purposes of selecting a design elevation, the guidance provided in EO 13690 has been considered as follows:

The FFRMS offers options for determining the vertical and horizontal extent of a floodplain in planning. The preferred option is an approach that incorporates the use of climate-informed science ("climate informed science approach" or CISA) when providing estimates of future flooding. The other approaches are using freeboard ("freeboard value approach" or FVA) or using the 0.2 percent annual chance flood elevation, often called the 500-year floodplain (0.2 Percent Floodplain Approach [PFA]).

Federal agencies have developed somewhat different draft procedures for implementation of the FFRMS. Individual agency guidance (much of it in draft form) is presented below:

- The United States Army Corps of Engineers (USACE) (Circular EC 1166-2-217) allows use of CISA, FVA, and 0.2 PFA to characterize risk and delineate the floodplain. However, additional statements in the guidance state that "*all Corps actions subject to the FFRMS will utilize the CISA approach*" and "*for critical actions that are not subject to the FFRMS, the vertical elevation and horizontal floodplain extent for critical actions will be based on the 0.2 percent annual chance flood*." The USACE guidance defines the 1 percent annual chance flood as "*equivalent to the 1 percent flood in the North Atlantic Coast Comprehensive Study (NACCS)*."

- Regarding the use of the FFRMS as a design standard, the USACE guidance states that "*… this vertical elevation will not be used as a design standard or to provide a minimum vertical elevation for use in the planning or design of Corps projects that involve horizontal infrastructure including but not limited to riverine, harbor, and coastal facilities; seawalls; jetties; revetments; engineered beaches and dunes; levees; and interior drainage facilities.*" However, the guidance further states that "*though not intended to be used as an explicit design standard, the identified vertical flood elevation and corresponding horizontal extent of the floodplain must be considered when implementing the eight-step decision making process.*"

- FEMA (Federal Register Vo. 81, No. 162) proposes to "*use the FFRMS-FVA as the baseline approach for both critical and non-critical FEMA federally-funded projects*." FEMA reasons that this will help standardize its procedures in both nondisaster and postdisaster conditions, and the use of freeboard tends to compensate for unknown factors. Furthermore, the CISA is not as well established for noncoastal flood risks. FEMA is "not proposing to use the FFRMS-0.2PFA because of the limited national availability of information on the 0.2 percent annual chance flood elevation."

- FEMA states that the FVA is the 100-year BFE plus 3 feet for critical actions and the 100-year BFE plus 2 feet for noncritical actions.

- In its conclusion, FEMA explains that "*FEMA proposes to combine approaches and use the FFRMS-FVA to establish the floodplain for non-critical actions and allow the use of the FFRMS-FVA*

floodplain or the FFRMS-CISA for critical actions, but only if the elevation established under FFRMS-CISA is higher than the elevation established under FFRMS-FVA. This proposal balances flexibility with standardization…."

In terms of the NCGM project:

- The CISA Design Approach = Independent Study
- The FVA Design Approach = 100-year floodplain elevation + 2 feet = 16 feet
- The 0.2 PFA Design Approach = 500-year floodplain elevation = 18 feet

The proposed entry level of the NCGM will be approximately 17 feet above the City Pier Plaza at elevation ±23 feet, which is a full 5 feet above the 500-year flood elevation and more conservative than any published guidance as described above.

The National Flood Insurance Program (NFIP) outlines requirements for the development of new buildings within flood zones to ensure that developments will not increase the flood hazard on other properties. The table on the following page paraphrases the NFIP guidelines from the document, "*Managing Floodplain Development through the National Flood Insurance Program*" (FEMA, 2017a), as discussed in "*Unit 5, The NFIP Floodplain Management Requirements, Section F. New Buildings in V Zones*." The table demonstrates how each requirement will be achieved.

The first floor of the museum will be located 5 feet above the 500-year flood elevation, thus significantly exceeding FEMA's design requirements. An estimate of Sea Level Rise over time for Connecticut is presented on the Connecticut Department of Energy & Environmental Protection (CT DEEP) website. For the year 2080, an estimate of 36 inches or 3 feet was estimated (https://www.ct.gov/deep///cwp/view.asp?q=480782&deepNav_GID=2022, 2018). The currently proposed design allows for this level of increase.

2. Requirements of 44 CFR 60.3(e)(3)

Location of Museum in Relation to Mean High Tide – The proposed work that is being requested in the pending application includes the placement of fill and bulkhead along the shoreline. This work will modify the edge of land and the location of Mean High Tide. The museum construction will proceed following completion of the shoreline work, and the entirety of the structure will be constructed on land landward of the resulting Mean High Tide elevation location in accordance with 44 CFR 60.3(e)(3). We are prepared to submit a chart change to the National Oceanic and Atmospheric Administration (NOAA) following construction of the bulkhead and fill as a condition of a future permit.

NFIP Requirements for Zone V

NFIP Requirement/Guidance	Proposed Action Alternative Compliance
The new building cannot be over open water.	The proposed museum will be located entirely within upland areas and will not extend over the open water of the Thames River.
All new construction and substantial improvements to buildings in V Zones must be elevated on pilings, posts, piers, or columns so that the lowest horizontal structure member of the lowest floor (excluding the pilings or columns) is elevated to or above the base flood level.	The first-floor entryway will consist of foundational piers designed to withstand storm-force-level winds and flooding. The piers will be drilled into and attached to the underlying bedrock to provide structural strength and ensure that the piers are not affected by any lateral movement of the surrounding soil material due to erosion. The building features within the entryway will be limited to a set of stairs, a bank of elevators to access the museum from this level, and a loading dock. These stairs and elevators will be designed to satisfy life safety requirements and enclosed within breakaway curtain walls designed to break away under storm forces without causing any damage to the museum building structure or nearby facilities. The stairs and elevator bank will have a more robust design so as to provide an adequate fire escape route but would be designed to break away under severe flooding conditions without impacting the integrity of the building.
Fill is not allowed for structural support for buildings within V Zones because of the severe erosion potential of such locations.	No fill will be placed for the purposes of structural support.
The design of the supporting foundation must account for wind loads in combination with the forces that accompany the base flood.	The design of the foundation will account for wind loads and the forces of a base flood.
A registered professional engineer or architect must develop or review the structural design, specification, and plans for construction and certify that the design and planned methods of construction are in accordance with accepted standards of practice for meeting the above provisions.	A registered professional engineer and architect will be responsible for the design and certify that the design and planned methods of construction are in accordance with accepted standards of practice.
Any walls below the lowest floor in a building in a V Zone should give way under wind and water loads without causing collapse, displacement, or other damage to the elevated portion of the building or the supporting pilings and columns.	The walls of the entryway will be constructed of a material that is designed to break away under storm forces without causing damage to the museum building structure or nearby facilities.
A breakaway wall shall have a design safe loading resistance of not less than 10 and no more than 20 pounds per square foot. Use of breakaway walls which exceed a design safe loading resistance of 20 pounds per square foot (either by design or when so required by local or state codes) may be permitted only if a registered professional engineer or architect certifies that the designs proposed meet certain conditions.	A registered professional engineer and architect will design the walls of the entryway and ground-level facilities to meet these standards.

Museum Building Design Recommendations – FEMA has provided commentary, recommendations, and information requests relative to various elements of the museum building based upon architectural drawings that were not included in the application package for regulated activities directly within the USACE's Section 10 and 404 jurisdiction. Specifically, FEMA requested additional information on the elevator protection controls, loading dock, and underground tanks. Additionally, they provided recommendations on breakaway walls and the external power transformer. Note the following Flood Zone Requirements:

- Elevator Float Switch System – A float switch system is included in the elevator design. Refer to specification section 14210 VERTICAL TRANSPORTATION. Specification section 142210 2.2 C reads as follows:

    1. Include a float in the corresponding elevator pits so that if water raises the float, the elevator will not go down to the bottom floor to protect the travelling cable.

    2. Paint all pit equipment with black electrostatic paint to protect the equipment from water damage in the event that the pits flood.

- Flood Projection of Electrical and Mechanical System for Scissor Lift – Please review the attached specification 111319 STATIONARY LOADING DOCK EQUIPMENT. The scissor lift will be surface mounted on a depressed slab area. Refer to the attached structural foundation plan on sheet S1.00 and detail 10 on sheet S3.00. The scissor lift is specified to include a remote electrohydraulic power unit, installed above the floodplain. Refer to the attached manufacturer's cut sheet for more information.

- Storage and Fuel Tanks – The stormwater cisterns and the fuel tanks are specified in the documents as Delegated Design elements. The selected subcontractors and manufacturers are required to design the tanks for the required loads. Please refer to the attached structural foundation drawing S1.00 for more information on the foundation at the storage and fuel tank locations. The structural foundation has been designed to withstand the loads that the tanks may put on the building structure due to buoyant forces. The design allows for hold-down straps to be anchored to the building's grade beams.

- Flood Openings in Breakaway Walls – Per the recommendation by FEMA, flood openings will be added to the breakaway metal panel wall – Type OE-1C – along the east façade of the museum building.

- Protection of Transformer – The transformer that is planned as part of this project serves the entire City Pier Plaza area. The project team will work with Eversource on a protection strategy, focusing on the three options outlined in the October 1, 2020, letter from FEMA – raising the transformer, dry floodproofing the transformer, or coordinating with Eversource on plans for rapid replacement of the transformer in the event of flood damage. It is likely that the latter strategy – rapid replacement – will be pursued given the various site constraints.

In short, the applicant is prepared to make modifications to ensure that the museum complies with 44 CFR 60.3(e)(3) and to provide additional design details to FEMA as requested.

3. Need for a Conditional Letter of Map Revision

Conditional Letter of Map Revision (CLOMR) – FEMA has indicated that, given the complexity of the proposed project, it recommends filing of a CLOMR and suggests that the applicant may request FEMA's comments on whether the proposed project, if built as proposed, would justify a map revision. The applicant is amenable to additional discussions with FEMA to determine the need for a CLOMR; however, there is no request for a change in the AE or VE designation, nor a change in base flood elevation in either zone. As such, we are unclear what would trigger the CLOMR process or what specific information FEMA is seeking to determine the need for a map revision (recognizing the analysis below in relation to NFIP Technical Bulletin 5).

NFIP Technical Bulletin 5 – Free of Obstruction Requirements – FEMA indicates that the CLOMR analysis must demonstrate that the proposed project will not lead to damaging flood and wave conditions on site or any adjacent sites. The attached report dated September 13, 2019, presents the results of a wave analysis study by RACE Coastal Engineering conducted specifically to analyze existing and proposed conditions at the NCGM site as well as the adjacent Cross Sound Ferry Services site. The analysis concluded that the proposed work will:

1. Not increase wave crest elevations on the site or adjacent properties
2. Not increase wave runup elevations on the site or adjacent properties
3. Not increase wave crest elevations on the site or adjacent properties due to reflected waves
4. Not increase overtopping rates, and as such, not increase anticipated damage due to erosion

By copy of this letter and attachment, we are sharing the RACE report with FEMA, demonstrating the project's consistency with NFIP Technical Bulletin 5.

In summary, we believe the above and attached information, along with a commitment and permit condition to modify the NOAA-mapped mean high tide, collectively address FEMA's concerns and recommendations. We are happy to discuss this further in a video meeting if that would be helpful.

Very truly yours,

MILONE & MACBROOM, INC.

Jeanine Armstrong Gouin, PE, U.S. Operations Manager
Environmental Management, Planning & Approvals

Megan B. Raymond
Principal Scientist, Wetlands and Waterways Lead

Enclosure

cc: Kathleen (Daisy) Sweeny, FEMA
Diane Ifkovic, CT DEEP
Micheal Grzywinski, CT DEEP

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U.S. Department of Homeland Security
FEMA Region I
99 High Street
Boston, MA 02110

FEMA

December 3, 2020

Robert J. DeSista
Chief, Policy and Technical Support Branch
Regulatory Division
U.S. Army Corps of Engineers
696 Virginia Road
Concord, MA 01742-2751

Attention: Diane M. Ray

RE: Public Notice File Number: NAE-2016-00120
National Coast Guard Museum Association (NCGMA), 2 Water Street, New London, Connecticut

Dear Mr. DeSista:

FEMA Region I received the letter from Milone and MacBroom dated October 16, 2020 to the U.S. Army Corps of Engineers New England District, addressing FEMA's comments on the USACE public notice NAE-2016-00120. After of a review of the documentation provided, there are still some outstanding concerns. Below is a summary of the remaining issues and the requested additional information and/or documentation.

1. The initial FEMA letter, dated October 1, 2020, included the following comment and request:

   Comment: "*The entirety of the proposed building is currently not located landward of the reach of mean high tide. Under current site conditions, the entirety of the proposed building will not be landward of the reach of mean high tide, making the proposed development of the site non-compliant with 44 CFR, 60.3(e)(3). The proposed development includes the installation of a new bulkhead and placement of fill behind the bulkhead, creating new land under a portion of the proposed building. The creation of new land by itself does not alter the location of the Mean High Water (Tide) line as established by the National Oceanic and Atmospheric Administration (NOAA). NOAA is the regulatory authority for identifying the limits of Mean High Water (Tide), delineation of this line and as such, it cannot be altered through any FEMA map change process. If and when the location of Mean High Water (Tide) for this site is relocated and recognized by both NOAA and the State of Connecticut, Department of Energy and Environmental Protection(CT DEEP), this office will again review for compliance with 44 CFR, 60.3(e)(3).*"

Request: *A written plan/proposal detailing how the requirements of 44 CFR, 60.3(e)(3) will be met."*

The October 16, 2020 Milone & MacBroom response stated: "The proposed work that is being requested in the pending application includes the placement of fill and bulkhead along the shoreline. This work will modify the edge of land and the location of Mean High Tide. The museum construction will proceed following completion of the shoreline work, and the entirety of the structure will be constructed on land landward of the resulting Mean High Tide elevation location in accordance with 44 CFR 60.3(e)(3). We are prepared to submit a chart change to the National Oceanic and Atmospheric Administration (NOAA) following construction of the bulkhead and fill as a condition of a future permit."

This response does not appear to satisfy FEMA's request for a written plan/proposal and it is still unclear to this office how the regulatory requirements of 44 CFR 60.3 (e)(3) will be met. As a result, this office requests a conference call with the relevant parties (FEMA, NOAA, CT DEEP, Milone & MacBroom, and USACE) to resolve this concern.

2. Since September 2019, the understanding of this office was that grade beams were not going to be used in the design and construction of the proposed building. However, the October 16, 2020 Milone & MacBroom response comment on page 6, under Storage and Fuel Tanks states: "The design allows for hold down straps to be anchored to the building's grade beams". Upon further review of the construction documents (Payette drawing S1.00, dated October 16, 2019), this office found notes for grade beams for the proposed USCG Museum. This office requests clarification regarding the use of the grade beams as indicated in the response from Milone & MacBroom and in the proposed design.

3. The initial FEMA comment, dated October 1, 2020, included the following request:

   "An engineering analysis that demonstrates the proposed project will not increase hazards on-site or onto adjacent properties and is certified by a licensed professional engineer. The engineering analysis should demonstrate the impact of the NCGMA project itself as well as the cumulative impact of this project combined with the CT Port Authority Project (Public Notice File No. NAE-2018-02161) and Cross Sound Ferry Services Inc. Project (Public Notice File No. NAE-2018-00981)."

   The October 16, 2020 Milone & MacBroom response included the attachment titled "2019-02-13 RACE Flood Certification Letter". This attachment included the conclusion that the development (at the specific site) would:
   1. Not increase wave crest elevations on the site or adjacent properties,
   2. Not increase wave runup elevations on the site or adjacent properties,
   3. Not increase wave crest elevations on the site or adjacent properties due to reflected waves, and
   4. Not increase overtopping rates, and as such, not increase anticipated damage due to erosion.

   The study provided does not satisfy the initial FEMA request regarding the cumulative impacts of all three proposed developments. This office requests an analysis of the cumulative impact of this project combined with the CT Port Authority Project (Public Notice File No. NAE-2018-02161) and Cross Sound Ferry Services Inc. Project (Public Notice File No. NAE-2018-00981). This information can be submitted jointly with the other two (2) proposed projects.

We recommend that the applicant not receive a 404 Permit for this project until the information requested above is provided/obtained and these outstanding concerns have been adequately addressed.

If you have any questions concerning this matter, or would like further clarification of the information contained in this letter, please contact Daisy Sweeney, Floodplain Management and Insurance Branch Chief at Daisy.Sweeney@fema.dhs.gov, or Kerry Bogdan, Risk Analysis Branch Chief at Kerry.Bogdan@fema.dhs.gov. Thank you for your continued support of the National Flood Insurance Program.

Sincerely,

Daisy Sweeney
Chief, Floodplain Management and Insurance Branch,
FEMA Region I

Cc: Diane Ifkovic, CT State NFIP Coordinator

PAYETTE

April 8, 2021

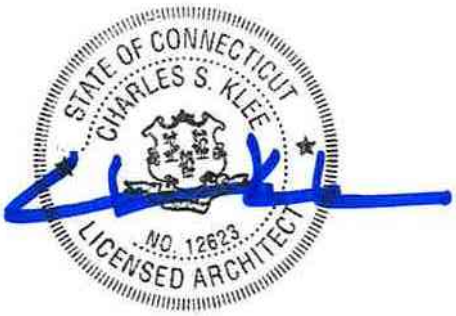
Mr. Dean Savramis
U.S. Department of Homeland Security
FEMA Region I
99 High Street
Boston, MA 02110

Re: National Coast Guard Museum
Project No. 16201.10

Dear Mr. Savramis:

This letter is a response to your recent request for clarification with regard to the National Coast Guard Museum foundation design. We wish to be absolutely clear that the structures referenced in the October 16, 2020 letter from Milone & MacBroom, Inc. and indicated on drawing S1.00 are pile caps. This is confirmed in the enclosed structural drawings, stamped and signed by the project's licensed structural engineer.

Sincerely,



Charles Klee, AIA, LEED AP
Principal

Enclosure:
04-08-21 NCGM Structure Drawings Revised_stamped.pdf

APPENDIX E2

WAVE ANALYSIS

September 13, 2019

Captain Wes Pulver, USCG (ret)
President
National Coast Guard Museum Association, Inc.

Reference: Wave Analysis Study
National Coast Guard Museum, New London, CT
RACE Project No. 2019079

Dear Captain Pulver:

RACE COASTAL ENGINEERING ("**RACE**"), in accordance with our scope of work authorized on August 29, 2019, has performed a wave runup, reflection, overtopping, erosion, and flooding analysis of the following proposed work:

1. Bulkheading the National Coast Guard Museum (NCGM) site (excluding bulkheading the Cross Sound Property)
2. Bulkheading both the NCGM and Cross Sound properties

A study titled, *Wave Runup, Overtopping, Erosion, and Flooding Impact Study – National Coast Guard Museum (NCGM) and Cross Sound Property – New London, CT* is attached. The following analyses were performed to determine an existing baseline flood condition and future flood conditions due to each of the proposed projects listed above:

1. A wave crest analysis of existing and proposed site conditions,
2. A wave runup analysis of existing and proposed site conditions,
3. A wave reflection analysis of existing and proposed site conditions,
4. An overtopping and erosion analysis of existing and proposed site conditions.

The analysis of each of the proposed conditions showed that both conditions will:

1. Not increase wave crest elevations on the site or adjacent properties,
2. Not increase wave runup elevations on the site or adjacent properties,
3. Not increase wave crest elevations on the site or adjacent properties due to reflected waves,
4. Not increase overtopping rates, and as such, not increase anticipated damage due to erosion

when compared to Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) No. 09011C0502J and dated August 8, 2013 and the Flood Insurance Study (FIS) No. 09011CV001B, Transect 39, Effective August 8, 2013. The referenced study is detailed in the following letter report.

Document Review & Baseline Conditions

RACE performed a review of available documents related to the NCGM and Cross Sound property including drawings, previously performed studies, and publicly available wind and water level data from the National Oceanic and Atmospheric Administration (NOAA) and the Federal Emergency Management Agency (FEMA) to determine site topography and offshore wave conditions. The existing sites as well as

the adjacent properties are mapped on FEMA's effective FIRM panel 09011C0502J dated August 5th, 2013 as a Zone VE with a Base Flood Elevation (BFE) of +14 feet as depicted in Figure 1 below:

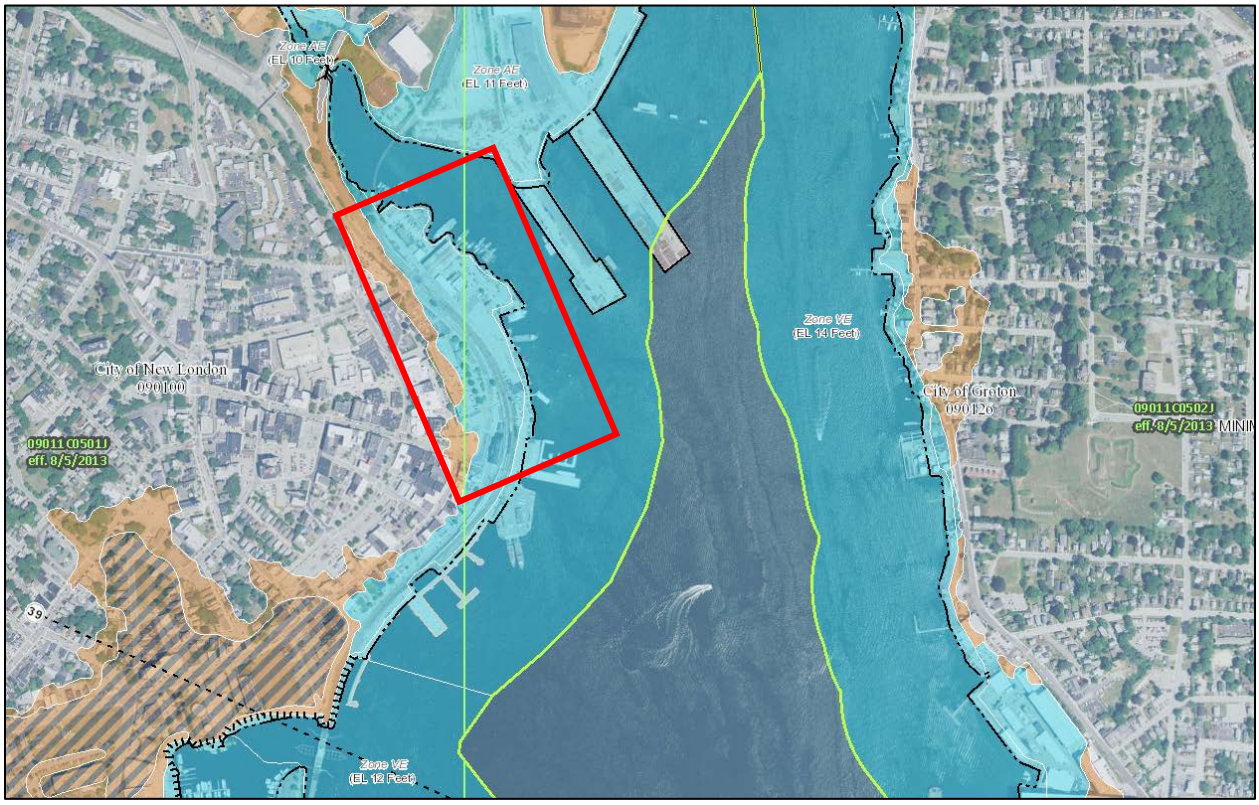


Figure 1: FEMA Flood Lines across NCGM and Cross Sound Property

Stillwater level (SWL) elevations were determined using FEMA FIS No. 09011CV001B dated August 5, 2013, Transect 39. Transect 39 is located approximately 0.5 miles south of the site. FEMA defines the BFE as the computed elevation to which flood waters are anticipated to rise during the base (1 % annual chance) flood event. This includes astronomical tides, surge, and wave effects. The BFE is usually the maximum of the wave crest elevation or the wave runup elevation (discussed in the following paragraphs). The SWL is defined as the flood level, including astronomical tides and storm surge, not including the effects of waves. The SWL associated with the 10-yr, 50-yr, and 100-yr design storm events (10%, 2%, and 1% annual chance) is given below in Table 1.

Return Period (yr)	Elevation (ft NAVD88)
10-yr	4.8’
50-yr	7.5’
100-yr	9.5’

Table 1: Stillwater Elevations across NCGM and Cross Sound Property

The 100-yr wind was obtained from a request to the FEMA Engineering Library for the closest available transect (Transect 39). The 100-yr, 1-hr wind speed was specified as 94 mph. The fetch lengths surrounding both sites are approximately the same and were input into USACE’s Automated Coastal Engineering System’s (ACES) *Wind Speed & Wave Growth* Application to compute a design 100-yr wave given below:

100-yr Wave:

H_{mo} =4.42’
T_p = 3.67 sec

The design wave was used to compute wave runup, wave crest elevation, overtopping, and erosion during the 100-yr event to determine a baseline condition for each site. Existing topography was taken from the drawing titled “Topographic Survey” prepared for National Coast Guard Museum Association by Milone and MacBroom and dated April 11, 2016.

Both sites are located below the 100-yr SWL (El. 9.5 feet), and therefore runup will not manifest itself on either site. As such, the wave crest elevation was used to determine the BFE at the site. The wave crest elevation was determined using Wave Height Analysis for Flood Insurance Studies (WHAFIS) model of the Coastal Hazard Analysis Modeling Program (CHAMP) Version 2.0. The WHAFIS results show a Zone VE +14 feet offshore of the site which transitions into a VE +13 feet in the vicinity of the existing revetment. Immediately landward of the revetment at a grade elevation of approximately +5 feet, the model shows a VE Zone of +12 feet. Landward of this at an elevation of approximately 6 feet, the model shows an AE Zone of +11 feet which occurs around the train tracks. This was consistent with **RACE’s** 2016 study titled, *Review and Assessment of Current Flood Hazard Mapping NCGMA, New London.*

Both sites are entirely inundated during the 100-yr event. As such, overtopping rates are at a maximum. Table VI-5-6 (2011) of the *Coastal Engineering Manual* was used to assess damage due to overtopping during the 100-yr event landward of the revetment. The chart indicated that during the 100-yr event, erosion and scour may damage pavement, the site will be unsafe for pedestrians and vehicles, and buildings on the site may be subject to damage if not properly elevated/designed. Scour depth was computed using equation VI-5-259 from the *Coastal Engineering Manual* and was determined to be approximately 4.4 feet in the vicinity of the revetment toe on both sites. The baseline conditions for which the proposed work was compared is listed below in Table 2.

Parameter (at location of proposed bulkhead)	Existing NCGM	Existing Cross Sound
BFE	+14 ft NAVD88	+14 ft NAVD88
Overtopping	The site will be inundated. Erosion and scour may damage pavement, the site will be unsafe for pedestrians and vehicles, and buildings on the site may be subject to damage if not properly elevated/designed.	The site will be inundated. Erosion and scour may damage pavement, the site will be unsafe for pedestrians and vehicles, and buildings on the site may be subject to damage if not properly elevated/designed.
Scour Depth	4.4 ft	4.4 ft

Table 2: Baseline Conditions NCGM Site and Cross Sound Site

Bulkheading the National Coast Guard Museum (NCGM) Site

Wave runup, wave crest elevation, overtopping, and erosion were assessed for the proposed bulkhead along the NCGM site to compare to the baseline conditions. In addition, wave reflection off the bulkhead was also analyzed to determine if there would be an increase in wave crest elevation due to reflected waves. The bulkhead geometry was determined from the drawing titled, "Bulkhead Sections" (Sheet C2.02) in the drawing set titled "National Coast Museum Bulkhead and Fill" prepared by Payette Associates Inc. and Milone & MacBroom and dated August 8, 2019. Based on this drawing, the bulkhead has a top elevation of +6.5 feet. The bulkhead and fill will be located in the Zone VE +14 feet as depicted on FIRM No. 09011C0502J and dated August 8, 2013.

The top of the bulkhead is below the 100-yr stillwater level and the site will be inundated during the 100-yr event. As such, runup will not manifest itself on the site during the 100-yr water level event. As a conservative approach, the maximum water level (El. +6.5 ft) where runup may occur on the bulkhead was utilized to compute a runup elevation to evaluate if there will be any negative impacts due to runup on the bulkhead. Wave runup was computed using the methodology outlined in the *Wave Runup Guidance for Vertical Wall*, from the *Shore Protection Manual* (USACE, 1984). The runup elevation was determined to be elevation +13 feet, and therefore, there will be no increase in the BFE due to runup on the proposed bulkhead at the NGCM site. Additionally, the proposed wave crest elevation was demonstrated to decrease as a result of the proposed bulkhead.

Wave reflection was analyzed using the USACE's Automated Coastal Engineering System's (ACES) *Combined Reflection and Diffraction by a Vertical Wedge* application. Similar to the wave runup, since the wall is inundated during the 100-yr event, the water level was set to be even with the top of the wall to maximize the reflected wave height crest elevation. The reflected wave height crest elevation was determined to be elevation +14 feet. As a result, there will be no increase in the BFE due to reflected waves.

Similar to the pre-bulkhead condition, the site is entirely inundated during the 100-yr event and overtopping rates are at a maximum. As such, during the 100-yr event, erosion and scour may damage pavement, the site will be unsafe for pedestrians and vehicles, and buildings on the site may be subject to damage if not properly elevated and designed. Scour depth was computed using equation VI-5-259 from the *Coastal Engineering Manual* and was determined to be approximately 4.4 feet at the toe of the NCGM bulkhead. The results of the analysis based on the proposed conditions at the NCGM site are listed below in Table 3.

Parameter (at location of proposed bulkhead)	Proposed NCGM Site
BFE	+14 ft NAVD88
Overtopping	The site will be inundated. Erosion and scour may damage pavement, the site will be unsafe for pedestrians and vehicles, and buildings on the site may be subject to damage if not properly elevated/designed.
Scour Depth	4.4 ft

Table 3: Proposed Conditions at NCGM Site

Bulkheading Both the NCGM Site and Cross Sound Sites

Wave runup, wave crest elevation, overtopping, and erosion were assessed for the proposed bulkhead that runs the length of both the NCGM site and the Cross Sound sites to compare to the baseline condition. Wave reflection off the bulkhead was also analyzed to determine if there would be an increase in wave crest elevation due to reflected waves. The bulkhead geometry for the Cross Sound site was determined from the drawing titled "Section E-E" (Sheet 11) in the drawing set "Cross Sound Ferry" prepared by Milone & MacBroom and dated January 6, 2019. Based on this drawing, the bulkhead has a top elevation of +5.4 feet. The bulkhead geometry along the NCGM site was determined from the drawing titled, "Bulkhead Sections" (Sheet C2.02) in the drawing set titled "National Coast Museum Bulkhead and Fill" prepared by Payette Associates Inc. and Milone & MacBroom and dated August 8, 2019 as discussed above. The top of the bulkhead is to be elevation +6.5 feet at this site. The more conservative bulkhead geometry was assessed for each analysis. The bulkhead and fill will be located in the Zone VE +14' on both sites.

The top of the bulkhead is below the 100-yr stillwater level and the site will still be inundated during the 100-yr event. As such, runup will not manifest itself on the site during the 100-yr water level event. As a conservative approach, the maximum water level (elevation +6.5 ft) where runup may occur on the bulkhead was utilized to compute a runup elevation to evaluate if there will be any negative impacts due to runup on the bulkhead. Wave runup along the elevation +5.4 ft wall was also evaluated. Wave runup was computed using the methodology outlined in the *Wave Runup Guidance for Vertical Wall*, from the *Shore Protection Manual* (USACE, 1984). The runup elevation was determined to be elevation +13 feet. As a result, there will be no increase in BFE due to runup on the proposed bulkhead at the NGCM and Cross Sound Sites. Additionally, the proposed wave crest elevation was demonstrated to decrease across both sites as a result of the proposed bulkhead.

Wave reflection was analyzed using the *Combined Reflection and Diffraction by a Vertical Wedge* application of the USACE's Automated Coastal Engineering System (ACES). Similar to the wave runup, since the wall is inundated during the 100-yr event, the water level was set to be even with the top of the wall to maximize the reflected wave height crest elevation. The reflected wave height crest elevation was determined to be elevation +14 feet. As a result, there will be no increase in BFE due to reflected waves at both sites.

Similar to the pre-bulkhead condition, the site is entirely inundated during the 100-yr event and overtopping rates are at a maximum. As such, during the 100-yr event, erosion and scour may damage pavement, the site will be unsafe for pedestrians and vehicles, and buildings on the site may be subject to damage if not

properly elevated and designed. Scour depth was computed using equation VI-5-259 from the *Coastal Engineering Manual* and was determined to be approximately 4.4 feet at the toe of the bulkhead. The proposed conditions across both sites are listed below in Table 4.

Parameter (at location of proposed bulkhead)	Proposed NCGM & Cross Sound Site
BFE	+14 ft NAVD88
Overtopping	The site will be inundated. Erosion and scour may damage pavement, the site will be unsafe for pedestrians and vehicles, and buildings on the site may be subject to damage if not properly elevated/designed.
Scour Depth	4.4 ft

Table 4: Proposed NCGM & Cross Sound Site

Conclusion

Based on our review of the proposed site improvements, it is **RACE's** professional opinion that the proposed bulkheads will not create adverse impacts at the NCGM and Cross Sound sites or adjacent properties with respect to flooding when compared to the baseline conditions during the 100-yr event. Based on this analysis, **RACE** certifies that the proposed work will:

1. Not increase wave crest elevations on the site or adjacent properties,
2. Not increase wave runup elevations on the site or adjacent properties,
3. Not increase wave crest elevations on the site or adjacent properties due to reflected waves,
4. Not increase overtopping rates, and as such, not increase anticipated damage due to erosion

when compared to FEMA FIRM No. 09011C0502J and FIS No. 09011CV001B, Transect 39, Effective August 8, 2013.

Should you have any questions, please contact the undersigned at 203-377-0663.

Very truly yours,

RACE COASTAL ENGINEERING

Jill Pietropaolo, PE
Senior Coastal Engineer
CT PE License No. 31773

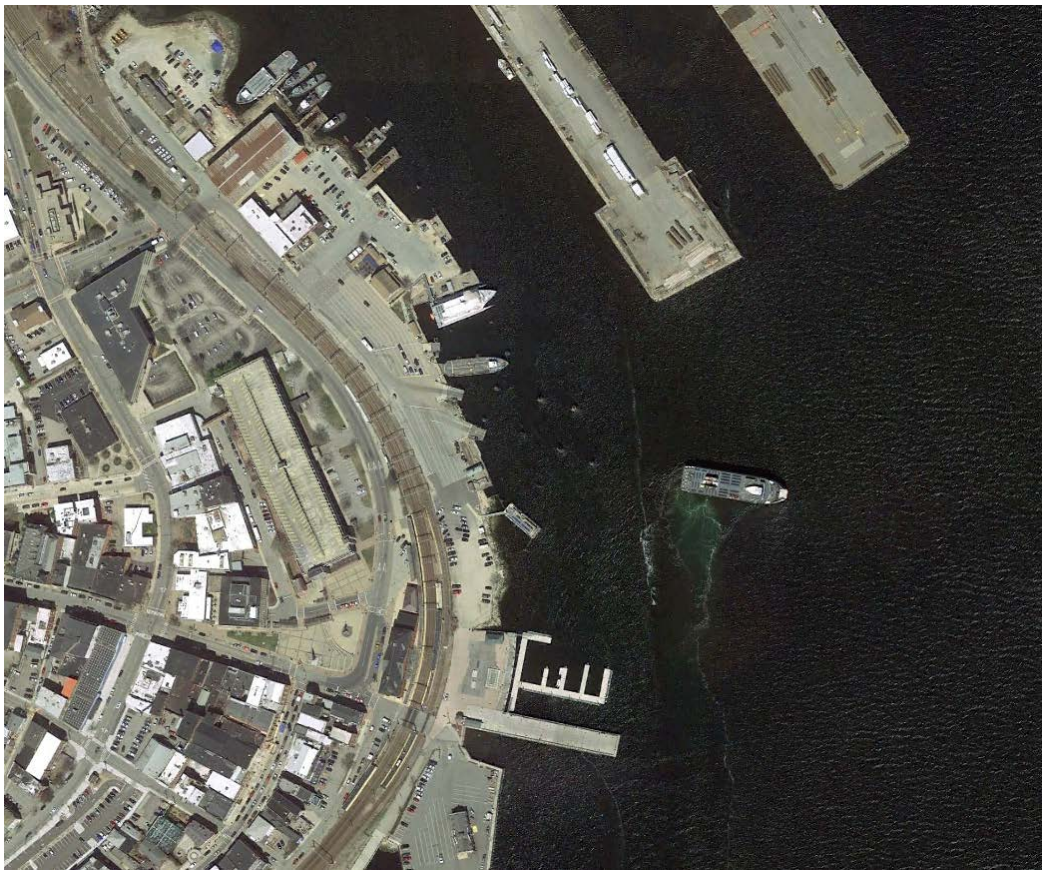
WAVE RUNUP, OVERTOPPING, EROSION, AND FLOODING IMPACT STUDY

National Coast Guard Museum (NCGM) and Cross-Sound Property

New London, CT

CALCULATION BY: JAP SEPTEMBER 4, 2019

CHECKED BY: ADS SEPTEMBER 11, 2019



PREPARED BY:

RACE Project No. 2019079

611 Access Road, Stratford, CT 06615 | 203.377.0663 | racecoastal.com

Contents

I) Purpose:

To determine wave runup, overtopping, erosion, and flooding impacts of proposed work at the National Coast Guard Museum (NCGM) and the Cross-Sound property in the Thames River in New London, CT. The analysis will look at the impacts of just bulkheading the NCGM property without bulkheading the Cross-Sound properties and the impacts of bulkheading both the NCGM and Cross-Sound Property. The analysis will exclude the impacts of just bulkheading the Cross-Sound Property without bulkheading the NCGM site.

II) Water Surface Variations:

10-yr, 50-yr, and 100-yr stillwater level (SWL) elevations were determined using FEMA FIS No. 09011CV001B dated Aug 5, 2013, Transect 39. Transect 39 is located approximately 0.5 miles south of the site. The 1-yr stillwater level was approximated as equal to the coastal jurisdiction line (CJL) ad determined by the CT DEEP.

Return Period (yr)	Elevation (ft NAVD88)
1-yr SWL	2.1’
10-yr SWL	4.8’
50-yr SWL	7.5’
100-yr SWL	9.5’

III) Site Exposure:

The east side of the both sites is limitedly exposed to the Thames River. To compute wave heights at the sites, a restricted fetch analysis was performed using the USACE’s Automated Coastal Engineering System (ACES). Fetch distances and corresponding bearings are given below:

Bearing (deg)	Fetch (ft)	Bearing (deg)	Fetch (ft)
0	1280	100	2440
10	1020	110	2580
20	830	120	3190
30	860	130	3710
40	1350	140	4480
50	2780	150	6490
60	2330	160	50
70	2240	170	50
80	2240	180	40
90	2290	190	50

The exposure on both sites is approximately the same. The wave was computed in Section IV below using a point on the northern edge of the NCGM site as a conservative measure.

IV) **Wind Speed for Design:**

The 100-yr wind was obtained from a request to the FEMA Engineering Library for the closest available transect (Transect 39). 100-yr, 1-hr wind speed = 94 MPH. The 100-yr design wind was converted to the 50-yr, 10-yr, and 1-yr wind speeds using equation C26.5-2 in ASCE 7-10.

Return Period (yr)	Wind Speed (mph)
1-yr	32 mph
10-yr	52 mph
50-yr	89 mph
100-yr	94 mph

V) **Design Wave:** The fetch radials and wind speed were input into the ACES 4.03 *Wind Speed & Wave Growth* Application to compute the wave at the project sites. The wind was assumed to blow from the longest fetch as a conservative approach. The 100-yr wave was used as the design wave for the purpose of this analysis.

100-yr Wave:

Case: 100-Yr

Windspeed Adjustment and Wave Growth

Breaking criteria 0.780

Item	Value	Units
El of Observed Wind (Zobs)	30.00	feet
Observed Wind Speed (Uobs)	94.00	mph
Air Sea Temp. Diff. (dT)	0.00	deg F
Dur of Observed Wind (DurO)	1.00	hours
Dur of Final Wind (DurF)	1.00	hours
Lat. of Observation (LAT)	41.00	deg
Results		
Wind Fetch Length (F)	5356.27	FEET
Wind Direction (WDIR)	150.00	deg
Eq Neutral Wind Speed (Ue)	85.72	mph
Adjusted Wind Speed (Ua)	156.14	mph
Mean Wave Direction (THETA)	146.00	deg
Wave Height (Hmo)	4.42	feet
Wave Period (Tp)	3.67	sec

Wave Growth: Deep

Wind Obs Type	Wind Fetch Options
Shore (windward)	Deep restricted

Restricted Fetch Geometry

#	Fetch Angle (deg)	Fetch Length (feet)
1	0.00	1280.00
2	10.00	1020.00
3	20.00	830.00
4	30.00	860.00
5	40.00	1350.00
6	50.00	2780.00
7	60.00	2330.00
8	70.00	2240.00
9	80.00	2240.00
10	90.00	2290.00
11	100.00	2440.00
12	110.00	2580.00
13	120.00	3190.00
14	130.00	3710.00
15	140.00	4480.00
20	190.00	50.00

H_{mo} =4.42'

T_p = 3.67 sec

Wave Breaking El. = SWL – (H/0.78) = 9.5 ft – 4.42 ft/0.78 = El. +3.8 ft

VI) Wave Setup Calculation:

The revetment area is inundated by the 100-yr stillwater, therefore setup is calculated using the DIM method using the effective profile slope.

$$\frac{\eta}{H_o} = 0.16 \frac{m^{0.2}}{\left(H_o/L_o\right)^{0.2}}$$ (FEMA 2007 Eq. D.2.6-1)

Where:

η = Static wave stup
H_o = Wave height = 4.42'
L_o = 5.12 (T^2) = 5.12*(3.67^2) = 69.0 ft
m = effective profile slope (ΔY/ ΔX of average slope to breaking depth to water level)
= (H/0.78)/440' = 5.7/440 = 0.013

$$\frac{\eta}{4.42'} = 0.16 \frac{0.013^{0.2}}{\left(4.42'/69.0'\right)^{0.2}}$$

$$\eta = 0.5'$$

VII) Existing Flood Conditions:

Wave runup, wave crest elevation, overtopping, and erosion during the 100-yr event were investigated to determine a baseline condition for each site. Existing topography was taken from, the drawing titled, "Topographic Survey" prepared for National Coast Guard Museum Association by Milone and MacBroom and dated April 11, 2016.

1. **Wave Runup:** The entire site is located below the 100-yr SWL, and therefore runup will not manifest itself on the site.

2. **Wave Crest Elevation:** Determined using Wave Height Analysis for Flood Insurance Studies (WHAFIS) model of the Coastal Hazard Analysis Modeling Program (CHAMP) Version 2.0.

   See Attached WHAFIS Calculation (Attachment A)

PART6 NUMBERED A ZONES AND V ZONES

STATION OF GUTTER	ELEVATION	ZONE DESIGNATION	FHF
0.00	14.30		
		V26 EL=14	160
4.48	13.50		
		V26 EL=13	160
10.66	12.50		
		V26 EL=12	160
134.64	12.11		
		A21 EL=12	110
188.99	11.50		
		A21 EL=11	110
270.44	10.50		
		A21 EL=10	110
309.00	10.02		

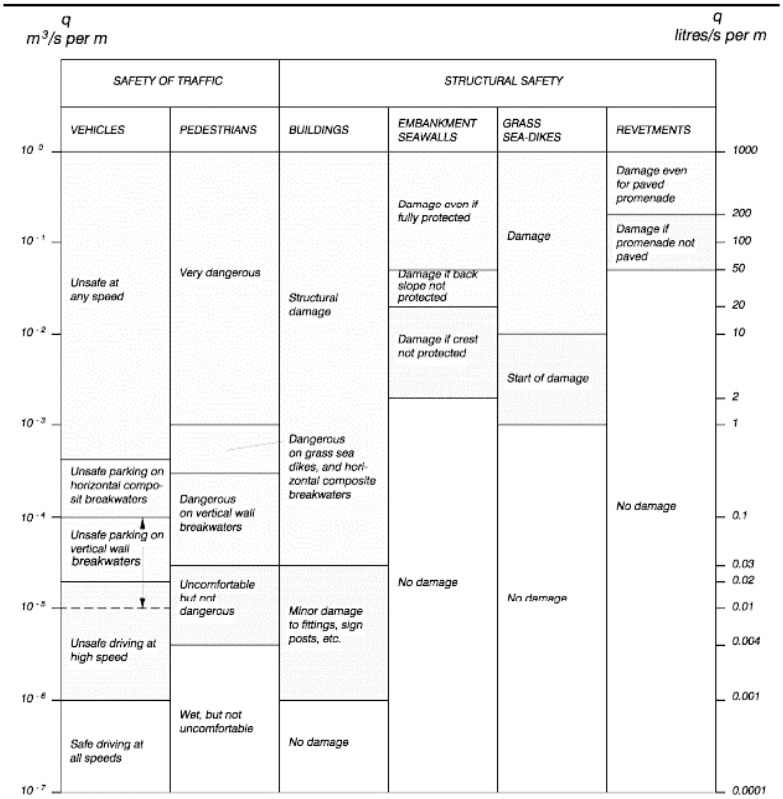
Sta. 0+00 falls coincident to the El. 0 contour along the revetment. The WHAFIS results show a Zone VE +14 offshore of the site which transitions into a VE +13 in the vicinity of the revetment. Immediately landward of the revetment, at a grade elevation of approximately +5 feet, the model shows a VE Zone of +12 feet. Landward of this, at an elevation of approximately 6 feet, the model shows an AE Zone of +11 feet which occurs around the train tracks.

3. **Overtopping:** The site is entirely inundated during the 100-yr event, resulting in the site being located underwater, as such, overtopping rates are at a maximum.

4. **Erosion:** Coastal Engineering Manual - Table VI-5-6 (2011) was used assess damage due to flooding and overtopping during the 100-yr event landward of the revetment. Table VI-5-6 is given below:

EM 1110-2-1100 (Part VI)
Change 3 (28 Sep 11)

Table VI-5-6
Critical Values of Average Overtopping Discharges



Coastal Engineering Manual - Table VI-5-6 (2011)

Since the site is entirely inundated, the overtopping discharge can be assumed to be above the maximum values given on the chart. As such, during the 100-yr event, erosion and scour may damage pavement, the site will be unsafe for pedestrians and vehicles, and buildings on the site may be subject to damage if not properly elevated.

Scour depth was computed using equation VI-5-259 from the Coastal Engineering Manual.

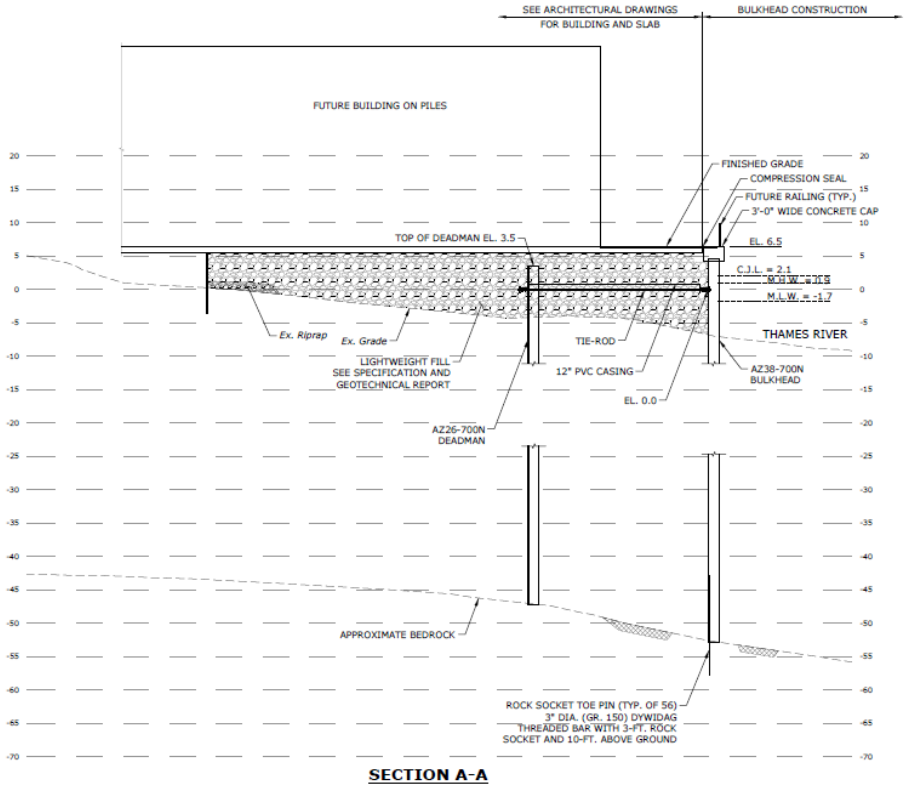
$$s = Min\,(H_{dl}, H_{mo}) = Min(0.78(h), H_{mo})$$

Where:
S = Scour depth
H_{dl} = Depth limited wave height
H_{mo} = Significant wave height = 4.42 ft
h = water depth at toe of structure = (SWL + Setup) – Grade = (9.5 ft+0.5 ft)- -1ft =11 ft

S = 4.4 ft

VIII) NCGM Proposed Bulkhead:

Wave runup, wave crest elevation, wave reflection, overtopping, and erosion were assessed for the proposed bulkhead along the NCGM site. The bulkhead geometry was determined from the drawing titled, "Bulkhead Sections" (Sheet C2.02) in the drawing set titled, "National Coast Museum Bulkhead and Fill" prepared by Payette Associates Inc. and Milone & MacBroom and dated Aug. 8, 2019. Based on this drawing, the bulkhead has a top elevation of +6.5'. Section A-A below is taken from Sheet C2.02 of the referenced drawing. The bulkhead and fill will be located in the Zone VE +14'



Section A-A as Shown on Sheet C2.02 of National Coast Museum Bulkhead and Fill Drawing Set Prepared by Payette Associates Inc. and Milone & MacBroom (Aug. 8, 2019)

1. **Wave Runup:** The entire site is located below the 100-yr SWL, and therefore runup will not manifest itself on the site during the 100-yr water level event. The maximum water level (El. +6.5 ft) where runup may occur on the wall was utilized to compute runup to evaluate if there will be any negative impacts due to runup on the wall. Wave runup was computed using the methodology outlined in the *Wave Runup Guidance for Vertical Wall, From Shore Protection Manual* (USACE, 1984).

$$\frac{H}{gT^2} = \frac{4.42\ ft}{32.2\frac{ft}{s^2} * (3.67\ s)^2} = 0.01$$

$$\frac{d}{H} = \frac{Water\ level - gr}{H} = \frac{6.5\ ft - -7.5\ ft}{4.42\ ft} = 3.1$$

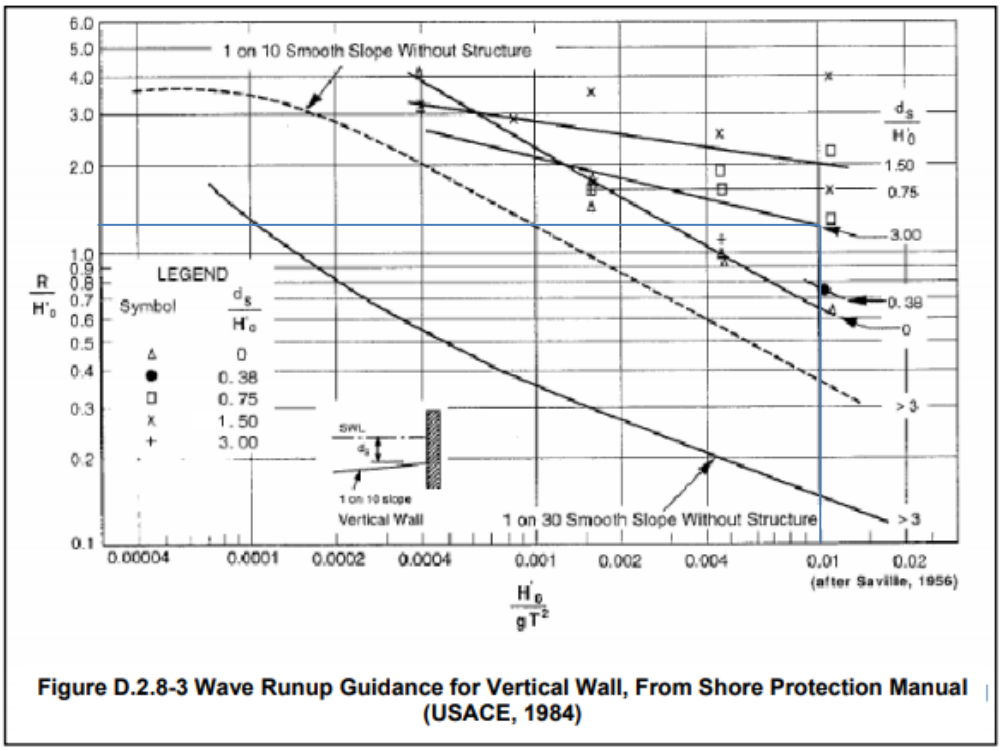


Figure D.2.8-3 Wave Runup Guidance for Vertical Wall, From Shore Protection Manual (USACE, 1984)

$$\frac{R}{H} = 1.5 \pm$$

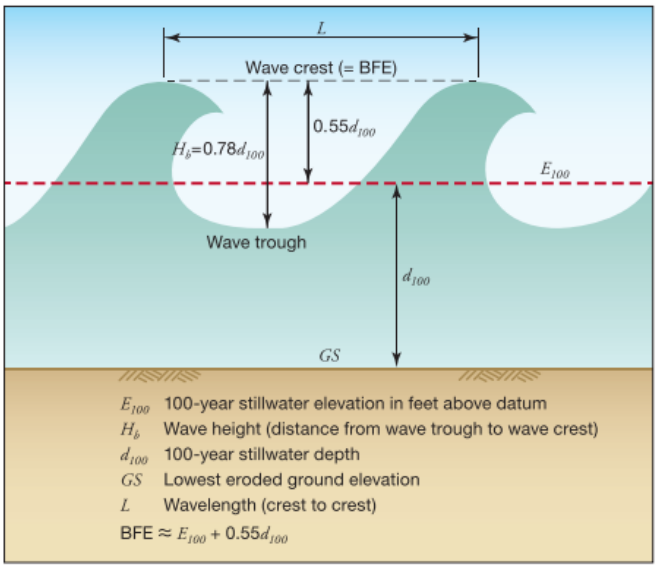
R = 1.5*4.42 ft = 6.6 ft

BFE based on Runup = R + Water Level = 6.6 ft + 6.5 ft = 13.1 ft < 14 ft

Therefore, there will be no increase in BFE due to runup on the proposed wall at the NGCM.

2. **Wave Crest Elevation**: The top of the bulkhead (El. +6.5 ft) is above the wave breaking elevation and the wave crest elevation is primarily a function of water depth as shown in FEMA's *Coastal Construction Manual – FEMA P-55/Volume 1/August 2011* – Figure 3-55 below.

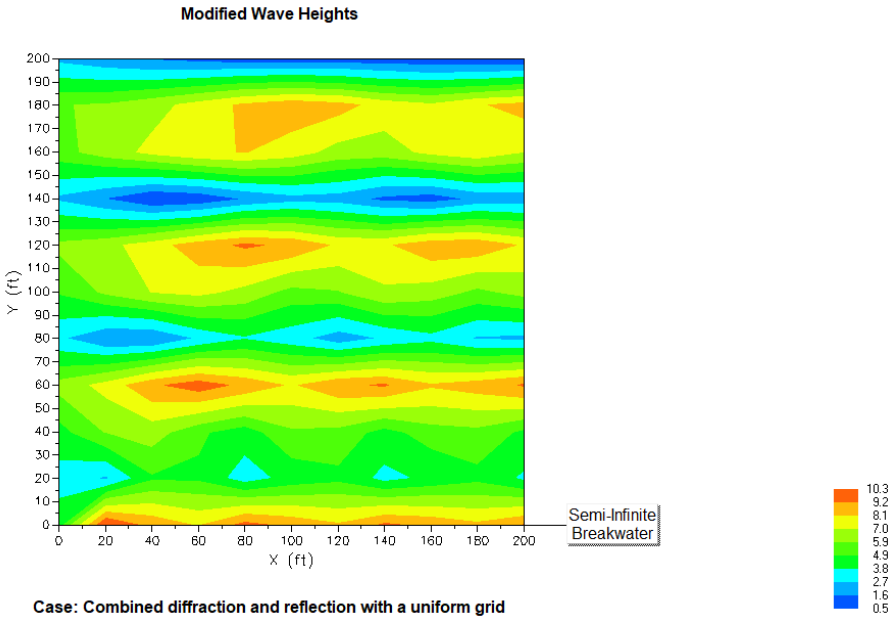
Figure 3-55.
BFE determination for coastal flood hazard areas where wave crest elevations exceed wave runup elevations (Zones A and V)



Coastal Construction Manual – Figure 3-55

Since Section A-A shows that the bulkhead and fill will decrease the water depth at the site, there will be no increase in BFE due to wave crest elevation on the proposed wall at the NGCM.

3. **Wave Reflection**: Wave reflection was analyzed using the USACE's Automated Coastal Engineering System's (ACES) *Combined Reflection and Diffraction by a Vertical Wedge* application. Since the wall is inundated during the 100-yr event, the water level was set to be even with the top of the wall to maximize the reflected wave height:



H_R max = 10.3 feet

BFE based on Runup = 0.7*H_r + Water Level = 0.7*10.3 ft + 6.5 ft = 13.99 ft < 14 ft

Therefore, the proposed work will not cause an increase in the BFE due to reflected waves on the proposed wall at the NGCM.

4. **Overtopping**: The site is entirely inundated during the 100-yr event, resulting in the site being located underwater, as such, overtopping rates are at a maximum.

5. **Erosion**: Coastal Engineering Manual - Table VI-5-6 (2011) was used to assess damage due to flooding and overtopping during the 100-yr event landward of the bulkhead. Table VI-5-6 is given in Section VII-4 of this analysis.

   Since the site is entirely inundated, the overtopping discharge can be assumed to be above the maximum values given on the chart. As such, during the 100-yr event, erosion and scour may damage pavement, the site will be unsafe for pedestrians and vehicles, and buildings on the site may be subject to damage if not properly elevated and designed.

   Scour depth was computed using equation VI-5-259 from the Coastal Engineering Manual (2002).

$$s = Min\ (H_{dl}, H_{mo}) = Min(0.78(h), H_{mo})$$

   Where:
   S = Scour depth
   H_{dl} = Depth limited wave height
   H_{mo} = Significant wave height = 4.42 ft
   h = water depth at toe of structure = (SWL + Setup) – Gr = (9.5 ft+0.5 ft)- -7.8ft =17.8 ft

   S = 4.4 ft

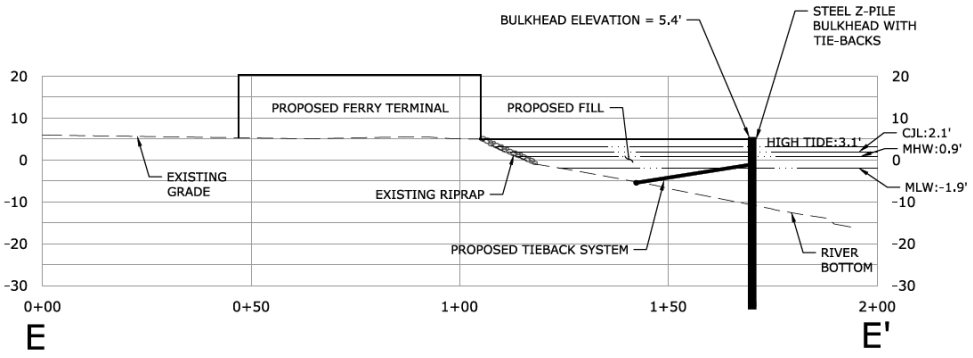
   The scour is equal to the scour computed Section VII-4 of this analysis.

IX) Cross-Sound and NCGM Proposed Bulkhead:

Wave runup, wave crest elevation, wave reflection, overtopping, and erosion were assessed for the proposed bulkhead along the Cross-Sound in addition to the NCGM site. The bulkhead geometry for the Cross-Sound site was determined from the drawing titled, "Section E-E" (Sheet 11) in the drawing set titled "Cross Sound Ferry" prepared by Milone & MacBroom and dated January 6, 2019. Based on this drawing, the bulkhead has a top elevation of +5.4'. Section E-E below is taken from Sheet 11 of the referenced drawing.

The bulkhead geometry along the NCGM site was determined from the drawing titled, "Bulkhead Sections" (Sheet C2.02) in the drawing set titled, "National Coast Museum Bulkhead and Fill" prepared by, Payette Associates Inc. and Milone & MacBroom and dated Aug. 8, 2019 as discussed in Section VIII.

The bulkhead and fill will be located in the Zone VE +14' on both sites.



Section E-E as Shown on Sheet 11 of Cross Sound Ferry Drawing Set Prepared by Milone & MacBroom (Jan. 6, 2019)

1. **Wave Runup:** The entire site is located below the 100-yr SWL, and therefore runup will not manifest itself on the site during the 100-yr water level event. The maximum water level (El. +5.4 ft) where runup may occur on the wall was utilized to compute runup to evaluate if there will be any negative impacts due to runup on the wall. Wave runup was computed using the methodology outlined in the *Wave Runup Guidance for Vertical Wall, From Shore Protection Manual* (USACE, 1984).

$$\frac{H}{gT^2} = \frac{4.42\ ft}{32.2\frac{ft}{s^2} * (3.67\ s)^2} = 0.01$$

$$\frac{d}{H} = \frac{Water\ level - gr}{H} = \frac{5.4\ ft - -10\ ft}{4.42\ ft} = 3.5$$

(Use d/h = 3 as closest line)

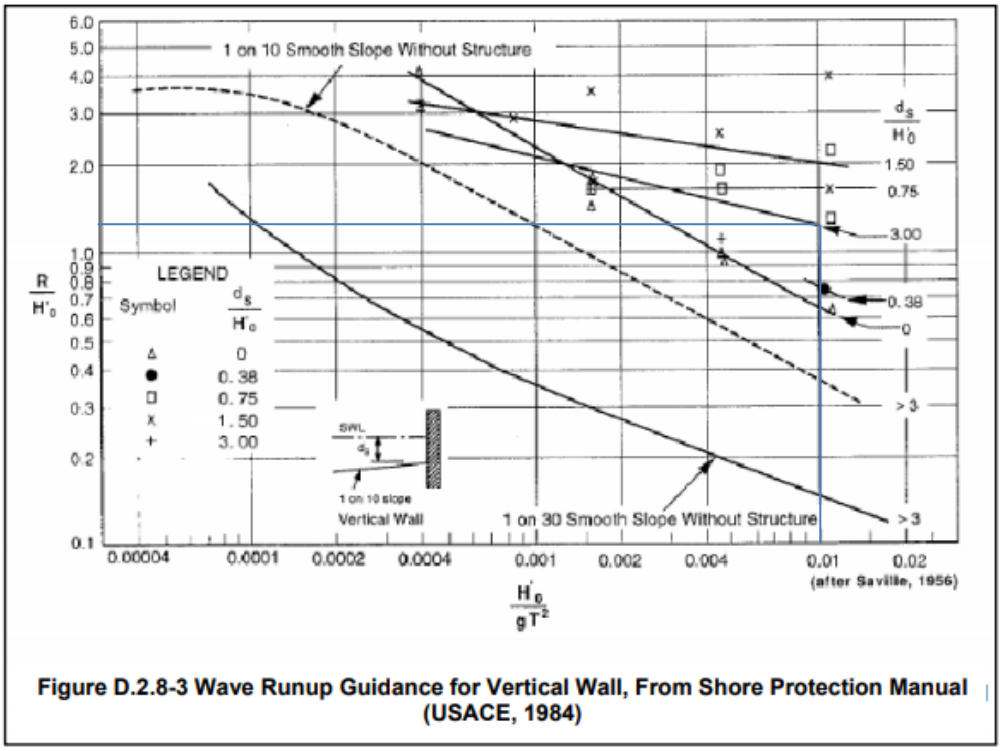


Figure D.2.8-3 Wave Runup Guidance for Vertical Wall, From Shore Protection Manual (USACE, 1984)

$$\frac{R}{H} = 1.5 \pm$$

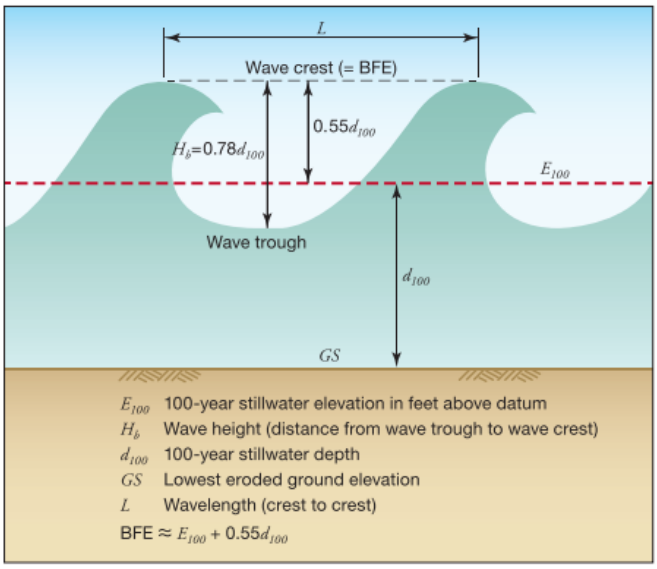
R = 1.5*4.42 ft = 6.6 ft

BFE based on Runup = R + Water Level = 6.6 ft + 5.4 ft = 12 ft < 14 ft

Therefore, there will be no increase in BFE due to runup on the proposed wall at the Cross-Sound or NCGM site.

2. **Wave Crest Elevation**: Since the top of the bulkhead (El. +5.4 ft/El. +6.5 ft) is above the wave breaking elevation (El. 3.8 ft), the wave crest elevation is primarily a function of water depth as shown in FEMA's *Coastal Construction Manual – FEMA P-55/Volume 1/August 2011* – Figure 3-55 below.

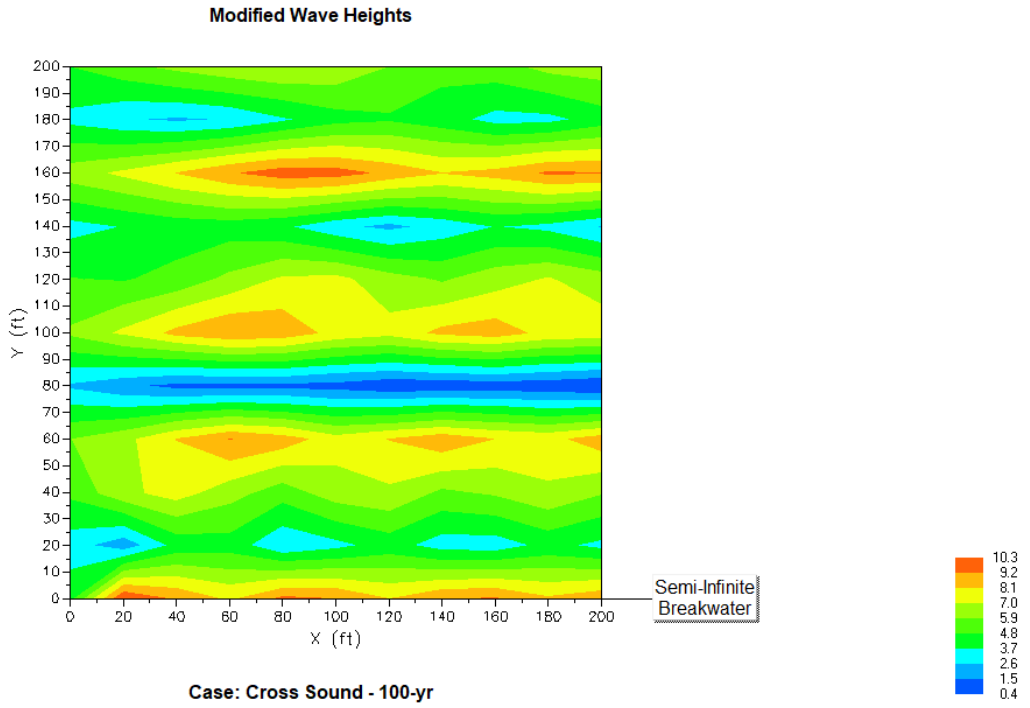
Figure 3-55.
BFE determination for coastal flood hazard areas where wave crest elevations exceed wave runup elevations (Zones A and V)



Coastal Construction Manual – Figure 3-55

Since Section E-E shows that the bulkhead and fill will decrease the water depth at the site, there will be no increase in BFE due to wave crest elevation on the proposed wall at the Cross-Sound Site or NCGM site.

3. **Wave Reflection**: Wave reflection was analyzed using the USACE's Automated Coastal Engineering System's (ACES) *Combined Reflection and Diffraction by a Vertical Wedge* application. Since the wall is inundated during the 100-yr event, the water level was set to be even with the top of the wall to maximize the reflected wave height:



H_R max = 10.3 feet

BFE based on Runup = 0.7*H_r + Water Level = 0.7*10.3 ft + 5.4 ft = 12.89 ft < 14 ft

Therefore, the proposed work will not increase the BFE due to reflected waves on the proposed wall at the Cross-Sound or NCGM site.

4. **Overtopping**: The site is entirely inundated during the 100-yr event, resulting in the site being located underwater, as such, overtopping rates are at a maximum.

5. **Erosion**: Coastal Engineering Manual - Table VI-5-6 (2011) was to used assess damage due to flooding and overtopping during the 100-yr event landward if the revetment. Table VI-5-6 is given in Section VII-4 of this analysis.

   Since the site is entirely inundated, the overtopping discharge can be assumed to be above the maximum values given on the chart. As such, during the 100-yr event, erosion and scour may damage pavement, the site will be unsafe for pedestrians and vehicles, and buildings on the site may be subject to damage if not properly elevated and designed.

   Scour depth was computed using equation VI-5-259 from the Coastal Engineering Manual (2002).

$$s = Min\ (H_{dl}, H_{mo}) = Min(0.78(h), H_{mo})$$

   Where:
   S = Scour depth
   H_{dl} = Depth limited wave height
   H_{mo} = Significant wave height = 4.42 ft
   h = water depth at toe of structure = (SWL + Setup) – Gr = (9.5 ft+0.5 ft)- -10ft =20 ft

   S = 4.4 ft

   The scour is equal to the scour computed Section VII-4 of this analysis.

X) **Conclusion**: **RACE** has performed the following analyses of the potential flooding impacts of proposed bulkheads at the NCGM and Cross-Sound Sites:

1. A wave crest analysis of existing and proposed site conditions,
2. A wave runup analysis of existing and proposed site conditions,
3. A wave reflection analysis of existing and proposed site conditions,
4. An overtopping and erosion analysis of existing and proposed site condition.

RACE has found that, when compared to FEMA FIRM No. 09011C0502J and FIS No. 09011CV001B, Transect 39, Effective Aug. 8, 2013, the proposed work at both the NCGM site alone and the proposed work at both sites will:

1. Not increase wave crest elevations on the site or adjacent properties,
2. Not increase wave runup elevations on the site or adjacent properties,
3. Not increase wave crest elevations on the site or adjacent properties due to reflected waves,
4. Not increase overtopping rates, and as such, not increase anticipated damage due to erosion

Attachment A
WHAFIS Output

WAVE HEIGHT COMPUTATIONS FOR FLOOD INSURANCE STUDIES (WHAFIS VERSION 4.0G, 08_2007)
Executed on: Fri Apr 15 09:21:50 2016
Input file: X:\Projects\2016\201632 - NCGMA New London LOMR\5 Calculations\CHAMP\w1.dat
Output file: X:\Projects\2016\201632 - NCGMA New London LOMR\5 Calculations\CHAMP\w1.out

- Transect: 1 Date: 4/15/2016
THIS IS A 100-YEAR CASE

PART1 INPUT

```
         IE      0.000      0.000      1.250      0.000     10.010      7.100      3.670      0.000      0.500
0.000
         IF      8.000      4.000      0.000     10.010      0.000      0.000      0.000      0.000      0.454
0.000
         IF     11.000      5.000      0.000     10.010      0.000      0.000      0.000      0.000      0.016
0.000
         IF     70.000      5.000      0.000     10.010      0.000      0.000      0.000      0.000      0.000
0.000
         IF    104.000      5.000      0.000     10.010      0.000      0.000      0.000      0.000      0.021
0.000
         IF    288.000      9.500      0.000     10.010      0.000      0.000      0.000      0.000      0.024
0.000
         ET      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000
0.000
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	0.000	0.000	1.250	0.000	10.010	7.100	3.670	0.000	0.500	0.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	8.000	4.000	0.000	10.010	0.000	0.000	0.000	0.000	0.454	0.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	11.000	5.000	0.000	10.010	0.000	0.000	0.000	0.000	0.016	0.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	70.000	5.000	0.000	10.010	0.000	0.000	0.000	0.000	0.000	0.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	104.000	5.000	0.000	10.010	0.000	0.000	0.000	0.000	0.021	0.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	288.000	9.500	0.000	10.010	0.000	0.000	0.000	0.000	0.024	0.000

----------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	0.00	6.13	3.67	14.30
IF	8.00	4.09	3.67	12.87
IF	11.00	3.49	3.67	12.45
IF	70.00	3.49	3.67	12.45
IF	104.00	3.49	3.68	12.45
	205.20	1.87	3.68	11.32

IF 288.00 0.39 3.68 10.29

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

134.64 WINDWARD

PART6 NUMBERED A ZONES AND V ZONES

STATION OF GUTTER	ELEVATION	ZONE DESIGNATION	FHF
0.00	14.30		
		V26 EL=14	160
4.48	13.50		
		V26 EL=13	160
10.66	12.50		
		V26 EL=12	160
134.64	12.11		
		A21 EL=12	110
189.00	11.50		
		A21 EL=11	110
270.79	10.50		
		A21 EL=10	110
288.00	10.29		

ZONE TERMINATED AT END OF TRANSECT

PART 7 POSTSCRIPT NOTES

APPENDIX E3

FEMA CLOMR APPLICATION

FEDERAL EMERGANCY MANAGEMENT
AGENCY (FEMA)

Conditional Letter of Map Revision
APPLICATION

National Coast Guard Museum Association & Cross Sound Ferry Sites
New London, CT

Community No. 090100

July 2021

Prepared by:

611 Access road
Stratford, CT 06615
T: 203-377-0663
F: 203-375-6561
Racecoastal.com

Project No. 2021071

Table of Contents

SECTION 1
FEMA Online Portal Overview & Concurrence Form

Online Letter of Map Change

LOMC Application

Application ID: R3906628991686 **Revision**

Revision Review

Project Type

Project Type: CLOMR

Payment Total

Fee: $7000.00 (CLOMR Based on Levee, Berm, or Other Structural Measures)

Project Name/Identifier

Project Name/Identifier: NCGM CLOMR

Community Information

State, District or Territory:	CT
County:	New London County
Community Name:	NEW LONDON, CITY OF
Map Panel Number - Effective Date:	09011C0501J - 08/05/2013
CID:	090100

State, District or Territory:	CT
County:	New London County
Community Name:	NEW LONDON, CITY OF
Map Panel Number - Effective Date:	09011C0502J - 08/05/2013
CID:	090100

Flooding

Flooding Source: Long Island Sound
Types of Flooding: Coastal

Basis for Request

The basis for this revision request is: New Topographic Data

Zone Designation

FEMA Zone designations affected: AE , VE

Revision Structures

The area of revision encompasses the following structures: Coastal Structure , Fill

Primary Contact Information

Title:	Ms.
First Name:	Hailey
Last Name:	Simpson
Address 1:	611 Access Road
City:	Stratford
State, District or Territory:	CT
ZIP Code:	06615
E-mail Address:	hailey@racecoastal.com
Company/Organization:	RACE Coastal Engineering
Phone:	203-377-0663

Community Official Information

Title:	Mr.
First Name:	Kirk
Last Name:	Kripas
Professional Title:	Building Official
Community Name:	NEW LONDON, CITY OF
Address 1:	111 Union Street
City:	New London
State, District or Territory:	CT
ZIP Code:	06320
E-mail Address:	KKripas@newlondonct.org

As the CEO or designee responsible for the 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 for when fill is 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. For conditional LOMR request, the applicant has documented Endangered Species Act (ESA) compliance to DHS/FEMA prior to DHS/FEMA's review of the Conditional LOMR application. For LOMR request, I acknowledge that compliance with sections 9 and 10 of the ESA has been achieved independently of DHS/FEMA's process. For actions authorized, funded, or being carried out by Federal or State agencies, existing or proposed structures to be removed from the SFHA are or will be reasonably safe from flooding as defined in 44 CFR 65.2(c), and that we have available upon request by DHS/FEMA, all analyses and documentation used to make this determination.

Community Official Signature: *

Date: 07/12/21

*All though the USCG Museum will be located within the coporate limits of NL, the museum is located on Federal land with limitations on municipal authority.

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 data, hydrologic and hydraulic analysis, and any other supporting information as per NFIP regulations paragraph 65.2(b) and as described in the MT-2 Forms instruction. 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.

First Name:	Jill
Last Name:	Pietropaolo
License Number:	31773
Expiration Date:	1/31/2022
Company Name:	RACE Coastal Engineering
E-mail Address:	Jill@racecoastal.com
Telephone Number:	203-377-0663
Fax Number:	203-375-6561
Certifier's Signature:	
Date:	6/30/21

SECTION 2
Coastal Analysis

2.1 MT-2 Form 4 – Coastal Analysis Form
2.2 Calculation for Wave Runup and Wave Height Analysis
2.3 WHAFIS Results
2.4 MT-2 Form 2 – Riverine Hydrology & Hydraulics Form Statement

SECTION 2

2.1 MT-2 Form 4 – Coastal Analysis Form

SECTION 2

2.1.1 Transect A

Transect A

DEPARTMENT OF HOMELAND SECURITY
FEDERAL EMERGENCY MANAGEMENT AGENCY

COASTAL ANALYSIS FORM

O.M.B No. 1660-0016
Expires February 28, 2014

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, U.S. Department of Homeland Security, Federal Emergency Management Agency, 1800 South Bell Street, Arlington VA 20958-3005, Paperwork Reduction Project (1660-0016). 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.**

PRIVACY ACT STATEMENT

AUTHORITY: The National Flood Insurance Act of 1968, Public Law 90-448, as amended by the Flood Disaster Protection Act of 1973, Public Law 93-234.

PRINCIPAL PURPOSE(S): This information is being collected for the purpose of determining an applicant's eligibility to request changes to National Flood Insurance Program (NFIP) Flood Insurance Rate Maps (FIRM).

ROUTINE USE(S): The information on this form may be disclosed as generally permitted under 5 U.S.C § 552a(b) of the Privacy Act of 1974, as amended. This includes using this information as necessary and authorized by the routine uses published in DHS/FEMA/NFIP/LOMA-1 National Flood Insurance Program (NFIP); Letter of Map Amendment (LOMA) February 15, 2006, 71 FR 7990.

DISCLOSURE: The disclosure of information on this form is voluntary; however, failure to provide the information requested may delay or prevent FEMA from processing a determination regarding a requested change to a NFIP Flood Insurance Rate Maps (FIRM).

Flooding Source: New London Harbor - Long Island Sound
Note: Fill out one form for each flooding source studied.

A. COASTLINE TO BE REVISED

Describe limits of study area: The National Coast Guard Museum & 2 Ferry Street in New London, CT

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

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): FEMA FIS No. 09011CV001C Dated 04/03/2020

b. Specify what datum was used in the calculations: NAVD 88

If not the FIS datum, have the calculations been adjusted to the FIS datum? ☐ Yes ☐ No Conversion factor: _____

c. Was the storm surge analysis revised? ☐ Yes ☒ No

d. If a new 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.

C. REVISED ANALYSIS (continued)

e. If wave setup was computed, attach a description of methodology used.
Amount of wave setup added to stillwater elevation: 0.2 feet

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

If DHS-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 DHS-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 DHS-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?
If Yes, attach an explanation of the method utilized. If No, explain why these analyses were not performed.
☒ Yes ☐ No

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: 9.5 feet NAVD 88 Datum

2. Wave setup: 0.2 feet

3. Starting deep-water significant wave condition:

height: 2.04 period: 2.61

4. Maximum wave height elevation: 12 feet

5. Maximum wave runup elevation: 10 feet

6. Estimated amount of maximum overtopping: N/A cfs/feet

7. Has this revision changed the Limit of Moderate Wave Action (LiMWA)? ☐ Yes ☐ No ☒ N/A

8. The areas designated as coastal high hazard areas (V Zones) have:
☐ increased ☒ decreased ☐ both

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

9. As a result of the revised analyses, the V Zone location has shifted a maximum of 103 feet seaward and 0 feet landward of its existing position.

10. Does this revision reflect the location of the primary frontal dune?
☐ Yes ☒ No

11. The Base Flood Elevations have:
☐ increased ☒ decreased

a. What was the greatest increase? 0 feet

b. What was the greatest decrease? 3 feet

12. 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.

SECTION 2

2.1.2 Transect B

Transect B

DEPARTMENT OF HOMELAND SECURITY
FEDERAL EMERGENCY MANAGEMENT AGENCY

COASTAL ANALYSIS FORM

O.M.B No. 1660-0016
Expires February 28, 2014

PAPERWORK REDUCTION ACT

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AUTHORITY: The National Flood Insurance Act of 1968, Public Law 90-448, as amended by the Flood Disaster Protection Act of 1973, Public Law 93-234.

PRINCIPAL PURPOSE(S): This information is being collected for the purpose of determining an applicant's eligibility to request changes to National Flood Insurance Program (NFIP) Flood Insurance Rate Maps (FIRM).

ROUTINE USE(S): The information on this form may be disclosed as generally permitted under 5 U.S.C § 552a(b) of the Privacy Act of 1974, as amended. This includes using this information as necessary and authorized by the routine uses published in DHS/FEMA/NFIP/LOMA-1 National Flood Insurance Program (NFIP); Letter of Map Amendment (LOMA) February 15, 2006, 71 FR 7990.

DISCLOSURE: The disclosure of information on this form is voluntary; however, failure to provide the information requested may delay or prevent FEMA from processing a determination regarding a requested change to a NFIP Flood Insurance Rate Maps (FIRM).

Flooding Source: New London Harbor - Long Island Sound
Note: Fill out one form for each flooding source studied.

A. COASTLINE TO BE REVISED

Describe limits of study area: The National Coast Guard Museum & 2 Ferry Street in New London, CT

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

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): FEMA FIS No. 09011CV001C Dated 04/03/2020

b. Specify what datum was used in the calculations: NAVD 88

If not the FIS datum, have the calculations been adjusted to the FIS datum? ☐ Yes ☐ No Conversion factor: _____

c. Was the storm surge analysis revised? ☐ Yes ☒ No

d. If a new 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.

C. REVISED ANALYSIS (continued)

e. If wave setup was computed, attach a description of methodology used.
Amount of wave setup added to stillwater elevation: 0.2 feet

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

If DHS-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 DHS-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 DHS-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?
If Yes, attach an explanation of the method utilized. If No, explain why these analyses were not performed.
☒ Yes ☐ No

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: 9.5 feet NAVD 88 Datum

2. Wave setup: 0.2 feet

3. Starting deep-water significant wave condition:

height: 1.96 period: 2.46

4. Maximum wave height elevation: 12 feet

5. Maximum wave runup elevation: 10 feet

6. Estimated amount of maximum overtopping: N/A cfs/feet

7. Has this revision changed the Limit of Moderate Wave Action (LiMWA)? ☐ Yes ☐ No ☒ N/A

8. The areas designated as coastal high hazard areas (V Zones) have:
☐ increased ☒ decreased ☐ both

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

9. As a result of the revised analyses, the V Zone location has shifted a maximum of 96 feet seaward and 0 feet landward of its existing position.

10. Does this revision reflect the location of the primary frontal dune?
☐ Yes ☒ No

11. The Base Flood Elevations have:
☐ increased ☒ decreased

a. What was the greatest increase? 0 feet

b. What was the greatest decrease? 3 feet

12. 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.

SECTION 2

2.2 Calculation for Wave Runup and Wave Height Analysis

I) Purpose:

To review the 100-yr wave crest and wave runup at the National Coast Guard Museum (NCGM) and the Cross-Sound property in the Thames River in New London, CT to determine if any modifications may be made to FIRM panels 09011C0501J or 09011C0502J dated August 5, 2013 based on the proposed conditions depicted on the proposed site plan titled "Site Plan – Proposed Conditions," prepared for National Coast Guard Museum Association, Inc., prepared by Milone & MacBroom dated October 2020 and "Site Plan – Proposed Conditions South," prepared for the Cross Sound Ferry Services, Inc., prepared by Milone & MacBroom dated January 3, 2019.

II) Water Surface Variations:

10-yr, 50-yr, and 100-yr, 500-yr Stillwater level (SWL) elevations were determined using FEMA FIS No. 09011CV001C dated April 3, 2020, Transect 39. Transect 39 is located approximately 0.5 miles south of the project site.

Return Period (yr)	Elevation (ft NAVD88)
10-yr SWL	4.8'
50-yr SWL	7.5'
100-yr SWL	9.5'
500-yr SWL	17.9'

Table 1: Stillwater Elevations – Transect 39

III) Design Wind: The 100-yr, 3 second windspeed at 33 feet above was taken from ASCE 7-10.

$$U_{100\text{-yr, 3 sec}} = 108 \text{ mph}$$

IV) Transects: Two transects were cut through the site. Transect A represents the analysis performed for the proposed work at the NCGM property. Transect B represents the analysis performed for the proposed work at the Cross-Sound property.

V) Site Exposure: The east side of both sites is limitedly exposed to the Thames River. To compute wave heights at the sites, a restricted fetch analysis was performed using the USACE's Automated Coastal Engineering System (ACES). Fetch distances and corresponding bearings for Transect A and B are given below in Table 2 and 3, respectively:

Bearing (deg)	Fetch Length (ft)	Bearing (deg)	Fetch Length (ft)
0	1280	100	2440
10	1020	110	2580
20	830	120	3190
30	860	130	3710
40	1350	140	4480
50	2780	150	6490
60	2330	160	50
70	2240	170	50
80	2240	180	40
90	2290	190	50

Table 2: Transect A - Fetch Radials

Bearing (deg)	Fetch Length (ft)	Bearing (deg)	Fetch Length (ft)
340	610	90	2280
350	1480	100	2450
0	1070	110	2590
10	870	120	2980
20	700	130	3730
30	700	140	4530
40	1120	150	6350
50	2850	160	13690
60	2300	170	121360
70	2240	180	121360
80	2160	190	190

Table 3: Transect B - Fetch Radials

VI) **Design Wave:** The design wave for Transect A and B were determined using the Automated Coastal Engineering System version 4.03.

Transect A

Windspeed Adjustment and Wave Growth

Breaking criteria 0.780

Item	Value	Units
El of Observed Wind (Zobs)	33.00	feet
Observed Wind Speed (Uobs)	108.00	mph
Air Sea Temp. Diff. (dT)	0.00	deg F
Dur of Observed Wind (DurO)	3.00	sec
Dur of Final Wind (DurF)	1.00	hours
Lat. of Observation (LAT)	41.00	deg
Results		
Wind Fetch Length (F)	5165.67	FEET
Wind Direction (WDIR)	97.00	deg
Eq Neutral Wind Speed (Ue)	64.32	mph
Adjusted Wind Speed (Ua)	105.23	mph
Mean Wave Direction (THETA)	143.00	deg
Wave Height (Hmo)	2.04	feet
Wave Period (Tp)	2.61	sec
Wave Growth:	Deep	

Wind Obs Type	Wind Fetch Options
Shore (windward)	Deep restricted

Restricted Fetch Geometry

#	Fetch Angle (deg)	Fetch Length (feet)
1	0.00	1280.00
2	10.00	1020.00
3	20.00	830.00
4	30.00	860.00
5	40.00	1350.00
6	50.00	2780.00
7	60.00	2330.00
8	70.00	2240.00
9	80.00	2240.00
10	90.00	2290.00
11	100.00	2440.00
12	110.00	2580.00
13	120.00	3190.00
14	130.00	3710.00
15	140.00	4480.00
20	190.00	50.00

H_{mo} = 2.04'
T_p = 2.61 sec

Transect B

Windspeed Adjustment and Wave Growth

Breaking criteria 0.780

Item	Value	Units
El of Observed Wind (Zobs)	33.00	feet
Observed Wind Speed (Uobs)	108.00	mph
Air Sea Temp. Diff. (dT)	0.00	deg F
Dur of Observed Wind (DurO)	3.00	sec
Dur of Final Wind (DurF)	1.00	hours
Lat. of Observation (LAT)	41.00	deg
Results		
Wind Fetch Length (F)	2524.40	FEET
Wind Direction (WDIR)	73.00	deg
Eq Neutral Wind Speed (Ue)	64.32	mph
Adjusted Wind Speed (Ua)	105.23	mph
Mean Wave Direction (THETA)	56.00	deg
Wave Height (Hmo)	1.96	feet
Wave Period (Tp)	2.46	sec
Wave Growth:	Deep	

Wind Obs Type	Wind Fetch Options
Shore (windward)	Deep restricted

Restricted Fetch Geometry

#	Fetch Angle (deg)	Fetch Length (feet)
1	340.00	610.00
2	350.00	1480.00
3	0.00	1070.00
4	10.00	870.00
5	20.00	700.00
6	30.00	700.00
7	40.00	1120.00
8	50.00	2850.00
9	60.00	2300.00
10	70.00	2240.00
11	80.00	2160.00
12	90.00	2280.00
13	100.00	2450.00
14	110.00	2590.00
15	120.00	2980.00
16	130.00	3730.00
17	140.00	4530.00
22	190.00	190.00

H_{mo} = 1.96'
T_p = 2.46 sec

VII) **Wave Setup Calculation:** Wave setup was computed using the methodology outlined in the *Guidance for Flood Risk Analysis and Mapping – Coastal Wave Setup* (Nov. 2015). Transects A and B were analyzed.

$$\bar{\eta} / H_o^{'} = 0.160 \frac{m^{0.2}}{(H_o^{'} / L_o)^{0.2}}$$ (eq. 2-1)

Transect	Stillwater El (Ft)	Wave Height (Ft)	Wave Period (Sec)	2x Breaking EL (Ft NAVD88)	Lo = 5.12 T^2 (Ft)	Slope	Setup (Ft)	TWL (Ft NAVD88)
A	9.5	2.04	2.61	4.3	34.9	0.01	0.2	9.7
B	9.5	1.96	2.46	4.5	31.0	0.01	0.2	9.7

The slope for Transect A was taken from 2x the breaking elevation (El. +4.3' at Failed Profile: Sta. 0+06) to the intersection of the SWL (El. +9.5' at Failed Profile: Sta. 4+07).

The slope for Transect B was taken from 2x the breaking elevation (El. +4.5' at Failed Profile: Sta. 0+06) to the intersection of the SWL (El. +9.5' at Failed Profile: Sta. 4+15).

VIII) Transect A Computations

Wave runup and wave crest elevation during the 100-yr event was calculated for the proposed condition along Transect A.

1. Proposed Flood Conditions

Wave runup and wave crest elevations were computed for both the intact and failed profile of the proposed bulkhead at Transect A. The proposed topography was determined from the drawing titled, "Site Plan – Proposed Conditions" and the proposed bulkhead geometry was determined from the drawing titled, "Section A-A" in the drawing set titled, "National Coast Museum" prepared by Milone & MacBroom and dated October 2020 and was supplemented with 2016 CRCOG Lidar: Connecticut Statewide.

Wave Runup

Intact & Failed

Runup was computed using the guidance in *Guidance for Flood Risk Analysis and Mapping – Coastal Wave Runup and Overtopping* (FEMA 2018). The proposed bulkhead is located below the 100-yr SWL and is therefore inundated during the 100-yr event. As such, runup was calculated along the slope of the project site between the 2x the breaking elevation (+4.3 feet NAVD 88) and the 100-yr Stillwater elevation (+9.5 feet NAVD 88).

	Runup Methods	Criteria		
		Slope	Iribarren Number	Shoreline Type
Empirical Equations	TAW[1]	1:8 to 1:1	0.5 – 8-10	Rock-Armored Structures with Narrow Surf Zones
	Stockdon	Up to 1:10	—	Sandy Beaches without Dune
	Van Gent	Up to 1:1	1 – 10	Impermeable Structures Located in the Surf Zone
	SPM[2]	∞	N/A	Vertical Walls (Sea Walls and Bulkheads
Computer Models	ACES	Up to 1:1	Up to 2 for Beaches 0.5 – 10 for Shore barriers	Beaches, Riprap, and Impermeable Structures
	Runup 2.0	Up to 1:8	—	Multiple Types
	CSHORE	N/A	Greater than 0.3	Multiple Types

Figure 1: (Guidance for Flood Risk Analysis and Mapping – Coastal Wave Runup and Overtopping FEMA 2018 – Table 1)

$$\xi = \frac{m}{\sqrt{H/L}} = \frac{0.01}{\sqrt{2.04/34.9}} = 0.04 < 2$$

Since, the Iribarren Number calculated for the project site is less than 2, wave runup was calculated using the ACES *Irregular Wave Runup on Beaches* application for sloped shorelines:

Irregular Wave Runup on Smooth Slope Linear Be

Deepwater significant wave height:	2.04	ft
Peak energy wave period:	2.61	
Cotangent of beach slope:	71.00	
Maximum wave runup:	0.53	ft
Runup exceeded by 2% of runups:	0.50	ft
Average of highest 1/10 of runups:	0.46	ft
Average of highest 1/3 of runups	0.38	ft
Average wave runup:	0.25	ft

$R_{2\%}$ = 0.50' -> BFE based on Runup = +10'

Wave Crest Elevation

FEMA's Wave Height Analysis for Flood Insurance Studies (WHAFIS) model of the Coastal Hazard Analysis Modeling Program (CHAMP) Version 2.0. was utilized to determine the wave crest elevation along Transect A. The transect is perpendicular to the shoreline and extends into the Thames River.

Intact Profile

PART6 NUMBERED A ZONES AND V ZONES

STATION OF GUTTER	ELEVATION	ZONE DESIGNATION	FHF
0.00	12.01		
		V25 EL=12	150
1.35	11.80		
		A21 EL=12	110
1.68	11.50		
		A21 EL=11	110
377.37	10.50		
		A21 EL=10	110
407.00	10.07		
415.00	9.70		

ZONE TERMINATED AT END OF TRANSECT

Sta. 0+00 falls coincident to the waterward face of the proposed bulkhead. The WHAFIS results show a VE Zone +12 feet until the waterward face of the proposed bulkhead is intersected (Sta. 0+02). Landward of the bulkhead face, the flood zone transitions into a AE Zone of +11 feet where it will merge with the Effective AE Zone +11 feet for the remainder of the project site.

Failed Profile

In accordance with FEMA guidelines, the proposed bulkhead was failed at a slope of 1V:1.5H. The failed profile is offset from the intact profile by -8 stations (Intact profile: STA. 0+08, Failed profile: STA. 0+00).

PART6 NUMBERED A ZONES AND V ZONES

STATION OF GUTTER	ELEVATION	ZONE DESIGNATION	FHF
0.00	12.01		
		V25 EL=12	150
2.63	11.80		
		A21 EL=12	110
6.39	11.50		
		A21 EL=11	110
369.36	10.50		
		A21 EL=10	110
399.00	10.07		
407.00	9.70		

ZONE TERMINATED AT END OF TRANSECT

Sta. 0+00 falls coincident to the waterward face of the failed bulkhead. The WHAFIS results show a VE Zone +12 until Sta. 0+06 is intersected along the failed bulkhead. Landward of Sta. 0+06, the flood zone transitions into a AE Zone +11 where it will merge with the Effective AE Zone +11 feet for the remainder of the project site.

IX) Transect B Computations

Wave runup and wave crest elevation during the 100-yr event was calculated for the proposed condition along Transect B.

1. Proposed Flood Conditions

Wave runup and wave crest elevations were computed for both the intact and failed profile of the proposed bulkhead at Transect B. The proposed topography was taken from the drawing titled, "Site Plan – Proposed Conditions South" prepared for Cross Sound Ferry Terminal Expansion by Milone and MacBroom and dated January 3, 2019 and was supplemented with 2016 CRCOG Lidar: Connecticut Statewide.

The bulkhead geometry for the Transect B was determined from the drawing titled, "Section E-E" (Sheet 11) in the drawing set titled "Cross Sound Ferry" prepared by Milone & MacBroom and dated January 3, 2019.

Wave Runup

Intact & Failed

Similar to Transect A, runup was computed using the guidance in *Guidance for Flood Risk Analysis and Mapping – Coastal Wave Runup and Overtopping* (FEMA 2018). The proposed bulkhead along Transect B is also located below the 100-yr SWL and is therefore inundated during the 100-yr event. As such, runup was calculated along the slope of the project site between the 2x the breaking elevation (+4.5 feet NAVD 88) and the 100-yr Stillwater elevation (+9.5 feet NAVD 88).

Irregular Wave Runup on Smooth Slope Linear Be		
Deepwater significant wave height:	1.96	ft
Peak energy wave period:	2.46	
Cotangent of beach slope:	75.00	
Maximum wave runup:	0.47	ft
Runup exceeded by 2% of runups:	0.45	ft
Average of highest 1/10 of runups:	0.41	ft
Average of highest 1/3 of runups	0.35	ft
Average wave runup:	0.23	ft

$R_{2\%}$ = 0.45' -> BFE based on Runup = +10'

Wave Crest Elevation

Similar to Transect A, FEMA's WHAFIS model of CHAMP Version 2.0. was utilized to determine the wave crest elevation along Transect B. The transect is perpendicular to the shoreline and extends into the Thames River.

Intact Profile

PART6 NUMBERED A ZONES AND V ZONES

STATION OF GUTTER	ELEVATION	ZONE DESIGNATION	FHF
0.00	11.57		
		A21 EL=12	110
101.96	11.50		
		A21 EL=11	110
405.00	10.56		
435.00	9.70		

ZONE TERMINATED AT END OF TRANSECT

Sta. 0+00 falls coincident to the waterward face of the proposed bulkhead. The WHAFIS results show a AE Zone +12 until a grade elevation of approximately +5.3 feet is intersected (Sta. 1+02). Landward of the bulkhead face, the flood zone transitions into a AE Zone +11 where it will merge with the Effective AE Zone +11 feet for the remainder of the project site.

Failed Profile

In accordance with FEMA guidelines, the proposed bulkhead was failed on a slope of 1V:1.5H. The failed profile is offset from the intact profile by -16 stations (Intact profile: STA. 0+16, Failed profile: STA. 0+00).

PART6 NUMBERED A ZONES AND V ZONES

STATION OF GUTTER	ELEVATION	ZONE DESIGNATION	FHF
0.00	11.87		
		V25 EL=12	150
1.84	11.80		
		A21 EL=12	110
85.15	11.50		
		A21 EL=11	110
389.00	10.56		
419.00	9.70		

ZONE TERMINATED AT END OF TRANSECT

Sta. 0+00 falls coincident to the waterward face of the failed bulkhead. The WHAFIS results show a VE Zone +12 until Sta. 0+02 is intersected along the failed bulkhead. Landward of Sta. 0+02, the flood zone transitions into a AE Zone +12 until a grade elevation of approximately +5.3 feet is intersected (Sta. 0+85). Landward of the grade elevation +5.3± feet, the flood zone transitions into an AE Zone +11 where it will merge with the Effective AE Zone +11 feet for the remainder of the project site.

X) Conclusion

Transect A: The BFE along Transect A is governed by the wave crest elevation. The proposed project site will result in a Zone VE +14 until Sta. 0+06 is intersected along the failed profile. Landward of Sta. 0+06, the flood zone transitions into a Coastal AE +11 for the remainder of the project site.

Transect B: The BFE along Transect B is also governed by the wave crest elevation. The proposed project site will result in a Zone VE +14 until Sta. 0+02 is intersected along the failed bulkhead. Landward of Sta. 0+02, the flood zone transitions into a Coastal AE +12 until a grade elevation of approximately +5.3 feet is intersected (Sta. 0+85). Landward of the grade elevation +5.3± feet, the flood zone transitions into a Coastal AE +11 for the remainder of the project site.

SECTION 2

2.3 WHAFIS Results

WAVE HEIGHT COMPUTATIONS FOR FLOOD INSURANCE STUDIES (WHAFIS VERSION 4.0G, 08_2007)
Executed on: Thu Jun 24 09:03:45 2021
Input file: C:\Users\Hailey\Desktop\WHAFIS Jobs\NCGM CLOMR - 2021071\aces whafis\whafis\wTA_Intact.dat
Output file: C:\Users\Hailey\Desktop\WHAFIS Jobs\NCGM CLOMR - 2021071\aces whafis\whafis\wTA_Intact.out

- Transect: TA_Intact Date: 6/24/2021
THIS IS A 100-YEAR CASE

PART1 INPUT

IE	0.000	0.000	0.000	0.000	9.700	3.300	2.610	0.000	-5.000	0.000
IF	1.000	-5.000	0.000	9.700	0.000	0.000	0.000	0.000	3.250	0.000
IF	2.000	6.500	0.000	9.700	0.000	0.000	0.000	0.000	0.359	0.000
IF	33.000	6.500	0.000	9.700	0.000	0.000	0.000	0.000	0.000	0.000
IF	196.000	6.500	0.000	9.700	0.000	0.000	0.000	0.000	0.004	0.000
IF	373.000	8.000	0.000	9.700	0.000	0.000	0.000	0.000	0.012	0.000
IF	407.000	9.000	0.000	9.700	0.000	0.000	0.000	0.000	0.029	0.000
AS	415.000	9.700	0.000	9.700	0.000	0.000	0.000	0.000	0.029	0.000
ET	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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	0.000	0.000	0.000	0.000	9.700	3.300	2.610	0.000	-5.000	0.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR				BOTTOM SLOPE	AVERAGE A-ZONES
IF	1.000	-5.000	0.000	9.700	0.000	0.000	0.000	0.000	3.250	0.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR				BOTTOM SLOPE	AVERAGE A-ZONES
IF	2.000	6.500	0.000	9.700	0.000	0.000	0.000	0.000	0.359	0.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR				BOTTOM SLOPE	AVERAGE A-ZONES
IF	33.000	6.500	0.000	9.700	0.000	0.000	0.000	0.000	0.000	0.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR				BOTTOM SLOPE	AVERAGE A-ZONES
IF	196.000	6.500	0.000	9.700	0.000	0.000	0.000	0.000	0.004	0.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR				BOTTOM SLOPE	AVERAGE A-ZONES
IF	373.000	8.000	0.000	9.700	0.000	0.000	0.000	0.000	0.012	0.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR				BOTTOM SLOPE	AVERAGE A-ZONES
IF	407.000	9.000	0.000	9.700	0.000	0.000	0.000	0.000	0.029	0.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR				BOTTOM SLOPE	AVERAGE A-ZONES	
AS	415.000	9.700	0.000	9.700	0.000	0.000	0.000	0.000	0.029	0.000

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

NOTE:

SURGE ELEVATION INCLUDES CONTRIBUTIONS FROM ASTRONOMICAL AND STORM TIDES.

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

LOCATION		CONTROLLING WAVE HEIGHT	SPECTRAL PEAK WAVE PERIOD	WAVE CREST ELEVATION
	IE 0.00	3.30	2.61	12.01
	IF 1.00	3.45	2.61	12.12
	IF 2.00	2.16	2.61	11.21
	IF 33.00	2.16	2.61	11.21
	147.10	2.16	2.63	11.22
	IF 196.00	2.17	2.64	11.22
	302.20	1.62	2.65	10.84
	IF 373.00	1.23	2.66	10.56
	IF 407.00	0.53	2.66	10.07
	AS 415.00	0.00	0.00	9.70

PART3 LOCATION OF AREAS ABOVE 100-YEAR SURGE

BETWEEN 407.00 AND 415.00

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
1.35	WINDWARD

PART6 NUMBERED A ZONES AND V ZONES

STATION OF GUTTER	ELEVATION	ZONE DESIGNATION	FHF
0.00	12.01		
V25 EL=12			150
1.35	11.80		
A21 EL=12			110
1.68	11.50		
A21 EL=11			110
377.37	10.50		
A21 EL=10			110
407.00	10.07		
415.00	9.70		

ZONE TERMINATED AT END OF TRANSECT

PART 7 POSTSCRIPT NOTES

WAVE HEIGHT COMPUTATIONS FOR FLOOD INSURANCE STUDIES (WHAFIS VERSION 4.0G, 08_2007)
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- Transect: TA_Failed Date: 6/24/2021
THIS IS A 100-YEAR CASE

PART1 INPUT

IE	0.000	0.000	0.000	0.000	9.700	3.300	2.610	0.000	0.650	0.000
IF	10.000	6.500	0.000	9.700	0.000	0.000	0.000	0.000	0.035	0.000
IF	188.000	6.500	0.000	9.700	0.000	0.000	0.000	0.000	0.004	0.000
IF	365.000	8.000	0.000	9.700	0.000	0.000	0.000	0.000	0.012	0.000
IF	399.000	9.000	0.000	9.700	0.000	0.000	0.000	0.000	0.029	0.000
AS	407.000	9.700	0.000	9.700	0.000	0.000	0.000	0.000	0.029	0.000
ET	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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	0.000	0.000	0.000	0.000	9.700	3.300	2.610	0.000	0.650	0.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR				BOTTOM SLOPE	AVERAGE A-ZONES
IF	10.000	6.500	0.000	9.700	0.000	0.000	0.000	0.000	0.035	0.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR				BOTTOM SLOPE	AVERAGE A-ZONES
IF	188.000	6.500	0.000	9.700	0.000	0.000	0.000	0.000	0.004	0.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR				BOTTOM SLOPE	AVERAGE A-ZONES
IF	365.000	8.000	0.000	9.700	0.000	0.000	0.000	0.000	0.012	0.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR				BOTTOM SLOPE	AVERAGE A-ZONES
IF	399.000	9.000	0.000	9.700	0.000	0.000	0.000	0.000	0.029	0.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR				BOTTOM SLOPE	AVERAGE A-ZONES
AS	407.000	9.700	0.000	9.700	0.000	0.000	0.000	0.000	0.029	0.000

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

NOTE:

SURGE ELEVATION INCLUDES CONTRIBUTIONS FROM ASTRONOMICAL AND STORM TIDES.

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

LOCATION		CONTROLLING WAVE HEIGHT	SPECTRAL PEAK WAVE PERIOD	WAVE CREST ELEVATION
	IE	0.00	3.30	2.61	12.01
	IF	10.00	2.16	2.61	11.21
		134.60	2.16	2.63	11.21
	IF	188.00	2.17	2.63	11.22
		294.20	1.62	2.65	10.84
	IF	365.00	1.23	2.66	10.56
	IF	399.00	0.53	2.66	10.07
	AS	407.00	0.00	0.00	9.70

PART3 LOCATION OF AREAS ABOVE 100-YEAR SURGE

BETWEEN 399.00 AND 407.00

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
2.63	WINDWARD

PART6 NUMBERED A ZONES AND V ZONES

STATION OF GUTTER	ELEVATION	ZONE DESIGNATION	FHF
0.00	12.01		
V25 EL=12		150	

2.63 11.80

A21 EL=12 110

6.39 11.50

A21 EL=11 110

369.36 10.50

A21 EL=10 110

399.00 10.07

407.00 9.70

ZONE TERMINATED AT END OF TRANSECT

PART 7 POSTSCRIPT NOTES

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- Transect: TB_Intact Date: 6/22/2021
THIS IS A 100-YEAR CASE

PART1 INPUT

IE	0.000	5.400	0.000	0.000	9.700	3.100	2.460	0.000	0.000	0.000
IF	59.000	5.400	0.000	9.700	0.000	0.000	0.000	0.000	0.003	0.000
IF	68.000	5.610	0.000	9.700	0.000	0.000	0.000	0.000	-0.006	0.000
IF	94.000	5.200	0.000	9.700	0.000	0.000	0.000	0.000	0.002	0.000
IF	155.000	5.780	0.000	9.700	0.000	0.000	0.000	0.000	0.011	0.000
IF	169.000	6.000	0.000	9.700	0.000	0.000	0.000	0.000	0.010	0.000
IF	178.000	6.000	0.000	9.700	0.000	0.000	0.000	0.000	0.000	0.000
IF	185.000	6.000	0.000	9.700	0.000	0.000	0.000	0.000	0.000	0.000
IF	206.000	6.000	0.000	9.700	0.000	0.000	0.000	0.000	0.013	0.000
IF	265.000	7.000	0.000	9.700	0.000	0.000	0.000	0.000	0.016	0.000
IF	267.000	7.000	0.000	9.700	0.000	0.000	0.000	0.000	0.007	0.000
IF	405.000	8.000	0.000	9.700	0.000	0.000	0.000	0.000	0.007	0.000
AS	435.000	9.700	0.000	9.700	0.000	0.000	0.000	0.000	0.007	0.000
ET	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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	0.000	5.400	0.000	0.000	9.700	3.100	2.460	0.000	0.000	0.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR				BOTTOM SLOPE	AVERAGE A-ZONES
IF	59.000	5.400	0.000	9.700	0.000	0.000	0.000	0.000	0.003	0.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR				BOTTOM SLOPE	AVERAGE A-ZONES
IF	68.000	5.610	0.000	9.700	0.000	0.000	0.000	0.000	-0.006	0.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR				BOTTOM SLOPE	AVERAGE A-ZONES
IF	94.000	5.200	0.000	9.700	0.000	0.000	0.000	0.000	0.002	0.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR				BOTTOM SLOPE	AVERAGE A-ZONES
IF	155.000	5.780	0.000	9.700	0.000	0.000	0.000	0.000	0.011	0.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR				BOTTOM SLOPE	AVERAGE A-ZONES
IF	169.000	6.000	0.000	9.700	0.000	0.000	0.000	0.000	0.010	0.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR				BOTTOM SLOPE	AVERAGE A-ZONES	
IF	178.000	6.000	0.000	9.700	0.000	0.000	0.000	0.000	0.000	0.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR				BOTTOM SLOPE	AVERAGE A-ZONES	
IF	185.000	6.000	0.000	9.700	0.000	0.000	0.000	0.000	0.000	0.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR				BOTTOM SLOPE	AVERAGE A-ZONES	
IF	206.000	6.000	0.000	9.700	0.000	0.000	0.000	0.000	0.013	0.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR				BOTTOM SLOPE	AVERAGE A-ZONES	
IF	265.000	7.000	0.000	9.700	0.000	0.000	0.000	0.000	0.016	0.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR				BOTTOM SLOPE	AVERAGE A-ZONES	
IF	267.000	7.000	0.000	9.700	0.000	0.000	0.000	0.000	0.007	0.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR				BOTTOM SLOPE	AVERAGE A-ZONES	
IF	405.000	8.000	0.000	9.700	0.000	0.000	0.000	0.000	0.007	0.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR				BOTTOM SLOPE	AVERAGE A-ZONES	
AS	435.000	9.700	0.000	9.700	0.000	0.000	0.000	0.000	0.007	0.000

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

NOTE:

SURGE ELEVATION INCLUDES CONTRIBUTIONS FROM ASTRONOMICAL AND STORM TIDES.

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

LOCATION	CONTROLLING WAVE HEIGHT	SPECTRAL PEAK WAVE PERIOD	WAVE CREST ELEVATION
IE	0.00	2.67	2.46	11.57
IF	59.00	2.67	2.47	11.57
IF	68.00	2.57	2.47	11.50

IF	94.00	2.58	2.47	11.51
IF	155.00	2.50	2.48	11.45
IF	169.00	2.39	2.48	11.37
IF	178.00	2.39	2.49	11.37
IF	185.00	2.39	2.49	11.37
IF	206.00	2.39	2.49	11.37
IF	265.00	1.84	2.50	10.99
IF	267.00	1.84	2.50	10.99
	391.20	1.29	2.52	10.60
IF	405.00	1.22	2.52	10.56
AS	435.00	0.00	0.00	9.70

PART3 LOCATION OF AREAS ABOVE 100-YEAR SURGE

BETWEEN 405.00 AND 435.00

PART4 LOCATION OF SURGE CHANGES

STATION	10-YEAR SURGE	100-YEAR SURGE

NO SURGE CHANGES IN THIS TRANSECT

PART6 NUMBERED A ZONES AND V ZONES

STATION OF GUTTER	ELEVATION	ZONE DESIGNATION	FHF
0.00	11.57		
A21 EL=12		110	
101.96	11.50		
A21 EL=11		110	
405.00	10.56		
435.00	9.70		

ZONE TERMINATED AT END OF TRANSECT

PART 7 POSTSCRIPT NOTES

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- Transect: TB_Failed Date: 6/22/2021
THIS IS A 100-YEAR CASE

PART1 INPUT

IE	0.000	0.000	0.000	0.000	9.700	3.100	2.460	0.000	0.675	0.000
IF	8.000	5.400	0.000	9.700	0.000	0.000	0.000	0.000	0.126	0.000
IF	43.000	5.400	0.000	9.700	0.000	0.000	0.000	0.000	0.005	0.000
IF	52.000	5.610	0.000	9.700	0.000	0.000	0.000	0.000	-0.006	0.000
IF	78.000	5.200	0.000	9.700	0.000	0.000	0.000	0.000	0.002	0.000
IF	139.000	5.780	0.000	9.700	0.000	0.000	0.000	0.000	0.011	0.000
IF	153.000	6.000	0.000	9.700	0.000	0.000	0.000	0.000	0.010	0.000
IF	162.000	6.000	0.000	9.700	0.000	0.000	0.000	0.000	0.000	0.000
IF	169.000	6.000	0.000	9.700	0.000	0.000	0.000	0.000	0.000	0.000
IF	190.000	6.000	0.000	9.700	0.000	0.000	0.000	0.000	0.013	0.000
IF	249.000	7.000	0.000	9.700	0.000	0.000	0.000	0.000	0.016	0.000
IF	251.000	7.000	0.000	9.700	0.000	0.000	0.000	0.000	0.007	0.000
IF	389.000	8.000	0.000	9.700	0.000	0.000	0.000	0.000	0.007	0.000
AS	419.000	9.700	0.000	9.700	0.000	0.000	0.000	0.000	0.007	0.000
ET	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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	0.000	0.000	0.000	0.000	9.700	3.100	2.460	0.000	0.675	0.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR				BOTTOM SLOPE	AVERAGE A-ZONES
IF	8.000	5.400	0.000	9.700	0.000	0.000	0.000	0.000	0.126	0.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR				BOTTOM SLOPE	AVERAGE A-ZONES
IF	43.000	5.400	0.000	9.700	0.000	0.000	0.000	0.000	0.005	0.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR				BOTTOM SLOPE	AVERAGE A-ZONES
IF	52.000	5.610	0.000	9.700	0.000	0.000	0.000	0.000	-0.006	0.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR				BOTTOM SLOPE	AVERAGE A-ZONES
IF	78.000	5.200	0.000	9.700	0.000	0.000	0.000	0.000	0.002	0.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR				BOTTOM SLOPE	AVERAGE A-ZONES
IF	139.000	5.780	0.000	9.700	0.000	0.000	0.000	0.000	0.011	0.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR				BOTTOM SLOPE	AVERAGE A-ZONES
IF	153.000	6.000	0.000	9.700	0.000	0.000	0.000	0.000	0.010	0.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR				BOTTOM SLOPE	AVERAGE A-ZONES
IF	162.000	6.000	0.000	9.700	0.000	0.000	0.000	0.000	0.000	0.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR				BOTTOM SLOPE	AVERAGE A-ZONES
IF	169.000	6.000	0.000	9.700	0.000	0.000	0.000	0.000	0.000	0.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR				BOTTOM SLOPE	AVERAGE A-ZONES
IF	190.000	6.000	0.000	9.700	0.000	0.000	0.000	0.000	0.013	0.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR				BOTTOM SLOPE	AVERAGE A-ZONES
IF	249.000	7.000	0.000	9.700	0.000	0.000	0.000	0.000	0.016	0.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR				BOTTOM SLOPE	AVERAGE A-ZONES
IF	251.000	7.000	0.000	9.700	0.000	0.000	0.000	0.000	0.007	0.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR				BOTTOM SLOPE	AVERAGE A-ZONES
IF	389.000	8.000	0.000	9.700	0.000	0.000	0.000	0.000	0.007	0.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR				BOTTOM SLOPE	AVERAGE A-ZONES
AS	419.000	9.700	0.000	9.700	0.000	0.000	0.000	0.000	0.007	0.000

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

NOTE:

SURGE ELEVATION INCLUDES CONTRIBUTIONS FROM ASTRONOMICAL AND STORM TIDES.

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

LOCATION	CONTROLLING WAVE HEIGHT	SPECTRAL PEAK WAVE PERIOD	WAVE CREST ELEVATION

IE	0.00	3.10	2.46	11.87
IF	8.00	2.67	2.46	11.57
IF	43.00	2.67	2.47	11.57
IF	52.00	2.57	2.47	11.50
IF	78.00	2.58	2.47	11.51
IF	139.00	2.50	2.48	11.45
IF	153.00	2.39	2.48	11.37
IF	162.00	2.39	2.48	11.37
IF	169.00	2.39	2.48	11.37
IF	190.00	2.39	2.49	11.37
IF	249.00	1.84	2.50	10.99
IF	251.00	1.84	2.50	10.99
	375.20	1.29	2.51	10.60
IF	389.00	1.22	2.52	10.56
AS	419.00	0.00	0.00	9.70

PART3 LOCATION OF AREAS ABOVE 100-YEAR SURGE

BETWEEN 389.00 AND 419.00

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
1.84	WINDWARD

PART6 NUMBERED A ZONES AND V ZONES

STATION OF GUTTER	ELEVATION	ZONE DESIGNATION	FHF

0.00 11.87

V25 EL=12 150

1.84 11.80

A21 EL=12 110

85.15 11.50

A21 EL=11 110

389.00 10.56

419.00 9.70

ZONE TERMINATED AT END OF TRANSECT

PART 7 POSTSCRIPT NOTES

SECTION 2

2.4 MT-2 Form 2 – Riverine Hydrology & Hydraulics Form Statement

July 2021

Federal Emergency Management Agency (FEMA)
LOMC Clearing House
847 South Pickett Street
Alexandria, VA 22304-4605

Attention: LOMC Manager

Reference: Conditional Letter of Map Revision Application
National Coast Guard Museum Association & Cross Sound Ferry Site
2 Ferry Street, New London, CT 06320
RACE Project No. 2021071

Dear Sir or Madam:

RACE COASTAL ENGINEERING, P.C. ("RACE"), on behalf of the National Coast Guard Museum Association, has prepared a CLOMR Application for the properties at the National Coast Guard Museum and Cross Sound Ferry project sites in New London, CT. The CLOMR application analyzes if any modifications may be made to FIRM panels 09011C0501J or 09011C0502J dated August 5, 2013 based on the proposed conditions of the project site.

The project site has been previously analyzed by FEMA and is represented in the Flood Insurance Study No. 09011CV001C revised April 3, 2020. Transect 39 was determined to be representative of the site and is classified as a coastal transect. The flood source for Transect 39 is the New London Harbor. Since the representative transect of the project site is classified as a coastal transect, the project site and its proposed modifications have been analyzed utilizing a coastal analysis. As such, the Coastal Analysis Form (Form 4) has been completed. The Riverine Hydrology & Hydraulics Form (Form 2) does not pertain to the project site. Therefore, it is not included in this analysis.

Should you have any questions concerning this Application, please contact the undersigned at our Stratford, CT office at (203) 377-0663.

Very truly yours,

RACE COASTAL ENGINEERING

Jill Pietropaolo, PE
Project Manager, Senior Coastal Engineer

SECTION 3
Narrative Addendum

Narrative Addendum:

ADDENDUM
MT-2 FEMA Form

FORM 1 – OVERVIEW & CONCURRENCE FORM

Site Description

The area of interest is National Coast Guard Museum (NCGM) and the Cross-Sound Property in New London, CT. The site is situated along the western shoreline of the Thames River. The site is located in a coastal flood area and is exposed to the semi-diurnal tides and storm flooding of the Thames River and Long Island Sound.

The site has limited exposure and fetch radials were utilized to evaluate wave conditions at the site. The site is sheltered from the full exposure of the Sound because it is located in the Thames River, approximately 2.5 miles north of the Thames River and Long Island Sound estuary. As such, the site is fetch-limited and blocked from wind and waves of the open Long Island Sound. Two transects were analyzed across the site. Transect A extends from the NCGM property site east into the Thames River. Transect B extends from the Cross-Sound Property project site northeast from the shoreline into the Thames River.

The site is located on F.I.R.M. No. 09011C for the City of New London (community No. 090100), in New London County, CT Panel 0501J and Panel 0502J effective date August 8, 2013. The existing flood lines and detailed topography of the existing site are depicted on the site map depicting the proposed flood lines in **Section 4**. Site information for this map was taken from the site plan titled, "Site Plan - Proposed Conditions" prepared for National Coast Guard Museum in New London, Connecticut prepared by Milone & Macbroom dated October 2020 and Site Plan - Proposed Conditions South" prepared for Cross Sound Ferry Services, Inc. 2 Ferry Street, New London, Connecticut, 06320 prepared by Milone & Macbroom dated January 3, 2019. This information was supplemented 2016 CRCOG Lidar: Connecticut Statewide.

Review Fee

The application to revise Flood Zones on this site are based on more detailed analysis and topographic data, as well as proposed fill. Based on fees outlined by FEMA on the Online LOMC portal https://hazards.fema.gov/femaportal/onlinelomc/signin?logout, the fee was determined to be $7000.00. Should additional fees be required, please contact RACE Coastal Engineering.

FORM 4 – COASTAL ANALYSIS FORM

Coastal Analysis

Stillwater Determination:
The 100-yr stillwater elevation, +9.5' was taken from the April 3, 2021 Flood Insurance Study No. 09011CV001C Transect 39. Transect 39 was determined to be representative of both Transect A and Transect B. Wave setup was determined based upon the methodology outlined in the *Guidance for Flood Risk Analysis and Mapping – Coastal Wave Setup*. The setup was based upon waves originating in the Thames River. Variables taken into account for calculating the wave setup include deep water significant wave height, corresponding wave length and slope of the shoreline. Wave setup was calculated to be 0.2' above the 100-yr stillwater elevation along Transect A and calculated to be 0.2' above the 100-yr stillwater elevation along Transect B.

Revised Analysis:
FEMA procedures, including wave height transformation using the WHAFIS application of CHAMP Version 2.0, were applied to topographic site data obtained from the referenced drawings along both transects. Both transects were analyzed per the *Guidelines and Specifications for Flood Hazard Mapping Partners,* February 2007 ed. Wave runup for both transects was computed using the *Automated Coastal Engineering System's* (ACES) *Irregular Wave Runup on Smooth Slope Linear Beaches* module to compute the runup on the effective slope.

Wave Height Analysis:
Prior to running WHAFIS, the initial wave height and period were calculated based on shallow water wave forecasting procedures developed by the US Army Corps of Engineers' ***Automated Coastal Engineering System (ACES) 4.03*** *Windspeed and Wave Growth* module. Fetch radials were used to determine the wave height. The average wind speed (108 mph) used was provided by the ACES 7-10 with a 100-year return period for the region. Based on the fetch and wind properties, Significant Wave Height and Period were found to be 2.04 ft and 2.61 seconds along Transect A and 1.96 ft and 2.46 seconds along Transect B.

The controlling wave height was used as input to WHAFIS and ran along the transects. The analysis considered the effects of potential erosion per FEMA guidelines. The proposed (intact) profiles for Transects A and B, which consist of proposed bulkheads at a 1V:1H slope, were failed on a 1V:1.5H slope.

Wave Runup:
Runup was computed using the guidance in *Guidance for Flood Risk Analysis and Mapping – Coastal Wave Runup and Overtopping* (FEMA 2018). The existing revetments along Transect A and B are located below the 100-yr SWL and is therefore inundated during the 100-yr event. Similarly, the proposed bulkheads along Transect A and B are also located below the 100-yr SWL and are inundated during the 100-yr event. Therefore, the 2% runup was calculated along the proposed profiles of both transects. Runup for Transect A was determined to be 0.50 feet resulting in a BFE of +10 feet. Runup for Transect B was determined to be 0.45 feet resulting in a BFE of +10 feet.

ESA Compliance:
The site has been reviewed by the State of Connecticut Department of Energy & Environmental Protection to ensure that proposed work will not take or harm any endangered or state-listed species. A copy of their determination letter stating that there no negative impacts anticipated is enclosed.

Summary:
The BFE is determined to be the higher elevation of either the runup or wave crest in the vicinity of the site. Based on the models discussed above, the site can be remapped as described below:

Transect A:

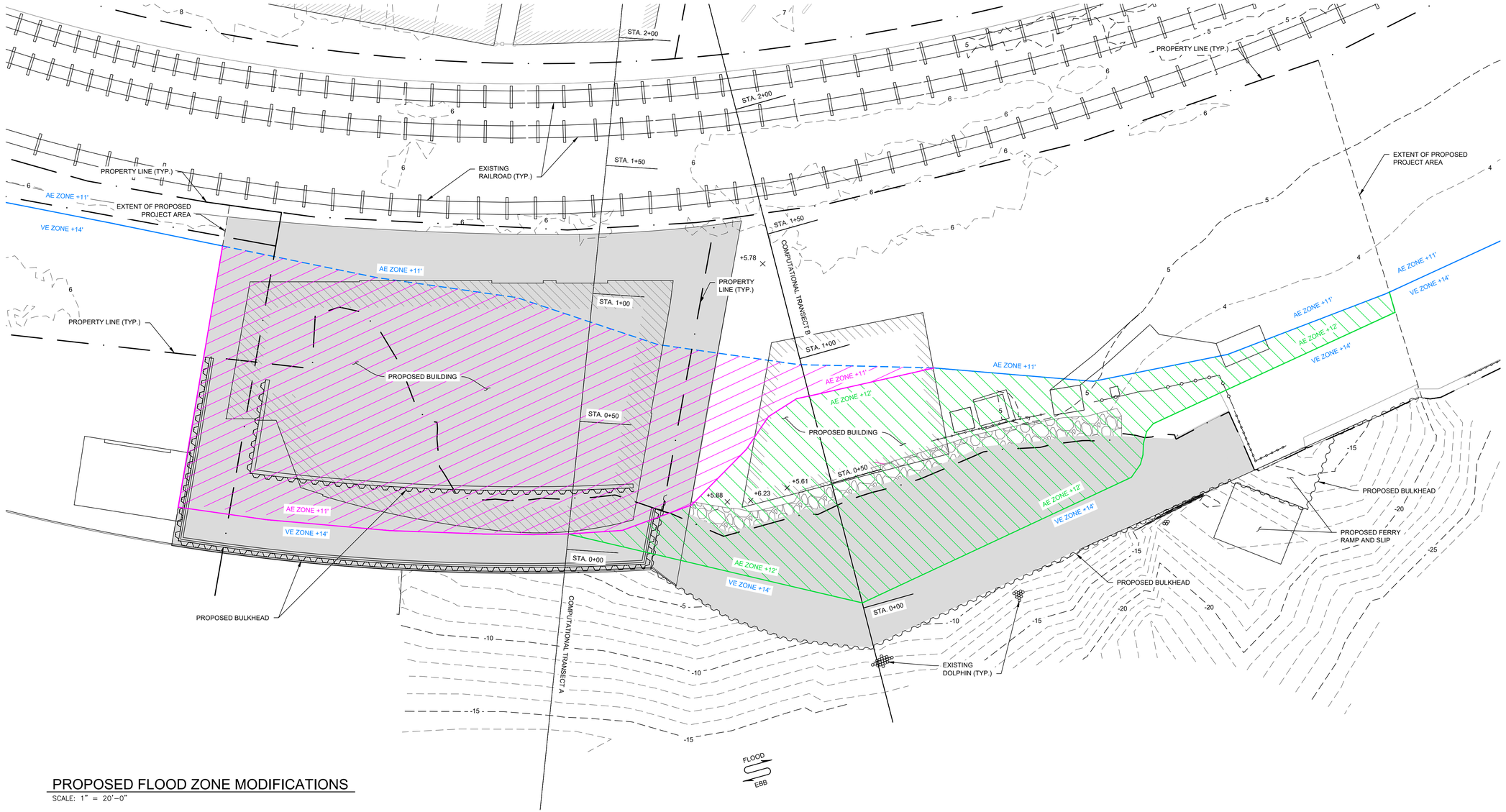
The BFE along Transect A is governed by the wave crest elevation. The project site will remain in a Zone VE +14 until Sta. 0+06 is intersected along the failed bulkhead. Landward of Sta. 0+06, the flood zone transitions into an AE Zone +11 for the remainder of the project site.

Transect B:

The BFE along Transect B is also governed by the wave crest elevation. The project site will remain in a Zone VE +14 until Sta. 0+02 is intersected along the failed bulkhead. Landward of Sta. 0+02, the flood zone transitions into a AE Zone +12 until a grade elevation of approximately +5.3 feet is intersected (Sta. 0+85). Landward of the grade elevation +5.3± feet, the flood zone transitions into a AE Zone +11 for the remainder of the project site.

Proposed mapping based on the analysis is shown in **Section 4.**

SECTION 4
Site Map Depicting Proposed Changes to the SFHA



PROPOSED FLOOD ZONE MODIFICATIONS

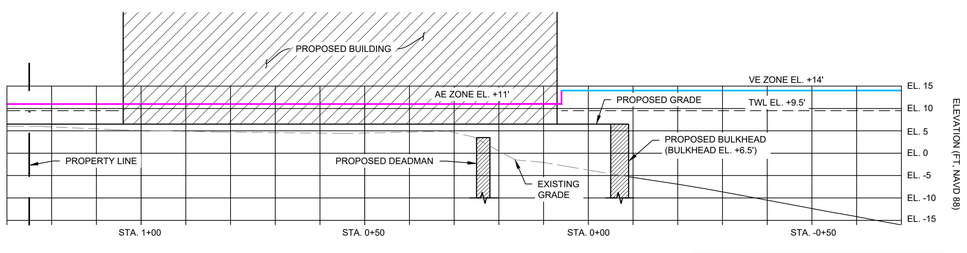
SCALE: 1" = 20'–0"

NOTES:

1. THE PURPOSE OF THESE DRAWINGS IS FOR CONDITIONAL LETTER OF MAP REVISION REVIEW ONLY.
2. ELEVATIONS REFERENCE THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88), UNLESS NOTED OTHERWISE.
3. THIS SITE INFORMATION HAS BEEN TAKEN FROM THE FOLLOWING DRAWINGS AND WAS SUPPLEMENTED WITH 2016 CRCOG LIDAR: CONNECTICUT STATEWIDE:
   - 3.1. SITE PLAN TITLED, "SITE PLAN - PROPOSED CONDITIONS" PREPARED FOR NATIONAL COAST GUARD MUSEUM IN NEW LONDON, CONNECTICUT PREPARED BY MILONE & MACBROOM DATED OCTOBER 2020.
   - 3.2. SITE PLAN TITLED, "SITE PLAN - PROPOSED CONDITIONS SOUTH" PREPARED FOR CROSS SOUND FERRY SERVICES, INC. 2 FERRY STREET, NEW LONDON, CONNECTICUT, 06320 PREPARED BY MILONE & MACBROOM DATED JANUARY 3, 2019.
4. REFERENCED FLOOD INSURANCE RATE MAP IS FIRM NO. 09011C0501J AND 09011C0502J DATED AUGUST 5, 2013.
5. COMPUTATIONAL TRANSECT STATIONS CORRESPOND TO PROPOSED FAILED PROFILES. TO CONVERT TO PROPOSED INTACT STATIONS, ADD +8 FOR TRANSECT A AND ADD +16 FOR TRANSECT B.

LEGEND:

- PROPOSED AE ZONE +12'
- PROPOSED AE ZONE +11'
- EXISTING FLOOD ZONE TO REMAIN
- EXISTING ZONE TO BE MODIFIED

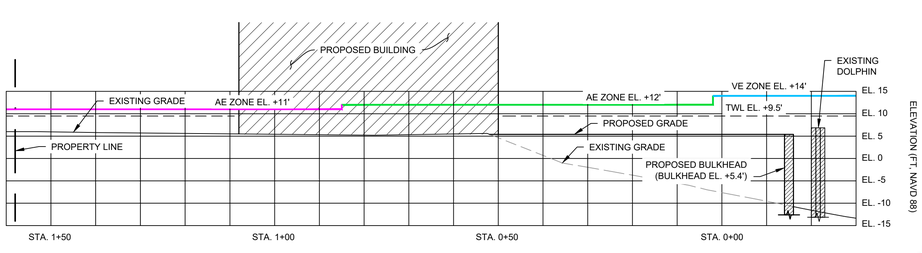


COMPUTED BFE ALONG TRANSECT A

SCALE: 1" = 16'–0"

NOTE:

BULKHEAD TIE-RODS TO DEADMAN NOT SHOWN FOR CLARITY.



COMPUTED BFE ALONG TRANSECT B

SCALE: 1" = 16'–0"

DRAFT

REV	DATE	DESCRIPTION

PROGRESS NOT FOR CONSTRUCTION

RACE COASTAL ENGINEERING
611 Access Road
Stratford, CT 06615
Tel.: 203-377-0663
racecoastal.com

Prepared for
NATIONAL COAST GUARD MUSEUM ASSOCIATION
78 HOWARD STREET SUITE A
NEW LONDON, CT 06320

Project
NCGMA & CROSS SOUND FERRY CLOMR APPLICATION
2 FERRY STREET
NEW LONDON, CT 06320

Drawing
PROPOSED FLOOD LINE MODIFICATION MAP

NOT VALID WITHOUT ENGINEER'S SEAL

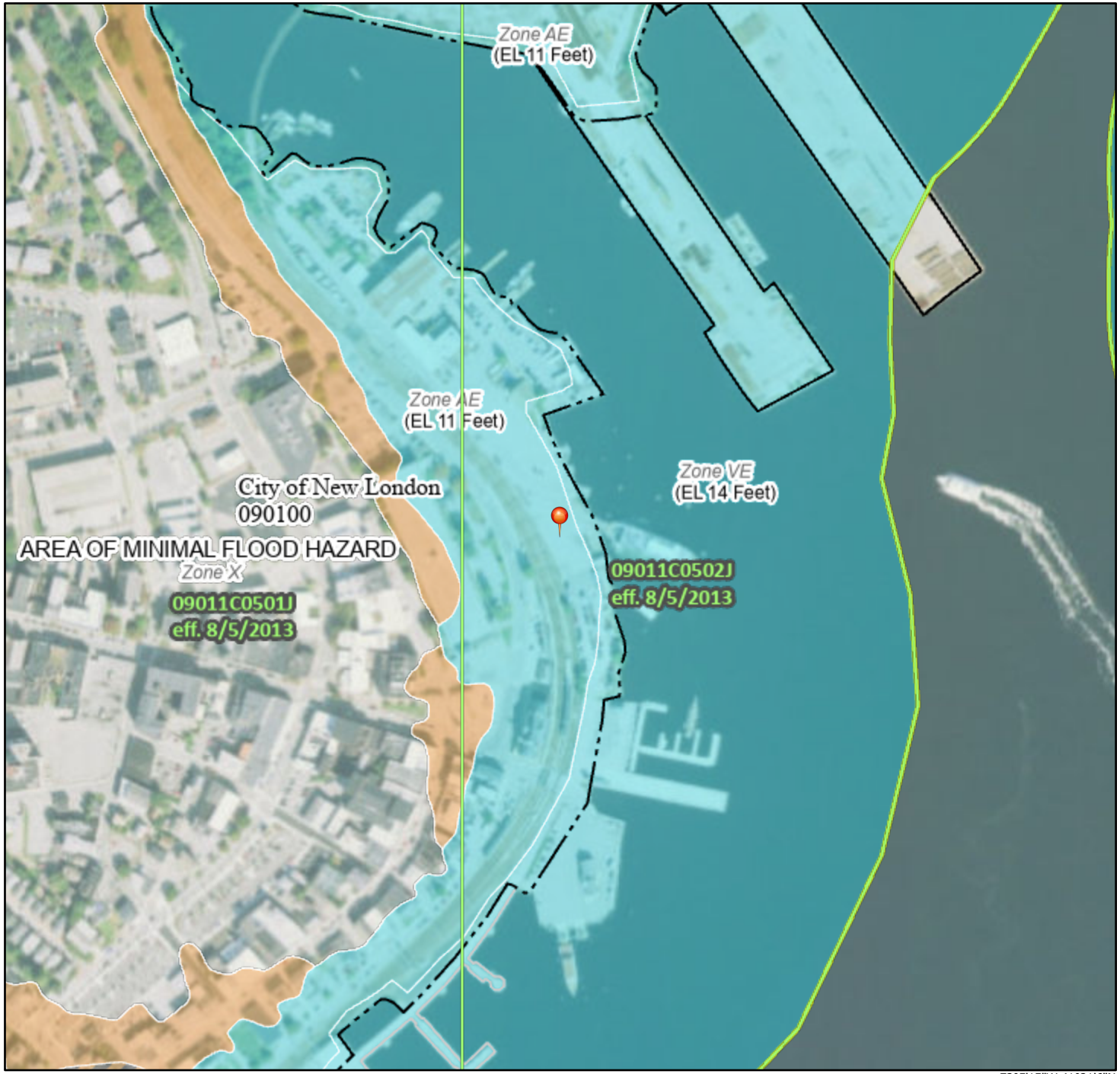
Designed	Drawn	Checked
HNS	HNS	JAP
Job No. 2021071	Date 06/25/2021	Drawing No. 1 of 1

SECTION 5
Existing FIRM & Proposed FIRM

National Flood Hazard Layer FIRMette

FEMA

72°5'53"W 41°21'33"N



72°5'15"W 41°21'6"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

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*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

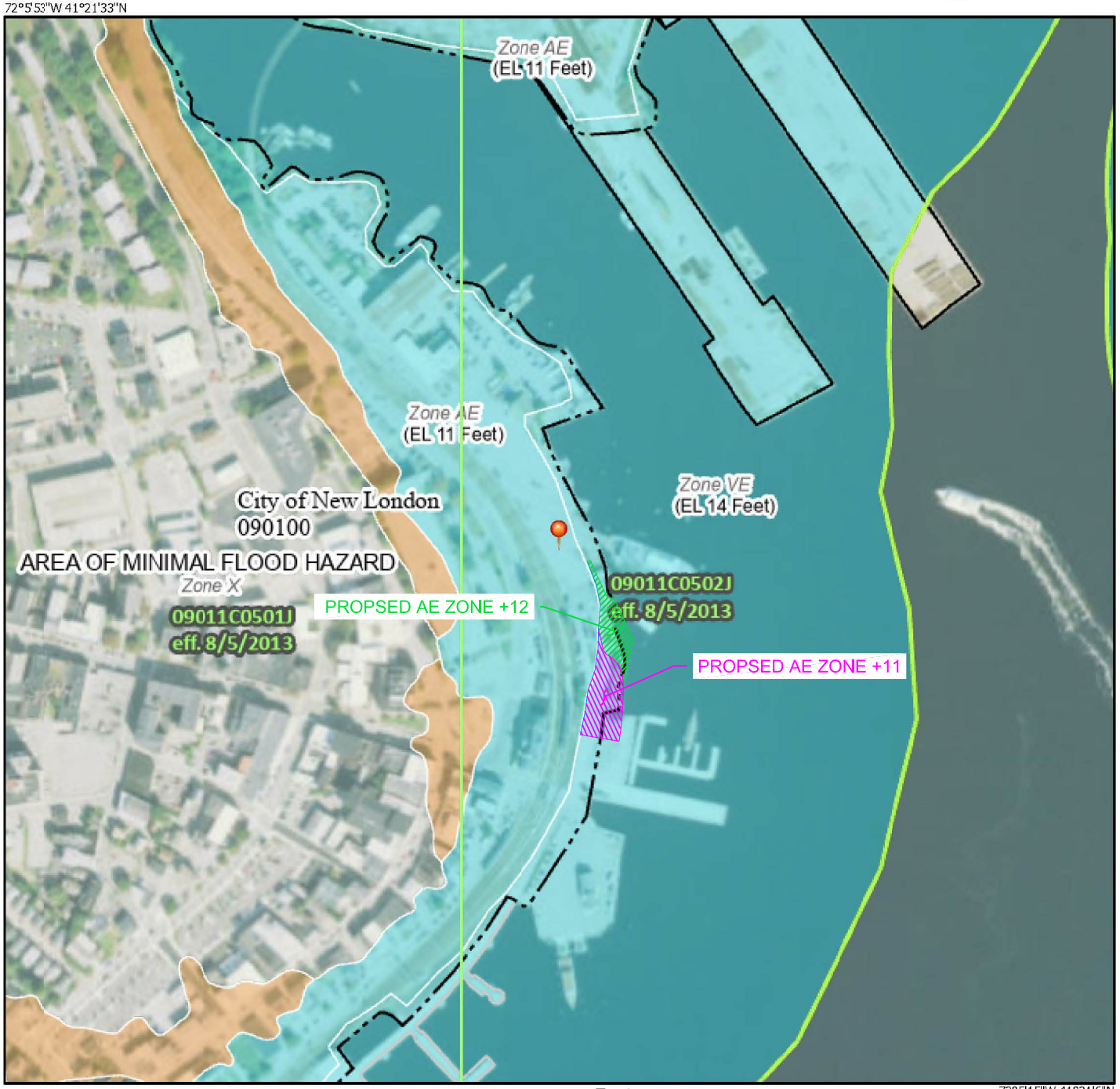
The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 6/16/2021 at 6:30 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

National Flood Hazard Layer FIRMette

FEMA

72°5'53"W 41°21'33"N



72°5'15"W 41°21'6"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

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*
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- 17.5 Water Surface Elevation
- Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

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The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 6/16/2021 at 6:30 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

SECTION 6
ESA Compliance

July 12, 2021

LOMC Clearinghouse
847 South Pickett Street
Alexandria, VA 22304-4605
ATTN: LOMC Manager

Reference: CLOMR Application
National Coast Guard Museum Association (NCGMA)
and Cross Sound Ferry Sites
New London, CT
RACE Project No. 2021071

To Whom It May Concern:

RACE COASTAL ENGINEERING ("RACE"), on the behalf of the National Coast Guard Museum Association, submits the following information to demonstrate compliance with the *Endangered Species Act (ESA*):

This project has been reviewed under the procedures outlined by the Natural Diversity Data Base. The project is also being reviewed by the Connecticut Department of Energy and Environmental Protection and the United States Army Corps of Engineers.

Enclosed please find the supporting documentation:

- Construction of National Coast Guard Museum, 181 State Street in New London, CT NDDB Determination No.: 202005519

It is anticipated that this information is acceptable and that the application can be processed in a timely manner. If you have any questions, please do not hesitate to contact the undersigned.

Very truly yours,
RACE COASTAL ENGINEERING

Jill Pietropaolo, PE
Project Manager
CT PE #31773

Enclosures: As Stated

Connecticut Department of
ENERGY &
ENVIRONMENTAL
PROTECTION

79 Elm Street • Hartford, CT 06106-5127 www.ct.gov/deep Affirmative Action/Equal Opportunity Employer

April 30, 2020

Megan B. Raymond
Milone and MacBroom Inc
95 Church St, 7th fl
New Haven, CT 06510
mraymond@mminc.com

Project: Construction of National Coast Guard Museum, 181 State Street in New London, CT
NDDB Determination No.: 202005519

Dear Ms. Raymond,

I have reviewed Natural Diversity Data Base maps and files regarding the area delineated on the map provided for the construction of the National Coast Guard Museum, including installation of a ~282ft bulkhead along the Thames River and demolition of 3300 sqft of the City Pier Plaza in New London, Connecticut. According to our records, there are populations of State and Federally Endangered Atlantic and Shortnose Sturgeon as well as Special Concern Blueback herring (*Alosa aestivalis*) that occur in the Thames River.

Please be advised that a DEEP Fisheries Biologist will review the permit applications you may submit to DEEP regulatory programs to determine if your project could adversely affect state listed fish. DEEP Fisheries Biologists are routinely involved in pre-application consultations with regulatory staff and applicants in order to identify potential fisheries issues and work with applicants to mitigate negative effects, including to endangered species. If you have not already talked with a Fisheries Biologist about your project, you may contact the Permit Analyst assigned to process your application for further information, including the contact information for the Fisheries Biologist assigned to review your application. This determination is good for two years. Please re-submit an NDDB Request for Review if the scope of work changes or if work has not begun on this project by April 30, 2022.

Natural Diversity Data Base information includes all information regarding critical biological resources available to us at the time of the request. This information is a compilation of data collected over the years by the Department of Energy and Environmental Protection's Natural History Survey and cooperating units of DEEP, private conservation groups and the scientific community. This information is not necessarily the result of comprehensive or site-specific field investigations. Consultations with the Data Base should not be substitutes for on-site surveys required for environmental assessments. Current research projects and new contributors continue to identify additional populations of species and such new information is incorporated into the database as it becomes available. The result of this review does not preclude the possibility that listed species may be encountered on site and that additional action may be necessary to remain in compliance with certain state permits.

Please contact me if you have further questions at (860) 424-3378, or deep.nddbrequest@ct.gov . Thank you for consulting the Natural Diversity Data Base.

Sincerely,

Karen Zyko
Environmental Analyst

APPENDIX E4

ISSUED CLOMR

Federal Emergency Management Agency

Washington, D.C. 20472

March 7, 2022

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

IN REPLY REFER TO:
Case No.: 21-01-1267R

The Honorable Michael Passero
Mayor, City of New London
181 State Street
New London, CT 06320

Community Name: City of New London, CT
Community No.: 090100

104

Dear Mayor Passero:

We are providing our comments with the enclosed Conditional Letter of Map Revision (CLOMR) on a proposed project within your community that, if constructed as proposed, could revise the effective Flood Insurance Rate Map for your community.

If you have any questions regarding the floodplain management regulations for your community, the National Flood Insurance Program (NFIP) in general, or technical questions regarding this CLOMR, please contact the Chief, Risk Analysis Branch of the Federal Emergency Management Agency (FEMA) Regional Office in Boston, Massachusetts, at (617) 956-7576, or the FEMA Mapping and Insurance eXchange (FMIX) toll free at 1-877-336-2627 (1-877-FEMA MAP). Additional information about the NFIP is available on our website at https://www.fema.gov/flood-insurance.

Sincerely,

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

Enclosure:
Conditional Letter of Map Revision Comment Document

cc: Mr. Kirk Kripas
Building Official
City of New London

Ms. Hailey Simpson
Coastal Engineer
RACE Coastal Engineering, LLC

Ms. Jill Pietropaolo, P.E.
Senior Coastal Engineer
RACE Coastal Engineering, LLC

Federal Emergency Management Agency

Washington, D.C. 20472

CONDITIONAL LETTER OF MAP REVISION
COMMENT DOCUMENT

COMMUNITY INFORMATION		PROPOSED PROJECT DESCRIPTION	BASIS OF CONDITIONAL REQUEST
COMMUNITY	City of New London New London County Connecticut	BULKHEAD FILL	COASTAL ANALYSIS UPDATED TOPOGRAPHIC DATA
	COMMUNITY NO.: 090100		
IDENTIFIER	NCGM CLOMR	APPROXIMATE LATITUDE AND LONGITUDE: 41.354, -72.092 SOURCE: OTHER DATUM: NAD 83	

AFFECTED MAP PANELS	
TYPE: FIRM* NO.: 09011C0502J DATE: August 5, 2013	* FIRM - Flood Insurance Rate Map

FLOODING SOURCE AND REACH DESCRIPTION

Long Island Sound via New London Harbor – an area centered approximately 330 feet northeast of the intersection of Water Street and State Street

PROPOSED PROJECT DESCRIPTION

Flooding Source	Proposed Project	Location of Proposed Project
Long Island Sound via New London Harbor	New Earthen Bulkhead (erodible structure)	Approximately 600 foot long bulkhead along an area centered approximately 330 feet northeast of the intersection of Water Street and State Street
	Fill Placement	an area centered approximately 330 feet northeast of the intersection of Water Street and State Street

SUMMARY OF IMPACTS TO FLOOD HAZARD DATA

The project will result in no changes to the effective flood hazards including BFEs* and the Special Flood Hazard Area.

* BFEs - Base (1-percent-annual-chance) Flood Elevations

COMMENT

This document provides the Federal Emergency Management Agency's (FEMA's) comment regarding a request for a CLOMR for the project described above. This document is not a final determination; it only provides our comment on the proposed project in relation to the flood hazard information shown on the effective National Flood Insurance Program (NFIP) map. We reviewed the submitted data and the data used to prepare the effective flood hazard information for your community and determined that the proposed project meets the minimum floodplain management criteria of the NFIP. Your community is responsible for approving all floodplain development and for ensuring that all permits required by Federal or State/Commonwealth law have been received. State/Commonwealth, county, and community officials, based on their knowledge of local conditions and in the interest of safety, may set higher standards for construction in the Special Flood Hazard Area (SFHA), the area subject to inundation by the base flood). If the State/Commonwealth, county, or community has adopted more restrictive or comprehensive floodplain management criteria, these criteria take precedence over the minimum NFIP criteria.

This comment is based on the flood data presently available. If you have any questions about this document, please contact the FEMA Mapping and Insurance eXchange (FMIX) 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. Additional information about the NFIP is available on the FEMA website at https://www.fema.gov/flood-insurance.

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

Federal Emergency Management Agency

Washington, D.C. 20472

CONDITIONAL LETTER OF MAP REVISION
COMMENT DOCUMENT (CONTINUED)

COMMUNITY INFORMATION

To determine the changes in flood hazards that will be caused by the proposed project, we compared the hydraulic modeling reflecting the proposed project (referred to as the proposed conditions model) to the hydraulic modeling used to prepare the Flood Insurance Study (FIS) (referred to as the effective model). If the effective model does not provide enough detail to evaluate the effects of the proposed project, an existing conditions model must be developed to provide this detail. This existing conditions model is then compared to the effective model and the proposed conditions model to differentiate the increases or decreases in flood hazards caused by more detailed modeling from the increases or decreases in flood hazards that will be caused by the proposed project.

The table below shows the changes in the BFEs:

BFE Comparison Table

Flooding Source: Long Island Sound via New London Harbor		BFE Change (feet)	Location of maximum change
Existing vs. Effective	Maximum increase	1.0	an area centered approximately 330 feet northeast of the intersection of Water Street and State Street
	Maximum decrease	2.0	an area centered approximately 330 feet northeast of the intersection of Water Street and State Street
Proposed vs. Existing	Maximum increase	None	Not applicable
	Maximum decrease	1.0	an area centered approximately 330 feet northeast of the intersection of Water Street and State Street
Proposed vs. Effective	Maximum increase	None	Not applicable
	Maximum decrease	None	Not applicable

This comment is based on the flood data presently available. If you have any questions about this document, please contact the FEMA Mapping and Insurance eXchange (FMIX) 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. Additional information about the NFIP is available on the FEMA website at https://www.fema.gov/flood-insurance.

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

Federal Emergency Management Agency

Washington, D.C. 20472

CONDITIONAL LETTER OF MAP REVISION
COMMENT DOCUMENT (CONTINUED)

COMMUNITY INFORMATION (CONTINUED)

DATA REQUIRED FOR FOLLOW-UP LOMR

Upon completion of the project, your community must submit the data listed below and request that we make a final determination on revising the effective FIRM. If the project is built as proposed and the data below are received, a revision to the FIRM would be warranted.

• Detailed application and certification forms must be used for requesting final revisions to the maps. Therefore, when the map revision request for the area covered by this letter is submitted, Form 1, entitled "Overview and Concurrence Form," must be included. A copy of this form may be accessed at https://www.fema.gov/flood-maps/change-your-flood-zone/paper-application-forms/mt-2.

• The detailed application and certification forms listed below may be required if as-built conditions differ from the proposed plans. If required, please submit new forms, which may be accessed at https://www.fema.gov/flood-maps/change-your-flood-zone/paper-application forms/mt-2, or annotated copies of the previously submitted forms showing the revised information.

Form 4, entitled "Coastal Analysis Form."

• A certified topographic work map showing the revised and effective base floodplain and zone delineations. Please ensure that the revised information ties-in with the current effective information at the boundaries of the revised area.

• An annotated copy of the FIRM, at the scale of the effective FIRM, that shows the revised base floodplain and zone delineations as shown on the submitted work map and how they tie-in to the base floodplain and zone boundaries shown on the current effective FIRM at the boundaries of the revised area.

• As-built plans, certified by a registered Professional Engineer, of all proposed project elements.

This comment is based on the flood data presently available. If you have any questions about this document, please contact the FEMA Mapping and Insurance eXchange (FMIX) 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. Additional information about the NFIP is available on the FEMA website at https://www.fema.gov/flood-insurance.

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

Federal Emergency Management Agency

Washington, D.C. 20472

CONDITIONAL LETTER OF MAP REVISION
COMMENT DOCUMENT (CONTINUED)

COMMUNITY INFORMATION (CONTINUED)

DATA REQUIRED FOR FOLLOW-UP LOMR (continued)

• FEMA's fee schedule for reviewing and processing requests for conditional and final modifications to published flood information and maps may be accessed at https://www.fema.gov/flood-maps/change-your-flood-zone/status/flood-map-related-fees. The fee at the time of the map revision submittal must be received before we can begin processing the request. Payment of this fee can be made through a check or money order, made payable in U.S. funds to the National Flood Insurance Program, or by credit card (Visa or MasterCard only). Please either forward the payment, along with the revision application, to the following address:

LOMC Clearinghouse
Attention: LOMR Manager
3601 Eisenhower Avenue, Suite 500
Alexandria, Virginia 22304-6426

or submit the LOMR using the LOMC portal at: https://hazards.fema.gov/femaportal/onlinelomc/signin.

After receiving appropriate documentation to show that the project has been completed, FEMA will initiate a revision to the FIRM. Because the flood hazard information (i.e., base flood elevations, base flood depths, SFHAs, zone designations, and/or regulatory floodways) will change as a result of the project, a 90-day appeal period will be initiated for the revision, during which community officials and interested persons may appeal the revised flood hazard information based on scientific or technical data.

This comment is based on the flood data presently available. If you have any questions about this document, please contact the FEMA Mapping and Insurance eXchange (FMIX) 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 the FEMA website at https://www.fema.gov/flood-insurance.

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

Federal Emergency Management Agency

Washington, D.C. 20472

CONDITIONAL LETTER OF MAP REVISION
COMMENT DOCUMENT (CONTINUED)

COMMUNITY INFORMATION (CONTINUED)

COMMUNITY REMINDERS

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:

Ms. Kerry Bogdan
Chief, Risk Analysis Branch
U.S. Department of Homeland Security
Federal Emergency Management Agency, Region I
99 High Street
Boston, MA 02110
(617) 956-7576

This comment is based on the flood data presently available. If you have any questions about this document, please contact the FEMA Mapping and Insurance eXchange (FMIX) 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. Additional Information about the NFIP is available on the FEMA website at https://www.fema.gov/flood-insurance.

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

APPENDIX F
ENVIRONMENTAL ANALYSIS

Appendix F1 - Results of Environmental Soil Pre-Characterization Sampling

Appendix F1
Results of Environmental Soil Pre-Characterization Sampling

Memorandum

To: National Coast Guard Museum Association, Inc.

From: Barry Giroux, L.E.P., P.E.
Matthew Glunt, P.E.

Date: March 21, 2019

Re: Results of Environmental Soil Pre-Characterization Sampling
National Coast Guard Museum
New London, Connecticut
GEI Project 1802270

GEI Consultants, Inc. (GEI) recently conducted additional environmental sampling and testing at the site in an effort to further pre-characterize soils that are to be excavated as part of museum and pedestrian bridge construction. This work builds off previous investigations conducted on the property by GEI in 2018 and URS in 2014. The purpose of this memorandum is to synthesize the data collected to date and, in turn, discuss considerations for handling and management of excavated soil during construction.

Project and Site Background

The National Coast Guard Museum will be constructed along the Thames River waterfront in New London, Connecticut. The Museum building will be constructed partially over reclaimed land (currently a gravel parking lot) and partially over the existing City Pier plaza. The site is bounded to the west by AMTRAK rail tracks and to the east by the Thames River. An elevated pedestrian bridge spanning the rail tracks will allow for visitors to enter the museum from the nearby Water Street Parking Garage. Significant filling of the river channel is planned on the southeast portion of the project, south of the current gravel lot.

Relevant history of operations at the site is discussed in some detail in the URS report from 2014. We understand that the site was previously used for railroad operations, which included former tracks and a freight house just to the north of the site and coal storage areas through the interior of the museum footprint. A former planning mill is noted at the south end of the current gravel lot. An upgradient leaking underground storage tank (UST), just across Water Street, is reported to have occurred in 1994.

Relevant Terms

This section describes the Connecticut Department of Environmental Protection (CTDEP) requirements for management of polluted soil at the site. Polluted Soil is regulated under the Solid Waste Management Regulations (RCSA Sec. 22a-209-1 through 16), the Remediation Standard Regulations (RCSA Sec. 22a-133k-1 through 3) (the "RSRs") and the General Permit for Contaminated Soil and/or Sediment Management (Staging and Transfer). Definitions of key terms related to the management of polluted soil are summarized below. These definitions have been modified somewhat from the definitions in the applicable regulations to make them easier to understand.

"Natural Soil" means soil in which all substances naturally occurring therein are present in concentrations not exceeding the concentrations of such substance occurring naturally in the environments and in which soil no other substance is analytically detectable.

"Clean Fill" means (1) natural soil (2) rock, brick, ceramics, concrete, and asphalt paving fragments which are virtually inert and pose neither a pollution threat to ground or surface waters nor a fire hazard and (3) polluted soil that does not contain substances above applicable pollutant mobility criteria and direct exposure criteria in the Remediation Standard Regulations (RSRs) and which soil is reused in accordance with the RSRs.

"Polluted Soil" means soil affected by a release of a substance at a concentration above the analytical detection limit for such substance.

"Contaminated Soil and/or Sediment" means treated or untreated soil and/or sediment affected by a known or suspected release (i.e. Polluted Soil) and determined, or reasonably expected to contain substances exceeding residential direct exposure criteria or GA pollutant mobility criteria in the RSRs.

Clean Fill and Natural Soil are not regulated and can be used as fill on site or off site without any restrictions. The definition of these materials is very limited and the surficial fill material at the site is not likely to meet the definition. Deeper native materials may meet the definition. Typically, a soil management plan is prepared to describe how excavated materials should be characterized, handled, and reused or disposed of during a construction project.

Per RCSA 22a-133k-2(h), Polluted Soil that is not classified as a hazardous waste or polychlorinated biphenyl (PCB) remediation waste can be managed as follows:

- In a permitted solid waste disposal area. In Connecticut, written approval is required from CTDEP for disposal of polluted soil as special waste. If the soil is physically suitable it can used as landfill cover, which reduces its disposal cost. There are only a few landfills in Connecticut, such as the Town of Manchester landfill and Connecticut Resources Recovery Authority landfill in Hartford, which accept these materials.

- In a permitted treatment facility which treats or recycles Polluted Soil. In Connecticut there is only one permitted facility, which is a thermal treatment facility (Phoenix Soil, LLC) located in Waterbury, which can only handle petroleum impacted soil. There are facilities in Massachusetts that recycle certain polluted soil by using the soil to make asphalt pavement.

- Polluted Soil that does not contain any substances above the applicable direct exposure criteria or pollutant mobility criteria may be reused on the parcel from which it was excavated or on another parcel approved by the CTDEP, provided that such reuse is consistent with all other provisions of the RSRs and:
    - Prior to reuse, a map showing the location and depth of proposed placement of such soil is submitted to the CTDEP;
    - Such soil is not placed below the water table;
    - Such soil is not placed in an area subject to erosion; and
    - Any such soil in which the concentration of any substance exceeds the pollutant mobility criteria applicable to a GA area is not placed over soil and ground water which have not been affected by a release at the parcel at which placement is proposed; and
    - For soils polluted with PCB, the CTDEP has issued a written approval for

such reuse.

The term *consistent with all other provisions of the RSRs* means that after placement the soil will be in compliance with the RSRs. For example, soil that contains substances above the GA but not the GB pollutant mobility criteria could be used as a site located in a GB groundwater classification area; or soil that contains substances above the residential standards but not the industrial direct exposure standards could be used at a site at which an environmental land use restriction has been established preventing residential use.

On a practical basis, Polluted Soil is often not physically suitable for reuse on site or there are no appropriate locations on site for reuse. Off-site reuse locations are often not available when you need them and there is the additional requirement of obtaining CTDEP approval. The most common disposition of polluted soil is in a landfill for use as cover. Often, out of state landfills are less expensive even with the increased transportation cost.

Note there are specific handling requirements for Polluted Soil that has substance levels high enough for it to be classified as a Contaminated Soil. These requirements are detailed in the General Permit and compliance with the permit conditions is required regardless of whether or not any of the registration quantity thresholds are exceeded.

Previous Environmental Investigations

URS - 2014
We have reviewed the March 2014 *Draft Environmental Sampling Report – Phase II Environmental Due Diligence Audit* prepared by URS and provided to GEI. The report includes details of analytical testing of soil and groundwater that were collected within the proposed building footprint, limited to within the existing gravel parking lot.

The analytical results from that report generally indicate that the soil in the top four feet is polluted, and the soil from 4 to 6 feet deep is polluted and contaminated. Constituents detected as part of the URS investigation in soil at levels above natural background levels include petroleum-related and other volatile organic compounds (VOCs), semi-volatile organic compounds (SVOC) consisting primarily of polycyclic aromatic hydrocarbons (PAHs), metals, total petroleum hydrocarbons and polychlorinated biphenyls. Constituents detected above RSR criteria in polluted and contaminated soil include PAHs, lead, and arsenic.

Constituents detected above natural background levels in the groundwater samples are petroleum-related VOCs, petroleum hydrocarbons, and metals.

GEI - 2018
Limited environmental soil sampling was performed by GEI in conjunction with the 2018 geotechnical investigation. Full details of the geotechnical investigation program are included in GEI's *Geotechnical Report*.

Soil samples chosen for analytical testing targeted the existing fill and/or locations likely to be excavated during construction at both the pedestrian bridge and museum building foundations. Soil samples were collected for analysis at the following locations and depths:

Table 1 – Summary of 2018 Environmental Sampling

Boring ID	Depth Range (feet)	Sample ID(s)
B-02	2.0 to 4.0	S2
B-03	2.0 to 4.0	S1
B-04	4.0 to 6.0	S3
B-06	2.2 to 4.9	S1 & S2

Each soil sample was tested for the following parameters:

- VOCs by United States Environmental Protection Agency (EPA) Method 8260
- SVOCs by EPA Method 8270
- Connecticut extractable total petroleum hydrocarbons by CT ETPH
- Total RCRA 8 Metals (Total arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver)
- Toxicity characteristic leaching procedure (TCLP) lead
- Polychlorinated biphenyls (PCBs) by EPA Method 8082
- Waste characteristic parameters by Method SW 846 (reactive sulfide and cyanide, flashpoint, and pH)
- Organochlorine pesticides by EPA Method 8081
- Chlorinated herbicides by EPA Method 8151

Summary tables and raw data packages are enclosed with this memorandum.

Current Investigation

Twenty-five (25) shallow environmental borings (GP-01 through GP-25) to depths of approximately 8 feet each were conducted between January 23rd through January 25th, 2019, using a truck-mounted Geo-probe 54LT rig. Samples were collected continuously from ground surface. A GEI representative was on site to observe the drilling procedures, classify the soil samples, and record any observed visual or olfactory impacts.

Soil samples were screened in the field with a photo-ionization detector (PID) for the presence of volatile organic compounds (VOCs) using headspace methods. All sample headspace readings are tabulated in Table 1.

Environmental laboratory testing was performed by Complete Environmental Testing, Inc. (CET), under subcontract to GEI. Sixteen (16) soil samples from the environmental borings at targeted locations and depths were chosen, as such:

Table 2 – Summary of Analytical Sampling

Geoprobe ID	Depth Range (feet)	Sample ID(s)	Associated Construction
GP-01	7 to 8.0	S2B	Pile Cap
GP-05	3 to 4.0	S1B	Stair Tower No. 3
GP-06	4 to 5.0	S2	Stair Tower No. 3
GP-09	3 to 4.0	S1	Elevator No. 5
GP-10	3 to 4.0	S1B	Stair Tower No. 3
GP-11	3 to 4.0	S1B	Stair Tower No. 3
GP-12	3 to 4.0	S1B	Elevator No. 5
GP-13	4 to 5.0	S2	Elevator No. 5
GP-14	3 to 4.0	S1B	Fuel Tank Pit, Stair Tower No. 3
GP-16	3 to 4.0	S1B	Water Cisterns
GP-17	3 to 4.0	S1B	Elevator No. 5
GP-18	3 to 4.0	S1	Elevator No. 5
GP-19	2.5 to 3.5	S1B	Fuel Tank Pit
GP-20	3 to 4.0	S1B	Water Cisterns
GP-23	3 to 4.0	S1B	Water Cisterns
GP-25	7 to 8.0	S2	Pile Cap

Each soil sample was tested for the following parameters:

- VOCs by Environmental Protection Agency (EPA) Method 8260
- Polycyclic aromatic hydrocarbons (PAHs) by EPA Method 8270
- TPH via Connecticut Extractable TPH Method
- Resource Conservation Recovery Act (RCRA)-8 metals plus copper, nickel and zinc
- PCBs via EPA Method 8082
- Toxicity characteristic leaching procedure (TCLP) analysis for RCRA-8 metals
- pH
- Flash point
- Reactive cyanide and sulfide
- Conductivity

Summary tables and raw data packages are enclosed with this memo.

Subsurface Conditions (Museum)

The near-surface conditions encountered by the borings to date are summarized below. The subsurface conditions are known only at the sample locations, and the subsurface conditions may vary significantly from those described below at other locations. These variations may not become evident until construction.

Interpreted Subsurface Profile

The 2018 borings advanced within the gravel lot encountered 8 to 10 feet of historic fill. The 2019 borings, which extended to 8 feet below grade, encountered similar conditions. The surficial fills generally consisted of widely-graded sand with trace fines and variable amounts of well-graded gravel. Deleterious materials such as coal, slag, wood, brick, glass, shells, and asphalt are common. Large chunks of wood (possibly old railroad ties) were encountered in B-05, GP-14, and GP-23. Larger

cobbles/boulders and broken slabs of concrete are evident along the eastern and southern edges of the gravel lot.

The historic fill is underlain by native sand deposits with variable amounts of organic silt. These sands were encountered near the termination depth in borings GP-01, GP-07, GP-08, and GP-09.

Groundwater

Within the museum footprint, the depth to groundwater measured during the 2018 geotechnical investigation varied from 4.5 feet to 7.5 feet below grade, generally varying with the Thames River level. The noted groundwater depths were typically within the historic fills. Groundwater levels were again recently measured within the two monitoring wells installed for the project.

Table 3 – Summary of Groundwater Measurements

Well ID	Depth to GW (ft)	GW Elevation (ft - NAVD 88)	Date
MW-1 (B-7)	4.5	+ 0.5	7/31/18
	3.9	+ 1.1	8/28/18
	3.4	+ 1.6	9/27/18
	4.8	+ 0.2	1/25/19
MW-2 (B-3)	6.2	+ 0.8	8/9/18
	6.2	+ 0.8	8/28/18
	5.4	+ 1.6	9/27/18
	6.1	+ 0.9	1/25/19

Groundwater levels are subject to seasonal and weather-related variations. Groundwater measurements made at different times and different locations may be significantly different than the measurements taken as part of this investigation.

Analytical Testing Results

The laboratory testing was completed in accordance with the Connecticut Department of Energy and Environmental Protection (CT DEEP) Laboratory Quality Assurance and Quality Control (QA/QC) Guidance, Reasonable Confidence Protocols Guidance Document (RCPs). Results of the GEI analytical testing to date of the soil samples are summarized below:

1. PCBs and VOCs were not detected.
2. Chlorinated herbicides were detected at a level exceeding the Pollutant Mobility Criteria (PMC) in boring B-02, located across Water Street near the parking garage.
3. Petroleum hydrocarbons (ETPH) were detected in 14 of 18 samples within the museum footprint. Samples from borings GP-01, GP-05, GP-20, and GP-23 exceeded the Residential Direct Exposure (DEC) cleanup criteria noted in the Remediation Standard Regulations (RSRs).
4. ETPH was not detected in the samples from the pedestrian bridge borings B-02 and B-03.
5. Concentrations of SVOC's, primarily PAH's, exceed the DEEP RSR numeric cleanup criteria in 11 of the 18 samples in the museum footprint and 1 of the 2 samples for the pedestrian bridge.

6. Various metals were detected in all of the samples; however, concentrations were at typical background levels for all constituents except for lead and arsenic. Lead and arsenic levels exceeded DEEP RSR numeric cleanup criteria in 8 and 2 of the 18 samples, respectively, in the museum footprint. Exceedances of lead and arsenic were not observed in the pedestrian bridge samples.

Conclusions and Recommendations

From our review of the Design Development (DD) drawing package provided to GEI, we have identified the following excavations as the primary generators of spoils to be handled on this project:

Table 4 – Summary of Excavations

Description	Location	Approx. Excavation Qty (cy)[1]
Elevator 5	Museum – Interior/Center	165
Water Cistern Pit	Museum – NW Corner	350
Fuel Tank Pit	Museum – NW Corner	220
S.O.G near Ped. Conn.	Museum – N to N-W	92
Pile Caps	Museum Foundation	95
Grade Beams	Museum Foundation	85
MUSEUM TOTAL (approx.)		**1,007 cy**
Circulation Tower 1	Ped. Bridge – West of Union Station	58
Circulation Tower 2	Ped. Bridge – Adjacent to AMTRAK	68
Circulation Tower 3	Ped. Bridge - Adjacent to Museum	94
PEDESTRIAN BRIDGE TOTAL (approx.)		**220 cy**

[1]These numbers have been estimated using the provided drawings and 3-D Revit model and should be used for planning purposes only. They are not suitable as bid quantities.

A goal of this investigation was to tie sampling locations and intervals to proposed construction to aid the planning of soil handling and management. The borings used as part of this evaluation have been overlaid on the proposed Site Plan on the attached Figure 1. From our review of the data, the following preliminary conclusions can be made:

1. Spoils generated within the north to northwest portion of the museum and the Pedestrian Bridge Circulation Tower 3 will likely be classified as ***polluted and contaminated*** (as noted by red circles on Figure 1) due to RSR numeric cleanup exceedance(s) of petroleum hydrocarbons (TPH's), PAH's, lead, and/or arsenic.
2. From our experience and knowledge of the site history, the noted exceedances may be from the following sources:
    - TPH exceedances are at depth and may be the result of contaminated groundwater from an upgradient source.
    - PAH exceedances are consistent with coal being present in the soils.
    - Lead and arsenic exceedances are fairly common in historic fill of unknown origin. This is more likely related to composition of the fill, and not a specific release source.
3. Most spoils generated from the Elevator 5 shaft and Pedestrian Bridge Tower 1 (just west of Union Station) excavation can likely be classified as ***polluted*** (as noted by yellow

circles on Figure 1). The exceptions are where coal or coal fragments are clearly visible or at depths greater than about 5 feet, where a single lead exceedance was noted.
4. Due to access constraints, no samples have been obtained to date near proposed Circulation Tower 2, adjacent to AMTRAK.
5. We obtained no data that would indicate that generated spoils are to be characterized as a hazardous waste.

In regard to proposed construction, consideration should be given to the following:

1. Work in locations with polluted or contaminated soil should be undertaken using appropriate health and safety procedures to minimize worker exposure to pollutants. The project specifications should include provisions for worker safety in these areas. Although there are some pollutants in soil, the levels present and the classification of the project, do not indicate that the project requires implementation of 40 CFR 1910.120, OSHA Hazardous Waste Operations regulations. However, the appropriate health and safety procedures will include many of the requirements in those regulations.

2. *Polluted and contaminated* soil which is not reused in accordance with the requirements of RCSA 22a-133k-2(h) (as listed above) is classified as a solid waste and needs to be properly disposed. The project specifications should include provisions for the proper handling and disposal/reuse of polluted and contaminated soil.

3. *Polluted* soil that is physically (geotechnically) suitable, as determined by the Geotechnical Engineer on a case-by-case basis, could be reused within the project limits; however, due to the heterogeneous nature of the contaminants any soil should be further evaluated prior to any on-site reuse.

4. These designations may be used for planning and budgeting purposes; however, for simplification of bidding, we recommend that all excavated soil be given a single designation of “Regulated Waste” or similar. Off-site disposal prices can vary widely over time depending on availability and particular requirements of the accepting facilities. With proper oversight and testing (QA), bidding contractors should be given the flexibility to make their own disposal arrangements.

5. All surplus soil classified as *polluted* or *polluted and contaminated* should be delivered to a properly permitted disposal or recycling facility.

6. No soil removed from the site should be considered Clean Soil unless further testing of it indicates it is not polluted. Clean soil is not regulated as a waste and can be used as fill off site provided it is not placed within wetlands, watercourses, floodplains, or other sensitive land use areas.

7. Based on results of previous groundwater sampling and testing at the site, it can be assumed that dewatering effluent can be discharged directly to sanitary sewer without treatment, other than sediment removal, under the CT DEEP General Permit for the Discharge of Groundwater Remediation Wastewater, provided approval is obtained from the sewer owner (City of New London) for any such discharge.

8. CT DEEP may allow dewatering effluent to be discharged to local surface water without treatment other than sediment removal. However, given the pollutant level, consultation with CT DEEP would be required to confirm suitable dilution in the tidal waters of the Thames River.

Enclosure: Figure 1 – Boring Location Plan
Table 1 – Summary of Detected Soil Analysis Results
Table 2 – Headspace PID Measurements
Summary of Soil and Groundwater Analytical Results (URS, 2014)
January 2019 Boring Logs (GP-01 through GP-25)
Soil Analytical Data

[LCM/MG/BLG]

H:\TECH\project\National Coast Guard Museum\Precharacterization Report\NCGM Precharacterization Memo (2019-03-20).DOCX

LEGEND:

- LOCATION WITH CONTAMINATED SOIL
- LOCATION WITH POLLUTED SOIL
- NO TESTING PERFORMED
- ENVIRONMENTAL BORING- GEI 2019
- GEOTECHNICAL BORING- GEI 2018
- MONITORING WELL LOCATION- GEI 2018
- ENVIRONMENTAL BORING- URS 2014
- SOIL BORING/MONITORING WELL- URS 2014

SOURCE:
1. 2016 ESRI WORLD IMAGERY.

0 30 60
SCALE: 1" = 30'

Environmental Investigation
Pre-Characterizaton Sampling

National Coast Guard Museum
New London, Connecticut

GEI Consultants

BORING LOCATION PLAN

Project 1802270 | February 2019 | Fig. 1

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Table 1. National Coast Guard Museum-New London, CT
Detected Soil Analysis Results
National Coast Guard Museum Association
New London, CT

Analyte	Units	CAS No.	CT RSR GB-PMC	CT RSR GB-PMC-TCLP	CT RSR Res	CT RSR I/C	Sample Name: B-2 S2 (2-4')	B-3 S1 (2-4)	B-4 S3 (4-6)	B6 (2.2-4.9')	GP-01 7-8ft	GP-05 3-4ft	GP-06 4-5ft	GP-09 3-4ft	GP-10 3-4ft
							Start Depth: 2	2	4	2.2	7	3	4	3	3
							End Depth: 4	4	6	4.9	8	4	5	4	4
							Depth Unit: ft	ft	ft	ft	ft	ft	ft	ft	ft
							Sample Date: 8/6/2018	8/8/2018	7/25/2018	8/2/2018	1/23/2019	1/23/2019	1/23/2019	1/23/2019	1/23/2019
CT ETPH	mg/kg														
CT ETPH		CT ETPH	2500	NA	500	2500	< 53	< 52	**61**	**460**	**830**	**850**	**500**	< 55	**140**
TPH-DRO		TPH-DRO	2500	NA	500	2500	--	--	--	--	--	--	--	--	--
EPA 160.3 M	%														
Percent Solids		SOLIDS	NE	NA	NE	NE	--	--	--	--	**79**	**80**	**75**	**89**	**82**
SM 2120B	umhos/cm														
Conductivity		COND	NE	NA	NE	NE	--	--	--	--	**3000**	**2400**	**2500**	**470**	**1800**
SM 2540C	%														
Total Solids		TS	NE	NA	NE	NE	--	--	--	**93.3**	--	--	--	--	--
SW 1010	deg F														
Ignitibility		IGNIT	NE	NA	NE	NE	--	--	--	--	**200**	**200**	**200**	**200**	**200**
SW 1311/6020A	mg/L														
Arsenic		7440-38-2	NA	0.5	NA	NA	--	--	--	--	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Barium		7440-39-3	NA	10	NA	NA	--	--	--	--	**0.46**	**0.32**	**0.26**	**0.23**	**0.27**
Cadmium		7440-43-9	NA	0.05	NA	NA	--	--	--	--	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Chromium		7440-47-3	NA	0.5	NA	NA	--	--	--	--	< 0.050	< 0.050	**0.059**	< 0.050	< 0.050
Lead		7439-92-1	NA	0.15	NA	NA	**0.38**	< 0.10	**1.50**	< 0.10	**4.2**	**0.18**	**1.6**	**0.15**	**0.10**
Mercury		7439-97-6	NA	0.02	NA	NA	--	--	--	--	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020
Selenium		7782-49-2	NA	0.5	NA	NA	--	--	--	--	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Silver		7440-22-4	NA	0.36	NA	NA	--	--	--	--	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
SW 6010	mg/kg														
Arsenic		7440-38-2	NE	NA	10	10	**2.79**	**2.04**	**3.93**	**2.76**	--	--	--	--	--
Barium		7440-39-3	NE	NA	4700	140000	**102**	**44.7**	**51.9**	**58.8**	--	--	--	--	--
Cadmium		7440-43-9	NE	NA	34	1000	< 0.35	< 0.32	< 0.34	< 0.33	--	--	--	--	--
Chromium		7440-47-3	NE	NA	NE	NE	**10.4**	**8.42**	**8.90**	**10.7**	--	--	--	--	--
Lead		7439-92-1	NE	NA	400	1000	**202**	**74.3**	**198**	**42.1**	--	--	--	--	--
Selenium		7782-49-2	NE	NA	340	10000	< 1.4	< 1.3	< 1.4	< 1.3	--	--	--	--	--
Silver		7440-22-4	NE	NA	340	10000	< 0.35	< 0.32	< 0.34	< 0.33	--	--	--	--	--
SW 6010C	mg/kg														
Arsenic		7440-38-2	NE	NA	10	10	--	--	--	--	**6.3**	**12**	**5.3**	**2.2**	**8.9**
Barium		7440-39-3	NE	NA	4700	140000	--	--	--	--	**100**	**120**	**42**	**52**	**140**
Cadmium		7440-43-9	NE	NA	34	1000	--	--	--	--	< 0.58	< 0.60	< 0.62	< 0.51	< 0.58
Chromium		7440-47-3	NE	NA	NE	NE	--	--	--	--	**8.1**	**17**	**30**	**27**	**13**
Copper		7440-50-8	NE	NA	2500	76000	--	--	--	--	**120**	**150**	**180**	**140**	**170**
Lead		7439-92-1	NE	NA	400	1000	--	--	--	--	**1200**	**760**	**1200**	**100**	**650**
Nickel		7440-02-0	NE	NA	1400	7500	--	--	--	--	**11**	**20**	**6.4**	**57**	**16**
Selenium		7782-49-2	NE	NA	340	10000	--	--	--	--	**5.6**	**5.6**	**2.4**	**4.2**	**5.4**
Silver		7440-22-4	NE	NA	340	10000	--	--	--	--	< 2.3	< 2.4	< 2.5	< 2.0	< 2.3
Zinc		7440-66-6	NE	NA	20000	610000	--	--	--	--	**160**	**340**	**120**	**400**	**120**
SW 7471	mg/kg														
Mercury		7439-97-6	NE	NA	20	610	**0.45**	**0.47**	**0.85**	< 0.14	--	--	--	--	--
SW 7471B	mg/kg														
Mercury		7439-97-6	NE	NA	20	610	--	--	--	--	**0.27**	**0.82**	**0.81**	< 0.14	**0.58**
SW 8081	mg/kg														
Chlordane (Alpha & Gamma)		57-74-9	0.066*	NA	0.49*	2.2*	**0.12**	< 0.035	< 0.037	< 0.035	--	--	--	--	--
4,4'-DDT (p,p'-DDT)		50-29-3	0.02*	NA	1.8*	17*	**0.0082**	< 0.0069	< 0.0074	< 0.007	--	--	--	--	--
SW 8082	mg/kg														
Aroclor 1016		12674-11-2	NE	NA	NE	NE	< 0.35	< 0.35	< 0.37	< 0.052	< 0.12	< 0.12	< 0.13	< 0.11	< 0.12
Aroclor 1221		11104-28-2	NE	NA	NE	NE	< 0.35	< 0.35	< 0.37	< 0.052	< 0.12	< 0.12	< 0.13	< 0.11	< 0.12
Aroclor 1232		11141-16-5	NE	NA	NE	NE	< 0.35	< 0.35	< 0.37	< 0.052	< 0.12	< 0.12	< 0.13	< 0.11	< 0.12
Aroclor 1242		53469-21-9	NE	NA	NE	NE	< 0.35	< 0.35	< 0.37	< 0.052	< 0.12	< 0.12	< 0.13	< 0.11	< 0.12
Aroclor 1248		12672-29-6	NE	NA	NE	NE	< 0.35	< 0.35	< 0.37	< 0.052	< 0.12	< 0.12	< 0.13	< 0.11	< 0.12
Aroclor 1254		11097-69-1	NE	NA	NE	NE	< 0.35	< 0.35	< 0.37	< 0.052	< 0.12	< 0.12	< 0.13	< 0.11	< 0.12
Aroclor 1260		11096-82-5	NE	NA	NE	NE	< 0.35	< 0.35	< 0.37	< 0.052	< 0.12	< 0.12	< 0.13	< 0.11	< 0.12
Aroclor 1262		37324-23-5	NE	NA	NE	NE	< 0.35	< 0.35	< 0.37	< 0.052	< 0.12	< 0.12	< 0.13	< 0.11	< 0.12
Aroclor 1268		11100-14-4	NE	NA	NE	NE	< 0.35	< 0.35	< 0.37	< 0.052	< 0.12	< 0.12	< 0.13	< 0.11	< 0.12
SW 8151	mg/kg														
No Detects			--	--	--	--	--	--	--	--	--	--	--	--	--
SW 8260B	mg/kg														
No Detects		67-64-1	140	NA	500	1000	--	--	--	--	--	--	--	--	--
SW 8260C	mg/kg														
No Detects		99-87-6	5*	NA	500.0*	1000*	--	--	--	--	--	--	--	--	--
SW 8270	mg/kg														
Acenaphthylene		208-96-8	84	NA	1000	2500	**0.26**	< 0.25	< 0.26	**0.3**	--	--	--	--	--
Anthracene		120-12-7	400	NA	1000	2500	**0.49**	< 0.25	< 0.26	< 0.25	--	--	--	--	--
Benzo(a)anthracene		56-55-3	1	NA	1	7.8	**1.2**	< 0.25	**0.72**	**1**	--	--	--	--	--
Benzo(b)fluoranthene		205-99-2	1	NA	1	7.8	**1.1**	< 0.25	**0.65**	**0.95**	--	--	--	--	--
Benzo(k)fluoranthene		207-08-9	1	NA	8.4	78	**0.87**	< 0.25	**0.68**	**1**	--	--	--	--	--
Benzo(g,h,i)perylene		191-24-2	1*	NA	8.4*	78*	**0.87**	< 0.25	**0.37**	**0.6**	--	--	--	--	--
Benzo(a)pyrene		50-32-8	1	NA	1	1	**1.1**	< 0.25	**0.72**	**1**	--	--	--	--	--
Chrysene		218-01-9	1*	NA	84.0*	780*	**1.2**	< 0.25	**0.81**	**1.1**	--	--	--	--	--
Fluoranthene		206-44-0	56	NA	1000	2500	**2**	< 0.25	**1.5**	**1.9**	--	--	--	--	--
Indeno(1,2,3-cd)pyrene		193-39-5	1*	NA	1.0*	7.8*	**1**	< 0.25	**0.44**	**0.63**	--	--	--	--	--
Phenanthrene		85-01-8	40	NA	1000	2500	**1.5**	< 0.25	**1.1**	**0.69**	--	--	--	--	--
Pyrene		129-00-0	40	NA	1000	2500	**1.8**	< 0.25	**1.4**	**1.7**	--	--	--	--	--

Table 1. National Coast Guard Museum-New London, CT
Detected Soil Analysis Results
National Coast Guard Museum Association
New London, CT

Analyte	Units	CAS No.	CT RSR GB-PMC	CT RSR GB-PMC-TCLP	CT RSR Res	CT RSR I/C	B-2 S2 (2-4') 2 4 ft 8/6/2018	B-3 S1 (2-4) 2 4 ft 8/8/2018	B-4 S3 (4-6) 4 6 ft 7/25/2018	B6 (2.2-4.9') 2.2 4.9 ft 8/2/2018	GP-01 7-8ft 7 8 ft 1/23/2019	GP-05 3-4ft 3 4 ft 1/23/2019	GP-06 4-5ft 4 5 ft 1/23/2019	GP-09 3-4ft 3 4 ft 1/23/2019	GP-10 3-4ft 3 4 ft 1/23/2019
SW 8270D	mg/kg														
Acenaphthene		83-32-9	84*	NA	1000*	2500*	--	--	--	--	< 0.37	< 0.38	**1.2**	< 0.33	< 0.36
Acenaphthylene		208-96-8	84	NA	1000	2500	--	--	--	--	**2**	**4.3**	**0.87**	< 0.33	**0.51**
Anthracene		120-12-7	400	NA	1000	2500	--	--	--	--	**1.1**	**2.2**	**2.8**	< 0.33	< 0.36
Benzo(a)anthracene		56-55-3	1	NA	1	7.8	--	--	--	--	**4**	**9.6**	**6.2**	< 0.33	**2**
Benzo(b)fluoranthene		205-99-2	1	NA	1	7.8	--	--	--	--	**5**	**12**	**6.3**	< 0.33	**3.2**
Benzo(k)fluoranthene		207-08-9	1	NA	8.4	78	--	--	--	--	**1.9**	**4.7**	**2.1**	< 0.33	**1.2**
Benzo(g,h,i)perylene		191-24-2	1*	NA	8.4*	78*	--	--	--	--	**2.5**	**6.5**	**2.4**	< 0.33	**1.3**
Benzo(a)pyrene		50-32-8	1	NA	1	1	--	--	--	--	**4.4**	**12**	**5.4**	< 0.33	**2.5**
Chrysene		218-01-9	1*	NA	84.0*	780*	--	--	--	--	**4.4**	**9.6**	**6.4**	< 0.33	**2.3**
Dibenz(a,h)anthracene		53-70-3	1*	NA	1.0*	1*	--	--	--	--	**0.71**	**1.9**	**0.72**	< 0.33	**0.41**
Fluoranthene		206-44-0	56	NA	1000	2500	--	--	--	--	**7.8**	**12**	**12**	< 0.33	**3.1**
Fluorene		86-73-7	56	NA	1000	2500	--	--	--	--	< 0.37	< 0.38	**1.1**	< 0.33	< 0.36
Indeno(1,2,3-cd)pyrene		193-39-5	1*	NA	1.0*	7.8*	--	--	--	--	**2.3**	**6**	**2.2**	< 0.33	**1.2**
2-Methylnaphthalene		91-57-6	5.6*	NA	270*	1000*	--	--	--	--	< 0.37	**0.41**	< 0.4	< 0.33	< 0.36
Naphthalene		91-20-3	56	NA	1000	2500	--	--	--	--	< 0.37	**0.69**	< 0.4	< 0.33	< 0.36
Phenanthrene		85-01-8	40	NA	1000	2500	--	--	--	--	**3.7**	**4.4**	**11**	< 0.33	**1.4**
Pyrene		129-00-0	40	NA	1000	2500	--	--	--	--	**7**	**11**	**12**	< 0.33	**2.8**
SW 9045	s.u.														
pH		pH	NE	NA	NE	NE	**8.03**	**8.18**	**8.03**	**8.97**	--	--	--	--	--
SW 9045D	s.u.														
pH		pH	NE	NA	NE	NE	--	--	--	--	**7.56**	**7.51**	**7.30**	**7.21**	**6.61**
SW CHAP7	mg/kg														
Percent Solids	%	SOLIDS	NE	NA	NE	NE	**94**	**94**	**89**	**93.3**	--	--	--	--	--
SW-846 CH 7.1	mg/kg														
No Detects			NE	NA	NE	NE	--	--	--	--	--	--	--	--	--

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New London, CT

Analyte	Units	CAS No.	CT RSR GB-PMC	CT RSR GB-PMC-TCLP	CT RSR Res	CT RSR I/C	GP-11 3-4ft	GP-12 3-4ft	GP-13 4-5ft	GP-14 3-4ft	GP-16 3-4ft	GP-17 3-4ft	GP-18 3-4ft	GP-19 2.5-3.5ft	GP-20 3-4ft	GP-23 3-4ft	GP-25 7-8ft
Sample Name							GP-11 3-4ft	GP-12 3-4ft	GP-13 4-5ft	GP-14 3-4ft	GP-16 3-4ft	GP-17 3-4ft	GP-18 3-4ft	GP-19 2.5-3.5ft	GP-20 3-4ft	GP-23 3-4ft	GP-25 7-8ft
Start Depth							3	3	4	3	3	3	3	2.5	3	3	7
End Depth							4	4	5	4	4	4	4	3.5	4	4	8
Depth Unit							ft	ft	ft	ft	ft	ft	ft	ft	ft	ft	ft
Sample Date							1/23/2019	1/23/2019	1/23/2019	1/23/2019	1/23/2019	1/23/2019	1/25/2019	1/25/2019	1/25/2019	1/25/2019	1/25/2019
CT ETPH	mg/kg																
CT ETPH		CT ETPH	2500	NA	500	2500	**300**	**190**	**88**	**140**	< 55	**91**	--	--	--	--	--
TPH-DRO		TPH-DRO	2500	NA	500	2500	--	--	--	--	--	--	< 54	< 58	**540**	**520**	**340**
EPA 160.3 M	%																
Percent Solids		SOLIDS	NE	NA	NE	NE	**85**	**88**	**91**	**86**	**90**	**87**	**91**	**85**	**68**	**93**	**67**
SM 2120B	umhos/cm																
Conductivity		COND	NE	NA	NE	NE	**470**	**340**	**450**	**550**	**340**	**250**	**270**	**3000**	**2200**	**940**	**1300**
SM 2540C	%																
Total Solids		TS	NE	NA	NE	NE	--	--	--	--	--	--	--	--	--	--	--
SW 1010	deg F																
Ignitibility		IGNIT	NE	NA	NE	NE	**200**	**200**	**200**	**200**	**200**	**200**	**200**	**200**	**200**	**200**	**200**
SW 1311/6020A	mg/L																
Arsenic		7440-38-2	NA	0.5	NA	NA	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Barium		7440-39-3	NA	10	NA	NA	**0.48**	**0.15**	**0.31**	**0.28**	**0.50**	**0.24**	**0.34**	**0.40**	**0.35**	**0.36**	**0.15**
Cadmium		7440-43-9	NA	0.05	NA	NA	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Chromium		7440-47-3	NA	0.5	NA	NA	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Lead		7439-92-1	NA	0.15	NA	NA	**4.3**	**0.15**	**0.086**	**0.031**	**0.092**	**0.054**	**0.048**	**0.11**	**0.049**	**0.27**	**0.68**
Mercury		7439-97-6	NA	0.02	NA	NA	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020
Selenium		7782-49-2	NA	0.5	NA	NA	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Silver		7440-22-4	NA	0.36	NA	NA	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
SW 6010	mg/kg																
Arsenic		7440-38-2	NE	NA	10	10	--	--	--	--	--	--	--	--	--	--	--
Barium		7440-39-3	NE	NA	4700	140000	--	--	--	--	--	--	--	--	--	--	--
Cadmium		7440-43-9	NE	NA	34	1000	--	--	--	--	--	--	--	--	--	--	--
Chromium		7440-47-3	NE	NA	NE	NE	--	--	--	--	--	--	--	--	--	--	--
Lead		7439-92-1	NE	NA	400	1000	--	--	--	--	--	--	--	--	--	--	--
Selenium		7782-49-2	NE	NA	340	10000	--	--	--	--	--	--	--	--	--	--	--
Silver		7440-22-4	NE	NA	340	10000	--	--	--	--	--	--	--	--	--	--	--
SW 6010C	mg/kg																
Arsenic		7440-38-2	NE	NA	10	10	**7.9**	**9.5**	**2.3**	**9.4**	**5.9**	**7.1**	**1.6**	**7.7**	**12**	**4.5**	**9.0**
Barium		7440-39-3	NE	NA	4700	140000	**81**	**69**	**33**	**110**	**80**	**68**	**66**	**73**	**250**	**80**	**45**
Cadmium		7440-43-9	NE	NA	34	1000	< 0.54	< 0.53	< 0.52	< 0.56	< 0.55	< 0.54	< 0.54	< 0.57	< 0.71	< 0.51	< 0.74
Chromium		7440-47-3	NE	NA	NE	NE	**13**	**12**	**15**	**11**	**12**	**15**	**35**	**8.8**	**20**	**7.2**	**17**
Copper		7440-50-8	NE	NA	2500	76000	**83**	**150**	**32**	**99**	**110**	**270**	**170**	**120**	**200**	**65**	**260**
Lead		7439-92-1	NE	NA	400	1000	**480**	**370**	**34**	**350**	**260**	**310**	**170**	**310**	**1000**	**930**	**1500**
Nickel		7440-02-0	NE	NA	1400	7500	**14**	**13**	**17**	**14**	**13**	**15**	**81**	**8.1**	**11**	**5.6**	**12**
Selenium		7782-49-2	NE	NA	340	10000	**4.2**	**4.2**	**2.4**	**4.4**	**4.2**	**4.0**	**3.8**	**4.6**	**6.1**	**3.1**	**4.7**
Silver		7440-22-4	NE	NA	340	10000	< 2.2	< 2.1	< 2.1	< 2.3	< 2.2	< 2.2	< 2.2	< 2.3	< 2.8	< 2.1	< 3.0
Zinc		7440-66-6	NE	NA	20000	610000	**170**	**160**	**74**	**31**	**150**	**210**	**570**	**31**	**380**	**160**	**210**
SW 7471	mg/kg																
Mercury		7439-97-6	NE	NA	20	610	--	--	--	--	--	--	--	--	--	--	--
SW 7471B	mg/kg																
Mercury		7439-97-6	NE	NA	20	610	**0.20**	**0.45**	< 0.14	**0.49**	**0.30**	**1.4**	**0.15**	< 0.15	**0.58**	**0.14**	**1.3**
SW 8081	mg/kg																
Chlordane (Alpha & Gamma)		57-74-9	0.066*	NA	0.49*	2.2*	--	--	--	--	--	--	--	--	--	--	--
4,4'-DDT (p,p'-DDT)		50-29-3	0.02*	NA	1.8*	17*	--	--	--	--	--	--	--	--	--	--	--
SW 8082	mg/kg																
Aroclor 1016		12674-11-2	NE	NA	NE	NE	< 0.12	< 0.11	< 0.11	< 0.12	< 0.11	< 0.11	< 0.11	< 0.12	< 0.15	< 0.11	< 0.15
Aroclor 1221		11104-28-2	NE	NA	NE	NE	< 0.12	< 0.11	< 0.11	< 0.12	< 0.11	< 0.11	< 0.11	< 0.12	< 0.15	< 0.11	< 0.15
Aroclor 1232		11141-16-5	NE	NA	NE	NE	< 0.12	< 0.11	< 0.11	< 0.12	< 0.11	< 0.11	< 0.11	< 0.12	< 0.15	< 0.11	< 0.15
Aroclor 1242		53469-21-9	NE	NA	NE	NE	< 0.12	< 0.11	< 0.11	< 0.12	< 0.11	< 0.11	< 0.11	< 0.12	< 0.15	< 0.11	< 0.15
Aroclor 1248		12672-29-6	NE	NA	NE	NE	< 0.12	< 0.11	< 0.11	< 0.12	< 0.11	< 0.11	< 0.11	< 0.12	< 0.15	< 0.11	< 0.15
Aroclor 1254		11097-69-1	NE	NA	NE	NE	< 0.12	< 0.11	< 0.11	< 0.12	< 0.11	< 0.11	< 0.11	< 0.12	< 0.15	< 0.11	< 0.15
Aroclor 1260		11096-82-5	NE	NA	NE	NE	< 0.12	< 0.11	< 0.11	< 0.12	< 0.11	< 0.11	< 0.11	< 0.12	< 0.15	< 0.11	< 0.15
Aroclor 1262		37324-23-5	NE	NA	NE	NE	< 0.12	< 0.11	< 0.11	< 0.12	< 0.11	< 0.11	< 0.11	< 0.12	**0.21**	< 0.11	< 0.15
Aroclor 1268		11100-14-4	NE	NA	NE	NE	< 0.12	< 0.11	< 0.11	< 0.12	< 0.11	< 0.11	< 0.11	< 0.12	< 0.15	< 0.11	< 0.15
SW 8151	mg/kg																
No Detects			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SW 8260B	mg/kg																
No Detects		67-64-1	140	NA	500	1000	--	--	--	--	--	--	--	--	--	--	--
SW 8260C	mg/kg																
No Detects		99-87-6	5*	NA	500.0*	1000*	--	--	--	--	--	--	--	--	--	--	--
SW 8270	mg/kg																
Acenaphthylene		208-96-8	84	NA	1000	2500	--	--	--	--	--	--	--	--	--	--	--
Anthracene		120-12-7	400	NA	1000	2500	--	--	--	--	--	--	--	--	--	--	--
Benzo(a)anthracene		56-55-3	1	NA	1	7.8	--	--	--	--	--	--	--	--	--	--	--
Benzo(b)fluoranthene		205-99-2	1	NA	1	7.8	--	--	--	--	--	--	--	--	--	--	--
Benzo(k)fluoranthene		207-08-9	1	NA	8.4	78	--	--	--	--	--	--	--	--	--	--	--
Benzo(g,h,i)perylene		191-24-2	1*	NA	8.4*	78*	--	--	--	--	--	--	--	--	--	--	--
Benzo(a)pyrene		50-32-8	1	NA	1	1	--	--	--	--	--	--	--	--	--	--	--
Chrysene		218-01-9	1*	NA	84.0*	780*	--	--	--	--	--	--	--	--	--	--	--
Fluoranthene		206-44-0	56	NA	1000	2500	--	--	--	--	--	--	--	--	--	--	--
Indeno(1,2,3-cd)pyrene		193-39-5	1*	NA	1.0*	7.8*	--	--	--	--	--	--	--	--	--	--	--
Phenanthrene		85-01-8	40	NA	1000	2500	--	--	--	--	--	--	--	--	--	--	--
Pyrene		129-00-0	40	NA	1000	2500	--	--	--	--	--	--	--	--	--	--	--

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Analyte	Units	CAS No.	CT RSR GB-PMC	CT RSR GB-PMC-TCLP	CT RSR Res	CT RSR I/C	Sample Name: GP-11 3-4ft	GP-12 3-4ft	GP-13 4-5ft	GP-14 3-4ft	GP-16 3-4ft	GP-17 3-4ft	GP-18 3-4ft	GP-19 2.5-3.5ft	GP-20 3-4ft	GP-23 3-4ft	GP-25 7-8ft
Start Depth							3	3	4	3	3	3	3	2.5	3	3	7
End Depth							4	4	5	4	4	4	4	3.5	4	4	8
Depth Unit							ft	ft	ft	ft	ft	ft	ft	ft	ft	ft	ft
Sample Date							1/23/2019	1/23/2019	1/23/2019	1/23/2019	1/23/2019	1/23/2019	1/25/2019	1/25/2019	1/25/2019	1/25/2019	1/25/2019
SW 8270D	mg/kg																
Acenaphthene		83-32-9	84*	NA	1000*	2500*	< 0.35	< 0.34	< 0.33	**0.51**	< 0.33	< 0.34	< 0.33	< 0.35	< 0.44	< 0.32	< 0.45
Acenaphthylene		208-96-8	84	NA	1000	2500	**0.61**	**0.92**	< 0.33	**0.52**	< 0.33	< 0.34	**0.35**	< 0.35	**0.78**	**1.8**	**2.3**
Anthracene		120-12-7	400	NA	1000	2500	**0.43**	**0.61**	< 0.33	**0.8**	< 0.33	< 0.34	< 0.33	< 0.35	< 0.44	**0.91**	**1.5**
Benzo(a)anthracene		56-55-3	1	NA	1	7.8	**1.3**	**0.98**	< 0.33	**2.5**	**0.73**	**0.5**	**0.63**	**0.39**	**1**	**4.7**	**3.8**
Benzo(b)fluoranthene		205-99-2	1	NA	1	7.8	**2**	**3.4**	**0.35**	**3.9**	**1.2**	**0.91**	**0.7**	**0.53**	**1.5**	**6.5**	**6.1**
Benzo(k)fluoranthene		207-08-9	1	NA	8.4	78	**0.77**	**1.1**	< 0.33	**1.5**	**0.44**	**0.38**	**0.33**	< 0.35	**0.6**	**2.7**	**2.7**
Benzo(g,h,i)perylene		191-24-2	1*	NA	8.4*	78*	**0.62**	**1.7**	< 0.33	**1.2**	**0.36**	< 0.34	**0.45**	< 0.35	**1.3**	**4.5**	**4.3**
Benzo(a)pyrene		50-32-8	1	NA	1	1	**1.4**	**2.8**	< 0.33	**2.9**	**0.77**	**0.58**	**0.65**	< 0.35	**1.2**	**5.9**	**5.7**
Chrysene		218-01-9	1*	NA	84.0*	780*	**1.5**	**1.6**	< 0.33	**3.1**	**0.77**	**0.55**	**0.63**	**0.59**	**1.3**	**5**	**4**
Dibenz(a,h)anthracene		53-70-3	1*	NA	1.0*	1*	< 0.35	**0.48**	< 0.33	< 0.35	< 0.33	< 0.34	< 0.33	< 0.35	< 0.44	**1.3**	**1.1**
Fluoranthene		206-44-0	56	NA	1000	2500	**2.6**	**1.4**	**0.37**	**7.4**	**1.6**	**0.9**	**1.1**	**0.76**	**2**	**6.6**	**9.3**
Fluorene		86-73-7	56	NA	1000	2500	< 0.35	< 0.34	< 0.33	**0.54**	< 0.33	< 0.34	< 0.33	< 0.35	< 0.44	< 0.32	< 0.45
Indeno(1,2,3-cd)pyrene		193-39-5	1*	NA	1.0*	7.8*	**0.57**	**1.4**	< 0.33	**1.1**	**0.34**	< 0.34	**0.4**	< 0.35	**1.2**	**4.2**	**3.9**
2-Methylnaphthalene		91-57-6	5.6*	NA	270*	1000*	**0.51**	< 0.34	< 0.33	**0.71**	< 0.33	< 0.34	< 0.33	< 0.35	**0.82**	< 0.32	**1**
Naphthalene		91-20-3	56	NA	1000	2500	**0.41**	< 0.34	< 0.33	**0.83**	< 0.33	< 0.34	< 0.33	< 0.35	**0.65**	< 0.32	**0.52**
Phenanthrene		85-01-8	40	NA	1000	2500	**1.5**	**0.59**	< 0.33	**7.3**	**1.1**	**0.5**	**0.45**	**0.66**	**1.3**	**1.9**	**3**
Pyrene		129-00-0	40	NA	1000	2500	**2.3**	**1.3**	**0.34**	**6.6**	**1.3**	**0.75**	**1.2**	**0.65**	**2**	**6**	**8.3**
SW 9045	s.u.																
pH		pH	NE	NA	NE	NE	--	--	--	--	--	--	--	--	--	--	--
SW 9045D	s.u.																
pH		pH	NE	NA	NE	NE	**7.14**	**7.81**	**8.85**	**8.29**	**7.35**	**7.61**	**10.4**	**4.42**	**7.94**	**8.20**	**7.23**
SW CHAP7	mg/kg																
Percent Solids	%	SOLIDS	NE	NA	NE	NE	--	--	--	--	--	--	--	--	--	--	--
SW-846 CH 7.1	mg/kg																
No Detects			NE	NA	NE	NE	--	--	--	--	--	--	--	--	--	--	--

Table 2. Headspace PID Measurements

National Coast Guard Museum Building

New London, Connecticut

Geo-probe ID	Depth (feet)	PID Reading (ppm)
GP-01	0.0	0.0
	4.0	0.1
GP-02	0.0	0.8
	4.0	2.6
GP-03	0.0	0.1
	4.0	0.2
GP-04	0.0	0.0
	4.0	0.0
GP-05	0.0	0.0
	4.0	0.1
GP-06	0.0	0.0
	4.0	0.0
GP-07	0.0	0.0
	4.0	0.0
GP-08	0.0	0.0
	4.0	0.1
GP-09	0.0	0.0
	4.0	0.0
GP-10	0.0	0.0
	4.0	0.0
GP-11	0.0	0.0
	4.0	0.0
GP-12	0.0	0.0
	4.0	0.0
GP-13	0.0	0.0
	4.0	0.1
GP-14	0.0	0.0
	4.0	0.1
GP-15	0.0	0.1
	4.0	0.0
GP-16	0.0	0.0
	4.0	0.0

Geo-probe ID	Depth (feet)	PID Reading (ppm)
GP-17	0.0	0.0
	4.0	0.0
GP-18	0.0	0.0
	4.0	0.0
GP-19	0.0	0.0
	4.0	0.0
GP-20	0.0	0.0
	4.0	0.1
GP-21	0.0	0.0
	4.0	0.2
GP-22	0.0	0.4
	4.0	0.1
GP-23	0.0	0.0
	4.0	62.5
GP-24	0.0	0.3
	4.0	0.7
GP-25	0.0	0.1
	4.0	7.0

Summary of Soil and Groundwater Analytical Data

URS, 2014

TABLE 2
Summary of Soil Sample Analytical Results
Environmental Sampling Report
Phase II Environmental Due Diligence Audit
National Coast Guard Museum
New London, Connecticut

Location	Remediation Stanard Regulations Criteria			B-1	B-1	B-1	B-2	B-2	B-2	B-3	B-3	B-3	B-3	B-4	B-4	B-4	B-5	B-5	B-6	B-6	B-6	B-6	B-6	B-7	B-7
Sample ID				B-1(0-2)	B-1(6-8)	B-1(6-8)RA	B-2(0-2)	B-2(4-6)	B-2(4-6)RA	B-3(0-2)	B-3(4-6)	B-3(4-6)RA	B-3(4-6)RA	B-4(0-2)	B-4(4-6)	B-4(4-6)RA	B-5(0-2)	B-4(4-6)	B-6(0-2)	B-6(0-2)REP	B-6(4-6)	B-6(4-6)RA	B-6(4-6)RA	B-7(0-2)	B-7(0-2)RA
Sample Date	GBPMC	ICDEC	RDEC	02/06/14	02/06/14	02/06/14	02/04/14	02/04/14	02/04/14	02/06/14	02/06/14	02/06/14	02/06/14	02/04/14	02/04/14	02/04/14	02/06/14	02/06/14	02/06/14	02/06/14	02/06/14	02/06/14	02/06/14	02/06/14	02/06/14
Sample Depth (ft)				0 - 2	6 - 8	6 - 8	0 - 2	4 - 6	4 - 6	0 - 2	4 - 6	4 - 6	4 - 6	0 - 2	4 - 6	4 - 6	0 - 2	4 - 6	0 - 2	0 - 2	4 - 6	4 - 6	4 - 6	0 - 2	0 - 2
Volatile Organic Compounds (ug/kg)																									
1,1,1,2-Tetrachloroethane	200	220000	24000	0.41 U	0.51 U	0.4 U	0.42 U	0.61 U	--	0.58 U	0.64 U	--	0.54 U	0.45 U	0.55 U	0.67 U	0.44 U	0.5 U	0.44 U	0.45 U	0.67 U	0.52 U	--	0.36 U	0.45 U
1,1,1-trichloroethane	40000	1000000	500000	0.47 U	0.6 U	0.47 U	0.49 UQ	0.71 UQ	--	0.67 U	0.74 U	--	0.63 U	0.52 UQ	0.64 UQ	0.78 U	0.51 U	0.58 U	0.51 U	0.52 U	0.78 U	0.6 U	--	0.42 U	0.52 U
1,1,2,2-Tetrachloroethane	100	29000	3100	0.44 U	0.55 U	0.43 U	0.45 U	0.65 U	--	0.62 U	0.68 U	--	0.58 U	0.48 U	0.59 U	0.72 U	0.47 U	0.53 U	0.47 U	0.48 U	0.72 U	0.56 U	--	0.39 U	0.48 U
1,1,2-Trichloroethane	1000	100000	11000	0.85 U	1.1 U	0.84 U	0.89 U	1.3 U	--	1.2 U	1.3 U	--	1.1 U	0.94 U	1.2 U	1.4 U	0.92 U	1. U	0.93 U	0.94 U	1.4 U	1.1 U	--	0.76 U	0.93 U
1,1,2-Trichlorotrifluoroethane	NP	NP	NP	0.47 UQ	0.6 UQ	0.47 U	0.49 UQ	0.71 UQ	--	0.67 UQ	0.74 UQ	--	0.63 U	0.52 UQ	0.64 UQ	0.78 UQ	0.51 UQ	0.58 UQ	0.51 UQ	0.52 U	0.78 UQ	0.6 U	--	0.42 UQ	0.52 U
1,1-Dichloroethane	14000	1000000	500000	0.47 U	0.6 U	0.47 U	0.49 U	0.71 U	--	0.67 U	0.74 U	--	0.63 U	0.52 U	0.64 U	0.78 U	0.51 U	0.58 U	0.51 U	0.52 U	0.78 U	0.6 U	--	0.42 U	0.52 U
1,1-Dichloroethene	1400	9500	1000	0.47 U	0.6 U	0.47 U	0.49 UQ	0.71 UQ	--	0.67 U	0.74 U	--	0.63 U	0.52 UQ	0.64 UQ	0.78 U	0.51 U	0.58 U	0.51 U	0.52 U	0.78 U	0.6 U	--	0.42 U	0.52 U
1,1-Dichloropropene	NP	NP	NP	0.44 U	0.55 U	0.43 U	0.45 U	0.65 U	--	0.62 U	0.68 U	--	0.58 U	0.48 U	0.59 U	0.72 U	0.47 U	0.53 U	0.47 U	0.48 U	0.72 U	0.56 U	--	0.39 U	0.48 U
1,2,3-Trichlorobenzene	NP	NP	NP	0.47 U	0.6 U	0.47 U	0.49 U	0.71 U	--	0.67 U	0.74 U	--	0.63 U	0.52 U	0.64 U	0.78 U	0.51 U	0.58 U	0.51 U	0.52 U	0.78 U	0.6 U	--	0.42 U	0.52 U
1,2,3-Trichloropropane	NP	NP	NP	0.46 U	0.58 U	0.46 U	0.48 U	0.69 U	--	0.66 U	0.72 U	--	0.62 U	0.51 U	0.63 U	0.77 U	0.5 U	0.57 U	0.5 U	0.51 U	0.76 U	0.59 U	--	0.41 U	0.51 U
1,2,4-Trichlorobenzene	NP	NP	NP	0.47 U	0.6 U	0.47 U	0.49 U	0.71 U	31.4 UD	0.67 U	0.74 U	34.4 UD	0.63 U	0.52 U	0.64 U	0.78 U	0.51 U	0.58 U	0.51 U	0.52 U	0.78 U	0.6 U	81.4 UD	0.42 U	0.52 U
1,2,4-Trimethylbenzene	NP	NP	NP	0.47 U	0.6 U	0.47 U	0.49 U	0.71 U	--	0.67 U	0.74 U	--	0.63 U	0.52 U	0.64 U	0.78 U	0.51 U	4. J	0.51 U	0.52 U	0.78 U	0.6 U	--	0.42 U	0.52 U
1,2-Dibromo-3-chloropropane	NP	NP	NP	0.82 U	1. U	0.82 U	0.86 U	1.2 U	--	1.2 U	1.3 U	--	1.1 U	0.91 U	1.1 U	1.4 U	0.89 U	1. U	0.89 U	0.91 U	1.4 U	1.1 U	--	0.73 U	0.9 U
1,2-Dibromoethane	100	67	7	0.47 U	0.6 U	0.47 U	0.49 U	0.71 U	--	0.67 U	0.74 U	--	0.63 U	0.52 U	0.64 U	0.78 U	0.51 U	0.58 U	0.51 U	0.52 U	0.78 U	0.6 U	--	0.42 U	0.52 U
1,2-Dichlorobenzene	3100	1000000	500000	0.47 U	0.6 U	0.47 U	0.49 U	0.71 U	--	0.67 U	0.74 U	--	0.63 U	0.52 U	0.64 U	0.78 U	0.51 U	0.58 U	0.51 U	0.52 U	0.78 U	0.6 U	--	0.42 U	0.52 U
1,2-Dichloroethane	200	63000	6700	0.47 U	0.6 U	0.47 U	0.49 U	0.71 U	--	0.67 U	0.74 U	--	0.63 U	0.52 U	0.64 U	0.78 U	0.51 U	0.58 U	0.51 U	0.52 U	0.78 U	0.6 U	--	0.42 U	0.52 U
1,2-Dichloropropane	1000	84000	9000	0.25 U	0.31 U	0.24 U	0.26 U	0.37 U	--	0.35 U	0.38 U	--	0.33 U	0.27 U	0.33 U	0.41 U	0.27 U	0.3 U	0.27 U	0.27 U	0.41 U	0.31 U	--	0.22 U	0.27 U
1,3,5-Trimethylbenzene	NP	NP	NP	0.43 U	0.54 U	0.42 U	0.44 U	0.64 U	--	0.61 U	0.67 U	--	0.57 U	0.47 U	0.58 U	0.71 U	0.46 U	1.2 J	0.46 U	0.47 U	0.7 U	0.54 U	--	0.38 U	0.47 U
1,3-Dichlorobenzene	120000	1000000	500000	0.35 U	0.44 U	0.35 U	0.37 U	0.52 U	--	0.5 U	0.55 U	--	0.47 U	0.39 U	0.48 U	0.58 U	0.38 U	0.43 U	0.38 U	0.39 U	0.58 U	0.45 U	--	0.31 U	0.38 U
1,3-Dichloropropane	100	32000	3400	0.47 U	0.6 U	0.47 U	0.49 U	0.71 U	--	0.67 U	0.74 U	--	0.63 U	0.52 U	0.64 U	0.78 U	0.51 U	0.58 U	0.51 U	0.52 U	0.78 U	0.6 U	--	0.42 U	0.52 U
1,4-Dichlorobenzene	15000	240000	26000	0.39 U	0.49 U	0.38 U	0.4 U	0.58 U	--	0.55 U	0.61 U	--	0.52 U	0.43 U	0.53 U	0.64 U	0.42 U	0.48 U	0.42 U	0.43 U	0.64 U	0.49 U	--	0.35 U	0.43 U
2,2-Dichloropropane	NP	NP	NP	0.47 U	0.6 U	0.47 U	0.49 U	0.71 U	--	0.67 U	0.74 U	--	0.63 U	0.52 U	0.64 U	0.78 U	0.51 U	0.58 U	0.51 U	0.52 U	0.78 U	0.6 U	--	0.42 U	0.52 U
2-Butanone	80000	1000000	500000	2.9 U	3.7 U	2.9 U	3.1 U	4.4 U	--	4.2 U	4.6 U	--	3.9 U	3.2 U	4. U	4.9 U	3.2 U	3.6 U	3.2 U	3.2 U	4.9 U	3.8 U	--	2.6 U	3.2 U
2-Chlortoluene	NP	NP	NP	0.47 U	0.6 U	0.47 U	0.49 U	0.71 U	--	0.67 U	0.74 U	--	0.63 U	0.52 U	0.64 U	0.78 U	0.51 U	0.58 U	0.51 U	0.52 U	0.78 U	0.6 U	--	0.42 U	0.52 U
2-Hexanone	NP	NP	NP	2.4 U	3. U	2.3 U	2.5 U	3.5 U	--	3.4 U	3.7 U	--	3.2 U	2.6 U	3.2 U	3.9 U	2.6 U	2.9 U	2.6 U	2.6 U	3.9 U	3. U	--	2.1 U	2.6 U
4-Chlorotoluene	NP	NP	NP	0.47 U	0.6 U	0.47 U	0.49 U	0.71 U	--	0.67 U	0.74 U	--	0.63 U	0.52 U	0.64 U	0.78 U	0.51 U	0.58 U	0.51 U	0.52 U	0.78 U	0.6 U	--	0.42 U	0.52 U
4-Methyl-2-pentanone	14000	1000000	500000	2.4 U	3. U	2.3 U	2.5 U	3.5 U	--	3.4 U	3.7 U	--	3.2 U	2.6 U	3.2 U	3.9 U	2.6 U	2.9 U	2.6 U	2.6 U	3.9 U	3. U	--	2.1 U	2.6 U
Acetone	140000	1000000	500000	6.7 J	28.4 J	23.3 J	8.7 J	3.5 U	--	3.4 U	34.8 J	--	30.9 J	16.2 J	18.5 J	3.9 U	2.6 U	35.3	28.2	33.3	33.9 J	16.6 J	--	8.7 J	3.1 J
Acrylonitrile	100	11000	1100	2.4 U	3. U	2.3 U	2.5 U	3.5 U	--	3.4 U	3.7 U	--	3.2 U	2.6 U	3.2 U	3.9 U	2.6 U	2.9 U	2.6 U	2.6 U	3.9 U	3. U	--	2.1 U	2.6 U
Benzene	200	200000	21000	0.36 U	0.45 U	0.36 U	0.38 U	0.54 U	--	0.51 U	0.56 U	--	0.48 U	0.4 U	0.49 U	0.6 U	0.39 U	7.9	0.39 U	0.4 U	14.9	0.46 U	--	1.6 J	2. J
Bromobenzene	NP	NP	NP	0.47 U	0.6 U	0.47 U	0.49 U	0.71 U	--	0.67 U	0.74 U	--	0.63 U	0.52 U	0.64 U	0.78 U	0.51 U	0.58 U	0.51 U	0.52 U	0.78 U	0.6 U	--	0.42 U	0.52 U
Bromodichloromethane	NP	NP	NP	0.47 U	0.6 U	0.47 U	0.49 U	0.71 U	--	0.67 U	0.74 U	--	0.63 U	0.52 U	0.64 U	0.78 U	0.51 U	0.58 U	0.51 U	0.52 U	0.78 U	0.6 U	--	0.42 U	0.52 U
Bromoform	800	720000	78000	0.7 U	0.88 U	0.69 U	0.73 U	1. U	--	1. U	1.1 U	--	0.93 U	0.77 U	0.95 U	1.2 U	0.76 U	0.86 U	0.76 U	0.77 U	1.2 U	0.89 U	--	0.62 U	0.77 U
Bromomethane	NP	NP	NP	0.95 UQ	1.2 UQ	0.94 U	0.99 UQ	1.4 UQ	--	1.3 UQ	1.5 UQ	--	1.3 U	1. UQ	1.3 UQ	1.6 UQ	1. UQ	1.2 UQ	1. UQ	1. U	1.6 UQ	1.2 U	--	0.84 UQ	1. U
CarbonTetrachloride	1000	44000	4700	0.47 U	0.6 U	0.47 U	0.49 UQ	0.71 UQ	--	0.67 U	0.74 U	--	0.63 U	0.52 UQ	0.64 UQ	0.78 U	0.51 U	0.58 U	0.51 U	0.52 U	0.78 U	0.6 U	--	0.42 U	0.52 U
Carbondisulfide	NP	NP	NP	0.47 UQ	0.6 UQ	0.47 U	0.49 UQ	0.71 UQ	--	0.67 UQ	5.7 JQ	--	0.63 U	0.52 UQ	5.7 JQ	0.78 UQ	0.51 UQ	21.1 Q	0.51 UQ	0.52 U	4. JQ	3.2 J	--	0.42 UQ	0.52 U
Chlorobenzene	20000	1000000	500000	0.47 U	0.6 U	0.47 U	0.49 U	0.71 U	--	0.67 U	0.74 U	--	0.63 U	0.52 U	0.64 U	0.78 U	0.51 U	0.58 U	0.51 U	0.52 U	0.78 U	0.6 U	--	0.42 U	0.52 U
Chloroethane	NP	NP	NP	0.47 UQ	0.6 UQ	0.47 U	0.49 UQ	0.71 UQ	--	0.67 UQ	0.74 UQ	--	0.63 U	0.52 UQ	0.64 UQ	0.78 UQ	0.51 UQ	0.58 UQ	0.51 UQ	0.52 U	0.78 UQ	0.6 U	--	0.42 UQ	0.52 U
Chloroform	1200	940000	100000	0.47 U	0.6 U	0.47 U	0.49 U	0.71 U	--	0.67 U	0.74 U	--	0.63 U	0.52 U	0.64 U	0.78 U	0.51 U	0.58 U	0.51 U	0.52 U	2.4 J	0.6 U	--	0.42 U	0.52 U
Chloromethane	NP	NP	NP	0.47 UQ	0.6 UQ	0.47 UQ	0.49 UQ	0.71 UQ	--	0.67 UQ	0.74 UQ	--	0.63 UQ	0.52 UQ	0.64 UQ	0.78 UQ	0.51 UQ	0.58 UQ	0.51 UQ	0.52 UQ	0.78 UQ	0.6 UQ	--	0.42 UQ	0.52 UQ
Dibromochloromethane	100	68000	7300	0.47 U	0.6 U	0.47 U	0.49 U	0.71 U	--	0.67 U	0.74 U	--	0.63 U	0.52 U	0.64 U	0.78 U	0.51 U	0.58 U	0.51 U	0.52 U	0.78 U	0.6 U	--	0.42 U	0.52 U
Dibromomethane	NP	NP	NP	0.47 U	0.6 U	0.47 U	0.49 U	0.71 U	--	0.67 U	0.74 U	--	0.63 U	0.52 U	0.64 U	0.78 U	0.51 U	0.58 U	0.51 U	0.52 U	0.78 U	0.6 U	--	0.42 U	0.52 U
Dichlorodifluoromethane	NP	NP	NP	0.47 UQ	0.6 UQ	0.47 UQ	0.49 UQ	0.71 UQ	--	0.67 UQ	0.74 UQ	--	0.63 UQ	0.52 UQ	0.64 UQ	0.78 UQ	0.51 UQ	0.58 UQ	0.51 UQ	0.52 UQ	0.78 UQ	0.6 UQ	--	0.42 UQ	0.52 UQ
Ethyl benzene	10100	1000000	500000	0.47 U	0.6 U	0.47 U	0.49 U	0.71 U	--	0.67 U	0.74 U	--	0.63 U	0.52 U	0.64 U	0.78 U	0.51 U	1.6 J	0.51 U	0.52 U	2. J	0.6 U	--	0.42 U	0.52 U
Hexachlorobutadiene	NP	NP	NP	0.47 U	0.6 U	0.47 U	0.49 U	0.71 U	29.9 UD	0.67 U	0.74 U	32.8 UD	0.63 U	0.52 U	0.64 U	0.78 U	0.51 U	0.58 U	0.51 U	0.52 U	0.78 U	0.6 U	77.6 UD	0.42 U	0.52 U
Isopropylbenzene	NP	NP	NP	0.45 U	0.57 U	0.45 U	0.47 U	0.68 U	--	0.65 U	0.71 U	--	0.61 U	0.5 U	0.62 U	0.75 U	0.49 U	2.7 J	0.49 U	0.5 U	0.75 U	0.58 U	--	0.4 U	0.5 U
Methyltert-butylether	20000	1000000	500000	0.47 U	0.6 U	0.47 U	0.49 U	0.71 U	--	0.67 U	0.74 U	--	0.63 U	0.52 U	0.64 U	0.78 U	0.51 U	0.58 U	0.51 U	0.52 U	0.78 U	0.6 U	--	0.42 U	0.52 U
MethyleneChloride	1000	760000	82000	0.47 U	4.6 J	0.47 U	6.6 Q	0.71 UQ	--	2.7 J	2. J	--	0.63 U	7.1 Q	0.64 UQ	0.78 U	4.8 J	5.8	3.9 J	9.2	1.9 J	2.1 J	--	3.6 J	4.5 J
Naphthalene	56000	2500000	1000000	0.43 U	0.54 U	0.42 U	0.44 U	0.64 U	28.4 UD	0.61 U	0.67 U	31.2 UD	0.57 U	0.47 U	0.58 U	0.71 U	0.46 U	0.52 U	0.46 U	0.47 U	0.7 U	0.54 U	73.7 UD	0.38 U	0.47 U
Styrene	20000	1000000	500000	0.43 U	0.54 U	0.42 U	0.44 U	0.64 U	--	0.61 U	0.67 U	--	0.57 U	0.47 U	0.58 U	0.71 U	0.46 U	0.52 U	0.46 U	0.47 U	0.7 U	0.54 U	--	0.38 U	0.47 U
Tetrachloroethene	1000	110000	12000	0.47 U	0.6 U	0.47 U	0.49 U	0.71 U	--	0.67 U	0.74 U	--	0.63 U	0.52 U	0.64 U	0.78 U	0.51 U	0.58 U	0.51 U	0.52 U	0.78 U	0.6 U	--	0.42 U	0.52 U
Tetrahydrofuran	NP	NP	NP	2.4 U	3.7 U	--	0.49 UQ	3.5 U	--	4.2 U	4.6 U	--	--	0.4 U	0.49 U	--	3.2 U	3.6 U	3.2 U	3.2 U	4.9 U	--	--	2.6 U	--
Toluene	67000	1000000	500000	0.47 U	0.6 U	0.47 U	0.49 U	0.71 U	--	0.67 U	0.74 U	--	0.63 U	0.52 U	1.4 J	0.78 U	0.51 U	9.8	0.51 U	0.52 U	17.7	1.4 J	--	1.2 J	1.6 J
Trichloroethene	1000	520000	56000	0.47 U	0.6 U	0.47 U	0.49 U	0.71 U	--	0.67 U	0.74 U	--	0.63 U	0.52 U	0.64 U	0.78 U	0.51 U	0.58 U	0.51 U	0.52 U	0.78 U	0.6 U	--	0.42 U	0.52 U
Trichlorofluoromethane	NP	NP	NP	0.47 U	0.6 U	0.47 U	0.49 UQ	0.71 UQ	--	0.67 U	0.74 U	--	0.63 U	0.52 UQ	0.64 UQ	0.78 U	0.51 U	0.58 U	0.51 U	0.52 U	0.78 U	0.6 U	--	0.42 U	0.52 U
Vinyl chloride	400	3000	320	0.47 UQ	0.6 UQ	0.47 U	0.49 UQ	0.71 UQ	--	0.67 UQ	0.74 UQ	--	0.63 U	0.52 UQ	0.64 UQ	0.78 UQ	0.51 UQ	0.58 UQ	0.51 UQ	0.52 U	0.78 UQ	0.6 U	--	0.42 UQ	0.52 U
cis-1,2-Dichloroethene	14000	1000000	500000	0.47 U	0.6 U	0.47 U	0.49 U	0.71 U	--	0.67 U	0.74 U	--	0.63 U	0.52 U	0.64 U	0.78 U	0.51 U	0.58 U	0.51 U	0.52 U	0.78 U	0.6 U	--	0.42 U	0.52 U
cis-1,3-Dichloropropene	NP	NP	NP	0.47 U	0.6 U	0.47 U	0.49 U	0.71 U	--	0.67 U	0.74 U	--	0.63 U	0.52 U	0.64 U	0.78 U	0.51 U	0.58 U	0.51 U	0.52 U	0.78 U	0.6 U	--	0.42 U	0.52 U
m/p-xylene	19500	1000000	500000	0.68 U	0.86 U	0.68 U	0.71 U	1. U	--	0.97 U	1.1 U	--	0.91 U	0.75 U	0.93 U	1.1 U	0.74 U	4.2 J	0.74 U	0.75 U	3.9 J	0.87 U	--	0.61 U	0.75 U
n-Butylbenzene	NP	NP	NP	0.44 U	0.55 U	0.43 U	0.45 U	0.65 U	--	0.62 U	0.68 U	--	0.58 U	0.48 U	0.59 U	0.72 U	0.47 U	0.53 U	0.47 U	0.48 U	0.72 U	0.56 U	--	0.39 U	0.48 U
n-Propylbenzene	NP	NP	NP	0.34 U	0.43 U	0.34 U	0.36 U	0.51 U	--	0.49 U	0.53 U	--	0.45 U	0.38 U	0.46 U	0.56 U	0.37 U	1.8 J	0.37 U	0.38 U	0.56 U	0.43 U	--	0.3 U	0.37 U
o-Xylene	19500	1000000	500000	0.47 U	0.6 U	0.47 U	0.49 U	0.71 U	--	0.67 U	0.74 U	--	0.63 U	0.52 U	0.64 U	0.78 U	0.51 U	3.2 J	0.51 U	0.52 U	1.9 J	0.6 U	--	0.42 U	0.52 U
p-Isopropyltoluene	NP	NP	NP	0.27 U	0.35 U	0.27 U	0.29 U	0.41 U	--	0.39 U	0.43 U	--	0.37 U	0.3 U	0.37 U	0.45 U	0.3 U	0.34 U	0.3 U	0.3 U	0.45 U	0.35 U	--	0.24 U	0.3 U
sec-Butylbenzene	NP	NP	NP	0.47 U	0.6 U	0.47 U	0.49 U	0.71 U	--	0.67 U	0.74 U	--	0.63 U	0.52 U	0.64 U	0.78 U	0.51 U	0.58 U	0.51 U	0.52 U	0.78 U	0.6 U	--	0.42 U	0.52 U
tert-Butylbenzene	NP	NP	NP	0.47 U	0.6 U	0.47 U	0.49 U	0.71 U	--	0.67 U	0.74 U	--	0.63 U	0.52 U	0.64 U	0.78 U	0.51 U	0.58 U	0.51 U	0.52 U	0.78 U	0.6 U	--	0.42 U	0.52 U
trans-1,2-Dichloroethene	20000	1000000	500000	0.47 U	0.6 U	0.47 U	0.49 U	0.71 U	--	0.67 U	0.74 U	--	0.63 U	0.52 U	0.64 U	0.78 U	0.51 U	0.58 U	0.51 U	0.52 U	0.78 U	0.6 U	--	0.42 U	0.52 U
Trans-1,3-Dichloropropene	NP	NP	NP	0.47 U	0.6 U	0.47 U	0.49 U	0.71 U	--	0.67 U	0.74 U	--	0.63 U	0.52 U	0.64 U	0.78 U	0.51 U	0.58 U	0.51 U	0.52 U	0.78 U	0.6 U	--	0.42 U	0.52 U
trans-1,4-Dichloro-2-butene	NP	NP	NP	0.95 U	1.2 U	0.94 U	0.99 U	1.4 U	--	1.3 U	1.5 U	--	1.3 U	1. U	1.3 U	1.6 U	1. U	1.2 U	1. U	1. U	1.6 U	1.2 U	--	0.84 U	1. U

TABLE 2
Summary of Soil Sample Analytical Results
Environmental Sampling Report
Phase II Environmental Due Diligence Audit
National Coast Guard Museum
New London, Connecticut

Location	Remediation Stanard Regulations Criteria			B-1	B-1	B-1	B-2	B-2	B-2	B-3	B-3	B-3	B-3	B-4	B-4	B-4	B-5	B-5	B-6	B-6	B-6	B-6	B-6	B-7	B-7
Sample ID				B-1(0-2)	B-1(6-8)	B-1(6-8)RA	B-2(0-2)	B-2(4-6)	B-2(4-6)RA	B-3(0-2)	B-3(4-6)	B-3(4-6)RA	B-3(4-6)RA	B-4(0-2)	B-4(4-6)	B-4(4-6)RA	B-5(0-2)	B-4(4-6)	B-6(0-2)	B-6(0-2)REP	B-6(4-6)	B-6(4-6)RA	B-6(4-6)RA	B-7(0-2)	B-7(0-2)RA
Sample Date	GBPMC	ICDEC	RDEC	02/06/14	02/06/14	02/06/14	02/04/14	02/04/14	02/04/14	02/06/14	02/06/14	02/06/14	02/06/14	02/04/14	02/04/14	02/04/14	02/06/14	02/06/14	02/06/14	02/06/14	02/06/14	02/06/14	02/06/14	02/06/14	02/06/14
Sample Depth (ft)				0 - 2	6 - 8	6 - 8	0 - 2	4 - 6	4 - 6	0 - 2	4 - 6	4 - 6	4 - 6	0 - 2	4 - 6	4 - 6	0 - 2	4 - 6	0 - 2	0 - 2	4 - 6	4 - 6	4 - 6	0 - 2	0 - 2
Extractable Total Petroleum Hydrocarbons (mg/kg)																									
ETPH	2500.	2500.	500.	160.	9.7	--	7.9	110.	--	72.	53.	--	--	21.	130.	--	13.	89.	74.	70.	460.	--	--	19.	--
Semi-Volatile Organic Compounds (ug/kg)																									
1,2,4,5-Tetrachlorobenzene	NP	NP	NP	68.7 U	15.3 U	--	13.8 U	16.2 U	32.4 UD	14.2 U	17.8 U	35.5 UD	--	--	16.2 U	--	13.9 U	15.1 U	14.3 U	14. U	16.8 U	--	84. UD	14.3 U	--
1,2,4-Trichlorobenzene	NP	NP	NP	66.6 U	14.9 U	--	13.3 U	15.7 U	--	13.7 U	17.2 U	--	--	--	15.7 U	--	13.5 U	14.7 U	13.9 U	13.6 U	16.3 U	--	--	13.9 U	--
2,2'-Oxybis(1-Chloropropane)	2400	82000	8800	72.3 U	16.1 U	--	14.5 U	17.1 U	34.1 UD	14.9 U	18.7 U	37.4 UD	--	--	17. U	--	14.6 U	16. U	15.1 U	14.8 U	17.7 U	--	88.5 UD	15.1 U	--
2,4,5-Trichlorophenol	NP	NP	NP	120. U	27.4 U	--	24.6 U	28.9 U	57.9 UD	25.3 U	31.7 U	63.5 UD	--	--	28.9 U	--	24.8 U	27.1 U	25.6 U	25.1 U	30. U	--	150. UD	25.6 U	--
2,4,6-Trichlorophenol	NP	NP	NP	53.5 U	11.9 U	--	10.7 U	12.6 U	25.2 UD	11. U	13.8 U	27.7 UD	--	--	12.6 U	--	10.8 U	11.8 U	11.1 U	10.9 U	13.1 U	--	65.4 UD	100. J	--
2,4-Dichlorophenol	4000	2500000	200000	66.6 U	14.9 U	--	13.3 U	15.7 U	31.4 UD	13.7 U	17.2 U	34.4 UD	--	--	15.7 U	--	13.5 U	14.7 U	13.9 U	13.6 U	16.3 U	--	81.4 UD	13.9 U	--
2,4-Dimethylphenol	NP	NP	NP	99.1 U	22.1 U	--	19.9 UQ	23.4 UQ	46.7 UDQ	20.4 U	25.6 U	51.3 UD	--	--	23.3 UQ	--	20. U	21.9 U	20.6 U	20.3 U	24.2 U	--	120. UD	20.6 U	--
2,4-Dinitrophenol	NP	NP	NP	180. U	39.6 U	--	35.6 U	41.9 U	83.8 UD	36.7 U	46. U	91.9 UD	--	--	41.8 U	--	35.9 U	39.2 U	37. U	36.3 U	43.5 U	--	220. UD	37. U	--
2,4-Dinitrotoluene	NP	NP	NP	52.4 U	11.7 U	--	10.5 U	12.4 U	24.7 UD	10.8 U	13.6 U	27.1 UD	--	--	12.3 U	--	10.6 U	11.6 U	10.9 U	10.7 U	12.8 U	--	64.1 UD	10.9 U	--
2,6-Dinitrotoluene	NP	NP	NP	71.3 U	15.9 U	--	14.3 U	16.8 U	33.6 UD	14.7 U	18.4 U	36.9 UD	--	--	16.8 U	--	14.4 U	15.7 U	14.9 U	14.6 U	17.4 U	--	87.2 UD	14.8 U	--
2-Chloronapthalene	NP	NP	NP	39.8 U	8.9 U	--	8. U	9.4 U	18.8 UD	8.2 U	10.3 U	20.6 UD	--	--	9.4 U	--	8.1 U	8.8 U	8.3 U	8.1 U	9.7 U	--	48.7 UD	8.3 U	--
2-Chlorophenol	7200	2500000	340000	92.3 U	20.6 U	--	18.5 U	21.8 U	43.5 UD	19. U	23.9 U	47.7 UD	--	--	21.7 U	--	18.6 U	20.3 U	19.2 U	18.9 U	22.6 U	--	110. UD	19.2 U	--
2-Methylnapthalene	NP	NP	NP	44. U	9.8 U	--	8.8 U	10.4 U	20.8 UD	9.1 U	180. J	22.8 UD	--	--	10.4 U	--	8.9 U	9.7 U	9.2 U	120. J	10.8 U	--	53.8 UD	9.2 U	--
2-Methylphenol	NP	NP	NP	94.9 U	21.2 U	--	19. UQ	22.4 UQ	44.8 UDQ	19.6 U	24.5 U	49.1 UD	--	--	22.3 UQ	--	19.2 U	20.9 U	19.8 U	19.4 U	23.2 U	--	120. UD	19.8 U	--
2-Nitroaniline	NP	NP	NP	77.6 U	17.3 U	--	15.5 U	18.3 U	36.6 UD	16. U	20.1 U	40.1 UD	--	--	18.3 U	--	15.7 U	17.1 U	16.2 U	15.9 U	19. U	--	94.9 UD	16.2 U	--
2-Nitrophenol	NP	NP	NP	84.4 U	18.8 U	--	16.9 U	19.9 U	39.8 UD	17.4 U	21.8 U	43.7 UD	--	--	19.9 U	--	17.1 U	18.6 U	17.6 U	17.3 U	20.6 U	--	100. UD	17.6 U	--
3,3-Dichlorobenzidine	NP	NP	NP	110. U	25. U	--	22.5 U	26.5 U	52.9 UD	23.1 U	29. U	58. UD	--	--	26.4 U	--	22.7 U	24.7 U	23.4 U	22.9 U	27.4 U	--	140. UD	23.4 U	--
3+4-Methylphenol	NP	NP	NP	90.7 U	20.2 U	--	18.2 U	21.4 U	42.8 UD	18.7 U	23.5 U	46.9 UD	--	--	21.4 U	--	18.3 U	20. U	18.9 U	18.5 U	22.2 U	--	110. UD	18.9 U	--
3-Nitroaniline	NP	NP	NP	110. U	25. U	--	22.5 U	26.5 U	52.9 UD	23.1 U	29. U	58. UD	--	--	26.4 U	--	22.7 U	24.7 U	23.4 U	22.9 U	27.4 U	--	140. UD	23.4 U	--
4,6-Dinitro-2-methylphenol	NP	NP	NP	100. U	22.3 U	--	20.1 U	23.6 U	47.2 UD	20.7 U	25.9 U	51.8 UD	--	--	23.6 U	--	20.2 U	22.1 U	20.9 U	20.5 U	24.5 U	--	120. UD	20.9 U	--
4-Bromophenylphenyl ether	NP	NP	NP	34.1 U	7.6 U	--	6.8 U	8. U	16.1 UD	7. U	8.8 U	17.6 UD	--	--	8. U	--	6.9 U	7.5 U	7.1 U	7. U	8.3 U	--	41.7 UD	7.1 U	--
4-Chloro-3-Methylphenol	NP	NP	NP	77.6 U	17.3 U	--	15.5 U	18.3 U	36.6 UD	16. U	20.1 U	40.1 UD	--	--	18.3 U	--	15.7 U	17.1 U	16.2 U	15.9 U	19. U	--	94.9 UD	16.2 U	--
4-Chloroaniline	NP	NP	NP	120. U	27.5 U	--	24.7 U	29.1 U	58.1 UD	25.4 U	31.9 U	63.7 UD	--	--	29. U	--	24.9 U	27.2 U	25.7 U	25.2 U	30.1 U	--	150. UD	25.7 U	--
4-chlorophenyl-phenylether	NP	NP	NP	94.9 UQ	21.2 UQ	--	19. U	22.4 U	44.8 UD	19.6 UQ	24.5 UQ	49.1 UDQ	--	--	22.3 U	--	19.2 UQ	20.9 UQ	19.8 UQ	19.4 UQ	23.2 UQ	--	120. UDQ	19.8 UQ	--
4-Nitroaniline	NP	NP	NP	230. U	50.8 U	--	45.6 U	53.7 U	110. UD	46.9 U	58.8 U	120. UD	--	--	53.6 U	--	46. U	50.2 U	47.4 U	46.5 U	55.6 U	--	280. UD	47.4 U	--
4-Nitrophenol	NP	NP	NP	320. U	72.4 U	--	65. U	76.5 U	150. UD	66.9 U	83.9 U	170. UD	--	--	76.4 U	--	65.6 U	71.6 U	67.6 U	66.4 U	79.4 U	--	400. UD	67.6 U	--
Acenaphthene	NP	NP	NP	49.3 UQ	11. UQ	--	9.9 U	140. J	23.2 UD	10.2 UQ	420. JQ	400. Q	--	--	11.6 U	--	10. UQ	10.9 UQ	10.3 UQ	10.1 UQ	12.1 UQ	--	60.3 UDQ	10.3 UQ	--
Acenaphthylene	84000	2500000	1000000	44. U	9.8 U	--	8.8 U	10.4 U	20.8 UD	9.1 U	400. J	410.	--	--	100. J	--	8.9 U	9.7 U	9.2 U	9. U	1100.	--	1100.	9.2 U	--
Aniline	NP	NP	NP	150. U	33.2 U	--	29.8 U	35.1 U	70.2 UD	30.7 U	38.5 U	77. UD	--	--	35.1 U	--	30.1 U	32.8 U	31. U	30.4 U	36.4 U	--	180. UD	31. U	--
Anthracene	400000	2500000	1000000	35.6 U	8. U	--	7.1 U	450.	330.	7.4 U	1100.	1000.	--	--	130. J	--	7.2 U	7.9 U	7.4 U	7.3 U	990.	--	870.	7.4 U	--
Benzo(a)anthracene	1000	7800	1000	83.3 U	18.6 U	--	16.7 U	[2100.]	[1600.]	17.2 U	[2500.]	[2200.]	--	--	730.	--	16.8 U	95.6 J	110. J	17. U	[3800.]	--	[3600.]	17.4 U	--
Benzo(a)pyrene	1000	1000	1000	37.7 U	8.4 U	--	7.6 U	[1900.]	[1400.]	7.8 U	[1500.]	[1300.]	--	--	740.	--	7.6 U	81.7 J	84.5 J	7.7 U	[4100.]	--	[3300.]	7.9 U	--
Benzo(b)fluoranthene	1000	7800	1000	57.1 U	12.7 U	--	11.5 U	[2000.]	[1800.]	86.1 J	[2100.]	[1900.]	--	--	850.	--	11.5 U	94.8 J	96.8 J	11.7 U	[4900.]	--	[4100.]	82.6 J	--
Benzo(g,h,i)perylene	NP	NP	NP	70.8 U	15.8 U	--	14.2 U	1000.	770.	14.6 U	530.	450.	--	--	460.	--	14.3 U	15.6 U	14.7 U	14.5 U	2100.	--	1900.	14.7 U	--
Benzo(k)fluoranthene	1000	78000	8400	82.3 U	18.4 U	--	16.5 U	820.	340.	17. U	810.	640.	--	--	350. J	--	16.6 U	18.2 U	17.1 U	16.8 U	[1900.]	--	[1400.]	17.1 U	--
Bis(2-chloroethoxy)methane	NP	NP	NP	100. U	22.5 U	--	20.2 U	23.7 U	47.5 UD	20.8 U	26. U	52.1 UD	--	--	23.7 U	--	20.3 U	22.2 U	21. U	20.6 U	24.6 U	--	120. UD	21. U	--
Bis(2-chloroethyl)ether	2400	5200	1000	83.9 U	18.7 U	--	16.8 U	19.8 U	39.6 UD	17.3 U	21.7 U	43.4 UD	--	--	19.7 U	--	17. U	18.5 U	17.5 U	17.2 U	20.5 U	--	100. UD	17.5 U	--
Bis(2-ethylhexyl)phthalate	11000	410000	44000	61.9 U	13.8 U	--	12.4 U	14.6 U	29.2 UD	120. J	16. U	32. UD	--	--	14.6 U	--	12.5 U	13.6 U	12.9 U	12.7 U	15.1 U	--	75.6 UD	80.8 J	--
Butylbenzylphthalate	200000	2500000	1000000	83.9 U	18.7 U	--	16.8 U	19.8 U	39.6 UD	17.3 U	21.7 U	43.4 UD	--	--	19.7 U	--	17. U	18.5 U	17.5 U	17.2 U	20.5 U	--	100. UD	96.5 J	--
Carbazole	NP	NP	NP	38.3 U	8.5 U	--	7.7 U	320. J	240.	7.9 U	120. J	19.8 UD	--	--	9. U	--	7.7 U	8.4 U	8. U	7.8 U	260. J	--	46.8 UD	8. U	--
Chrysene	NP	NP	NP	79.1 U	17.7 U	--	15.9 U	1800.	1400.	16.3 U	1300.	1200.	--	--	730.	--	16. U	17.5 U	82.3 J	16.2 U	3400.	--	3500.	16.5 U	--
Dibenzo(a,h)anthracene	NP	NP	NP	50.3 U	11.2 U	--	10.1 U	250. J	210.	10.4 U	210. J	26. UD	--	--	120. J	--	10.2 U	11.1 U	10.5 U	10.3 U	730.	--	580.	10.5 U	--
Dibenzofuran	NP	NP	NP	68.1 UQ	15.2 UQ	--	13.7 U	120. J	32.2 UD	14.1 UQ	270. JQ	250. Q	--	--	16. U	--	13.8 UQ	15. UQ	14.2 UQ	13.9 UQ	94.4 JQ	--	83.3 UDQ	14.2 UQ	--
Diethylphthalat	NP	NP	NP	27.3 U	6.1 U	--	510.	6.4 U	12.9 UD	5.6 U	7.1 U	14.1 UD	--	--	6.4 U	--	2100.	1300.	5.7 U	5.6 U	6.7 U	--	33.3 UD	5.7 U	--
Dimethylphthalate	NP	NP	NP	47.2 UQ	330. JQ	--	490.	490.	390.	310. JQ	390. JQ	360. Q	--	--	560.	--	230. JQ	240. JQ	210. JQ	180. JQ	360. JQ	--	57.7 UDQ	250. JQ	--
Di-n-butylphthalate	140000	2500000	1000000	140. U	30.6 U	--	27.5 U	32.4 U	64.8 UD	28.3 U	35.5 U	71.1 UD	--	--	32.3 U	--	27.8 U	30.3 U	28.6 U	28.1 U	33.6 U	--	170. UD	28.6 U	--
Di-n-octylphthalate	20000	2500000	1000000	19.9 U	4.4 U	--	4. U	4.7 U	9.4 UD	4.1 U	5.2 U	10.3 UD	--	--	4.7 U	--	4. U	4.4 U	4.2 U	4.1 U	4.9 U	--	24.4 UD	4.1 U	--
Fluoranthene	56000	2500000	1000000	35.1 U	7.8 U	--	7. U	4400.	3200.	120. J	4400.	3900.	--	--	1300.	--	7.1 U	150. J	170. J	84. J	7300.	--	6700.	87.7 J	--
Fluorene	56000	2500000	1000000	66. U	14.7 U	--	13.2 U	170. J	31.2 UD	13.6 U	510.	450.	--	--	15.6 U	--	13.3 U	14.6 U	13.8 U	13.5 U	280. J	--	80.8 UD	13.8 U	--
Hexachlorobenzene	1000	3600	1000	71.3 U	15.9 U	--	14.3 U	16.8 U	33.6 UD	14.7 U	18.4 U	36.9 UD	--	--	16.8 U	--	14.4 U	15.7 U	14.9 U	14.6 U	17.4 U	--	87.2 UD	14.8 U	--
Hexachlorobutadiene	NP	NP	NP	63.4 U	14.1 U	--	12.7 U	15. U	--	13.1 U	16.4 U	--	--	--	14.9 U	--	12.8 U	14. U	13.2 U	13. U	15.5 U	--	--	13.2 U	--
Hexachlorocyclopentadiene	NP	NP	NP	42.5 U	9.5 U	--	8.5 U	10. U	20. UD	8.8 U	11. U	22. UD	--	--	10. U	--	8.6 U	9.4 U	8.8 U	8.7 U	10.4 U	--	51.9 UD	8.8 U	--
Hexachloroethane	1000	410000	44000	78.1 U	17.4 U	--	15.7 U	18.4 U	36.8 UD	16.1 U	20.2 U	40.4 UD	--	--	18.4 U	--	15.8 U	17.2 U	16.3 U	16. U	19.1 U	--	95.5 UD	16.3 U	--
Indeno(1,2,3-cd)pyrene	NP	NP	NP	58.2 U	13. U	--	11.7 U	990.	750.	12. U	590.	520.	--	--	430.	--	11.8 U	12.8 U	12.1 U	11.9 U	2100.	--	1900.	12.1 U	--
Isophorone	NP	NP	NP	57.7 UQ	12.9 UQ	--	11.6 U	13.6 U	27.2 UD	11.9 UQ	14.9 UQ	29.8 UDQ	--	--	13.6 U	--	11.7 UQ	12.7 UQ	12. UQ	11.8 UQ	14.1 UQ	--	70.5 UDQ	12. UQ	--
Naphthalene	56000	2500000	1000000	60.3 U	13.4 U	--	12.1 U	170. J	--	12.4 U	160. J	--	--	--	14.2 U	--	12.2 U	13.3 U	12.6 U	79.7 J	14.7 U	--	--	12.6 U	--
Nitrobenzene	NP	NP	NP	66. U	14.7 U	--	13.2 U	15.6 U	31.2 UD	13.6 U	17.1 U	34.2 UD	--	--	15.6 U	--	13.3 U	14.6 U	13.8 U	13.5 U	16.2 U	--	80.8 UD	13.8 U	--
N-Nitroso-di-n-propylamine	NP	NP	NP	88.1 U	19.6 U	--	17.6 U	20.8 U	41.5 UD	18.2 U	22.8 U	45.6 UD	--	--	20.7 U	--	17.8 U	19.4 U	18.4 U	18. U	21.5 U	--	110. UD	18.3 U	--
N-Nitrosodiphenylamine	NP	NP	NP	41.9 U	9.4 U	--	8.4 U	9.9 U	19.8 UD	8.7 U	10.8 U	21.7 UD	--	--	9.9 U	--	8.5 U	9.2 U	8.7 U	8.6 U	10.3 U	--	51.3 UD	8.7 U	--
Pentachlorophenol	1000	48000	5100	120. U	26.7 U	--	24. U	28.2 U	56.4 UD	24.7 U	30.9 U	61.8 UD	--	--	28.1 U	--	24.2 U	26.4 U	24.9 U	24.4 U	29.2 U	--	150. UD	24.9 U	--
Phenanthrene	40000	2500000	1000000	47.2 U	10.5 U	--	9.5 U	2900.	2100.	9.7 U	2500.	2200.	--	--	580.	--	9.5 U	10.4 U	110. J	95.4 J	3100.	--	2700.	9.8 U	--
Phenol	800000	2500000	1000000	40.4 U	9. U	--	8.1 U	94. J	19. UD	8.3 U	10.4 U	20.9 UD	--	--	9.5 U	--	8.2 U	8.9 U	8.4 U	8.3 U	9.9 U	--	49.4 UD	8.4 U	--
Pyrene	40000	2500000	1000000	41.9 U	9.4 U	--	8.4 U	3700.	2800.	110. J	3500.	3100.	--	--	1100.	--	8.5 U	130. J	150. J	77.5 J	4700.	--	5100.	83.7 J	--
Pyridine	NP	NP	NP	170. U	39. U	--	35. U	41.2 U	82.4 UD	36. U	45.2 U	90.4 UD	--	--	41.1 U	--	35.3 U	38.5 U	36.4 U	35.7 U	42.7 U	--	210. UD	36.4 U	--
Quintozene	NP	NP	NP	68.7 U	15.3 U	--	13.8 U	16.2 U	--	14.2 U	17.8 U	--	--	--	16.2 U	--	13.9 U	15.1 U	14.3 U	14. U	16.8 U	--	--	14.3 U	--

TABLE 2
Summary of Soil Sample Analytical Results
Environmental Sampling Report
Phase II Environmental Due Diligence Audit
National Coast Guard Museum
New London, Connecticut

Location	Remediation Stanard Regulations Criteria			B-1	B-1	B-1	B-2	B-2	B-2	B-3	B-3	B-3	B-3	B-4	B-4	B-4	B-5	B-5	B-6	B-6	B-6	B-6	B-6	B-7	B-7
Sample ID				B-1(0-2)	B-1(6-8)	B-1(6-8)RA	B-2(0-2)	B-2(4-6)	B-2(4-6)RA	B-3(0-2)	B-3(4-6)	B-3(4-6)RA	B-3(4-6)RA	B-4(0-2)	B-4(4-6)	B-4(4-6)RA	B-5(0-2)	B-4(4-6)	B-6(0-2)	B-6(0-2)REP	B-6(4-6)	B-6(4-6)RA	B-6(4-6)RA	B-7(0-2)	B-7(0-2)RA
Sample Date	GBPMC	ICDEC	RDEC	02/06/14	02/06/14	02/06/14	02/04/14	02/04/14	02/04/14	02/06/14	02/06/14	02/06/14	02/06/14	02/04/14	02/04/14	02/04/14	02/06/14	02/06/14	02/06/14	02/06/14	02/06/14	02/06/14	02/06/14	02/06/14	02/06/14
Sample Depth (ft)				0 - 2	6 - 8	6 - 8	0 - 2	4 - 6	4 - 6	0 - 2	4 - 6	4 - 6	4 - 6	0 - 2	4 - 6	4 - 6	0 - 2	4 - 6	0 - 2	0 - 2	4 - 6	4 - 6	4 - 6	0 - 2	0 - 2
Polychlorinated Biphenyls (ug/kg)																									
Aroclor 1262	NP	NP	NP	3.5 U	3.9 U	--	3.5 U	4.1 U	--	3.6 U	4.5 U	--	--	3.5 U	4.1 U	--	3.5 U	3.9 U	3.6 U	3.6 U	4.3 U	--	--	3.6 U	--
Aroclor-1016	NP	NP	NP	3.5 U	3.9 U	--	3.5 U	4.1 U	--	3.6 U	4.5 U	--	--	3.5 U	4.1 U	--	3.5 U	3.9 U	3.6 U	3.6 U	4.3 U	--	--	3.6 U	--
Aroclor-1221	NP	NP	NP	3.5 U	3.9 U	--	3.5 U	4.1 U	--	3.6 U	4.5 U	--	--	3.5 U	4.1 U	--	3.5 U	3.9 U	3.6 U	3.6 U	4.3 U	--	--	3.6 U	--
Aroclor-1232	NP	NP	NP	3.5 U	3.9 U	--	3.5 U	4.1 U	--	3.6 U	4.5 U	--	--	3.5 U	4.1 U	--	3.5 U	3.9 U	3.6 U	3.6 U	4.3 U	--	--	3.6 U	--
Aroclor-1242	NP	NP	NP	3.5 U	3.9 U	--	3.5 U	4.1 U	--	3.6 U	4.5 U	--	--	3.5 U	4.1 U	--	3.5 U	3.9 U	3.6 U	3.6 U	4.3 U	--	--	3.6 U	--
Aroclor-1248	NP	NP	NP	3.5 U	3.9 U	--	3.5 U	4.1 U	--	3.6 U	4.5 U	--	--	3.5 U	4.1 U	--	3.5 U	3.9 U	3.6 U	3.6 U	4.3 U	--	--	3.6 U	--
Aroclor-1254	NP	NP	NP	1.6 U	1.7 U	--	1.6 U	1.8 U	--	1.6 U	2. U	--	--	1.6 U	1.8 U	--	79.8	1.7 U	1.6 U	1.6 U	1.9 U	--	--	1.6 U	--
Aroclor-1260	NP	NP	NP	3.5 U	3.9 U	--	3.5 U	4.1 U	--	3.6 U	4.5 U	--	--	3.5 U	4.1 U	--	3.5 U	3.9 U	3.6 U	56.6	4.3 U	--	--	3.6 U	--
Aroclor-1268	NP	NP	NP	3.5 U	3.9 U	--	3.5 U	4.1 U	--	3.6 U	4.5 U	--	--	3.5 U	4.1 U	--	3.5 U	3.9 U	3.6 U	3.6 U	4.3 U	--	--	3.6 U	--
Pesticides (ug/kg)																									
4,4'-DDD	NP	NP	NP	0.178 U	0.199 U	--	0.179 U	0.21 U	--	0.184 U	0.23 U	--	--	0.177 U	0.21 U	--	0.18 U	0.197 U	0.186 U	0.183 U	0.218 U	--	--	0.186 U	--
4,4'-DDE	NP	NP	NP	0.21 U	0.234 U	--	0.21 U	0.247 U	--	0.216 U	0.27 U	--	--	0.208 U	0.247 U	--	0.212 U	0.231 U	0.218 U	0.215 U	0.256 U	--	--	0.218 U	--
4,4'-DDT	NP	NP	NP	0.147 U	0.164 U	--	0.147 U	0.173 U	--	0.151 U	0.189 U	--	--	0.146 U	0.173 U	--	0.149 U	0.162 U	0.153 U	0.15 U	0.179 U	--	--	0.153 U	--
Aldrin	NP	NP	NP	0.105 U	0.117 U	--	0.105 U	0.124 U	--	0.108 U	0.135 U	--	--	0.104 U	0.123 U	--	0.106 U	0.116 U	0.109 U	0.107 U	0.128 U	--	--	0.109 U	--
Chlordane	66	2200	490	3.5 U	3.9 U	--	3.5 U	4.1 U	--	3.6 U	4.5 U	--	--	3.5 U	4.1 U	--	3.5 U	3.9 U	3.6 U	3.6 U	4.3 U	--	--	3.6 U	--
Dieldrin	7	360	38	0.136 U	0.152 U	--	0.137 U	0.161 U	--	0.141 U	0.176 U	--	--	0.135 U	0.16 U	--	0.138 U	0.15 U	0.142 U	0.14 U	0.166 U	--	--	0.142 U	--
Endosulfansulfate	NP	NP	NP	0.157 U	0.175 U	--	0.158 U	0.185 U	--	0.162 U	0.203 U	--	--	0.156 U	0.185 U	--	0.159 U	0.174 U	0.164 U	0.161 U	0.192 U	--	--	0.164 U	--
Endosulfan-I	NP	NP	NP	0.157 U	0.175 U	--	0.158 U	0.185 U	--	0.162 U	0.203 U	--	--	0.156 U	0.185 U	--	0.159 U	0.174 U	0.164 U	0.161 U	0.192 U	--	--	0.164 U	--
Endosulfan-II	NP	NP	NP	0.147 U	0.164 U	--	0.147 U	0.173 U	--	0.151 U	0.189 U	--	--	0.146 U	0.173 U	--	0.149 U	0.162 U	0.153 U	0.15 U	0.179 U	--	--	0.153 U	--
Endrin	NP	610000	20000	0.189 U	0.21 U	--	0.189 U	0.223 U	--	0.195 U	0.243 U	--	--	0.187 U	0.222 U	--	0.191 U	0.208 U	0.196 U	0.193 U	0.23 U	--	--	0.197 U	--
Endrin aldehyde	NP	NP	NP	0.157 U	0.175 U	--	0.158 U	0.185 U	--	0.162 U	0.203 U	--	--	0.156 U	0.185 U	--	0.159 U	0.174 U	0.164 U	0.161 U	0.192 U	--	--	0.164 U	--
Endrin ketone	NP	NP	NP	0.136 U	0.152 U	--	0.137 U	0.161 U	--	0.141 U	0.176 U	--	--	0.135 U	0.16 U	--	0.138 U	0.15 U	0.142 U	0.14 U	0.166 U	--	--	0.142 U	--
Heptachlor	13	1300	140	0.147 U	0.164 U	--	0.147 U	0.173 U	--	0.151 U	0.189 U	--	--	0.146 U	0.173 U	--	0.149 U	0.162 U	0.153 U	0.15 U	0.179 U	--	--	0.153 U	--
Heptachlorepoxide	20	630	67	0.168 U	0.187 U	--	0.168 U	0.198 U	--	0.173 U	0.216 U	--	--	0.167 U	0.197 U	--	0.17 U	0.185 U	0.175 U	0.172 U	0.205 U	--	--	0.175 U	--
Methoxychlor	8000	10000000	340000	0.178 U	0.199 U	--	0.179 U	0.21 U	--	0.184 U	0.23 U	--	--	0.177 U	0.21 U	--	0.18 U	0.197 U	0.186 U	0.183 U	0.218 U	--	--	0.186 U	--
Toxaphene	600	5200	560	3.5 U	3.9 U	--	3.5 U	4.1 U	--	3.6 U	4.5 U	--	--	3.5 U	4.1 U	--	3.5 U	3.9 U	3.6 U	3.6 U	4.3 U	--	--	3.6 U	--
alpha-BHC	NP	NP	NP	0.136 U	0.152 U	--	0.137 U	0.161 U	--	0.141 U	0.176 U	--	--	0.135 U	0.16 U	--	0.138 U	0.15 U	0.142 U	0.14 U	0.166 U	--	--	0.142 U	--
beta-BHC	NP	NP	NP	0.189 U	0.21 U	--	0.189 U	0.223 U	--	0.195 U	0.243 U	--	--	0.187 U	0.222 U	--	0.191 U	0.208 U	0.196 U	0.193 U	0.23 U	--	--	0.197 U	--
delta-BHC	NP	NP	NP	0.105 U	0.117 U	--	0.105 U	0.124 U	--	0.108 U	0.135 U	--	--	0.104 U	0.123 U	--	0.106 U	0.116 U	0.109 U	0.107 U	0.128 U	--	--	0.109 U	--
gamma-BHC(Lindane)	40	610000	20000	0.157 U	0.175 U	--	0.158 U	0.185 U	--	0.162 U	0.203 U	--	--	0.156 U	0.185 U	--	0.159 U	0.174 U	0.164 U	0.161 U	0.192 U	--	--	0.164 U	--
Total Asbestos (%)																									
Asbestos	NP	NP	NP	ND	--	--	ND	--	--	ND	--	--	--	ND	--	--	ND	--	ND	ND	--	--	--	ND	--
Total Metals (mg/kg)																									
Arsenic	NP	10.	10.	1.75 N	2.01 N	--	2.9	9.4	--	2.98 N	4.33 N	--	--	0.66 JN	9.66	--	0.651 JN	0.98 N	2.84 N	1.81 N	4.57 N	--	--	2.28 N	--
Barium	NP	140000.	4700.	36.7	30.4	--	17.6	95.7	--	119.	61.7	--	--	9.89	155.	--	23.5	23.2	50.8	36.3	86.3	--	--	44.8	--
Cadmium	NP	1000.	34.	0.401 N	0.285 JN	--	0.624	0.737	--	0.734 N	0.72 N	--	--	0.069 JN	0.999	--	0.135 JN	0.146 JN	0.486 N	0.251 JN	0.343 N	--	--	0.501 N	--
Chromium	NP	100.*	100.*	9.28 N	7.5 N	--	12.7	10.13	--	15.1 N	18.8 N	--	--	2.81 N	14.6	--	9.46 N	7.25 N	12.6 N	9.1 N	8.49 N	--	--	16.3 N	--
Copper	NP	76000.	2500.	21.6 N	25.7 N	--	16.3	98.2	--	36.5 N	56.7 N	--	--	6.62 N	126.	--	33.7 N	18.1 N	41.5 N	23.6 N	76.1 N	--	--	58.2 N	--
Lead	NP	1000.	400	58.6 N	81.1 N	--	24.9	366.	--	51. N	276. N	--	--	6.15 N	[1200.]	--	31.5 N	45.8 N	56.7 N	39.8 N	[2000.] N	--	--	92.2 N	--
Mercury	NP	610.	20.	0.049	0.038	--	0.037	1.32	--	0.051	0.876	--	--	0.016	0.518	--	0.018	0.051	0.035	0.016	0.115	--	--	0.069	--
Nickel	NP	7500.	1400.	9.38 N	7.71 N	--	7.07	12.8	--	22.9 N	10.94 N	--	--	2.56 N	16.2	--	18.2 N	8.02 N	20.8 N	10.46 N	5.87 N	--	--	30.9 N	--
Selenium	NP	10000.	340.	0.365 UN	0.397 UN	--	0.367 U	0.439 U	--	0.371 UN	0.473 UN	--	--	0.365 UN	0.42 U	--	0.364 UN	0.401 UN	0.377 UN	0.363 UN	0.44 UN	--	--	0.379 UN	--
Silver	NP	10000.	340.	0.134 UN	0.145 UN	--	0.134 UN	0.16 UN	--	0.136 UN	0.264 JN	--	--	0.134 UN	0.154 UN	--	0.133 UN	0.147 UN	0.138 UN	0.133 UN	0.161 UN	--	--	0.138 UN	--
Zinc	NP	610000.	20000.	52.9	201.	--	50.	87.5	--	143.	195.	--	--	12.7	137.	--	91.2	53.6	125.	58.9	96.9	--	--	214.	--

Notes:
(ug/l) = Micrograms per liter
(mg/l) - Milligrams per liter
RA = Laboratory re-analysis of sample.
U = Constituent not detected at listed concentration. Detection limits provided where available.
D = The reported value is from a secondary analysis based on a dulited sample; the original analysis exceeded calibration range.
E = Result estimated due to interference.
J = Result estimated due to a positive reading below the contract required detection limit but above the instrument detection limit.
N = Spiked sample recovery associated with result was not within control limits.
Q = Lab control sample associated with result was not within control limit requirements.
[ ] = Indicates exceedance of lowest listed criteria
-- = Not analyzed for this constituent
NP = Not published
* = Hexavalent chromium criteria used.

2013 Remediation Standard Regulations (RSRs):
GBPMC = GB Pollutant Mobility Criteria
ICDEC = Industrial/Commercial Direct Exposure Criteria
RDEC = Residential Direct Exposure Criteria

TABLE 2
Summary of Soil Sample Analytical Results
Environmental Sampling Report
Phase II Environmental Due Diligence Audit
National Coast Guard Museum
New London, Connecticut

Location / **Sample ID** / **Sample Date** / **Sample Depth** (ft)	**Remediation Stanard Regulations Criteria**			**B-7** B-7(4-6) 02/06/14 4 - 6	**B-7** B-7(4-6)RA 02/06/14 4 - 6	**B-9** B-9(4-6) 02/04/14 4 - 6	**T-1** T-1(0-6) 02/06/14 0 - 0.5	**T-1** T-1(0-6)RA 02/06/14 0 - 0.5	**T-2** T-2(0-6) 02/06/14 0 - 0.5
	GBPMC	**ICDEC**	**RDEC**						
Volatile Organic Compounds (ug/kg)									
1,1,1,2-Tetrachloroethane	200	220000	24000	0.47 U	0.4 U	0.64 U	0.45 U	0.59 U	0.39 U
1,1,1-trichloroethane	40000	1000000	500000	0.55 U	0.47 U	0.75 UQ	0.52 U	0.69 U	0.46 U
1,1,2,2-Tetrachloroethane	100	29000	3100	0.51 U	0.43 U	0.69 U	0.48 U	0.63 U	0.42 U
1,1,2-Trichloroethane	1000	100000	11000	0.99 U	0.84 U	1.3 U	0.94 U	1.2 U	0.82 U
1,1,2-Trichlorotrifluoroethane	NP	NP	NP	0.55 UQ	0.47 U	0.75 UQ	0.52 UQ	0.69 U	0.46 U
1,1-Dichloroethane	14000	1000000	500000	0.55 U	0.47 U	0.75 U	0.52 U	0.69 U	0.46 U
1,1-Dichloroethene	1400	9500	1000	0.55 U	0.47 U	0.75 UQ	0.52 U	0.69 U	0.46 U
1,1-Dichloropropene	NP	NP	NP	0.51 U	0.43 U	0.69 U	0.48 U	0.63 U	0.42 U
1,2,3-Trichlorobenzene	NP	NP	NP	0.55 U	0.47 U	0.75 U	0.52 U	0.69 U	0.46 U
1,2,3-Trichloropropane	NP	NP	NP	0.54 U	0.46 U	0.73 U	0.51 U	0.67 U	0.45 U
1,2,4-Trichlorobenzene	NP	NP	NP	0.55 U	0.47 U	0.75 U	0.52 U	0.69 U	0.46 U
1,2,4-Trimethylbenzene	NP	NP	NP	0.55 U	0.47 U	0.75 U	0.52 U	0.69 U	0.46 U
1,2-Dibromo-3-chloropropane	NP	NP	NP	0.96 U	0.81 U	1.3 U	0.9 U	1.2 U	0.8 U
1,2-Dibromoethane	100	67	7	0.55 U	0.47 U	0.75 U	0.52 U	0.69 U	0.46 U
1,2-Dichlorobenzene	3100	1000000	500000	0.55 U	0.47 U	0.75 U	0.52 U	0.69 U	0.46 U
1,2-Dichloroethane	200	63000	6700	0.55 U	0.47 U	0.75 U	0.52 U	0.69 U	0.46 U
1,2-Dichloropropane	1000	84000	9000	0.29 U	0.24 U	0.39 U	0.27 U	0.36 U	0.24 U
1,3,5-Trimethylbenzene	NP	NP	NP	0.49 U	0.42 U	0.67 U	0.47 U	0.62 U	0.41 U
1,3-Dichlorobenzene	120000	1000000	500000	0.41 U	0.35 U	0.55 U	0.38 U	0.51 U	0.34 U
1,3-Dichloropropane	100	32000	3400	0.55 U	0.47 U	0.75 U	0.52 U	0.69 U	0.46 U
1,4-Dichlorobenzene	15000	240000	26000	0.45 U	0.38 U	0.61 U	0.43 U	0.56 U	0.38 U
2,2-Dichloropropane	NP	NP	NP	0.55 U	0.47 U	0.75 U	0.52 U	0.69 U	0.46 U
2-Butanone	80000	1000000	500000	3.4 U	2.9 U	4.7 U	3.2 U	4.3 U	2.8 U
2-Chlortoluene	NP	NP	NP	0.55 U	0.47 U	0.75 U	0.52 U	0.69 U	0.46 U
2-Hexanone	NP	NP	NP	2.7 U	2.3 U	3.7 U	2.6 U	3.4 U	2.3 U
4-Chlorotoluene	NP	NP	NP	0.55 U	0.47 U	0.75 U	0.52 U	0.69 U	0.46 U
4-Methyl-2-pentanone	14000	1000000	500000	2.7 U	2.3 U	3.7 U	2.6 U	3.4 U	2.3 U
Acetone	140000	1000000	500000	33.3	8.8 J	7.9 J	2.6 U	3.4 U	2.3 U
Acrylonitrile	100	11000	1100	2.7 U	2.3 U	3.7 U	2.6 U	3.4 U	2.3 U
Benzene	200	200000	21000	2.8 J	1.5 J	0.57 U	0.39 U	0.52 U	0.35 U
Bromobenzene	NP	NP	NP	0.55 U	0.47 U	0.75 U	0.52 U	0.69 U	0.46 U
Bromodichloromethane	NP	NP	NP	0.55 U	0.47 U	13.2	0.52 U	0.69 U	0.46 U
Bromoform	800	720000	78000	0.81 U	0.69 U	1.1 U	0.77 U	1. U	0.68 U
Bromomethane	NP	NP	NP	1.1 UQ	0.93 U	1.5 UQ	1. UQ	1.4 U	0.92 U
CarbonTetrachloride	1000	44000	4700	0.55 U	0.47 U	0.75 UQ	0.52 U	0.69 U	0.46 U
Carbondisulfide	NP	NP	NP	0.55 UQ	0.47 U	1.6 JQ	0.52 UQ	0.69 U	0.46 U
Chlorobenzene	20000	1000000	500000	0.55 U	0.47 U	0.75 U	0.52 U	0.69 U	0.46 U
Chloroethane	NP	NP	NP	0.55 UQ	0.47 U	0.75 UQ	0.52 UQ	0.69 U	0.46 U
Chloroform	1200	940000	100000	1.8 J	1.4 J	49.5	0.52 U	0.69 U	0.46 U
Chloromethane	NP	NP	NP	0.55 UQ	0.47 UQ	0.75 UQ	0.52 UQ	0.69 UQ	0.46 UQ
Dibromochloromethane	100	68000	7300	0.55 U	0.47 U	4. J	0.52 U	0.69 U	0.46 U
Dibromomethane	NP	NP	NP	0.55 U	0.47 U	0.75 U	0.52 U	0.69 U	0.46 U
Dichlorodifluoromethane	NP	NP	NP	0.55 UQ	0.47 UQ	0.75 UQ	0.52 UQ	0.69 UQ	0.46 UQ
Ethyl benzene	10100	1000000	500000	0.55 U	0.47 U	0.75 U	0.52 U	0.69 U	0.46 U
Hexachlorobutadiene	NP	NP	NP	0.55 U	0.47 U	0.75 U	0.52 U	0.69 U	0.46 U
Isopropylbenzene	NP	NP	NP	0.53 U	0.45 U	0.72 U	0.5 U	0.66 U	0.44 U
Methyltert-butylether	20000	1000000	500000	0.55 U	0.47 U	0.75 U	0.52 U	0.69 U	0.46 U
MethyleneChloride	1000	760000	82000	5.9	0.47 U	0.75 UQ	7.4	4.4 J	0.46 U
Naphthalene	56000	2500000	1000000	0.49 U	0.42 U	0.67 U	0.47 U	0.62 U	0.41 U
Styrene	20000	1000000	500000	0.49 U	0.42 U	0.67 U	0.47 U	0.62 U	0.41 U
Tetrachloroethene	1000	110000	12000	0.55 U	0.47 U	0.75 U	0.52 U	0.69 U	0.46 U
Tetrahydrofuran	NP	NP	NP	3.4 U	--	0.57 U	3.2 U	--	2.8 U
Toluene	67000	1000000	500000	3.1 J	1.6 J	0.75 U	0.52 U	0.69 U	0.46 U
Trichloroethene	1000	520000	56000	0.55 U	0.47 U	0.75 U	0.52 U	0.69 U	0.46 U
Trichlorofluoromethane	NP	NP	NP	0.55 U	0.47 U	0.75 UQ	0.52 U	0.69 U	0.46 U
Vinyl chloride	400	3000	320	0.55 UQ	0.47 U	0.75 UQ	0.52 UQ	0.69 U	0.46 U
cis-1,2-Dichloroethene	14000	1000000	500000	0.55 U	0.47 U	0.75 U	0.52 U	0.69 U	0.46 U
cis-1,3-Dichloropropene	NP	NP	NP	0.55 U	0.47 U	0.75 U	0.52 U	0.69 U	0.46 U
m/p-xylene	19500	1000000	500000	1.2 J	0.67 U	1.1 U	0.75 U	0.99 U	0.66 U
n-Butylbenzene	NP	NP	NP	0.51 U	0.43 U	0.69 U	0.48 U	0.63 U	0.42 U
n-Propylbenzene	NP	NP	NP	0.4 U	0.34 U	0.54 U	0.37 U	0.49 U	0.33 U
o-Xylene	19500	1000000	500000	0.55 U	0.47 U	0.75 U	0.52 U	0.69 U	0.46 U
p-Isopropyltoluene	NP	NP	NP	0.32 U	0.27 U	16.8	0.3 U	0.4 U	0.27 U
sec-Butylbenzene	NP	NP	NP	0.55 U	0.47 U	0.75 U	0.52 U	0.69 U	0.46 U
tert-Butylbenzene	NP	NP	NP	0.55 U	0.47 U	0.75 U	0.52 U	0.69 U	0.46 U
trans-1,2-Dichloroethene	20000	1000000	500000	0.55 U	0.47 U	0.75 U	0.52 U	0.69 U	0.46 U
Trans-1,3-Dichloropropene	NP	NP	NP	0.55 U	0.47 U	0.75 U	0.52 U	0.69 U	0.46 U
trans-1,4-Dichloro-2-butene	NP	NP	NP	1.1 U	0.93 U	1.5 U	1. U	1.4 U	0.92 U

TABLE 2
Summary of Soil Sample Analytical Results
Environmental Sampling Report
Phase II Environmental Due Diligence Audit
National Coast Guard Museum
New London, Connecticut

Location / **Sample ID** / **Sample Date** / **Sample Depth** (ft)	**Remediation Stanard Regulations Criteria**			**B-7** B-7(4-6) 02/06/14 4 - 6	**B-7** B-7(4-6)RA 02/06/14 4 - 6	**B-9** B-9(4-6) 02/04/14 4 - 6	**T-1** T-1(0-6) 02/06/14 0 - 0.5	**T-1** T-1(0-6)RA 02/06/14 0 - 0.5	**T-2** T-2(0-6) 02/06/14 0 - 0.5
	GBPMC	**ICDEC**	**RDEC**						
Extractable Total Petroleum Hydrocarbons (mg/kg)									
ETPH	2500.	2500.	500.	230.	--	240.	120.	--	68.
Semi-Volatile Organic Compounds (ug/kg)									
1,2,4,5-Tetrachlorobenzene	NP	NP	NP	16.7 U	--	20. U	14.4 U	--	14.5 U
1,2,4-Trichlorobenzene	NP	NP	NP	16.1 U	--	19.4 U	13.9 U	--	14.1 U
2,2'-Oxybis(1-Chloropropane)	2400	82000	8800	17.5 U	--	21.1 U	15.2 U	--	15.3 U
2,4,5-Trichlorophenol	NP	NP	NP	29.8 U	--	35.7 U	25.7 U	--	25.9 U
2,4,6-Trichlorophenol	NP	NP	NP	13. U	--	15.6 U	11.2 U	--	11.3 U
2,4-Dichlorophenol	4000	2500000	200000	16.1 U	--	19.4 U	13.9 U	--	14.1 U
2,4-Dimethylphenol	NP	NP	NP	24. U	--	28.9 UQ	20.8 U	--	20.9 U
2,4-Dinitrophenol	NP	NP	NP	43.1 U	--	51.8 U	37.2 U	--	37.6 U
2,4-Dinitrotoluene	NP	NP	NP	12.7 U	--	15.3 U	11. U	--	11.1 U
2,6-Dinitrotoluene	NP	NP	NP	17.3 U	--	20.8 U	14.9 U	--	15.1 U
2-Chloronapthalene	NP	NP	NP	9.7 U	--	11.6 U	8.3 U	--	8.4 U
2-Chlorophenol	7200	2500000	340000	22.4 U	--	26.9 U	19.3 U	--	19.5 U
2-Methylnapthalene	NP	NP	NP	10.7 U	--	12.8 U	9.2 U	--	9.3 U
2-Methylphenol	NP	NP	NP	23. U	--	27.6 UQ	19.9 U	--	20.1 U
2-Nitroaniline	NP	NP	NP	18.8 U	--	22.6 U	16.3 U	--	16.4 U
2-Nitrophenol	NP	NP	NP	20.5 U	--	24.6 U	17.7 U	--	17.8 U
3,3-Dichlorobenzidine	NP	NP	NP	27.2 U	--	32.7 U	23.5 U	--	23.7 U
3+4-Methylphenol	NP	NP	NP	22. U	--	26.4 U	19. U	--	19.2 U
3-Nitroaniline	NP	NP	NP	27.2 U	--	32.7 U	23.5 U	--	23.7 U
4,6-Dinitro-2-methylphenol	NP	NP	NP	24.3 U	--	29.2 U	21. U	--	21.2 U
4-Bromophenylphenyl ether	NP	NP	NP	8.3 U	--	9.9 U	7.1 U	--	7.2 U
4-Chloro-3-Methylphenol	NP	NP	NP	18.8 U	--	22.6 U	16.3 U	--	16.4 U
4-Chloroaniline	NP	NP	NP	29.9 U	--	35.9 U	25.8 U	--	26. U
4-chlorophenyl-phenylether	NP	NP	NP	23. UQ	--	27.6 U	19.9 UQ	--	20.1 UQ
4-Nitroaniline	NP	NP	NP	55.2 U	--	66.3 U	47.7 U	--	48.1 U
4-Nitrophenol	NP	NP	NP	78.7 U	--	94.5 U	68. U	--	68.6 U
Acenaphthene	NP	NP	NP	12. UQ	--	14.4 U	10.3 UQ	--	10.4 UQ
Acenaphthylene	84000	2500000	1000000	10.7 U	--	240. J	9.2 U	--	9.3 U
Aniline	NP	NP	NP	36.1 U	--	43.4 U	31.2 U	--	31.5 U
Anthracene	400000	2500000	1000000	8.6 U	--	180. J	7.5 U	--	7.5 U
Benzo(a)anthracene	1000	7800	1000	20.2 U	--	610.	110. J	--	17.6 U
Benzo(a)pyrene	1000	1000	1000	9.2 U	--	620.	95.6 J	--	8. U
Benzo(b)fluoranthene	1000	7800	1000	90.7 J	--	730.	140. J	--	12.1 U
Benzo(g,h,i)perylene	NP	NP	NP	17.2 U	--	450. J	14.8 U	--	15. U
Benzo(k)fluoranthene	1000	78000	8400	20. U	--	270. J	17.2 U	--	17.4 U
Bis(2-chloroethoxy)methane	NP	NP	NP	24.4 U	--	29.3 U	21.1 U	--	21.3 U
Bis(2-chloroethyl)ether	2400	5200	1000	20.3 U	--	24.4 U	17.6 U	--	17.7 U
Bis(2-ethylhexyl)phthalate	11000	410000	44000	15. U	--	18. U	13. U	--	13.1 U
Butylbenzylphthalate	200000	2500000	1000000	20.3 U	--	24.4 U	110. J	--	17.7 U
Carbazole	NP	NP	NP	9.3 U	--	11.1 U	8. U	--	8.1 U
Chrysene	NP	NP	NP	19.2 U	--	630.	110. J	--	16.7 U
Dibenzo(a,h)anthracene	NP	NP	NP	12.2 U	--	120. J	10.5 U	--	10.6 U
Dibenzofuran	NP	NP	NP	16.5 UQ	--	19.8 U	14.3 UQ	--	14.4 UQ
Diethylphthalat	NP	NP	NP	240. J	--	190. J	470.	--	5.8 U
Dimethylphthalate	NP	NP	NP	310. JQ	--	740.	220. JQ	--	220. JQ
Di-n-butylphthalate	140000	2500000	1000000	33.3 U	--	40. U	28.8 U	--	29. U
Di-n-octylphthalate	20000	2500000	1000000	4.8 U	--	5.8 U	4.2 U	--	4.2 U
Fluoranthene	56000	2500000	1000000	160. J	--	990.	180. J	--	77.9 J
Fluorene	56000	2500000	1000000	16. U	--	19.2 U	13.8 U	--	14. U
Hexachlorobenzene	1000	3600	1000	17.3 U	--	20.8 U	14.9 U	--	15.1 U
Hexachlorobutadiene	NP	NP	NP	15.4 U	--	18.5 U	13.3 U	--	13.4 U
Hexachlorocyclopentadiene	NP	NP	NP	10.3 U	--	12.4 U	8.9 U	--	9. U
Hexachloroethane	1000	410000	44000	18.9 U	--	22.7 U	16.4 U	--	16.5 U
Indeno(1,2,3-cd)pyrene	NP	NP	NP	14.1 U	--	430. J	12.2 U	--	12.3 U
Isophorone	NP	NP	NP	14. UQ	--	16.8 U	12.1 UQ	--	12.2 UQ
Naphthalene	56000	2500000	1000000	14.6 U	--	17.6 U	12.6 U	--	12.7 U
Nitrobenzene	NP	NP	NP	16. U	--	19.2 U	13.8 U	--	14. U
N-Nitroso-di-n-propylamine	NP	NP	NP	21.4 U	--	25.7 U	18.5 U	--	18.6 U
N-Nitrosodiphenylamine	NP	NP	NP	10.2 U	--	12.2 U	8.8 U	--	8.9 U
Pentachlorophenol	1000	48000	5100	29. U	--	34.8 U	25. U	--	25.3 U
Phenanthrene	40000	2500000	1000000	130. J	--	610.	98.9 J	--	10. U
Phenol	800000	2500000	1000000	9.8 U	--	120. J	8.5 U	--	8.5 U
Pyrene	40000	2500000	1000000	130. J	--	960.	170. J	--	8.9 U
Pyridine	NP	NP	NP	42.4 U	--	50.9 U	36.6 U	--	36.9 U
Quintozene	NP	NP	NP	16.7 U	--	20. U	14.4 U	--	14.5 U

TABLE 2
Summary of Soil Sample Analytical Results
Environmental Sampling Report
Phase II Environmental Due Diligence Audit
National Coast Guard Museum
New London, Connecticut

Location / **Sample ID** / **Sample Date** / **Sample Depth** (ft)	**Remediation Stanard Regulations Criteria**			**B-7** B-7(4-6) 02/06/14 4 - 6	**B-7** B-7(4-6)RA 02/06/14 4 - 6	**B-9** B-9(4-6) 02/04/14 4 - 6	**T-1** T-1(0-6) 02/06/14 0 - 0.5	**T-1** T-1(0-6)RA 02/06/14 0 - 0.5	**T-2** T-2(0-6) 02/06/14 0 - 0.5
	GBPMC	**ICDEC**	**RDEC**						
Polychlorinated Biphenyls (ug/kg)									
Aroclor 1262	NP	NP	NP	4.2 U	--	5.1 U	3.7 U	--	3.7 U
Aroclor-1016	NP	NP	NP	4.2 U	--	5.1 U	3.7 U	--	3.7 U
Aroclor-1221	NP	NP	NP	4.2 U	--	5.1 U	3.7 U	--	3.7 U
Aroclor-1232	NP	NP	NP	4.2 U	--	5.1 U	3.7 U	--	3.7 U
Aroclor-1242	NP	NP	NP	4.2 U	--	5.1 U	3.7 U	--	3.7 U
Aroclor-1248	NP	NP	NP	4.2 U	--	5.1 U	3.7 U	--	3.7 U
Aroclor-1254	NP	NP	NP	1.9 U	--	2.3 U	1.6 U	--	1.7 U
Aroclor-1260	NP	NP	NP	4.2 U	--	5.1 U	3.7 U	--	3.7 U
Aroclor-1268	NP	NP	NP	4.2 U	--	5.1 U	3.7 U	--	3.7 U
Pesticides (ug/kg)									
4,4'-DDD	NP	NP	NP	0.216 U	--	0.26 U	0.187 U	--	0.188 U
4,4'-DDE	NP	NP	NP	0.254 U	--	0.306 U	0.22 U	--	0.222 U
4,4'-DDT	NP	NP	NP	0.178 U	--	0.214 U	0.154 U	--	0.155 U
Aldrin	NP	NP	NP	0.127 U	--	0.153 U	0.11 U	--	0.111 U
Chlordane	66	2200	490	4.2 U	--	5.1 U	3.7 U	--	3.7 U
Dieldrin	7	360	38	0.165 U	--	0.199 U	0.143 U	--	0.144 U
Endosulfansulfate	NP	NP	NP	0.19 U	--	0.23 U	0.165 U	--	0.166 U
Endosulfan-I	NP	NP	NP	0.19 U	--	0.23 U	0.165 U	--	0.166 U
Endosulfan-II	NP	NP	NP	0.178 U	--	0.214 U	0.154 U	--	0.155 U
Endrin	NP	610000	20000	0.228 U	--	0.276 U	0.198 U	--	0.199 U
Endrin aldehyde	NP	NP	NP	0.19 U	--	0.23 U	0.165 U	--	0.166 U
Endrin ketone	NP	NP	NP	0.165 U	--	0.199 U	0.143 U	--	0.144 U
Heptachlor	13	1300	140	0.178 U	--	0.214 U	0.154 U	--	0.155 U
Heptachlorepoxide	20	630	67	0.203 U	--	0.245 U	0.176 U	--	0.177 U
Methoxychlor	8000	10000000	340000	0.216 U	--	0.26 U	0.187 U	--	0.188 U
Toxaphene	600	5200	560	4.2 U	--	5.1 U	3.7 U	--	3.7 U
alpha-BHC	NP	NP	NP	0.165 U	--	0.199 U	0.143 U	--	0.144 U
beta-BHC	NP	NP	NP	0.228 U	--	0.276 U	0.198 U	--	0.199 U
delta-BHC	NP	NP	NP	0.127 U	--	0.153 U	0.11 U	--	0.111 U
gamma-BHC(Lindane)	40	610000	20000	0.19 U	--	0.23 U	0.165 U	--	0.166 U
Total Asbestos (%)									
Asbestos	NP	NP	NP	--	--	--	--	--	--
Total Metals (mg/kg)									
Arsenic	NP	10.	10.	3.75 N	--	[11.1]	2.34 N	--	2.64 N
Barium	NP	140000.	4700.	51.	--	872.	55.8	--	80.9
Cadmium	NP	1000.	34.	0.416 N	--	0.687	0.489 N	--	0.565 N
Chromium	NP	100.*	100.*	32.5 N	--	23.1	9.61 N	--	11.2 N
Copper	NP	76000.	2500.	113. N	--	187.	42.7 N	--	24.1 N
Lead	NP	1000.	400	149. N	--	[1900.]	88.2 N	--	31.1 N
Mercury	NP	610.	20.	0.066	--	0.363	0.147	--	0.047
Nickel	NP	7500.	1400.	57. N	--	6.81	9.92 N	--	10.51 N
Selenium	NP	10000.	340.	0.428 UN	--	0.525 U	0.375 UN	--	0.376 UN
Silver	NP	10000.	340.	0.156 UN	--	0.192 UN	0.137 UN	--	0.138 UN
Zinc	NP	610000.	20000.	388.	--	168.	71.2	--	65.2

Notes:
(ug/l) = Micrograms per liter
(mg/l) - Milligrams per liter
RA = Laboratory re-analysis of sample.
U = Constituent not detected at listed concentration. Detection limits provided where available.
D = The reported value is from a secondary analysis based on a dulited sample; the original analysis exceeded calibration range.
E = Result estimated due to interference.
J = Result estimated due to a positive reading below the contract required detection limit but above the instrument detection limit.
N = Spiked sample recovery associated with result was not within control limits.
Q = Lab control sample associated with result was not within control limit requirements.
[ ] = Indicates exceedance of lowest listed criteria
-- = Not analyzed for this constituent
NP = Not published
* = Hexavalent chromium criteria used.

2013 Remediation Standard Regulations (RSRs):
GBPMC = GB Pollutant Mobility Criteria
ICDEC = Industrial/Commercial Direct Exposure Criteria
RDEC = Residential Direct Exposure Criteria

TABLE 3
Summary of Sediment Sample Analytical Results
Environmental Sampling Report
Phase II Environmental Due Diligence Audit
National Coast Guard Museum
New London, Connecticut

Location	**SED-01**	**SED-02**	**SED-02**	**SED-03**	**SED-04**	**SED-04**	**SED-05**
Sample ID	SED-1(0-0.5)	SED-2(0-0.5)	SED-2(0-0.5)REP	SED-3(0-0.5)	SED-4(0-0.5)	SED-4(0-0.5)(RA)	SED-5(0-0.5)
Sample Date	02/12/14	02/12/14	02/12/14	02/12/14	02/12/14	02/12/14	02/12/14
Sample Depth (ft)	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
Volatile Organic Compounds (ug/kg)							
1,1,1,2-Tetrachloroethane	1. U	0.79 U	1.1 U	1.1 U	1.1 U	--	1.2 U
1,1,1-trichloroethane	1.2 U	0.92 U	1.3 U	1.2 U	1.3 U	--	1.4 U
1,1,2,2-Tetrachloroethane	1.1 U	0.84 U	1.2 U	1.1 U	1.2 U	--	1.3 U
1,1,2-Trichloroethane	2.1 U	1.7 U	2.3 U	2.2 U	2.3 U	--	2.6 U
1,1,2-Trichlorotrifluoroethane	1.2 U	0.92 U	1.3 U	1.2 U	1.3 U	--	1.4 U
1,1-Dichloroethane	1.2 U	0.92 U	1.3 U	1.2 U	1.3 U	--	1.4 U
1,1-Dichloroethene	1.2 U	0.92 U	1.3 U	1.2 U	1.3 U	--	1.4 U
1,1-Dichloropropene	1.1 U	0.84 U	1.2 U	1.1 U	1.2 U	--	1.3 U
1,2,3-Trichlorobenzene	1.2 U	0.92 U	1.3 U	1.2 U	1.3 U	--	1.4 U
1,2,3-Trichloropropane	1.2 U	0.9 U	1.3 U	1.2 U	1.2 U	--	1.4 U
1,2,4-Trichlorobenzene	1.2 U	0.92 U	1.3 U	1.2 U	1.3 U	27.6 U	1.4 U
1,2,4-Trimethylbenzene	1.2 U	0.92 U	1.3 U	1.2 U	1.3 U	--	1.4 U
1,2-Dibromo-3-chloropropane	2. UQ	1.6 UQ	2.2 UQ	2.2 UQ	2.2 UQ	--	2.5 UQ
1,2-Dibromoethane	1.2 U	0.92 U	1.3 U	1.2 U	1.3 U	--	1.4 U
1,2-Dichlorobenzene	1.2 U	0.92 U	1.3 U	1.2 U	1.3 U	--	1.4 U
1,2-Dichloroethane	1.2 U	0.92 U	1.3 U	1.2 U	1.3 U	--	1.4 U
1,2-Dichloropropane	0.61 U	0.48 U	0.66 U	0.65 U	0.66 U	--	0.75 U
1,3,5-Trimethylbenzene	1.1 U	0.83 U	1.2 U	1.1 U	1.1 U	--	1.3 U
1,3-Dichlorobenzene	0.87 U	0.68 U	0.95 U	0.92 U	0.94 U	--	1.1 U
1,3-Dichloropropane	1.2 U	0.92 U	1.3 U	1.2 U	1.3 U	--	1.4 U
1,4-Dichlorobenzene	0.96 U	0.75 U	1. U	1. U	1. U	--	1.2 U
2,2-Dichloropropane	1.2 U	0.92 U	1.3 U	1.2 U	1.3 U	--	1.4 U
2-Butanone	31. J	24.1 J	31.5 J	40.9 J	41.1 J	--	40.7 J
2-Chlortoluene	1.2 U	0.92 U	1.3 U	1.2 U	1.3 U	--	1.4 U
2-Hexanone	5.9 U	4.6 U	6.4 U	6.2 U	6.4 U	--	7.2 U
4-Chlorotoluene	1.2 U	0.92 U	1.3 U	1.2 U	1.3 U	--	1.4 U
4-Methyl-2-pentanone	5.9 U	4.6 U	6.4 U	6.2 U	6.4 U	--	7.2 U
Acetone	130.	87.2	150.	170.	160.	--	170.
Acrylonitrile	5.9 U	4.6 U	6.4 U	6.2 U	6.4 U	--	7.2 U
Benzene	0.89 U	0.7 U	0.97 U	0.95 U	0.97 U	--	1.1 U
Bromobenzene	1.2 U	0.92 U	1.3 U	1.2 U	1.3 U	--	1.4 U
Bromodichloromethane	1.2 U	0.92 U	1.3 U	1.2 U	1.3 U	--	1.4 U
Bromoform	1.7 U	1.4 U	1.9 U	1.8 U	1.9 U	--	2.1 U
Bromomethane	2.3 U	1.8 U	2.6 U	2.5 U	2.6 U	--	2.9 U
CarbonTetrachloride	1.2 U	0.92 U	1.3 U	1.2 U	1.3 U	--	1.4 U
Carbondisulfide	1.2 U	0.92 U	1.3 U	1.2 U	1.3 U	--	1.4 U
Chlorobenzene	1.2 U	0.92 U	1.3 U	1.2 U	1.3 U	--	1.4 U
Chloroethane	1.2 U	0.92 U	1.3 U	1.2 U	1.3 U	--	1.4 U
Chloroform	1.2 U	0.92 U	1.3 U	1.2 U	1.3 U	--	1.4 U

TABLE 3
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Location	**SED-01**	**SED-02**	**SED-02**	**SED-03**	**SED-04**	**SED-04**	**SED-05**
Sample ID	SED-1(0-0.5)	SED-2(0-0.5)	SED-2(0-0.5)REP	SED-3(0-0.5)	SED-4(0-0.5)	SED-4(0-0.5)(RA)	SED-5(0-0.5)
Sample Date	02/12/14	02/12/14	02/12/14	02/12/14	02/12/14	02/12/14	02/12/14
Sample Depth (ft)	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
Chloromethane	1.2 U	0.92 U	1.3 U	1.2 U	1.3 U	--	1.4 U
Dibromochloromethane	1.2 U	0.92 U	1.3 U	1.2 U	1.3 U	--	1.4 U
Dibromomethane	1.2 U	0.92 U	1.3 U	1.2 U	1.3 U	--	1.4 U
Dichlorodifluoromethane	1.2 U	0.92 U	1.3 U	1.2 U	1.3 U	--	1.4 U
Ethyl benzene	1.2 U	0.92 U	1.3 U	1.2 U	1.3 U	--	1.4 U
Hexachlorobutadiene	1.2 UQ	0.92 UQ	1.3 UQ	1.2 UQ	1.3 UQ	26.3 U	1.4 UQ
Isopropylbenzene	1.1 U	0.88 U	1.2 U	1.2 U	1.2 U	--	1.4 U
Methyltert-butylether	1.2 U	0.92 U	1.3 U	1.2 U	1.3 U	--	1.4 U
MethyleneChloride	1.2 U	0.92 U	1.3 U	1.2 U	1.3 U	--	1.4 U
Naphthalene	1.1 U	0.83 U	1.2 U	1.1 U	1.1 U	25. U	1.3 U
Styrene	1.1 U	0.83 U	1.2 U	1.1 U	1.1 U	--	1.3 U
Tetrachloroethene	1.2 U	0.92 U	1.3 U	1.2 U	1.3 U	--	1.4 U
Tetrahydrofuran	1. U	0.79 U	1.1 U	1.1 U	1.1 U	--	1.2 U
Toluene	1.2 U	0.92 U	1.3 U	1.2 U	1.3 U	--	1.4 U
Trichloroethene	1.2 U	0.92 U	1.3 U	1.2 U	1.3 U	--	1.4 U
Trichlorofluoromethane	1.2 U	0.92 U	1.3 U	1.2 U	1.3 U	--	1.4 U
Vinyl chloride	1.2 U	0.92 U	1.3 U	1.2 U	1.3 U	--	1.4 U
cis-1,2-Dichloroethene	1.2 U	0.92 U	1.3 U	1.2 U	1.3 U	--	1.4 U
cis-1,3-Dichloropropene	1.2 U	0.92 U	1.3 U	1.2 U	1.3 U	--	1.4 U
m/p-xylene	1.7 U	1.3 U	1.8 U	1.8 U	1.8 U	--	2.1 U
n-Butylbenzene	1.1 U	0.84 U	1.2 U	1.1 U	1.2 U	--	1.3 U
n-Propylbenzene	0.85 U	0.66 U	0.92 U	0.9 U	0.92 U	--	1. U
o-Xylene	1.2 U	0.92 U	1.3 U	1.2 U	1.3 U	--	1.4 U
p-Isopropyltoluene	0.68 U	0.53 U	0.74 U	0.72 U	0.74 U	--	0.83 U
sec-Butylbenzene	1.2 U	0.92 U	1.3 U	1.2 U	1.3 U	--	1.4 U
tert-Butylbenzene	1.2 U	0.92 U	1.3 U	1.2 U	1.3 U	--	1.4 U
trans-1,2-Dichloroethene	1.2 U	0.92 U	1.3 U	1.2 U	1.3 U	--	1.4 U
Trans-1,3-Dichloropropene	1.2 U	0.92 U	1.3 U	1.2 U	1.3 U	--	1.4 U
trans-1,4-Dichloro-2-butene	2.3 U	1.8 U	2.6 U	2.5 U	2.6 U	--	2.9 U

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Location	**SED-01**	**SED-02**	**SED-02**	**SED-03**	**SED-04**	**SED-04**	**SED-05**
Sample ID	SED-1(0-0.5)	SED-2(0-0.5)	SED-2(0-0.5)REP	SED-3(0-0.5)	SED-4(0-0.5)	SED-4(0-0.5)(RA)	SED-5(0-0.5)
Sample Date	02/12/14	02/12/14	02/12/14	02/12/14	02/12/14	02/12/14	02/12/14
Sample Depth (ft)	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
Extractable Total Petroleum Hydrocarbons (mg/kg)							
ETPH	74.	49.	41.	34.	42.	--	39.
Semi-Volatile Organic Compounds (ug/kg)							
1,2,4,5-Tetrachlorobenzene	23.9 U	23.4 U	28.4 U	28.7 U	28.5 U	28.5 U	31. U
1,2,4-Trichlorobenzene	23.2 U	22.7 U	27.5 U	27.8 U	27.6 U	--	30.1 U
2,2'-Oxybis(1-Chloropropane)	25.2 U	24.7 U	29.9 U	30.2 U	30. U	30. U	32.7 U
2,4,5-Trichlorophenol	42.8 U	41.9 U	50.8 U	51.2 U	50.9 U	50.9 U	55.4 U
2,4,6-Trichlorophenol	18.6 U	18.2 U	22.1 U	22.3 U	22.2 U	22.2 U	24.1 U
2,4-Dichlorophenol	23.2 UQ	22.7 UQ	27.5 UQ	27.8 UQ	27.6 UQ	27.6 UQ	30.1 UQ
2,4-Dimethylphenol	34.5 UQ	33.8 UQ	41. UQ	41.4 UQ	41.1 UQ	41.1 UQ	44.7 UQ
2,4-Dinitrophenol	62. UQ	60.7 UQ	73.5 UQ	74.2 UQ	73.8 UQ	73.8 UQ	80.3 UQ
2,4-Dinitrotoluene	18.3 U	17.9 U	21.7 U	21.9 U	21.8 U	21.8 U	23.7 U
2,6-Dinitrotoluene	24.9 U	24.3 U	29.5 U	29.8 U	29.6 U	29.6 U	32.2 U
2-Chloronapthalene	13.9 U	13.6 U	16.5 U	16.6 U	16.5 U	16.5 U	18. U
2-Chlorophenol	32.2 U	31.5 U	38.2 U	38.5 U	38.3 U	38.3 U	41.7 U
2-Methylnapthalene	15.4 U	15. U	18.2 U	18.4 U	18.3 U	18.3 U	19.9 U
2-Methylphenol	33.1 U	32.4 U	39.3 U	39.6 U	39.4 U	39.4 U	42.9 U
2-Nitroaniline	27.1 U	26.5 U	32.1 U	32.4 U	32.2 U	32.2 U	35. U
2-Nitrophenol	29.4 U	28.8 U	34.9 U	35.2 U	35. U	35. U	38.1 U
3,3-Dichlorobenzidine	39.1 U	38.3 U	46.4 U	46.8 U	46.6 U	46.6 U	50.7 U
3+4-Methylphenol	31.6 U	31. U	37.5 U	37.9 U	37.7 U	37.7 U	41. U
3-Nitroaniline	39.1 U	38.3 U	46.4 U	46.8 U	46.6 U	46.6 U	50.7 U
4,6-Dinitro-2-methylphenol	34.9 U	34.2 U	41.4 U	41.8 U	41.6 U	41.6 U	45.2 U
4-Bromophenylphenyl ether	11.9 U	11.6 U	14.1 U	14.2 U	14.1 U	14.1 U	15.4 U
4-Chloro-3-Methylphenol	27.1 U	26.5 U	32.1 U	32.4 U	32.2 U	32.2 U	35. U
4-Chloroaniline	43. U	42. U	51. U	51.4 U	51.2 U	51.2 U	55.6 U
4-chlorophenyl-phenylether	33.1 U	32.4 U	39.3 U	39.6 U	39.4 U	39.4 U	42.9 U
4-Nitroaniline	79.3 U	77.6 U	94.1 U	95. U	94.5 U	94.5 U	100. U
4-Nitrophenol	110. U	110. U	130. U	140. U	130. U	130. U	150. U
Acenaphthene	17.2 U	16.8 U	20.4 U	20.6 U	20.5 U	20.5 U	22.3 U
Acenaphthylene	15.4 U	15. U	18.2 U	18.4 U	18.3 U	18.3 U	19.9 U
Aniline	51.9 U	50.8 U	61.6 U	62.2 U	61.8 U	61.8 U	67.2 U
Anthracene	12.4 U	12.2 U	14.7 U	14.9 U	14.8 U	14.8 U	16.1 U
Benzo(a)anthracene	29.1 U	28.4 U	34.5 U	34.8 U	34.6 U	34.6 U	37.6 U
Benzo(a)pyrene	13.2 UQ	12.9 UQ	15.6 UQ	15.8 UQ	15.7 UQ	15.7 UQ	17. UQ
Benzo(b)fluoranthene	19.9 U	19.5 U	23.6 U	23.9 U	23.7 U	23.7 U	25.8 U
Benzo(g,h,i)perylene	24.7 U	24.2 U	29.3 U	29.5 U	29.4 U	29.4 U	32. U
Benzo(k)fluoranthene	28.7 UQ	28.1 UQ	34.1 UQ	34.4 UQ	34.2 UQ	34.2 UQ	37.2 UQ
Bis(2-chloroethoxy)methane	35.1 U	34.4 U	41.6 U	42. U	41.8 U	41.8 U	45.5 U

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Location	**SED-01**	**SED-02**	**SED-02**	**SED-03**	**SED-04**	**SED-04**	**SED-05**
Sample ID	SED-1(0-0.5)	SED-2(0-0.5)	SED-2(0-0.5)REP	SED-3(0-0.5)	SED-4(0-0.5)	SED-4(0-0.5)(RA)	SED-5(0-0.5)
Sample Date	02/12/14	02/12/14	02/12/14	02/12/14	02/12/14	02/12/14	02/12/14
Sample Depth (ft)	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
Bis(2-chloroethyl)ether	29.2 U	28.6 U	34.7 U	35. U	34.8 U	34.8 U	37.9 U
Bis(2-ethylhexyl)phthalate	21.6 UQ	21.1 UQ	25.6 UQ	25.8 UQ	25.7 UQ	25.7 UQ	27.9 UQ
Butylbenzylphthalate	29.2 U	28.6 U	34.7 U	35. U	34.8 U	34.8 U	37.9 U
Carbazole	13.3 U	13.1 U	15.8 U	16. U	15.9 U	15.9 U	17.3 U
Chrysene	27.6 U	27. U	32.7 U	33. U	32.9 U	32.9 U	35.7 U
Dibenzo(a,h)anthracene	17.5 U	17.2 U	20.8 U	21. U	20.9 U	20.9 U	22.7 U
Dibenzofuran	23.8 U	23.3 U	28.2 U	28.5 U	28.3 U	28.3 U	30.8 U
Diethylphthalat	9.5 U	9.3 U	11.3 U	11.4 U	11.3 U	11.3 U	12.3 U
Dimethylphthalate	550. J	840.	560. J	930.	720.	760.	1400.
Di-n-butylphthalate	47.9 UQ	46.9 UQ	56.8 UQ	57.3 UQ	57. UQ	57. UQ	62. UQ
Di-n-octylphthalate	6.9 UQ	6.8 UQ	8.2 UQ	8.3 UQ	8.3 UQ	8.3 UQ	9. UQ
Fluoranthene	12.2 U	12. U	14.5 U	14.7 U	14.6 U	14.6 U	15.9 U
Fluorene	23. U	22.5 U	27.3 U	27.6 U	27.4 U	27.4 U	29.8 U
Hexachlorobenzene	24.9 U	24.3 U	29.5 U	29.8 U	29.6 U	29.6 U	32.2 U
Hexachlorobutadiene	22.1 U	21.6 U	26.2 U	26.5 U	26.3 U	--	28.6 U
Hexachlorocyclopentadiene	14.8 U	14.5 U	17.6 U	17.7 U	17.6 U	17.6 U	19.2 U
Hexachloroethane	27.2 UQ	26.7 UQ	32.3 UQ	32.6 UQ	32.4 UQ	32.4 UQ	35.3 UQ
Indeno(1,2,3-cd)pyrene	20.3 U	19.9 U	24.1 U	24.3 U	24.2 U	24.2 U	26.3 U
Isophorone	20.1 U	19.7 U	23.9 U	24.1 U	23.9 U	23.9 U	26. U
Naphthalene	21. U	20.6 U	24.9 U	25.2 U	25. U	--	27.2 U
Nitrobenzene	23. U	22.5 U	27.3 U	27.6 U	27.4 U	27.4 U	29.8 U
N-Nitroso-di-n-propylamine	30.7 U	30.1 U	36.4 U	36.8 U	36.6 U	36.6 U	39.8 U
N-Nitrosodiphenylamine	14.6 U	14.3 U	17.4 U	17.5 U	17.4 U	17.4 U	18.9 U
Pentachlorophenol	41.7 U	40.8 U	49.4 U	49.9 U	49.6 U	49.6 U	54. U
Phenanthrene	16.5 U	16.1 U	19.5 U	19.7 U	19.6 U	19.6 U	21.3 U
Phenol	14.1 U	13.8 U	16.7 U	16.9 U	16.8 U	16.8 U	18.2 U
Pyrene	14.6 U	14.3 U	17.4 U	17.5 U	17.4 U	17.4 U	18.9 U
Pyridine	60.9 U	59.6 U	72.3 U	72.9 U	72.6 U	72.6 U	78.9 U
Quintozene	23.9 U	23.4 U	28.4 U	28.7 U	28.5 U	--	31. U
Polychlorinated Biphenyls (ug/kg)							
Aroclor 1262	6.1 U	6. U	7.2 U	7.3 U	7.3 U	--	7.9 U
Aroclor-1016	6.1 U	6. U	7.2 U	7.3 U	7.3 U	--	7.9 U
Aroclor-1221	6.1 U	6. U	7.2 U	7.3 U	7.3 U	--	7.9 U
Aroclor-1232	6.1 U	6. U	7.2 U	7.3 U	7.3 U	--	7.9 U
Aroclor-1242	6.1 U	6. U	7.2 U	7.3 U	7.3 U	--	7.9 U
Aroclor-1248	6.1 U	6. U	7.2 U	7.3 U	7.3 U	--	7.9 U
Aroclor-1254	2.7 U	2.7 U	3.2 U	3.3 U	3.2 U	--	3.5 U
Aroclor-1260	6.1 U	6. U	7.2 U	7.3 U	7.3 U	--	7.9 U
Aroclor-1268	6.1 U	6. U	7.2 U	7.3 U	7.3 U	--	7.9 U

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Location	**SED-01**	**SED-02**	**SED-02**	**SED-03**	**SED-04**	**SED-04**	**SED-05**
Sample ID	SED-1(0-0.5)	SED-2(0-0.5)	SED-2(0-0.5)REP	SED-3(0-0.5)	SED-4(0-0.5)	SED-4(0-0.5)(RA)	SED-5(0-0.5)
Sample Date	02/12/14	02/12/14	02/12/14	02/12/14	02/12/14	02/12/14	02/12/14
Sample Depth (ft)	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
Pesticides (ug/kg)							
4,4'-DDD	0.311 U	0.304 U	0.369 U	0.372 U	0.37 U	--	0.404 U
4,4'-DDE	0.366 U	0.358 U	0.434 U	0.438 U	0.435 U	--	0.475 U
4,4'-DDT	0.256 U	0.25 U	0.304 U	0.306 U	0.305 U	--	0.333 U
Aldrin	0.183 U	0.179 U	0.217 U	0.219 U	0.218 U	--	0.238 U
Chlordane	6.1 U	6. U	7.2 U	7.3 U	7.2 U	--	7.9 U
Dieldrin	0.238 U	0.232 U	0.282 U	0.284 U	0.283 U	--	0.309 U
Endosulfansulfate	0.274 U	0.268 U	0.326 U	0.328 U	0.326 U	--	0.356 U
Endosulfan-I	0.274 U	0.268 U	0.326 U	0.328 U	0.326 U	--	0.356 U
Endosulfan-II	0.256 U	0.25 U	0.304 U	0.306 U	0.305 U	--	0.333 U
Endrin	0.329 U	0.322 U	0.391 U	0.394 U	0.392 U	--	0.428 U
Endrin aldehyde	0.274 U	0.268 U	0.326 U	0.328 U	0.326 U	--	0.356 U
Endrin ketone	0.238 U	0.232 U	0.282 U	0.284 U	0.283 U	--	0.309 U
Heptachlor	0.256 U	0.25 U	0.304 U	0.306 U	0.305 U	--	0.333 U
Heptachlorepoxide	0.292 U	0.286 U	0.347 U	0.35 U	0.348 U	--	0.38 U
Methoxychlor	0.311 U	0.304 U	0.369 U	0.372 U	0.37 U	--	0.404 U
Toxaphene	6.1 U	6. U	7.2 U	7.3 U	7.2 U	--	7.9 U
alpha-BHC	0.238 U	0.232 U	0.282 U	0.284 U	0.283 U	--	0.309 U
beta-BHC	0.329 U	0.322 U	0.391 U	0.394 U	0.392 U	--	0.428 U
delta-BHC	0.183 U	0.179 U	0.217 U	0.219 U	0.218 U	--	0.238 U
gamma-BHC(Lindane)	0.274 U	0.268 U	0.326 U	0.328 U	0.326 U	--	0.356 U
Total Metals (mg/kg)							
Arsenic	9.03	10.02	13.9	12	11.5	--	12.4
Barium	61.1	72.6	69.1	64.2	60.2	--	60.8
Cadmium	0.956 N	1.09 N	1.19 N	1.23 N	1.2 N	--	1.24 N
Chromium	41.6	58.	58.	44.4	46.8	--	45.2
Copper	97.6	194.	134.	82.7	64.	--	49.8
Lead	134.	232.	218.	125.	150.	--	102.
Mercury	0.185	0.189	0.205	0.204	0.262	--	0.222
Nickel	52.2 N	123. N	76.4 N	45.3 N	37.4 N	--	30.8 N
Selenium	1.19 JN	1.66 N	1.49 JN	1.08 JN	1.37 JN	--	1.23 JN
Silver	0.782 JN	1.18 N	1.2 N	1.02 N	1.17 N	--	1.21 N
Zinc	355.	601.	465.	286.	255.	--	226.

Notes:
(ug/l) = Micrograms per liter
(mg/l) - Milligrams per liter
U = Constituent not detected at listed concentration. Detection limits provided where available.
D = The reported value is from a secondary analysis based on a dulited sample; the original analysis exceeded calibration range.
E = Result estimated due to interference.
J = Result estimated due to a positive reading below the contract required detection limit but above the instrument detection limit.
N = Spiked sample recovery associated with result was not within control limits.
Q = Lab control sample associated with result was not within control limit requirements.
[ ] = Indicates exceedance of lowest listed criteria
-- = Not analyzed for this constituent
NP = Not published
RA = Laboratory re-analysis of sample.

TABLE 4
Summary of Groundwater Sample Analytical Results
Environmental Sampling Report
Phase II Environmental Due Diligence Audit
National Coast Guard Museum
New London, Connecticut

Location	Remediation Stanard Regulations Criteria		MW-01	MW-01	MW-02	MW-03
Sample ID			MW-1	MW-1REP	MW-2	MW-3
Sample Date	RGWVC	SWPC	02/04/14	02/04/14	02/04/14	02/04/14
Volatile Organic Compounds (ug/l)						
1,1,1,2-Tetrachloroethane	12.	NP	0.43 U	0.43 U	0.43 U	0.43 U
1,1,1-trichloroethane	20400.	62000.	0.4 U	0.4 U	0.4 U	0.4 U
1,1,2,2-Tetrachloroethane	23.	110.	0.31 U	0.31 U	0.31 U	0.31 U
1,1,2-Trichloroethane	8000.	1260.	0.38 U	0.38 U	0.38 U	0.38 U
1,1,2-Trichlorotrifluoroethane	NP	NP	0.45 U	0.45 U	0.45 U	0.45 U
1,1-Dichloroethane	34600.	NP	0.36 U	0.36 U	0.36 U	0.36 U
1,1-Dichloroethene	1.	96.	0.47 U	0.47 U	0.47 U	0.47 U
1,1-Dichloropropene	NP	NP	0.39 U	0.39 U	0.39 U	0.39 U
1,2,3-Trichlorobenzene	NP	NP	0.2 U	0.2 U	0.2 U	0.2 U
1,2,3-Trichloropropane	NP	NP	0.5 UQ	0.5 UQ	0.5 UQ	0.5 U
1,2,4-Trichlorobenzene	NP	NP	0.2 U	0.2 U	0.2 U	0.2 U
1,2,4-Trimethylbenzene	NP	NP	0.38 U	0.38 U	0.38 U	0.38 U
1,2-Dibromo-3-chloropropane	NP	NP	0.46 UQ	0.46 UQ	0.46 UQ	0.46 U
1,2-Dibromoethane	4.	NP	0.41 U	0.41 U	0.41 U	0.41 U
1,2-Dichlorobenzene	30500.	170000.	0.45 U	0.45 U	0.45 U	0.45 U
1,2-Dichloroethane	21.	2970.	0.48 U	0.48 U	0.48 U	0.48 U
1,2-Dichloropropane	14.	NP	0.46 U	0.46 U	0.46 U	0.46 U
1,3,5-Trimethylbenzene	NP	NP	0.46 U	0.46 U	0.46 U	0.46 U
1,3-Dichlorobenzene	24200.	26000.	0.43 U	0.43 U	0.43 U	0.43 U
1,3-Dichloropropane	6.	34000.	0.35 U	0.35 U	0.35 U	0.35 U
1,4-Dichlorobenzene	50000.	26000.	0.32 U	0.32 U	0.32 U	0.32 U
2,2-Dichloropropane	NP	NP	0.2 U	0.2 U	0.2 U	0.2 U
2-Butanone	50000.	NP	1.3 UQ	1.3 UQ	1.3 UQ	1.3 U
2-Chlorotoluene	NP	NP	0.43 U	0.43 U	0.43 U	0.43 U
2-Hexanone	NP	NP	1.9 UQ	1.9 UQ	1.9 UQ	1.9 U
4-Chlorotoluene	NP	NP	0.42 U	0.42 U	0.42 U	0.42 U
4-Methyl-2-pentanone	50000.	NP	2.1 UQ	2.1 UQ	2.1 UQ	2.1 U
Acetone	50000.	NP	0.5 U	0.5 U	0.5 U	0.5 U
Acrylonitrile	NP	20.	1.8 U	1.8 U	1.8 U	1.8 U
Benzene	215.	710.	0.32 U	0.32 U	0.32 U	0.32 U
Bromobenzene	NP	NP	0.2 U	0.2 U	0.2 U	0.2 U
Bromodichloromethane	NP	NP	0.36 U	0.36 U	0.36 U	4.7 J
Bromoform	920.	10800.	0.47 U	0.47 U	0.47 U	0.47 U
Bromomethane	NP	NP	0.2 U	0.2 U	0.2 U	0.2 UQ
Carbon Tetrachloride	16.	132.	0.2 U	0.2 U	0.2 U	0.2 U
Carbon disulfide	NP	NP	0.2 U	0.2 U	0.2 U	0.2 U
Chlorobenzene	1800.	420000.	0.49 U	0.49 U	0.49 U	0.49 U
Chloroethane	NP	NP	0.2 U	0.2 U	0.2 U	0.2 U
Chloroform	287.	14100.	0.34 U	0.34 U	0.34 U	15.4
Chloromethane	NP	NP	0.2 U	0.2 U	0.2 U	0.2 U
Dibromochloromethane	NP	1020.	0.2 U	0.2 U	0.2 U	1.6 J
Dibromomethane	NP	NP	0.44 U	0.44 U	0.44 U	0.44 U
Dichlorodifluoromethane	NP	NP	0.2 U	0.2 U	0.2 U	0.2 U
Ethyl benzene	50000.	580000.	0.2 U	0.2 U	0.2 U	0.2 U
Hexachlorobutadiene	NP	NP	0.2 U	0.2 U	0.2 U	0.2 U
Isopropylbenzene	NP	NP	0.45 U	0.45 U	0.45 U	0.45 U
Methyl tert-butyl ether	50000.	NP	0.35 U	0.35 U	0.35 U	0.35 U
Methylene Chloride	50000.	48000.	0.41 U	0.41 U	0.41 U	0.41 U
Naphthalene	NP	NP	0.2 U	0.2 U	0.2 U	0.2 U
Styrene	580.	NP	0.36 U	0.36 U	0.36 U	0.36 U
Tetrachloroethene	1500.	88.	0.27 U	0.27 U	0.27 U	0.27 U
Tetrahydrofuran	NP	NP	0.34 U	0.32 U	0.34 U	0.34 U
Toluene	23500.	4000000.	0.37 U	0.37 U	0.37 U	0.37 U
Trichloroethene	219.	2340.	0.28 U	0.28 U	0.28 U	0.28 U
Trichlorofluoromethane	NP	NP	0.35 U	0.35 U	0.35 U	0.35 U
Vinyl chloride	2.	15750.	0.34 U	0.34 U	0.34 U	0.34 U
cis-1,2-Dichloroethene	NP	NP	0.35 U	0.35 U	0.35 U	0.35 U
cis-1,3-Dichloropropene	NP	NP	0.31 U	0.31 U	0.31 U	0.31 U
m/p-xylene	21300.	NP	0.95 U	0.95 U	0.95 U	0.95 U
n-Propylbenzene	NP	NP	0.45 U	0.45 U	0.45 U	0.45 U
n-Butylbenzene	NP	NP	0.41 U	0.41 U	0.41 U	0.41 U
o-Xylene	21300.	NP	0.43 U	0.43 U	0.43 U	0.43 U
p-Isopropyltoluene	NP	NP	2.4 J	2.8 J	0.43 U	0.43 U
sec-Butylbenzene	NP	NP	0.46 U	0.46 U	0.46 U	0.46 U
tert-Butylbenzene	NP	NP	0.44 U	0.44 U	0.44 U	0.44 U
trans-1,2-Dichloroethene	NP	NP	0.41 U	0.41 U	0.41 U	0.41 U
trans-1,3-Dichloropropene	NP	NP	0.29 U	0.29 U	0.29 U	0.29 U
trans-1,4-Dichloro-2-butene	NP	NP	0.2 U	0.2 U	0.2 U	0.2 U

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Location	Remediation Stanard Regulations Criteria		MW-01	MW-01	MW-02	MW-03
Sample ID			MW-1	MW-1REP	MW-2	MW-3
Sample Date	RGWVC	SWPC	02/04/14	02/04/14	02/04/14	02/04/14
Extractable Total Petroleum Hydrocarbons (mg/l)						
ETPH	NP	NP	0.15	0.15	0.25	0.27
Semi-Volatile Organic Compounds (ug/l)						
1,2,4,5-Tetrachlorobenzene	NP	NP	0.2 U	0.2 U	0.2 U	0.2 U
1,2,4-Trichlorobenzene	NP	NP	0.15 U	0.15 U	0.15 U	0.15 U
2,2'-Oxybis(1-Chloropropane)	NP	3400000.	0.17 U	0.17 U	0.17 U	0.17 U
2,4,5-Trichlorophenol	NP	NP	0.41 U	0.4 U	0.4 U	0.4 U
2,4,6-Trichlorophenol	NP	NP	0.57 U	0.56 U	0.56 U	0.56 U
2,4-Dichlorophenol	NP	15800.	0.67 U	0.66 U	0.66 U	0.66 U
2,4-Dimethylphenol	NP	NP	0.72 U	0.71 U	0.71 U	0.71 U
2,4-Dinitrophenol	NP	NP	2.1 U	2.1 U	2.1 U	2.1 U
2,4-Dinitrotoluene	NP	NP	1. U	1. U	1. U	1. U
2,6-Dinitrotoluene	NP	NP	0.33 U	0.32 U	0.32 U	0.32 U
2-Chloronaphthalene	NP	NP	0.16 U	0.16 U	0.16 U	0.16 U
2-Chlorophenol	NP	NP	0.55 U	0.54 U	0.54 U	0.54 U
2-Methylnaphthalene	NP	NP	0.33 U	0.32 U	0.32 U	0.32 U
2-Methylphenol	NP	NP	0.24 U	0.24 U	0.24 U	0.24 U
2-Nitroaniline	NP	NP	0.5 U	0.49 U	0.49 U	0.49 U
2-Nitrophenol	NP	NP	0.53 U	0.52 U	0.52 U	0.52 U
3,3-Dichlorobenzidine	NP	NP	1. U	1. U	1. U	1. U
3Methylphenol	NP	NP	0.39 UQ	0.38 UQ	0.38 UQ	0.38 UQ
3-Nitroaniline	NP	NP	1. U	1. U	1. U	1. U
4,6-Dinitro-2-methylphenol	NP	NP	0.76 U	0.74 U	0.74 U	0.74 U
4-Bromophenyl phenyl ether	NP	NP	0.23 U	0.23 U	0.23 U	0.23 U
4-Chloro-3-Methylphenol	NP	NP	0.41 U	0.4 U	0.4 U	0.4 U
4-Chloroaniline	NP	NP	1. U	1. U	1. U	1. U
4-chlorophenyl-phenylether	NP	NP	0.21 U	0.21 U	0.21 U	0.21 U
4-Nitroaniline	NP	NP	1.4 U	1.4 U	1.4 U	1.4 U
4-Nitrophenol	NP	NP	2. U	2. U	2. U	2. U
Acenaphthene	NP	NP	0.21 U	0.21 U	0.21 U	0.21 U
Acenaphthylene	NP	0.3	0.71 U	0.7 U	0.7 U	0.7 U
Aniline	NP	NP	1. U	1. U	1. U	1. U
Anthracene	NP	1100000.	0.16 U	0.16 U	0.16 U	0.16 U
Benzo(a)anthracene	NP	0.3	0.16 U	0.16 U	0.16 U	0.16 U
Benzo(a)pyrene	NP	0.3	0.14 U	0.14 U	0.14 U	0.14 U
Benzo(b)fluoranthene	NP	0.3	0.3 U	0.29 U	0.29 U	0.29 U
Benzo(g,h,i)perylene	NP	NP	0.3 U	0.29 U	0.29 U	0.29 U
Benzo(k)fluoranthene	NP	0.3	0.18 U	0.18 U	0.18 U	0.18 U
Bis(2-chloroethoxy)methane	NP	NP	0.56 U	0.55 U	0.55 U	0.55 U
Bis(2-chloroethyl)ether	NP	42.	0.56 U	0.55 U	0.55 U	0.55 U
Bis(2-ethylhexyl)phthalate	NP	59.	0.16 U	0.16 U	0.16 U	0.16 U
Butylbenzylphthalate	NP	NP	0.19 U	0.19 U	0.19 U	0.19 U
Carbazole	NP	NP	0.22 U	0.22 U	0.22 U	0.22 U
Chrysene	NP	NP	0.18 U	0.18 U	0.18 U	0.18 U
Dibenzo(a,h)anthracene	NP	NP	0.43 U	0.42 U	0.42 U	0.42 U
Dibenzofuran	NP	NP	0.24 U	0.24 U	0.24 U	0.24 U
Diethylphthalate	NP	NP	0.39 U	0.38 U	0.38 U	0.38 U
Dimethylphthalate	NP	NP	0.22 U	0.22 U	0.22 U	0.22 U
Di-n-butylphthalate	NP	120000.	1. U	1. U	1. U	1. U
Di-n-octylphthalate	NP	NP	0.52 U	0.51 U	0.51 U	0.51 U
Fluoranthene	NP	3700.	0.41 U	0.4 U	0.4 U	0.4 U
Fluorene	NP	140000.	0.32 U	0.31 U	0.31 U	0.31 U
Hexachlorobenzene	NP	0.077	0.18 U	0.18 U	0.18 U	0.18 U
Hexachlorobutadiene	NP	NP	0.26 U	0.25 U	0.25 U	0.25 U
Hexachlorocyclopentadiene	NP	NP	0.24 U	0.24 U	0.24 U	0.24 U
Hexachloroethane	NP	89.	0.26 U	0.25 U	0.25 U	0.25 U
Indeno(1,2,3-cd)pyrene	NP	NP	0.15 U	0.15 U	0.15 U	0.15 U
Isophorone	NP	NP	0.31 U	0.3 U	0.3 U	0.3 U
Naphthalene	NP	NP	0.12 U	0.12 U	0.12 U	0.12 U
Nitrobenzene	NP	NP	0.69 U	0.68 U	0.68 U	0.68 U
N-Nitroso-di-n-propylamine	NP	NP	0.2 U	0.2 U	0.2 U	0.2 U
N-Nitrosodiphenylamine	NP	NP	0.61 U	0.6 U	0.6 U	0.6 U
Pentachlorophenol	NP	NP	1. U	1. U	1. U	1. U
Phenanthrene	NP	0.3	0.27 U	0.26 U	0.26 U	0.26 U
Phenol	NP	92000000.	0.21 U	0.21 U	0.21 U	0.21 U
Pyrene	NP	110000.	0.2 U	0.2 U	0.2 U	0.2 U
Pyridine	NP	NP	1. U	1. U	1. U	1. U
Quintozene	NP	NP	0.2 U	0.2 U	0.2 U	0.2 U

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Location	Remediation Stanard Regulations Criteria		MW-01	MW-01	MW-02	MW-03
Sample ID			MW-1	MW-1REP	MW-2	MW-3
Sample Date	RGWVC	SWPC	02/04/14	02/04/14	02/04/14	02/04/14
Polychlorinated Biphenyls (ug/l)						
Aroclor 1262	NP	NP	0.083 U	0.081 U	0.081 U	0.081 U
Aroclor-1016	NP	NP	0.098 U	0.096 U	0.096 U	0.096 U
Aroclor-1221	NP	NP	0.102 U	0.1 U	0.1 U	0.1 U
Aroclor-1232	NP	NP	0.102 U	0.1 U	0.1 U	0.1 U
Aroclor-1242	NP	NP	0.091 U	0.089 U	0.089 U	0.089 U
Aroclor-1248	NP	NP	0.102 U	0.1 U	0.1 U	0.1 U
Aroclor-1254	NP	NP	0.045 U	0.044 U	0.044 U	0.044 U
Aroclor-1260	NP	NP	0.083 U	0.081 U	0.081 U	0.081 U
Aroclor-1268	NP	NP	0.083 U	0.081 U	0.081 U	0.081 U
Pesticides (ug/l)						
4,4'-DDD	NP	NP	0.007 U	0.007 U	0.007 U	0.007 U
4,4'-DDE	NP	NP	0.005 U	0.005 U	0.005 U	0.005 U
4,4'-DDT	NP	NP	0.006 U	0.006 U	0.006 U	0.006 U
Aldrin	NP	NP	0.006 U	0.006 U	0.006 U	0.006 U
alpha-BHC	NP	NP	0.005 U	0.005 U	0.005 U	0.005 U
alpha-Endosulfan	NP	NP	0.006 U	0.006 U	0.006 U	0.006 U
beta-BHC	NP	NP	0.009 U	0.009 U	0.009 U	0.009 U
beta-Endosulfan	NP	NP	0.006 U	0.006 U	0.006 U	0.006 U
Chlordane	NP	0.3	0.1 U	0.1 U	0.1 U	0.1 U
delta-BHC	NP	NP	0.006 U	0.006 U	0.006 U	0.006 U
Dieldrin	NP	0.1	0.005 U	0.005 U	0.005 U	0.005 U
Endosulfan sulfate	NP	NP	0.006 U	0.006 U	0.006 U	0.006 U
Endrin	NP	0.1	0.006 U	0.006 U	0.006 U	0.006 U
Endrin aldehyde	NP	NP	0.005 U	0.005 U	0.005 U	0.005 U
Endrin ketone	NP	NP	0.006 U	0.006 U	0.006 U	0.006 U
Heptachlor	NP	0.05	0.007 U	0.007 U	0.007 U	0.007 U
Heptachlor epoxide	NP	0.05	0.007 U	0.007 U	0.007 U	0.007 U
Lindane	NP	NP	0.006 U	0.006 U	0.006 U	0.006 U
Methoxychlor	NP	NP	0.005 U	0.005 U	0.005 U	0.005 U
Toxaphene	NP	1.	0.1 U	0.1 U	0.1 U	0.1 U
Total Metals (mg/l)						
Arsenic	NP	0.004	[0.00788] J	[0.00814] J	0.0042 U	0.0042 U
Barium	NP	NP	0.064	0.0572	0.0222 J	0.0164 J
Cadmium	NP	0.006	0.000755 J	0.000755 J	0.0005 U	0.000555 J
Chromium	NP	0.110	0.026	0.0192	[0.113]	0.0254
Copper	NP	0.048	[0.0616] N	[0.0521] N	0.00401 JN	[0.0734] N
Lead	NP	0.013	[0.637]	[0.561]	0.012	[0.537]
Mercury	NP	0.0004	[0.00451]	[0.00386]	0.0001 U	[0.000468]
Nickel	NP	0.880	0.0187 J	0.012 J	0.0395	0.0134 J
Selenium	NP	0.050	0.0048 UN	0.0048 UN	0.0048 UN	0.0048 UN
Silver	NP	0.012	0.0015 UN	0.0015 UN	0.0015 UN	0.0015 UN
Zinc	NP	0.123	[0.243] N	[0.198] N	0.0155 JN	[0.138] N
Dissolved Metals (mg/l)						
Arsenic	NP	0.004	0.0042 U	0.0042 U	0.0042 U	0.0042 U
Barium	NP	NP	0.0145 J	0.016 J	0.0196 J	0.004 U
Cadmium	NP	0.006	0.0005 U	0.0005 U	0.0005 U	0.0005 U
Chromium	NP	0.110*	0.0505	0.0152	0.0265	0.00872
Copper	NP	0.048	0.00205 JN	0.00311 JN	0.002 UN	0.01043 N
Lead	NP	0.013	0.0026 U	[0.0141]	0.0026 U	[0.0627]
Mercury	NP	0.0004	0.0001 U	0.0001 U	0.0001 U	0.0001 U
Nickel	NP	0.880	0.019 J	0.01051 J	0.0164 J	0.00488 J
Selenium	NP	0.050	0.0048 UN	0.0048 UN	0.0048 UN	0.0048 UN
Silver	NP	0.012	0.0015 UN	0.0015 UN	0.0015 UN	0.0015 UN
Zinc	NP	0.123	0.0171 JN	0.0358 N	0.0076 JN	0.0193 JN

Notes:
(ug/l) = Micrograms per liter
(mg/l) - Milligrams per liter
U = Constituent not detected at listed concentration. Detection limits provided where available.
E = Result estimated due to interference.
J = Result estimated due to a positive reading below the contract required detection limit but above the instrument detection limit.
N = Spiked sample recovery associated with result was not within control limits.
Q = Lab control sample associated with result was not within control limit requirements.
[ ] = Indicates exceedance of lowest listed criteria
-- = Not analyzed for this constituent
NP = Not published
* = Hexavalent chromium criteria used.
2013 Remediation Standard Regulations (RSRs):
SWPC = Surface Water Protection Criteria
RGWVC = Residential Volatilizaiton Criteria

BORING INFORMATION

LOCATION: Gravel Ferry Lot
GROUND SURFACE EL. (ft): 5.0
VERTICAL DATUM: NAVD 88
TOTAL DEPTH (ft): 8.0
LOGGED BY: P. Blessing
DATE START/END: 1/23/2019 - 1/23/2019
DRILLING COMPANY: Cisco Geotechnical LLC
DRILLER NAME: M. Peluyera
RIG TYPE: Truck-Mounted Geoprobe 54LT

BORING

GP-01

PAGE 1 of 1

DRILLING INFORMATION

HAMMER TYPE: NA
AUGER I.D./O.D.: NA / NA
DRILLING METHOD: Geoprobe
WATER LEVEL DEPTHS (ft): Not measured
CASING I.D./O.D.: NA / NA
DRILL ROD O.D.: NM
CORE BARREL TYPE: NA
CORE BARREL I.D./O.D. NA / NA

ABBREVIATIONS:
Pen. = Penetration Length
Rec. = Recovery Length
RQD = Rock Quality Designation = Length of Sound Cores>4 in / Pen.,%
WOR = Weight of Rods
WOH = Weight of Hammer
S = Split Spoon Sample
C = Core Sample
U = Undisturbed Sample
SC = Sonic Core
DP = Direct Push Sample
HSA = Hollow-Stem Auger
Qp = Pocket Penetrometer Strength
Sv = Pocket Torvane Shear Strength
LL = Liquid Limit
PI = Plasticity Index
PID = Photoionization Detector
I.D./O.D. = Inside Diameter/Outside Diameter
NA, NM = Not Applicable, Not Measured
Blows per 6 in.: 140-lb hammer falling 30 inches to drive a 2-inch-O.D. split spoon sampler.

Elev. (ft)	Depth (ft)	Sample Information: Sample No.	Sample Information: Depth (ft)	Sample Information: Pen./ Rec. (in)	Sample Information: Blows per 6 in. or RQD	Drilling Remarks/ Field Test Data	Layer Name	Soil and Rock Description
		1	0 to 4	48/30	P-U-S-H		FILL	S1: WIDELY GRADED GRAVEL WITH SILT AND SAND (GW-GM); ~60% f-c subangular gravel up to 1", ~30% f-c sand, ~10% NP fines, seam of dark brown f sand from 27-29", trace plastic fragments, trace organics, light gray/brown to brown, dry to moist.
		2	4 to 8	48/30	P-U-S-H			S2A (0-16"): WIDELY GRADED GRAVEL WITH SAND (GW); ~65% f-c angular gravel up to 1.5", ~30% mostly f-m sand, ~5% NP-LP fines, trace organics, gray/brown to light brown, moist to wet.
0	5						ORGANIC SANDS	S2B (16-30"): SILTY SAND (SM); ~80% mostly f-m sand, ~20% NP-LP fines, some organics and/or wood fragments, gray/brown, wet.
								End of probe at 8 feet. Backfilled with cuttings upon completion.
-5	10							

NOTES: Ground surface elevation approximate from provided 4/4/2018 Existing Conditions Plan.

PROJECT NAME: National Coast Guard Museum
CITY/STATE: New London, Connecticut
GEI PROJECT NUMBER: 1802270

GEI Consultants

GEI WOBURN STD 1-LOCATION-LAYER NAME NATIONAL COAST GUARD MUSEUM BORING LOGS.GPJ 1/28/19

BORING INFORMATION

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GROUND SURFACE EL. (ft): 5.0
VERTICAL DATUM: NAVD 88
TOTAL DEPTH (ft): 8.0
LOGGED BY: P. Blessing
DATE START/END: 1/23/2019 - 1/23/2019
DRILLING COMPANY: Cisco Geotechnical LLC
DRILLER NAME: M. Peluyera
RIG TYPE: Truck-Mounted Geoprobe 54LT

BORING

GP-02

PAGE 1 of 1

DRILLING INFORMATION

HAMMER TYPE: NA
AUGER I.D./O.D.: NA / NA
DRILLING METHOD: Geoprobe
WATER LEVEL DEPTHS (ft): Not measured
CASING I.D./O.D.: NA / NA
DRILL ROD O.D.: NM
CORE BARREL TYPE: NA
CORE BARREL I.D./O.D. NA / NA

ABBREVIATIONS:
Pen. = Penetration Length
Rec. = Recovery Length
RQD = Rock Quality Designation = Length of Sound Cores>4 in / Pen.,%
WOR = Weight of Rods
WOH = Weight of Hammer
S = Split Spoon Sample
C = Core Sample
U = Undisturbed Sample
SC = Sonic Core
DP = Direct Push Sample
HSA = Hollow-Stem Auger
Qp = Pocket Penetrometer Strength
Sv = Pocket Torvane Shear Strength
LL = Liquid Limit
PI = Plasticity Index
PID = Photoionization Detector
I.D./O.D. = Inside Diameter/Outside Diameter
NA, NM = Not Applicable, Not Measured
Blows per 6 in.: 140-lb hammer falling 30 inches to drive a 2-inch-O.D. split spoon sampler.

Elev. (ft)	Depth (ft)	Sample Information: Sample No.	Sample Information: Depth (ft)	Sample Information: Pen./ Rec. (in)	Sample Information: Blows per 6 in. or RQD	Drilling Remarks/ Field Test Data	Layer Name	Soil and Rock Description
		1	0 to 4	48/30	P-U-S-H		FILL	S1: WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~65% f-c sand, ~25% f-c angular to subangular gravel up to 1", ~10% NP-LP fines, wood fragments, brown to gray/brown, dry to moist.
		2	4 to 8	48/23	P-U-S-H			S2A (0-11"): WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~65% mostly f-m sand, ~25% f-m subrounded gravel up to 3/4", ~10% NP fines, wood fragments, brown to dark brown, moist to wet. S2B (11-23"): WOOD TIMBER, fragmented, light tan to reddish brown with dark brown mottling, wet.
0	5							
								End of probe at 8 feet. Backfilled with cuttings upon completion.
-5	10							

NOTES: Ground surface elevation approximate from provided 4/4/2018 Existing Conditions Plan.

PROJECT NAME: National Coast Guard Museum
CITY/STATE: New London, Connecticut
GEI PROJECT NUMBER: 1802270

GEI Consultants

GEI WOBURN STD 1-LOCATION-LAYER NAME NATIONAL COAST GUARD MUSEUM BORING LOGS.GPJ 1/28/19

BORING INFORMATION

LOCATION: Gravel Ferry Lot
GROUND SURFACE EL. (ft): 5.0
VERTICAL DATUM: NAVD 88
TOTAL DEPTH (ft): 8.0
LOGGED BY: P. Blessing
DATE START/END: 1/23/2019 - 1/23/2019
DRILLING COMPANY: Cisco Geotechnical LLC
DRILLER NAME: M. Peluyera
RIG TYPE: Truck-Mounted Geoprobe 54LT

BORING

GP-03

PAGE 1 of 1

DRILLING INFORMATION

HAMMER TYPE: NA
AUGER I.D./O.D.: NA / NA
DRILLING METHOD: Geoprobe
WATER LEVEL DEPTHS (ft): Not measured
CASING I.D./O.D.: NA / NA
DRILL ROD O.D.: NM
CORE BARREL TYPE: NA
CORE BARREL I.D./O.D. NA / NA

ABBREVIATIONS:
Pen. = Penetration Length
Rec. = Recovery Length
RQD = Rock Quality Designation = Length of Sound Cores>4 in / Pen.,%
WOR = Weight of Rods
WOH = Weight of Hammer
S = Split Spoon Sample
C = Core Sample
U = Undisturbed Sample
SC = Sonic Core
DP = Direct Push Sample
HSA = Hollow-Stem Auger
Qp = Pocket Penetrometer Strength
Sv = Pocket Torvane Shear Strength
LL = Liquid Limit
PI = Plasticity Index
PID = Photoionization Detector
I.D./O.D. = Inside Diameter/Outside Diameter
NA, NM = Not Applicable, Not Measured
Blows per 6 in.: 140-lb hammer falling 30 inches to drive a 2-inch-O.D. split spoon sampler.

Elev. (ft)	Depth (ft)	Sample Information: Sample No.	Sample Information: Depth (ft)	Sample Information: Pen./ Rec. (in)	Sample Information: Blows per 6 in. or RQD	Drilling Remarks/ Field Test Data	Layer Name	Soil and Rock Description
		1	0 to 4	48/28	P-U-S-H		FILL	S1: WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~60% mostly f-m sand, ~30% f-c angular gravel up to 1.5", ~10% NP-LP fines, pulverized white rock 26-28", trace organics, brick fragments, coal fragments from 18-20", brown to gray/brown, dry to moist.
		2	4 to 8	48/10	P-U-S-H			S2: WIDELY GRADED SAND WITH GRAVEL (SW); ~75% f-c sand, ~20% m-c gravel up to 1.5", ~5% NP fines, brown to light brown, wet. Poor recovery due to rock lodged in spin shoe.
0	5							
								End of probe at 8 feet. Backfilled with cuttings upon completion.
-5	10							

NOTES: Ground surface elevation approximate from provided 4/4/2018 Existing Conditions Plan.

PROJECT NAME: National Coast Guard Museum
CITY/STATE: New London, Connecticut
GEI PROJECT NUMBER: 1802270

GEI Consultants

GEI WOBURN STD 1-LOCATION-LAYER NAME NATIONAL COAST GUARD MUSEUM BORING LOGS.GPJ 1/28/19

BORING INFORMATION

LOCATION: Gravel Ferry Lot
GROUND SURFACE EL. (ft): 5.0
VERTICAL DATUM: NAVD 88
TOTAL DEPTH (ft): 8.0
LOGGED BY: P. Blessing
DATE START/END: 1/23/2019 - 1/23/2019
DRILLING COMPANY: Cisco Geotechnical LLC
DRILLER NAME: M. Peluyera
RIG TYPE: Truck-Mounted Geoprobe 54LT

BORING

GP-04

PAGE 1 of 1

DRILLING INFORMATION

HAMMER TYPE: NA
AUGER I.D./O.D.: NA / NA
DRILLING METHOD: Geoprobe
WATER LEVEL DEPTHS (ft): Not measured
CASING I.D./O.D.: NA / NA
DRILL ROD O.D.: NM
CORE BARREL TYPE: NA
CORE BARREL I.D./O.D. NA / NA

ABBREVIATIONS:
Pen. = Penetration Length
Rec. = Recovery Length
RQD = Rock Quality Designation = Length of Sound Cores>4 in / Pen.,%
WOR = Weight of Rods
WOH = Weight of Hammer
S = Split Spoon Sample
C = Core Sample
U = Undisturbed Sample
SC = Sonic Core
DP = Direct Push Sample
HSA = Hollow-Stem Auger
Qp = Pocket Penetrometer Strength
Sv = Pocket Torvane Shear Strength
LL = Liquid Limit
PI = Plasticity Index
PID = Photoionization Detector
I.D./O.D. = Inside Diameter/Outside Diameter
NA, NM = Not Applicable, Not Measured
Blows per 6 in.: 140-lb hammer falling 30 inches to drive a 2-inch-O.D. split spoon sampler.

Elev. (ft)	Depth (ft)	Sample Information: Sample No.	Sample Information: Depth (ft)	Sample Information: Pen./ Rec. (in)	Sample Information: Blows per 6 in. or RQD	Drilling Remarks/ Field Test Data	Layer Name	Soil and Rock Description
		1	0 to 4	48/29	P-U-S-H		FILL	S1: WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~65% mostly f-m sand, ~25% f-c subrounded gravel up to 1.5", ~10% NP fines, pulverized white rock from 24-29", plastic fragments, root fragments, brown, dry to moist.
		2	4 to 8	48/18	P-U-S-H			S2A (0-6"): WIDELY GRADED GRAVEL WITH SAND (GW); ~70% f-c subangular gravel up to 1", ~30% mostly f-c sand, plastic fragments, paper fragments, brown to gray/brown, wet. S2B (6-8"): BRICK, fragments, red. S2C (8-18"): WIDELY GRADED SAND WITH GRAVEL (SW); ~80% f-c sand, ~20% f-c gravel up to 2", fragmented white rock from 16.5-18", brown, wet.
0	5							End of probe at 8 feet. Backfilled with cuttings upon completion.
-5	10							

NOTES: Ground surface elevation approximate from provided 4/4/2018 Existing Conditions Plan.

PROJECT NAME: National Coast Guard Museum
CITY/STATE: New London, Connecticut
GEI PROJECT NUMBER: 1802270

GEI Consultants

GEI WOBURN STD 1-LOCATION-LAYER NAME NATIONAL COAST GUARD MUSEUM BORING LOGS.GPJ 1/28/19

BORING INFORMATION

LOCATION: Gravel Ferry Lot
GROUND SURFACE EL. (ft): 5.0
VERTICAL DATUM: NAVD 88
TOTAL DEPTH (ft): 8.0
LOGGED BY: P. Blessing
DATE START/END: 1/23/2019 - 1/23/2019
DRILLING COMPANY: Cisco Geotechnical LLC
DRILLER NAME: M. Peluyera
RIG TYPE: Truck-Mounted Geoprobe 54LT

BORING

GP-05

DRILLING INFORMATION

HAMMER TYPE: NA
AUGER I.D./O.D.: NA / NA
DRILLING METHOD: Geoprobe
CASING I.D./O.D.: NA / NA
DRILL ROD O.D.: NM
CORE BARREL TYPE: NA
CORE BARREL I.D./O.D. NA / NA
WATER LEVEL DEPTHS (ft): Not measured

ABBREVIATIONS:
Pen. = Penetration Length
Rec. = Recovery Length
RQD = Rock Quality Designation = Length of Sound Cores>4 in / Pen.,%
WOR = Weight of Rods
WOH = Weight of Hammer
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U = Undisturbed Sample
SC = Sonic Core
DP = Direct Push Sample
HSA = Hollow-Stem Auger
Qp = Pocket Penetrometer Strength
Sv = Pocket Torvane Shear Strength
LL = Liquid Limit
PI = Plasticity Index
PID = Photoionization Detector
I.D./O.D. = Inside Diameter/Outside Diameter
NA, NM = Not Applicable, Not Measured
Blows per 6 in.: 140-lb hammer falling 30 inches to drive a 2-inch-O.D. split spoon sampler.

Elev. (ft)	Depth (ft)	Sample Information: Sample No.	Sample Information: Depth (ft)	Sample Information: Pen./ Rec. (in)	Sample Information: Blows per 6 in. or RQD	Drilling Remarks/ Field Test Data	Layer Name	Soil and Rock Description
		1	0 to 4	48/44	P-U-S-H		FILL	S1A (0-32"): NARROWLY GRADED SAND WITH GRAVEL (SP); ~80% f-m sand, ~20% f-m subrounded gravel, brown to light brown, dry. S1B (32-44"): SILTY SAND (SM); ~75% mostly f-m sand, ~15% NP fines, ~10% f-m gravel up to 1/2", trace coal fragments, glass fragments, wood fragments, dark brown, moist to wet.
		2	4 to 8	48/6	P-U-S-H			S2: WIDELY GRADED SAND WITH GRAVEL (SW); ~80% f-c sand, ~15% f-c gravel, ~5% NP fines, brown to gray/brown, wet. Poor recovery.
0	5							
								End of probe at 8 feet. Backfilled with cuttings upon completion.
-5	10							

NOTES: Ground surface elevation approximate from provided 4/4/2018 Existing Conditions Plan.

PROJECT NAME: National Coast Guard Museum
CITY/STATE: New London, Connecticut
GEI PROJECT NUMBER: 1802270

GEI Consultants

BORING INFORMATION

LOCATION: Gravel Ferry Lot
GROUND SURFACE EL. (ft): 5.0
VERTICAL DATUM: NAVD 88
TOTAL DEPTH (ft): 8.0
LOGGED BY: P. Blessing
DATE START/END: 1/23/2019 - 1/23/2019
DRILLING COMPANY: Cisco Geotechnical LLC
DRILLER NAME: M. Peluyera
RIG TYPE: Truck-Mounted Geoprobe 54LT

BORING

GP-06

PAGE 1 of 1

DRILLING INFORMATION

HAMMER TYPE: NA
AUGER I.D./O.D.: NA / NA
DRILLING METHOD: Geoprobe
CASING I.D./O.D.: NA / NA
DRILL ROD O.D.: NM
CORE BARREL TYPE: NA
CORE BARREL I.D./O.D. NA / NA
WATER LEVEL DEPTHS (ft): Not measured

ABBREVIATIONS:
Pen. = Penetration Length
Rec. = Recovery Length
RQD = Rock Quality Designation = Length of Sound Cores>4 in / Pen.,%
WOR = Weight of Rods
WOH = Weight of Hammer
S = Split Spoon Sample
C = Core Sample
U = Undisturbed Sample
SC = Sonic Core
DP = Direct Push Sample
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Qp = Pocket Penetrometer Strength
Sv = Pocket Torvane Shear Strength
LL = Liquid Limit
PI = Plasticity Index
PID = Photoionization Detector
I.D./O.D. = Inside Diameter/Outside Diameter
NA, NM = Not Applicable, Not Measured
Blows per 6 in.: 140-lb hammer falling 30 inches to drive a 2-inch-O.D. split spoon sampler.

Elev. (ft)	Depth (ft)	Sample Information: Sample No.	Sample Information: Depth (ft)	Sample Information: Pen./ Rec. (in)	Sample Information: Blows per 6 in. or RQD	Drilling Remarks/ Field Test Data	Layer Name	Soil and Rock Description
		1	0 to 4	48/40	P-U-S-H		FILL	S1A (0-30"): WIDELY GRADED SAND WITH GRAVEL (SW); ~70% f-c sand, ~25% f-c subrounded gravel up to 1", ~5% NP fines, concrete fragments from 10-12", brown to light brown, dry.
								S1B (30-40"): WIDELY GRADED SAND WITH SILT (SW-SM); ~80% mostly f-m sand, ~10% NP fines, ~10% f-m gravel, dark brown, moist.
		2	4 to 8	48/36	P-U-S-H			S2: SILTY SAND (SM); ~75% mostly f-m sand, ~15% NP-LP fines, ~10% f-c subrounded gravel up to 1", timber fragments, plastic fragments, dark brown to red/brown, moist to wet.
0	5							
								End of probe at 8 feet. Backfilled with cuttings upon completion.
-5	10							

NOTES: Ground surface elevation approximate from provided 4/4/2018 Existing Conditions Plan.

PROJECT NAME: National Coast Guard Museum
CITY/STATE: New London, Connecticut
GEI PROJECT NUMBER: 1802270

GEI Consultants

GEI WOBURN STD 1-LOCATION-LAYER NAME NATIONAL COAST GUARD MUSEUM BORING LOGS.GPJ 1/28/19

BORING INFORMATION

LOCATION: Gravel Ferry Lot
GROUND SURFACE EL. (ft): 5.0
VERTICAL DATUM: NAVD 88
TOTAL DEPTH (ft): 8.0
LOGGED BY: P. Blessing
DATE START/END: 1/23/2019 - 1/23/2019
DRILLING COMPANY: Cisco Geotechnical LLC
DRILLER NAME: M. Peluyera
RIG TYPE: Truck-Mounted Geoprobe 54LT

BORING

GP-07

PAGE 1 of 1

DRILLING INFORMATION

HAMMER TYPE: NA
AUGER I.D./O.D.: NA / NA
DRILLING METHOD: Geoprobe
WATER LEVEL DEPTHS (ft): Not measured
CASING I.D./O.D.: NA / NA
DRILL ROD O.D.: NM
CORE BARREL TYPE: NA
CORE BARREL I.D./O.D. NA / NA

ABBREVIATIONS:
Pen. = Penetration Length
Rec. = Recovery Length
RQD = Rock Quality Designation = Length of Sound Cores>4 in / Pen.,%
WOR = Weight of Rods
WOH = Weight of Hammer
S = Split Spoon Sample
C = Core Sample
U = Undisturbed Sample
SC = Sonic Core
DP = Direct Push Sample
HSA = Hollow-Stem Auger
Qp = Pocket Penetrometer Strength
Sv = Pocket Torvane Shear Strength
LL = Liquid Limit
PI = Plasticity Index
PID = Photoionization Detector
I.D./O.D. = Inside Diameter/Outside Diameter
NA, NM = Not Applicable, Not Measured
Blows per 6 in.: 140-lb hammer falling 30 inches to drive a 2-inch-O.D. split spoon sampler.

Elev. (ft)	Depth (ft)	Sample Information: Sample No.	Sample Information: Depth (ft)	Sample Information: Pen./ Rec. (in)	Sample Information: Blows per 6 in. or RQD	Drilling Remarks/ Field Test Data	Layer Name	Soil and Rock Description
		1	0 to 4	48/38	P-U-S-H		FILL	S1A (0-27"): WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~60% f-c sand, ~30% f-m subangular gravel up to 1", ~10% NP fines, trace organics, brick fragments, brown, dry.
								S1B (27-38"): WIDELY GRADED SAND WITH GRAVEL (SW); ~80% mostly f-m sand, ~20% f-m subrounded gravel up to 1/2", light brown, dry to moist.
		2	4 to 8	48/30	P-U-S-H			S2A (0-10"): SIMILAR TO S1B (27-38").
0	5							S2B (10-28"): WIDELY GRADED SAND WITH GRAVEL (SW); ~75% mostly m-c sand, ~20% f-c angular gravel up to 1", ~5% NP fines, dark brown, wet.
							ORGANIC SANDS	S2C (28-30"): SILT WITH SAND (ML); ~80% NP-LP fines, ~20% f-m sand, white shell fragments, dark brown, wet.
								End of probe at 8 feet. Backfilled with cuttings upon completion.
-5	10							

NOTES: Ground surface elevation approximate from provided 4/4/2018 Existing Conditions Plan.

PROJECT NAME: National Coast Guard Museum
CITY/STATE: New London, Connecticut
GEI PROJECT NUMBER: 1802270

GEI Consultants

GEI WOBURN STD 1-LOCATION-LAYER NAME NATIONAL COAST GUARD MUSEUM BORING LOGS.GPJ 1/28/19

BORING INFORMATION

LOCATION: Gravel Ferry Lot
GROUND SURFACE EL. (ft): 5.0
VERTICAL DATUM: NAVD 88
TOTAL DEPTH (ft): 8.0
LOGGED BY: P. Blessing
DATE START/END: 1/23/2019 - 1/23/2019
DRILLING COMPANY: Cisco Geotechnical LLC
DRILLER NAME: M. Peluyera
RIG TYPE: Truck-Mounted Geoprobe 54LT

BORING

GP-08

PAGE 1 of 1

DRILLING INFORMATION

HAMMER TYPE: NA
AUGER I.D./O.D.: NA / NA
DRILLING METHOD: Geoprobe
WATER LEVEL DEPTHS (ft): Not measured
CASING I.D./O.D.: NA / NA
DRILL ROD O.D.: NM
CORE BARREL TYPE: NA
CORE BARREL I.D./O.D. NA / NA

ABBREVIATIONS:
Pen. = Penetration Length
Rec. = Recovery Length
RQD = Rock Quality Designation = Length of Sound Cores>4 in / Pen.,%
WOR = Weight of Rods
WOH = Weight of Hammer
S = Split Spoon Sample
C = Core Sample
U = Undisturbed Sample
SC = Sonic Core
DP = Direct Push Sample
HSA = Hollow-Stem Auger
Qp = Pocket Penetrometer Strength
Sv = Pocket Torvane Shear Strength
LL = Liquid Limit
PI = Plasticity Index
PID = Photoionization Detector
I.D./O.D. = Inside Diameter/Outside Diameter
NA, NM = Not Applicable, Not Measured
Blows per 6 in.: 140-lb hammer falling 30 inches to drive a 2-inch-O.D. split spoon sampler.

Elev. (ft)	Depth (ft)	Sample Information: Sample No.	Sample Information: Depth (ft)	Sample Information: Pen./ Rec. (in)	Sample Information: Blows per 6 in. or RQD	Drilling Remarks/ Field Test Data	Layer Name	Soil and Rock Description
		1	0 to 4	48/30	P-U-S-H		FILL	S1: WIDELY GRADED SAND WITH GRAVEL (SW); ~65% f-c sand, ~30% f-c subangular gravel up to 1", ~5% NP fines, trace organics, brown to gray/brown, dry to moist.
0	5	2	4 to 8	48/10	P-U-S-H		FILL	S2A (0-6"): WIDELY GRADED SAND (SW); ~85% f-c sand, ~10% f-m gravel, ~5% NP fines, brown to gray/brown, moist.
							ORGANIC SANDS	S2B (6-10"): SILT WITH SAND (ML); ~80% NP-LP fines, ~20% f-m sand, trace shells fragments, brown, wet.
-5	10							End of probe at 8 feet. Backfilled with cuttings upon completion.

NOTES: Ground surface elevation approximate from provided 4/4/2018 Existing Conditions Plan.

PROJECT NAME: National Coast Guard Museum
CITY/STATE: New London, Connecticut
GEI PROJECT NUMBER: 1802270

GEI Consultants

GEI WOBURN STD 1-LOCATION-LAYER NAME NATIONAL COAST GUARD MUSEUM BORING LOGS.GPJ 1/28/19

BORING INFORMATION

LOCATION: Gravel Ferry Lot
GROUND SURFACE EL. (ft): 5.0
VERTICAL DATUM: NAVD 88
TOTAL DEPTH (ft): 8.0
LOGGED BY: P. Blessing
DATE START/END: 1/23/2019 - 1/23/2019
DRILLING COMPANY: Cisco Geotechnical LLC
DRILLER NAME: M. Peluyera
RIG TYPE: Truck-Mounted Geoprobe 54LT

BORING

GP-09

DRILLING INFORMATION

HAMMER TYPE: NA
AUGER I.D./O.D.: NA / NA
DRILLING METHOD: Geoprobe
CASING I.D./O.D.: NA / NA
DRILL ROD O.D.: NM
CORE BARREL TYPE: NA
CORE BARREL I.D./O.D. NA / NA
WATER LEVEL DEPTHS (ft): Not measured

ABBREVIATIONS:
Pen. = Penetration Length
Rec. = Recovery Length
RQD = Rock Quality Designation = Length of Sound Cores>4 in / Pen.,%
WOR = Weight of Rods
WOH = Weight of Hammer
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Sv = Pocket Torvane Shear Strength
LL = Liquid Limit
PI = Plasticity Index
PID = Photoionization Detector
I.D./O.D. = Inside Diameter/Outside Diameter
NA, NM = Not Applicable, Not Measured
Blows per 6 in.: 140-lb hammer falling 30 inches to drive a 2-inch-O.D. split spoon sampler.

Elev. (ft)	Depth (ft)	Sample Information: Sample No.	Sample Information: Depth (ft)	Sample Information: Pen./ Rec. (in)	Sample Information: Blows per 6 in. or RQD	Drilling Remarks/ Field Test Data	Layer Name	Soil and Rock Description
		1	0 to 4	48/30	P-U-S-H		FILL	S1: WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~75% mostly f-m sand, ~15% f-c subrounded gravel up to 1", ~10% NP fines, pulverized gray rock from 29-30", trace organics, coal fragments from 12-13", brown to gray/brown, dry to moist.
		2	4 to 8	48/25	P-U-S-H			S2A (0-19"): WIDELY GRADED SAND WITH GRAVEL (SW); ~65% f-c sand, ~30% f-c subrounded gravel up to 1", ~5% NP fines, fragments of gray rock from 17-19", brown to orange/brown, moist to wet.
0	5						ORGANIC SANDS	S2B (19-25"): SILTY SAND (SM); ~75% f-m sand, ~25% NP-LP fines, shell fragments, wood fragments, dark brown, wet.
								End of probe at 8 feet. Backfilled with cuttings upon completion.
-5	10							

NOTES: Ground surface elevation approximate from provided 4/4/2018 Existing Conditions Plan.

PROJECT NAME: National Coast Guard Museum
CITY/STATE: New London, Connecticut
GEI PROJECT NUMBER: 1802270

GEI Consultants

BORING INFORMATION

LOCATION: Gravel Ferry Lot
GROUND SURFACE EL. (ft): 5.0
VERTICAL DATUM: NAVD 88
TOTAL DEPTH (ft): 8.0
LOGGED BY: P. Blessing
DATE START/END: 1/23/2019 - 1/23/2019
DRILLING COMPANY: Cisco Geotechnical LLC
DRILLER NAME: M. Peluyera
RIG TYPE: Truck-Mounted Geoprobe 54LT

BORING

GP-10

DRILLING INFORMATION

HAMMER TYPE: NA
AUGER I.D./O.D.: NA / NA
DRILLING METHOD: Geoprobe
CASING I.D./O.D.: NA / NA
DRILL ROD O.D.: NM
CORE BARREL TYPE: NA
CORE BARREL I.D./O.D. NA / NA
WATER LEVEL DEPTHS (ft): Not measured

ABBREVIATIONS:
Pen. = Penetration Length
Rec. = Recovery Length
RQD = Rock Quality Designation = Length of Sound Cores>4 in / Pen.,%
WOR = Weight of Rods
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HSA = Hollow-Stem Auger
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Sv = Pocket Torvane Shear Strength
LL = Liquid Limit
PI = Plasticity Index
PID = Photoionization Detector
I.D./O.D. = Inside Diameter/Outside Diameter
NA, NM = Not Applicable, Not Measured
Blows per 6 in.: 140-lb hammer falling 30 inches to drive a 2-inch-O.D. split spoon sampler.

Elev. (ft)	Depth (ft)	Sample Information: Sample No.	Sample Information: Depth (ft)	Sample Information: Pen./ Rec. (in)	Sample Information: Blows per 6 in. or RQD	Drilling Remarks/ Field Test Data	Layer Name	Soil and Rock Description
		1	0 to 4	48/39	P-U-S-H		FILL	S1A (0-22"): WIDELY GRADED SAND WITH GRAVEL (SW); ~80% mostly f-m sand, ~20% f-c subrounded gravel up to 1", light brown, dry to moist.
								S1B (22-39"): SILTY SAND WITH GRAVEL (SM); ~70% f-m sand, ~15% f-c subangular gravel up to 1", ~15% NP-LP fines, trace coal fragments from 28-29", dark brown, moist to wet.
		2	4 to 8	48/16	P-U-S-H			S2: WIDELY GRADED GRAVEL WITH SAND (GW); ~80% f-c subangular gravel up to 1", ~15% f-m sand, ~5% NP fines, dark brown, wet.
0	5							
								End of probe at 8 feet. Backfilled with cuttings upon completion.
-5	10							

NOTES: Ground surface elevation approximate from provided 4/4/2018 Existing Conditions Plan.

PROJECT NAME: National Coast Guard Museum
CITY/STATE: New London, Connecticut
GEI PROJECT NUMBER: 1802270

GEI Consultants

BORING INFORMATION

LOCATION: Gravel Ferry Lot
GROUND SURFACE EL. (ft): 5.0
VERTICAL DATUM: NAVD 88
TOTAL DEPTH (ft): 8.0
LOGGED BY: P. Blessing
DATE START/END: 1/23/2019 - 1/23/2019
DRILLING COMPANY: Cisco Geotechnical LLC
DRILLER NAME: M. Peluyera
RIG TYPE: Truck-Mounted Geoprobe 54LT

BORING

GP-11

DRILLING INFORMATION

HAMMER TYPE: NA
AUGER I.D./O.D.: NA / NA
DRILLING METHOD: Geoprobe
WATER LEVEL DEPTHS (ft): Not measured
CASING I.D./O.D.: NA / NA
DRILL ROD O.D.: NM
CORE BARREL TYPE: NA
CORE BARREL I.D./O.D. NA / NA

ABBREVIATIONS:
Pen. = Penetration Length
Rec. = Recovery Length
RQD = Rock Quality Designation = Length of Sound Cores>4 in / Pen.,%
WOR = Weight of Rods
WOH = Weight of Hammer
S = Split Spoon Sample
C = Core Sample
U = Undisturbed Sample
SC = Sonic Core
DP = Direct Push Sample
HSA = Hollow-Stem Auger
Qp = Pocket Penetrometer Strength
Sv = Pocket Torvane Shear Strength
LL = Liquid Limit
PI = Plasticity Index
PID = Photoionization Detector
I.D./O.D. = Inside Diameter/Outside Diameter
NA, NM = Not Applicable, Not Measured
Blows per 6 in.: 140-lb hammer falling 30 inches to drive a 2-inch-O.D. split spoon sampler.

Elev. (ft)	Depth (ft)	Sample Information: Sample No.	Sample Information: Depth (ft)	Sample Information: Pen./ Rec. (in)	Sample Information: Blows per 6 in. or RQD	Drilling Remarks/ Field Test Data	Layer Name	Soil and Rock Description
		1	0 to 4	48/44	P-U-S-H		FILL	S1A (0-26"): WIDELY GRADED SAND WITH GRAVEL (SW); ~80% mostly f-m sand, ~20% f-c subrounded gravel up to 1", light brown to gray/brown, dry.
								S1B (26-44"): WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~70% f-c sand, ~20% f-m subangular gravel up to 1/2", ~10% NP fines, coal fragments from 35-36", wood fragments from 43-44", dark brown, moist.
		2	4 to 8	48/37	P-U-S-H			S2: SILTY SAND (SM); ~80% f-m sand, ~15% NP fines, ~5% f-c subangular gravel up to 1", shell, brick, and wood fragments, brown to red/brown, wet.
0	5							
								End of probe at 8 feet. Backfilled with cuttings upon completion.
-5	10							

NOTES: Ground surface elevation approximate from provided 4/4/2018 Existing Conditions Plan.

PROJECT NAME: National Coast Guard Museum
CITY/STATE: New London, Connecticut
GEI PROJECT NUMBER: 1802270

GEI Consultants

BORING INFORMATION

LOCATION: Gravel Ferry Lot
GROUND SURFACE EL. (ft): 5.0
VERTICAL DATUM: NAVD 88
TOTAL DEPTH (ft): 8.0
LOGGED BY: P. Blessing
DATE START/END: 1/23/2019 - 1/23/2019
DRILLING COMPANY: Cisco Geotechnical LLC
DRILLER NAME: M. Peluyera
RIG TYPE: Truck-Mounted Geoprobe 54LT

BORING

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DRILLING INFORMATION

HAMMER TYPE: NA
AUGER I.D./O.D.: NA / NA
DRILLING METHOD: Geoprobe
WATER LEVEL DEPTHS (ft): Not measured
CASING I.D./O.D.: NA / NA
DRILL ROD O.D.: NM
CORE BARREL TYPE: NA
CORE BARREL I.D./O.D. NA / NA

ABBREVIATIONS:
Pen. = Penetration Length
Rec. = Recovery Length
RQD = Rock Quality Designation = Length of Sound Cores>4 in / Pen.,%
WOR = Weight of Rods
WOH = Weight of Hammer
S = Split Spoon Sample
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SC = Sonic Core
DP = Direct Push Sample
HSA = Hollow-Stem Auger
Qp = Pocket Penetrometer Strength
Sv = Pocket Torvane Shear Strength
LL = Liquid Limit
PI = Plasticity Index
PID = Photoionization Detector
I.D./O.D. = Inside Diameter/Outside Diameter
NA, NM = Not Applicable, Not Measured
Blows per 6 in.: 140-lb hammer falling 30 inches to drive a 2-inch-O.D. split spoon sampler.

Elev. (ft)	Depth (ft)	Sample Information: Sample No.	Sample Information: Depth (ft)	Sample Information: Pen./ Rec. (in)	Sample Information: Blows per 6 in. or RQD	Drilling Remarks/ Field Test Data	Layer Name	Soil and Rock Description
		1	0 to 4	48/39	P-U-S-H		FILL	S1A (0-32"): WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~70% f-c sand, ~20% f-c subangular gravel, ~10% NP fines, crushed white rock from 22-24", trace organics, trace brick fragments, light gray/brown to dark brown, dry.
		2	4 to 8	48/18	P-U-S-H			S1B (32-39"): WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~75% f-c sand, ~15% f-m gravel, ~10% NP-LP fines, trace coal fragments, metal fragments, dark brown, moist to wet. S2: WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~75% f-c sand, ~15% f-m gravel, ~10% NP-LP fines, shell fragments, light gray to dark brown, dry to wet.
0	5							
								End of probe at 8 feet. Backfilled with cuttings upon completion.
-5	10							

NOTES: Ground surface elevation approximate from provided 4/4/2018 Existing Conditions Plan.

PROJECT NAME: National Coast Guard Museum
CITY/STATE: New London, Connecticut
GEI PROJECT NUMBER: 1802270

GEI Consultants

BORING INFORMATION

LOCATION: Gravel Ferry Lot
GROUND SURFACE EL. (ft): 5.5
VERTICAL DATUM: NAVD 88
TOTAL DEPTH (ft): 8.0
LOGGED BY: P. Blessing
DATE START/END: 1/23/2019 - 1/23/2019
DRILLING COMPANY: Cisco Geotechnical LLC
DRILLER NAME: M. Peluyera
RIG TYPE: Truck-Mounted Geoprobe 54LT

BORING

GP-13

PAGE 1 of 1

DRILLING INFORMATION

HAMMER TYPE: NA
AUGER I.D./O.D.: NA / NA
DRILLING METHOD: Geoprobe
CASING I.D./O.D.: NA / NA
DRILL ROD O.D.: NM
CORE BARREL TYPE: NA
CORE BARREL I.D./O.D. NA / NA
WATER LEVEL DEPTHS (ft): Not measured

ABBREVIATIONS:
Pen. = Penetration Length
Rec. = Recovery Length
RQD = Rock Quality Designation = Length of Sound Cores>4 in / Pen.,%
WOR = Weight of Rods
WOH = Weight of Hammer
S = Split Spoon Sample
C = Core Sample
U = Undisturbed Sample
SC = Sonic Core
DP = Direct Push Sample
HSA = Hollow-Stem Auger
Qp = Pocket Penetrometer Strength
Sv = Pocket Torvane Shear Strength
LL = Liquid Limit
PI = Plasticity Index
PID = Photoionization Detector
I.D./O.D. = Inside Diameter/Outside Diameter
NA, NM = Not Applicable, Not Measured
Blows per 6 in.: 140-lb hammer falling 30 inches to drive a 2-inch-O.D. split spoon sampler.

Elev. (ft)	Depth (ft)	Sample Information: Sample No.	Sample Information: Depth (ft)	Sample Information: Pen./ Rec. (in)	Sample Information: Blows per 6 in. or RQD	Drilling Remarks/ Field Test Data	Layer Name	Soil and Rock Description
5		1	0 to 4	48/35	P-U-S-H		FILL	S1: WIDELY GRADED SAND WITH GRAVEL (SW); ~80% f-c sand, ~15% f-c subangular gravel up to 1", ~5% NP fines, crushed rock from 25-26", gray/brown to brown, dry to moist.
		2	4 to 8	48/15	P-U-S-H			S2: WIDELY GRADED SAND WITH GRAVEL (SW); ~70% f-c sand, ~25% f-c subangular gravel up to 1", ~5% NP fines, brown to light brown, moist to wet.
0	5							End of probe at 8 feet. Backfilled with cuttings upon completion.
-5	10							

NOTES: Ground surface elevation approximate from provided 4/4/2018 Existing Conditions Plan.

PROJECT NAME: National Coast Guard Museum
CITY/STATE: New London, Connecticut
GEI PROJECT NUMBER: 1802270

GEI Consultants

GEI WOBURN STD 1-LOCATION-LAYER NAME NATIONAL COAST GUARD MUSEUM BORING LOGS.GPJ 1/28/19

BORING INFORMATION

LOCATION: Gravel Ferry Lot
GROUND SURFACE EL. (ft): 5.5
VERTICAL DATUM: NAVD 88
TOTAL DEPTH (ft): 7.5
LOGGED BY: P. Blessing
DATE START/END: 1/23/2019 - 1/23/2019
DRILLING COMPANY: Cisco Geotechnical LLC
DRILLER NAME: M. Peluyera
RIG TYPE: Truck-Mounted Geoprobe 54LT

BORING

GP-14

DRILLING INFORMATION

HAMMER TYPE: NA
AUGER I.D./O.D.: NA / NA
DRILLING METHOD: Geoprobe
WATER LEVEL DEPTHS (ft): Not measured
CASING I.D./O.D.: NA / NA
DRILL ROD O.D.: NM
CORE BARREL TYPE: NA
CORE BARREL I.D./O.D. NA / NA

ABBREVIATIONS:
Pen. = Penetration Length
Rec. = Recovery Length
RQD = Rock Quality Designation = Length of Sound Cores>4 in / Pen.,%
WOR = Weight of Rods
WOH = Weight of Hammer
S = Split Spoon Sample
C = Core Sample
U = Undisturbed Sample
SC = Sonic Core
DP = Direct Push Sample
HSA = Hollow-Stem Auger
Qp = Pocket Penetrometer Strength
Sv = Pocket Torvane Shear Strength
LL = Liquid Limit
PI = Plasticity Index
PID = Photoionization Detector
I.D./O.D. = Inside Diameter/Outside Diameter
NA, NM = Not Applicable, Not Measured
Blows per 6 in.: 140-lb hammer falling 30 inches to drive a 2-inch-O.D. split spoon sampler.

Elev. (ft)	Depth (ft)	Sample Information: Sample No.	Sample Information: Depth (ft)	Sample Information: Pen./ Rec. (in)	Sample Information: Blows per 6 in. or RQD	Drilling Remarks/ Field Test Data	Layer Name	Soil and Rock Description
5		1	0 to 4	48/36	P-U-S-H		FILL	S1A (0-23"): WIDELY GRADED SAND WITH GRAVEL (SW); ~80% mostly f-m sand, ~15% f-m subangular gravel up to 3/4", ~5% NP fines, light brown, dry.
								S1B (23-36"): SILTY SAND (SM); ~75% f-c sand, ~15% NP-LP fines, ~10% f-c gravel, trace glass fragments, trace coal fragments, dark brown to black, dry to moist.
		2	4 to 7.5	42/16	P-U-S-H			S2A (0-9"): WIDELY GRADED SAND (SW); ~85% f-c sand, ~10% f-m gravel up to 1/2", ~5% NP fines, gray/brown to brown, dry to moist.
0	5							S2B (9-16"): BRICK AND WOOD, fragments, red and brown.
								End of probe at 7.5 feet. Backfilled with cuttings upon completion.
-5	10							

NOTES: Ground surface elevation approximate from provided 4/4/2018 Existing Conditions Plan.

PROJECT NAME: National Coast Guard Museum
CITY/STATE: New London, Connecticut
GEI PROJECT NUMBER: 1802270

GEI Consultants

BORING INFORMATION

LOCATION: Gravel Ferry Lot
GROUND SURFACE EL. (ft): 5.5
VERTICAL DATUM: NAVD 88
TOTAL DEPTH (ft): 8.0
LOGGED BY: P. Blessing
DATE START/END: 1/23/2019 - 1/23/2019
DRILLING COMPANY: Cisco Geotechnical LLC
DRILLER NAME: M. Peluyera
RIG TYPE: Truck-Mounted Geoprobe 54LT

BORING

GP-15

DRILLING INFORMATION

HAMMER TYPE: NA
AUGER I.D./O.D.: NA / NA
DRILLING METHOD: Geoprobe
WATER LEVEL DEPTHS (ft): Not measured
CASING I.D./O.D.: NA / NA
DRILL ROD O.D.: NM
CORE BARREL TYPE: NA
CORE BARREL I.D./O.D. NA / NA

ABBREVIATIONS:
Pen. = Penetration Length
Rec. = Recovery Length
RQD = Rock Quality Designation = Length of Sound Cores>4 in / Pen.,%
WOR = Weight of Rods
WOH = Weight of Hammer
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SC = Sonic Core
DP = Direct Push Sample
HSA = Hollow-Stem Auger
Qp = Pocket Penetrometer Strength
Sv = Pocket Torvane Shear Strength
LL = Liquid Limit
PI = Plasticity Index
PID = Photoionization Detector
I.D./O.D. = Inside Diameter/Outside Diameter
NA, NM = Not Applicable, Not Measured
Blows per 6 in.: 140-lb hammer falling 30 inches to drive a 2-inch-O.D. split spoon sampler.

Elev. (ft)	Depth (ft)	Sample Information: Sample No.	Sample Information: Depth (ft)	Sample Information: Pen./ Rec. (in)	Sample Information: Blows per 6 in. or RQD	Drilling Remarks/ Field Test Data	Layer Name	Soil and Rock Description
5		1	0 to 4	48/36	P-U-S-H		FILL	S1A (0-23"): WIDELY GRADED SAND WITH GRAVEL (SW); ~80% mostly f-m sand, ~15% f-m subangular gravel up to 3/4", ~5% NP fines, light brown, dry. S1B (23-36"): SILTY SAND (SM); ~75% f-c sand, ~15% NP-LP fines, ~10% f-c gravel, trace glass fragments, trace coal fragments, dark brown to black, dry to moist.
		2	4 to 8	48/32	P-U-S-H			S2: WIDELY GRADED SAND (SW); ~85% mostly f-m sand, ~10% f-c subangular gravel up to 1", ~5% NP fines, brown to dark brown, moist to wet.
0	5							
-5	10							End of probe at 8 feet. Backfilled with cuttings upon completion.

NOTES: Ground surface elevation approximate from provided 4/4/2018 Existing Conditions Plan.

PROJECT NAME: National Coast Guard Museum
CITY/STATE: New London, Connecticut
GEI PROJECT NUMBER: 1802270

GEI Consultants

GEI WOBURN STD 1-LOCATION-LAYER NAME NATIONAL COAST GUARD MUSEUM BORING LOGS.GPJ 1/28/19

BORING INFORMATION

LOCATION: Gravel Ferry Lot
GROUND SURFACE EL. (ft): 5.5
VERTICAL DATUM: NAVD 88
TOTAL DEPTH (ft): 8.0
LOGGED BY: P. Blessing
DATE START/END: 1/23/2019 - 1/23/2019
DRILLING COMPANY: Cisco Geotechnical LLC
DRILLER NAME: M. Peluyera
RIG TYPE: Truck-Mounted Geoprobe 54LT

BORING

GP-16

DRILLING INFORMATION

HAMMER TYPE: NA
AUGER I.D./O.D.: NA / NA
DRILLING METHOD: Geoprobe
WATER LEVEL DEPTHS (ft): Not measured
CASING I.D./O.D.: NA / NA
DRILL ROD O.D.: NM
CORE BARREL TYPE: NA
CORE BARREL I.D./O.D. NA / NA

ABBREVIATIONS:
Pen. = Penetration Length
Rec. = Recovery Length
RQD = Rock Quality Designation = Length of Sound Cores>4 in / Pen.,%
WOR = Weight of Rods
WOH = Weight of Hammer
S = Split Spoon Sample
C = Core Sample
U = Undisturbed Sample
SC = Sonic Core
DP = Direct Push Sample
HSA = Hollow-Stem Auger
Qp = Pocket Penetrometer Strength
Sv = Pocket Torvane Shear Strength
LL = Liquid Limit
PI = Plasticity Index
PID = Photoionization Detector
I.D./O.D. = Inside Diameter/Outside Diameter
NA, NM = Not Applicable, Not Measured
Blows per 6 in.: 140-lb hammer falling 30 inches to drive a 2-inch-O.D. split spoon sampler.

Elev. (ft)	Depth (ft)	Sample Information: Sample No.	Sample Information: Depth (ft)	Sample Information: Pen./ Rec. (in)	Sample Information: Blows per 6 in. or RQD	Drilling Remarks/ Field Test Data	Layer Name	Soil and Rock Description
5		1	0 to 4	48/35	P-U-S-H		FILL	S1A (0-25"): WIDELY GRADED SAND WITH GRAVEL (SW); ~80% mostly f-m sand, ~15% f-m subangular gravel up to 3/4", ~5% NP fines, light brown, dry.
								S1B (25-35"): SILTY SAND (SM); ~80% f-c sand, ~15% NP fines, ~5% f-m gravel up to 0.5", trace shell fragments, dark brown, moist to wet.
		2	4 to 8	48/0	P-U-S-H			S2: NO RECOVERY, <0.5" retained in liner, mostly water.
0	5							
								End of probe at 8 feet. Backfilled with cuttings upon completion.
-5	10							

NOTES: Ground surface elevation approximate from provided 4/4/2018 Existing Conditions Plan.

PROJECT NAME: National Coast Guard Museum
CITY/STATE: New London, Connecticut
GEI PROJECT NUMBER: 1802270

GEI Consultants

BORING INFORMATION

LOCATION: Gravel Ferry Lot
GROUND SURFACE EL. (ft): 5.5
VERTICAL DATUM: NAVD 88
TOTAL DEPTH (ft): 8.0
LOGGED BY: P. Blessing
DATE START/END: 1/23/2019 - 1/23/2019
DRILLING COMPANY: Cisco Geotechnical LLC
DRILLER NAME: M. Peluyera
RIG TYPE: Truck-Mounted Geoprobe 54LT

BORING

GP-17

DRILLING INFORMATION

HAMMER TYPE: NA
AUGER I.D./O.D.: NA / NA
DRILLING METHOD: Geoprobe
CASING I.D./O.D.: NA / NA
DRILL ROD O.D.: NM
CORE BARREL TYPE: NA
CORE BARREL I.D./O.D. NA / NA
WATER LEVEL DEPTHS (ft): Not measured

ABBREVIATIONS:
Pen. = Penetration Length
Rec. = Recovery Length
RQD = Rock Quality Designation = Length of Sound Cores>4 in / Pen.,%
WOR = Weight of Rods
WOH = Weight of Hammer
S = Split Spoon Sample
C = Core Sample
U = Undisturbed Sample
SC = Sonic Core
DP = Direct Push Sample
HSA = Hollow-Stem Auger
Qp = Pocket Penetrometer Strength
Sv = Pocket Torvane Shear Strength
LL = Liquid Limit
PI = Plasticity Index
PID = Photoionization Detector
I.D./O.D. = Inside Diameter/Outside Diameter
NA, NM = Not Applicable, Not Measured
Blows per 6 in.: 140-lb hammer falling 30 inches to drive a 2-inch-O.D. split spoon sampler.

Elev. (ft)	Depth (ft)	Sample Information: Sample No.	Sample Information: Depth (ft)	Sample Information: Pen./ Rec. (in)	Sample Information: Blows per 6 in. or RQD	Drilling Remarks/ Field Test Data	Layer Name	Soil and Rock Description
5		1	0 to 4	48/46	P-U-S-H		FILL	S1A (0-35"): WIDELY GRADED SAND WITH GRAVEL (SW); ~80% f-c sand, ~15% f-m subangular gravel up to 1/2", ~5% NP fines, light brown to gray/brown, dry. S1B (35-46"): WIDELY GRADED SAND WITH GRAVEL (SW); ~80% f-c sand, ~15% f-m subangular gravel up to 1/2", ~5% NP fines, dark brown, moist to wet.
	5	2	4 to 8	48/15	P-U-S-H			S2: WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~75% f-c sand, ~15% f-c gravel, ~10% NP-LP fines, shell fragments, OLO from 12-15", dark brown to black, moist to wet.
0								End of probe at 8 feet. Backfilled with cuttings upon completion.
	10							
-5								

NOTES: Ground surface elevation approximate from provided 4/4/2018 Existing Conditions Plan.

PROJECT NAME: National Coast Guard Museum
CITY/STATE: New London, Connecticut
GEI PROJECT NUMBER: 1802270

GEI Consultants

BORING INFORMATION

LOCATION: Gravel Ferry Lot
GROUND SURFACE EL. (ft): 6.0
VERTICAL DATUM: NAVD 88
TOTAL DEPTH (ft): 4.0
LOGGED BY: P. Blessing
DATE START/END: 1/25/2019 - 1/25/2019
DRILLING COMPANY: Cisco Geotechnical LLC
DRILLER NAME: M. Peluyera
RIG TYPE: Truck-Mounted Geoprobe 54LT

BORING

GP-18

PAGE 1 of 1

DRILLING INFORMATION

HAMMER TYPE: NA
AUGER I.D./O.D.: NA / NA
DRILLING METHOD: Geoprobe
WATER LEVEL DEPTHS (ft): Not measured
CASING I.D./O.D.: NA / NA
DRILL ROD O.D.: NM
CORE BARREL TYPE: NA
CORE BARREL I.D./O.D. NA / NA

ABBREVIATIONS:
Pen. = Penetration Length
Rec. = Recovery Length
RQD = Rock Quality Designation = Length of Sound Cores>4 in / Pen.,%
WOR = Weight of Rods
WOH = Weight of Hammer
S = Split Spoon Sample
C = Core Sample
U = Undisturbed Sample
SC = Sonic Core
DP = Direct Push Sample
HSA = Hollow-Stem Auger
Qp = Pocket Penetrometer Strength
Sv = Pocket Torvane Shear Strength
LL = Liquid Limit
PI = Plasticity Index
PID = Photoionization Detector
I.D./O.D. = Inside Diameter/Outside Diameter
NA, NM = Not Applicable, Not Measured
Blows per 6 in.: 140-lb hammer falling 30 inches to drive a 2-inch-O.D. split spoon sampler.

Elev. (ft)	Depth (ft)	Sample Information: Sample No.	Sample Information: Depth (ft)	Sample Information: Pen./ Rec. (in)	Sample Information: Blows per 6 in. or RQD	Drilling Remarks/ Field Test Data	Layer Name	Soil and Rock Description
		1	0 to 4	48/30	P-U-S-H		FILL	S1: WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~65% f-c sand, ~25% f-c subangular gravel up to 1.25", ~10% NP fines, brown, dry to moist.
								Hit refusal on concrete slab at 4.0 feet below grade. Hard concrete wedged in shoe spoon. Terminated boring.
								End of probe at 4 feet. Backfilled with cuttings upon completion.

5
0
-5
5
10

NOTES: Ground surface elevation approximate from provided 4/4/2018 Existing Conditions Plan.

PROJECT NAME: National Coast Guard Museum
CITY/STATE: New London, Connecticut
GEI PROJECT NUMBER: 1802270

GEI Consultants

GEI WOBURN STD 1-LOCATION-LAYER NAME NATIONAL COAST GUARD MUSEUM BORING LOGS.GPJ 1/28/19

BORING INFORMATION

LOCATION: Gravel Ferry Lot
GROUND SURFACE EL. (ft): 5.5
VERTICAL DATUM: NAVD 88
TOTAL DEPTH (ft): 8.0
LOGGED BY: P. Blessing
DATE START/END: 1/25/2019 - 1/25/2019
DRILLING COMPANY: Cisco Geotechnical LLC
DRILLER NAME: M. Peluyera
RIG TYPE: Truck-Mounted Geoprobe 54LT

BORING

GP-19

DRILLING INFORMATION

HAMMER TYPE: NA
AUGER I.D./O.D.: NA / NA
DRILLING METHOD: Geoprobe
CASING I.D./O.D.: NA / NA
DRILL ROD O.D.: NM
CORE BARREL TYPE: NA
CORE BARREL I.D./O.D. NA / NA
WATER LEVEL DEPTHS (ft): Not measured

ABBREVIATIONS:
Pen. = Penetration Length
Rec. = Recovery Length
RQD = Rock Quality Designation = Length of Sound Cores>4 in / Pen.,%
WOR = Weight of Rods
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Qp = Pocket Penetrometer Strength
Sv = Pocket Torvane Shear Strength
LL = Liquid Limit
PI = Plasticity Index
PID = Photoionization Detector
I.D./O.D. = Inside Diameter/Outside Diameter
NA, NM = Not Applicable, Not Measured
Blows per 6 in.: 140-lb hammer falling 30 inches to drive a 2-inch-O.D. split spoon sampler.

Elev. (ft)	Depth (ft)	Sample Information: Sample No.	Sample Information: Depth (ft)	Sample Information: Pen./ Rec. (in)	Sample Information: Blows per 6 in. or RQD	Drilling Remarks/ Field Test Data	Layer Name	Soil and Rock Description
5		1	0 to 4	48/38	P-U-S-H		FILL	S1A (0-16"): WIDELY GRADED SAND WITH GRAVEL (SW); ~60% f-c sand, ~35% f-c subangular gravel and fragmented rock up to 1.5", ~5% NP fines, light brown to gray/brown, dry. S1B (16-38"): WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~65% f-c sand, ~25% f-c subangular gravel up to 1", ~10% NP fines, metal/ slag fragments, glass/ coal fragments, brick fragments from 37-38", dark brown to black, dry to moist.
	5	2	4 to 8	48/24	P-U-S-H			S2: WIDELY GRADED GRAVEL WITH SILT AND SAND (GW-GM); ~70% f-c angular gravel up to 1.5", ~20% f-c sand, ~10% NP- fines, brick fragments, cobbles, red/brown to brown, wet.
0								
	10							End of probe at 8 feet. Backfilled with cuttings upon completion.
-5								

NOTES: Ground surface elevation approximate from provided 4/4/2018 Existing Conditions Plan.

PROJECT NAME: National Coast Guard Museum
CITY/STATE: New London, Connecticut
GEI PROJECT NUMBER: 1802270

GEI Consultants

BORING INFORMATION

LOCATION: Gravel Ferry Lot
GROUND SURFACE EL. (ft): 5.5
VERTICAL DATUM: NAVD 88
TOTAL DEPTH (ft): 8.0
LOGGED BY: P. Blessing
DATE START/END: 1/25/2019 - 1/25/2019
DRILLING COMPANY: Cisco Geotechnical LLC
DRILLER NAME: M. Peluyera
RIG TYPE: Truck-Mounted Geoprobe 54LT

BORING

GP-20

DRILLING INFORMATION

HAMMER TYPE: NA
AUGER I.D./O.D.: NA / NA
DRILLING METHOD: Geoprobe
WATER LEVEL DEPTHS (ft): Not measured
CASING I.D./O.D.: NA / NA
DRILL ROD O.D.: NM
CORE BARREL TYPE: NA
CORE BARREL I.D./O.D. NA / NA

ABBREVIATIONS:
Pen. = Penetration Length
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WOR = Weight of Rods
WOH = Weight of Hammer
S = Split Spoon Sample
C = Core Sample
U = Undisturbed Sample
SC = Sonic Core
DP = Direct Push Sample
HSA = Hollow-Stem Auger
Qp = Pocket Penetrometer Strength
Sv = Pocket Torvane Shear Strength
LL = Liquid Limit
PI = Plasticity Index
PID = Photoionization Detector
I.D./O.D. = Inside Diameter/Outside Diameter
NA, NM = Not Applicable, Not Measured
Blows per 6 in.: 140-lb hammer falling 30 inches to drive a 2-inch-O.D. split spoon sampler.

Elev. (ft)	Depth (ft)	Sample Information: Sample No.	Sample Information: Depth (ft)	Sample Information: Pen./ Rec. (in)	Sample Information: Blows per 6 in. or RQD	Drilling Remarks/ Field Test Data	Layer Name	Soil and Rock Description
5		1	0 to 4	48/33	P-U-S-H		FILL	S1A (0-10"): WIDELY GRADED SAND WITH GRAVEL (SW); ~70% f-c sand, ~25% f-c gravel and fragmented rock up to 1.5", ~5% NP fines, light brown, dry. S1B (10-33"): SILTY SAND (SM); ~80% f-c sand, ~15% NP fines, ~5% f-c subangular gravel up to 1", plastic, shell, coal, and slag fragments, dark brown, dry to moist.
0	5	2	4 to 8	48/33	P-U-S-H			S2: WIDELY GRADED SAND WITH SILT (SW-SM); ~80% f-c sand, ~10% f-c gravel and fragmented rock up to 1", ~10% NP-LP fines, brick fragments, trace organics, dark brown to red/brown, wet.
								End of probe at 8 feet. Backfilled with cuttings upon completion.
-5	10							

NOTES: Ground surface elevation approximate from provided 4/4/2018 Existing Conditions Plan.

PROJECT NAME: National Coast Guard Museum
CITY/STATE: New London, Connecticut
GEI PROJECT NUMBER: 1802270

GEI Consultants

BORING INFORMATION

LOCATION: Gravel Ferry Lot
GROUND SURFACE EL. (ft): 5.5
VERTICAL DATUM: NAVD 88
TOTAL DEPTH (ft): 8.0
LOGGED BY: P. Blessing
DATE START/END: 1/25/2019 - 1/25/2019
DRILLING COMPANY: Cisco Geotechnical LLC
DRILLER NAME: M. Peluyera
RIG TYPE: Truck-Mounted Geoprobe 54LT

BORING

GP-21

DRILLING INFORMATION

HAMMER TYPE: NA
AUGER I.D./O.D.: NA / NA
DRILLING METHOD: Geoprobe
WATER LEVEL DEPTHS (ft): Not measured
CASING I.D./O.D.: NA / NA
DRILL ROD O.D.: NM
CORE BARREL TYPE: NA
CORE BARREL I.D./O.D. NA / NA

ABBREVIATIONS:
Pen. = Penetration Length
Rec. = Recovery Length
RQD = Rock Quality Designation = Length of Sound Cores>4 in / Pen.,%
WOR = Weight of Rods
WOH = Weight of Hammer
S = Split Spoon Sample
C = Core Sample
U = Undisturbed Sample
SC = Sonic Core
DP = Direct Push Sample
HSA = Hollow-Stem Auger
Qp = Pocket Penetrometer Strength
Sv = Pocket Torvane Shear Strength
LL = Liquid Limit
PI = Plasticity Index
PID = Photoionization Detector
I.D./O.D. = Inside Diameter/Outside Diameter
NA, NM = Not Applicable, Not Measured
Blows per 6 in.: 140-lb hammer falling 30 inches to drive a 2-inch-O.D. split spoon sampler.

Elev. (ft)	Depth (ft)	Sample Information: Sample No.	Sample Information: Depth (ft)	Sample Information: Pen./ Rec. (in)	Sample Information: Blows per 6 in. or RQD	Drilling Remarks/ Field Test Data	Layer Name	Soil and Rock Description
5		1	0 to 4	48/40	P-U-S-H		FILL	S1A (0-14"): WIDELY GRADED SAND WITH GRAVEL (SW); ~75% f-c sand, ~20% f-c subangular gravel up to 1", ~5% NP fines, brown to light brown, dry to moist. S1B (14-40"): WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~70% f-c sand, ~20% f-c subangular gravel up to 1", ~10% NP fines, coal and slag fragments, red brick fragments from 32-38", dark brown to black, dry to moist.
0	5	2	4 to 8	48/3	P-U-S-H			S2: WIDELY GRADED GRAVEL (GW); ~90% f-c subangular gravel up to 1.5", ~10% f-c sand. Poor recovery, Driller says sampler was pushing down a rock.
-5	10							End of probe at 8 feet. Backfilled with cuttings upon completion.

NOTES: Ground surface elevation approximate from provided 4/4/2018 Existing Conditions Plan.

PROJECT NAME: National Coast Guard Museum
CITY/STATE: New London, Connecticut
GEI PROJECT NUMBER: 1802270

GEI Consultants

BORING INFORMATION

LOCATION: Gravel Ferry Lot
GROUND SURFACE EL. (ft): 5.5
VERTICAL DATUM: NAVD 88
TOTAL DEPTH (ft): 8.0
LOGGED BY: P. Blessing
DATE START/END: 1/25/2019 - 1/25/2019
DRILLING COMPANY: Cisco Geotechnical LLC
DRILLER NAME: M. Peluyera
RIG TYPE: Truck-Mounted Geoprobe 54LT

BORING

GP-22

DRILLING INFORMATION

HAMMER TYPE: NA
AUGER I.D./O.D.: NA / NA
DRILLING METHOD: Geoprobe
CASING I.D./O.D.: NA / NA
DRILL ROD O.D.: NM
CORE BARREL TYPE: NA
CORE BARREL I.D./O.D. NA / NA
WATER LEVEL DEPTHS (ft): Not measured

ABBREVIATIONS:
Pen. = Penetration Length
Rec. = Recovery Length
RQD = Rock Quality Designation = Length of Sound Cores>4 in / Pen.,%
WOR = Weight of Rods
WOH = Weight of Hammer
S = Split Spoon Sample
C = Core Sample
U = Undisturbed Sample
SC = Sonic Core
DP = Direct Push Sample
HSA = Hollow-Stem Auger
Qp = Pocket Penetrometer Strength
Sv = Pocket Torvane Shear Strength
LL = Liquid Limit
PI = Plasticity Index
PID = Photoionization Detector
I.D./O.D. = Inside Diameter/Outside Diameter
NA, NM = Not Applicable, Not Measured
Blows per 6 in.: 140-lb hammer falling 30 inches to drive a 2-inch-O.D. split spoon sampler.

Elev. (ft)	Depth (ft)	Sample Information: Sample No.	Sample Information: Depth (ft)	Sample Information: Pen./ Rec. (in)	Sample Information: Blows per 6 in. or RQD	Drilling Remarks/ Field Test Data	Layer Name	Soil and Rock Description
5		1	0 to 4	48/36	P-U-S-H		FILL	S1A (0-16"): WIDELY GRADED SAND WITH GRAVEL (SW); ~75% f-c sand, ~20% f-c subangular gravel and fragmented rock up to 1", ~5% NP fines, light brown to gray/brown, dry to moist. S1B (16-36"): WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~65% f-c sand, ~25% f-c gravel up to 1", ~10% NP fines, wood fragments with creosote-like odor from 26-30", glass, coal, and slag fragments, dark brown to black, dry to moist.
	5	2	4 to 8	48/14	P-U-S-H			S2: WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~60% f-c sand, ~30% m-c subangular gravel up to 2", ~10% NP fines, dark brown to brown, moist to wet.
0								
	10							End of probe at 8 feet. Backfilled with cuttings upon completion.
-5								

NOTES: Ground surface elevation approximate from provided 4/4/2018 Existing Conditions Plan.

PROJECT NAME: National Coast Guard Museum
CITY/STATE: New London, Connecticut
GEI PROJECT NUMBER: 1802270

GEI Consultants

BORING INFORMATION

LOCATION: Gravel Ferry Lot
GROUND SURFACE EL. (ft): 5.5
VERTICAL DATUM: NAVD 88
TOTAL DEPTH (ft): 6.0
LOGGED BY: P. Blessing
DATE START/END: 1/25/2019 - 1/25/2019
DRILLING COMPANY: Cisco Geotechnical LLC
DRILLER NAME: M. Peluyera
RIG TYPE: Truck-Mounted Geoprobe 54LT

BORING

GP-23

DRILLING INFORMATION

HAMMER TYPE: NA
AUGER I.D./O.D.: NA / NA
DRILLING METHOD: Geoprobe
CASING I.D./O.D.: NA / NA
DRILL ROD O.D.: NM
CORE BARREL TYPE: NA
CORE BARREL I.D./O.D. NA / NA
WATER LEVEL DEPTHS (ft): Not measured

ABBREVIATIONS:
Pen. = Penetration Length
Rec. = Recovery Length
RQD = Rock Quality Designation = Length of Sound Cores>4 in / Pen.,%
WOR = Weight of Rods
WOH = Weight of Hammer
S = Split Spoon Sample
C = Core Sample
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LL = Liquid Limit
PI = Plasticity Index
PID = Photoionization Detector
I.D./O.D. = Inside Diameter/Outside Diameter
NA, NM = Not Applicable, Not Measured
Blows per 6 in.: 140-lb hammer falling 30 inches to drive a 2-inch-O.D. split spoon sampler.

Elev. (ft)	Depth (ft)	Sample Information: Sample No.	Sample Information: Depth (ft)	Sample Information: Pen./ Rec. (in)	Sample Information: Blows per 6 in. or RQD	Drilling Remarks/ Field Test Data	Layer Name	Soil and Rock Description
5		1	0 to 4	48/36	P-U-S-H		FILL	S1A (0-16"): WIDELY GRADED SAND WITH GRAVEL (SW); ~70% f-c sand, ~25% f-c subangular gravel up to 1.5", ~5% NP fines, light brown to gray/brown, dry to moist.
								S1B (16-36"): SILTY SAND (SM); ~65% f-c sand, ~20% f-c subangular gravel up to 1", ~15% NP fines, shell, slag, coal, and brick fragments, dark brown to gray/brown, dry to moist.
		2	4 to 6	24/13	P-U-S-H			S2: WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~65% f-c sand, ~25% f-c subangular gravel up to 1.5", ~10% NP fines, wood fragments from 12-13", dark brown, moist to wet. Driller was not able to advance sampler further through buried timber.
0	5							End of probe at 6 feet. Backfilled with cuttings upon completion.
-5	10							

NOTES: Ground surface elevation approximate from provided 4/4/2018 Existing Conditions Plan.

PROJECT NAME: National Coast Guard Museum
CITY/STATE: New London, Connecticut
GEI PROJECT NUMBER: 1802270

GEI Consultants

BORING INFORMATION

LOCATION: Gravel Ferry Lot
GROUND SURFACE EL. (ft): 6.0
VERTICAL DATUM: NAVD 88
TOTAL DEPTH (ft): 8.0
LOGGED BY: P. Blessing
DATE START/END: 1/25/2019 - 1/25/2019
DRILLING COMPANY: Cisco Geotechnical LLC
DRILLER NAME: M. Peluyera
RIG TYPE: Truck-Mounted Geoprobe 54LT

BORING

GP-24

DRILLING INFORMATION

HAMMER TYPE: NA
AUGER I.D./O.D.: NA / NA
DRILLING METHOD: Geoprobe
WATER LEVEL DEPTHS (ft): Not measured
CASING I.D./O.D.: NA / NA
DRILL ROD O.D.: NM
CORE BARREL TYPE: NA
CORE BARREL I.D./O.D. NA / NA

ABBREVIATIONS:
Pen. = Penetration Length
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RQD = Rock Quality Designation = Length of Sound Cores>4 in / Pen.,%
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SC = Sonic Core
DP = Direct Push Sample
HSA = Hollow-Stem Auger
Qp = Pocket Penetrometer Strength
Sv = Pocket Torvane Shear Strength
LL = Liquid Limit
PI = Plasticity Index
PID = Photoionization Detector
I.D./O.D. = Inside Diameter/Outside Diameter
NA, NM = Not Applicable, Not Measured
Blows per 6 in.: 140-lb hammer falling 30 inches to drive a 2-inch-O.D. split spoon sampler.

Elev. (ft)	Depth (ft)	Sample Information: Sample No.	Sample Information: Depth (ft)	Sample Information: Pen./ Rec. (in)	Sample Information: Blows per 6 in. or RQD	Drilling Remarks/ Field Test Data	Layer Name	Soil and Rock Description
5		1	0 to 4	48/36	P-U-S-H		FILL	S1A (0-15"): WIDELY GRADED SAND WITH GRAVEL (SW); ~65% f-c sand, ~30% f-m angular gravel up to 1/2", ~5% NP fines, plastic fragments, brown to gray/brown, dry to moist. S1B (15-21"): WIDELY GRADED SAND WITH GRAVEL (SW); ~80% f-c sand, ~20% f-c subangular gravel up to 1", light brown, dry. S1C (21-36"): WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~70% f-c sand, ~20% f-m gravel up to 1/2", ~10% NP fines, shell and slag fragments, dark brown to brown, dry to moist.
	5	2	4 to 8	48/21	P-U-S-H			S2: WIDELY GRADED SAND (SW); ~85% f-c sand, ~10% f-c subrounded gravel up to 1", ~5% NP fines, wood fragments from 17-21", dark brown to dark red/brown.
0								
	10							End of probe at 8 feet. Backfilled with cuttings upon completion.
-5								

NOTES: Ground surface elevation approximate from provided 4/4/2018 Existing Conditions Plan.

PROJECT NAME: National Coast Guard Museum
CITY/STATE: New London, Connecticut
GEI PROJECT NUMBER: 1802270

GEI Consultants

BORING INFORMATION

LOCATION: Gravel Ferry Lot
GROUND SURFACE EL. (ft): 6.0
VERTICAL DATUM: NAVD 88
TOTAL DEPTH (ft): 8.0
LOGGED BY: P. Blessing
DATE START/END: 1/25/2019 - 1/25/2019
DRILLING COMPANY: Cisco Geotechnical LLC
DRILLER NAME: M. Peluyera
RIG TYPE: Truck-Mounted Geoprobe 54LT

BORING

GP-25

DRILLING INFORMATION

HAMMER TYPE: NA
AUGER I.D./O.D.: NA / NA
DRILLING METHOD: Geoprobe
WATER LEVEL DEPTHS (ft): Not measured
CASING I.D./O.D.: NA / NA
DRILL ROD O.D.: NM
CORE BARREL TYPE: NA
CORE BARREL I.D./O.D. NA / NA

ABBREVIATIONS:
Pen. = Penetration Length
Rec. = Recovery Length
RQD = Rock Quality Designation = Length of Sound Cores>4 in / Pen.,%
WOR = Weight of Rods
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PI = Plasticity Index
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I.D./O.D. = Inside Diameter/Outside Diameter
NA, NM = Not Applicable, Not Measured
Blows per 6 in.: 140-lb hammer falling 30 inches to drive a 2-inch-O.D. split spoon sampler.

Elev. (ft)	Depth (ft)	Sample Information: Sample No.	Sample Information: Depth (ft)	Sample Information: Pen./ Rec. (in)	Sample Information: Blows per 6 in. or RQD	Drilling Remarks/ Field Test Data	Layer Name	Soil and Rock Description
5		1	0 to 4	48/39	P-U-S-H		FILL	S1A (0-24"): WIDELY GRADED SAND WITH GRAVEL (SW); ~75% f-c sand, ~20% f-c angular gravel up to 1", ~5% NP fines, brown to light brown, dry to moist. S1B (24-39"): WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~75% f-c sand, ~15% f-m subangular gravel up to 1/2", ~10% NP fines, slag, brick, and coal fragments, dark brown, dry to moist.
	5	2	4 to 8	48/29	P-U-S-H			S2: WIDELY GRADED SAND (SW); ~60% f-c sand, ~35% f-c angular gravel up to 1", ~5% NP fines, shell and fragments, sheen observed from 15-29", dark brown, dry to wet.
0								
	10							End of probe at 8 feet. Backfilled with cuttings upon completion.
-5								

NOTES: Ground surface elevation approximate from provided 4/4/2018 Existing Conditions Plan.

PROJECT NAME: National Coast Guard Museum
CITY/STATE: New London, Connecticut
GEI PROJECT NUMBER: 1802270

GEI Consultants