Narrative Information Sheet
U.S. EPA Brownfield Cleanup Grant Application

1. Applicant Identification

   Boston Redevelopment Authority
   D/B/A Boston Planning & Development Agency
   12 Channel Street, Suite 901
   Boston, MA 02210

2. Website URL

   http://bit.ly/ChainForge

3. Funding Requested
   a. Grant Type : Single Site Cleanup
   b. Federal Funds Requested: $4,000,000

4. Location

   Boston, Suffolk County, Massachusetts

5. Property Information

   Chain Forge (Building 105)
   105 First Avenue
   Boston, MA 02129

6. Contacts
   a. Project Director

   Jason Tobin, Senior Project Engineer
   12 Channel Street, Boston, MA 02210
   617-918-6211
   jason.w.tobin@boston.gov

   b. Chief Executive/Highest Ranking Elected Official

   Kairos Shen, Director
   Boston Redevelopment Authority
   1 City Hall Square, 9th Floor, Boston, MA 02201
   617-722-4300
   bradirectorsoffice@boston.gov

DRAFT

7. Population

   City of Boston – 675,647

8. Other Factors Checklist

Other Factors	Page #
Community population is 15,000 or less.	N/A
The applicant is, or will assist, a federally recognized Indian Tribe or United States Territory.	N/A
The proposed brownfield site(s) is impacted by mine-scarred land.	N/A
Secured firm leveraging commitment ties directly to the project and will facilitate completion of the remediation/reuse; secured resource is identified in the Narrative and substantiated in the attached documentation.	4,5
The proposed site(s) is adjacent to a body of water (i.e., the border of the proposed site(s) is contiguous or partially contiguous to the body of water, or would be contiguous or partially contiguous with a body of water but for a street, road, or other public thoroughfare separating them).	N/A
The proposed site(s) is in a federally designated flood plain.	3
The reuse of the proposed cleanup site(s) will facilitate renewable energy from wind, solar, or geothermal energy.	N/A
The reuse of the proposed cleanup site(s) will incorporate energy efficiency measures.	3
The proposed project will improve local climate adaptation/mitigation capacity and resilience to protect residents and community investments.	3
The target area(s) is impacted by a coal-fired power plant that has recently closed (2014 or later) or is closing.	N/A

9. Releasing Copies of Applications

   Not applicable.

DRAFT

Letter from State Environmental Authority

DRAFT

Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

100 Cambridge Street Suite 900 Boston, MA 02114 • 617-292-5500

Maura T. Healey
Governor

Kimberley Driscoll
Lieutenant Governor

Rebecca L. Tepper
Secretary

Bonnie Heiple
Commissioner

October 9, 2024 *Via Email*

William J. Epperson
Deputy Director for Capital Construction
Boston Redevelopment Authority
12 Channell Street Suite 901
Boston, MA 02210

RE: STATE LETTER OF ACKNOWLEDGMENT
City of Boston – Brownfields Cleanup Grant
First Avenue & Ninth Street, Charlestown [Boston; RTN 3-10627]

Dear Mr. Epperson:

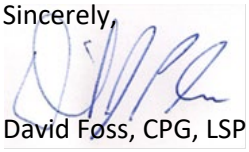
I am writing to support the application submitted by the City of Boston under the Fiscal Year 2025 U.S. Environmental Protection Agency (EPA) Brownfield Cleanup Grant Program. We understand that the Boston Planning and Development Agency (BPDA) is proposing to perform remedial activities to address oil and hazardous materials present at the site, historically the Chain Forge (Building 105) at the Charlestown Navy Yard, and that the intended future use of the property is mixed use development that may include hotel, retail, restaurant, and cultural uses.

The Boston Redevelopment Authority (d/b/a BPDA) currently owns the building and land at the Site and the property is enrolled in the Massachusetts voluntary cleanup program. According to information provided by the City and their consultant, the level of assessment conducted to date is sufficient to design and initiate the proposed cleanup activities.

In Massachusetts, state and federal agencies have developed strong partnerships and work together to ensure that parties undertaking Brownfield projects have access to available resources and incentives. The Massachusetts Department of Environmental Protection (MassDEP), through our regional offices, provides technical support to Brownfield project proponents when regulatory issues arise. If this proposal is selected, MassDEP will work with our state and federal partners to support the City of Boston to help make this project a success.

We greatly appreciate EPA's continued support of Brownfield efforts in Massachusetts.

Sincerely,



David Foss, CPG, LSP
Statewide Brownfields Coordinator, Bureau of Waste Site Cleanup

cc: Dorrie Paar, US EPA
Jason Tobin, Senior Project Engineer for Capital Construction
Joanne Fagan, MassDEP Northeast Regional Office

This information is available in alternate format. Please contact Melixza Esenyie at 617-626-1282.
TTY# MassRelay Service 1-800-439-2370
MassDEP Website: www.mass.gov/dep

Printed on Recycled Paper

Grant Narrative

DRAFT

1. PROJECT AREA DESCRIPTION AND PLANS FOR REVITALIZATION

a. Target Area and Brownfields

i. Overview of Brownfield Challenges and Description of Target Area - The City of Boston, Massachusetts, with a population of 675,647 (2020 census), is the largest city in New England. Boston rose to industrial prominence during the early 19th century, serving as a major hub of manufacturing, including textile mills, machine shops and factories. Boston also held significant military importance during this time due to the City's strategic location on the harbor, which made it a vital point for defensive military operations as well as maritime transportation. Unfortunately, an economic shift occurred in the mid-20th century, following World War II, when the rise of global competition led to the decline of Boston's manufacturing and military sectors. This triggered the closure of thousands of mills, factories, and formerly used defense sites and left behind many abandoned and contaminated brownfields. The 1960s and 1970s ushered in an era of significant racial tensions and unrest, and increased crime, which further impacted the city's economic stability and social fabric. Economic blight continued through the 1980s, contributing to population decline and urban decay, leaving many more properties abandoned and in a state of disrepair. **There are currently over 5,575 known contaminated sites in the City of Boston** identified by the Massachusetts Department of Environmental Protection (MassDEP). These properties, including many former manufacturing facilities, textile mills, machine shop, as well as **formerly used defense sites (FUDS)**, are often contaminated with volatile organic compounds (VOCs), heavy metals (lead, chromium, arsenic), petroleum compounds, as well as hazardous building materials (HBM), including asbestos, lead-based paint (LBP), and polychlorinated biphenyls (PCBs). Additionally, much of Boston was previously marshland that has been historically filled in with materials impacted with polycyclic aromatic hydrocarbons (PAHs), dioxins, and other contaminants. These brownfield sites have led to lower property values, heightened public health and safety risks, increased crime, blight, and neglect, as well as reduced local business investment and tax revenue. Additionally, brownfields have exacerbated economic disparities and increased exposure to hazards for underserved communities in the area. ---
The Target Area, Census Tract 25025040801, is identified as **a disadvantaged community** by the Climate and Economic Justice Screening Tool **(CEJST). The Target Area** falls within the **77% for low-income households and above thresholds for workforce development, transportation, and legacy pollution burdens.** The Target Area includes a diverse community, including Black/African American, Asian, and Hispanic/Latino households, **with 91% living in Poverty and 92% living in linguistic isolation**. The Target Area is **comprised primarily of a FUDS known as the Boston Naval Shipyard / Charlestown Navy Yard (CNY). 99% of the target community lives in close proximity to hazardous waste facilities.** The City urgently requires this cleanup grant to address the ongoing challenges and impacts associated with brownfields. Without the EPA's support, the site will remain unremediated, perpetuating the known social determinants of health disparities that have afflicted the residents of the city and the Target Areas for decades. This disadvantaged community will continue to be subjected to a growing margin of economic and health inequalities which significantly impacts quality of life without this crucial assistance.

ii. Description of the Proposed Brownfield Site(s) - Opened in 1800 as one of the first navy yards of the United States, the CNY lies in Boston's Inner Harbor, at the junction of the Charles and Mystic Rivers. **The Priority Brownfields Site is a 1.73-acre property known as the former Chain Forge - Building 105,** situated at the corner of First Avenue and Ninth Street within the heart of the CNY. **The Priority Site is partially located in a high risk, Special Flood Hazard Area and 100-year flood zone.** Chain Forge is improved with a 58,800 s.f. footprint structure that was built in 1904 and runs along an entire city block

DRAFT

of the former navy yard. Its steel framework and brick, classical revival style exterior, has been called **the "Cathedral of Industry" and is part of the Historic Monument Area within the CNY - a National Historic Landmark since 1966.** Some of the equipment intentionally remains on the property and is required to be preserved on site. --- **The former Chain Forge (Building 105) is a centerpiece of the Target Area but has stood vacant since the closure of the Boston Naval Shipyard in 1974**, when the Boston Redevelopment Agency (BRA) acquired the property. This site, steeped in history and innovation, was the birthplace of the die-lock anchor chain, a significant advancement in naval technology perfected in 1926, which remains unparalleled for its durability. Chain Forge produced nearly all the chains used by the Navy through WWII; however, **forging operations used materials and produced byproducts that contaminated the building structure materials, equipment, concrete floor slab, and soil and groundwater beneath the building**. The property has been a known release Site with MassDEP, identified as Release Tracking Number (RTN) 3-10627, dating back to 1992. Access is restricted by a chain link fence and boarded up windows and doors to prevent trespassing and contain potential releases due to contaminated materials inside the until cleanup funding can be secured and remediation completed. **Contaminants of Concern (COCs) detected at the Site** include PCBs, petroleum compounds, PAHs, heavy metals (lead, arsenic and chromium), and dioxin. The U.S. Army Corps of Engineers addressed some of the environmental issues in 2001, and additional cleanup measures were completed in 2018, but **the Priority Site still requires significant building abatement and remediation of soils to be completed prior to any redevelopment or adaptive reuse.** Despite its historical importance, **the extensive contaminated condition of the building and property has led to 50 years of vacancy, degradation, and disrepair**. Roof gutters and downspouts are damaged or missing throughout, causing mold growth on the brick walls. Cracking and dislodged bricks, along with deteriorated mortar joints, throughout the Chain Forge building contribute to the compromised structural integrity of Building 105 as well as safety risks, including a high risk of falling bricks. **The remaining environmental challenges are financially infeasible without a cleanup grant from the EPA and hinder the Site's redevelopment potential.**

b. Revitalization of the Target Area

i. Reuse Strategy and Alignment with Revitalization Plans - The proposed redevelopment of the Site aims to breathe new life into a historically significant structure that has remained vacant for 50 years. The project will involve a sensitive restoration that aligns with the Secretary of the Interior's Standards for the Rehabilitation of Historic Properties, aiming to utilize federal and state historic tax credits to ensure the building's historic integrity is preserved. **The redevelopment and revitalization of the site will be first guided by the planning initiative adopted in September of 2023 and known as PLAN: Charlestown**, which includes: an analysis of neighborhood needs and recommendations to improve access to services; new zoning for existing industrial parts of the neighborhood to encourage more housing and retail options; and urban design guidelines to govern future development in the former industrial area and in the Original Peninsula. Specific priorities include: Housing + Mobility; Open Space + Climate Resilience; Preservation + Arts and Culture; and Retail, Food Security, + Neighborhood Services. --- Located in a **Coastal Flood Resilience Overlay District (CFROD)**, which works to protect persons and structures from the adverse effects of sea level rise and storm surge associated with climate change, the redevelopment of the site will subject to an **Article 25A Resilience Review**, in which a Resilience Reviewer will advise on project **compliance with the City's climate resilience policies and requirements**. **Design Guidelines** include: repurposed or relocated ground floor uses; floodproofing; resilient material selection; protection of critical building systems; enhanced building envelope; on-site energy generation;

DRAFT

and landscape strategies. --- Subject to the **City's Stretch Energy Code**, the redevelopment will be required to deliver the long-term benefits of improved air quality, lower energy costs, reduced carbon emissions, and enhanced thermal comfort to building occupants by **implementing energy conservation measures** to reduce heating and cooling demand; promote fossil fuel-free and zero emissions standards; and **prioritize green energy strategies**. --- Redevelopment will be further guided by past planning efforts that inform today's reuse and revitalization goals, including the ***1975 Boston Naval Shipyard Charlestown Planning & Development Program***; the ***1977 Program of Preservation and Utilization***; the ***1978 Design Guidelines for the Historic Monument Area of the Boston Naval Shipyard at Charlestown***; the ***1986 Navy Yard – Anchor in Harbor Park***; and the ***1990 City of Boston Harborpark Municipal Harbor Plan***. From these, current priorities call for redevelopment as a public destination with improved connectivity, synergies with nearby infrastructure to promote waterfront activation, adaptive reuse and preservation, economic development, and coastal resilience. --- The BRA, doing business as the Boston Planning & Development Agency (BPDA), acting by and through the City of Boston's Planning Department, is in the early stages of **a renewed community engagement process**, with the objective of designating a developer for the site in mid-2025. **A community visioning session held in September 2024 has reignited dialogue with the community, including underserved communities, to inform the potential uses of the property** to be included in an upcoming Request for Proposals from development partners. Among the initial mixed reuses being considered are redevelopment as a hotel (potential synergies with academic, business, retail, and conference partners); commercial uses (restaurants, grocery store); residential uses; and institutional uses (museums, galleries, education, performance) that implement flood resilience measures. --- The Site had previously been designated to a developer for the past 15 years for redevelopment as a hotel, but that agreement was recently terminated, with the developer noting the significant environmental cleanup costs as the barrier to redevelopment. The BRA will be actively seeking a new developer in the beginning of 2025, emphasizing the importance of selecting a partner capable of navigating the complex regulatory environment, securing critical funding, and delivering a project that honors the site's heritage as well as the needs and desires of the target community. The redevelopment scope is intended to include modern, **sustainable design elements, making the building LEED-certifiable and integrating energy- and water- efficiency measures**. Additionally, being in the **FEMA Zone AE (EL 10) flood plain**, first floor uses will be controlled to **implement flood resilience and additional climate adaptation measures e to ensure climate resiliency and protect residents and community investments**. The final redevelopment will be required to include a historical exhibit area on site, showcasing machinery retained by the National Park Service to enhance the cultural and educational value of the site. Overall, the intended future use of the Site is mixed-use development with potential uses such as hotel, retail, restaurant, and cultural uses.

ii. Outcomes and Benefits of the Reuse Strategy - The redevelopment of Building 105 has great potential to provide environmental, economic, social and public health benefits to the target community. The revitalizing this block of the Charlestown Navy Yard will reduce blight, increase community pride and property values, and improve the quality of life for target area residents by making it a safer and more enjoyable place to live. The grant will facilitate the removal of hazardous materials and substances within the building, as well as the removal of impacted soils, and which will provide improved quality of soil, groundwater, and air, as well as public health benefits including the removal of environmental exposure pathways and minimizing impacts to sensitive and downgradient receptors.

DRAFT

The remediation will allow and make feasible future redevelopment aligned with the community's vision for a mixed-use development. Redevelopment of the property, made possible with these cleanup funds, will return the building to productive use, generate local tax revenues, and help spur economic activity and growth in the Target Area by expanding the City's tax base. The successful cleanup and redevelopment of the Site will also catalyze further revitalization of the Charlestown Navy Yard, transforming a long-neglected site into a vibrant hub of activity. The project is expected to create jobs, stimulate economic growth, and preserve a key piece of Boston's military-industrial heritage.

The Site is located in an area that is at a 95-100% flood risk and is projected to be inundated at 5- to 6-feet of sea level rise per EJSCREEN. In addition, the target area is expected to experience warmer average temperatures and intensification of extreme temperatures in summer because of climate change. By incorporating sustainable practices and advanced energy efficiency management systems that minimize resource and energy use, waste generation, and greenhouse gas emissions, the cleanup and redevelopment of the Chain Forge Building 105 site will improve local climate adaptation / mitigation capacity and resilience to protect residents and community investments, while also contributing to the city's broader goals of environmental sustainability and climate resilience.

c. Strategy for Leveraging Resource - Over the past two decades, the BRA, with the help of its local, state, and federal partners, has been successful in leveraging funding from a variety of sources to complete Brownfields assessment, cleanup, and redevelopment. The BRA will continue to leverage essential funding resources, as necessary, to support the completion of assessment, remediation, and subsequent reuse of the Site. **To date, more than $400,000 has been expended in association with the Site for characterization, assessment, and PCB affected material abatement**.

i. Resources Needed for Site Characterization - In pursuit of these grant funds, the BRA committed an additional $50,000 to supplement the site characterization completed by BRA and others, dating back to the 2001. Additional funding resources for site characterization are not expected to be necessary; however, should the need arise, the BRA will apply to the EPA Targeted Brownfields Assessment (TBA) Program, MassDEP and/or MassDevelopment for supplemental brownfields site characterization needs. ii. Resources Needed for Site Remediation - **BRA has committed $500,000 in remediation / HBM abatement funding** to supplement the $4M in EPA funding requested in this application, so that the cleanup can be completed. In order to stabilize the structure and abate, preserve and rehabilitate the historic building, as well as increase the viability and likelihood of redevelopment, the BRA has committed **an additional $3,500,000 of funding, for a total of $4M. Altogether, this funding, along with EPA's grant, is expected to be sufficient to complete the remediation of the property necessary to ensure that the remaining environmental hazards are fully addressed and regulatory closure under the state's Voluntary Cleanup Program (VCP) is achieved.** These funds will also make the site viable for reuse and ready the site for successful redevelopment consistent with the community vision for the site. In the event additional cleanup resources are needed, the BRA may apply to MassDevelopment or MassDEP for additional resources. iii. Resources Needed for Site Reuse - Securing EPA Brownfields Cleanup funding is essential to guarantee a financially viable and successful redevelopment that meets the community's goals and needs for reuse. The BRA is currently working with the community to refine development objectives for the site and is confident a private development partner will be designated in 2025, given the significant interest in the property. Although no firm leveraged commitments are yet

DRAFT

in place, the BRA anticipates and is committed to working with the selected developer to pursue numerous unsecured leveraged resources to support the project as needed and identified below:

EPA: Assessment - Unsecured – Environmental TBA assessments conducted by environmental contractors to EPA. Generally, $50K- $100K. Will apply if needed. **BRA: Assessment, Cleanup & Reuse – Secured** - $450K spent to date for assessment, public engagement and/or cleanup and reuse planning activities. $3.5M of BRA's Capital Reserve (CR) funds will be used to stabilize and preserve the building, which is necessary to then conduct abatement and rehabilitation activities. An additional $500K will of BRA's CR funds will be used towards site cleanup / abatement of HBM related activities. **MassDevelopment & MassDEP: Assessment and/or Remediation / Reuse – Unsecured -** Funds generally up to ~$250K in assessment and ~$750k for cleanup available. MassDevelopment also offers capital improvement, site preparation and predevelopment funds ~$50k - $1M. Loans and/or grants will be applied for if needed, at applicable time. **MA Brownfields Tax Credit Program: Reuse – Unsecured -** Created to stimulate business investment in designated low-income communities. Will apply. **MA Municipal Vulnerability Preparedness (MVP): Assessment, Cleanup and/or Reuse – Unsecure -** Climate resiliency planning and adaptation implementation funding. May be applied for at appropriate time.

iv. Use of Existing Infrastructure - The site is in a dense urban setting. Key existing infrastructure, including utilities (water, sewer, electricity, natural gas, sidewalks and internet), the Harborwalk (a 43-mile linear park along Boston's shoreline) and public transit are readily available, have the capacity to handle expansion associated with the proposed redevelopment, and will be incorporated into the design of the project. The BRA will work closely with other public agencies to ensure appropriate enhancements to existing infrastructure (stormwater retention, pedestrian and vehicular circulation, flood mitigation, and other environmental factors) are thoughtfully designed. This includes Green Infrastructure (GI) for stormwater management that use plants, soil, and other natural materials to remove pollutants and allow stormwater to absorb back into the ground. These features help prevent flooding and reduce the amount of polluted water that goes to the City's water bodies, and also has many environmental, social and economic benefits.

2. COMMUNITY NEED AND COMMUNITY ENGAGEMENT

a. Community Need

i. The Community's Need for Funding - Funding for this project is urgently needed in the Target Area, which is a **disadvantaged community according to CEJST** in terms of **low income (77%), legacy pollution, traffic proximity (93%) and transportation related air pollution (96%), linguistic isolation (92%), poverty (91%), and educational attainment (16%).** With legacy pollution there are **Formerly Used Defense Sites (FUDS), proximity to hazardous waste facilities (99%),** and **proximity to risk management plan facilities (90%).** The redevelopment of this former industrial military building has, over the past 50 years, proven to be infeasible without significant outside investment. Though the BRA is committed to invest heavily in the stabilization, abatement and preservation of this historic building, given the anticipated cost of the total remediation at the site, the EPA Brownfields Cleanup Grant is critical to ensuring a financially feasible redevelopment that includes remediation of the environmental contaminants left by the U.S. Government with the decommissioning of the Boston Naval Yard.

ii. Threats to sensitive populations - The Site is located within a **disadvantaged community** (CEJST) and the Target Area is home to populations with heightened health risks and environmental sensitivities: **24% of the population are children** under the age of 18 and **11% are seniors a**ged 65 or over. The Target Area is disproportionately burdened by hazardous waste sites (99th percentile) and lead (82nd percentile), further corroborated by the widespread lead contamination detected at the Site, putting these sensitive populations at significant risk. Additionally, the target community is overwhelmingly **renters (68%)**, who are more likely to have unstable housing and be at risk of displacement.

(1) ***Health or Welfare of Sensitive Populations*** **-** The Target Area features a high concentration of minority, linguistically isolated, and low-income communities. These communities are disproportionately affected by numerous health and welfare issues ranging from substandard housing, job access, poor nutrition, chronic disease, substance abuse, and more. This grant will directly address many of these issues by removing exposure to hazardous contaminants from the environment and increasing economic development in the area by providing jobs to residents. Metrics from **EJSCREEN** demonstrate that environmental factors negatively impact the Target Area at higher rates than the state (MA), EPA region, and country. For example, traffic proximity and volume in the Target Area is 18,000,000, compared to averages of 6,000,000 statewide, and 1,700,000 in US; and Hazardous Waste Proximity (facility count/km distance) is 41 in the Target Area, almost 4X the state average of 11. --- Community violence and crime are also a contributing factor in both the physical and mental health and well-being of residents in the target area. In Boston, emergency department visits for intentional injuries (e.g., assault-related injuries or homicides) in 2015 were highest among Black residents at 1,459 per 100,000 residents compared to 687 for all races. --- The effects of climate change have especially impacted communities of color, which make up 44% of the target area. The rate of emergency department visits during the warm weather months for heat-related illness was highest among Black residents (12.5 visits per 100,000 residents) compared to any other racial/ethnic group.

(2) ***Greater Than Normal Incidence of Disease and Adverse Health Conditions*** - According to the 2017 Boston Public Health Commission's (BPHC) Health of Boston report, the target area sensitive populations are adversely impacted by numerous adverse health conditions associated with their environment. **Boston's Black and Latinx children have by far the highest rate of asthma-related hospitalizations.** 11% of adults in the Target Area also have asthma, over the citywide rate (MA Center for Disease Control and Prevention). Another indicator of the poor housing conditions in **low-income, minority neighborhoods** is instances of carbon monoxide poisoning. Black residents are hospitalized for carbon monoxide poisoning over 4X the rate of their white peers. --- The effects of one of the primary contaminants of concern at the Site, lead, are also blatant. **The MA Department of Public Health defines Boston as a "high risk community" in terms of elevated blood lead levels**. Even so, lead exposure and lead poisoning rates are inequitably distributed across Boston. This grant will directly facilitate the removal of contaminants that adversely impact the health of our most vulnerable populations. In addition, evidence shows that **infant mortality and low birthweight** are impacted by external socioeconomic and environmental factors, such as living in low-resourced neighborhoods and housing instability. Infant mortality rates for Black and Latinx children is quadruple that of white children. Low birth weights are also more prevalent among people of color, with 12% of Black, 10% of Asian, and 9% of Latinx females giving birth to low-birth-weight babies, compared to 6% of White ("Health of Boston" 2017).

DRAFT

(3) Environmental Justice

a. ***Identification of Environmental Justice Issues*** **-** The site is in a **disadvantaged census tract** as identified by CEJST, with EJSCREEN reporting **44% people of color; 27% low income; 15% less than high school education; 10% persons with disabilities; 38% non-English speakers; 29% under the age of 18 or over the age of 65; and 55% of the housing units were built before 1950**. Adverse health conditions, specifically including asthma and lead poisoning, and adverse socioeconomic conditions, specifically including **low-income and unemployment**, can be correlated to the contaminated condition of the property which prevents active use, and addressed by the proposed cleanup and reuse of the property. Positive outcomes of the proposed redevelopment include increased job opportunities, increased access to services, improved environmental health impacts, and implementation of improved community-based zoning.

b. ***Advancing Environmental Justice*** **-** This grant is a crucial component of the project strategy to promote environmental justice and support the vulnerable populations of the Target Area neighborhood. Not only will the grant result in the direct removal of PCBs, lead, dioxin, PAHs and other environmental hazards that plague the neighborhood, it will also be critical in leveraging additional resources for redevelopment while also increasing job opportunities both during and after construction, decreasing crime/violence, and eliminating disinvestment. The project will generate local tax revenue and help spur economic activity in the Target Area. Based upon the BRA's extensive redevelopment experience, we believe the revitalization plans won't displace anyone in the Target Area. We'll continue engaging the community during the brownfields reuse process and will discuss ways to minimize displacement during cleanup and reuse. If needed, strategies/policies like community benefit agreements, small business preservation programs, inclusionary zoning, community land trusts, tax abatements, or financial programs will be evaluated to minimize displacement. Should relocation be necessary, the BRA will ensure compliance with Massachusetts relocation mandates and regulations.

b. Community Engagement

i. Project Involvement / ii. Project Roles - Community engagement regarding the vision for the Site is active and ongoing. BRA hosted several meetings in 2024 to discuss redevelopment objectives and cleanup of the site, including a presentation of the draft cleanup plan and ABCA. The community will remain engaged in the formal selection of a development partner in 2025. BRA will also engage the stakeholders listed below to ensure equitable engagement and overall project success:

Name of Organization / Entity / Group & Point of Contact (name, email & phone)	Entity's Mission & Specific Involvement in the Project or Assistance Provided
Landmarks Commission Kathy Kottaridis blc@boston.gov	Historic Preservation - Will assist the BRA with historic preservation review & requirements and provide support to the BRA and future developer with respect to cleanup and reuse planning efforts. Participate in Brownfields Advisory Committee (BAC) Mtgs.
National Parks Service Alex Thibadoux alex_thibadoux@nps.gov	Natural and Cultural Resources - Will assist the BRA with preservation of cultural resources and provide support to the BRA and future developer with respect to cleanup and reuse planning efforts. Participate in BAC Mtgs.
Charlestown Neighborhood Council Tom Cunha tomcunha@comcast.net	Neighborhood organization that facilitates communication and updates between the Target neighborhood and the BRA/City - Participate in community outreach and help engage residents and businesses. Help to identify the needs and interests of the target area residents for input during cleanup and reuse planning.

DRAFT

Friends of the Charlestown Navy Yard Michael Parker mparker@daintorpy.com	Improve the quality of life for Navy Yard residents, businesses, and visitors, and to promote responsible development - Will provide meeting notices to Target Area residents and businesses, help with outreach and participate in BAC.
Charlestown Preservation Society Amanda Zettle amandazettel@gmail.com	Preserve Charlestown's historic character by protecting historic architecture and landscapes, advocating for preservation, guiding responsible development and educating people about the unique character of our community - Assist with historic preservation review & requirements to support cleanup and reuse. BAC.

iii. Incorporating Community Input - The BRA's disposition process for redeveloping vacant or underutilized land involves a public-private partnership resulting from a Request for Proposal (RFP) bid process. The RFP is guided by extensive community engagement: once a potential disposition parcel is identified, the BRA's disposition team conducts research and forms an initial recommendation based on the site's history, zoning, neighborhood context, and redevelopment potential. The Disposition team then hosts a series of public meetings called "RFP Visioning Sessions" to share these recommendations and receive feedback from the community. A summary of these comments are shared at the beginning of each subsequent public meeting, and each round of community feedback is incorporated in the RFP draft. The Disposition team aims to hold RFP visioning sessions at monthly intervals until the RFP is ready for final approval by the community. Once the final draft of the RFP is reviewed and approved by the community in a public meeting, the Disposition team will release the RFP for bid. Once proposals are received, the developers will present their project in another public meeting called "Developer Presentation." The Disposition team will then recommend the strongest proposal to be awarded "Tentative Designation" based on the team's qualifications, development program, financial feasibility, and community feedback, and work toward advancing the project through entitlement, construction, and completion.

The following table outlines community engagement for the Chain Forge so far, in addition to a tentative schedule for future engagement:

Chain Forge Disposition Community Engagement Schedule			
DATE	**MEETING TYPE**	**TOPICS**	**STATUS**
9/17/2024	RFP Visioning	1) Share project background and initial analysis 2) Seek community feedback and identify neighborhood needs and priorities	Completed
10/29/2024	RFP Visioning & EPA Brownfields Grant	1) Review feedback received from 9/17/2024 meeting 2) present draft RFP objectives and guidelines 3) Present the draft application for EPA Brownfields Cleanup Grant & draft ABCA 5) Receive community feedback	Completed
November 2024	RFP Visioning	1) Review feedback received from 10/29/2024 meeting 2) Review draft RFP objectives, guidelines and evaluation criteria 3) Receive community feedback	Scheduled
December 2024	RFP Review	1) Review feedback received from 11/2024 meeting 2) Review and approve final draft of RFP	Scheduled
Q2 2025	Developer Presentation	1) Developers present their proposals and receive community feedback, which will be reflected in the comparative evaluation	Scheduled

Each public meeting for the Chain Forge will continue to be announced 2 weeks prior to the meeting via the local newspaper (Charlestown Patriot-Bridge), a neighborhood email listserv, as well as physical posters and postcards displayed around the subject property and bulletin boards around the neighborhood. To accommodate as many participants as possible, public meetings are held virtually (Zoom). A video recording of the meeting, chat log, and presentation materials from the meeting are published on the project website (bit.ly/ChainForge) for public access. The BRA provides translated meeting materials and live interpretation for multilingual neighborhoods. In addition to a 30-minute Q&A and discussion period at the end of every community meeting, the Planning Department also holds a 2-week comment period, in which the public can submit comments and questions via project website, email, and phone. Feedback received from the community at all stages will be carefully considered, responded to and incorporated into the decision-making process, as appropriate.

3. TASK DESCRIPTIONS, COST ESTIMATES, AND MEASURING PROGRESS

a. Proposed Cleanup Plan - The project aims to protect human health and the environment while redeveloping a 1.73-acre property for mixed-use. The remedial plan involves the targeted removal and off-site disposal of materials which pose the highest exposure risk to Site users. This would include the removal of 55,000 sq ft. of PCB-impacted building materials and PCB impacted equipment not required to be salvaged for historic preservation purposes, installing demarcation barrier over contaminated surfaces inside the building, removal of 460 cubic yards (cy) of soil with PCB concentrations ≥50 mg/kg, 110 cy of concrete with PCB concentrations ≥50 mg/kg, 60 cy of soil impacted with elevated petroleum hydrocarbon and dioxin/furan, constructing a new 4-inch concrete cap/slab over the removed soil and concrete areas, and recording an Activity and Use Limitation (AUL) on the deed for the entire property to prevent disturbances to the cap and potential exposure to any remaining impacted materials. Confirmatory sampling will be conducted to verify remedial objectives have been achieved. Since all contamination will be removed, abated and/or capped, the exposure pathways will be eliminated. This remedial approach will enable the site's redevelopment as a mixed-use development and achieve regulatory closure under the Massachusetts MCP/ state VCP and EPA/TSCA.

b. Description of Tasks/Activities and Outputs

Task #1 – Cooperative Agreement Oversight
EPA funded tasks/activities: Manage and conduct cooperative agreement (CA) oversight activities: EPA Reporting (ACRES, MBE/WBE, FFR and Quarterly Reports, Close Out); Competitively procure and manage qualified environmental professional (QEP) and remediation contractors; Conduct financial reporting and drawdowns; Establish information repository, public website and maintain project files; Project coordination with stakeholders and brownfields advisory committee (BAC) meetings; Ensure program remains on schedule and budget. Travel/attend National Brownfields Conferences and local events. **Non- EPA grant resources needed:** BRA will perform CA oversight activities as in-kind services (in the form of staff time/salary, travel, materials) for any activities not budgeted as part of this task.
Anticipated Project Schedule: Task will be completed over the four (4) year grant performance period. BRA anticipates completing the procurement of a QEP by December 31, 2025. Kick off program January 2026. Quarterly stakeholder / BAC mtgs. Quarterly reports will be submitted within 30 days of end of each quarter (Jan April/July/Oct), and MBE/WBE and FRR reports annually by Oct. 30 each grant year. ACRES will be updated upon grant award and at regular intervals as project cleanup and redevelopment milestones are achieved and/or new information available. Final closeout report will be submitted within 90-days after the end of the C.A. performance period (no later than 12/30/28).

Task/Activity Lead(s): BRA will lead CA oversight tasks to ensure compliance with Brownfields Programmatic Requirements. QEP will be BRAs partner and provide technical support, as well as information and updates to ACRES and annual reports, and general programmatic assistance related tasks and activities.
Output(s): EPA Reporting (ACRES/DBE/FRR reports, 16 Quarterly Reports, Closeout Report), prepare Request For Qualifications for QEP & remedial contractor procurement, drawdown requests, 16 BAC Meetings, general C.A. oversight and attend National Brownfields Conferences (2025 & 2027) and local brownfield events.
Task #2 - Community Outreach & Engagement
EPA funded tasks/activities: BRA will conduct extensive outreach & communication with Target Area residents & community stakeholders throughout project implementation. The BRA has an established an online information repository and will designate a Community Relations Spokesperson. The QEP, in collaboration with the BRA, will prepare a Community Involvement Plan (CIP) which will detail the steps to ensure adequate public notice and opportunity for the community to provide input / feedback on the proposed cleanup/reuse plan and response to comments, etc. Reports and other materials will be posted to the project's website. Public notice of the updated draft ABCA and CIP will be provided and presented at a public meeting with a 30-day comment period for members of the community to review and provide their input. Written responses to public comment will be provided and incorporated into the finalized CRP and ABCA. The BRA will closely coordinate with project partners to ensure target area community input on the proposed remediation and redevelopment. **Non- EPA grant resources needed:** The BRA will provide activities as in-kind services (staff time, mailings, postage, travel, materials, etc.).
Anticipated Project Schedule: Outreach activities are anticipated commence in the Spring 2026 with the generation of the CIP and occur over the following three (3) years throughout project implementation, until cleanup related filed work is completed, estimated to be Spring 2029. Outreach anticipated to be conducted at the following project milestones: 1) ***Spring 2026***: Post CIP and present updated draft ABCA. 2) ***Winter / Spring 2027***: Pre-cleanup and to solicit feedback from the community regarding proposed redevelopment. 3) ***Winter / Spring 2028:*** During Cleanup to discuss status of remediation and reuse planning update. 4) ***Winter / Spring 2029***: Post cleanup and next steps.
Task/Activity Lead(s): BRA will lead community engagement activities including translation services for meetings and materials. QEP will be the BRA's partner and generate the CIP and ABCA and provide technical expertise and support at meetings. BRA will review deliverables to ensure compliance state/federal programmatic requirements.
Output(s): Outreach materials, website updates, public notices, meeting presentation materials, social media posts. Four (4) public meetings held at key project milestones to share information, schedules, and solicit feedback.
Task #3 – Site Specific Cleanup Activities
EPA funded tasks/activities: QEP will prepare required documents for cleanup implementation, including a Health and Safety Plan (HASP), Quality Assurance Project Plan (QAPP), Remediation / Engineering Plans & Specifications, and EPA/ state VCP required documents and Remedial Action Plans. BRA will prepare a public bid package with support from QEP for procurement of a cleanup contractor. QEP will provide bid support during competitive procurement process. Cleanup contractor will implement cleanup tasks with oversight from QEP. **Non- EPA grant resources needed:** BRA will provide in-kind services (staff time & materials) to conduct site specific cleanup related activities. If necessary, BRA will apply for supplemental funds from MassDevelopment and/or MassDEP.
Anticipated Project Schedule: ***Spring 2026***: Coordination with potential developer to ensure final cleanup plan supports site reuse design features. ***Summer 2026 to Winter 26/27:*** Generate cleanup plans, remediation / engineering designs and specifications, issue invitation for bids for cleanup contractor. ***Winter 2027 to Spring 2027:*** award cleanup contractor, secure permits. ***Spring/Summer 2027***: Commence site remediation. ***Summer/Fall 2028*****:** Complete site remediation related field tasks.
Task/Activity Lead(s): BRA will lead procurement of cleanup contractor with QEP support. QEP will prepare ABCA, QAPP, EPA & State VCP reports and remedial engineering plans & specifications and provide bidding support. BRA will review deliverables to ensure compliance state/federal Brownfields requirements. Cleanup contractor will obtain permits and implement specified cleanup tasks with QEP support / oversight.

DRAFT

Output(s): HASP, QAPP, EPA & State VCP report(s), remedial engineering plans & specifications, bid documents, site remediation & restoration. Abatement of 55,000 sq ft of Hazardous Building Materials, removal of 570cy of PCB impacted soil & concrete plus 60cy of TPH & dioxin impacted soils; 4-inch concrete cap installed over exposed soils; import of 450cy of clean soil (clean backfill & loam) over 5,400 sq ft orange demarcation layer. Risk to reuse removed.
Task #4 - Site Cleanup Oversight and Cleanup/Completion Reports
EPA funded tasks/activities: During site remediation, the QEP will perform observation activities and document activities in the field to ensure cleanup is performed in compliance with the EPA approved ABCA/RBCP and the state VCP requirements. The QEP will prepare and submit state required Remedial Action Plan, Remedial Status Reports, and Cleanup Completion reports to the MassDEP and EPA. The QEP will review construction of the cover system is consistent with the drawings and specifications. Site will be surveyed for as-built plan and institutional controls; AUL deed restriction will be recorded. QEP will issue closure report to MassDEP and EPA. **Non- EPA grant resources needed:** BRA will provide in-kind services (staff time, travel, materials) to carry out cleanup oversight activities.
Anticipated Project Schedule: Cleanup activities and oversight are expected to occur ***Spring/Summer 2027 – Summer/Fall 2028***. Final documentation and Cleanup Completion report is anticipated in ***Spring 2029***.
Task/Activity Lead(s): QEP will provide technical oversight, conduct disposal characterization sampling for materials required to be disposed of off-site, and document remedial activities for compliance with applicable MassDEP/EPA standards & requirements. BRA will review deliverables to ensure compliance state/federal environmental regulatory and programmatic requirements and record AUL with the Registry of Deeds.
Output(s): Bills of Lading/Manifest, Remedial Action Plan, two (2) Status Reports, and Cleanup Completion & Closure Report. AUL. Regulatory closure under state VCP through a Permanent Solution Statement with Conditions (PSC). 1.73-acres ready for reuse that does not pose a threat to human health or the environment completed in 4 years.

c. Cost Estimates - The BRA is requesting $4,000,000 to complete the tasks above. Costs have been estimated based upon past experience and estimates from environmental contractors and in consultation with the EPA's Interim General Budget Development Guidance for Applicants and Recipients of EPA Financial Assistance guidelines. ***Please note, no personnel, fringe, indirect, equipment, supply or other costs are requested*****. Task 1**: Travel: $5,000 National Brownfield Conferences – 1 attendee (registration, air travel, lodging, per diem = $2,500/per conference X 2 conferences). Contractual = $40,000 [General Cooperative Agreement oversight and programmatic assistance, Quarterly Reports (16), ACRES updates, annual DBE reports (4), and grant closeout reporting and assistance (~5hrs/mo x ~45mo @ $175/hr average)]. **Task 2**: Contractual = $35,000 [QEP (~$3,000/mtg x 4 public meetings) + $4,000 for CIP + $15,000 draft and final ABCA, which will include a resiliency assessment to evaluate the extent to which current and forecasted climate conditions pose a risk to the effectiveness of each site cleanup alternative + $4,000 for production of outreach materials including survey (~24hrs @ $165/hr average)] **Task 3:** Contractual: $350,000 [QEP = 2000hrs @ ~$175/hr average for: HASP, QAPP, Remediation/Engineering Design Plans & Specifications, including public bidding assistance, and EPA/TSCA and MCP/VCP required remedial action plans and cleanup status related documents]; Construction: Remediation Contractor $3,120,000 *[$938,540 in remediation contractor costs* {including mobilization and site preparation expenses (i.e., erosion controls, debris removal, dust controls, wash pad, utilities/site trailer, silt curtain/catch basin protection, windscreens, etc.)} + *$100,000 for permits & insurance + $875,280 in PCB impacted soil and concrete excavation, transport and disposal (T&D)* {(460 cy PCB soil @ $40/cy) + (110 cy PCB concrete @ $100/ cy) + (1000 tons > 50 ppm PCB remediation waste T&D to TSCA landfill @ $700/ton)} + $*68,880 in TPH & Dioxin impacted soil excavation, transport and disposal* {(60 cy @ $40/cy)+ (100 tons of impacted soil T&D to landfill @ $550/cy)} *+ $840,000 in HBM Abatement (~55,000 sf @ ~$12.75/sf) + $217,200 in disposal*

characterization analysis and confirmation sampling {(5 samples @ $2000/sample) + (1425 total PCB confirmatory samples for soil and concrete @ $120/sample) includes labor} + *$80,100 in cover system construction* {$35,100 for import of clean backfill and demarcation barrier (450cy @ $65/cy) + $45,000 for 4-inch concrete cap over exposed soil (150cy @ $250/cy} *NOTE: All construction subtotals include ~20% contingency to account for inflation and escalation in costs as work not anticipated to occur until ~2026/2027*. **Task 4**: Contractual = $450,000 [QEP = $365,000 (3174hrs @ $115/hr average) for ~18 months of full time remediation oversight and construction administration services + $35,000 for survey required for AUL / institutional controls + $50,000 (345 hours @ $145/hr for AUL and regulatory cleanup completion/closeout report for compliance with MassDEP/EPA requirements].

Budget Categories		**Project Tasks ($)**				
		Cooperative Agreement Oversight	Community Engagement	Site Specific Cleanup Activities	Cleanup Oversight & Report	**Total**
Direct Costs	Personnel	$0	$0	$0	$0	$0
	Travel[1]	$5,000				$5,000
	Contractual	$40,000	$35,000	$350,000	$450,000	$875,000
	Construction[3]			$3,120,000		$3,120,000
Total Direct Costs[4]		$45,000	$35,000	$3,470,000	$450,000	$4,000,000
Total Budget		$45,000	$35,000	$3,470,000	$450,000	$4,000,000

d. Plan to Measure and Evaluate Environmental Progress and Results - The BRA, with support from the QEP, will monitor and measure progress. The Project Manager will use project management software and quarterly reports to track timelines, expenditures, and project progress. Data will be entered into ACRES at key milestones, including outcomes such as jobs created, funding leveraged, acres prepared for reuse, and soil volume remediated. A detailed work plan will outline project milestones, and the BRA will measure progress against this plan and goals to ensure grant funds are used as intended within the four-year grant period. This proven process has been effective in the past. If the project falls behind schedule or deviates from the Work Plan, the issue will be documented in the quarterly report, and a corrective action plan will be implemented immediately. Reports prepared to meet state VCP requirements will further document cleanup activities and the effectiveness of the cleanup.

4. PROGRAMMATIC CAPABILITY AND PAST PERFORMANCE

a. Programmatic Capability

i. Organizational Structure / ii. Description of Key Staff - The applicant for this grant is the Boston Redevelopment Authority, doing business as the Boston Planning & Development Agency, acting by the City of Boston through its Planning Department. The Capital Construction Team, housed within the Real Estate Division of the City's Planning Department, will lead the timely and successful expenditure of funds and completion of the project, ensuring technical, administrative, and financial requirements of the project and grant are met. **Jason Tobin, Senior Project Engineer, will be the Project Manager** for all aspects and phases of the cleanup project, including QEP and remedial contractor procurement and remedial oversight. Jason (10+ years of experience) will be supported within the Capital Construction team by Corey Harris (Project Engineer – 10+ years of experience), Star Laws (Program Manager – 20+ years of experience), **William Epperson (Director of Construction – 15+ years of experience)**, and

Lawrence Mammoli (Director of Engineering – 40+ years of experience). **William is our liaison between BRA and other City, state, and federal partners. He will serve as interim or replacement project manager in the event of project manager loss or re-assignment.** He provides a supervisory role offering technical guidance and assistance while overseeing the performance of assigned directives. Jason Tobin will also be supported by Yoon Cha (Real Estate Development Officer), **Jason Ruggiero (Community Engagement Manager),** and **Amina Scott (Deputy Controller). Amina will assist Jason by managing and monitoring all financial transactions**. In addition, the **BRA's Legal Department will review contracts with QEP and remedial contractor and provide legal assistance.** The BRA / City of Boston also has **capacity to provide translation services as needed** for the project. **iii. Acquiring Additional Resources -** The BRA will hire a QEP/MassDEP-approved Licensed Site Professionals (LSPs) along with expertise for Historic Preservation using a competitive qualification and cost-based selection (RFP) process in accordance with BRA policies and Massachusetts law. The BRA's bidding requirements are consistent with 40 CFR Part 30. The BRA also requires public construction projects be compliant with Boston Residents Jobs Policy (BRJP) minimum requirement percentages for employment opportunities for City of Boston residents, minorities, women, and veterans. The EPA Cooperative Agreement Terms and Conditions will be included in the RFP and as part of the final contract. In addition, a qualified remedial contractor will also be competitively procured to conduct cleanup activities at the Site. The BRA prioritizes local hiring and procurement; the cleanup and anticipated redevelopment for the site will necessitate a variety of contractors and vendors, and the BRA plans to utilize local workforce as well as DBE contractors as frequently as possible. Language about this priority will be incorporated into the RFP.

b. Past Performance and Accomplishments

i. Currently Has or Previously Received an EPA Brownfields Grant - BRA received a $200,000 cleanup grant in 2004 for the Belle Isle Coastal Preserve property in East Boston. BRA successfully managed this grant to closure working closely with its partners on the project. The EPA funding was supplemented by several other sources such as direct City of Boston funds and a National Marine Fisheries Service grant. ***(1) Accomplishments*** Overall, the project is a recognized EPA success story, a $1.5 million collaborative project that synergized efforts of the city, Friends of Belle Isle Marsh, the Woods Hole Group, the Nature Conservancy, and the Massachusetts Department of Conservation and Recreation. This area is now known as Belle Isle Marsh and is preserved from development and open to public access as the last remaining salt marsh in the Boston Harbor Islands. ***(2) Compliance with Grant Requirements*** All Grant Requirements were followed, and BRA's compliance remained consistent throughout the reward period – documentation was submitted in a timely manner and in compliance with the norms of the time.

DRAFT

Threshold Criteria Responses

DRAFT

Threshold Criteria Responses

1. Applicant Eligibility

The Boston Redevelopment Authority (BRA), D/B/A Boston Planning & Development Agency, acting by and through the City of Boston Planning Department, is an eligible applicant as a "General Purpose Units of Local Government" as defined under 40 CFR Part 31. The Mayor of the City of Boston has designated the BRA to represent the city for this grant application.

2. Previously Awarded Cleanup Grants

The proposed site has not received funding from a previously awarded Environmental Protection Agency (EPA) Brownfields Cleanup Grant.

3. Expenditure of Existing Multipurpose Grant Funds

The BRA does not have an open Multipurpose Grant.

4. Site Ownership

The BRA, D/B/A Boston Planning & Development Agency, is the current sole owner of the site, which consists of one parcel of land at 105 First Ave in Charlestown (assessor's parcel ID 020203510510). The parcel was acquired by the City of Boston as part of the transfer of the Charlestown Navy Yards from the United States of America to the BRA in 1978. Recorded documents confirming ownership are attached.

5. Basic Site Information

a) The site name is: **Chain Forge Building 105 (Building 105)**.
b) The address of the site is: **105 First Ave, Boston, MA 02129**.

6. Status and History of Contamination at the Site

a) Whether this site is contaminated by hazardous substances or petroleum.
The Site is contaminated with hazardous substances as further detailed in item c of this section.

b) The operational history and current use(s) of the site.
Originally constructed between 1900 and 1904, Building 105 was historically used by the United States Navy for the forging of anchor chains and related parts until 1974, when the former Charlestown Navy Yard was closed and declared surplus. Following the base closure, ownership of Building 105 was transferred to the current property owner, the BRA, while ownership of the former forging equipment and machinery was transferred to the National Parks Services (NPS). The building is mostly empty, except for several historically significant pieces of equipment, furnaces, steel plates, piping, and other miscellaneous building debris associated with former Chain Forge operations.

The Site is currently vacant and has remained so since the base closure of the former

Boston Naval Yard. Site access is restricted by a chain link fence and locking gate. The doors and windows have also been boarded up or locked to prevent unauthorized trespassing and to contain potential releases due to contaminated materials inside the building.

c) Environmental concerns, if known, at the site.

During Building 105's seventy years of use by the US Navy, forging operations used materials and produced byproducts that contaminated the building structure, equipment, concrete floor slab, and soil and groundwater beneath the building. Contaminants detected at the Site include polychlorinated biphenyls (PCBs), petroleum hydrocarbons, volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals, and dioxins/furans.

d) How the site became contaminated, and to the extent possible, describe the nature and extent of the contamination.

As noted above, forging operations used materials and produced byproducts and wastes that are believed to have contaminated the building structure, equipment, concrete floor slab, and soil. The presence of contamination at the Site is not attributed to a single release; but rather the historic forging operations conducted throughout the building, including historic spills and poor waste management practice, as well as the likely us of paint containing PCBs and metals.

Historical assessments completed at the Site included the sampling and analysis of interior porous and non-porous surfaces, porous building materials (i.e., wood, concrete, brick, etc.), paint, soil, groundwater, and soil vapor. The results of these samples identified PCB concentrations excess of applicable Toxic Substance Control Act (TSCA) standards as well as PCBs and numerous other site-related contaminants exceeding the Massachusetts Contingency Plan (MCP) Method 1 Cleanup Standards. The primary Chemicals of Concern (COC) are PCBs, petroleum hydrocarbons and dioxin/furans. Other less frequent COCs include SVOCs, specifically polycyclic aromatic hydrocarbons (PAHs), and metals. The nature and extent of contamination includes the former process equipment, building walls, ceiling, structural steel, steel plates and overhead piping, concrete floors and trenches, and surface and subsurface soils in the main forge shop, and the concrete floor and trenches, surficial soil, and steel plates in the blacksmith and roundhouse portion of the building. Non-aqueous phase liquid (NAPL) has also been historically detected in localized areas within the main forge shop. Where observed, the NAPL is comingled with contaminated soil containing PCBs and other site-related COCs. Groundwater has not been impacted above applicable state cleanup standards.

7. Brownfields Site Definition

The Site is ***NOT***:

a) Listed or proposed for listing on the National Priorities List (NPL);
b) Subject to unilateral administrative orders, court orders, administrative orders on consent, or judicial consent decrees issued to or entered into by parties under Comprehensive Environmental Response, Compensation and Liability Act (CERCLA); and
c) Subject to the jurisdiction, custody, or control of the United States government.

8. Environmental Assessment Required for Cleanup Grant Applications

The following ASTM International (ASTM) Phase II Environmental Site Assessment (ESA)

equivalent environmental assessment reports have been completed and developed in accordance with the MCP; 310 CMR 40.0000, the Massachusetts Department of Environmental Protection (MassDEP) state cleanup program:

- Phase I Initial Site Investigation (ISI) and Tier Classification Report May 1995.
- Phase II Site Assessment Report and Remedial Action Plan (RAP) November 1997.
- Final Interim Evaluation Report 2015.
- Release Abatement Measure (RAM) and Risk-Based Cleanup Plan (RBCP) June 2015.
- Additional Site Investigations -2017, 2018 and 2023.
- Temporary Solution Statement (TSS) with No Conditions March 2024. (*The Site is not eligible for a Permanent Solution until the required remediation outlined in the RBCP is completed. Due to substantial remedial costs, completing the remediation was deemed infeasible until EPA cleanup grant funds can be secured.*)

9. Site Characterization

b. A letter dated October 9, 2024, from the State Environmental Authority, the Massachusetts Department of Environmental Protection (MassDEP), has been attached affirming the following:

i. The site is eligible to be enrolled in the state or Tribal voluntary response program.
ii. The site is enrolled in the state voluntary response program (MassDEP RTN 3-0010627).
iii. There is a sufficient level of site characterization from the environmental site assessment performed to date for the remediation work to begin on the site.

10. Enforcement or Other Actions

There are no known ongoing or anticipated environmental enforcement or other actions related to the site.

11. Sites Requiring a Property-Specific Determination

The Site does not meet any of the criteria of special classes that require a "Property-Specific Determination" from EPA to be eligible for grant funding. Although PCB impacts to soil and building materials are regulated by the EPA under the TSCA, the Site cleanup is being done voluntarily and is not subject to any administrative, consent and/or enforcement orders under TSCA. The proposed cleanup approach intends to follow the Risk Based Cleanup Plan (RBCP) that was previously developed according to the EPA's risk-based cleanup approach under TSCA, 40 CFR 761.61(c), and approved by the EPA in March 2016.

12. Threshold Criteria Related to CERCLA/Petroleum Liability

a. Property Ownership Eligibility – Hazardous Substance Sites

ii. **Exceptions to Meeting the Requirements For Asserting an Affirmative Defense to CERCLA Liability**

1) Publicly Owned Brownfields Sites Acquired Prior to January 11, 2002:

(a) Describe in detail the circumstances under which the property was acquired.

The BRA acquired the property from the United States of America in July 1978 as part the base closure by the U.S. Navy of the Boston Naval Shipyard.

A copy of the deed and supporting documents are attached for your reference. The Chain Forge - Building 105 Site is a portion of Parcel NY-1, referenced in the attached deed.

(b) Provide the date on which the property was acquired.
07/07/1978

(c) Identify whether all disposal of hazardous substances at the Site occurred before you acquired the property.
All disposal of hazardous substances at the site occurred before the BRA acquired the property.

(d) Affirm that you have not caused or contributed to any release of hazardous substances at the site.
The BRA has not caused or contributed to any release of hazardous substances at the Site. The Site has been vacant since 1974 when the naval base closed. Access is restricted by a chain link fence and boarded up windows and doors to prevent or limit trespassing and prevent / contain potential threatened releases due to contaminated materials inside the building. The BRA has taken reasonable steps with respect to the hazardous substances found at the site and has done its best to meet continuing obligations.

(e) Affirm that you have not, at any time, arranged for the disposal of hazardous substances at the site or transported hazardous substances to the site.
The BRA has not, at any time, arranged for the disposal of hazardous substances at the site or transported hazardous substances to the Site.

iv. Sites with Hazardous Building Material that is Not Released to the Environment

(1) There has been no release and there is no threat of release of the hazardous substance(s) from building materials into the outdoor environment based on the site conditions. The contamination at the site is due to historic releases associated with the former operations / owner of the site. The Site has been vacant since 1974 when the naval base closed and BRA acquired the property. Since that time, BRA has attempted to maintain the building. Access is restricted by a chain link fence and boarded up windows and doors to prevent or limit trespassing and prevent / contain potential threatened releases due to contaminated materials inside the building. The BRA has taken reasonable steps with respect to the hazardous substances found at the site and has done its best to meet continuing obligations.

13. Cleanup Authority and Oversight Structure

a. The site is a known MassDEP-listed reportable release site, Release Tracking Number (RTN) 3-10627, and is currently enrolled in the voluntary Massachusetts Contingency

Plan (MCP) cleanup program. The proposed cleanup activities will be communicated directly to the MassDEP and EPA before, during, and after the cleanup under the cleanup and risk-based disposal plan developed for the Site. The cleanup plan will be prepared to concurrently address the requirements of 40 CFR 761.61(c) related to the risk-based cleanup of PCBs and the MCP, 310 CMR 40.0440, to address the release of COCs to soil.

The proposed cleanup plan includes placing a deed restriction in the form of an Activity and Use Limitation (AUL) on the property to minimize potential exposures and maintain a condition of No Significant Risk (NSR) during future activities at the Site with the potential to disturb residual contaminated materials below or within the building. The AUL will contain a description of the residual contamination left in place at the Site, identify futures activities at the building that are consistent and inconsistent with the level of contamination remaining, and outline a list of obligations and conditions necessary to ensure a level of NSR is maintained. As part of the obligations and conditions, implementation of an Operation, Maintenance and Monitoring (OMM) plan will be included to ensure capped and/or encapsulated/covered interior building surfaces are effectively mitigating exposure to residual contamination. Details of the OMM plan will be provided in the AUL and Release Abatement Measure (RAM) Completion / Risk-Based Cleanup Closure report to be filed at the completion of the Project.

The cleanup will be overseen by a Massachusetts Licensed Site Professional (LSP) / Qualified Environmental Professional (QEP) procured by BRA to design, monitor, oversee and document the cleanup. These services will be solicited using competitive procurement practices and in accordance with all federal (2 CFR §200.317 through 200.327) and state requirements. The BRA established procedures include seeking statements of qualifications and price. Professionals with previous EPA Brownfields experience will be encouraged to compete. This technical expertise will be in place prior to beginning any cleanup activities. The LSP/QEP will comply with and submit all required state and federal requirements to ensure that the cleanup project protects human health and the environment. The Site will be monitored during cleanup activities to ensure that off-site migration of contaminants does not occur as a result of remedial activities. The LSP/QEP will also develop necessary design and/or institutional control plans, as needed. All reports will be publicly available on the MassDEP and BRA websites.

b. The BRA has ownership with complete access to the Site. The BRA does not anticipate that access to any off-site properties will be required. If access becomes necessary for other properties, the BRA will work with the property owners to develop and execute an acceptable access agreement for completing any necessary activities.

14. Community Notification

The BRA published a notice of intent to apply for an EPA Brownfields Cleanup Grant, including a notice of a public meeting, and request for comments on the draft application and draft Analysis of Brownfield Cleanup Alternatives (ABCA) on October 15, 2024. The notice was posted in the local Charlestown Patriot-Bridge newspaper. The request for comments, draft ABCA, draft narrative, and other supporting documentation were also posted on this website: https://bit.ly/ChainForge.

The virtual public meeting was held online on October 29, 2024, at 6:00 PM. Details about the

site, draft application, and ABCA were presented. Residents and/or members of the public attended the meeting.

Attached to the proposal are:

- A copy of the draft ABCA;
- A copy of the newspaper ad / public notice notifying the public and soliciting comments;
- A summary of the comments received;
- The BRA's response to those public comments;
- Meeting notes / summary from the public meeting; and
- A meeting sign-in/participants list.

15. Contractors and Named Subrecipients

- Contractor(s): Not applicable. Contractor(s) will be selected in compliance with the fair and open competition requirements in 2 CFR Part 200 and 2 CFR Part 1500 subsequent to award. The BRA will follow public procurement best practices including 40 CFR Part 33, EPA's *Best Practice Guide for Procuring Services, Supplies, and Equipment Under EPA Assistance Agreements* and *Brownfields Grants: Guidance on Competitively Procuring a Contractor*, Massachusetts public procurement law, and City of Boston guidelines and ordinances, including equitable procurement practices.

- Named Subrecipients: Not applicable.

DRAFT

Analysis of Brownfields Cleanup Alternatives

DRAFT

DRAFT Analysis of Brownfields Cleanup Alternatives
Building 105
Former Chain Forge Site
105 1st Avenue
Charlestown, Massachusetts

I. Introduction & Background

This Analysis of Brownfields Cleanup Alternatives (ABCA) has been prepared to evaluate cleanup alternatives for Building 105 (also known as the former Chain Forge) property located at 105 1st Avenue in Charlestown, Massachusetts (the Site). This ABCA has been prepared to fulfill the requirements of the Boston Redevelopment Agency's (BRA's) application for a United States Environmental Protection Agency (EPA) Brownfields Cleanup Grant for the Site.

1. Site Location

The Site is mostly occupied by an approximately 60,300 square foot (sf) former industrial building located in a developed mixed commercial and residential use area. Building 105 is a multi-story brick building comprised of two main sections that are connected by a small office and storage area. The eastern portion houses the Main Forge Shop (MFS), which is approximately 330-feet long by 135-feet wide, while the western portion contains the former Blacksmith Shop (BS) and Roundhouse (RH), measuring approximately 95-feet long by 110-feet wide.

The Site is currently vacant, and access is restricted by a chain link fence, and boarded up windows and doors to prevent trespassing and contain potential releases due to contaminated materials inside the building. The building is mostly empty, except for several historically significant pieces of equipment, furnaces, steel plates, piping, and other miscellaneous building debris associated with former Chain Forge operations. A network of concrete trenches, pits and vaults also exist throughout the building.

The former Chain Forge building currently exhibits evidence of wear or deterioration. Roof gutters and downspouts are damaged or missing throughout, causing mold growth on the brick walls. Cracking and dislodged bricks, along with deteriorated mortar joints, throughout the building contribute to the compromised structural integrity of the building as well as safety risks, including a high risk of falling bricks.

2. Previous Site Use(s) and Any Previous Cleanup / Remediation

Originally constructed between 1900 and 1904, Building 105 was historically used by the United States Navy for the forging of anchor chain and parts until 1974, when the former Charlestown Navy Yard was closed and declared surplus. Following the closure, ownership of Building 105 was transferred to the current property owner, the BRA, while ownership of the former forging equipment and machinery was transferred to the National Parks Services (NPS). During Building 105's seventy years of use by the US Navy, forging operations used materials and produced byproducts that contaminated the building structure, equipment, concrete floor slab, and soil and groundwater beneath the building. Contaminants detected at the Site include polychlorinated biphenyls (PCBs), petroleum hydrocarbons,

volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals, and dioxins/furans.

The primary contaminant of concern at the Site is PCBs. The PCB impacts are regulated by the EPA under the Toxic Substances Control Act (TSCA). The PCB and other Site-related impacts to soil and groundwater are also subject to the Massachusetts Contingency Plan (MCP). Presently, response actions are managed under Release Tracking Number (RTN) 3-10627, which the Massachusetts Department of Environmental Protection (MassDEP) assigned in October 1993. Two subsequent RTNs (3-12291 and 3-34572) were linked to the original RTN in May 1995 and October 2018.

Response actions to assess and remediate impacts to soil, groundwater, and building materials have been on-going since 1992. Based on the historic investigations, some decontamination and remediation activities have been performed at the Site. These activities included decontaminating and/or cleaning the interior building, abating asbestos-containing materials (ACMs), removing residual oil and water from trenches/vaults and removing a surface soil in the MFS. Additional details regarding previously completed investigation and remediation activities are provided in Section 3.0.

3. Site Assessment Findings

The following subsections summarize the response actions conducted at the Site since 1992. Tables and figures for the response actions summarized below are presented in Weston & Sampson Engineers, Inc.'s (Weston & Sampson) March 2023 Temporary Solution Statement with No Conditions report, and are available via the Energy and Environmental Affairs (EEA) Data Portal for Waste Sites & Reportable Release: https://eeaonline.eea.state.ma.us/portal/dep/wastesite/viewer/3-0010627

i. Initial Site Investigations – 1992 to 1995

Between 1992 and 1995, the Army Corps of Engineers (ACOE) completed a series of initial Site investigations. The investigations included the sampling and analysis of building materials and soil and groundwater for PCBs, dioxin/furans, petroleum hydrocarbons, SVOCs, VOCs, and metals. The results included the following:

- PCBs, dioxin/furans, petroleum hydrocarbons, metals and polycyclic aromatic hydrocarbons (PAHs) were detected in multiple media throughout Building 105. The primary Chemicals of Concern (COCs) were PCBs, total petroleum hydrocarbons (TPH), and dioxin/furans. The primary impacted media were surficial soil, the concrete floor slab, and the painted surfaces of the former equipment.
- PCBs and TPH were detected most frequently and at the highest concentrations in shallow surficial soils near the former equipment in the MFS. While PCB concentrations exceeding 1 mg/kg were detected a several locations, the highest concentration (12,000 mg/kg) was encountered near a former bar cutting machine in the northwest corner of the building. This location also coincided with the highest TPH (140,000 mg/kg) and dioxin/furan concentrations (45.833 µg/kg).

- PCBs were detected in the concrete floor slab throughout the building, with several locations containing concentrations greater than 1 mg/kg. The highest concentration (290 mg/kg) was detected in concrete around the former bar cutting machine.
- Building materials (not including the former equipment), groundwater, and trench water samples contained PCBs, TPH, PAH, and dioxin/furans. Where detected, groundwater concentrations were below applicable cleanup standards. Samples of the residual oil in vaults and trenches reportedly contained PCB concentrations as high as 22 mg/kg, while paint samples (reported in units of μg/100 cm^2) from the former equipment identified elevated PCB, lead, and chromium concentrations upwards of 1,600,000, 89,000, and 440,000 μg/100 cm^2, respectively.
- Subsurface soil samples collected from select 2-foot intervals between 4 and 10 feet below the concrete floor slab contained concentrations of various Site-specific COCs. The concentrations detected were significantly lower than the surficial soil sampling results. PCBs were not detected in any subsurface soil samples greater than 1 mg/kg.

Based on the initial Site investigations, the source of the multimedia impacts at the Site were attributed to historic spills (likely involving PCB-laden cutting oils), poor waste management practices and the likely use of paint containing PCB and heavy metals. Additional details were presented in the Phase I Initial Site Investigation (ISI) and Tier Classification Report submitted for RTN 3-10627 in May 1995.

ii. Phase II Site Assessment & Phase III Remedial Action Plan – May 1997

Using the data from the ISI activities, a Phase II Site Assessment Report and Remedial Action Plan (RAP) for RTN 3-10627 was prepared in 1997. The Phase II included a Method 3 risk characterization that concluded Site conditions posed No Significant Risk (NSR) as an unoccupied building, but Significant Risk existed for a theoretical future condition that considered redevelopment for mixed commercial use and museum/exhibit space. Based on Method 3 risk assessment, a Phase III evaluated remedial alternatives that targeted the primary contributors (surficial soil, interior building, equipment surfaces and residual vault oil) to overall Site risk. The selected alternative included capping exposed soils, and cleaning/decontamination of the concrete floor slab, former equipment and building surfaces.

iii. Phase IV Remedy Implementation Plan – November 1997

In November 1997, Stone & Webster, Inc. (S&W), on behalf of the United States Army Corp. of Engineers (ACOE), prepared a remediation work plan and Phase IV Remedy Implementation Plan (RIP) for the Site. The RIP outlined a proposed "general cleaning" and decontamination scope of work aimed at addressing the primary risk factors at the Site. The proposed scope of work involved removing ACM, contaminated dust, soil, and miscellaneous debris, and residual liquids from the trenches and vaults inside the building. Sampling and analysis of wipe samples to assess decontamination of structural steel and other building surfaces was also included.

The remedial scope of work was partially completed in 1997 and 1998. The completed activities reportedly included the "general cleaning" of the building interior, removing oil and water from former equipment, vaults, and trenches, and removing 10-inches of surficial soil in areas of exposed soil near the former equipment. A pilot-test was also conducted to assess decontamination methods for porous and non-porous building materials; however, full-scale decontamination of interior building surfaces and

construction of the proposed concrete cap was not completed. Plans with the as-built extent of soil removal activities were not identified in previous reports.

iv. Site Investigation Activities – April 1998 to July 1999

Following the 1997 and 1998 preliminary response actions, several additional phases of investigation were completed at the Site. The additional investigations included further testing to assess decontamination methods for building materials and characterize the extent of PCBs and other Site-related COCs. The investigation findings included the following:

- Pilot testing confirmed the highest PCB surface concentrations were associated with the former equipment. Based on these findings, decontamination of the former process equipment, steel, and other non-porous surfaces was recommended using a combination corncob blasting to remove paint and grit from the equipment surface followed by a solvent wash. No effective decontamination methods for other interior building surfaces (brick walls, ceiling, etc.) were identified.
- PCBs were identified in additional MFS building materials, including the ceiling and other on other building surfaces greater than 8-feet above ground level. Low concentrations of dioxin-like PCB congeners were also detected in MFS indoor air samples; however, evaluation of the data concluded that the detections did not require response actions to mitigate indoor air impacts.
- Additional subsurface soil sampling at 1 or 2-foot intervals to depths up to 10 feet identified similar total PCB concentrations to previous investigations. PCB concentrations exceeded 1 mg/kg were identified at depths up to 6 feet, with the maximum concentration (410 mg/kg) detected between 1 and 4 feet in an area of exposed soil in the eastern portion of the building.
- In addition to PCBs, elevated concentrations of extractable petroleum hydrocarbons (EPH), metals, and PAHs were observed in shallow soil between 0 and 2 feet. Dioxin/furans were also routinely observed at concentrations above 1 ng/kg in shallow soil samples collected from 0 to 2 feet. The maximum dioxin/furan detection (62 ng/kg) was encountered from 0 to 1 foot in the northwest corner of the MFS.

v. Non-Porous Surface Decontamination – December 2000 to June 2001

Between December 2000 and June 2001, ACOE oversaw the targeted decontamination of non-porous building surfaces inside the MFS. As detailed in S&W's Final Interim Evaluation Report, the decontamination work involved removal of paint and grease containing PCBs and other heavy metals from the surface of the former equipment and accessible steel columns (up to 8 feet above ground level) followed by solvent washing and application of a two-part high solids epoxy coating.

In addition to the decontamination work, the ACOE response actions included targeted asbestos abatement to facilitate decontamination; removal of oil from the former process equipment; and the pumping and off-site disposal of stormwater from trenches/vaults. Subsequent confirmatory wipe samples indicated post-decontamination PCB concentrations on equipment and non-porous surfaces were generally below the recommended Site-specific cleanup levels prior to application of the epoxy coating, except for one piece of equipment in the southeast corner of the building.

vi. Supplemental Site Investigations – August 2014 to March 2015

Following the building decontamination activities in 2000 and 2001, no response actions were performed at the Site until Weston & Sampson completed a supplemental site investigation between August 2014 and March 2015. The investigation additional multimedia sampling and analysis to support Site redevelopment planning and the preparation of a Risk Based Cleanup Plan (RBCP) and Release Abatement Measure (RAM). Specifically, the investigation involved

- Advancing soil borings and targeted sampling to delineate PCBs, petroleum, dioxin/furans, and metals impacts in soil,
- Concrete sampling to refine PCB and dioxin/furan impacts and evaluate concrete remedial alternatives,
- Installing groundwater and soil vapor wells with targeted sampling and analysis to evaluate groundwater quality and vapor intrusion potential,
- Sampling and analysis of various building materials to fill data gaps from previous Site investigations, and
- Collecting wipe samples to confirm the findings from former equipment decontamination activities.

Weston & Sampson's additional investigation testing results are summarized below:

- PCBs were detected in soil, concrete, and various building materials in the MFS. Other COCs, including metals and petroleum hydrocarbons, were identified in soil at several locations. In general, concentrations detected were significantly lower than previous studies.
- Testing results from BS and RH were consistent with previous investigations. Concrete in this portion of the building contained low levels of PCBs. Some low levels PCB impacts were also identified in soil within this portion of the building; however, the total PCB concentrations were significantly less than 1 mg/kg.
- Building material sampling results for paint and brick in the BS and RH were consistent with previous investigations. Paint in these areas contained PCB concentrations greater than 1 mg/kg, while the PCB concentrations in the underlying brick substrate were less than 1 mg/kg. Wipe samples from equipment surfaces, walls, and the floor contained similarly low or non-detectable levels of PCBs.
- Groundwater sampling identified low concentrations of petroleum compounds, 2-methylnaphthalene, arsenic, and barium as well as and low levels of PCBs at one location. Where detected, concentrations were all significantly below the MCP Method 1 GW-2 and GW-3 cleanup standards.
- Soil testing to evaluate areas that historically exhibited high petroleum concentrations revealed significantly lower concentrations. The results suggested residual contamination is likely composed of heavy petroleum, which has undergone weathering/degradation over time.
- Soil vapor sampling in areas with residual petroleum contamination in soil identified low concentrations of select VOCs and petroleum hydrocarbon fractions that were significantly below the applicable MassDEP residential and commercial/industrial soil vapor screening values.

vii. RBCP– June 2015 to March 2016

In June 2015, Weston & Sampson submitted a RBCP for the Site to EPA. The plan outlined the proposed remedial scope of work to address contaminated materials during a proposed Site redevelopment that included a hotel, museum, and restaurant. The proposed remedial plans included the following:

- Removal and off-site disposal of porous PCB-impacted building materials.
- Decontamination of non-porous PCB-impacted building materials by abrasive blasting.
- Decontamination and encapsulation of interior brick walls.
- Removal and off-site disposal of soil with PCB concentrations greater than or equal to (≥) 50 mg/kg.
- Removal and off-site disposal of concrete with PCB concentrations ≥ 50 mg/kg.
- Removal of PCB-impacted soil and concrete to provide clean utility corridors with PCB concentrations < 1 mg/kg.
- Targeted excavation and removal of soil with elevated TPH and dioxin/furan concentrations.
- Construction of a 6-inch-thick concrete cap over the entire building footprint.
- Recording an Activity and Use Limitation (AUL) following the remediation.

The plan also conservatively included installation of a vapor barrier below the proposed concrete cap to vapor intrusion from residual contaminated materials below the building. The EPA approved the RBCP in March 2016.

viii. Non-Aqueous Phase Liquid (NAPL) Assessment Activities – October 2017 to February 2018

In 2017, Weston & Sampson completed additional Site investigations to support the redevelopment planning and cost estimating. During the additional investigation in October 2017, Weston & Sampson identified greater than ½-inch of NAPL at two monitoring wells in the MFS. An assessment of the NAPL was completed through an Immediate Response Action (IRA) that was assigned RTN 3-34572 by MassDEP. The IRA included installing additional monitoring wells; the sampling and analysis of soil, groundwater, NAPL, and soil vapor; and periodic NAPL gauging and removal. As noted in the IRA Completion Report submitted to MassDEP in October 2018, the assessment results indicated that although high petroleum concentrations were present in soil at some locations, the NAPL was not a significant source of groundwater contamination. Conversely, the NAPL was characteristic of weathered heavy oil, which is present as isolated pockets below the MFS and stable (i.e., not migrating or expanding). The NAPL coincides and is comingled with other non-petroleum soil impacts but does not contain PCBs or other non-petroleum COCs.

ix. Design Phase Investigation Activities - 2018

To further redevelopment plans for the Site, Weston & Sampson completed sampling and analysis to characterize soil and concrete in the proposed locations of several utility corridors and deep foundations. The sampling and analysis included the following:

- Advancing fifty-one (51) soil borings at approximately 25-foot intervals along a proposed utility corridor outside the building and in the proposed location of elevator pits or utility-related structures inside the building. Soil borings were advanced up to 10 feet below ground surface

(bgs) or the top of the existing concrete slab, and 164 soil samples were collected at 2-foot sample intervals corresponding to the proposed of depth of construction at each location and analyzed for PCBs.
- Collecting twenty-two (22) concrete samples inside the building to characterize the concrete to be removed during the installation of proposed sub-slab utilities, elevator pits, and a grease trap. Concrete samples were analyzed for PCBs.
- Sampling and analysis of three (3) asphalt pavements samples collected outside the building to assess potential PCB impacts.

The results indicated the following:

- PCBs were detected at 11 soil borings inside the building but exceeded 1 mg/kg at only 2 locations. The maximum PCB concentrations was 3.85 mg/kg.
- PCBs were detected at 12 soil borings outside the building. Where detected, PCBs were below 1 mg/kg, except at 2 locations. The maximum concentration was detected at the 5 to 7 feet interval within the driveway located north of the building.
- PCBs were detected at every concrete sample location, with concentrations ranging from 0.17 mg/kg to 172 mg/kg.
- PCB asphalt sampling results were less than 1 mg/kg.

x. Equipment Removal Activities - 2018

Approximately forty (40) pieces of historically significant equipment, several furnaces, and various debris remain inside Building 105. As noted previously, the rest of the former equipment was removed in 2018 according to the approved RBCP. Prior to removal, the equipment was cleaned, and confirmatory wipe samples were collected from a subset of the equipment to be removed. Equipment cleaning occurred over a two-month period between March and April 2018. The post-cleaning wipe sampling results were provided to EPA on May 4, 2018. Based on EPA's approval, the equipment removal occurred between April and July 2018.

xi. Groundwater Monitoring Activities – January 2023

In January 2023, Weston & Sampson conducted an evaluation of current Site conditions as part of a Tier II extension request for RTN 3-10627. The evaluation included a Site visit and a round of groundwater monitoring to evaluate the current Site conditions. The groundwater monitoring included gauging accessible on-Site monitoring wells as well as collection groundwater samples from seven (7) monitoring wells for EPH and volatile petroleum hydrocarbon (VPH) analysis.

The Site visit and groundwater monitoring identified similar conditions to previous investigations at the Site. Specifically, the Site visit indicated the building remains secure with a fence and boarded up windows and doors to prevent unauthorized access and potential release of contaminated materials. The overall building condition is stable. Groundwater monitoring results were also consistent with previous findings, including the intermittent detection of small amounts of NAPL at two locations in the MFS, and petroleum concentrations in groundwater that were well below MCP Method 1 GW-2 and

GW-3 Cleanup Standards. As previously noted, the NAPL coincides and is comingled with other hazardous substance related impacts at the Site.

xii. Temporary Solution Statement with No Conditions - 2023

Based on the response actions conducted prior to 2023, a Substantial Hazard Evaluation (SHE) was performed to assess current risk to human health and environment at the Site. The findings indicated Site conditions posed No Substantial Hazard; and therefore, the Site was eligible for a Temporary Solution. The Site is not eligible for a Permanent Solution until the required remediation outlined in the RBCP is completed. Due to substantial remedial costs, completing the remediation was deemed infeasible. A Temporary Solution Statement was filed with MassDEP on March 18, 2024.

4. Project Goal

The goals of the project are to protect human health and the environment and to redevelop an underutilized property. Redevelopment is anticipated to include commercial use such as a hotel. To achieve this goal, the objective of this ABCA is to complete the remediation activities discussed in the RBCP, which includes targeted removal of impacted soils, concrete floor slab, and building materials that pose a potential exposure risk to future users of the Site. Once complete, a Permanent Solution Statement with Conditions (PSC) will be filed to document the completed remedial activities under TSCA and close response actions under the MCP; 310 CMR 40.0000.

5. Regional and Site Vulnerabilities

The northeastern United States, including the Boston area, experiences warm and often humid summers and cold winters. Rainfall can be severe with summer thunderstorms common and severe weather resulting from regional nor'easter anticyclone storms and/or hurricanes. Winter conditions can also be severe with ice storms and heavy snow common.

According to the US Global Change Research Program (USGCRP), the northeastern United States can expect increased temperatures and temperature variability and extreme precipitation events (see Attachment A). USGCRP notes that "heat waves, coastal flooding, and river flooding will pose a growing challenge to the region's environmental, social, and economic systems. This will increase the vulnerability of the region's residents, especially its most disadvantaged populations." Increased precipitation will increase stormwater runoff, which is applicable to the cleanup and redevelopment of the Site for commercial use as a hotel. Once developed, the Site is expected to include improved stormwater infrastructure which will account for increasing precipitation.

According to FEMA Flood Zone Map 25025C0018J, the Site is partially located within a Special Flood Hazard Area (Zone AE) and Other Areas of Flood Hazard (see Attachment B). Based on the location of the Site and its proposed reuse, other factors related to climate change, such as changing temperature, rising sea levels, wildfires, changing dates of ground thaw/freezing, changing ecological zone, etc.). are likely to impact the Site in a significant way.

According to the Climate and Economic Justice Screening Tool, the Site is located within a census tract (Number: 25025040801) that is overburdened and underserved and is considered a disadvantaged

community. Factors used to establish this census tract include climate change, energy, health, housing, legacy pollution, transportation, water/wastewater, and workforce development.

According to MassMapper's Census 2020 Environmental Justice Populations (see Attachment C), the Site is approximately 400 feet southeast of a Minority and Income defined area, which is a census tract that has a minority population of at least 30 percent and a medium income of less than 100 percent area median income (AMI). This underserved area will benefit from the introduction of employment opportunities and the removal of the hazardous substances associated with the site.

According to the National Park Service, the Site building is designated a National Historic Landmark and National Register of Historic Places. Its historical significance includes the Site of anchor chain production and development of the "die-lock" process during its association with the US Navy. In addition to strategically renovating the historic Site building, future redevelopment plans are expected to showcase some of the historically significant Chain Forge equipment, particularly the hammer with the twelve-ton force, nicknamed the "Mighty Monarch." The significance to the neighborhood would be preserved.

II. Applicable Regulations and Cleanup Standards

1. Cleanup Oversight Responsibility

The cleanup will be overseen by a Commonwealth of Massachusetts Licensed Site Professional (LSP) in accordance with Massachusetts General Law Chapter 21E and the MCP. In addition, required regulatory documents prepared for this Site will be submitted to EPA's Region 1 PCB Coordinator and MassDEP. Submittals will be made electronically and tracked under the RTN issued for the Site by MassDEP (RTN 3-0010627). All documents will be in the public record.

2. Cleanup Standards

The PCB impacts to soil and building materials are regulated by the EPA under the TSCA, while PCB and other Site-related impacts to soil and groundwater are also subject to oversight by MassDEP. The EPA's Region 1 PCB Coordinator is responsible for regulation of the cleanup activities related to PCBs, while MassDEP is the state authority that regulates cleanup of sites in the Commonwealth of Massachusetts.

Cleanup requirements for the remediation or decontamination of PCB impacted materials are outlined by TSCA, 40 CFR 761. As noted previously the proposed cleanup approach intends to follow the RBCP that was previously approved by the EPA in March 2016. The RBCP includes the proposed cleanup standards that were developed according to the EPA's risk-based cleanup approach under TSCA, 40 CFR 761.61(c).

The MCP, 310 CMR 40.0000, includes risk-based cleanup standards for use in screening-level and semi-site-specific risk characterizations (Method 1 and Method 2 Risk Characterizations) to evaluate risk to human health and the environment. The MCP also outlines a Method 3 Risk Characterization, in which site-specific cleanup standards and characteristics and/or limitations on use and activity are used

to evaluate risk. Under the MCP, regardless of the approach or type of risk characterization, a condition of No Significant Risk (NSR) to human health and the environment must be documented for the site to achieve regulatory closure.

3. Laws and Regulations

Laws and regulations that are applicable to this cleanup include the Federal Small Business Liability Relief and Brownfields Revitalization Act, the Federal Davis-Bacon and Build America, Buy America Acts, the MCP, TSCA, and City of Boston by-laws. Federal, state, and local laws regarding procurement of contractors to conduct the cleanup will be followed. As described all cleanup will be in accordance with TSCA and MCP. All applicable permits and documentation (e.g., Building Permit, Dig Safe, soil transport/disposal manifests, etc.) will be obtained prior to the work commencing, and all work will be conducted in accordance with the conditions for approval.

III. Evaluation of Cleanup Alternatives

1. Cleanup Alternatives Considered

EPA requires that this ABCA includes the evaluation of at least three (3) remedial alternatives (two different alternatives plus No Action). To address the remediation of impacted soil at the Site, the following three (3) alternatives were considered, including:

- Alternative #1 – No Action
- Alternative #2 – Partial Hazardous Building Materials Abatement/Decontamination and Removal, Partial Soil Removal, and AUL
- Alternative #3 – Complete Hazardous Building Materials Removal, Soil Removal, Transport & Disposal, Building Repairs, and Equipment Removal

2. Cost Estimate of Cleanup Alternatives

To satisfy EPA requirements, the effectiveness, implementability, and cost of each alternative must be considered prior to selecting a recommended cleanup alternative.

<u>Effectiveness – Including Vulnerability/Resiliency Considerations</u>

- Alternative #1: No Action is not effective in controlling or preventing exposure of receptors to soil impacts during or after redevelopment. This alternative would not do anything to address the current building condition, and a potential release of contaminated materials caused by further deterioration of the building. These factors pose a significant safety risk to the general public and a financial risk to the Owner.

- Alternative #2: Under this alternative, remedial actions include removal and off-site disposal of PCB-impacted building materials, removal and off-site disposal of soil with PCB concentrations ≥50 mg/kg, removal and off-site disposal of concrete with PCB concentrations ≥50 mg/kg, removing PCB-impacted soil and concrete where necessary to construct clean utility corridors, constructing a new 4-inch concrete cap/slab over the removed soil and concrete areas, and recording an AUL on the entire property. Additionally, the alternative also includes the following

to address non-PCB contaminated materials: targeted removal of soil with elevated petroleum hydrocarbon and dioxin/furan concentrations, installing a demarcation barrier over contaminated surfaces inside the building, and removing some of the existing equipment. Since most/all contamination will be removed, abated and/or capped, the exposure pathways will no longer exist.

Alternative #2 is an effective option because the exposure pathways to contaminants are removed, the building is secured, and redevelopment can be accomplished under specific conditions set by the AUL. This alternative offers some long-term sustainability by supporting the productive reuse of the Site, allowing the structure to be improved as part of redevelopment by incorporating climate resilient adaptations, and by mitigating wear to current condition of the former manufacturing building, which is susceptible to further deterioration from climate change, including severe storms and flooding, and will minimizing the likelihood of contaminants mobilizing during future storm events.

- Alternative #3: Under this alternative, remedial actions include everything included in Alternative #2, in addition to complete removal and off-site disposal of the entire concrete slab to achieve PCB concentrations in concrete of <1 mg/kg, targeted removal of subsurface soils to achieve PCB concentrations in soil of <1 mg/kg, and the targeted removal of dioxin/furan and petroleum impacted soils. The alternative would also involve building repairs and improvements as required to carry out cleanup and redevelopment of the Property. This alternative does not require filing of an AUL.

  Alternative #3 is an effective option since the source of contamination is removed. This alternative also offers the long-term sustainability and resiliency to climate change that Alternative #2 does; however, the likelihood of contaminants mobilizing during future storm events would be eliminated as all hazardous substances and materials would be removed.

<u>Implementability</u>

- Alternative #1: No Action is easy to implement since no actions will be conducted.

- Alternative #2: The remedial actions presented for Alternative #2 are moderately to highly difficult to implement. This alternative requires significant coordination and engineering controls (e.g., dust suppression, air monitoring, etc.) during cleanup activities and will have some disturbance to the surrounding community (e.g., trucks transporting contaminated soils and concrete, and backfill

- Alternative #3: This alternative is extremely difficult to implement. The alternative requires significant coordination and engineering environmental controls (e.g., dust suppression and monitoring) during cleanup and abatement activities and would involve greater short-term disturbance to the community (e.g., significantly more trucks transporting waste, etc.). For these

reasons, this alternative is considered the most difficult to implement with the highest impact to the neighborhood.

Cost

- Alternative #1: There are no costs associated with No Action.
- Alternative #2: Partial Hazardous Materials Abatement/Decontamination and Removal, Partial Soil Removal, and Activity and Use Limitation (AUL) is estimated to cost approximately $4,500,000.
- Alternative #3: Demolition and Extensive Removal, Transport, and Off-Site Disposal of HBMs and Impacted Soil is estimated to cost approximately $20,000,000.

3. Recommended Cleanup Alternative

Alternative #1: No Action cannot be recommended because it does not address site risk and does not allow the Site to be used in a way to benefit the community. Both Alternatives #2 and #3 would eliminate to support the overall project goal to eliminate exposure risks while preserving the history and neighborhood character through future renovation and reuse of the existing building. Although both are considered effective alternatives, Alternative #3 has a greater impact to the neighborhood because of increased truck traffic, significantly more time required to implement it, and increased quantity of contaminated materials that require disposal at landfills. The cost to implement Alternative #3 is also estimated to be approximately 4 times the cost for Alternatives #2.

Therefore, Alternative #2: Partial Hazardous Materials Abatement/Decontamination and Removal, Partial Soil Removal, and AUL, is the most cost-effective option that allows for the reuse and redevelopment of the Site and can reduce risk while having the smallest impact on the surrounding community and the environment. For these reasons, is Alternative #2 is the recommended cleanup alternative.

Green and Sustainable Remediation Measures for Selected Alternative

To make the selected alternative greener, or more sustainable, several techniques are anticipated to be employed. The City of Boston will refer to ASTM Standard E-2893: Standard Guide for Greener Cleanups, EPA's Principles for Greener Cleanups, and MassDEP's Greener Cleanup Guidance (WSC #14-150) to incorporate practices and procedures that reduce carbon emissions, burning of fossil fuels, and the impact on the environment. This will include standard specifications prohibiting equipment idling, encouraging the selection of disposal facilities that are not at excessive distance, and requiring reuse/recycling/treatment over disposal when available.

Other potential measures that will be implemented where applicable, beneficial, or feasible to improve the overall sustainability of the project include:

- Protecting and conserving water.
- Carpooling for Site visits and on-site project meetings.
- Scheduling activities efficiently to minimize travel to and from the Site.
- Maximizing efficiency in the transportation and disposal of impacted materials off-Site.
- Submitting documents in digital format, rather than hard copy, unless otherwise required by EPA, the City and/or others, to save paper and resources.
- Optimizing the use of electronic and centralized communications for all project related correspondence and outreach to the local community, when feasible.
- Reuse will also consider ways to utilize energy efficient and renewable energy alternatives as well as green stormwater infrastructure to minimize developmental impacts on the natural environment.

DRAFT