

**ANALYSIS OF BROWNFIELD CLEANUP ALTERNATIVES**

**Shipwrights Cottage  
900 Innes Avenue Site  
Hunters Point, San Francisco, California**

Prepared for:

**Contract No. 4061-12/13  
San Francisco Department of the Environment  
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## IDENTIFICATION FORM

**Document Title:**      **Analysis of Brownfield Cleanup Alternatives  
Shipwrights Cottage  
900 Innes Avenue Site  
City and County of San Francisco, California**

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**Plan Coverage:**            This Assessment of Brownfield Cleanup Alternatives constitutes the deliverable for technical support to the San Francisco Department of the Environment to develop cleanup alternatives for the Shipwrights Cottage located at 900 Innes Avenue in San Francisco, CA under Contract No. 4061-12/13.

## APPROVAL FORM

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This document has been prepared for the San Francisco Department of the Environment under Contract No. 4061-12/13.

## TABLE OF CONTENTS

<b>IDENTIFICATION FORM</b> .....	<b>i</b>
<b>APPROVAL FORM</b> .....	<b>ii</b>
<b>TABLE OF CONTENTS</b> .....	<b>iii</b>
<b>1. INTRODUCTION AND BACKGROUND</b> .....	<b>1</b>
1.1. Site Location .....	1
1.2. Ownership and Previous Use.....	1
1.3. Site Assessment Findings.....	2
1.4. Project Goal.....	2
<b>2. APPLICABLE REGULATIONS AND CLEANUP STANDARDS</b> .....	<b>3</b>
2.1. Cleanup Oversight Responsibility .....	3
2.2. Cleanup Standards for Major Contaminants.....	3
2.3. Laws and Regulations Applicable to the Cleanup .....	3
<b>3. EVALUATION OF BROWNFIELD CLEANUP ALTERNATIVES</b> .....	<b>6</b>
3.1. Cleanup Action Objectives .....	6
3.2. Identification and Evaluation of Cleanup Alternatives.....	6
3.2.1. Alternative 1 Analysis – No Action.....	7
3.2.2. Alternative 2 Analysis – Abatement of High Risk Asbestos/Lead-Based Paint/Universal Waste/Mold/Operation and Maintenance of Remaining Materials/Excavation and Disposal of Lead-Impacted Soil from the Drip Line of the Shipwright’s Cottage .....	8
3.2.3. Alternative 3 – Abatement of All Asbestos/Lead-Based Paint/Universal Waste/Mold and Excavation and Disposal of Lead-Impacted Soil from the Drip Line of the Shipwright’s Cottage.....	9
3.3. Comparison of Alternatives .....	9
3.4. Consideration of Climate Impacts .....	11
<b>4. LIMITATIONS AND ADDITIONAL ASSESSMENT NEEDS</b> .....	<b>12</b>
<b>5. REFERENCES</b> .....	<b>13</b>

### LIST OF FIGURES

Figure 1	Site Location Map
Figure 2	Site Plan

## **1. INTRODUCTION AND BACKGROUND**

URS Corporation (URS), under Contract No. 4061-12/13 with the San Francisco Department of the Environment (SFDOE), has prepared this Assessment of Brownfield Cleanup Alternatives (ABCA) for the Shipwright's Cottage located at the 900 Innes Avenue property in Hunters Point, City and County of San Francisco, California (Site) (Figure 1).

In 2014 the City and County of San Francisco, Recreation and Parks Department (RPD) completed their acquisition of the Site from the Tenderloin Housing Clinic. This ABCA was prepared to support the RPD in their application to the United States Environmental Protection Agency (USEPA) for a Brownfields Cleanup Grant.

### **1.1. Site Location**

The Site is located on a portion of the property known as 900 Innes Avenue located in Hunters Point, San Francisco, California (Figure 1). The Shipwright's Cottage is located at the north corner of the intersection of Innes Avenue and Griffith Street. The 900 Innes Avenue property is comprised of seven different City and County of San Francisco Assessor Parcel Numbers (APN). The Site is assigned APN 4646003.

### **1.2. Ownership and Previous Use**

The house was constructed as an early component of an isolated working-class settlement of shipbuilders. The first property owner was John Johnson Dircks, a shipwright who was among the first immigrants to arrive at India Basin. Dircks resided in the house, from 1875 until 1893, after which point the residence was deeded to Carl J. Jorgenson, a ship carpenter. Members of the Jorgenson family, as well as the Siemers family, resided in the cottage at various times during the following few decades (Page & Turnbull, 2015).

In 1923, the Shipwright's Cottage was incorporated into the adjacent Anderson & Cristofani Boatyard. No residents were recorded at this address in the 1930 and 1940 United States census rolls; however, Carl Jorgenson was listed at 900 Innes until around 1960. In 1961, the property was sold to Walter and Alice Anderson; Walter was partner in the adjacent Anderson & Cristofani Boatyard. The building served as an office for the yard (Page & Turnbull, 2015).

The property changed hands several times during the 1960s, 1970s, and 1980s. The house was ultimately donated to the Tenderloin Housing Clinic in 2007. The Shipwright's Cottage was designated a San Francisco Article 10 landmark in 2008, and the Tenderloin Housing Clinic sold the building (along with the remainder of the 900 Innes Avenue property) to the City and County of San Francisco in 2014. The property was previously owned by the Tenderloin Housing Clinic prior to its acquisition by the City and County of San Francisco RPD (Page & Turnbull, 2015).

### **1.3. Site Assessment Findings**

In 2013 Weston Solutions conducted a Phase I Environmental Site Assessment (ESA) as part of a Targeted Brownfields Assessment (TBA) being conducted at the property (Weston, 2013). Based on the information presented in this report and the historical information presented in the Page & Turnbull Feasibility Study for the Shipwright's Cottage conducted in 2015 (Page & Turnbull, 2015), the building likely contains asbestos containing building materials and lead-based paint given the age of construction of the building and subsequent modifications/additions made to the structure. Additionally, the Page & Turnbull report indicated the presence of mold on building materials inside the structure. A hazardous materials building survey or building drip line investigation has not yet been conducted but is proposed to be undertaken prior to any building redevelopment/renovation activities.

### **1.4. Project Goal**

The goal of the project is to abate hazardous building materials and lead-based paint from the structure as well as lead-impacted soil from the dripline of the building in order to prepare the building for its eventual restoration and reuse. This project is part of a larger vision for the Blue Greenway, an open space system covering 13 miles of trails, and the segment of the regional San Francisco Bay Trail in the city. The expected reuse of the 900 Innes property as a park would allow for this strategy. Reuse in this case would prioritize maintaining the overall character of the Shipwright's Cottage, sensitively refitting for modern use within their historic layouts, and repairing failed details and features.

## **2. APPLICABLE REGULATIONS AND CLEANUP STANDARDS**

The section identifies the cleanup oversight responsibility and cleanup standards for contaminants at the Site.

### **2.1. Cleanup Oversight Responsibility**

Asbestos cleanup oversight will be overseen by the Bay Area Air Quality Management District (BAAQMD) who will issue a permit (Job Number or J#) for the abatement of asbestos associated with building renovation.

The California Environmental Protection Agency (Cal EPA) Department of Toxic Substances Control (DTSC) will be the regulatory oversight agency for the excavation and disposal of lead-contaminated soil from the drip line of the structure. It is assumed that the removal of lead-impacted soil from the drip line of the Shipwright's Cottage will be conducted in conjunction with other soil remedial activities at the 900 Innes Avenue property for which the DTSC will be the lead oversight agency.

### **2.2. Cleanup Standards for Major Contaminants**

In addition to visual clearance by a qualified California Certified Asbestos Consultant (CAC), clearance air monitoring will be conducted to ensure levels are safe for building reentry to conduct other hazardous material abatement activities including lead-based paint removal and mold removal and eventually, building renovation. In accordance with the Asbestos Hazard Emergency Response Act (AHERA) (40 Code of Federal Regulations [CFR] §763.90[i]), removal of asbestos containing building materials are considered complete when representative air samples from the affected space, analyzed by transmission electron microscopy (TEM) method, are not statistically significantly different than outside concentrations or do not exceed the filter background level of 70 asbestos fiber structures per square millimeter.

The cleanup standard for lead-impacted soil in the drip line of the building will be established as part of the Feasibility Study/Remedial Action Plan preparation process for contaminated soil remediation on other portions of the 900 Innes Avenue property.

### **2.3. Laws and Regulations Applicable to the Cleanup**

Asbestos abatement activities will be conducted in accordance with the following appropriate and applicable regulations:

- The asbestos National Emission Standards for Hazardous Air Pollutants (NESHAP) regulations specify work practices for asbestos to be followed during demolitions and renovations of all structures, installations, and buildings (40 CFR Part 61, Subpart M).

- Asbestos Hazard Emergency Response Act (40 CFR Part 763) as it relates to final air monitoring clearance standards.
- OSHA oversees the working conditions for workers by implementing and managing occupational safety and health standards. The following regulations pertain to handling asbestos in the workplace:
  1. Asbestos General Standard—Specification of permissible exposure limits, engineering controls, worker training, labeling, respiratory protection, and disposal of asbestos waste (29 CFR §1910.1001) as well as the California Code of Regulations (CCR) Title 8.
  2. Asbestos Construction Standard—Covers construction work involving asbestos, including work practices during demolition and renovation, worker training, disposal of asbestos waste, and specification of permissible exposure limits (29 CFR §1926.1101)

Additionally, California Occupational Health and Safety Administration's (Cal-OSHA's) lead in construction standard (8 CCR I532.1) requires a contractor whose work involves disturbing lead-containing materials to develop and implement a lead compliance plan, conduct employee exposure assessment to determine appropriate protective measures, including medical surveillance and personal hygiene facilities, and to provide employee training on the hazards of lead-related work.

The DTSC has adopted regulations (SB 20 Electronic Waste Recycling Act) for the handling of universal waste or E-Waste. This category is a subset under all hazardous wastes (CCR Title 26). Universal wastes encompass a variety of electronic devices (including fluorescent lamps, light ballasts, mercury thermostats, cathode ray tubes, batteries, etc.) that usually contain mercury, lead, cadmium, chromium and copper. These materials are considered toxic and are banned from landfill disposal. These materials must be collected and recycled prior to building renovation.

Bay Area Air Quality Management District (BAAQMD) Regulation 11 (Hazardous Pollutants), Rule 2 (Asbestos Demolition, Renovation and Manufacturing) was promulgated to control emissions of asbestos to the atmosphere during demolition and/or renovation. The rule requires that for every demolition or renovation involving the removal of 100 square feet/lineal feet or greater of Regulated Asbestos Containing Material (RACM), a notification must be made to the BAAQMD at least 10 working days prior to commencement of demolition/renovation. The District provides a form to use for notification of the two types of jobs. Information obtained from the notification form is stored and a job number (J#) is assigned to each demolition or renovation job that is notified. The J# is proof that the notification requirements of District Regulation 11-2 have been met. This information then allows BAAQMD staff to conduct an inspection to determine compliance with all other requirements of Regulation 11-2.

Lead-impacted soil from the drip line of the Shipwright's Cottage will be conducted by contractors operating in accordance to the U.S. Department of Labor OSHA Hazardous Waste Operations and Emergency Response Standard (HAZWOPER), 29 CFR §1910.120. The requirements of 29 CFR §1910.120 apply to clean-up operations at sites recognized by federal, state, local, or other governmental body as uncontrolled hazardous waste sites.

The National Historic Preservation Act, Code of Federal Regulations 36 (36 CFR) pertains to cultural resources and historic sites. A cultural resources study and archeological report have not been prepared for the Site. The proposed abatement and cleanup activities will comply with the National Historic Preservation Act and will be undertaken in a manner such that any cultural resources or historic structures will not be degraded.

Other laws and regulations applicable to this cleanup may include the Federal Small Business Liability Relief and Brownfields Revitalization Act, the Federal Davis-Bacon Act, and local city and county laws regarding procurement of contractors to conduct the abatement and cleanup activities. In addition, excavation and grading permits, if required, and underground service alert notifications will be obtained prior to the work commencing.

### **3. EVALUATION OF BROWNFIELD CLEANUP ALTERNATIVES**

The following section discusses the proposed cleanup alternatives and provides an evaluation to determine the preferred alternative.

#### **3.1. Cleanup Action Objectives**

The objective of the Shipwright's Cottage Brownfields Cleanup Project is to eliminate the potential exposure to asbestos, lead, mold, and other miscellaneous hazardous substances (universal wastes) for individuals entering and working around the building, and to facilitate the renovation of the building, as it is planned to be an integral part of the larger site redevelopment of the 900 Innes Avenue property. The following sections describe the three alternatives considered in terms of their effectiveness, feasibility of implementation, and costs with regard to achieving the project objectives.

#### **3.2. Identification and Evaluation of Cleanup Alternatives**

Three potentially feasible cleanup alternatives were identified based on URS' previous experience with similar sites. These alternatives include:

1. No Action.
2. Removal of High Risk Asbestos/Lead-Based Paint/Mold/Universal Waste/Operation and Maintenance of Remaining Materials/Excavation and Disposal of Lead-Impacted Soil From the Drip Line of the Shipwright's Cottage.
3. Removal of all Asbestos/Lead-Based Paint/Universal Waste and Excavation and Disposal of Lead-Impacted Soil from the Drip Line of the Shipwright's Cottage.

##### **Alternative 1: No-Action**

A no-action alternative would leave the Shipwright's Cottage building in its present condition, making it unusable for use. The only advantages to no action are those related to immediate avoidance of expenses that would be incurred by taking action. However, in the long term, expenses associated with no action may exceed those related to taking action at the present time due to the continued deterioration of the condition of the building, maintaining security (fencing, boarding of windows and doors, and signage) of the building to avoid trespassing, and potential exposures to and liability associated with unauthorized entrants.

**Alternative 2: Removal of High Risk Asbestos/Lead-Based Paint/Universal Waste/Mold/ Operation and Maintenance of Remaining Materials/Excavation and Disposal of Lead-Impacted Soil From the Drip Line of the Shipwright's Cottage**

This alternative would address deteriorated and friable asbestos-containing materials and deteriorated lead-based paint in the interior and exterior of the building including asbestos ceiling tiles, asbestos floor tiles and mastic, lead-based paint chips, and peeling lead-based paint. This alternative will also remove readily visible mold from interior building surfaces and miscellaneous universal waste contained in the building as well as excavation and disposal of lead-impacted soil from the drip line of the Shipwright's Cottage.

**Alternative 3: Removal of all Asbestos/Lead-Based Paint/Universal Waste and Excavation and Disposal of Lead-Impacted Soil From the Drip Line of the Shipwright's Cottage.**

This alternative would address all asbestos-containing materials and lead-based paint in the interior and exterior of the building including asbestos ceiling tiles, asbestos floor tiles and mastic, lead-based paint chips, peeling lead-based paint, and other identified lead-based paint on interior and exterior surfaces of the building. This alternative will also remove mold from all interior surfaces of the structure and miscellaneous universal waste contained in the building as well as excavation and disposal of lead-impacted soil from the drip line of the Shipwright's Cottage.

**3.2.1. Alternative 1 Analysis – No Action**

**Effectiveness:** The effectiveness of the No-Action alternative in achieving project goals would be negligible. The continued presence of asbestos containing building materials, lead-based paint, and universal waste(s) in the structure, as would be the case under the no-action alternative, would pose a potential long-term health risk to anyone entering the building. Additionally, lead-impacted soil that may be present in the drip line of the structure would also remain, posing potential health risks. The no-action alternative would be highly non-effective in achieving the goals of reduction of health risks for facilitating the renovation of the structure as part of the overall 900 Innes site redevelopment.

**Implementation:** Implementation of the No-Action alternative would be fairly straightforward. The building would be left in the current unused state in which it currently exists. The identified ACM, lead-based paint, and universal waste(s) would still pose a hazard to anyone entering the building. The building would not be demolished and the excavation and disposal of lead-impacted material from the drip line of the building would not occur. Controls would be necessary to manage exposure to those entering the building.

Under the No-action Alternative, the building will remain unused for an extended period of time and will likely continue to deteriorate increasing the risk to those entering the building. The

building, if it were to remain in this state, would detract from the redevelopment of the remainder of the 900 Innes Avenue site.

**Cost:** Direct costs associated with the No-Action Alternative would consist of providing building security and upkeep of measures to mitigate trespassers. Indirect costs could include potential liability associated with unauthorized entrants into the buildings. No Action alternative costs are estimated at \$5,000 annually.

### **3.2.2. Alternative 2 Analysis – Abatement of High Risk Asbestos/Lead-Based Paint/ Universal Waste/Mold/Operation and Maintenance of Remaining Materials/ Excavation and Disposal of Lead-Impacted Soil from the Drip Line of the Shipwright’s Cottage**

**Effectiveness:** Alternative 2 would be effective at removing high risk asbestos containing building materials, lead-based paint, universal waste(s), and mold thus reducing potential hazards to individuals entering or working inside the building. However, Alternative 2 would be limited in that all asbestos containing building materials, lead-based paint, universal waste(s), and mold would not be removed from the building, and some degree of operations and maintenance would be required in order to ensure remaining materials do not become high risk from further degradation of the building or from any work being conducted inside the building that may disturb these materials. Lead-impacted soil would be removed from the drip line of the building to mitigate potential risks associated with exposure to lead in soil around the outside of the building.

**Implementation:** Implementation of Alternative 2 would be performed by certified asbestos, lead, and mold abatement contractors. All friable asbestos, asbestos tile debris, floor tile and mastic, and ceiling tile would be removed. In addition, interior and exterior lead-based paint chips and loose lead-based paint would be removed. An Operations and Maintenance (O&M) Plan would be prepared for the remaining asbestos containing material and lead-based paint left in place on/in the structure. Miscellaneous universal waste(s), mainly materials that are considered universal waste that would not be reused in the building renovation, would also be removed by the abatement contractor performing asbestos and lead-based paint removal. Removal of readily visible and accessible mold on the outside of walls and other interior surfaces would also be conducted by certified abatement contractors. In addition to the abatement of hazardous building materials and mold, lead-impacted soil from the drip line of the building would also be excavated and disposed of offsite. Implementation of these activities is considered routine for properly trained and licensed contractors.

**Cost:** Costs associated with Alternative 2 would consist of costs to abate high-risk asbestos containing building materials, lead-based paint and mold, and removal and disposal of miscellaneous universal waste(s). Alternative 2 would also involve the development of an O&M Plan for asbestos, lead-based paint, and any universal waste(s) left in place in the structure. Additionally, the cost for Alternative 2 would include the excavation and disposal of lead-

impacted soil from the drip line of the Shipwright's Cottage. The estimated cost for Alternative 2 is \$85,000 plus \$1,500 annually for O&M inspections and reporting.

### **3.2.3. Alternative 3 Analysis – Abatement of All Asbestos/Lead-Based Paint/Universal Waste/Mold and Excavation and Disposal of Lead-Impacted Soil from the Drip Line of the Shipwright's Cottage**

**Effectiveness:** Alternative 3 would be highly effective in achieving the cleanup action objective of eliminating the potential for exposure to asbestos, lead, mold, and other miscellaneous hazardous substances for individuals entering the building, and to facilitate the renovation of the building.

**Implementation:** Implementation of Alternative 3 would be performed by certified asbestos, lead, and mold abatement contractors. In addition to the asbestos-containing materials and lead-based paint to be removed in Alternative 2, removal of all identified asbestos containing material, including any non-friable material (e.g., transite pipes or sheeting, roofing penetration tar, caulking, etc.), and removal of all lead-based paint including paint in good condition would be conducted. Under Alternative 3 all identified mold, including mold that may not be readily accessible behind walls or other enclosed areas, will be abated. Additionally, all identified universal wastes will be removed and disposed, and lead-impacted soil in the drip line of the structure will be excavated and disposed of offsite. Implementation of these activities is considered routine for properly trained and licensed contractors.

**Cost:** Costs associated with Alternative 3 would consist of abatement costs for asbestos containing building materials, lead-based paint and mold, and removal and disposal of universal waste(s). Additionally, the cost for Alternative 3 would include the excavation and disposal of lead-impacted soil from the drip line of the Shipwright's Cottage. The estimated cost for Alternative 3 is **\$114,035**.

### **3.3. Comparison of Alternatives**

**Alternative 1 – No Action:** This alternative would leave the hazardous building materials in place and manage access to the sight by potential trespassers. This alternative does not meet the project goal of the planned renovation and reuse of the Shipwright's Cottage as part of the overall redevelopment of the 900 Innes Avenue site as a part of the Blue Greenway project. This alternative is not given any additional consideration under this analysis as it will not allow the overall project to be completed.

**Alternative 2 – Abatement of High Risk Asbestos/Lead-Based Paint/Universal Waste/Mold/ Operation and Maintenance of Remaining Materials/Excavation and Disposal of Lead-Impacted Soil from the Drip Line of the Shipwright's Cottage:** This alternative would meet the project objectives. However, it would only remove the high-risk hazardous building materials and would leave some asbestos and lead-based paint in place to be managed under an asbestos and

lead-based paint O&M plan. Additionally, this alternative would remove the visible mold from the structure and the lead-impacted soil from the drip line of the Shipwright's Cottage. This alternative was not selected because it leaves some asbestos and lead-based paint within the structure, which would inhibit the proposed renovation and would require annual inspections of the components containing asbestos and lead-based paint until such time as these are removed or abated from the structure.

Alternative 3 – Abatement of All Asbestos/Lead-Based-Paint/Universal Waste/Mold and Excavation and Disposal of Lead-Impacted Soil from the Drip Line of the Shipwright's Cottage: This alternative would meet the project objective and would not have any ongoing O&M requirements associated with management of asbestos and lead-based paint left in the structure as it would remove all of the asbestos and lead-based paint from the Shipwright's Cottage. Additionally, this alternative would remove the mold from the structure and the lead-impacted soil from the drip line of the building. This alternative would allow for the uninhibited renovation of the structure as all of the hazardous building materials would be abated. No annual inspections of components containing asbestos and lead-based paint would be required as these will have been abated from the structure.

**Table 1 – Cost Comparison for Cleanup Alternatives**

	<b>Cleanup Alternative 1</b>	<b>Cleanup Alternative 2</b>	<b>Cleanup Alternative 3</b>
Description	No Action	Abatement of High Risk Asbestos/Lead-Based Paint/Universal Waste/Mold/Operation and Maintenance of Remaining Materials/Excavation and Disposal of Lead-Impacted Soil from the Drip Line of the Shipwright's Cottage	Abatement of All Asbestos/Lead-Based Paint/Universal Waste/Mold/Operation and Maintenance of Remaining Materials/Excavation and Disposal of Lead-Impacted Soil from the Drip Line of the Shipwright's Cottage
Cost	\$5,000 Annually	\$85,000 plus \$1,500 annually for O&M Inspection and Reporting.	\$114,035

**Selected Alternative**

Alternative 3 – Abatement of All Asbestos/Lead-Based Paint/Universal Waste/Mold/Operation and Maintenance of Remaining Materials/Excavation and Disposal of Lead-Impacted Soil from the Drip Line of the Shipwright's Cottage: This alternative was selected because it allows the

planned renovation and redevelopment of the Shipwright's Cottage to take place uninhibited by the presence of remaining asbestos and lead-based paint and without continuing O&M obligations.

### **3.4. Consideration of Climate Impacts**

Data demonstrates that the climate is changing at an increasingly rapid rate. The U.S. EPA must adapt to climate change if it is to continue fulfilling its statutory, regulatory, and programmatic requirements. The U.S. EPA is therefore planning for future changes in the climate to ensure it continues to fulfill its mission of protecting the human health and the environment. As part of the EPA's Climate Change Adaptation Plan in Region 9's Implementation Plan (EPA, 2013), the ABCA must take into consideration the effects of potential climate impacts upon the effectiveness of the proposed cleanup alternatives.

Potential climate impacts for the San Francisco Bay Area will likely include lack of rainfall, future droughts, and temperature increase. Along with temperature increases comes the likelihood of sea level rise which is anticipated to have the most impact along the bay margin of the San Francisco Bay. The effects of these changes are not likely to have any impact on the evaluated alternatives as the elevation of the Shipwright's Cottage is not likely to be directly affected by sea-level rise effects in the San Francisco Bay.

#### **4. LIMITATIONS AND ADDITIONAL ASSESSMENT NEEDS**

URS' services were performed in a manner consistent with that level of care and skill ordinarily exercised by members of the same profession currently practicing in the same locality under similar conditions. No expressed or implied representation or warranty is included or intended in our reports, except that our services were performed, within the limits prescribed by our client, with the customary thoroughness and competence of our profession.

Recommendations provided are not necessarily inclusive of all possible conditions. No other warranty, expressed or implied, is made regarding the professional opinions presented in this report. This document is intended to be used in its entirety. No portion of this document, by itself, is designed to completely represent any aspect of the project described herein. URS should be contacted if the reader requires any additional information or has questions regarding the content, interpretations presented, or completeness of this document.

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A hazardous building materials survey and lead in building drip line soil investigation will be required in order to prepare a Hazardous Building Materials Abatement and Clearance Monitoring Plan and a contaminated soil Removal Action Work Plan.

## **5. REFERENCES**

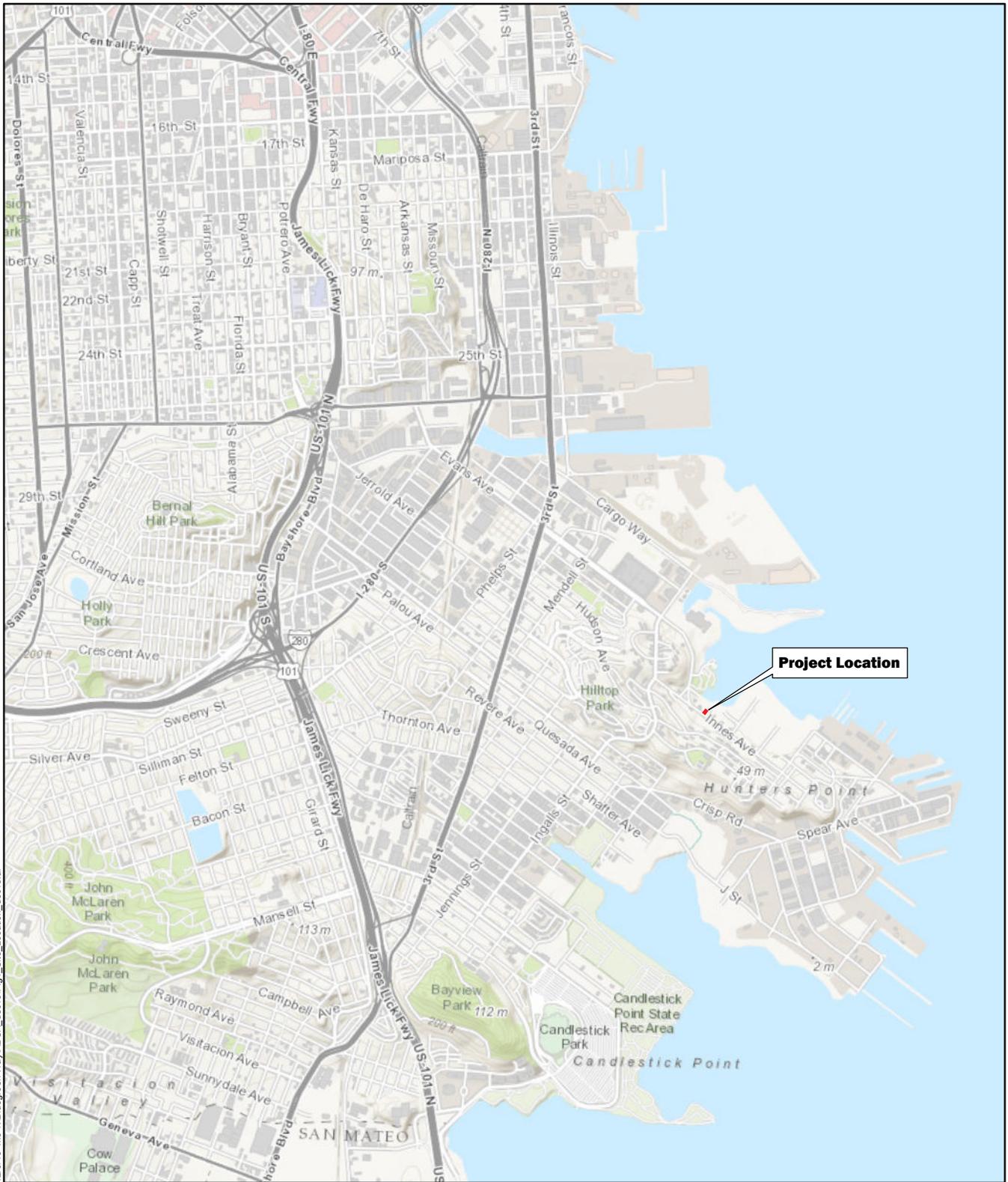
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## FIGURES



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Source: Contours (5-foot intervals) by HJW for the City and County of San Francisco, 2001.

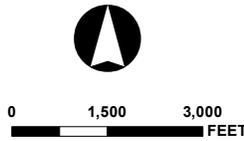
**900 INNES AVENUE  
SITE LOCATION**

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San Francisco, California

December 2015  
60407957



**FIGURE 1**





Shipwrights  
Cottage Lot

Innes Avenue

Griffith Street

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Source: Google Earth Pro., 2015.

**SITE PLAN**

Assessment of Brownfield Cleanup Alternatives  
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**FIGURE 2**

