

**SOIL MANAGEMENT PLAN  
50 INDIA STREET SITE  
PORTLAND, MAINE**

**DECEMBER 16, 2015**

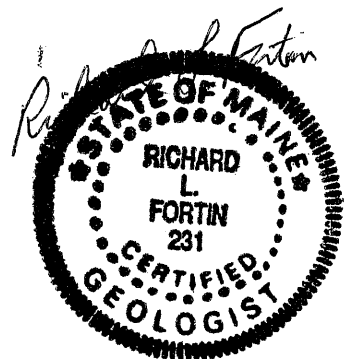
prepared for

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**TABLE OF CONTENTS**

<b>Section</b>	<b>Title</b>	<b>Page No.</b>
1.0	INTRODUCTION .....	1
2.0	SITE CONDITIONS AND CRITERIA.....	2
	2.1 Document Availability.....	2
	2.2 SMP Applicability.....	2
	2.3 Contaminants of Concern .....	3
	2.4 Areas of Concern .....	3
	2.5 MDEP Guidelines .....	3
	2.6 Exposure Scenarios and Exposure Pathways.....	4
	2.7 Accessibility of Fill and Native Soil Deposits.....	5
	2.8 Engineering Controls.....	6
3.0	FILL/SOIL MANAGEMENT.....	6
	3.1 MDEP Notification.....	6
	3.2 Removal of Auto Lift/Floor Drain and Oil-Water Separator.....	7
	3.3 Environmental Professional Oversight.....	7
	3.4 Best Management Practices.....	7
	3.5 Safety Considerations.....	8
	3.6 Contamination Identification.....	8
	3.7 Fill/Soil Excavation, Segregation, Containment and Stockpiling..	8
	3.8 Groundwater Management.....	9
	3.9 Fill/Soil Disposal.....	9
	3.10 Documentation and Reporting.....	10
4.0	SMP MODIFICATIONS .....	10
5.0	REFERENCES .....	10
	FIGURE 1-SMP AREAS OF CONCERN.....	11

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50 INDIA STREET SITE  
PORTLAND, MAINE**

**1.0 INTRODUCTION**

**Purpose.** Based on a Phase II Site Investigation completed and reported to the Maine Department of Environmental Protection (MDEP) in December 2015, contaminated urban and native soil deposits have been identified at the 50 India Street site located in Portland, Maine. In the event that these contaminated deposits are encountered or otherwise disturbed during future construction or excavation activity, it is necessary to have established procedures in place to assess the contamination and to safely handle, manage and/or dispose of the contaminated material. Any persons (i.e., owners, contractors, employees, residents or other persons) engaged in excavation or other subsurface-disturbing activities at the site are required to follow the provisions of this plan.

This plan was developed as one of the obligations of the property owner, India Newbury Residences LLC, in order to receive liability protections provided through the MDEP as part of the owner's participation in the Voluntary Response Action Program (VRAP). Contaminated fill and native soil deposits identified at the site are a concern with respect to human contact, incidental ingestion and breathing dust or volatile compounds. The contamination also represents a source for soil air/vapor intrusion into a building developed on the site in the future. The identified exposure pathways are addressed through this Soil Management Plan.

**Background.** The 50 India Street property currently exists as a developed lot containing the Port City Glass building, surrounding asphalt parking area and limited area of grass vegetation. The site was formerly used as a service station, which appears to have operated with USTs, possible remnant features of an auto lift, floor drain, and an oil-water separator located outside the building. The site and surrounding area form the east-end urban area of Portland, which is served by public water, public sewer and natural gas utilities. The nearby land uses on India Street and Middle Street include residential buildings, restaurants, office buildings, food stores, coffee shop, bakery, hair salon and fishing tackle shop.

The 50 India Street property is bordered on the east by India Street and on the north by an undeveloped asphalt parking lot at 62 India Street. Historical records show a former garage/service station, gasoline USTs and small paint/junk shops existed on this lot. In late 2013 and early 2014, the abutting property at 62 India Street was addressed through VRAP after completion of Phase I and Phase II Environmental Site Assessments. In April 2014, the site received a No Further Action Assurance Letter from the MDEP, which provided several conditions of approval including completion of a Declaration of Environmental Covenant and Soil Management Plan.

**Prior Site Investigations.** A Phase I Environmental Site Assessment (ESA) was completed for the 50 India Street property in September 2015 on behalf of Reger Dasco Properties of 15 Middle Street in Portland, Maine. The Phase I ESA provided identified the areas of concern that

warranted further investigation through a Phase II exploration, sampling and analytical program to characterize soil and soil air/vapor conditions in the subsurface at the site.

## **2.0 SITE CONDITIONS AND CRITERIA**

### **2.1 Document Availability**

This document is required to be maintained by the property owner, its representatives, successors and assigns as part of the ongoing obligations for this property as addressed in the No Action Assurance Letter issued by the MDEP VRAP in December 2015.

A copy of this document must be provided to employees, contractors, subcontractors, and other persons who may contact or disturb the subsurface conditions that are being addressed through this Soil Management Plan.

### **2.2 SMP Applicability**

The SMP is applicable to construction activities conducted in relation to site development or post-development uses which may involve excavation and/or disturbance of contaminated urban fill or native soil deposits. The SMP is also applicable during the removal of the remnant auto lift/floor drain, oil-water separator structures and any other tank structures that may be discovered beneath the ground as indicated in Sections 3.2 and 3.3. Construction and removal activities could involve bringing contaminated soil, groundwater, if encountered, or soil air/vapors to the surface of the site where potential human exposure could occur through contact, incidental ingestion or breathing. The depth of fill varies at the site ranging from 4-6ft below ground surface (bgs) in suspect former UST locations to 2-4ft, bgs in other portions of the site. Subsurface disturbances that pose a concern for exposure to the following:

- Excavation/construction workers,
- Outdoor commercial workers, and
- Future occupants of a building constructed at the site for residential and business/commercial use.

The SMP is also applicable to gardening or landscaping activities that may occur within the boundaries of the property (post-development) where the activities involve larger and more extensive disturbance of contaminated fill/soil. This condition can be mitigated by avoiding the reuse of contaminated fill/soil in the top two feet of the site and by installing a geotextile marker material with a minimum of two feet of clean fill over the geotextile to provide an identifiable marker above the deeper contaminated fill (See Section 2.8). The MDEP VRAP notification and approval requirement for addressing contaminated soil on and off-site is further described in Section 3.1, MDEP Notification.

Subsurface disturbance, which may involve bringing only a minor amount of contaminated fill, groundwater, if encountered, or soil air/vapors to the surface of the site, may not pose a concern for human exposure and would not require notification to the MDEP or action under this SMP. Possible examples of such minor disturbance could include minor repaving activities, routine

maintenance of plantings/landscaping established in accordance with Section 2.8 of this plan (e.g. clean fill, marker layer, etc.) or other actions of a limited intrusive nature.

### **2.3 Contaminants of Concern**

The potential Contaminants of Concern (COCs) identified at the site in the December 2015 Phase II Site Investigation include:

- A. Petroleum constituents (e.g., primarily benzene, ethyl benzene, toluene, xylenes and lead) associated with the former service station, auto lift, floor drain, oil-water separator, USTs and pump island.
- B. Volatile organic constituents (i.e., solvents, cleaners, etc.) possibly associated with the former service station operations.
- C. Heavy metals and hydrocarbons associated with the fill.

The chemical properties associated with these COCs are anticipated to pose a concern primarily for construction workers in connection with future development of the site; for residents and commercial workers (i.e., shop owners/workers) as building occupants; and for maintenance and utility workers. The media of focus at the site for potential exposure routes include soil and soil air/vapor in the shallow subsurface and down to an excavation depth of approximately 6 feet, bgs. Impacted groundwater could also be a concern if encountered although the site Geoprobe data indicated groundwater is likely greater than six feet deep.

### **2.4 Areas of Concern**

The Areas of Concern representing potential historical sources of petroleum and volatile organic COCs are shown in Figure 1 and include:

- Former pump island and suspect USTs at two onsite locations, and
- Former service station operations related to the auto lift and floor drain located inside the building and oil-water separator located outside the building, and

The SMP applies to the Areas of Concern as well as other portions of the property where urban fill deposits are present and may contain heavy metals and/or hydrocarbon residues.

### **2.5 MDEP Guidelines**

The Phase II Site Investigation was completed to support redevelopment of the property with a multi-story building. India Newbury Residences LLC is the interested buyer and anticipates developing the property along with the 62 India Street property as one project. The preliminary concept for site development is to establish retail shops at ground level and residential living space on the upper floors. A ground-level garage may also be incorporated into the rear portion of the building. The outer footprint of the building is anticipated to follow the boundaries of the property. The new building may be developed with a shallow spread-footing or pile design to support a concrete slab foundation. Given this approach, the excavation and subsurface

disturbance during construction is anticipated to be limited to relatively shallow depths (e.g., 0-6 feet, bgs).

Since the Phase II Site Investigation identified environmental impacts at the site to include multi-contaminants (i.e., both petroleum and hazardous constituents), the site analytical data for the fill/soil deposits and soil vapor were evaluated based on the MDEP Remediation Guidelines (RAGs) for Sites Contaminated with Hazardous Substances (May 2013).

## **2.6 Exposure Scenarios and Exposure Pathways**

For the 50 India Street site, the soil RAGs were used to address Residential, Commercial Worker, and Excavation/Construction Worker exposure scenarios. Soil gas targets (SGTs) were presented as 10x the indoor air RAGs for purposes of evaluating vapor intrusion from subsurface contamination into an occupied building. The indoor air exposure pathways include Residential and Commercial exposure scenarios. Since the site is considered unsuitable as a drinking water source and meets the MDEP's criteria for an urban groundwater non-attainment area, the Leaching to Groundwater exposure scenario is not directly applicable to the site. There is no active use of groundwater at or near the site and none is likely to occur in the future since public water is available. In an urban setting, the Leaching to Groundwater exposure scenario can be addressed through institutional controls.

The routes of exposure include incidental ingestion and dermal contact with contaminated soil; inhalation of contaminants potentially associated with fugitive dust and ambient air; and, vapor intrusion into the air inside a building and subsequent breathing of contaminated indoor air. The exposure scenarios and associated pathways are presented below for the sources of concern previously identified.

### Excavation/Construction Worker by:

- Incidental ingestion (eating) of contaminated soil (0-6ft, bgs),
- Incidental dermal (skin) contact with contaminated soil (0-6ft, bgs), and
- Breathing of the contaminated ambient air impacted by volatilization of contaminants from soil (0-6ft, bgs); and, by suspension of fine contaminated soil particles (i.e., fugitive dust) in air.

***The Phase II Site Investigation found the cadmium concentration in soil exceeding the RAG for the Excavation/Construction Worker exposure scenario.***

### Outdoor (maintenance) Commercial Workers by:

- Incidental ingestion and dermal contact with shallow contaminated soil (0-2ft, bgs) and inhalation of contaminants potentially associated with fugitive dust and ambient air.

***The Phase II Site Investigation found arsenic and benzo(a)pyrene concentrations in soil exceeding the RAGs for the Outdoor Commercial Worker exposure scenarios.***

Residential Occupants and Indoor Workers (i.e., shop owners and employees) by:

- Incidental ingestion and dermal contact with shallow contaminated soil (0-2ft, bgs); inhalation of contaminants potentially associated with fugitive dust and ambient air; and, breathing of contaminated indoor air impacted by volatilization of contaminants from shallow soil (0-2ft, bgs) and subsequent vapor intrusion at building foundations.

***The Phase II Site Investigation found arsenic, lead, cadmium and several EPH hydrocarbon concentrations in soil exceeding the RAGs for the Residential exposure scenario.***

## **2.7 Accessibility of Fill and Native Soil Deposits**

Presently, the building concrete foundation and asphalt pavement cover a majority of the site leaving only a small uncovered area on the north and west sides of the property. Fill and native soil deposits and soil air impacted by hydrocarbon residues are relatively inaccessible since sources of these residues are located beneath the covered areas. The small uncovered areas have subsurface fill that potentially contain COCs. During redevelopment of the property, the covered portions of the site will be removed and subsurface fill will be disturbed in connection with the foundation construction and installation of underground utilities. Short-term disturbance to subsurface fill and potential exposure during construction is addressed through the MDEP RAGs in three categories which include: "accessible," "potentially accessible," or "isolated" as explained below.

- 1) Accessible: Fill located less than 2 feet, bgs and has no cover to limit contact and disturbance.
- 2) Potentially Accessible: Fill/native soil deposits located at a depth in the range of 2-15 feet, bgs, which have no cover to limit contact and disturbance; or, fill located less than 2 feet below pavement/building foundation, if removed.
- 3) Isolated: Soil located at a depth greater than 15 feet, bgs; or, fill/native soil deposits covered completely by a building or other permanent structure that does not have earthen floors, regardless of depth. Also, fill/native soil deposits located at a depth greater than 2 feet below the earthen floor of a building or other permanent structure is also "Isolated."

As stated previously, the excavation and disturbance of fill during construction is anticipated to occur within the depth of 0-6 feet, bgs. For purposes of the SMP, the fill will be "Accessible" during the period of construction. Following site development, the fill will predominantly fall in the "Isolated" category due to the presence of the building foundation and asphalt cover. However, the SMP recognizes the possibility for subsurface fill to become "Accessible" on occasion through outdoor utility or maintenance worker activities if a portion of the cover is removed, or if a portion of the site is landscaped with earthen material rather than a solid cover. The landscaped area would be "Potentially Accessible" to persons that may be performing some type of intrusive activity into the ground. It is however likely that such activity would occur over a short period of time thus limiting the duration of potential exposure.

## **2.8 Engineering Controls**

Given the presence of subsurface contamination and potential exposure scenarios identified for the site, engineering controls must be incorporated into the design and construction of a new building on the site. The engineering controls include:

- 1) The building-related concrete structures and any new asphalt pavement will provide a suitable physical barrier to contact with subsurface contamination.
- 2) A vapor barrier and active sub-slab depressurization system will mitigate the potential for soil vapor intrusion into the future occupied space of the new building.
- 3) Within the boundaries of the site and outside the building footprint, install a geotextile marker material with a minimum of 2 feet of clean fill over the geotextile to provide an identifiable separation from deeper contaminated fill. The source of the clean fill should be verified to be free of contaminants through laboratory analytical testing or equivalent documentation acceptable to the MDEP. The application of this engineering control is relevant for larger amounts and more extensive use of fill at the site.

The engineering controls, consisting of the building cover, asphalt cover, vapor barrier, depressurization system and clean fill layer, must be maintained throughout the future use of the site. If site construction activity or repairs are needed in the future, the work should be completed in order to retain the integrity and function of these barriers.

## **3.0 FILL/SOIL MANAGEMENT**

The SMP is intended to minimize or eliminate the potential for exposure to subsurface contamination during future construction as the site is redeveloped, and also during future occupation of the site by residents, shop owners/workers and utility/maintenance workers. The main provisions of the SMP to be followed when site excavation/disturbance is expected are addressed below. A map of the site layout and AOCs is included as Figure 1 at the end of this plan.

### **3.1 MDEP Notification**

Prior to conducting activities that could make contamination accessible and pose a risk of exposure, or that may alter the existing site conditions in a way that could lead to an exposure to fill, soil air/vapor or groundwater, MDEP VRAP shall be contacted in writing to notify the Department of the planned activities. The notification and follow-on discussions may trigger the need to engage the provisions of the SMP, or it may be determined that the activity will represent a minor concern where the SMP is not applicable. The written notification to the MDEP shall provide sufficient lead time for the staff to respond prior to the commencement of any site disturbance activities. Contaminated soils will not be removed from the site without the express written permission provided by the MDEP VRAP in advance of any removal off-site.



### **3.2 Removal of Auto Lift/Floor Drain and Oil-Water Separator**

Prior to or in conjunction with site development, the remnant auto lift/floor drain, oil-water separator and any other tank structures that may be discovered beneath the ground will need to be removed and properly managed for disposal. If hydraulic fluids or saturated soils are found during removal of these structures, the contamination will be removed as encountered and then properly managed for off-site recycling/disposal. If a tank is found underground, the tank will need to be registered and a Notice of Intent for removal will need to be filed with the MDEP. During removal, an Environmental Professional should be involved to perform the oversight services described below in Section 3.3 and soils should be managed in accordance with the provisions of this SMP.

### **3.3 Environmental Professional Oversight**

An Environmental Professional (EP), who is experienced and qualified to address contaminated site conditions, must be involved to facilitate the SMP for the site and develop any additional Work Plans that may be appropriate to the work being undertaken at the site. At a minimum, an EP must be engaged during construction related to redevelopment, and in the future after development, if any significant subsurface disturbance is anticipated at the site.

The primary EP tasks for the SMP will involve monitoring conditions for potential exposure concerns, coordinating on excavation and stockpiling, communicating with the contractor(s) regarding health and safety practices, collecting samples for laboratory analysis, and assisting with the ultimate disposition of contaminated material either on or offsite if the material is to be transported to a recycling/disposal facility. The risk of worker exposure to soil vapors would be assessed by the EP using appropriate field instrumentation or air quality monitoring. The EP would also work on behalf of the owner to coordinate with the MDEP and local municipal officials.

Actions taken at the site to prevent exposure are based on the contaminant concentrations in relation to applicable regulations and remedial guidelines of the MDEP. As stated previously depending on the relative size and duration of the disturbance activity, the potential exposure scenarios of concern may include dermal contact, incidental ingestion and inhalation of contaminants on fugitive dust or vapors emitted into the ambient air.

### **3.4 Best Management Practices**

For disturbance activities undertaken at the site, construction and excavation work should be done following the MDEP Erosion and Sediment Control Best Management Practices (BMPs) and/or Maine Erosion and Sediment Control Practices Field Guide for Contractors, 2014 Revision.

Contaminated fill excavated and temporarily stockpiled on the site should be managed in order to minimize vapor emissions, the spread of dust/contaminants through wind and mobilization via surface runoff. Specifically during construction activities, management of disturbed fill may include:

- 1) Wetting for dust control,
- 2) Mulching for erosion control,
- 3) Plastic liners and covers to avoid contact with precipitation and for segregation,
- 4) Hay bales, silt fencing and berms for perimeter containment, and
- 5) Vapor barrier/vapor mitigation system depending on the nature and duration of the activity.

### **3.5 Safety Considerations**

The construction contractors are anticipated to conduct their work in compliance with all applicable Occupation Safety and Health Administration (OSHA) regulations. Contractors are encouraged to inform all workers through regular health and safety briefings of the potential for exposure through dermal contact, eating and breathing while working at the site. Workers are encouraged to use proper protective clothing and equipment to prevent exposure. To the extent possible, construction tasks and practices should be implemented to avoid worker exposure pathways.

### **3.6 Contamination Identification**

The Phase II Site Investigation completed for the site has characterized the nature and level of contamination present at the site. The primary contaminants of concern that exceed the RAGs include arsenic, cadmium, lead and EPH hydrocarbons. These contaminants are associated with the fill, which can be readily distinguished from the native geologic deposits based on the fill character (i.e., containing brick, glass, wood, etc.). On this visual basis, it is anticipated that the fill can be managed separate from other native deposits.

Native deposits, if encountered during excavation, may also be impacted by heavy metals or EPH hydrocarbon contamination. These deposits should be segregated and analyzed, if needed, through laboratory testing to determine how these materials can be managed. In particular, where petroleum residues are present in the former UST areas, pump island, oil-water separator and auto lift/floor drain locations, the excavated fill and native deposits should be monitored in accordance with MDEP Standard Operating Procedure TS004 using a field photoionization detector (PID) and oleophilic dye testing, and can be segregated for proper management on or off the site based on discussions with the MDEP.

### **3.7 Fill/Soil Excavation, Segregation, Containment and Stockpiling**

Subsurface excavation is anticipated in connection with the development of a new building at the site. The extent of fill/soil removal will be based on the details for the design of the building which have not yet been developed.

The existing building infrastructure and asphalt pavement will need to be removed to an offsite licensed recycling/disposal facility. A shallow depth of fill below the foundation and pavement may also be removed and replaced with clean compacted fill as part of the construction for the new building. Given the limited workspace at the site, excavated asphalt, foundation pieces and fill may need to be live-loaded onto trucks for transport offsite. If a live-loading procedure is

utilized, the material will need to be characterized in advance of excavation as described in Section 3.6. The excavation activity will be handled primarily using an excavator or backhoe equipment such that construction worker activity with hand tools should be minimal.

The fill identified at the site contains the COCs that are required to be managed through this SMP. Based on the Geoprobe explorations, the fill exists at the site as the uppermost layer with the native deposits found below the fill. As stated previously, the fill has characteristics that allow it to be visually distinguished from the native deposits. Space occupied by the fill will be replaced by the foundation construction and thus result in an excess volume of fill. The excavation contractor will be able to excavate the fill based on its visual character and depth limits and segregate it into a temporary stockpile for reuse or load directly into trucks for transport to a licensed recycling/disposal facility.

Fill/native soil stockpiles may occur temporarily on the site; however, the length of storage time will likely be brief given the limited space available during construction. Nevertheless, BMPs are encouraged to contain stockpiles, and mitigate potential worker exposures and contaminant-related releases to the environment (i.e., dust, erosion, vapors, etc.).

### **3.8 Groundwater Management**

During the Phase II Site Investigation, the depth to groundwater was measured at nine feet or greater below ground surface. Given this depth, groundwater may not be encountered during the excavation work for the new building. If groundwater is encountered and dewatering is needed to facilitate construction, provisions will need to be made to properly manage the groundwater conditions to avoid worker exposure. These provisions may include pumping and containment for proper treatment and/or disposal in conjunction with MDEP VRAP approval.

### **3.9 Fill/Soil Disposal**

As stated previously the existing asphalt and an undetermined volume of contaminated fill will potentially be removed from the site to a licensed recycling/disposal facility. Prior to removal offsite, the EP will contact the disposal facility and provide the existing analytical data in order to establish a waste profile and determine any additional testing that may be required for acceptance at the facility. Through this approach, the fill can be characterized to determine whether it will be managed as a solid waste, special waste or hazardous waste. The types of analytical testing that may be required to develop a profile for the fill can include but may not be limited to:

- TOX
- TCLP Metals
- Flash Point
- pH as Corrosivity
- Reactivity-Cyanide
- Reactivity-Sulfide
- PCBs
- VOA and SVOA

### **3.10 Documentation and Reporting**

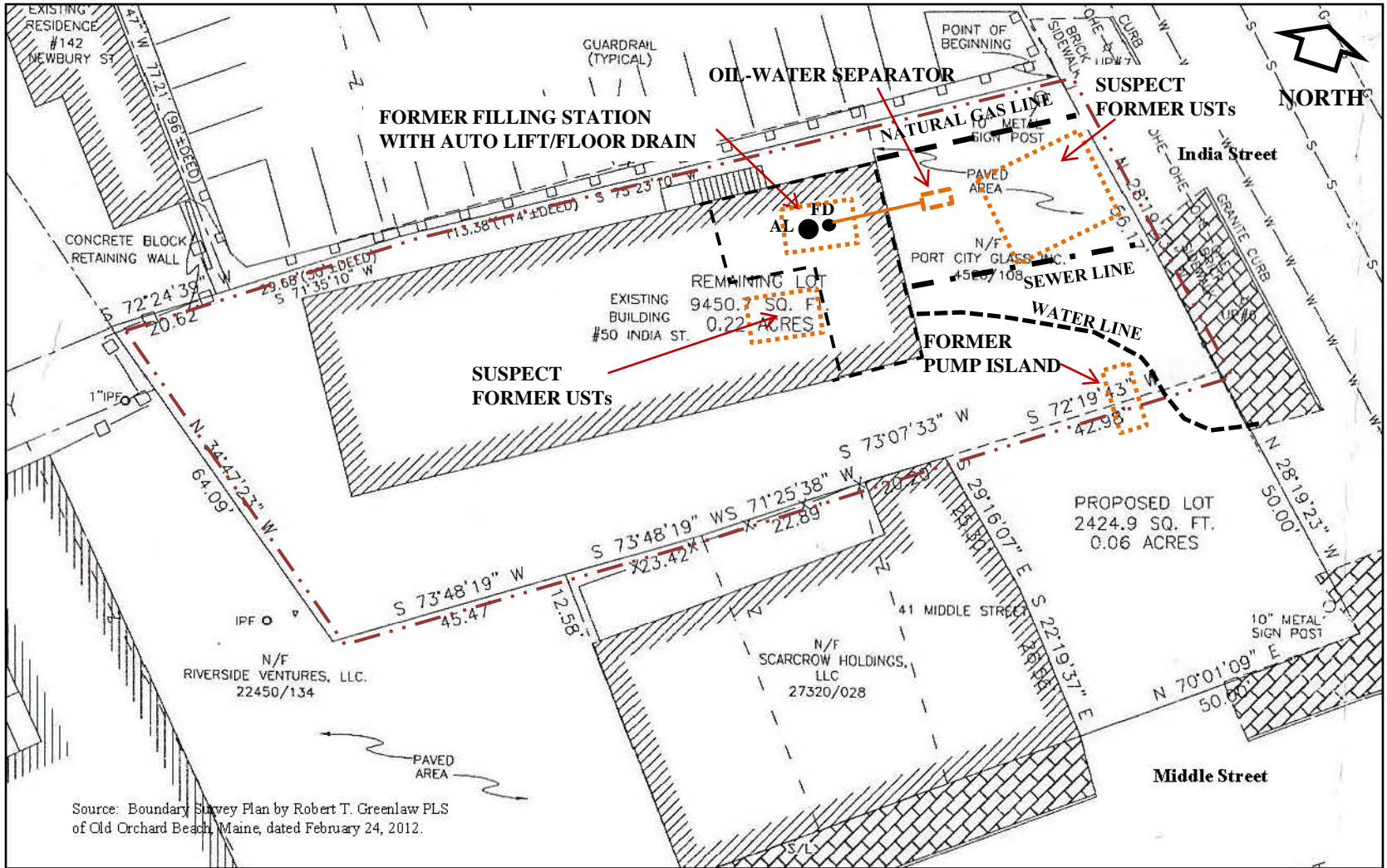
If an activity is planned at the site and involves actions relevant to the SMP, the EP should be consulted to assess the nature of the work in relation to the SMP and applicable MDEP guidelines or regulations. Pre-construction site evaluations, laboratory testing and implementation of SMP actions during construction should be documented in writing consistent with VRAP, MDEP and city requirements. A site plan may need to be prepared to record the nature and location of the management strategies (e.g., backfill placement, cover, extent, etc.) implemented at the site.

### **4.0 SMP MODIFICATIONS**


In the event that site conditions are found to differ from the conditions identified during the Phase II Site Investigation or following site redevelopment and modifications to the SMP are warranted, any revisions or additions to the SMP must be submitted to MDEP VRAP for review and written approval.

### **REFERENCES**

1. Phase I Environmental Site Assessment Report, 50 India Street Site, Portland, Maine, dated September 2015, prepared for Reger Dasco Properties by Drumlin Environmental, LLC of Portland, Maine.
2. Phase II Site Investigation Report, 50 India Street Site, Portland, Maine, dated December 2015, prepared for Reger Dasco Properties by Drumlin Environmental, LLC of Portland, Maine.
3. Maine Department of Environmental Protection, Voluntary Response Action Program (VRAP) requirements.
4. MDEP Remediation Guidelines (RAGs) for Sites Contaminated with Hazardous Substances (May 2013).
5. Maine Department of Environmental Protection, Erosion and Sediment Control BMPs, dated March 2003, DEPLW0588.
6. Maine Department of Environmental Protection, Maine Erosion and Sediment Control Practices Field Guide for Contractors, 2014 Revision.



**EXPLANATION**

 AREAS OF CONCERN



Approximate Scale

**FIGURE 1**  
**SMP AREAS OF CONCERN**  
**50 INDIA STREET SITE**  
**DRUMLIN ENVIRONMENTAL, LLC**