

**George Massey Tunnel  
Replacement Project**



**BC JOBS  
PLAN**



Ministry of  
Transportation  
and Infrastructure

# Contaminated Sites Study

APRIL 2015

## Preface

Technical studies were initiated in 2014 to support both ongoing Project planning and future permitting and approval requirements. Since the technical studies were initiated prior to finalizing the scope of the proposed Project, the scope of some studies consider physical activities and spatial areas that are beyond the scope of the Project assessed under the B.C. *Environmental Assessment Act*. The results of future studies will be presented in the Environmental Assessment Certificate Application that will be prepared for the Project.

## Executive Summary

The B.C. Ministry of Transportation and Infrastructure (Ministry) is proposing the George Massey Tunnel Replacement Project (Project) to meet regional, provincial, and national transportation management goals. The proposed Project involves replacing the George Massey Tunnel (Tunnel) with a new bridge spanning the Fraser River South Arm and Deas Island, decommissioning the Tunnel, and improving Highway 99 between Bridgeport Road in Richmond and Highway 91 in Delta.

To support Project planning and future permitting and approval requirements, the Ministry initiated studies to document existing conditions of environmental components that could potentially be affected by the Project. A contaminated sites preliminary study was conducted as part of the environmental program for the Project. To identify contaminated sites that may be present within or adjacent to the Project, the study included a review of current and historical land use information for properties within 100 m of the Highway 99 centreline, between Bridgeport Road and the Canada-U.S. border.

Areas of potential concern within the study area include properties of current or historical automotive repair, powder coating, equipment maintenance, and railway activities.

Contaminants associated with these activities may include hydrocarbons, heavy metals, solvents, and polycyclic aromatic hydrocarbons. Land uses within and adjacent to the study area were assessed for potential risk of contamination to the study area. Contamination risk potential for each site was classified into tiers, based on current and historical land use and site activities as identified through a preliminary assessment. The tiers are defined as follows:

- **Tier 1:** Potential risk of contamination is considered high. Sampling and analytical testing of soil, soil vapour, surface water, and/or groundwater (i.e., Stage 2 Preliminary Site Investigation) are recommended to determine the presence or absence of contamination. Alternatively, available reports could be obtained from B.C. Ministry of Environment or other sources to determine whether contamination is present on the site and within the study area.
- **Tier 2:** Potential risk of contamination is considered moderate. Further desktop review or field reconnaissance required to determine whether the site should be reclassified as Tier 1 (for future Stage 2 Preliminary Site Investigation) or can be downgraded to Tier 3 (no further investigation).
- **Tier 3:** Based on current and/or historical site activities, the potential risk of contamination is considered low.

No Tier 1 properties were identified from the study. Overall, the majority of the Highway 99 corridor was found to be Tier 3, and no potential concerns were identified with respect to the properties. Ten properties were identified as Tier 2 and may require additional assessment. The land use types in the Tier 2 properties include historical storage and manufacturing operations, current and historical industrial activities (including powder coating), a railway, and a former Border Service works yard.



## Abbreviations and Acronyms

Term	Description
ALR	Agricultural Land Reserve
B.C.	British Columbia
Ministry	Ministry of Transportation and Infrastructure
MOE	Ministry of Environment
ROW	right-of-way
U.S.	United States

## Glossary

Term	Description
Agricultural Land Reserve	A provincial zone in which agriculture is recognized as the priority use. Land included in an agricultural land reserve remains agricultural land in the agricultural land reserve unless excluded under the <i>Agricultural Land Commission Act</i> , S.B.C. 2002, c. 36.
Highway 99 corridor	The right-of-way owned by the Province of B.C. for Highway 99 from the Peace Arch Canada–U.S. border crossing in Surrey to the Oak Street Bridge in Richmond.
Project disturbance area	All lands and lands under water, except the Project footprint, which are subject to disturbance during Project construction and required for maintenance activities during Project operation.

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## 1.0 Introduction

This report presents the objectives, methods, and findings of the contaminated sites study undertaken to support project planning, as well as future permitting and approval requirements for the George Massey Tunnel Replacement Project (Project).

### 1.1 Study Background

The B.C. Ministry of Transportation and Infrastructure (Ministry) is proposing the Project to meet regional and provincial transportation management goals. To support project planning and future environmental permitting and approval, the Ministry initiated studies in early 2014 to understand and document existing conditions of environmental components that could potentially be affected by the Project.

Because the studies were planned prior to the Project scope being finalized, a broader spatial area was considered to accommodate potential refinements in the Project design. This broader spatial scope was established based on a general understanding that the Project would involve modifications of the Highway 99 corridor, including replacement of the George Massey Tunnel (Tunnel) with a clear-span bridge, removal of all or part of the Tunnel, and replacement or upgrade of interchanges and widening of the highway as required.

### 1.2 Study Components and Major Objectives

A review of current and historical land use information for select areas along Highway 99 ROW was conducted to identify contaminated sites that may be present within 100 m of the Project footprint (see **Section 3.1** for study area description, and **Appendix A, Figures 1a to 1w**). Areas of potential concern include locations of current and historical automotive repair, powder coating, equipment maintenance, and railway activities. Contaminants associated with these activities may include hydrocarbons, heavy metals, solvents, and polycyclic aromatic hydrocarbons.

The study identified potential environmental concerns related to contaminated sites that could affect construction of the Project. Highway widening and construction of a new bridge will involve handling of soil and dewatering of groundwater. As such, the sites adjacent to the Highway 99 corridor were assessed for potential contamination from current and historic commercial and industrial activities. The handling of potentially contaminated sediment was reviewed by other disciplines and reported in separate Project technical data reports.

Study components, major objectives, and a brief overview are provided in **Table 1**. This technical data report provides a summary of the general methodology and information used to assess the likelihood, extent, and nature of site contamination in the study area, and a description of the likelihood, extent, and nature of historical contamination at specific properties.

**Table 1 Study Components and Major Objectives**

Component	Major Objective(s)	Brief Overview
Windshield survey	Establish current land use and identify potential environmental liabilities associated activities in the study area.	Windshield surveys of publicly accessible areas were completed along Highway 99 corridor on February 19 and 20, 2014 and consisted of observations and photographs of land uses. An inspection of the Tunnel and related infrastructure was completed on April 23, 2014. Personnel familiar with the recent history and operations of the Tunnel were present.
Desktop review	Review select current and historical records pertaining to the study area to determine historical land uses and potential for contamination in the study area.	Records, including historical air photos, city directories, the B.C. MOE Site Registry, and Federal Contaminated Sites Inventory, were obtained and reviewed.
Literature review	Determine potential impact of historical vehicle exhaust on lead concentrations in soil in the study area.	Clarification of independent remediation requirements for selected heavy metals at Ministry active roadway sites

## 2.0 Review of Available Literature and Data

A brief literature review was conducted on the potential impact of historical vehicle exhaust on lead concentrations in soils adjacent to highway corridors. The primary concern associated with presence of heavy metals, specifically lead, in soil pertains to the end use of any surplus soils removed from disturbed areas directly adjacent to existing highway lanes.

Clarification of independent remediation requirements for selected heavy metals at Ministry of Transportation active roadway sites was issued by Ministry of Water, Land and Air Protection July 11, 2001 in a memorandum to the Ministry (see **Appendix D**). Results of a study referenced in that memorandum, which had been conducted at University of British Columbia for the Ministry, indicates that roadside metal contamination of soil rarely extends beyond a depth of more than 30 cm from the soil surface, or a lateral distance of five metres from the roadway. Contamination was found to be common in highway locations such as intersections, entrance and exit ramps, and cloverleaf interchanges, where traffic is forced to move more slowly. Based on these findings, it was determined that primary areas for consideration in the study include the north and south Tunnel entrances.

To carry out the study, the following records were obtained and reviewed:

- Historical air photos from the University of British Columbia Geographic Information Centre, dated between the late 1930s and the late 2000s.
- Recent airborne imagery available online via Google Maps and municipal websites.
- Government of B.C. (BC Online) Site Registry area searches and select Site Detail reports (see **Appendix B**).
- Federal Contaminated Sites Inventory search (see **Appendix C**).
- Search of historical city directories for relevant dates and locations based on the review of historical air photos.

## 3.0 Methods

### 3.1 Study Area

The study area includes sites within and adjacent to the Highway 99 right-of-way (ROW), as shown in **Appendix A, Figure 1**. This area was chosen based on current and historical land uses. Some areas that are within the Agricultural Land Reserve (ALR) have been excluded from the study since they are assumed to have historically been under agricultural use and therefore do not present a potential contaminated sites risk. The sites excluded from the study area based on ALR designation include large stretches through central Richmond, and most of Delta from Highway 17 to Surrey.

Land uses within and adjacent to the Highway 99 corridor were reviewed to assess the potential risk of contamination in the study area. Ranking of potential site contamination risk consisted of classifying properties into tiers, based on historical and present land uses, in addition to site activities. The three tiers, defined below, were developed for the purpose of due diligence review. This approach has been applied in the context of other Ministry projects as a method of evaluating the potential for contamination at multiple sites where the geographical area intersects a wide variety of land uses. The tiers developed through this preliminary assessment are defined as:

- **Tier 1:** Potential risk of contamination is considered high. Sampling and analytical testing of soil, soil vapour, surface water, and/or groundwater (i.e., Stage 2 Preliminary Site Investigation) are recommended to determine the presence or absence of contamination. Alternatively, available reports could be obtained from B.C. MOE or other sources to determine whether contamination is present within the study area.
- **Tier 2:** Potential risk of contamination is considered moderate. Further desktop review and/or field reconnaissance are required to determine whether the site should be reclassified as Tier 1 (for future Stage 2 Preliminary Site Investigation) or can be downgraded to Tier 3 (no further investigation).
- **Tier 3:** Based on current and/or historical site activities, the potential risk of contamination is considered low.

To aid in presenting the findings from the desktop review and field reconnaissance, the properties and discussion are divided to correspond with six segments along the Highway 99 corridor:

1. Bridgeport Road to Westminster Highway (north Richmond)
2. Blundell Road intersection (central Richmond)
3. Steveston Highway to the north end of the Tunnel (south Richmond)
4. The south end of the Tunnel to Highway 17 (north Delta)
5. Central Delta
6. 32<sup>nd</sup> Avenue to the Canada-U.S. Border (south Surrey)

### **3.2 Temporal Scope**

The air photos reviewed range in acquisition date from 1938 to 2009. Airborne imagery acquired from municipal databases is no older than 2011. Site visits were conducted February 19 and 20, 2014. Refer to **Appendix C** for dates of B.C. Site Registry information.



## 4.0 Results

Results of the desktop review and field reconnaissance are presented below. Only properties that were identified during the assessment as having potential concerns are discussed individually. Properties not discussed in the tables below are ranked as Tier 3; i.e., low risk of being contaminated.

### 4.1 Bridgeport Road to Westminster Highway (North Richmond)

The segment from Bridgeport Road to Westminster Highway in north Richmond historically comprised a mixture of vegetated, agricultural, and residential land uses. Following construction of the highway in the late 1950s and early 1960s, additional properties, including hotels, commercial structures, and light industrial properties were developed. The lands south of Alderbridge Way are primarily within Richmond Nature Park and have remained vegetated and largely undeveloped, with the exception of transportation corridors. Properties of potential concern are discussed in **Table 2**.

**Table 2 Results – Bridgeport Road to Westminster Highway, Richmond**

Tier	Location	Proximity to Project Footprint	Land Use	Comments
2	Highway 99 - southwest of Sea Island Way on-ramp	Within ROW	Highway-related activities. Toll booth station and potential storage.	Air photos from the early 1960s show a toll booth near this area. There were buildings in this area until the 1980s, and it appears to have been used by the Ministry for toll booth operations, and potentially for highway staging or storage, or weigh scale operations. Based on the potential for storage of fuel or hazardous material related to highway works, this area is considered Tier 2.
3	3391, 3411, 3451 No. 4 Road	Adjacent to ROW (within 10 m of off-ramp)	Currently vacant and vegetated	These properties are listed together in the B.C. Site Registry (Site ID 15309). According to the detailed site registry report, Stage 1 and 2 Preliminary Site investigations were conducted in 2013. The current site status is "Inactive – No Further Action". A determination of "Site Not Contaminated" was made in 2013 (Government of B.C. 2014). The properties also appear in air photos to have been residential historically. This property is therefore considered Tier 3.
2	3240 No. 4 Road	Adjacent to ROW (within 10 m of highway)	Current storage centre. Historical manufacturing operations	The original structure on the property was historically occupied by Vanguard Trailers and Do-Tan Manufacturing. In the 1990s, additional buildings were constructed, and the property appeared to be converted to a storage rental centre, which remains on the property. Because of the historical trailer manufacturing, this site is considered Tier 2.

Tier	Location	Proximity to Project Footprint	Land Use	Comments
3	10700 Cambie Road	Adjacent to ROW (within 10 m of on-ramp)	Car dealership	<p>This property was listed on the B.C. Site Registry under two Site IDs (2187 &amp; 12843). A Certificate of Compliance was issued in 2004. Record status is listed as “Inactive – Remediation Complete” (Government of B.C. 2014).</p> <p>In the 1970s and 1980s, the property was occupied by a trailer sales company. In the 1990s, this property was occupied by a complex that included a car wash, automotive repair centre, and a gas station. It is currently occupied by a car dealership that includes a repair area with several service bays. Based on the 2004 Certificate of Compliance and the recent history of this operation, the property is considered Tier 3.</p>
3	10780 Cambie Road	Adjacent to ROW (within 10 m of on-ramp)	Car dealership	<p>This property was listed on the B.C. Site Registry (Site ID 14688). The detailed report indicated:</p> <p>Record Status: Active – Under Assessment. A Site Profile was submitted in December 2012, and further investigation was required by the Ministry of Environment. Suspected land use was listed as: Automotive, truck, subway or other vehicle repair, salvage or wrecking. A note from January 14, 2013 indicated: “Development permit release under Scenario 2. Expansion of showroom for recently constructed car dealership” (Government of B.C. 2014). City directories indicate that in 1990 the property was occupied by Otto Mobiles camper rentals. The property is currently occupied by a car dealership that includes a vehicle repair and servicing area. Based on the issuance of a permit under Scenario 2 of B.C. MOE Administrative Guidance 6 (B.C. MOE 2013), this site is considered Tier 3.</p>

Tier	Location	Proximity to Project Footprint	Land Use	Comments
3	4331 Vanguard Way	Within 20 m of ROW (55 m NE of highway overpass)	Stone art shop	This property was listed in the B.C. Site Registry, along with 4251 Vanguard Way (Site ID 6831). Record Status: Inactive – No further action. A final determination in 2001 found the property not contaminated (Government of B.C. 2014). City directories dated 2001, 1990, 1980, and 1970 indicate that the building has been occupied by industrial electric companies. A chemical sprayer was listed as present in the rear of the building in the 1970s <sup>1</sup> (listed as 431). Based on air photo interpretation, it appears this area has been used since the early 1960s for light industrial activities. Based on the determination issued in 2001, this property is considered Tier 3.
3	4431 Vanguard Way	Adjacent to ROW (35 m NE of highway)	Auto liquidation centre	<p>City directories list the property as:</p> <ul style="list-style-type: none"> <li>• RV Camper Sales and Rentals (2001)</li> <li>• Fraser Valley Brick or Block (1990, 1980)</li> <li>• Equipment, machinery, farm equipment (1970)</li> </ul> <p>This area has been light industrial in nature since the early 1960s. During the site survey, used car storage was visible across the property. The building appeared to include three bays for automotive servicing or repair. Based on the distance of the servicing bays from the study area (approximately 60 m), and the low-lying nature of the area in relation to the highway, this property is considered to be Tier 3.</p>

<sup>1</sup> Note civic addresses changed in 1970.

Tier	Location	Proximity to Project Footprint	Land Use	Comments
3	4500 Vanguard Way	Adjacent to ROW (35 m NE of highway)	Bath and kitchen centre; plumbing, heating and industrial service provider	<p>City directories listed the following historical operations for this property:</p> <ul style="list-style-type: none"> <li>• Autobody (2001)</li> <li>• Storage, auto body, industrial textiles (1990)</li> <li>• Offices (1980)</li> <li>• Electrical contractors, tool manufacturing (1970)</li> </ul> <p>Based on site visit and interpretation of historical air photos, operations have been confined to within the building on the property, with minimal outdoor storage. Potential risks to the study area are therefore considered minimal; this property is considered Tier 3.</p>
3	4511 Shell Road	Adjacent to ROW (within 10 m of off-ramp)	U-Haul and self-storage facility	<p>The U-Haul facility, constructed in the 1990s, is still present on the property and may include a servicing area, although none was evident in air photos. Servicing may be conducted off-site. Risk associated with this operation is considered low; the property is therefore categorized as Tier 3.</p>

Tier	Location	Proximity to Project Footprint	Land Use	Comments
2	4651 & 4671 Vanguard Road	Adjacent to ROW (within 40 m of highway)	Cabinet repair, powder coating, Blue Star marble, and furniture design shops	<p>City directory listings for 4651 &amp; 4671 Vanguard Road include:</p> <ul style="list-style-type: none"> <li>• Masterstone Corp., Suncrest Cabinets, Van-City Marble (2001)</li> <li>• Aero Heat Exchanger Inc., Van-City Marble (1990)</li> <li>• Criterion Engineering Limited Mfg. (1980)</li> <li>• American Mfg. Machinery (1970)</li> </ul> <p>Suncrest cabinets appeared to include a manufacturing shop. This area has been light industrial in nature since the early 1960s, based on air photo interpretation and city directories. Powder coating operations in particular are considered a potential concern, due to the use and potential spread of heavy metals. The site is therefore considered Tier 2.</p>
3	4700 Vanguard Road	Adjacent to ROW (within 40 m of highway)	Commercial roofing and waterproofing provider	<p>City directories list the following:</p> <ul style="list-style-type: none"> <li>• Acme Prehung Doors (2001, 1990)</li> <li>• Superior Recycling (1980)</li> <li>• Prefab Buildings (1970)</li> </ul> <p>This area has been light industrial in nature since the early 1960s, based on air photo interpretation. A storage area was observed in the rear of this building, which included what appeared to be decommissioned above-ground storage tanks, tires, and propane storage. Based on its distance from the corridor, and the low-risk nature of current and historical operations, this property is considered Tier 3.</p>

Tier	Location	Proximity to Project Footprint	Land Use	Comments
3	Highway 99 & Highway 91 Intersection	Adjacent to north of on-ramp, within ROW	Historical disturbed area and lagoon	A large disturbed area is situated east of this site, in the current location of Highway 99 and to the south of Highway 91. In the mid-1970s to early 1980s, there was a lagoon where Highway 91 is now present. A cleared or disturbed area was visible south of the lagoon. This area is believed to be related to stormwater management and is considered Tier 3.

#### **4.2 Blundell Road Intersection (Central Richmond)**

The area surrounding the Blundell Road intersection has historically been occupied by agricultural and residential properties, with the exception of some commercial buildings, including churches, and a pilot-car service. At the time of field survey, some of the residential properties appeared to have equipment or scrap items stored on-site. However, based on their distance from the highway and the scale of the operations, storage on the residential properties is not considered a potential concern. This segment is ranked as Tier 3.

#### **4.3 Steveston Highway to North End of the Tunnel (South Richmond)**

Prior to construction of the highway, land use in the segment of the study area from Steveston Highway to the north end of the Tunnel was historically agricultural, with the exception of some industrial properties situated along the river in the 1950s or earlier, including Canada Rice Mills. The area west of the highway was developed into commercial and light industrial complexes in the late 2000s. Details of properties in this segment are summarized in **Table 3**.



**Table 3 Results – Steveston Highway to North End of the Tunnel**

Tier	Location	Proximity to Project Footprint	Land Use	Comments
2	Steveston Highway and Highway 99 overpass	Adjacent to highway and on-ramp, within ROW	Highway	This area is listed in the B.C. Site Registry as Site ID: 6098 and is named as the southwest quadrant of the on-ramp. The record status is “Active – Under Remediation” and a notice of independent remediation was submitted in 1999. A detail was removed in 2004 but no additional updates have been included in the site registry report since 1999 (Government of B.C. 2014). In air photos, there appear to be utilities-related to structures situated between the highway and overpasses, indicating that structures may have been situated on the property. As indicated in the site registry, this site was previously under remediation, but no detailed records were available for review, making this a Tier 2 property.
3	12100 Featherstone Way	Adjacent to ROW (within 20 m of on-ramp)	Car dealership	This car dealership includes automotive servicing and a body shop. The property was developed in the late 2000s. Based on the age of the operation, environmental risk to the surrounding area is considered low, and therefore this property is ranked as Tier 3.
2	Highway 99, south of Rice Mill Road (no civic address)	Within Project footprint, adjacent Tunnel entrance	A highway storage and/or staging area, and substation	This area appears to be used for highway equipment storage or minor repairs. A BC Hydro substation is also situated here. This area was developed at the time of Tunnel construction, in the early 1950s. Prior to Tunnel construction, the area appears to have been occupied by Canada Rice Mills. Because of the site use and presence of the substation, the property is ranked as Tier 2.

Tier	Location	Proximity to Project Footprint	Land Use	Comments
3	13140 Rice Mill Road	Adjacent to ROW (within 90 m of Tunnel)	Fish processing	As this area is separated by an inlet it is not considered a potential concern for the site. Prior to fish processing operations, the area was occupied by Canada Rice Mills.
3	12800 Rice Mill Road	Adjacent to ROW (within 150 m of Tunnel)	BC Ferries docks	In the early 1960s, a BC Ferries dock was constructed adjacent to the west side of the corridor. Prior to that, this area was used as the dry dock for construction of the six precast elements used to construct the Tunnel in 1957. A drainage ditch separates the corridor from the BC Ferries dock, and therefore maintenance activities on this property are not considered a potential environmental concern, so the area is ranked as Tier 3.
2	Railway at north end of Tunnel (no civic address)	Within Project footprint (passes over south Tunnel entrance)	Railway	A railway crosses the site at the north end of the Tunnel. Contaminants of concern associated with railways typically include hydrocarbons from lubricants dripping from trains and from spills, metals associated with railway ballasts, and creosote from rail ties. Contamination associated with railway tracks is typically localized to the vicinity of the tracks. Based on the railway's location relative to the highway corridor, this area is considered a low-risk potential concern for the Project footprint but is ranked as Tier 2 given the likelihood of localized contamination associated with the rail ties and ballast.
2	Grassed areas adjacent to north end of Tunnel	Within Project footprint, adjacent Tunnel entrance	Vehicular traffic near Tunnel entrance	Based on the literature review, lead contamination may be present along the highway corridor where traffic is forced to move slowly. When vehicle accidents occur near the Tunnel entrance, vehicles slow down or come to a stop. This is a particular concern for the first 30 years of the Tunnel's operation (late 1950s to early 1990s), making the potential for contamination moderate (Tier 2).

#### 4.4 South End of Tunnel to Highway 17A (North Delta)

The segment of the study area from the south end of the Tunnel to Highway 17A in Delta consists of Deas Island Regional Park and agricultural properties. A restaurant and tennis club are located near the Highway 17A interchange. A residential complex is located north of River Road, on the east side of Highway 99. Details of properties in this segment are summarized in **Table 4**.

**Table 4 Results – South End of Tunnel to Highway 17A**

Tier	Location	Proximity to Project Footprint	Land Use	Comments
3	North edge of Deas Island	Within Project footprint	BC Hydro substation	An electrical substation is located on leased land at the north edge of Deas Island, on the south side of the Tunnel. As a term of its lease, BC Hydro is responsible for any environmental contamination associated with its operations on the leased land.
3	Deas Island bank protection	Within Project footprint	Riparian	This area is indicated on Federal Contaminated Sites Inventory (Site ID: 20869) as unassessed and site status is Closed (Government of B.C. 2014). Not considered a concern and therefore ranked as Tier 3.
2	Grassed areas adjacent to south end of Tunnel	Within Project footprint adjacent to Tunnel entrance	Boulevard adjacent to motor vehicle lane near Tunnel entrance	Based on the literature review, lead contamination may be present along the highway corridor where traffic is forced to move more slowly ( <b>Appendix D</b> ). When vehicle accidents occur near the Tunnel entrance, vehicles slow or come to a stop. This is mainly a concern for the first 30 years of the Tunnel's operation (late 1950s to early 1990s), and the potential for contamination is moderate (Tier 2).

## 4.5 Central Delta

Much of the Highway 99 corridor is occupied by land within the ALR. A large commercial parcel situated immediately west of 64<sup>th</sup> Street and south of the Highway 99 corridor was identified in current air photos. Details of properties in this segment are summarized in **Table 5**.

**Table 5 Results – Central Delta**

Tier	Location	Proximity to Project footprint	Land Use	Comments
2	5404 64 <sup>th</sup> Street	Adjacent to ROW (within 15 m of highway)	The Corporation of Delta Engineering – Operations yard and Parks Maintenance yard	This property is listed in the B.C. Site Registry (Site ID: 3650) and a notation dated April 1996 indicates “an email discussing contaminated soil and groundwater discovered when removing underground storage tank” (Government of B.C. 2014). A notation dated 1997 listed a “meeting with Delta and Gartner Lee regarding site investigations, remedial plan and option of independent remediation” (Government of B.C. 2014). No further details are included. This area appears to have been developed as a works yard in the early 1960s, shortly after highway development. A fuelling area with above-ground storage tanks and fuel pumps near the centre of the property appears in air photos dated from the 1980s to the most recent air photos dated 2014. Prior to yard construction, the area was occupied by agricultural land and a farmstead. Based on indications of contaminated soil and groundwater on the property, and the unknown status of investigations, this property is considered Tier 2.

#### 4.6 32 Avenue to Border (South Surrey)

The segment of the corridor from 32 Avenue to the Canada-U.S. border consists primarily of residential areas and commercial complexes. Details of properties in this segment are summarized in **Table 6**.

**Table 6 Results – 32 Avenue to Canada-U.S. Border**

Tier	Location	Proximity to Project Footprint	Land Use	Comments
3	15110 – 15120 32 <sup>nd</sup> Avenue	Adjacent to ROW (within 15 m of highway)	Jiffy Lube Oil Change and car wash	This area appears to have been occupied by a vehicle maintenance and a car wash facility since the early 2000s. Due to the generally low mobility of potential contaminants expected from this operation (i.e., automotive coolants and oils) and its recent operational history, this site is considered Tier 3.
3	2950 – 3010 Croydon Drive	Adjacent to ROW (within 30 m of highway)	Residential, with storage visible	These properties appeared during field surveys to be residential, but air photos show the presence of storage and covered areas in these lots, potentially indicating repair or salvaging operations. Based on the distance of the storage on these properties from the highway corridor (> 30 m), these properties are ranked as Tier 3.

Tier	Location	Proximity to Project Footprint	Land Use	Comments
3	2678 – 2710 156 <sup>th</sup> Street, 2660 Croydon Drive	Adjacent to ROW (within 35 m of highway)	Alnor Excavating Limited	<p>This property is listed in the B.C. Site Registry (Site ID: 10473). The record status is Inactive – Remediation Complete (Government of B.C. 2014). A Certificate of Compliance was issued for numerical standards in 2010 (Government of B.C. 2014). The following activities were noted in the Site Profile completed in 2007:</p> <ul style="list-style-type: none"> <li>• Appliance, equipment or engine repair, reconditioning, cleaning, and salvage.</li> <li>• Auto, truck, bus, subway, or other vehicle repair, salvage, or wrecking.</li> </ul> <p>City directories (InfoAction 2014) listed the following activities at 2678 156 Street:</p> <ul style="list-style-type: none"> <li>• Alnor Excavating Ltd (2001)</li> <li>• Alnor/Alnot Services (1990, 1980)</li> <li>• Residential (1970)</li> <li>• Mink Ranch (1960)</li> </ul> <p>Based on the issuance of a Certificate of Compliance in 2010, this property is not of concern for the study area, and is considered Tier 3.</p>

Tier	Location	Proximity to Project Footprint	Land Use	Comments
3	2355 160 <sup>th</sup> Street	Adjacent to ROW (within 40 m of highway)	Walmart	<p>This property is listed in the B.C. Site Registry (Site ID: 9342) and was formerly addressed as 15860, 15920 and 15948 24<sup>th</sup> Avenue (Government of B.C. 2014). Suspected land use was noted in the detailed site registry report as:</p> <ul style="list-style-type: none"> <li>• Petroleum products or produced water storage in above- or underground storage tanks.</li> <li>• Road salt storage facilities.</li> </ul> <p>The record status is Active – Remediation Complete. A Certificate of Compliance was issued to Risk-Based Standards in 2006 (Government of B.C. 2014). 15860 24<sup>th</sup> Avenue was formerly occupied by greenhouses, from 1970 to about 1980, according to city directories (InfoAction 2014). In the 1980s, 15920 24<sup>th</sup> Avenue was occupied by the South Surrey Works Yard. Based on the issuance of the Certificate of Compliance, this property is not considered a concern for the study area and is ranked as Tier 3.</p>

Tier	Location	Proximity to Project Footprint	Land Use	Comments
2	Douglas (Peace Arch) Border Crossing	Within Project footprint	Peace Arch Service Yard	<p>This property is listed in the B.C. Site Registry (Site ID: 8871). The record status is listed as Active – Under Remediation. A Notice of Independent Remediation Initiation was submitted in 2003. The following note was included: “Underground storage tank removal situated at the Peace Arch Service Yard. Intent to commence independent remediation” (Government of B.C. 2014). Based on air photos dated the mid-2000s, the service area appears to have been demolished and border crossing infrastructure built in its place. This area was not assessed during the site visit due to access limitations. More information on the nature of the decommissioning of the service yard (i.e., presence and removal of additional potential tanks, historical use of the area, status of remediation noted above) is required to determine potential environmental issues. Due to the potential for additional storage of hazardous materials in the service yard, this area is considered as Tier 2.</p>



## 5.0 Discussion

This preliminary review of areas of potential environmental concern was conducted within the scope as described in **Section 3.0**. This report does not fully address current conditions or potential historical conditions; neither a full records review of historical and current information, nor detailed site visits or interviews were conducted for the assessed properties. These preliminary results represent best professional judgement of the conditions, within the limitations described below (**Section 5.2**).

### 5.1 Key Findings

No Tier 1 properties, or properties where the potential risk of contamination is high, were identified through the contaminated sites assessment. Majority of the properties within the study area were ranked as Tier 3, with no potential concerns related to site contamination.

Ten properties (listed in **Table 7**), were ranked as Tier 2 based on the moderate potential for current or historic activities at those locations to have resulted in site contamination. Further desktop review or field reconnaissance may be required to determine the nature and extent of contamination that may be present at these sites, and identify measures for appropriate handling and management of any contaminated material that may be encountered during Project construction.

Given the likelihood of localized contamination associated with the rail ties and ballast, the railway at the north end of the Tunnel is classed as Tier 2 and is included in **Table 7**; however, given its location relative to the Highway 99 corridor, this property is considered a low-risk potential concern.

### 5.2 Data Gaps and Limitations

The study was based on a windshield survey of the Highway 99 corridor and review of information available through the B.C. Contaminated Site Registry, administered by the BC Ministry of Environment. As such, the conclusions of the study are limited by information from the area searches and site detail reports obtained from the site registry.

**Table 7 Summary of Properties Ranked as Tier 2**

Location	Activity
Highway 99 - southwest of Sea Island Way on-ramp, Richmond	Historical storage
3240 No. 4 Road, Richmond	Manufacturing operations
4651 & 4671 Vanguard Road, Richmond	Various industrial uses, including powder coating
Grassed areas adjacent to south end of Tunnel, Delta	Vehicle traffic, leaded fuel exhaust
Steveston Highway and Highway 99 overpass, Richmond	Transportation infrastructure
Highway 99, south of Rice Mill Road (no civic address), Richmond	Highway storage, substation
Railway at north end of George Massey Tunnel (no civic address), Richmond	Railway
Grassed areas adjacent to north end of Tunnel, Richmond	Vehicle traffic, leaded fuel exhaust
5404 64 <sup>th</sup> Street, Delta	Works yard
Douglas (Peace Arch) Border Crossing, Surrey	Former Peace Arch service yard

## 6.0 Closure

This technical data report was prepared and reviewed by the undersigned.

Report prepared by:  
**Hemmera Envirochem Inc.**

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604.669.0424 (194)  
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Report reviewed by:  
**Hemmera Envirochem Inc.**

**ORIGINAL SIGNED  
AND STAMPED**

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Practice Leader, Investigations and Remediation  
604.669.0424 (433)  
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*This document represents an electronic version of the original hard copy document, sealed, signed and dated by Chuck Jochems, P.Eng. and retained on file. The content of the electronically transmitted document can be confirmed by referring to the original hard copy and file. This document is provided in electronic format for convenience only. Hemmera Envirochem Inc. shall not be liable in any way for errors or omissions in any electronic version of its report document.*

## **7.0 Statement of Limitations**

This report has been prepared for the sole benefit of the B.C. Ministry of Transportation and Infrastructure to describe existing conditions with respect to contaminated sites within a specific study area. This report is based on field and desktop studies, and the data presented herein represent contaminated sites conditions at the time field observations and desktop studies were undertaken.

## 8.0 References

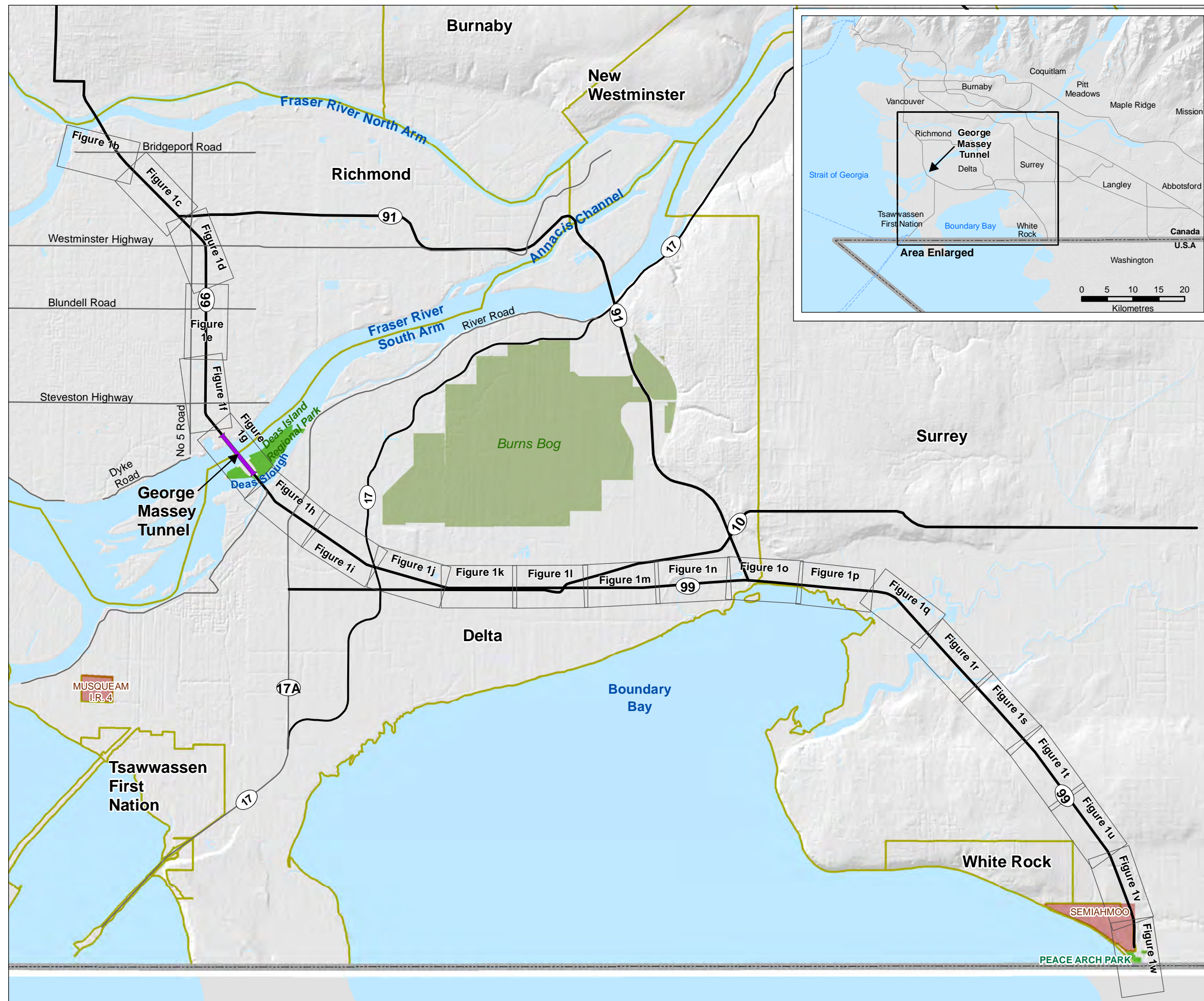
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- InfoAction. 2014. Vancouver Public Library - City Directories. Available at <http://www.vpl.ca/infoaction/index.html>. Accessed January 2014.

## **APPENDIX A**

**Figures 1a – 1w**



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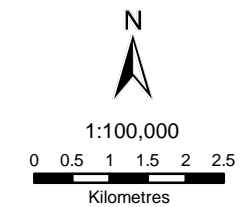


**Legend**

- George Massey Tunnel
- First Nation Reserve
- Municipal Boundaries
- Burns Bog Ecological Conservancy Area
- Parks and Protected Lands
- Waterbody
- Canada - U.S. Border
- Highway
- Arterial/Collector Road

**SOURCES**

Parks and Protected Lands, First Nations Reserves from GeoBC, United States basemap data courtesy of USGS. Burns Bog courtesy of The Corporation of Delta and based on the Metro Vancouver Burns Bog Ecological Conservancy Area Management Plan - May 2007, all other data courtesy of Canvec - GeoGratis.



**GEORGE MASSEY TUNNEL  
REPLACEMENT PROJECT**

**CONTAMINATED SITES  
STUDY AREA OVERVIEW**

Figure 1a

10/04/2015





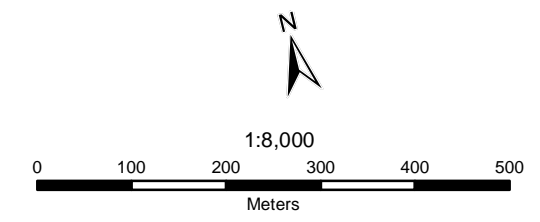
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- Legend**
- \* Site Registry ID *Site ID Listed on BC Site Registry*
  - Red outline: Tier 1 High Risk of Potential Contamination
  - Yellow outline: Tier 2 Moderate Risk of Potential Contamination
  - Green outline: Tier 3 Low Risk of Potential Contamination
  - White outline: Parcels
  - Yellow line: Municipal Boundaries
  - Grey line: Canada - U.S. Border

**SOURCES**

Parks and Protected Lands, First Nations Reserves from GeoBC, United States basemap data courtesy of USGS. Burns Bog courtesy of The Corporation of Delta and based on the Metro Vancouver Burns Bog Ecological Conservancy Area Management Plan - May 2007. 2014 Ortho imagery from Binnie. All other data courtesy of Canvec - GeoGratis.



**GEORGE MASSEY TUNNEL  
REPLACEMENT PROJECT**

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**CONTAMINATED SITES STUDY AREA**

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Figure 1b	10/04/2015
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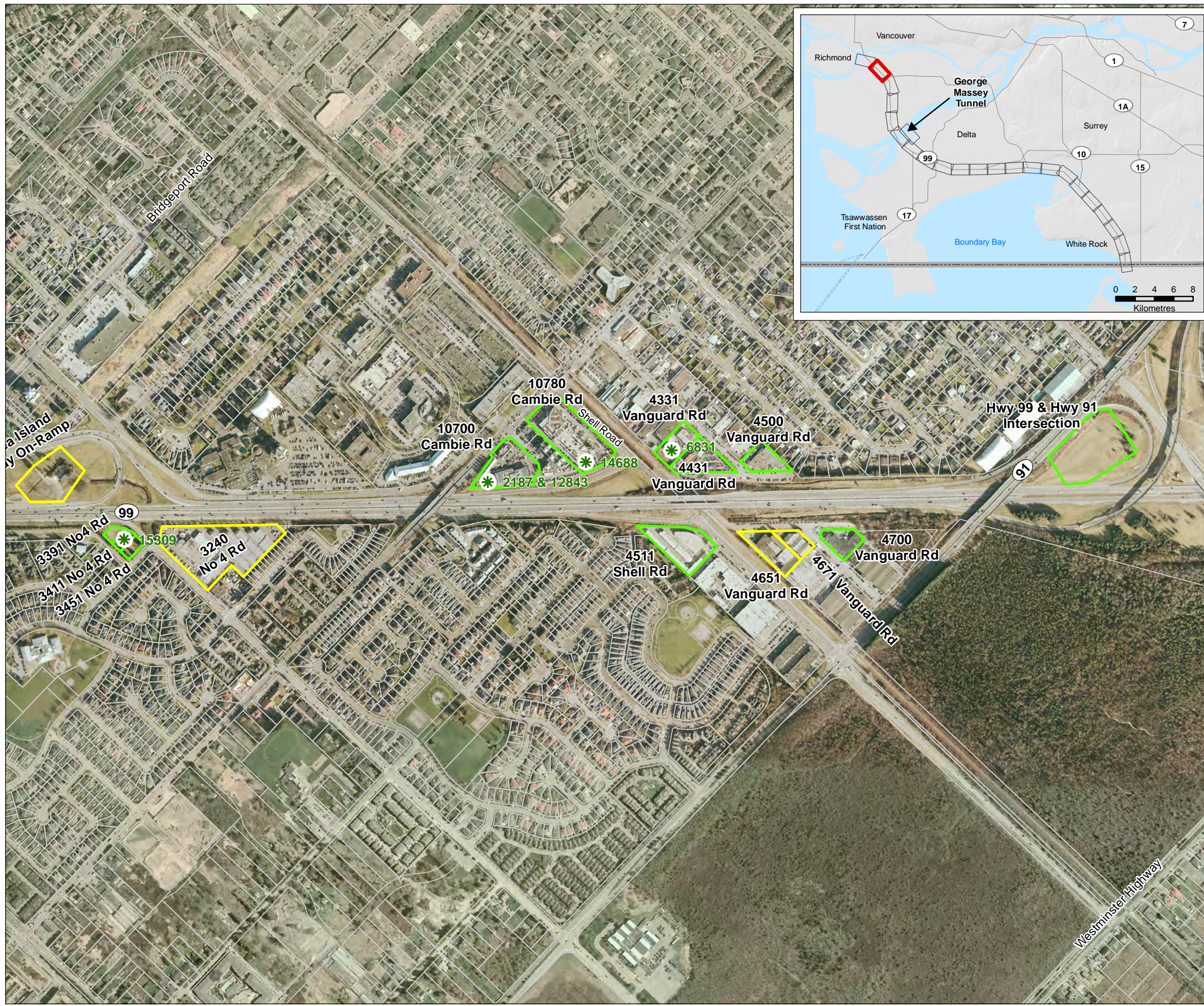
George Massey Tunnel  
Replacement Project

BC JOBS  
PLAN

Ministry of  
Transportation  
and Infrastructure



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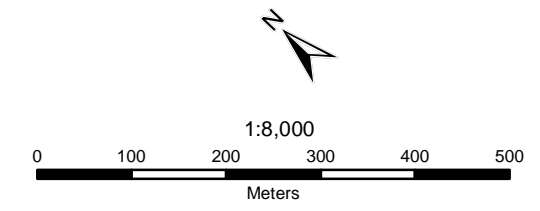


**Legend**

- \* Site Registry ID *Site ID Listed on BC Site Registry*
- Red outline: Tier 1 High Risk of Potential Contamination
- Yellow outline: Tier 2 Moderate Risk of Potential Contamination
- Green outline: Tier 3 Low Risk of Potential Contamination
- White outline: Parcels
- Yellow outline: Municipal Boundaries
- Grey line: Canada - U.S. Border

**SOURCES**

Parks and Protected Lands, First Nations Reserves from GeoBC, United States basemap data courtesy of USGS. Burns Bog courtesy of The Corporation of Delta and based on the Metro Vancouver Burns Bog Ecological Conservancy Area Management Plan - May 2007. 2014 Ortho imagery from Binnie. All other data courtesy of Canvec - GeoGratis.



**GEORGE MASSEY TUNNEL  
REPLACEMENT PROJECT**

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**CONTAMINATED SITES STUDY AREA**

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Figure 1c	10/04/2015
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George Massey Tunnel Replacement Project

BC JOBS PLAN

Ministry of Transportation and Infrastructure



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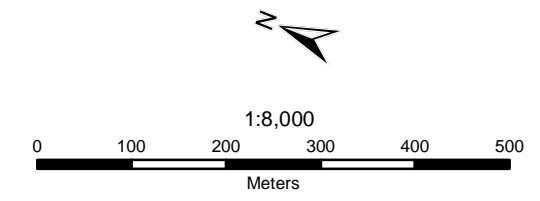


**Legend**

- \* Site Registry ID *Site ID Listed on BC Site Registry*
- Tier 1 High Risk of Potential Contamination
- Tier 2 Moderate Risk of Potential Contamination
- Tier 3 Low Risk of Potential Contamination
- Parcels
- ▭ Municipal Boundaries
- Canada - U.S. Border

**SOURCES**

Parks and Protected Lands, First Nations Reserves from GeoBC, United States basemap data courtesy of USGS, Burns Bog courtesy of The Corporation of Delta and based on the Metro Vancouver Burns Bog Ecological Conservancy Area Management Plan - May 2007, 2014 Ortho imagery from Binnie. All other data courtesy of Canvec - GeoGratis.



**GEORGE MASSEY TUNNEL  
REPLACEMENT PROJECT**

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**CONTAMINATED SITES STUDY AREA**

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Figure 1d	10/04/2015
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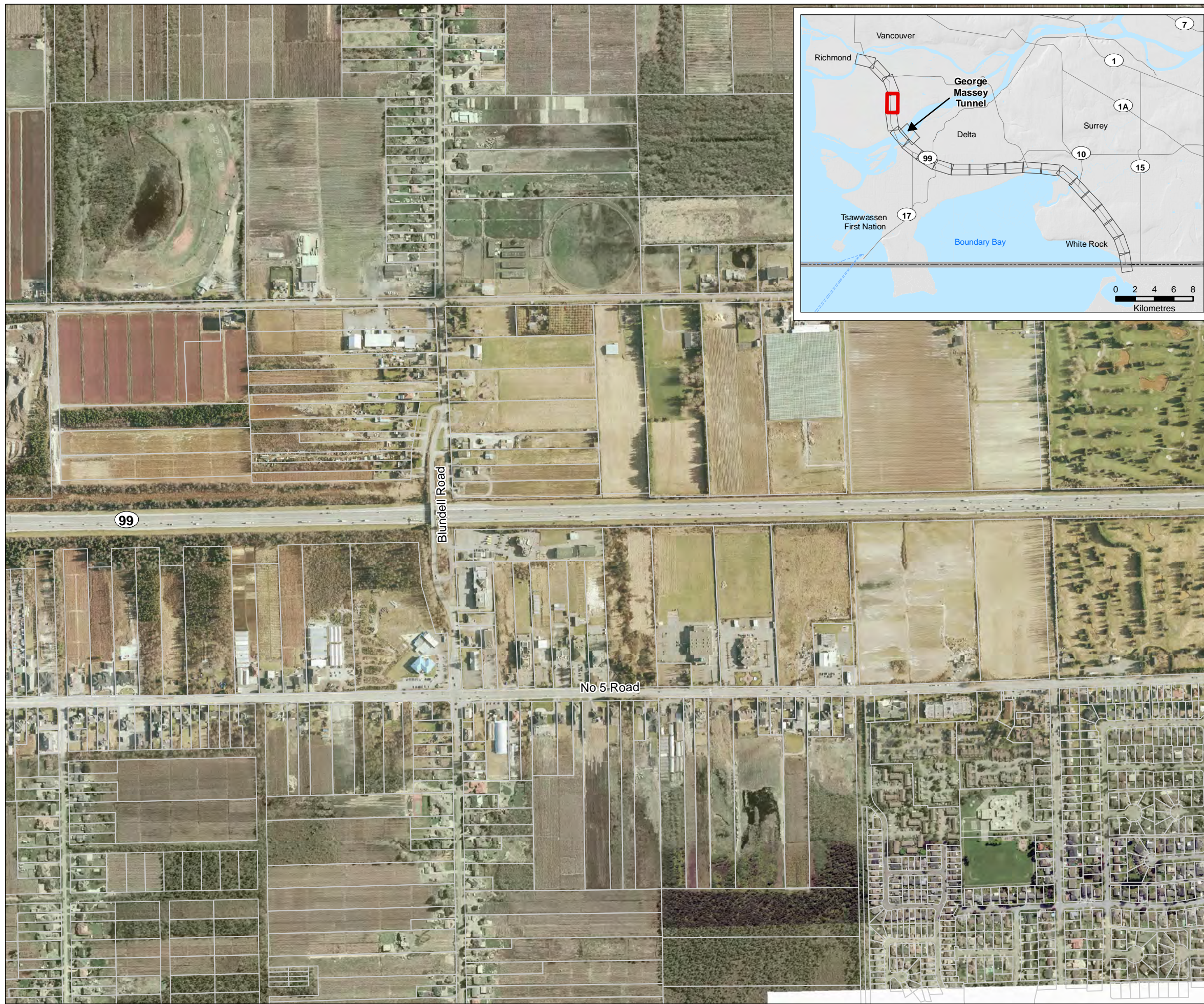
George Massey Tunnel Replacement Project

BC JOBS PLAN

Ministry of Transportation and Infrastructure



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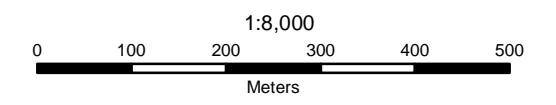


### Legend

- \* Site Registry ID *Site ID Listed on BC Site Registry*
- Tier 1 High Risk of Potential Contamination
- Tier 2 Moderate Risk of Potential Contamination
- Tier 3 Low Risk of Potential Contamination
- Parcels
- ▭ Municipal Boundaries
- Canada - U.S. Border

### SOURCES

Parks and Protected Lands, First Nations Reserves from GeoBC, United States basemap data courtesy of USGS. Burns Bog courtesy of The Corporation of Delta and based on the Metro Vancouver Burns Bog Ecological Conservancy Area Management Plan - May 2007. 2014 Ortho imagery from Binnie. All other data courtesy of Canvec - GeoGratis.



<b>GEORGE MASSEY TUNNEL REPLACEMENT PROJECT</b>	
<b>CONTAMINATED SITES STUDY AREA</b>	
Figure 1e	10/04/2015



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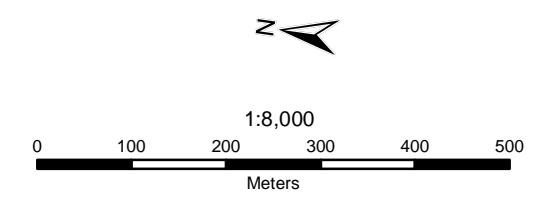


**Legend**

- \* Site Registry ID *Site ID Listed on BC Site Registry*
- Red box: Tier 1 High Risk of Potential Contamination
- Yellow box: Tier 2 Moderate Risk of Potential Contamination
- Green box: Tier 3 Low Risk of Potential Contamination
- White outline: Parcels
- Yellow outline: Municipal Boundaries
- Grey dashed line: Canada - U.S. Border

**SOURCES**

Parks and Protected Lands, First Nations Reserves from GeoBC, United States basemap data courtesy of USGS. Burns Bog courtesy of The Corporation of Delta and based on the Metro Vancouver Burns Bog Ecological Conservancy Area Management Plan - May 2007. 2014 Ortho imagery from Binnie. All other data courtesy of Canvec - GeoGratis.



**GEORGE MASSEY TUNNEL  
REPLACEMENT PROJECT**

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**CONTAMINATED SITES STUDY AREA**

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Figure 1f	10/04/2015
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George Massey Tunnel  
Replacement Project

CANADA  
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BC JOBS  
PLAN

2011-2014  
COLUMBIA

Ministry of  
Transportation  
and Infrastructure



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**Legend**

- \* Site Registry ID *Site ID Listed on BC Site Registry*
- Red outline: Tier 1 High Risk of Potential Contamination
- Yellow outline: Tier 2 Moderate Risk of Potential Contamination
- Green outline: Tier 3 Low Risk of Potential Contamination
- White outline: Parcels
- Yellow line: Municipal Boundaries
- Grey line: Canada - U.S. Border

**SOURCES**

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**GEORGE MASSEY TUNNEL  
REPLACEMENT PROJECT**

**CONTAMINATED SITES STUDY AREA**

Figure 1g | 10/04/2015

George Massey Tunnel Replacement Project | CANADA STARTS HERE | BC JOBS PLAN | BURN BOG ECOSYSTEM RESTORATION | Ministry of Transportation and Infrastructure



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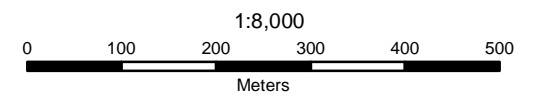


**Legend**

- \* Site Registry ID *Site ID Listed on BC Site Registry*
- Tier 1 High Risk of Potential Contamination
- Tier 2 Moderate Risk of Potential Contamination
- Tier 3 Low Risk of Potential Contamination
- Parcels
- Municipal Boundaries
- Canada - U.S. Border

**SOURCES**

Parks and Protected Lands, First Nations Reserves from GeoBC, United States basemap data courtesy of USGS. Burns Bog courtesy of The Corporation of Delta and based on the Metro Vancouver Burns Bog Ecological Conservancy Area Management Plan - May 2007. 2014 Ortho imagery from Binnie. All other data courtesy of Canvec - GeoGratis.



**GEORGE MASSEY TUNNEL  
REPLACEMENT PROJECT**

**CONTAMINATED SITES STUDY AREA**

Figure 1h

10/04/2015





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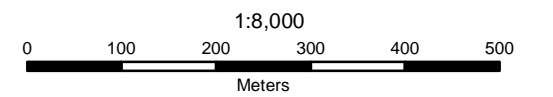


### Legend

- \* Site Registry ID *Site ID Listed on BC Site Registry*
- Tier 1 High Risk of Potential Contamination
- Tier 2 Moderate Risk of Potential Contamination
- Tier 3 Low Risk of Potential Contamination
- Parcels
- Municipal Boundaries
- Canada - U.S. Border

### SOURCES

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## GEORGE MASSEY TUNNEL REPLACEMENT PROJECT

### CONTAMINATED SITES STUDY AREA

Figure 1i

10/04/2015





Path: O:\1217-299\285\077\03\mxd\Contaminated\_Sites\TDR\Fig1j-b-w\_285\_077\_03\_TDR\_CS-Sheets\_150326.mxd

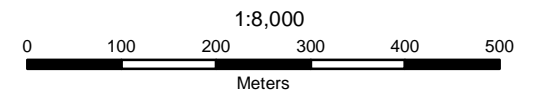


### Legend

- \* Site Registry ID *Site ID Listed on BC Site Registry*
- Tier 1 High Risk of Potential Contamination
- Tier 2 Moderate Risk of Potential Contamination
- Tier 3 Low Risk of Potential Contamination
- Parcels
- Municipal Boundaries
- Canada - U.S. Border

### SOURCES

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## GEORGE MASSEY TUNNEL REPLACEMENT PROJECT

### CONTAMINATED SITES STUDY AREA

Figure 1j

10/04/2015

George Massey Tunnel  
Replacement Project

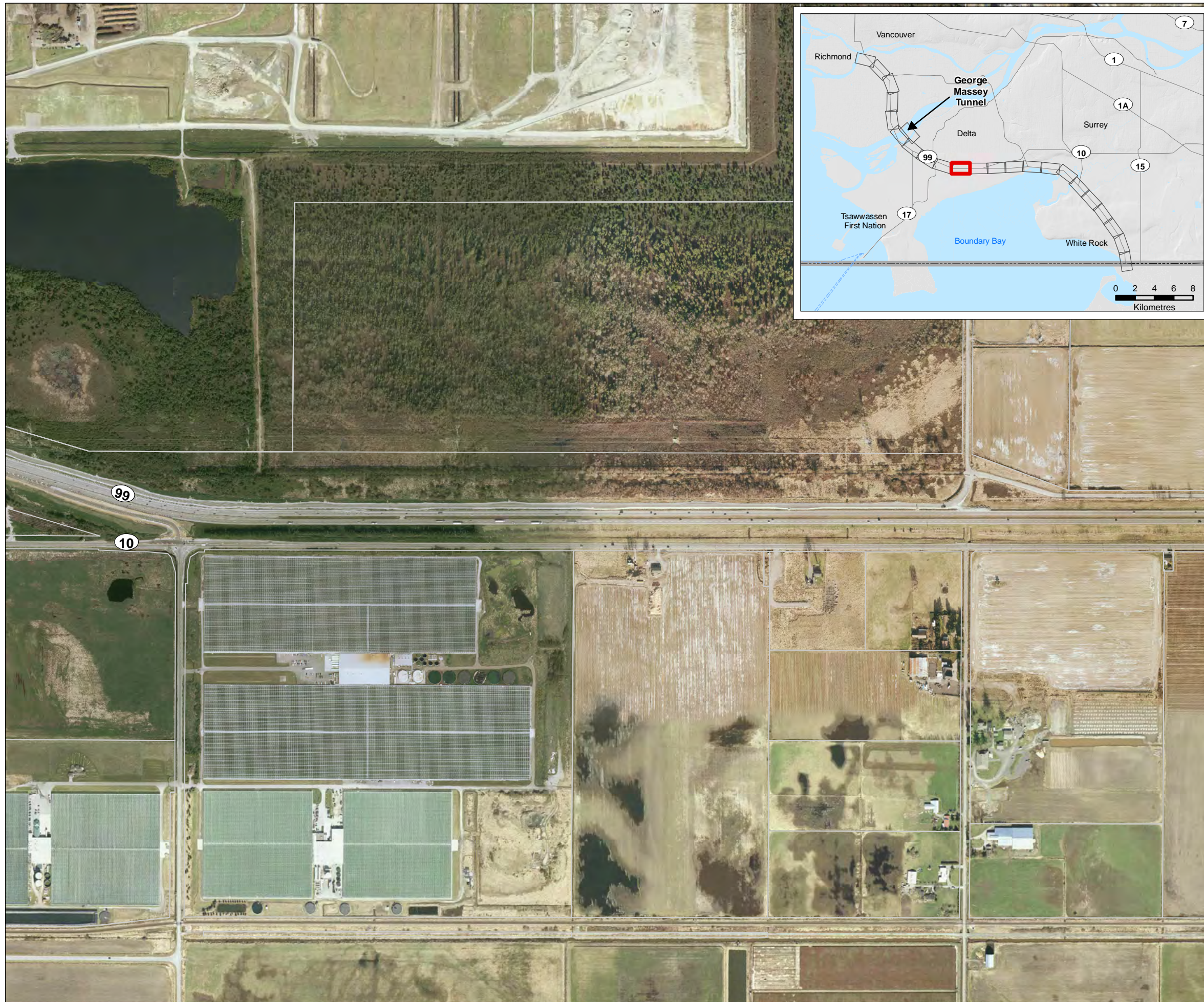


BC JOBS  
PLAN



Ministry of  
Transportation  
and Infrastructure



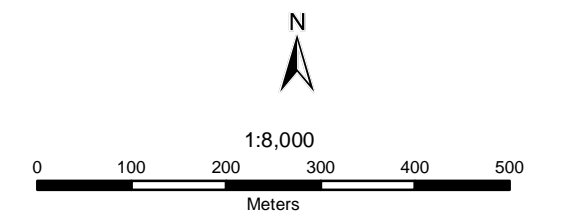


**Legend**

- \* Site Registry ID *Site ID Listed on BC Site Registry*
- Tier 1 High Risk of Potential Contamination
- Tier 2 Moderate Risk of Potential Contamination
- Tier 3 Low Risk of Potential Contamination
- Parcels
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- Canada - U.S. Border

**SOURCES**

Parks and Protected Lands, First Nations Reserves from GeoBC, United States basemap data courtesy of USGS. Burns Bog courtesy of The Corporation of Delta and based on the Metro Vancouver Burns Bog Ecological Conservancy Area Management Plan - May 2007. 2014 Ortho imagery from Binnie. All other data courtesy of Canvec - GeoGratis.



**GEORGE MASSEY TUNNEL  
REPLACEMENT PROJECT**

**CONTAMINATED SITES STUDY AREA**

Figure 1k

10/04/2015





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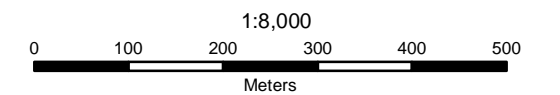


### Legend

- \* Site Registry ID *Site ID Listed on BC Site Registry*
- Tier 1 High Risk of Potential Contamination
- Tier 2 Moderate Risk of Potential Contamination
- Tier 3 Low Risk of Potential Contamination
- Parcels
- Municipal Boundaries
- Canada - U.S. Border

### SOURCES

Parks and Protected Lands, First Nations Reserves from GeoBC, United States basemap data courtesy of USGS. Burns Bog courtesy of The Corporation of Delta and based on the Metro Vancouver Burns Bog Ecological Conservancy Area Management Plan - May 2007. 2014 Ortho imagery from Binnie. All other data courtesy of Canvec - GeoGratis.



## GEORGE MASSEY TUNNEL REPLACEMENT PROJECT

### CONTAMINATED SITES STUDY AREA

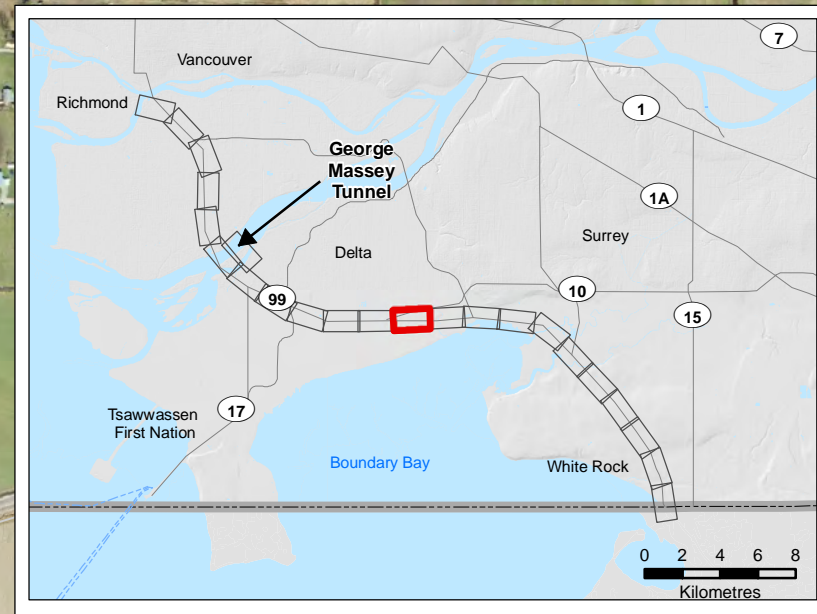
Figure 11

10/04/2015





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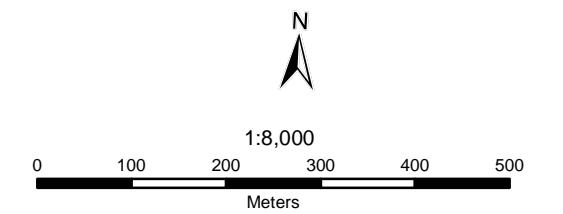


**Legend**

- \* Site Registry ID *Site ID Listed on BC Site Registry*
- Tier 1 High Risk of Potential Contamination
- Tier 2 Moderate Risk of Potential Contamination
- Tier 3 Low Risk of Potential Contamination
- Parcels
- ▭ Municipal Boundaries
- Canada - U.S. Border

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**GEORGE MASSEY TUNNEL  
REPLACEMENT PROJECT**

**CONTAMINATED SITES STUDY AREA**

Figure 1m

10/04/2015





Path: O:\1217-299\265\077\03\mxd\Contaminated\_Sites\TDR\Fig1-b-w\_265\_077\_03\_TDR\_CS-Sheets\_150326.mxd

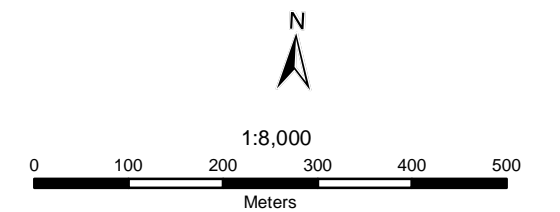


### Legend

- \* Site Registry ID *Site ID Listed on BC Site Registry*
- Tier 1 High Risk of Potential Contamination
- Tier 2 Moderate Risk of Potential Contamination
- Tier 3 Low Risk of Potential Contamination
- Parcels
- Municipal Boundaries
- Canada - U.S. Border

### SOURCES

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## GEORGE MASSEY TUNNEL REPLACEMENT PROJECT

### CONTAMINATED SITES STUDY AREA

Figure 1n

10/04/2015





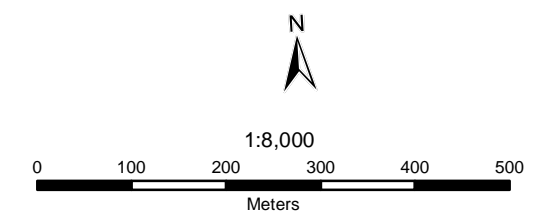
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- Legend**
- \* Site Registry ID *Site ID Listed on BC Site Registry*
  - Tier 1 High Risk of Potential Contamination
  - Tier 2 Moderate Risk of Potential Contamination
  - Tier 3 Low Risk of Potential Contamination
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  - Canada - U.S. Border

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<b>GEORGE MASSEY TUNNEL REPLACEMENT PROJECT</b>	
<b>CONTAMINATED SITES STUDY AREA</b>	
Figure 10	10/04/2015



Path: O:\1217-299\285\077\03\mxd\Contaminated\_Sites\TDR\Fig1b-w\_285\_077\_03\_TDR\_CS-Sheets\_150326.mxd

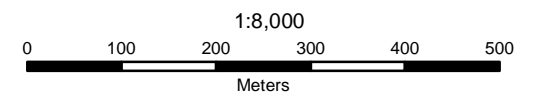


### Legend

- \* Site Registry ID *Site ID Listed on BC Site Registry*
- Tier 1 High Risk of Potential Contamination
- Tier 2 Moderate Risk of Potential Contamination
- Tier 3 Low Risk of Potential Contamination
- Parcels
- Municipal Boundaries
- Canada - U.S. Border

### SOURCES

Parks and Protected Lands, First Nations Reserves from GeoBC, United States basemap data courtesy of USGS. Burns Bog courtesy of The Corporation of Delta and based on the Metro Vancouver Burns Bog Ecological Conservancy Area Management Plan - May 2007. 2014 Ortho imagery from Binnie. All other data courtesy of Canvec - GeoGratis.



### GEORGE MASSEY TUNNEL REPLACEMENT PROJECT

### CONTAMINATED SITES STUDY AREA

Figure 1p

10/04/2015





Path: O:\1217-299\285\077\03\mxd\Contaminated\_Sites\TDR\Fig1b-w\_285\_077\_03\_TDR\_CS-Sheets\_150326.mxd

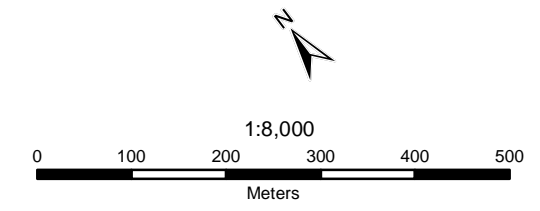


**Legend**

- \* Site Registry ID *Site ID Listed on BC Site Registry*
- Tier 1 High Risk of Potential Contamination
- Tier 2 Moderate Risk of Potential Contamination
- Tier 3 Low Risk of Potential Contamination
- Parcels
- Municipal Boundaries
- Canada - U.S. Border

**SOURCES**

Parks and Protected Lands, First Nations Reserves from GeoBC, United States basemap data courtesy of USGS. Burns Bog courtesy of The Corporation of Delta and based on the Metro Vancouver Burns Bog Ecological Conservancy Area Management Plan - May 2007. 2014 Ortho imagery from Binnie. All other data courtesy of Canvec - GeoGratis.



**GEORGE MASSEY TUNNEL  
REPLACEMENT PROJECT**

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**CONTAMINATED SITES STUDY AREA**

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Figure 1q	10/04/2015
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Path: O:\1217-299\285\077\03\mxd\Contaminated\_Sites\TDR\Fig1r-b-w\_285\_077\_03\_TDR\_CS-Sheets\_150326.mxd

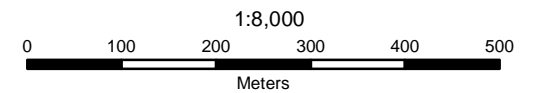


### Legend

- \* Site Registry ID *Site ID Listed on BC Site Registry*
- Tier 1 High Risk of Potential Contamination
- Tier 2 Moderate Risk of Potential Contamination
- Tier 3 Low Risk of Potential Contamination
- Parcels
- Municipal Boundaries
- Canada - U.S. Border

### SOURCES

Parks and Protected Lands, First Nations Reserves from GeoBC, United States basemap data courtesy of USGS. Burns Bog courtesy of The Corporation of Delta and based on the Metro Vancouver Burns Bog Ecological Conservancy Area Management Plan - May 2007. 2014 Ortho imagery from Binnie. All other data courtesy of Canvec - GeoGratis.



## GEORGE MASSEY TUNNEL REPLACEMENT PROJECT

### CONTAMINATED SITES STUDY AREA

Figure 1r

10/04/2015

George Massey Tunnel  
Replacement Project



BC JOBS  
PLAN



Ministry of  
Transportation  
and Infrastructure



Path: O:\1217-299\285\077\03\mxd\Contaminated\_Sites\TDR\Fig1s-b-w\_285\_077\_03\_TDR\_CS-Sheets\_150326.mxd

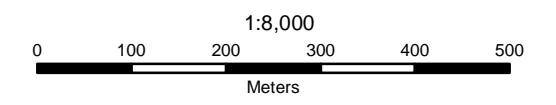


**Legend**

- \* Site Registry ID *Site ID Listed on BC Site Registry*
- Tier 1 High Risk of Potential Contamination
- Tier 2 Moderate Risk of Potential Contamination
- Tier 3 Low Risk of Potential Contamination
- Parcels
- Municipal Boundaries
- Canada - U.S. Border

**SOURCES**

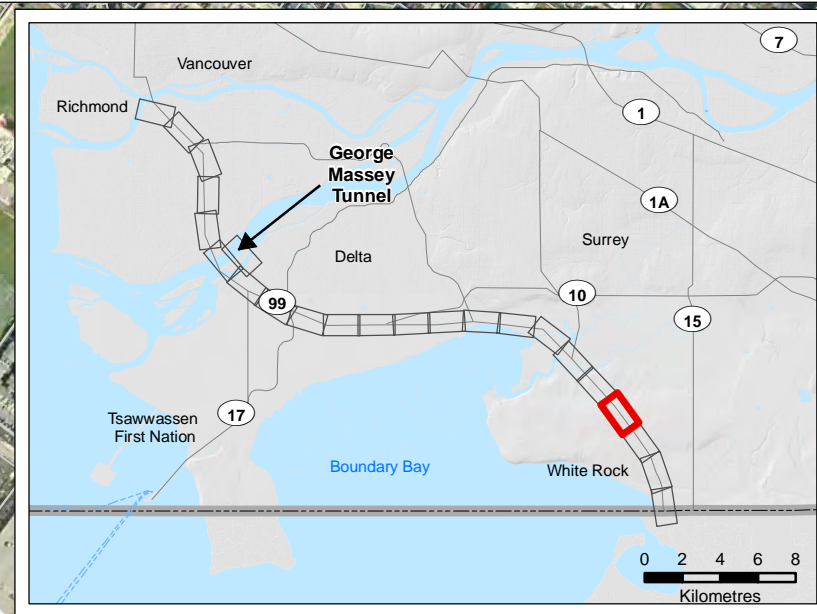
Parks and Protected Lands, First Nations Reserves from GeoBC, United States basemap data courtesy of USGS. Burns Bog courtesy of The Corporation of Delta and based on the Metro Vancouver Burns Bog Ecological Conservancy Area Management Plan - May 2007. 2014 Ortho imagery from Binnie. All other data courtesy of Canvec - GeoGratis.



<b>GEORGE MASSEY TUNNEL REPLACEMENT PROJECT</b>	
<b>CONTAMINATED SITES STUDY AREA</b>	
Figure 1s	10/04/2015



Path: O:\1217-299\285\077\03\mxd\Contaminated\_Sites\TDR\Fig01-b-w\_285\_077\_03\_TDR\_CS-Sheets\_150326.mxd

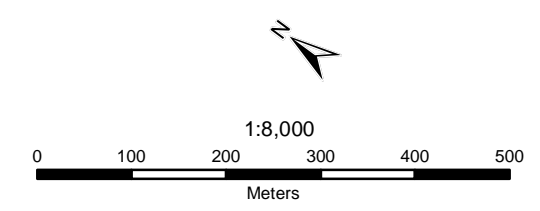


### Legend

- \* Site Registry ID *Site ID Listed on BC Site Registry*
- Tier 1 High Risk of Potential Contamination
- Tier 2 Moderate Risk of Potential Contamination
- Tier 3 Low Risk of Potential Contamination
- Parcels
- Municipal Boundaries
- Canada - U.S. Border

### SOURCES

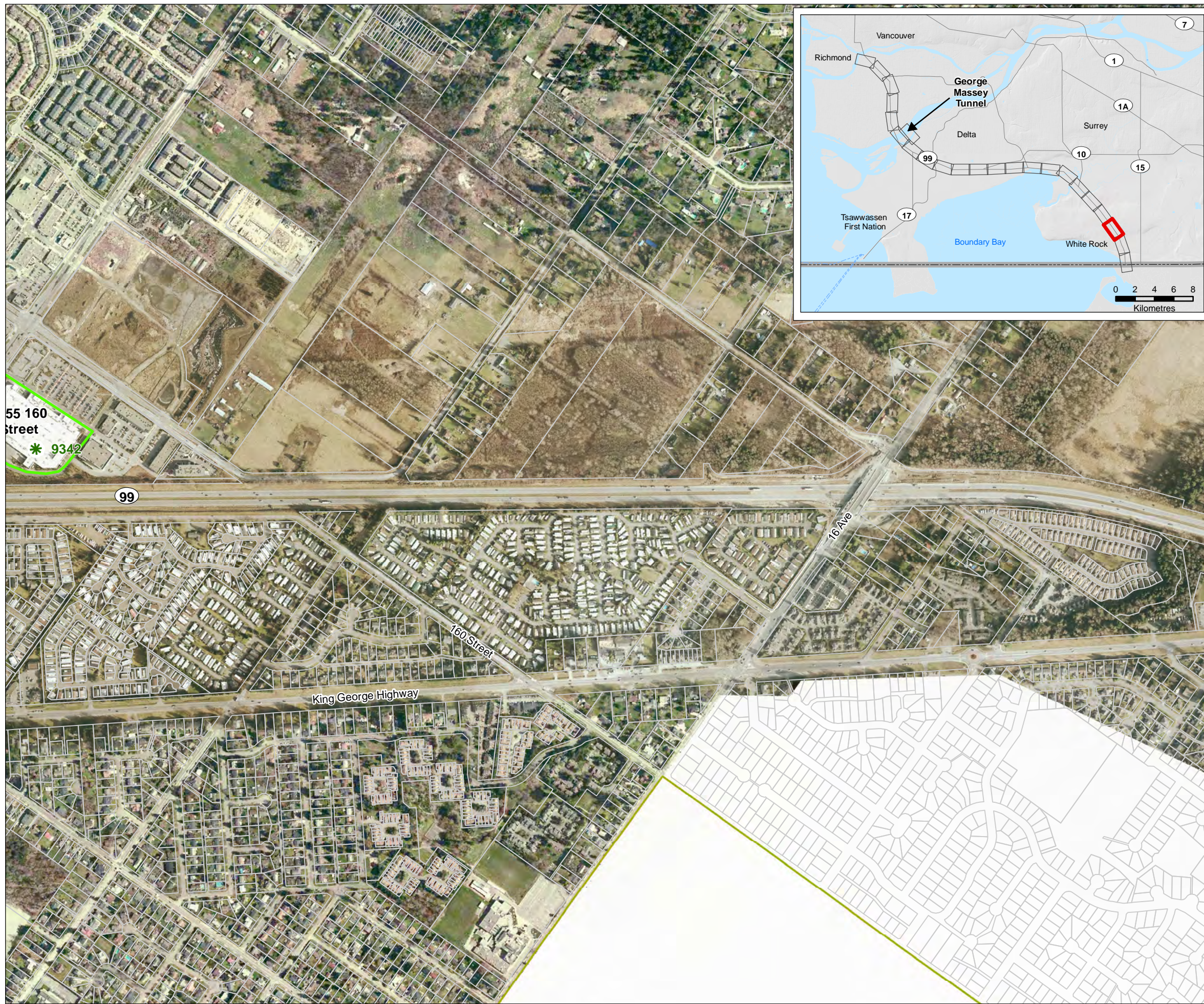
Parks and Protected Lands, First Nations Reserves from GeoBC, United States basemap data courtesy of USGS. Burns Bog courtesy of The Corporation of Delta and based on the Metro Vancouver Burns Bog Ecological Conservancy Area Management Plan - May 2007. 2014 Ortho imagery from Binnie. All other data courtesy of Canvec - GeoGratis.



<b>GEORGE MASSEY TUNNEL REPLACEMENT PROJECT</b>	
<b>CONTAMINATED SITES STUDY AREA</b>	
Figure 1t	10/04/2015



Path: O:\1217-299\285\077\03\mxd\Contaminated\_Sites\TDR\Fig1b-w\_285\_077\_03\_TDR\_CS-Sheets\_150326.mxd

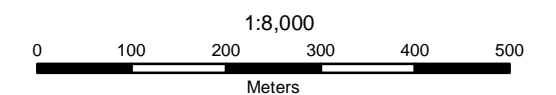


### Legend

- \* Site Registry ID *Site ID Listed on BC Site Registry*
- Tier 1 High Risk of Potential Contamination
- Tier 2 Moderate Risk of Potential Contamination
- Tier 3 Low Risk of Potential Contamination
- Parcels
- Municipal Boundaries
- Canada - U.S. Border

### SOURCES

Parks and Protected Lands, First Nations Reserves from GeoBC, United States basemap data courtesy of USGS. Burns Bog courtesy of The Corporation of Delta and based on the Metro Vancouver Burns Bog Ecological Conservancy Area Management Plan - May 2007. 2014 Ortho imagery from Binnie. All other data courtesy of Canvec - GeoGratis.



## GEORGE MASSEY TUNNEL REPLACEMENT PROJECT

### CONTAMINATED SITES STUDY AREA

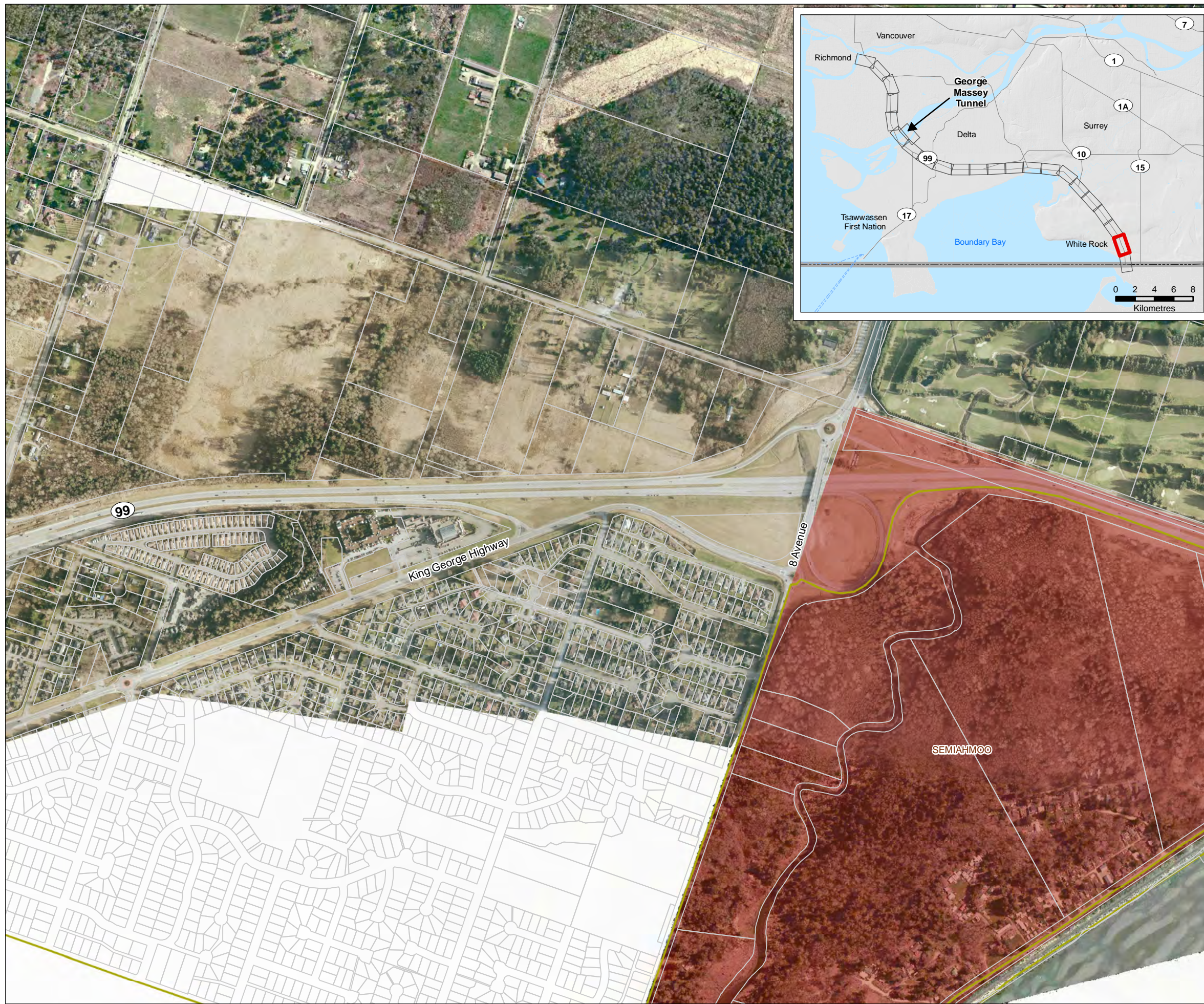
Figure 1u

10/04/2015





Path: O:\1217-299\285\077\03\mxd\Contaminated\_Sites\TDR\Fig1\w\_285\_077\_03\_TDR\_CS-Sheets\_150326.mxd

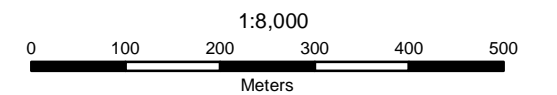


**Legend**

- \* Site Registry ID *Site ID Listed on BC Site Registry*
- Tier 1 High Risk of Potential Contamination
- Tier 2 Moderate Risk of Potential Contamination
- Tier 3 Low Risk of Potential Contamination
- Parcels
- ▭ Municipal Boundaries
- Canada - U.S. Border

**SOURCES**

Parks and Protected Lands, First Nations Reserves from GeoBC, United States basemap data courtesy of USGS. Burns Bog courtesy of The Corporation of Delta and based on the Metro Vancouver Burns Bog Ecological Conservancy Area Management Plan - May 2007. 2014 Ortho imagery from Binnie. All other data courtesy of Canvec - GeoGratis.



**GEORGE MASSEY TUNNEL  
REPLACEMENT PROJECT**

**CONTAMINATED SITES STUDY AREA**

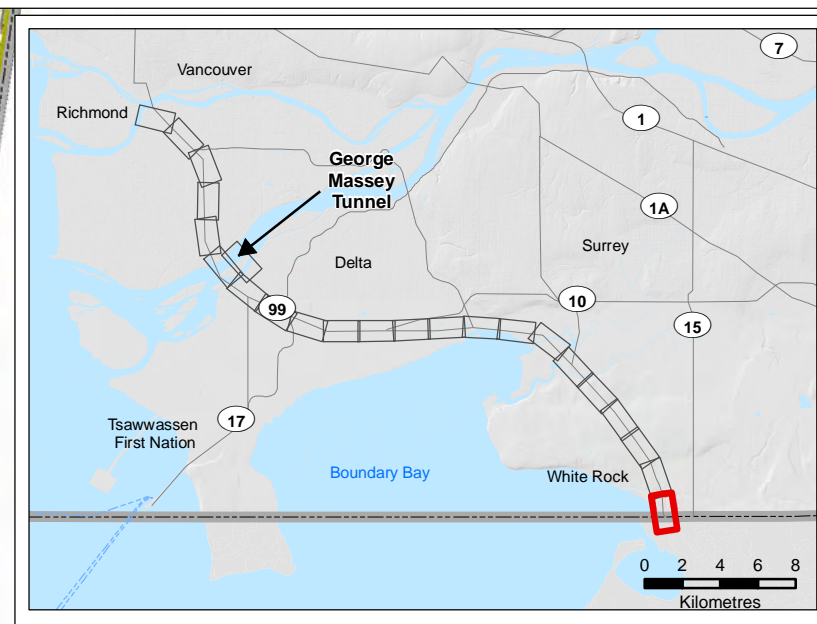
Figure 1v

10/04/2015





Path: O:\1217-299\285\077\03\mxd\Contaminated\_Sites\TDR\Fig1w-w\_285\_077\_03\_TDR\_CS-Sheets\_150326.mxd

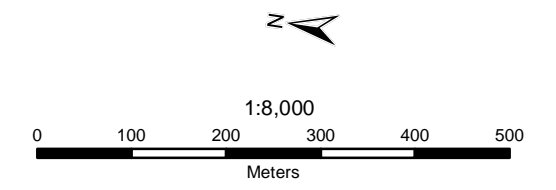


### Legend

- \* Site Registry ID *Site ID Listed on BC Site Registry*
- Red box: Tier 1 High Risk of Potential Contamination
- Yellow box: Tier 2 Moderate Risk of Potential Contamination
- Green box: Tier 3 Low Risk of Potential Contamination
- White outline: Parcels
- Yellow outline: Municipal Boundaries
- Dashed line: Canada - U.S. Border

### SOURCES

Parks and Protected Lands, First Nations Reserves from GeoBC, United States basemap data courtesy of USGS. Burns Bog courtesy of The Corporation of Delta and based on the Metro Vancouver Burns Bog Ecological Conservancy Area Management Plan - May 2007. 2014 Ortho imagery from Binnie. All other data courtesy of Canvec - GeoGratis.



<b>GEORGE MASSEY TUNNEL REPLACEMENT PROJECT</b>	
<b>CONTAMINATED SITES STUDY AREA</b>	
Figure 1w	10/04/2015



## **APPENDIX B**

### **B.C. Site Registry Information**

## **Area Searches**

As Of: JAN 26, 2014

BC Online: Site Registry

14/01/28

For: PK66793 HEMMERA ENVIROCHEM INC.

12:11:48

Folio: 285-077.04

Page 1

21 records selected for 0.5 km from latitude 49 deg, 11 min, 30 sec  
and Longitude 123 deg, 07 min, 55 sec

Site Id	Lastupd	Address / City
0001316	12APR04	3231 NO. 3 ROAD RICHMOND
0001416	05JUN20	8200 CAPSTAN WAY RICHMOND
0005716	12NOV26	8351 RIVER ROAD, RICHMOND (NORTH FOOT OF NO. 3 RD) RICHMOND
0006692	11DEC14	2411 NO. 3 ROAD AND 8331/8351 RIVER ROAD RICHMOND
0007201	01MAY23	3511 NORTHGATE WAY RICHMOND
0008879	04DEC07	8700, 8800 BRIDGEPORT ROAD & 3060 NO. 3 ROAD RICHMOND
0009838	09FEB05	8511, 8531, 8551 CAPSTAN WAY RICHMOND
0009936	08SEP05	3013 NUMBER 3 ROAD / 3099, 8200 CORVETTE WAT RICHMOND
0010169	07FEB02	8540 RIVER ROAD RICHMOND
0010176	13DEC12	2500 NO. 3 ROAD RICHMOND
0010177		2651 NO 3 ROAD RICHMOND
0010178	12DEC03	2971 NO 3 ROAD RICHMOND
0010179	12DEC03	2991 NO 3 ROAD RICHMOND
0010180	11JUN17	8620 RIVER ROAD RICHMOND
0010181	11JUN17	8700 CHARLES STREET RICHMOND
0010182	11JUN17	8660 CHARLES STREET RICHMOND
0010207		2431 NO. 3 ROAD RICHMOND
0010823	10FEB11	8100 RIVER ROAD RICHMOND
0011266		8991 CHARLES STREET RICHMOND
0011784	09DEC31	2671, 2711, 2811, 2831, 2851 AND 2911 NO. 3 ROAD RICHMOND
0015702	13OCT29	8231 CAMBIE ROAD RICHMOND



As Of: JAN 26, 2014

BC Online: Site Registry

14/01/28

For: PK66793 HEMMERA ENVIROCHEM INC.

12:19:31

Folio: 285-077.04

Page 1

8 records selected for 0.5 km from latitude 49 deg, 10 min, 49 sec  
and Longitude 123 deg, 06 min, 12 sec

Site Id	Lastupd	Address / City
0000246		10500 ODLIN ROAD RICHMOND
0000255	02DEC10	4260 VANGUARD ROAD RICHMOND
0002187	13JAN17	10700 CAMBIE ROAD RICHMOND
0003640	00OCT20	4440 VANGUARD ROAD RICHMOND
0006831	01JUL27	4251 & 4311 VANGUARD ROAD RICHMOND
0010599		11040, 11100, 11120 CAMBIE AND 4091 VANGUARD ROAD VANCOUVER
0012843	13JAN17	10700 CAMBIE ROAD RICHMOND
0014688	13JAN17	10780 CAMBIE ROAD

As Of: JAN 26, 2014

BC Online: Site Registry

14/01/28

For: PK66793 HEMMERA ENVIROCHEM INC.

15:14:54

Folio: 285-077.04

Page 1

4 records selected for 0.5 km from latitude 49 deg, 11 min, 28 sec  
and Longitude 123 deg, 07 min, 01 sec

Site Id	Lastupd	Address / City
0001278	03OCT07	9700 BRIDGEPORT ROAD RICHMOND
0007928	10DEC23	9060 BRIDGEPORT ROAD RICHMOND
0012946		9300 VAN HORNE WAY RICHMOND
0015309	13SEP17	3391,3411,3451 AND LOT B NO 4 ROAD

As Of: JAN 26, 2014

BC Online: Site Registry

14/01/28

For: PK66793 HEMMERA ENVIROCHEM INC.

15:17:01

Folio: 285-077.04

Page 1

6 records selected for 0.5 km from latitude 49 deg, 11 min, 10 sec  
and Longitude 123 deg, 06 min, 34 sec

Site Id	Lastupd	Address / City
0002187	13JAN17	10700 CAMBIE ROAD RICHMOND
0007026	04FEB06	10991 SHELLBRIDGE WAY RICHMOND
0012843	13JAN17	10700 CAMBIE ROAD RICHMOND
0013307	11NOV04	3640 NO 4 ROAD RICHMOND
0014688	13JAN17	10780 CAMBIE ROAD RICHMOND
0015309	13SEP17	3391,3411,3451 AND LOT B NO 4 ROAD

As Of: JAN 26, 2014

BC Online: Site Registry

14/01/28

For: PK66793 HEMMERA ENVIROCHEM INC.

15:18:13

Folio: 285-077.04

Page 1

Area Nil Search

Note by Hemmera - No records for 0.5 km from latitude 49 deg, 10 min, 31 sec  
and Longitude 123 deg, 05 min, 38 sec

As Of: JAN 26, 2014

BC Online: Site Registry

14/01/28

For: PK66793 HEMMERA ENVIROCHEM INC.

15:19:58

Folio: 285-077.04

Page 1

2 records selected for 0.5 km from latitude 49 deg, 10 min, 03 sec  
and Longitude 123 deg, 05 min, 11 sec

Site Id	Lastupd	Address / City
0001028	03JAN29	6000 NO. 5 ROAD RICHMOND
0012096		6651 NO 5 ROAD RICHMOND

As Of: JAN 26, 2014

BC Online: Site Registry

14/01/28

For: PK66793 HEMMERA ENVIROCHEM INC.

15:21:52

Folio: 285-077.04

Page 1

6 records selected for 0.5 km from latitude 49 deg, 08 min, 00 sec  
and Longitude 123 deg, 05 min, 12 sec

Site Id	Lastupd	Address / City
0004850	03OCT17	11980 STEVESTON HIGWAY RICHMOND
0006098	04FEB05	STEVESTON HWY AND HWY 99 OVERPASS RICHMOND
0009046	14JAN07	11731 AND 11991 STEVESTON HIGHWAY RICHMOND
0011526	13DEC05	10620, 10640, 10800 NO. 5 RD & 12011 STEVESTON HWY RICHMOND
0015015	13MAR04	MANAGEMENT AREA, NO. 5 ROAD AND STEVESTON HIGHWAY RICHMOND
0015921		NORTHEAST CORNER OF NO. 5 ROAD AND STEVESTON HWY RICHMOND



As Of: JAN 26, 2014

BC Online: Site Registry

14/01/28

For: PK66793 HEMMERA ENVIROCHEM INC.

15:22:46

Folio: 285-077.04

Page 1

1 records selected for 0.5 km from latitude 49 deg, 07 min, 35 sec  
and Longitude 123 deg, 04 min, 52 sec

Site Id	Lastupd	Address / City
0007117	05FEB03	12500 NO 5 ROAD RICHMOND

As Of: JAN 26, 2014

BC Online: Site Registry

14/01/28

For: PK66793 HEMMERA ENVIROCHEM INC.

15:23:59

Folio: 285-077.04

Page 1

1 records selected for 0.5 km from latitude 49 deg, 06 min, 51 sec  
and Longitude 123 deg, 03 min, 58 sec

Site Id	Lastupd	Address / City
0005261	03JAN27	5825 60 AVENUE DELTA

As Of: JAN 26, 2014

BC Online: Site Registry

14/01/28

For: PK66793 HEMMERA ENVIROCHEM INC.

15:26:44

Folio: 285-077.04

Page 1

4 records selected for 0.5 km from latitude 49 deg, 03 min, 40 sec  
and Longitude 122 deg, 48 min, 18 sec

Site Id	Lastupd	Address / City
0004553	04OCT13	3174 KING GEORGE HIGHWAY SURREY
0007730	04FEB06	15244 & 15276 - 32ND AVENUE SURREY
0008862	13FEB28	3050 KING GEORGE BOULEVARD SURREY
0014089		3059 152ND STREET WHITE ROCK

As Of: JAN 26, 2014

BC Online: Site Registry

14/01/28

For: PK66793 HEMMERA ENVIROCHEM INC.

15:28:31

Folio: 285-077.04

Page 1

2 records selected for 0.5 km from latitude 49 deg, 03 min, 10 sec  
and Longitude 122 deg, 47 min, 37 sec

Site Id	Lastupd	Address / City
---------	---------	----------------

0008849	04MAR18	2653 KING GEORGE HIGHWAY, 2630 & 2656 152 STREET SURREY
---------	---------	--

0010473	10MAR31	15650 28TH AVE., 2678 156TH ST., & 2660 CROYDON DR SURREY
---------	---------	--

As Of: JAN 26, 2014

BC Online: Site Registry

14/01/28

For: PK66793 HEMMERA ENVIROCHEM INC.

15:29:47

Folio: 285-077.04

Page 1

5 records selected for 0.5 km from latitude 49 deg, 02 min, 45 sec  
and Longitude 122 deg, 47 min, 08 sec

Site Id	Lastupd	Address / City
0000106		2178 KING GEORGE HIGHWAY SURREY
0009342	10DEC02	2355 160TH STREET SURREY
0009923	10DEC23	2457, 2493, 2527 160TH STREET SURREY
0010248		15779 AND 15843 CROYDON DRIVE SURREY
0010319	10SEP24	2360 AND 2372 KING GEORGE BOULEVARD SURREY

As Of: JAN 26, 2014

BC Online: Site Registry

14/01/28

For: PK66793 HEMMERA ENVIROCHEM INC.

15:31:43

Folio: 285-077.04

Page 1

Area Nil Search

Note by Hemmera - No records for 0.5 km from latitude 49 deg, 02 min, 22 sec  
and Longitude 122 deg, 46 min, 43 sec

As Of: JAN 26, 2014

BC Online: Site Registry

14/01/28

For: PK66793 HEMMERA ENVIROCHEM INC.

15:34:29

Folio: 285-077.04

Page 1

1 records selected for 0.5 km from latitude 49 deg, 01 min, 59 sec  
and Longitude 122 deg, 46 min, 18 sec

Site Id	Lastupd	Address / City
0013768		16297 15TH AVENUE SURREY



As Of: JAN 26, 2014

BC Online: Site Registry

14/01/28

For: PK66793 HEMMERA ENVIROCHEM INC.

15:35:56

Folio: 285-077.04

Page 1

1 records selected for 0.5 km from latitude 49 deg, 01 min, 32 sec  
and Longitude 122 deg, 45 min, 54 sec

Site Id	Lastupd	Address / City
0013768		16297 15TH AVENUE SURREY

As Of: JAN 26, 2014

BC Online: Site Registry

14/01/28

For: PK66793 HEMMERA ENVIROCHEM INC.

15:37:06

Folio: 285-077.04

Page 1

Area Nil Search

Note by Hemmera - No records for 0.5 km from latitude 49 deg, 01 min, 02 sec  
and Longitude 122 deg, 45 min, 37 sec

As Of: JAN 26, 2014

BC Online: Site Registry

14/01/28

For: PK66793 HEMMERA ENVIROCHEM INC.

15:38:54

Folio: 285-077.04

Page 1

1 records selected for 0.5 km from latitude 49 deg, 00 min, 33 sec  
and Longitude 122 deg, 45 min, 27 sec

Site Id	Lastupd	Address / City
0008871		PEACE ARCH SERVICE YARD DOUGLAS BORDER CROSSING

## Site Detail Reports

Detail Report

SITE LOCATION

Site ID: 2187 Latitude: 49d 11m 03.0s  
Victoria File: 26250-20/0794 Longitude: 123d 06m 19.6s  
Regional File: 26250-20/2187  
Region: SURREY, LOWER MAINLAND

Site Address: 10700 CAMBIE ROAD  
City: RICHMOND Prov/State: BC  
Postal Code: V6X 1K8

Registered: DEC 20, 2001 Updated: JAN 17, 2013 Detail Removed: JAN 17, 2013

Notations: 12 Participants: 21 Associated Sites: 1  
Documents: 4 Susp. Land Use: 3 Parcel Descriptions: 7

Location Description: SITE 12843 HAS BEEN CONSOLIDATED WITH SITE 2187. SITE 12843 WILL NO LONGER BE USED. LAT/LONG CONFIRMED USING ICIS ON 17 JANUARY, 2013

Record Status: INACTIVE - REMEDIATION COMPLETE  
Fee category: UNRANKED

=====  
NOTATIONS

Notation Type: CASE MANAGEMENT ITEM  
Notation Class: ADMINISTRATIVE  
Initiated: JAN 17, 2013 Approved: JAN 17, 2013

Ministry Contact: HANEMAYER, VINCENT (SURREY) C

Note: SITE 12843 HAS BEEN COMBINED WITH SITE 2187 AND 12843 WILL NO LONGER BE USED. HOWEVER, HISTORIC INFORMATION IN SITE 12843 WILL BE RETAINED IN THAT FILE.

-----  
Notation Type: CERTIFICATE OF COMPLIANCE ISSUED (WMA 27.6(2))  
Notation Class: WASTE MANAGEMENT ACT: CONTAMINATED SITES NOTATIONS  
Initiated: MAY 10, 2004 Approved: MAY 10, 2004

Ministry Contact: WALTON, DOUG G

Notation Participants	Notation Roles
CANADIAN URBAN EQUITIES LTD.	REQUESTED BY
GERENCHER, EVA	ROSTERED EXPERT UNDER
	PROTOCOL SIX
CITY OF RICHMOND (RICHMOND)	RECEIVED BY
WALTON, DOUG G	ISSUED BY

Note: ISSUED ON THE ADVICE OF A ROSTERED PROFESSIONAL EXPERT (EVA GERENCHER) UNDER PROTOCOL 6 OF THE CONTAMINATED SITES REGULATION.

-----  
Notation Type: PRELIMINARY SITE INVESTIGATION REPORT ACCEPTED (WMA 26.2)

Notation Class: WASTE MANAGEMENT ACT: CONTAMINATED SITES NOTATIONS  
Initiated: APR 30, 2004 Approved: MAY 10, 2004

Ministry Contact: KNOX, GRAHAM G

Notation Participants	Notation Roles
CANADIAN URBAN EQUITIES LTD.	SUBMITTED BY
GERENCHER, EVA	ROSTERED EXPERT UNDER
	PROTOCOL SIX

Note: ISSUED ON THE ADVICE OF A ROSTERED PROFESSIONAL EXPERT (EVA GERENCHER) UNDER PROTOCOL 6 OF THE CONTAMINATED SITES REGULATION.

-----  
Notation Type: DETAILED SITE INVESTIGATION REPORT ACCEPTED (WMA 26.2)  
Notation Class: WASTE MANAGEMENT ACT: CONTAMINATED SITES NOTATIONS  
Initiated: APR 30, 2004 Approved: MAY 10, 2004

Ministry Contact: KNOX, GRAHAM G

Notation Participants	Notation Roles
CANADIAN URBAN EQUITIES LTD.	REQUESTED BY
GERENCHER, EVA	ROSTERED EXPERT UNDER
	PROTOCOL SIX

Note: ISSUED ON THE ADVICE OF A ROSTERED PROFESSIONAL EXPERT (EVA GERENCHER) UNDER PROTOCOL 6 OF THE CONTAMINATED SITES REGULATION.

-----  
Notation Type: SITE PROFILE REVIEWED - FURTHER INVESTIGATION REQUIRED BY THE MINISTRY  
Notation Class: ENVIRONMENTAL MANAGEMENT ACT: GENERAL  
Initiated: MAR 22, 2004 Approved:

Ministry Contact: HACKINEN, COLEEN (SURREY)

Note: PRELIMINARY SITE INVESTIGATION REQUIRED

-----  
Notation Type: SITE PROFILE - FURTHER INVESTIGATION REQUIRED BY THE MINISTRY  
Notation Class: WASTE MANAGEMENT ACT: CONTAMINATED SITES NOTATIONS  
Initiated: MAR 22, 2004 Approved:

Ministry Contact: HACKINEN, COLEEN (SURREY)

Note: PRELIMINARY SITE INVESTIGATION REQUIRED

-----  
Notation Type: SITE PROFILE RECEIVED  
Notation Class: ENVIRONMENTAL MANAGEMENT ACT: GENERAL  
Initiated: FEB 20, 2004 Approved:

Ministry Contact: HACKINEN, COLEEN (SURREY)

Notation Participants	Notation Roles
-----------------------	----------------

URS CANADA INC SITE PROFILE SUBMITTED  
BY  
URS CANADA INC SITE PROFILE SUBMITTED  
BY

-----  
Notation Type: SITE PROFILE RECEIVED  
Notation Class: WASTE MANAGEMENT ACT: CONTAMINATED SITES NOTATIONS  
Initiated: FEB 20, 2004 Approved:

Ministry Contact: HACKINEN, COLEEN (SURREY)

Notation Participants Notation Roles  
URS CANADA INC SITE PROFILE SUBMITTED  
BY  
URS CANADA INC SITE PROFILE SUBMITTED  
BY

-----  
Notation Type: SITE PROFILE - NO FURTHER INVESTIGATION REQUIRED BY THE  
MINISTRY  
Notation Class: WASTE MANAGEMENT ACT: CONTAMINATED SITES NOTATIONS  
Initiated: NOV 30, 2001 Approved:

Ministry Contact: MCCAMMON, ALAN (SURREY) W

Note: OWNER INTENDS ON INVESTIGATING & REMEDIATING PROPERTY INDEPENDENTLY IN  
ACCORDANCE WITH SECTION 3.2.1 OF THE DRAFT GUIDANCE DOCUMENT #4

-----  
Notation Type: SITE PROFILE REVIEWED - NO FURTHER INVESTIGATION REQUIRED BY  
THE MINISTRY  
Notation Class: ENVIRONMENTAL MANAGEMENT ACT: GENERAL  
Initiated: NOV 30, 2001 Approved:

Ministry Contact: MCCAMMON, ALAN (SURREY) W

Note: OWNER INTENDS ON INVESTIGATING & REMEDIATING PROPERTY INDEPENDENTLY IN  
ACCORDANCE WITH SECTION 3.2.1 OF THE DRAFT GUIDANCE DOCUMENT #4

-----  
Notation Type: SITE PROFILE RECEIVED  
Notation Class: WASTE MANAGEMENT ACT: CONTAMINATED SITES NOTATIONS  
Initiated: NOV 08, 2001 Approved:

Ministry Contact: MCCAMMON, ALAN (SURREY) W

Notation Participants Notation Roles  
URS NORECOL DAMES AND MOORE (VANCOUVER) SITE PROFILE SUBMITTED  
BY  
URS NORECOL DAMES AND MOORE (VANCOUVER) SITE PROFILE SUBMITTED  
BY

-----  
Notation Type: SITE PROFILE RECEIVED  
Notation Class: ENVIRONMENTAL MANAGEMENT ACT: GENERAL

Initiated: NOV 08, 2001

Approved:

Ministry Contact: MCCAMMON, ALAN (SURREY) W

Notation Participants

URS NORECOL DAMES AND MOORE (VANCOUVER)

URS NORECOL DAMES AND MOORE (VANCOUVER)

Notation Roles

SITE PROFILE SUBMITTED

BY

SITE PROFILE SUBMITTED

BY

=====

SITE PARTICIPANTS

Participant: ACC AUTO CARE CENTRE INC. (DISSOLVED)

Role(s): POTENTIALLY AFFECTED PARTY

Start Date: OCT 07, 1994

End Date:

Participant: CANADIAN URBAN EQUITIES LTD.

Role(s): SITE PROFILE CONTACT

Start Date: SEP 26, 2001

End Date:

Participant: CITY OF RICHMOND (RICHMOND)

Role(s): MUNICIPAL/REGIONAL CONTACT

Start Date: MAY 10, 2004

End Date:

Participant: COAST HUDSON LTD. (RICHMOND)

Role(s): POTENTIALLY AFFECTED PARTY

Start Date: OCT 07, 1994

End Date:

Participant: CUE REAL PROPERTY LTD. (VANCOUVER, B.C.)

Role(s): PROPERTY OWNER

Start Date: AUG 07, 1996

End Date:

Participant: GERENCHER, EVA

Role(s): ROSTERED EXPERT UNDER PROTOCOL SIX

Start Date: SEP 26, 2001

End Date:

Participant: HACKINEN, COLEEN (SURREY)

Role(s): MAIN MINISTRY CONTACT

Start Date: FEB 20, 2004

End Date:

Participant: JORDAN HOTEL CORPORATION (VANCOUVER, B.C.)

Role(s): PROPERTY OWNER

Start Date: JUL 09, 1996

End Date:

Participant: KNOX, GRAHAM G

Role(s): ALTERNATE MINISTRY CONTACT

Start Date: APR 30, 2004

End Date:

Participant: LINDSAY HOLDINGS LTD. (RICHMOND)

Role(s): FORMER PROPERTY OWNER

Start Date: OCT 07, 1994

End Date: AUG 07, 1996



Participant: MCCAMMON, ALAN (SURREY) W Role(s): ALTERNATE MINISTRY CONTACT Start Date: OCT 13, 1994 End Date:
Participant: MCLENEHAN, ROBERT E (MELP) Role(s): MAIN MINISTRY CONTACT Start Date: JAN 06, 1997 End Date: DEC 24, 1999
Participant: MINISTRY OF ATTORNEY GENERAL (LEGAL SERVICES) Role(s): ASSOCIATED PROVINCIAL GOVERNMENT CONTACT LAWYER/SOLICITOR Start Date: OCT 07, 1994 End Date: Notes: CONTACT: DENNIS DOYLE
Participant: OSTAF, JOHN RICHARD Role(s): POTENTIALLY AFFECTED PARTY Start Date: OCT 07, 1994 End Date:
Participant: PRICE WATERHOUSE (VANCOUVER) Role(s): TRUSTEE/RECEIVER Start Date: MAY 18, 1995 End Date:
Participant: ROYAL BANK OF CANADA (VANCOUVER) Role(s): POTENTIALLY AFFECTED PARTY Start Date: OCT 07, 1994 End Date:
Participant: SMITH, ASHLEY (SURREY) N Role(s): ALTERNATE MINISTRY CONTACT Start Date: FEB 20, 2004 End Date:
Participant: STANDARD TRUST COMPANY Role(s): POTENTIALLY AFFECTED PARTY Start Date: OCT 07, 1994 End Date:
Participant: URS CANADA INC Role(s): SITE PROFILE COMPLETOR SITE PROFILE CONTACT Start Date: FEB 20, 2004 End Date:
Participant: URS NORECOL DAMES AND MOORE (VANCOUVER) Role(s): SITE PROFILE COMPLETOR Start Date: NOV 08, 2001 End Date:
Participant: WALTON, DOUG G Role(s): ALTERNATE MINISTRY CONTACT Start Date: MAY 10, 2004 End Date:

DOCUMENTS

Title: DETAILED SITE INVESTIGATION, 10700 CAMBIE ROAD (PARCEL C), RICHMOND,

BC

Authored: JAN 28, 2004

Submitted: APR 30, 2004

Participants

CANADIAN URBAN EQUITIES LTD.  
 GERENCHER, EVA

Role  
 COMMISSIONER  
 ROSTERED EXPERT UNDER  
 PROTOCOL SIX

-----  
 Title: REMEDIATION CONFIRMATION REPORT, 10700 CAMBIE ROAD - (PARCEL C),  
 RICHMOND, BC

Authored: JAN 01, 2004

Submitted: APR 30, 2004

Participants

CANADIAN URBAN EQUITIES LTD.  
 GERENCHER, EVA

Role  
 COMMISSIONER  
 ROSTERED EXPERT UNDER  
 PROTOCOL SIX

-----  
 Title: STAGE I PRELIMINARY SITE INVESTIGATION, 10700 CAMBIE ROAD - (PARCEL  
 C), RICHMOND, BC

Authored: JAN 14, 2002

Submitted: APR 30, 2004

Participants

CANADIAN URBAN EQUITIES LTD.  
 GERENCHER, EVA

Role  
 COMMISSIONER  
 ROSTERED EXPERT UNDER  
 PROTOCOL SIX

-----  
 Title: STAGE II PSI, 10700 CAMBIE ROAD - (PARCEL C), RICHMOND, BC

Authored: SEP 26, 2001

Submitted: APR 30, 2004

Participants

CANADIAN URBAN EQUITIES LTD.  
 GERENCHER, EVA

Role  
 COMMISSIONER  
 ROSTERED EXPERT UNDER  
 PROTOCOL SIX

=====

ASSOCIATED SITES

Site id: 12843

Date: JAN 17, 2013

Notes: SITE 12843 HAS BEEN CONSOLIDATED WITH SITE 2187. SITE 12843 WILL  
 NO LONGER BE USED.

=====

SUSPECTED LAND USE

Description: AUTO/TRUCK/BUS/SUBWAY/OTHER VEHICLE REPAIR/SALVAGE/WRECKING

Notes: INSERTED FOR SITE PROFILE DATED 2001-10-22(described on Site  
 Profile dated 01-10-22)

-----  
 Description: PETRO. PROD., /PRODUCE WATER STRG ABOVEGRND/UNDERGRND TANK

Notes:

-----  
 Description: PETRO. PROD., DISPENSE FACILITY, INC. SERV STA./CARDLOT

Notes:

=====

PARCEL DESCRIPTIONS

Date Added: JAN 19, 1996

Crown Land PIN#:

LTO PID#: 003301141 Crown Land File#:  
 Land Desc: LOT 38 SECTION 35 BLOCK 5 NORTH RANGE 6 WESTNEW WESTMINSTER  
 DISTRICT PLAN 63255

-----  
 Date Added: FEB 20, 2004 Crown Land PIN#:  
 LTO PID#: 012488115 Crown Land File#:  
 Land Desc:

-----  
 Date Added: MAR 16, 1997 Crown Land PIN#:  
 LTO PID#: 023205890 Crown Land File#:  
 Land Desc: PARCEL A SECTION 35 BLOCK 5 NORTH RANGE 6 WEST NEW WESTMINSTER  
 DISTRICT PLAN LMP25210

-----  
 Date Added: APR 03, 1997 Crown Land PIN#:  
 LTO PID#: 023488107 Crown Land File#:  
 Land Desc: LOT A SECTION 35 BLOCK 5 NORTH RANGE 6 WEST NEW WESTMINSTER  
 DISTRICT PLAN LMP29160

-----  
 Date Added: APR 03, 1997 Crown Land PIN#:  
 LTO PID#: 023488115 Crown Land File#:  
 Land Desc: LOT C SECTION 35 BLOCK 5 NORTH RANGE 6 WEST NEW WESTMINSTER  
 DISTRICT PLAN LMP29160

-----  
 Date Added: APR 03, 1997 Crown Land PIN#:  
 LTO PID#: 023488123 Crown Land File#:  
 Land Desc: LOT D SECTION 35 BLOCK 5 NORTH RANGE 6 WEST NEW WESTMINSTER  
 DISTRICT PLAN LMP29160

-----  
 Date Added: DEC 08, 2011 Crown Land PIN#:  
 LTO PID#: 028725221 Crown Land File#:  
 Land Desc: LOT 1 SECTION 35 BLOCK 5 NORTH RANGE 6 WEST NEW WESTMINSTER  
 DISTRICTPLAN BCP49580 EXCEPT PLAN BCP49581

=====  
 CURRENT SITE PROFILE INFORMATION (Sec. III to X)  
 Site Profile Completion Date: FEB 20, 2004

Local Authority Received:  
 Ministry Regional Manager Received: FEB 20, 2004 Decision: MAR 22, 2004  
 Decision: INVESTIGATION REQUIRED  
 Site Registrar Received: FEB 20, 2004 Entry Date: MAR 08, 2004

III COMMERCIAL AND INDUSTRIAL PURPOSES OR ACTIVITIES ON SITE  
 Schedule 2

Reference	Description
F5	PETRO. PROD., DISPENSE FACILITY, INC. SERV STA./CARDLOT
F7	PETRO. PROD., /PRODUCE WATER STRG ABVEGRND/UNDERGRND TANK

AREAS OF POTENTIAL CONCERN  
 Petroleum, solvent or other polluting substance spills to the environment

greater than 100 litres?.....YES  
Residue left after removal of piled materials such as chemicals, coal,  
ore, smelter slag, air quality control system baghouse dust?.....NO  
Discarded barrels, drums or tanks?.....NO  
Contamination resulting from migration of substances from other  
properties?.....NO

FILL MATERIALS

Fill dirt, soil, gravel, sand or like materials from a contaminated site  
or from a source used for any of the activities listed under Schedule  
2?.....NO  
Discarded or waste granular materials such as sand blasting grit, asphalt  
paving or roofing material, spent foundry casting sands, mine ore,  
waste rock or float?.....NO  
Dredged sediments, or sediments and debris materials originating from  
locations adjacent to foreshore industrial activities, or municipal  
sanitary or stormwater discharges?.....NO

WASTE DISPOSAL

Materials such as household garbage, mixed municipal refuse, or demolition  
debris?.....NO  
Waste or byproducts such as tank bottoms, residues, sludge, or  
flocculation precipitates from industrial processes or wastewater  
treatment?.....NO  
Waste products from smelting or mining activities, such as smelter slag,  
mine tailings, or cull materials from coal processing?.....NO  
Waste products from natural gas and oil well drilling activities, such as  
drilling fluids and muds?.....NO  
Waste products from photographic developing or finishing laboratories;  
asphalt tar manufacturing; boilers, incinerators or other thermal  
facilities (eg. ash); appliance, small equipment or engine repair or  
salvage; dry cleaning operations (eg. solvents); or automobile and  
truck parts cleaning or repair?.....NO

TANKS OR CONTAINERS USED OR STORED

Underground fuel or chemical storage tanks?.....YES  
Above ground fuel or chemical storage tanks?.....YES

SPECIAL (HAZARDOUS) WASTES OR SUBSTANCES

PCB-containing electrical transformers or capacitors either at grade,  
attached above ground to poles, located within buildings, or stored?....NO  
Waste asbestos or asbestos containing materials such as pipe wrapping,  
blown-in insulation or panelling buried?.....NO  
Paints, solvents, mineral spirits or waste pest control products or pest  
control product containers stored in volumes greater than 205 litres?...NO

LEGAL OR REGULATORY ACTIONS OR CONSTRAINTS

Government orders or other notifications pertaining to environmental  
conditions or quality of soil, water, groundwater or other  
environmental media?.....NO  
Liens to recover costs, restrictive covenants on land use, or other  
charges or encumbrances, stemming from contaminants or wastes remaining  
onsite or from other environmental conditions?.....NO



Detail Report

SITE LOCATION

Site ID: 6098 Latitude: 49d 07m 58.9s  
Victoria File: Longitude: 123d 05m 15.0s  
Regional File: 26250-20/6098  
Region: SURREY, LOWER MAINLAND

Site Address: STEVESTON HWY AND HWY 99 OVERPASS  
City: RICHMOND Prov/State: BC  
Postal Code:

Registered: AUG 16, 1999 Updated: FEB 05, 2004 Detail Removed: JAN 30, 2004

Notations: 1 Participants: 3 Associated Sites: 0  
Documents: 0 Susp. Land Use: 0 Parcel Descriptions: 0

Location Description: S SIDE OF STEVESTON HWY BETWEEN HWY 99 OVERPASS & HWY 99  
S BOUND ON RAMP. LAT/LONG CONFIRMED USING GOAT BY MINISTRY STAFF

Record Status: ACTIVE - UNDER REMEDIATION  
Fee category: UNRANKED

=====  
NOTATIONS

Notation Type: NOTICE OF INDEPENDENT REMEDIATION INITIATION SUBMITTED (WMA  
28(2))  
Notation Class: WASTE MANAGEMENT ACT: CONTAMINATED SITES NOTATIONS  
Initiated: JUL 21, 1999 Approved: JUL 21, 1999

Ministry Contact: ALDRIDGE, JO-ANN

Notation Participants Notation Roles  
MINISTRY OF TRANSPORTATION AND HIGHWAYS SUBMITTED BY  
(VICTORIA)

=====  
SITE PARTICIPANTS

Participant: ALDRIDGE, JO-ANN  
Role(s): MAIN MINISTRY CONTACT  
Start Date: JUL 21, 1999 End Date: OCT 27, 2001

-----  
Participant: MCCAMMON, ALAN (SURREY) W  
Role(s): MAIN MINISTRY CONTACT  
Start Date: OCT 27, 2001 End Date:  
Notes: DEFAULT AFTER JO-ANN ALDRIDGE

-----  
Participant: MINISTRY OF TRANSPORTATION AND HIGHWAYS (VICTORIA)  
Role(s): PROPERTY OWNER  
Start Date: JUL 21, 1999 End Date:

No activities were reported for this site

Detail Report

SITE LOCATION

Site ID: 6831 Latitude: 49d 10m 58.4s  
Victoria File: Longitude: 123d 06m 02.9s  
Regional File: 26250-20/6831  
Region: SURREY, LOWER MAINLAND

Site Address: 4251 & 4311 VANGUARD ROAD  
City: RICHMOND Prov/State: BC  
Postal Code:

Registered: OCT 25, 2000 Updated: JUL 27, 2001 Detail Removed: MAR 05, 2001

Notations: 2 Participants: 3 Associated Sites: 1  
Documents: 1 Susp. Land Use: 0 Parcel Descriptions: 0

Record Status: INACTIVE - NO FURTHER ACTION  
Fee category: MEDIUM SITE, SIMPLE CONTAMINATION

=====  
NOTATIONS

Notation Type: FINAL DETERMINATION (WMA 26.4(2)(D)OR(3))  
Notation Class: WASTE MANAGEMENT ACT: CONTAMINATED SITES NOTATIONS  
Initiated: FEB 23, 2001 Approved: FEB 23, 2001

Ministry Contact: SHUTTER, SIMON (SURREY)

Notation Participants	Notation Roles
MCCAMMON, ALAN (SURREY) W	ISSUED BY

Note: SITE WAS FOUND TO NOT BE CONTAMINATED.

-----  
Notation Type: PRELIMINARY SITE INVESTIGATION REPORT: EXTERNAL REVIEW  
REQUESTED  
Notation Class: WASTE MANAGEMENT ACT: CONTAMINATED SITES NOTATIONS  
Initiated: AUG 04, 2000 Approved: AUG 04, 2000

Ministry Contact: SHUTTER, SIMON (SURREY)

Notation Participants	Notation Roles
KEYSTONE ENVIRONMENTAL LTD (RICHMOND)	REQUESTED BY

=====  
SITE PARTICIPANTS

Participant: KEYSTONE ENVIRONMENTAL LTD (RICHMOND)  
Role(s): ENVIRONMENTAL CONSULTANT/CONTRACTOR  
Start Date: JUL 18, 2000 End Date:

-----  
Participant: MCCAMMON, ALAN (SURREY) W  
Role(s): ALTERNATE MINISTRY CONTACT  
Start Date: FEB 23, 2001 End Date:

-----

Participant: SHUTTER, SIMON (SURREY)  
Role(s): MAIN MINISTRY CONTACT  
Start Date: AUG 04, 2000 End Date: OCT 01, 2006

=====

DOCUMENTS  
Title: PRELIMINARY SITE INVESTIGATION SUMMARY  
Authored: SEP 26, 2000 Submitted: OCT 13, 2000

Participants Role  
KEYSTONE ENVIRONMENTAL LTD (RICHMOND) AUTHOR

=====

ASSOCIATED SITES  
Site id: 255 Date: AUG 04, 2000  
Notes:  
No activities were reported for this site

End of Detail Report



Detail Report

SITE LOCATION

Site ID: 8871 Latitude: 49d 00m 17.0s  
Victoria File: Longitude: 122d 45m 25.0s  
Regional File: 26250-20/8871  
Region: SURREY, LOWER MAINLAND

Site Address: PEACE ARCH SERVICE YARD  
City: DOUGLAS BORDER CROSSING Prov/State: BC  
Postal Code:

Registered: MAR 04, 2004 Updated: Detail Removed:

Notations: 1 Participants: 3 Associated Sites: 0  
Documents: 0 Susp. Land Use: 0 Parcel Descriptions: 0

Location Description: PARK IS APPROX 40 KM S OF VANCOUVER AT THE DOUGLAS INTERNATIONAL BORDER CROSSING. THIS IS THE JUNCTION OF HWY 99 IN BC & I-5 IN WASHINGTON STATE.

Record Status: ACTIVE - UNDER REMEDIATION  
Fee category: UNRANKED

=====  
NOTATIONS

Notation Type: NOTICE OF INDEPENDENT REMEDIATION INITIATION SUBMITTED (WMA 28(2))  
Notation Class: WASTE MANAGEMENT ACT: CONTAMINATED SITES NOTATIONS  
Initiated: MAR 19, 2003 Approved:

Ministry Contact: SMITH, ASHLEY (SURREY) N

Notation Participants Notation Roles  
SEACOR ENVIRONMENTAL INC (VANCOUVER (WEST 8TH AVENUE)) SUBMITTED BY

Note: UNDERGROUND STORAGE TANK REMOVAL LOCATED AT THE PEACE ARCH SERVICE YARD. INTENT TO COMMENCE INDEPENDENT REMEDIATION.

=====  
SITE PARTICIPANTS

Participant: PROVINCE OF BC (CROWN) - WLAP- RECREATION  
Role(s): PROPERTY OWNER  
Start Date: MAR 19, 2003 End Date:

-----  
Participant: SEACOR ENVIRONMENTAL INC (VANCOUVER (WEST 8TH AVENUE))  
Role(s): ENVIRONMENTAL CONSULTANT/CONTRACTOR  
Start Date: MAR 19, 2003 End Date:

-----  
Participant: SMITH, ASHLEY (SURREY) N  
Role(s): MAIN MINISTRY CONTACT  
Start Date: MAR 19, 2003 End Date:

As of: APR 06, 2014

BC Online: Site Registry

14-04-11

For: PK66793 HEMMERA ENVIROCHEM INC.

13:32:15

Folio: 285-077.03-4A

Page 2

SITE PARTICIPANTS

No activities were reported for this site

End of Detail Report

Detail Report

SITE LOCATION

Site ID: 9342 Latitude: 49d 02m 38.8s  
Victoria File: 26250-20/9342 Longitude: 122d 46m 52.0s  
Regional File: 26250-20/9342  
Region: SURREY, LOWER MAINLAND

Site Address: 2355 160TH STREET  
FORMERLY 15860, 15920 AND 15948 24 AVENUE  
City: SURREY Prov/State: BC  
Postal Code: V3S 9N6

Registered: MAR 18, 2005 Updated: DEC 02, 2010 Detail Removed: NOV 22, 2010

Notations: 7 Participants: 13 Associated Sites: 0  
Documents: 3 Susp. Land Use: 2 Parcel Descriptions: 3

Location Description: SITE CREATED BY SITE PROFILE, ENTERED 2005-03-09.  
LAT/LONG CONFIRMED USING GOAT BY MINISTRY STAFF FORMER ADDRESS 15860, 15920  
AND 15948 24 AVENUE - NOW MERGED INTO ONE PARCEL UNDER PID:026-585-588

Record Status: ACTIVE - REMEDIATION COMPLETE  
Fee category: NOT APPLICABLE

=====  
NOTATIONS

Notation Type: CERTIFICATE OF COMPLIANCE ISSUED USING RISK BASED STANDARDS  
Notation Class: ENVIRONMENTAL MANAGEMENT ACT: GENERAL  
Initiated: DEC 04, 2006 Approved: DEC 04, 2006

Ministry Contact: GINGELL, ARDITH

Notation Participants	Notation Roles
FIRST PRO SHOPPING CENTRES LIMITED	RECEIVED BY
HARRIS, GLENN E	ISSUED BY

Note: SOILS ARE NUMERIC BASED STANDARDS - GROUNDWATER IS RISK BASED

-----  
Notation Type: CERTIFICATE OF COMPLIANCE REQUESTED  
Notation Class: ENVIRONMENTAL MANAGEMENT ACT: GENERAL  
Initiated: FEB 14, 2006 Approved: FEB 14, 2006

Ministry Contact: LOCKHART, DAVE

Notation Participants	Notation Roles
FIRST PRO SHOPPING CENTRES LIMITED	REQUESTED BY

-----  
Notation Type: NOTICE OF INDEPENDENT REMEDIATION COMPLETION SUBMITTED  
Notation Class: ENVIRONMENTAL MANAGEMENT ACT: GENERAL  
Initiated: AUG 26, 2005 Approved: AUG 26, 2005

Ministry Contact: DUNDAS, KERRI (SURREY) L

Notation Participants	Notation Roles
WALLACE, BLAIR	SUBMITTED BY

Note: NOTICE PROVIDED FOR SOUTH SURREY WORKS YARD AT 15920 - 24TH AVENUE.

-----  
Notation Type: SITE PROFILE REVIEWED - FURTHER INVESTIGATION REQUIRED BY THE  
MINISTRY

Notation Class: ENVIRONMENTAL MANAGEMENT ACT: GENERAL  
Initiated: MAY 05, 2005 Approved:

Ministry Contact: HANEMAYER, VINCENT (SURREY) C

Required Actions: DETAILED SITE INVESTIGATION REQUIRED. RELEASE OF PERMITS  
GRANTED BECAUSE IN THE OPINION OF THE DIRECTOR, ISSUANCE OF THE SUBJECT  
PERMITS WOULD NOT POSE SIGNIFICANT RISK OR THREAT.

-----  
Notation Type: SITE PROFILE - FURTHER INVESTIGATION REQUIRED BY THE MINISTRY

Notation Class: WASTE MANAGEMENT ACT: CONTAMINATED SITES NOTATIONS  
Initiated: MAY 05, 2005 Approved:

Ministry Contact: HANEMAYER, VINCENT (SURREY) C

Required Actions: DETAILED SITE INVESTIGATION REQUIRED. RELEASE OF PERMITS  
GRANTED BECAUSE IN THE OPINION OF THE DIRECTOR, ISSUANCE OF THE SUBJECT  
PERMITS WOULD NOT POSE SIGNIFICANT RISK OR THREAT.

-----  
Notation Type: SITE PROFILE RECEIVED

Notation Class: ENVIRONMENTAL MANAGEMENT ACT: GENERAL  
Initiated: MAR 07, 2005 Approved:

Ministry Contact: HANEMAYER, VINCENT (SURREY) C

Notation Participants	Notation Roles
EBA ENVIRONMENTAL LTD (HEAD OFFICE FOR BC)	SITE PROFILE SUBMITTED BY
EBA ENVIRONMENTAL LTD (HEAD OFFICE FOR BC)	SITE PROFILE SUBMITTED BY

-----  
Notation Type: SITE PROFILE RECEIVED

Notation Class: WASTE MANAGEMENT ACT: CONTAMINATED SITES NOTATIONS  
Initiated: MAR 07, 2005 Approved:

Ministry Contact: HANEMAYER, VINCENT (SURREY) C

Notation Participants	Notation Roles
EBA ENVIRONMENTAL LTD (HEAD OFFICE FOR BC)	SITE PROFILE SUBMITTED BY
EBA ENVIRONMENTAL LTD (HEAD OFFICE FOR BC)	SITE PROFILE SUBMITTED BY

=====

SITE PARTICIPANTS

Participant: DUNDAS, KERRI (SURREY) L  
 Role(s): ALTERNATE MINISTRY CONTACT  
 Start Date: AUG 26, 2005 End Date:

Participant: EBA ENVIRONMENTAL LTD (HEAD OFFICE FOR BC)  
 Role(s): SITE PROFILE COMPLETOR  
 SITE PROFILE CONTACT  
 Start Date: MAR 07, 2005 End Date:

Participant: FIRST PRO SHOPPING CENTRES LIMITED  
 Role(s): PROPERTY OWNER  
 Start Date: MAR 07, 2005 End Date:

Participant: GINGELL, ARDITH  
 Role(s): ALTERNATE MINISTRY CONTACT  
 Start Date: DEC 04, 2006 End Date:

Participant: GOLDER ASSOCIATES LTD (BURNABY)  
 Role(s): ENVIRONMENTAL CONSULTANT/CONTRACTOR  
 Start Date: JAN 31, 2006 End Date:

Participant: HANEMAYER, VINCENT (SURREY) C  
 Role(s): MAIN MINISTRY CONTACT  
 Start Date: MAR 07, 2005 End Date:

Participant: HARRIS, GLENN E  
 Role(s): ALTERNATE MINISTRY CONTACT  
 Start Date: DEC 04, 2006 End Date:

Participant: HOLDEN, EDWARD BERNARD  
 Role(s): PROPERTY OWNER  
 Start Date: MAR 07, 2005 End Date:

Participant: LOCKHART, DAVE  
 Role(s): ALTERNATE MINISTRY CONTACT  
 Start Date: FEB 14, 2006 End Date:

Participant: SEACOR ENVIRONMENTAL INC (VANCOUVER (WEST 8TH AVENUE))  
 Role(s): ENVIRONMENTAL CONSULTANT/CONTRACTOR  
 Start Date: AUG 14, 2006 End Date:

Participant: SURREY SOUTH SHOPPING CENTRES LIMITED  
 Role(s): PROPERTY OWNER  
 Start Date: MAR 07, 2005 End Date:

Participant: WALLACE, BLAIR  
 Role(s): ENVIRONMENTAL CONSULTANT/CONTRACTOR  
 Start Date: AUG 26, 2005 End Date:

Participant: WALTON, DOUG G  
 Role(s): ALTERNATE MINISTRY CONTACT

Start Date: DEC 04, 2006 End Date:

DOCUMENTS

Title: LETTER - EXTERNAL REVIEW OF PSI, DSI AND RISK ASSESSMENT REPORTS  
15862, 15876 AND 15948 24TH AVENUE, SURREY BC  
Authored: AUG 14, 2006 Submitted: AUG 14, 2006  
Participants Role  
SEACOR ENVIRONMENTAL INC (VANCOUVER (WEST 8TH AVENUE)) AUTHOR

Title: DSI AND CONFIRMATION OF REMEDIATION  
Authored: FEB 07, 2006 Submitted: FEB 15, 2006  
Participants Role  
EBA ENVIRONMENTAL LTD (HEAD OFFICE FOR BC) AUTHOR

Title: SCREENING LEVEL RISK ASSESSMENT  
Authored: JAN 31, 2006 Submitted: FEB 15, 2006  
Participants Role  
GOLDER ASSOCIATES LTD (BURNABY) AUTHOR

SUSPECTED LAND USE

Description: PETRO. PROD., /PRODUCE WATER STRG ABOVEGRND/UNDERGRND TANK  
Notes: INSERTED FOR SITE PROFILE DATED 2004-12-07(described on Site Profile dated 04-12-07)

Description: ROAD SALT STORAGE FACILITIES  
Notes: INSERTED FOR SITE PROFILE DATED 2004-12-07(described on Site Profile dated 04-12-07)

PARCEL DESCRIPTIONS

Date Added: DEC 07, 2004 Crown Land PIN#:  
LTO PID#: 009284443 Crown Land File#:  
Land Desc: EAST HALF LEGAL SUBDIVISION 16 EXCEPT PORTIONS IN STATUTORY RIGHT OF WAYPLAN 25810 AND PLAN LMP35115 SECTION 14 TOWNSHIP 1NEW WESTMINSTER DISTRICT

Date Added: DEC 07, 2004 Crown Land PIN#:  
LTO PID#: 011423994 Crown Land File#:  
Land Desc: LOT 3 EXCEPT:FIRSTLY: PARCEL "A" (M94398E),SECONDLY: THOSE PORTIONS ON HIGHWAY PLAN 25810;SECTION 14 TOWNSHIP 1 NEW WESTMINSTER DISTRICT PLAN 9556

Date Added: FEB 25, 2006 Crown Land PIN#:  
LTO PID#: 026585588 Crown Land File#:  
Land Desc: LOT A SECTION 14 TOWNSHIP 1 NEW WESTMINSTER DISTRICT PLAN BCP22198

CURRENT SITE PROFILE INFORMATION (Sec. III to X)

Local Authority Received: FEB 28, 2005

Ministry Regional Manager Received: MAR 07, 2005 Decision: MAY 05, 2005  
 Decision: INVESTIGATION REQUIRED

Site Registrar Received: Entry Date:

III COMMERCIAL AND INDUSTRIAL PURPOSES OR ACTIVITIES ON SITE  
 Schedule 2

Reference	Description
E7	ROAD SALT STORAGE FACILITIES
F7	PETRO. PROD., /PRODUCE WATER STRG ABOVEGRND/UNDERGRND TANK

AREAS OF POTENTIAL CONCERN

- Petroleum, solvent or other polluting substance spills to the environment greater than 100 litres?.....NO
- Residue left after removal of piled materials such as chemicals, coal, ore, smelter slag, air quality control system baghouse dust?.....NO
- Discarded barrels, drums or tanks?.....NO
- Contamination resulting from migration of substances from other properties?.....NO

FILL MATERIALS

- Fill dirt, soil, gravel, sand or like materials from a contaminated site or from a source used for any of the activities listed under Schedule 2?.....NO
- Discarded or waste granular materials such as sand blasting grit, asphalt paving or roofing material, spent foundry casting sands, mine ore, waste rock or float?.....NO
- Dredged sediments, or sediments and debris materials originating from locations adjacent to foreshore industrial activities, or municipal sanitary or stormwater discharges?.....NO

WASTE DISPOSAL

- Materials such as household garbage, mixed municipal refuse, or demolition debris?.....NO
- Waste or byproducts such as tank bottoms, residues, sludge, or flocculation precipitates from industrial processes or wastewater treatment?.....NO
- Waste products from smelting or mining activities, such as smelter slag, mine tailings, or cull materials from coal processing?.....NO
- Waste products from natural gas and oil well drilling activities, such as drilling fluids and muds?.....NO
- Waste products from photographic developing or finishing laboratories; asphalt tar manufacturing; boilers, incinerators or other thermal facilities (eg. ash); appliance, small equipment or engine repair or salvage; dry cleaning operations (eg. solvents); or automobile and truck parts cleaning or repair?.....NO

TANKS OR CONTAINERS USED OR STORED

- Underground fuel or chemical storage tanks?.....NO

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For: PK66793 HEMMERA ENVIROCHEM INC. 11:49:39  
Folio: 285-077.03-4A Page 6  
Above ground fuel or chemical storage tanks?.....YES

SPECIAL (HAZARDOUS) WASTES OR SUBSTANCES

PCB-containing electrical transformers or capacitors either at grade,  
attached above ground to poles, located within buildings, or stored?....NO  
Waste asbestos or asbestos containing materials such as pipe wrapping,  
blown-in insulation or panelling buried?.....NO  
Paints, solvents, mineral spirits or waste pest control products or pest  
control product containers stored in volumes greater than 205 litres?...NO

LEGAL OR REGULATORY ACTIONS OR CONSTRAINTS

Government orders or other notifications pertaining to environmental  
conditions or quality of soil, water, groundwater or other  
environmental media?.....NO  
Liens to recover costs, restrictive covenants on land use, or other  
charges or encumbrances, stemming from contaminants or wastes remaining  
onsite or from other environmental conditions?.....NO  
Government notifications relating to past or recurring environmental  
violations at the site or any facility located on the site?.....NO

X ADDITIONAL COMMENTS AND EXPLANATIONS

End of Detail Report



Detail Report

SITE LOCATION

Site ID: 10248 Latitude: 49d 02m 52.1s  
Victoria File: 26250-20/10248 Longitude: 122d 46m 57.8s  
Regional File:  
Region: SURREY, LOWER MAINLAND

Site Address: 15779 AND 15843 CROYDON DRIVE  
City: SURREY Prov/State: BC  
Postal Code: V3S 0C5

Registered: FEB 02, 2007 Updated: Detail Removed:

Notations: 4 Participants: 3 Associated Sites: 0  
Documents: 1 Susp. Land Use: 1 Parcel Descriptions: 462

Location Description: SITE CREATED AND LAT AND LONG FROM SITE PROFILE, ENTERED  
2007-01-22

Record Status: INACTIVE - NO FURTHER ACTION  
Fee category: UNRANKED

=====  
NOTATIONS

Notation Type: SITE PROFILE RECEIVED  
Notation Class: ENVIRONMENTAL MANAGEMENT ACT: GENERAL  
Initiated: JAN 22, 2007 Approved:

Ministry Contact: WARD, JOHN E H

Notation Participants	Notation Roles
CROYDON CROSSING DEVELOPMENT CORPORATION	SITE PROFILE SUBMITTED BY
CROYDON CROSSING DEVELOPMENT CORPORATION	SITE PROFILE SUBMITTED BY

-----  
Notation Type: SITE PROFILE - NO FURTHER INVESTIGATION REQUIRED BY THE  
MINISTRY  
Notation Class: WASTE MANAGEMENT ACT: CONTAMINATED SITES NOTATIONS  
Initiated: JAN 22, 2007 Approved:

Ministry Contact: WARD, JOHN E H

-----  
Notation Type: SITE PROFILE REVIEWED - NO FURTHER INVESTIGATION REQUIRED BY  
THE MINISTRY  
Notation Class: ENVIRONMENTAL MANAGEMENT ACT: GENERAL  
Initiated: JAN 22, 2007 Approved:

Ministry Contact: WARD, JOHN E H

-----  
Notation Type: SITE PROFILE RECEIVED  
Notation Class: WASTE MANAGEMENT ACT: CONTAMINATED SITES NOTATIONS

Initiated: JAN 22, 2007 Approved:

Ministry Contact: WARD, JOHN E H

Notation Participants	Notation Roles
CROYDON CROSSING DEVELOPMENT CORPORATION	SITE PROFILE SUBMITTED
	BY
CROYDON CROSSING DEVELOPMENT CORPORATION	SITE PROFILE SUBMITTED
	BY

=====

SITE PARTICIPANTS

Participant: CROYDON CROSSING DEVELOPMENT CORPORATION  
Role(s): PROPERTY OWNER  
SITE PROFILE COMPLETOR  
SITE PROFILE CONTACT  
Start Date: JAN 22, 2007 End Date:

-----

Participant: POTTINGER GAHERTY ENVIRONMENTAL CONSULTANTS LTD  
Role(s): ENVIRONMENTAL CONSULTANT/CONTRACTOR  
Start Date: MAR 01, 2005 End Date:

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Participant: WARD, JOHN E H  
Role(s): MAIN MINISTRY CONTACT  
Start Date: JAN 22, 2007 End Date:

=====

DOCUMENTS

Title: PHASE 2 PSI 15779 AND 15843 CROYDON DRIVE, SURREY BC  
Authored: MAR 01, 2005 Submitted: JAN 22, 2007

Participants	Role
POTTINGER GAHERTY ENVIRONMENTAL CONSULTANTS LTD	AUTHOR

Notes: EXACT DOCUMENT DATE UNKOWN

=====

SUSPECTED LAND USE

Description: AUTO/TRUCK/BUS/SUBWAY/OTHER VEHICLE REPAIR/SALVAGE/WRECKING  
Notes: INSERTED FOR SITE PROFILE DATED 2006-07-14(described on Site Profile dated 06-07-14)

=====

PARCEL DESCRIPTIONS

Date Added: JUL 14, 2006 Crown Land PIN#:  
LTO PID#: 002382148 Crown Land File#:  
Land Desc: THE EAST HALF OF THE EAST HALF LEGAL SUBDIVISION 2  
EXCEPT:FIRSTLY: PARCEL "A" (REFERENCE PLAN 13622)SECONDLY: PART  
SUBDIVIDED BY PLAN 24836THIRDLY: LOT "T" AND HIGHWAY SHOWN ON  
PLAN 25810;SECTION 23 TOWNSHIP 1 NEW WESTMINSTER DISTRICT

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Date Added: JUL 14, 2006 Crown Land PIN#:  
LTO PID#: 017000360 Crown Land File#:

As of: APR 06, 2014

BC Online: Site Registry

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For: PK66793 HEMMERA ENVIROCHEM INC.

14:01:13

Folio: 285-077.03-4A

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PARCEL DESCRIPTIONS

**Page 3 to Page 65 omitted** from detail report because of Strata description

PARCEL DESCRIPTIONS

STRATA PLAN BCS3870 TOGETHER WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM V

=====

CURRENT SITE PROFILE INFORMATION (Sec. III to X)

Site Profile Completion Date: JUL 14, 2006

Local Authority Received: JUL 17, 2007

Ministry Regional Manager Received: Decision: JAN 22, 2007
Decision: INVESTIGATION NOT REQUIRED

Site Registrar Received: JAN 22, 2007 Entry Date: JAN 22, 2007

III COMMERCIAL AND INDUSTRIAL PURPOSES OR ACTIVITIES ON SITE
Schedule 2

Table with 2 columns: Reference, Description. Row 1: G2 AUTO/TRUCK/BUS/SUBWAY/OTHER VEHICLE REPAIR/SALVAGE/WRECKING

AREAS OF POTENTIAL CONCERN

- Petroleum, solvent or other polluting substance spills to the environment greater than 100 litres?..NO
Residue left after removal of piled materials such as chemicals, coal, ore, smelter slag, air quality control system baghouse dust?..NO
Discarded barrels, drums or tanks?..NO
Contamination resulting from migration of substances from other properties?..NO

FILL MATERIALS

- Fill dirt, soil, gravel, sand or like materials from a contaminated site or from a source used for any of the activities listed under Schedule 2?..NO
Discarded or waste granular materials such as sand blasting grit, asphalt paving or roofing material, spent foundry casting sands, mine ore, waste rock or float?..NO
Dredged sediments, or sediments and debris materials originating from locations adjacent to foreshore industrial activities, or municipal sanitary or stormwater discharges?..NO

WASTE DISPOSAL

- Materials such as household garbage, mixed municipal refuse, or demolition debris?..NO
Waste or byproducts such as tank bottoms, residues, sludge, or flocculation precipitates from industrial processes or wastewater treatment?..NO
Waste products from smelting or mining activities, such as smelter slag, mine tailings, or cull materials from coal processing?..NO
Waste products from natural gas and oil well drilling activities, such as drilling fluids and muds?..NO
Waste products from photographic developing or finishing laboratories; asphalt tar manufacturing; boilers, incinerators or other thermal

facilities (eg. ash); appliance, small equipment or engine repair or salvage; dry cleaning operations (eg. solvents); or automobile and truck parts cleaning or repair?.....NO

TANKS OR CONTAINERS USED OR STORED

Underground fuel or chemical storage tanks?.....NO  
Above ground fuel or chemical storage tanks?.....NO

SPECIAL (HAZARDOUS) WASTES OR SUBSTANCES

PCB-containing electrical transformers or capacitors either at grade, attached above ground to poles, located within buildings, or stored?....NO  
Waste asbestos or asbestos containing materials such as pipe wrapping, blown-in insulation or panelling buried?.....NO  
Paints, solvents, mineral spirits or waste pest control products or pest control product containers stored in volumes greater than 205 litres?...NO

LEGAL OR REGULATORY ACTIONS OR CONSTRAINTS

Government orders or other notifications pertaining to environmental conditions or quality of soil, water, groundwater or other environmental media?.....NO  
Liens to recover costs, restrictive covenants on land use, or other charges or encumbrances, stemming from contaminants or wastes remaining onsite or from other environmental conditions?.....NO  
Government notifications relating to past or recurring environmental violations at the site or any facility located on the site?.....NO

X ADDITIONAL COMMENTS AND EXPLANATIONS

End of Detail Report

As of: APR 06, 2014

BC Online: Site Registry  
For: PK66793 HEMMERA ENVIROCHEM INC.

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14:39:08  
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Folio: 285-077-03/4A

Detail Report

SITE LOCATION

Site ID: 10473 Latitude: 49d 03m 03.0s  
Victoria File: 26250-20/10473 Longitude: 122d 47m 17.2s  
Regional File: 26250-20/10473  
Region: SURREY, LOWER MAINLAND

Site Address: 15650 28TH AVE., 2678 156TH ST., & 2660 CROYDON DR  
City: SURREY Prov/State: BC  
Postal Code: V3S 0C5

Registered: JUN 20, 2007 Updated: MAR 31, 2010 Detail Removed: MAR 31, 2010

Notations: 10 Participants: 12 Associated Sites: 0  
Documents: 5 Susp. Land Use: 2 Parcel Descriptions: 12

Location Description: SITE CREATED BY SITE PROFILE, ENTERED 2007-06-18 LAT & LONG COORDINATES FROM (2008-01-23) NOTICE OF INDEPENDENT REMEDIATION

Record Status: INACTIVE - REMEDIATION COMPLETE  
Fee category: UNRANKED

=====  
NOTATIONS

Notation Type: CERTIFICATE OF COMPLIANCE ISSUED USING NUMERICAL STANDARDS  
Notation Class: ENVIRONMENTAL MANAGEMENT ACT: GENERAL  
Initiated: MAR 25, 2010 Approved: MAR 25, 2010

Ministry Contact: LOCKHART, DAVE

Notation Participants	Notation Roles
ALNOR EXCAVATING LTD.	RECEIVED BY
WALTON, DOUG G	ISSUED BY
LARSEN, LORI C.	APPROVED PROFESSIONAL

Note: ISSUED ON THE RECOMMENDATION OF AN APPROVED PROFESSIONAL (LORI C. LARSEN) UNDER PROTOCOL 6 OF THE CONTAMINATED SITES REGULATION

-----  
Notation Type: CERTIFICATE OF COMPLIANCE REQUESTED  
Notation Class: ENVIRONMENTAL MANAGEMENT ACT: GENERAL  
Initiated: MAR 22, 2010 Approved: MAR 22, 2010

Ministry Contact: HEWLETT, LUCY

Notation Participants	Notation Roles
ALNOR EXCAVATING LTD.	REQUESTED BY
KEYSTONE ENVIRONMENTAL LTD.	APPROVED PROFESSIONAL

-----  
Notation Type: NOTICE OF INDEPENDENT REMEDIATION INITIATION SUBMITTED  
Notation Class: ENVIRONMENTAL MANAGEMENT ACT: GENERAL  
Initiated: JAN 25, 2010 Approved: JAN 25, 2010

Ministry Contact: SAMWAYS, JENNIFER

Notation Participants Notation Roles  
KEYSTONE ENVIRONMENTAL LTD. SUBMITTED BY

Note: START: 2009-12-23

-----  
Notation Type: NOTICE OF INDEPENDENT REMEDIATION COMPLETION SUBMITTED  
Notation Class: ENVIRONMENTAL MANAGEMENT ACT: GENERAL  
Initiated: JAN 25, 2010 Approved: JAN 25, 2010

Ministry Contact: SAMWAYS, JENNIFER

Notation Participants Notation Roles  
KEYSTONE ENVIRONMENTAL LTD. SUBMITTED BY

Note: COMPLETE: 2009-12-23

-----  
Notation Type: NOTICE OF INDEPENDENT REMEDIATION INITIATION SUBMITTED  
Notation Class: ENVIRONMENTAL MANAGEMENT ACT: GENERAL  
Initiated: JAN 23, 2008 Approved: JAN 23, 2008

Ministry Contact: ROSSER, CRAIG L

Notation Participants Notation Roles  
PHOENIX ENVIRONMENTAL SERVICES LTD. SUBMITTED BY

Note: STARTED: 2007-11-28

-----  
Notation Type: NOTICE OF INDEPENDENT REMEDIATION COMPLETION SUBMITTED  
Notation Class: ENVIRONMENTAL MANAGEMENT ACT: GENERAL  
Initiated: JAN 23, 2008 Approved: JAN 23, 2008

Ministry Contact: ROSSER, CRAIG L

Notation Participants Notation Roles  
PHOENIX ENVIRONMENTAL SERVICES LTD. SUBMITTED BY

Note: COMPLETED: 2008-01-22

-----  
Notation Type: SITE PROFILE - FURTHER INVESTIGATION REQUIRED BY THE MINISTRY  
Notation Class: WASTE MANAGEMENT ACT: CONTAMINATED SITES NOTATIONS  
Initiated: JUN 19, 2007 Approved:

Ministry Contact: HANEMAYER, VINCENT (SURREY) C

Note: MARCH 18, 2008: RELEASE OF DEVELOPMENT PERMIT AND ZONING AND  
SUBDIVISION APPLICATIONS GRANTED BECAUSE IN THE OPINION OF THE DIRECTOR THE  
RELEASE WOULD NOT POSE SIGNIFICANT THREAT OR RISK.

Required Actions: PRELIMINARY SITE INVESTIGATION REQUIRED.

-----  
Notation Type: SITE PROFILE REVIEWED - FURTHER INVESTIGATION REQUIRED BY THE  
MINISTRY  
Notation Class: ENVIRONMENTAL MANAGEMENT ACT: GENERAL  
Initiated: JUN 19, 2007 Approved:

Ministry Contact: HANEMAYER, VINCENT (SURREY) C

Note: MARCH 18, 2008: RELEASE OF DEVELOPMENT PERMIT AND ZONING AND  
SUBDIVISION APPLICATIONS GRANTED BECAUSE IN THE OPINION OF THE DIRECTOR THE  
RELEASE WOULD NOT POSE SIGNIFICANT THREAT OR RISK.

Required Actions: PRELIMINARY SITE INVESTIGATION REQUIRED.

-----  
Notation Type: SITE PROFILE RECEIVED  
Notation Class: WASTE MANAGEMENT ACT: CONTAMINATED SITES NOTATIONS  
Initiated: JUN 04, 2007 Approved:

Ministry Contact: HANEMAYER, VINCENT (SURREY) C

Notation Participants	Notation Roles
CROYDON VENTURES INC	SITE PROFILE SUBMITTED BY
CROYDON VENTURES INC	SITE PROFILE SUBMITTED BY

-----  
Notation Type: SITE PROFILE RECEIVED  
Notation Class: ENVIRONMENTAL MANAGEMENT ACT: GENERAL  
Initiated: JUN 04, 2007 Approved:

Ministry Contact: HANEMAYER, VINCENT (SURREY) C

Notation Participants	Notation Roles
CROYDON VENTURES INC	SITE PROFILE SUBMITTED BY
CROYDON VENTURES INC	SITE PROFILE SUBMITTED BY

=====

SITE PARTICIPANTS

Participant: ALNOR EXCAVATING LTD.  
Role(s): PROPERTY OWNER  
Start Date: JAN 25, 2010 End Date:

-----  
Participant: CROYDON VENTURES INC  
Role(s): PROPERTY OWNER  
SITE PROFILE COMPLETOR  
SITE PROFILE CONTACT  
Start Date: JUN 04, 2007 End Date:

-----  
Participant: HANEMAYER, VINCENT (SURREY) C



Role(s): MAIN MINISTRY CONTACT	End Date:
Start Date: JUN 04, 2007	
-----	
Participant: HEWLETT, LUCY	
Role(s): ALTERNATE MINISTRY CONTACT	End Date:
Start Date: MAR 22, 2010	
-----	
Participant: KEYSTONE ENVIRONMENTAL LTD.	
Role(s): ENVIRONMENTAL CONSULTANT/CONTRACTOR	End Date:
Start Date: MAR 01, 2010	
-----	
Participant: KEYSTONE ENVIRONMENTAL LTD.	
Role(s): ENVIRONMENTAL CONSULTANT/CONTRACTOR	End Date:
Start Date: JAN 25, 2010	
-----	
Participant: LARSEN, LORI C.	
Role(s): ENVIRONMENTAL CONSULTANT/CONTRACTOR	End Date:
Start Date: MAR 25, 2010	
-----	
Participant: LOCKHART, DAVE	
Role(s): ALTERNATE MINISTRY CONTACT	End Date:
Start Date: MAR 25, 2010	
-----	
Participant: PHOENIX ENVIRONMENTAL SERVICES LTD.	
Role(s): ENVIRONMENTAL CONSULTANT/CONTRACTOR	End Date:
Start Date: JUL 01, 2005	
-----	
Participant: ROSSER, CRAIG L	
Role(s): ALTERNATE MINISTRY CONTACT	End Date:
Start Date: JAN 23, 2008	
-----	
Participant: SAMWAYS, JENNIFER	
Role(s): ALTERNATE MINISTRY CONTACT	End Date:
Start Date: JAN 25, 2010	
-----	
Participant: WALTON, DOUG G	
Role(s): ALTERNATE MINISTRY CONTACT	End Date:
Start Date: MAR 25, 2010	
=====	

DOCUMENTS

Title: SUMMARY OF SITE CONDITION	Submitted: MAR 19, 2010
Authored: MAR 10, 2010	
Participants	Role
KEYSTONE ENVIRONMENTAL LTD.	AUTHOR
-----	
Title: REPORT OF FINDINGS SUPPLEMENTARY SITE INVESTIGATION AND REMEDIAL CLOSURE REPORT	Submitted: MAR 19, 2010
Authored: MAR 01, 2010	
Participants	Role
KEYSTONE ENVIRONMENTAL LTD.	AUTHOR

Notes: EXACT DOCUMENT DATE UNKNOWN

Title: REPORT ON PRELIMINARY SITE INVESTIGATION, DETAILED SITE INVESTIGATION & CONFIRMATION OF REMEDIATION SITE ID NO. 10473 RESIDENTIAL & LIGHT INDUSTRIAL P

Authored: JUL 01, 2008 Submitted: MAR 19, 2010

Participants Role  
PHOENIX ENVIRONMENTAL SERVICES LTD. AUTHOR

Notes: EXACT DOCUMENT DATE UNKNOWN

Title: STAGE 1 PRELIMINARY SITE INVESTIGATION REPORT PROPOSED LOT 2 & LOT 3 15650 28TH AVENUE, 2678 156TH STREET AND 2660 CROYDON DRIVE, SURREY BC

Authored: JUN 01, 2007 Submitted: MAR 19, 2010

Participants Role  
PHOENIX ENVIRONMENTAL SERVICES LTD. AUTHOR

Notes: EXACT DOCUMENT DATE UNKNOWN

Title: STAGE 1 PRELIMINARY SITE INVESTIGATION REPORT 2678 - 156TH STREET, 2660 CROYDON DRIVE & 15650 - 28TH AVENUE, SURREY, BC

Authored: JUL 01, 2005 Submitted: MAR 19, 2010

Participants Role  
PHOENIX ENVIRONMENTAL SERVICES LTD. AUTHOR

Notes: EXACT DOCUMENT DATE UNKNOWN

SUSPECTED LAND USE

Description: APPLIANCE/EQUIP OR ENGINE REPAIR/RECONDITION/CLEANING/SALVAG  
Notes: INSERTED FOR SITE PROFILE DATED 2007-05-29 (described on Site Profile dated 07-05-29)

Description: AUTO/TRUCK/BUS/SUBWAY/OTHER VEHICLE REPAIR/SALVAGE/WRECKING  
Notes: INSERTED FOR SITE PROFILE DATED 2007-05-29 (described on Site Profile dated 07-05-29)

PARCEL DESCRIPTIONS

Date Added: MAY 29, 2007 Crown Land PIN#:  
LTO PID#: 000540706 Crown Land File#:  
Land Desc: LOT 3 EXCEPT: PART ON SRW PLAN 25810 SECTION 23 TOWNSHIP 1WNEW WESTMINSTER DISTRICT PLAN 10600

Date Added: MAR 22, 2010 Crown Land PIN#:  
LTO PID#: 000675873 Crown Land File#:  
Land Desc: LOT 2, EXCEPT: PART ON SRW PLAN 25810 SECTION 23 TOWNSHIP 1NEW WESTMINSTER DISTRICT PLAN 10600

Date Added: JUN 04, 1997 Crown Land PIN#:  
LTO PID#: 011626852 Crown Land File#:  
Land Desc: WEST HALF OF THE NORTH HALF LEGAL SUBDIVISION 7SECTION 23 TOWNSHIP 1 NEW WESTMINSTER DISTRICT

As of: APR 06, 2014  
Folio: 285-077-03/4A  
PARCEL DESCRIPTIONS

BC Online: Site Registry  
For: PK66793 HEMMERA ENVIROCHEM INC.

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-----  
Date Added: JUL 15, 2010 Crown Land PIN#:  
LTO PID#: 028271971 Crown Land File#:  
Land Desc: LOT 1 SECTION 23 TOWNSHIP 1 NEW WESTMINSTER DISTRICT PLAN  
BCP45196

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Date Added: JUL 15, 2010 Crown Land PIN#:  
LTO PID#: 028271980 Crown Land File#:  
Land Desc: LOT 2 SECTION 23 TOWNSHIP 1 NEW WESTMINSTER DISTRICT PLAN  
BCP45196

-----  
Date Added: JUL 15, 2010 Crown Land PIN#:  
LTO PID#: 028271998 Crown Land File#:  
Land Desc: LOT 3 SECTION 23 TOWNSHIP 1 NEW WESTMINSTER DISTRICT PLAN  
BCP45196

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Date Added: SEP 22, 2012 Crown Land PIN#:  
LTO PID#: 028917952 Crown Land File#:  
Land Desc:

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Date Added: SEP 22, 2012 Crown Land PIN#:  
LTO PID#: 028919009 Crown Land File#:  
Land Desc:

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Date Added: SEP 22, 2012 Crown Land PIN#:  
LTO PID#: 028919076 Crown Land File#:  
Land Desc:

-----  
Date Added: SEP 29, 2012 Crown Land PIN#:  
LTO PID#: 028925165 Crown Land File#:  
Land Desc: ALL THAT PORTION OF LOT 1 SECTION 23 TOWNSHIP 1 NEW  
WESTMINSTER DISTRICT PLAN BCP45196 INCLUDED WITHIN THE BOUNDARY  
OF LOT B PLAN BCP51208

-----  
Date Added: SEP 29, 2012 Crown Land PIN#:  
LTO PID#: 028925271 Crown Land File#:  
Land Desc: LOT A SECTION 23 TOWNSHIP 1 NEW WESTMINSTER DISTRICT PLAN  
BCP51208

-----  
Date Added: SEP 29, 2012 Crown Land PIN#:  
LTO PID#: 028925289 Crown Land File#:  
Land Desc: LOT B SECTION 23 TOWNSHIP 1 NEW WESTMINSTER DISTRICT PLAN  
BCP51208

=====

CURRENT SITE PROFILE INFORMATION (Sec. III to X)

Site Profile Completion Date: MAY 29, 2007

Local Authority Received: MAY 29, 2007

Ministry Regional Manager Received: JUN 04, 2007  
Decision: INVESTIGATION REQUIRED

Decision: JUN 19, 2007

Site Registrar                      Received:                                      Entry Date:

III COMMERCIAL AND INDUSTRIAL PURPOSES OR ACTIVITIES ON SITE  
Schedule 2

Reference	Description
E1	APPLIANCE/EQUIP OR ENGINE REPAIR/RECONDITION/CLEANING/SALVAG
G2	AUTO/TRUCK/BUS/SUBWAY/OTHER VEHICLE REPAIR/SALVAGE/WRECKING

AREAS OF POTENTIAL CONCERN

Petroleum, solvent or other polluting substance spills to the environment greater than 100 litres?.....NO  
Residue left after removal of piled materials such as chemicals, coal, ore, smelter slag, air quality control system baghouse dust?.....NO  
Discarded barrels, drums or tanks?.....NO  
Contamination resulting from migration of substances from other properties?.....NO

FILL MATERIALS

Fill dirt, soil, gravel, sand or like materials from a contaminated site or from a source used for any of the activiities listed under Schedule 2?.....NO  
Discarded or waste granular materials such as sand blasting grit, asphalt paving or roofing material, spent foundry casting sands, mine ore, waste rock or float?.....NO  
Dredged sediments, or sediments and debris materials originating from locations adjacent to foreshore industrial activities, or municipal sanitary or stormwater discharges?.....NO

WASTE DISPOSAL

Materials such as household garbage, mixed municipal refuse, or demolition debris?.....NO  
Waste or byproducts such as tank bottoms, residues, sludge, or flocculation precipitates from industrial processes or wastewater treatment?.....NO  
Waste products from smelting or mining activities, such as smelter slag, mine tailings, or cull materials from coal processing?.....NO  
Waste products from natural gas and oil well drilling activities, such as drilling fluids and muds?.....NO  
Waste products from photographic developing or finishing laboratories; asphalt tar manufacturing; boilers, incinerators or other thermal facilities (eg. ash); appliance, small equipment or engine repair or salvage; dry cleaning operations (eg. solvents); or automobile and truck parts cleaning or repair?.....NO

TANKS OR CONTAINERS USED OR STORED

Underground fuel or chemical storage tanks?.....NO  
Above ground fuel or chemical storage tanks?.....YES

SPECIAL (HAZARDOUS) WASTES OR SUBSTANCES

PCB-containing electrical transformers or capacitors either at grade, attached above ground to poles, located within buildings, or stored?....NO  
Waste asbestos or asbestos containing materials such as pipe wrapping,

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For: PK66793 HEMMERA ENVIROCHEM INC. 14:39:08  
Folio: 285-077-03/4A Page 8  
blown-in insulation or panelling buried?.....NO  
Paints, solvents, mineral spirits or waste pest control products or pest  
control product containers stored in volumes greater than 205 litres?...NO

LEGAL OR REGULATORY ACTIONS OR CONSTRAINTS

Government orders or other notifications pertaining to environmental  
conditions or quality of soil, water, groundwater or other  
environmental media?.....NO  
Liens to recover costs, restrictive covenants on land use, or other  
charges or encumbrances, stemming from contaminants or wastes remaining  
onsite or from other environmental conditions?.....NO  
Government notifications relating to past or recurring environmental  
violations at the site or any facility located on the site?.....NO

X ADDITIONAL COMMENTS AND EXPLANATIONS

End of Detail Report

Detail Report

SITE LOCATION

Site ID: 12843 Latitude: 49d 11m 02.6s  
Victoria File: 26250-20/12843 Longitude: 123d 06m 19.4s  
Regional File:  
Region: SURREY, LOWER MAINLAND

Site Address: 10700 CAMBIE ROAD  
City: RICHMOND Prov/State: BC  
Postal Code:

Registered: FEB 28, 2011 Updated: JAN 17, 2013 Detail Removed: JAN 17, 2013

Notations: 5 Participants: 2 Associated Sites: 1  
Documents: 0 Susp. Land Use: 1 Parcel Descriptions: 0

Location Description: SITE 12843 HAS BEEN CONSOLIDATED WITH SITE 2187. SITE 12843 WILL NO LONGER BE USED.

Record Status: INACTIVE - NO FURTHER ACTION  
Fee category: UNRANKED

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NOTATIONS

Notation Type: CASE MANAGEMENT ITEM  
Notation Class: ADMINISTRATIVE  
Initiated: JAN 17, 2013 Approved: JAN 17, 2013

Ministry Contact: HANEMAYER, VINCENT (SURREY) C

Note: SITE 12843 HAS BEEN COMBINED WITH SITE 2187 AND 12843 WILL NO LONGER BE USED. HOWEVER, HISTORIC INFORMATION IN SITE 12843 WILL BE RETAINED IN THAT FILE.

-----  
Notation Type: SITE PROFILE RECEIVED  
Notation Class: ENVIRONMENTAL MANAGEMENT ACT: GENERAL  
Initiated: FEB 21, 2011 Approved:

Ministry Contact: WARD, JOHN E H

Notation Participants	Notation Roles
PACIFIC GROVE PLAZA INC	SITE PROFILE SUBMITTED BY
PACIFIC GROVE PLAZA INC	SITE PROFILE SUBMITTED BY

-----  
Notation Type: SITE PROFILE RECEIVED  
Notation Class: WASTE MANAGEMENT ACT: CONTAMINATED SITES NOTATIONS  
Initiated: FEB 21, 2011 Approved:

Ministry Contact: WARD, JOHN E H

Notation Participants	Notation Roles
PACIFIC GROVE PLAZA INC	SITE PROFILE SUBMITTED
	BY
PACIFIC GROVE PLAZA INC	SITE PROFILE SUBMITTED
	BY

-----  
Notation Type: SITE PROFILE - NO FURTHER INVESTIGATION REQUIRED BY THE  
MINISTRY

Notation Class: WASTE MANAGEMENT ACT: CONTAMINATED SITES NOTATIONS  
Initiated: FEB 21, 2011 Approved:

Ministry Contact: WARD, JOHN E H  
-----

Notation Type: SITE PROFILE REVIEWED - NO FURTHER INVESTIGATION REQUIRED BY  
THE MINISTRY

Notation Class: ENVIRONMENTAL MANAGEMENT ACT: GENERAL  
Initiated: FEB 21, 2011 Approved:

Ministry Contact: WARD, JOHN E H  
=====

SITE PARTICIPANTS

Participant: PACIFIC GROVE PLAZA INC  
Role(s): PROPERTY OWNER  
SITE PROFILE COMPLETOR  
SITE PROFILE CONTACT

Start Date: FEB 21, 2011 End Date:

-----  
Participant: WARD, JOHN E H  
Role(s): MAIN MINISTRY CONTACT  
Start Date: FEB 21, 2011 End Date:

=====

ASSOCIATED SITES

Site id: 2187 Date: JAN 17, 2013  
Notes: SITE 12843 HAS BEEN CONSOLIDATED WITH SITE 2187. SITE 12843 WILL  
NO LONGER BE USED.

=====

SUSPECTED LAND USE

Description: AUTO/TRUCK/BUS/SUBWAY/OTHER VEHICLE REPAIR/SALVAGE/WRECKING  
Notes: INSERTED FOR SITE PROFILE DATED 2011-01-17(described on Site  
Profile dated 11-01-17)

=====

CURRENT SITE PROFILE INFORMATION (Sec. III to X)

Site Profile Completion Date: JAN 17, 2011

Local Authority Received: FEB 26, 2011

Ministry Regional Manager Received: Decision: FEB 21, 2011  
Decision: INVESTIGATION NOT REQUIRED

Site Registrar Received: FEB 21, 2011 Entry Date: FEB 21, 2011

III COMMERCIAL AND INDUSTRIAL PURPOSES OR ACTIVITIES ON SITE  
Schedule 2

Reference	Description
G2	AUTO/TRUCK/BUS/SUBWAY/OTHER VEHICLE REPAIR/SALVAGE/WRECKING

AREAS OF POTENTIAL CONCERN

Petroleum, solvent or other polluting substance spills to the environment greater than 100 litres?.....NO  
Residue left after removal of piled materials such as chemicals, coal, ore, smelter slag, air quality control system baghouse dust?.....NO  
Discarded barrels, drums or tanks?.....NO  
Contamination resulting from migration of substances from other properties?.....NO

FILL MATERIALS

Fill dirt, soil, gravel, sand or like materials from a contaminated site or from a source used for any of the activities listed under Schedule 2?.....NO  
Discarded or waste granular materials such as sand blasting grit, asphalt paving or roofing material, spent foundry casting sands, mine ore, waste rock or float?.....NO  
Dredged sediments, or sediments and debris materials originating from locations adjacent to foreshore industrial activities, or municipal sanitary or stormwater discharges?.....NO

WASTE DISPOSAL (QUESTIONS AS OF JANUARY 1 2009)

Materials such as household garbage, mixed municipal refuse, or demolition debris?.....NO  
Waste or byproducts such as tank bottoms, residues, sludge, or flocculation precipitates from industrial processes or wastewater treatment?.....NO  
Waste products from smelting or mining activities, such as smelter slag, mine tailings, or cull materials from coal processing?.....NO  
Waste products from natural gas and oil well drilling activities, such as drilling fluids and muds?.....NO  
Waste products from photographic developing or finishing laboratories; asphalt tar manufacturing; boilers, incinerators or other thermal facilities (eg. ash); appliance, small equipment or engine repair or salvage; dry cleaning operations (eg. solvents); for from the cleaning or repair of parts of boats, ships, barges, automobiles or trucks, including sandblasting grit or paint scrapings?.....NO

TANKS OR CONTAINERS USED OR STORED, OTHER THAN TANKS USED FOR RESIDENTIAL HEATING FUEL

Underground fuel or chemical storage tanks other than storage tanks for compressed gases?.....NO  
Above ground fuel or chemical storage tanks other than storage tanks for compressed gases?.....NO

HAZARDOUS WASTES OR HAZARDOUS SUBSTANCES



PCB-containing electrical transformers or capacitors either at grade,  
attached above ground to poles, located within buildings, or stored?....NO  
Waste asbestos or asbestos containing materials such as pipe wrapping,  
blown-in insulation or panelling buried?.....NO  
Paints, solvents, mineral spirits or waste pest control products or pest  
control product containers stored in volumes greater than 205 litres?...NO

LEGAL OR REGULATORY ACTIONS OR CONSTRAINTS

Government orders or other notifications pertaining to environmental  
conditions or quality of soil, water, groundwater or other  
environmental media?.....NO  
Liens to recover costs, restrictive covenants on land use, or other  
charges or encumbrances, stemming from contaminants or wastes remaining  
onsite or from other environmental conditions?.....NO  
Government notifications relating to past or recurring environmental  
violations at the site or any facility located on the site?.....NO

X ADDITIONAL COMMENTS AND EXPLANATIONS

End of Detail Report

Detail Report

SITE LOCATION

Site ID: 12843 Latitude: 49d 11m 02.6s  
Victoria File: 26250-20/12843 Longitude: 123d 06m 19.4s  
Regional File:  
Region: SURREY, LOWER MAINLAND

Site Address: 10700 CAMBIE ROAD  
City: RICHMOND Prov/State: BC  
Postal Code:

Registered: FEB 28, 2011 Updated: JAN 17, 2013 Detail Removed: JAN 17, 2013

Notations: 5 Participants: 2 Associated Sites: 1  
Documents: 0 Susp. Land Use: 1 Parcel Descriptions: 0

Location Description: SITE 12843 HAS BEEN CONSOLIDATED WITH SITE 2187. SITE 12843 WILL NO LONGER BE USED.

Record Status: INACTIVE - NO FURTHER ACTION  
Fee category: UNRANKED

=====  
NOTATIONS

Notation Type: CASE MANAGEMENT ITEM  
Notation Class: ADMINISTRATIVE  
Initiated: JAN 17, 2013 Approved: JAN 17, 2013

Ministry Contact: HANEMAYER, VINCENT (SURREY) C

Note: SITE 12843 HAS BEEN COMBINED WITH SITE 2187 AND 12843 WILL NO LONGER BE USED. HOWEVER, HISTORIC INFORMATION IN SITE 12843 WILL BE RETAINED IN THAT FILE.

-----  
Notation Type: SITE PROFILE RECEIVED  
Notation Class: ENVIRONMENTAL MANAGEMENT ACT: GENERAL  
Initiated: FEB 21, 2011 Approved:

Ministry Contact: WARD, JOHN E H

Notation Participants	Notation Roles
PACIFIC GROVE PLAZA INC	SITE PROFILE SUBMITTED BY
PACIFIC GROVE PLAZA INC	SITE PROFILE SUBMITTED BY

-----  
Notation Type: SITE PROFILE RECEIVED  
Notation Class: WASTE MANAGEMENT ACT: CONTAMINATED SITES NOTATIONS  
Initiated: FEB 21, 2011 Approved:

Ministry Contact: WARD, JOHN E H

Notation Participants	Notation Roles
PACIFIC GROVE PLAZA INC	SITE PROFILE SUBMITTED
	BY
PACIFIC GROVE PLAZA INC	SITE PROFILE SUBMITTED
	BY

-----  
Notation Type: SITE PROFILE - NO FURTHER INVESTIGATION REQUIRED BY THE  
MINISTRY  
Notation Class: WASTE MANAGEMENT ACT: CONTAMINATED SITES NOTATIONS  
Initiated: FEB 21, 2011 Approved:

Ministry Contact: WARD, JOHN E H  
-----

Notation Type: SITE PROFILE REVIEWED - NO FURTHER INVESTIGATION REQUIRED BY  
THE MINISTRY  
Notation Class: ENVIRONMENTAL MANAGEMENT ACT: GENERAL  
Initiated: FEB 21, 2011 Approved:

Ministry Contact: WARD, JOHN E H  
=====

SITE PARTICIPANTS

Participant: PACIFIC GROVE PLAZA INC  
Role(s): PROPERTY OWNER  
SITE PROFILE COMPLETOR  
SITE PROFILE CONTACT  
Start Date: FEB 21, 2011 End Date:

-----  
Participant: WARD, JOHN E H  
Role(s): MAIN MINISTRY CONTACT  
Start Date: FEB 21, 2011 End Date:  
=====

ASSOCIATED SITES

Site id: 2187 Date: JAN 17, 2013  
Notes: SITE 12843 HAS BEEN CONSOLIDATED WITH SITE 2187. SITE 12843 WILL  
NO LONGER BE USED.  
=====

SUSPECTED LAND USE

Description: AUTO/TRUCK/BUS/SUBWAY/OTHER VEHICLE REPAIR/SALVAGE/WRECKING  
Notes: INSERTED FOR SITE PROFILE DATED 2011-01-17(described on Site  
Profile dated 11-01-17)  
=====

CURRENT SITE PROFILE INFORMATION (Sec. III to X)  
Site Profile Completion Date: JAN 17, 2011

Local Authority Received: FEB 26, 2011

Ministry Regional Manager Received: Decision: FEB 21, 2011  
Decision: INVESTIGATION NOT REQUIRED

Site Registrar Received: FEB 21, 2011 Entry Date: FEB 21, 2011

III COMMERCIAL AND INDUSTRIAL PURPOSES OR ACTIVITIES ON SITE  
 Schedule 2

Reference	Description
G2	AUTO/TRUCK/BUS/SUBWAY/OTHER VEHICLE REPAIR/SALVAGE/WRECKING

AREAS OF POTENTIAL CONCERN

- Petroleum, solvent or other polluting substance spills to the environment greater than 100 litres?.....NO
- Residue left after removal of piled materials such as chemicals, coal, ore, smelter slag, air quality control system baghouse dust?.....NO
- Discarded barrels, drums or tanks?.....NO
- Contamination resulting from migration of substances from other properties?.....NO

FILL MATERIALS

- Fill dirt, soil, gravel, sand or like materials from a contaminated site or from a source used for any of the activities listed under Schedule 2?.....NO
- Discarded or waste granular materials such as sand blasting grit, asphalt paving or roofing material, spent foundry casting sands, mine ore, waste rock or float?.....NO
- Dredged sediments, or sediments and debris materials originating from locations adjacent to foreshore industrial activities, or municipal sanitary or stormwater discharges?.....NO

WASTE DISPOSAL (QUESTIONS AS OF JANUARY 1 2009)

- Materials such as household garbage, mixed municipal refuse, or demolition debris?.....NO
- Waste or byproducts such as tank bottoms, residues, sludge, or flocculation precipitates from industrial processes or wastewater treatment?.....NO
- Waste products from smelting or mining activities, such as smelter slag, mine tailings, or cull materials from coal processing?.....NO
- Waste products from natural gas and oil well drilling activities, such as drilling fluids and muds?.....NO
- Waste products from photographic developing or finishing laboratories; asphalt tar manufacturing; boilers, incinerators or other thermal facilities (eg. ash); appliance, small equipment or engine repair or salvage; dry cleaning operations (eg. solvents); for from the cleaning or repair of parts of boats, ships, barges, automobiles or trucks, including sandblasting grit or paint scrapings?.....NO

TANKS OR CONTAINERS USED OR STORED, OTHER THAN TANKS USED FOR RESIDENTIAL HEATING FUEL

- Underground fuel or chemical storage tanks other than storage tanks for compressed gases?.....NO
- Above ground fuel or chemical storage tanks other than storage tanks for compressed gases?.....NO

HAZARDOUS WASTES OR HAZARDOUS SUBSTANCES

PCB-containing electrical transformers or capacitors either at grade,  
attached above ground to poles, located within buildings, or stored?....NO  
Waste asbestos or asbestos containing materials such as pipe wrapping,  
blown-in insulation or panelling buried?.....NO  
Paints, solvents, mineral spirits or waste pest control products or pest  
control product containers stored in volumes greater than 205 litres?...NO

LEGAL OR REGULATORY ACTIONS OR CONSTRAINTS

Government orders or other notifications pertaining to environmental  
conditions or quality of soil, water, groundwater or other  
environmental media?.....NO  
Liens to recover costs, restrictive covenants on land use, or other  
charges or encumbrances, stemming from contaminants or wastes remaining  
onsite or from other environmental conditions?.....NO  
Government notifications relating to past or recurring environmental  
violations at the site or any facility located on the site?.....NO

X ADDITIONAL COMMENTS AND EXPLANATIONS

End of Detail Report

Detail Report

SITE LOCATION

Site ID: 15309 Latitude: 49d 11m 18.0s  
Victoria File: 26250-20/15309 Longitude: 123d 06m 52.0s  
Regional File:  
Region: SURREY, LOWER MAINLAND

Site Address: 3391,3411,3451 AND LOT B NO 4 ROAD  
City: RICHMOND Prov/State: BC  
Postal Code: N/A

Registered: MAY 27, 2013 Updated: SEP 17, 2013 Detail Removed: SEP 17, 2013

Notations: 3 Participants: 6 Associated Sites: 0  
Documents: 2 Susp. Land Use: 0 Parcel Descriptions: 4

Location Description: LAT AND LONG CONFIRMED USING ICIS APRIL 19, 2013

Record Status: INACTIVE - NO FURTHER ACTION  
Fee category: UNRANKED

=====  
NOTATIONS

Notation Type: FINAL DETERMINATION OF CONTAMINATED SITE ISSUED - SITE NOT  
CONTAMINATED  
Notation Class: ENVIRONMENTAL MANAGEMENT ACT: GENERAL  
Initiated: JUL 25, 2013 Approved: JUL 25, 2013

Ministry Contact: LOCKHART, DAVE

Notation Participants	Notation Roles
MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE	RECEIVED BY
CONDON, COLM	ISSUED BY
SNC-LAVALIN INC.	APPROVED PROFESSIONAL

Note: ISSUED ON THE RECOMMENDATION OF AN APPROVED PROFESSIONAL (PATRICIA CARMICHAEL) UNDER PROTOCOL 6 OF THE CONTAMINATED SITES REGULATION.

-----  
Notation Type: PRELIMINARY DETERMINATION OF CONTAMINATED SITE ISSUED - SITE  
NOT CONTAMINATED  
Notation Class: ENVIRONMENTAL MANAGEMENT ACT: GENERAL  
Initiated: MAY 29, 2013 Approved: MAY 29, 2013

Ministry Contact: LOCKHART, DAVE

Notation Participants	Notation Roles
MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE	RECEIVED BY
WARD, JOHN E H	ISSUED BY
SNC-LAVALIN INC.	APPROVED PROFESSIONAL

Note: ISSUED ON THE RECOMMENDATION OF AN APPROVED PROFESSIONAL (PATRICIA CARMICHAEL) UNDER PROTOCOL 6 OF THE CONTAMINATED SITES REGULATION



-----  
Notation Type: DETERMINATION OF CONTAMINATED SITE REQUESTED  
Notation Class: ENVIRONMENTAL MANAGEMENT ACT: GENERAL  
Initiated: MAY 22, 2013 Approved: MAY 22, 2013

Ministry Contact: SAMWAYS, JENNIFER

Notation Participants	Notation Roles
MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE	REQUESTED BY
SNC-LAVALIN INC.	APPROVED PROFESSIONAL

=====

SITE PARTICIPANTS

Participant: CONDON, COLM  
Role(s): ALTERNATE MINISTRY CONTACT  
Start Date: JUL 25, 2013 End Date:

-----  
Participant: LOCKHART, DAVE  
Role(s): MINISTRY CONTACT  
Start Date: MAY 29, 2013 End Date:

-----  
Participant: MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE  
Role(s): PROPERTY OWNER  
Start Date: MAY 22, 2013 End Date:

-----  
Participant: SAMWAYS, JENNIFER  
Role(s): MINISTRY CONTACT  
Start Date: MAY 22, 2013 End Date:

-----  
Participant: SNC-LAVALIN INC.  
Role(s): ENVIRONMENTAL CONSULTANT/CONTRACTOR  
Start Date: APR 10, 2013 End Date:

-----  
Participant: WARD, JOHN E H  
Role(s): MINISTRY CONTACT  
Start Date: MAY 29, 2013 End Date:

=====

DOCUMENTS

Title: SUMMARY OF SITE CONDITION  
Authored: APR 18, 2013 Submitted: MAY 22, 2013

Participants	Role
SNC-LAVALIN INC.	AUTHOR

-----  
Title: Stage 1 and Stage 2 Preliminary Site Investigation, 3391, 3411, 3451,  
and Lot B No. 4 Road, Richmond, BC  
Authored: APR 10, 2013 Submitted: APR 10, 2013

Participants	Role
SNC-LAVALIN INC.	AUTHOR

=====

As of: APR 06, 2014

BC Online: Site Registry  
For: PK66793 HEMMERA ENVIROCHEM INC.

14-04-09

14:00:08

Page 3

Folio: 285-077.03 4A

PARCEL DESCRIPTIONS

Date Added: MAY 23, 2013 Crown Land PIN#:  
LTO PID#: 004229487 Crown Land File#:  
Land Desc: LOT "A" EXCEPT: PART ON STATUTORY RIGHT OF WAY PLAN 22045;  
SECTION 27 BLOCK 5 NORTH RANGE 6 WEST NEW WESTMINSTER DISTRICT  
PLAN 14909

-----  
Date Added: MAY 23, 2013 Crown Land PIN#:  
LTO PID#: 004229550 Crown Land File#:  
Land Desc: LOT "C" EXCEPT: PORTIONS ON STATUTORY RIGHT OF WAY PLAN 22045;  
SECTION 27 BLOCK 5 NORTH RANGE 6 WEST NEW WESTMINSTER DISTRICT  
PLAN 15919

-----  
Date Added: MAY 23, 2013 Crown Land PIN#:  
LTO PID#: 014343835 Crown Land File#:  
Land Desc: LOT "B" EXCEPT: PART ON STATUTORY RIGHT OF WAY PLAN 22045;  
SECTION 27 BLOCK 5 NORTH RANGE 6 WEST NEW WESTMINSTER DISTRICT  
PLAN 14909

-----  
Date Added: MAY 23, 2013 Crown Land PIN#:  
LTO PID#: 014399831 Crown Land File#:  
Land Desc: LOT "D" EXCEPT: PORTIONS ON STATUTORY RIGHT OF WAY PLAN 22045;  
SECTION 27 BLOCK 5 NORTH RANGE 6 WEST NEW WESTMINSTER DISTRICT  
PLAN 15919

No activities were reported for this site

End of Detail Report



## **APPENDIX C**

### **Federal Contaminated Sites Inventory Search**

# DFRP/FCSI - Map Navigator

Area: Delta, Richmond Content: 6 Federal Contaminated Sites,

**Map Navigation Tools:** Home, Location, Zoom In (+), Zoom Out (-), Hand, Info (i), Scale (123), and a location pin icon.

**Map Data:** Fraser River, Deas Slough, Deas Island, 628-Street, Crescent Slough, Weston Highway, Richmond, Lulu Island, Ladner, Delta, Tsawwassen, Mud Bay.

**Scale:** 1 : 27,137  
**Latitude:** 49.13732  
**Longitude:** -123.07189

**Scale Bar:** 500 m

**Footer:** Treasury Board of Canada Secretariat | Maps by DBx GEOMATICS inc.

**Layers Search Information**

Control layers and labels visibility with the checkboxes. Control the base map with the select list. Actions will automatically update the map.

	Federal Properties	<input type="checkbox"/> Visibility <sup>1</sup>	<input type="checkbox"/> Labels
	Federal Buildings	<input type="checkbox"/> Visibility <sup>1</sup>	<input type="checkbox"/> Labels
	Federal Contaminated Sites	<input checked="" type="checkbox"/> Visibility <sup>1</sup>	<input checked="" type="checkbox"/> Labels
	Economic Region	<input type="checkbox"/> Visibility	<input type="checkbox"/> Labels
	Census Divisions	<input type="checkbox"/> Visibility	<input type="checkbox"/> Labels
	Census Subdivisions	<input type="checkbox"/> Visibility	<input type="checkbox"/> Labels
	Metropolitan Areas	<input type="checkbox"/> Visibility	<input type="checkbox"/> Labels
	Federal Electoral Districts	<input type="checkbox"/> Visibility	<input type="checkbox"/> Labels
	Treaty Areas	<input type="checkbox"/> Visibility	<input type="checkbox"/> Labels

Base map: Standard  <sup>2</sup>

<sup>1</sup> This layer is visible only when the map scale is smaller than 1:3,000,000.  
<sup>2</sup> Google base maps are only available when the map scale is smaller than 1:60,000.



## Treasury Board of Canada Secretariat

[Home](#) > [FCSI](#) > Site 00020869

### Site 00020869 - Deas Island Bank Protection - Unassessed

**Status** Historical review not required.

**Site Status** Closed

**Classification**

#### Site Details

**Reporting Organization** [Fisheries and Oceans Canada](#)

**Reason for Involvement** Federal Real Property

**Property Type** Federal (DFRP Property Number [84934](#))

#### Site Location

[Locate this site on map](#)

**Latitude, Longitude** 49.11972, -123.07333

**Municipality** Delta, BC

**Federal Electoral District** Delta--Richmond East

#### Additional Information

Unassessed

#### Population

This table contains the population estimates at distances around the site.

Radius	Population
1 km	456
5 km	46,712
10 km	229,447
25 km	1,971,618
50 km	2,592,961

#### Financial/Annual Information

2012-2013	2011-2012	2010-2011	2009-2010	2008-2009	2007-2008	2006-2007
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##### 2012-2013

**Reporting Organization** Fisheries and Oceans Canada

**Internal Identifier** P K 01653

**Highest Step Completed** **01** Identify Suspect Sites

**Planned Completion Date (Step 7)** no data

<b>Planned Completion Date (Step 8)</b>	no data
<b>Planned Completion Date (Step 9)</b>	no data
<b>Total Assessment Expenditure</b>	\$0.00
<b>Total Remediation Expenditure</b>	\$0.00
<b>Total Care Maintenance Expenditure</b>	\$0.00
<b>Total Monitoring Expenditure</b>	\$0.00
<b>FCSAP Assessment Expenditure</b>	\$0.00
<b>FCSAP Remediation Expenditure</b>	\$0.00
<b>FCSAP Care Maintenance Expenditure</b>	\$0.00
<b>FCSAP Monitoring Expenditure</b>	\$0.00
<b>Actual Cubic Meters Remediated</b>	0 m <sup>3</sup>
<b>Actual Hectares Remediated</b>	0 ha
<b>Actual Tons Remediated</b>	0 t
<b>Closed</b>	Yes

Version: 9.71



## **APPENDIX D**

**Memorandum from the Ministry of Water,  
Land, and Air Protection, July 2001**



Ministry of Water, Land  
and Air Protection

Director  
Pollution Prevention & Remediation Branch

## MEMORANDUM

RECEIVED

July 11, 2001

JUL 13 2001

File: 26200-00

Ministry of Transportation  
Engineering Branch

To: **Pollution Prevention Managers**

Re: **Clarification of independent remediation requirements for selected heavy metals at Ministry of Transportation active roadway sites<sup>1</sup>.**

It is common for soils located alongside active highways and roads throughout the province to be contaminated with various heavy metals (i.e. chromium, copper, lead and zinc) as a consequence of vehicular traffic. Recent studies conducted at the University of British Columbia for the Ministry of Transportation (MOT) have shown that:

1. Roadside metal contaminated soils are essentially non-leachable under the special waste extraction procedure.
2. Roadside metal contamination of soil rarely extends to a depth of more than 30 cm from the soil surface, or extends laterally from the roadway by more than 5m.
3. Roadside metal contamination on occasion exceeds the industrial land use soil quality standards of the Contaminated Sites Regulation (CSR). Such exceedances are especially common in highway locations where traffic is forced to move more slowly such as occurs at intersections, entrance and exit ramps, clover leaves, etc.

Under the *Waste Management Act*, a site that exceeds the environmental quality standards of the Contaminated Sites or Special Waste Regulations, is a contaminated site. Furthermore, activities associated with highway construction, redevelopment or decommissioning leading to the excavation and/or re-deposit of heavy metal contaminated soil at roadways could be interpreted as industrial or commercial activities under Schedule 2, H7 of the Regulation. As a result, prior to initiating such activities, the MOT has on occasion been required to submit a site profile to the ministry.

Section 3 (2) of the *Waste Management Act* prohibits the introduction of waste into the environment in the absence of a permit or authorization under the *Act*.

The Ministry of Transportation has acknowledged its responsibilities under the *Waste Management Act* and the Contaminated Sites Regulation and has asked the ministry to clarify our requirements related to the excavation and re-deposit of metal contaminated soil at active roadways.

<sup>1</sup> For the purposes of this document, an active roadway is a roadway, which is currently used and will continue to be used for transportation purposes. An active roadway site includes a road, highway, vehicular corridor or "right of way" but excludes Ministry of Transportation workyards or other industries, operations and related activities as listed in Schedule 2 of the Contaminated Sites Regulation.





The ministry's position is as follows:

1. A roadway site, either active or inactive, at which soil exceeds the standards of the Contaminated Sites Regulation, is a contaminated site.
2. Construction, redevelopment or decommissioning of an active roadway is not a listed commercial or industrial purpose or activity in Schedule 2 of the Contaminated Sites Regulation. Further, for the purposes of Schedule 2, H7 of the CSR, the excavation, "side-casting" or relocation of contaminated soil at an active roadway site does not constitute "storage, treatment or disposal" of contaminated soil. Consequently, active roadway sites are exempt under CSR 2 (1) from the duty to submit a site profile under section 26.1 of the *Waste Management Act*.
3. Active roadways often have associated with them other types of sites that conduct commercial or industrial purposes or activities listed in Schedule 2 of the CSR (see Appendix 1 for some examples). If the Ministry of Transportation owns or operates a site conducting an activity listed in Appendix 1, or any other applicable activity listed in schedule 2 of the CSR, a site profile for that site must be submitted when required under sections 26.1 of the *Act* or section 3 of the CSR.
4. Activities related to the redeposit of waste (i.e. contaminated soil) at a roadway site could contravene Section 3 (2) of the *Act* if conducted in the absence of an approval or prior authorization from the ministry.
5. The Contaminated Sites Regulation, section 41 (3) (a) provides an exemption from the need to obtain a soil relocation agreement if contaminated soil at a site is to be relocated at the same site.
6. The MOT is free to pursue independent remediation at any site in accordance with the requirements of section 28 of the *Act* and section 57 of the CSR.
7. Notifications of independent remediation received under section 26.3 (2) (d) of the *Act* will be included in the Site Registry.
8. For any specific site, the MOT may apply for a "background release" as a contaminated site under section 11 (3) of the CSR. Where such an application is made, the requirements of Contaminated Sites Protocol 4 "Determining Background Soil Quality" must be satisfied.
9. For purposes of decommissioning, re-developing or changing landuse at an active roadway site, the MOT may apply, following completion of remediation at the site, for certification of the site by the ministry as a satisfactorily remediated site. Should the MOT apply for such certification, the normal ministry contaminated site review and approval process would be followed. The process would include: listing of the site on the Site Registry, payment of applicable fees, and submission for ministry review and approval of all site characterization studies, remediation plans, confirmatory monitoring reports, etc.

In consideration of the above, the Ministry of Transportation has elected to pursue independent remediation at its active roadway sites and has agreed to conduct such remediation as follows:

1. At active roadway sites where soil is to be disturbed, MOT will fully characterize such soils to determine the nature and extent of contaminants that may be present.
2. The Ministry of Transportation will fully document, archive and provide to the ministry at the ministry's request all reports, studies, plans, etc. related to site characterization and remediation performed at any active roadway site.

3. Soils contaminated with substances other than the metals listed in subsections 4 or 5 below, which exceed applicable standards of the Contaminated Sites or Special Waste Regulations, will be appropriately disposed of in accordance with the requirements of those regulations.
4. Soils which are contaminated with: chromium, copper, lead or zinc in excess of the CSR Schedule 5 "toxicity to soil invertebrates and plants", industrial land use standards will be excavated and sent for appropriate off-site disposal (e.g. to an authorized landfill). MOT will maintain records for each site so remediated, relating to the quality, volumes and ultimate dispositions of such soils. MOT will provide these records to the ministry at the ministry's request.
5. Soils contaminated with: chromium, copper, lead or zinc in excess of CSR Schedule 5 standards, other than the "toxicity to soil invertebrates and plants" standards, will be excavated, "side-cast" and temporarily located prior to being redeposited, to the maximum extent practicable, within the same general area of the active roadway "right of way" from which the soil originated. MOT further agrees to redeposit such soils in a manner to minimize the possibility of further concentrating or enriching the levels of these metals in soils redeposited at an active roadway site and to give due consideration to avoid redepositing such soils in areas where surface erosion (e.g. by surface water runoff) could lead to adverse impacts to onsite or nearby offsite, aquatic life habitat.
6. In accordance with the requirements of section 28 (2) of the *Act* and section 57 (1) of the Contaminated Sites Regulation, the Ministry of Transportation will provide notice of commencement, and completion, of independent remediation performed at each active roadway site.
7. MOT will not seek certification of satisfactory remediation from the ministry (i.e. an Approval in Principle, Certificate of Compliance or Conditional Certificate of Compliance) for any active roadway site, which has been independently remediated as described in subsections 4 and/or 5 above.

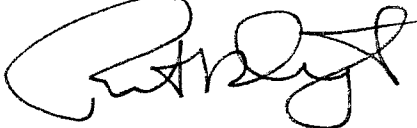
Provided the above conditions are met, the ministry normally would:

1. Not require the MOT to seek a permit or other prior authorization under section 3 (2) of the *Act* to allow the redeposit of soil contaminated with chromium, copper, lead or zinc at an active roadway site from which the soil originated.
2. Not require additional requirements under section 28 (3) (d) of the *Act* related to the performance of independent remediation for: chromium, copper, lead or zinc in soil at an active roadway site.

**Independent remediation performed as described above is conducted at the sole risk of the Ministry of Transportation.** In the absence of certification of satisfactory remediation, the ministry provides no guarantees whatsoever related to the performance of remediation at such sites. Further, the ministry retains and reserves its full authority under the *Waste Management Act* at such sites.

If you have any questions, please contact John E.H. Ward, Manager, Contaminated Sites Section.

Yours truly,



Ron Driedger  
Deputy Director of Waste Management

cc: Michael F. Oliver, Engineering Branch, Ministry of Transportation  
✓ Ron Buchanan, Engineering Branch, Ministry of Transportation



**Appendix 1.** Examples of Contaminated Sites Regulation Schedule 2 listed industrial and commercial purposes and activities commonly found at other types of sites associated with, or located in close proximity to, active roadways.

Type of Site	CSR Schedule 2 reference	Industrial/Commercial Purpose or Activity
Miscellaneous industry	E7	Road salt storage facility
Petroleum service station or cardlot	F5	Petroleum product dispensing facility
Petroleum tank farm	F7	Petroleum product bulk storage or distribution
Petroleum refinery	F8	Petroleum bulk storage or shipping
Vehicle repair facility	G2	Automotive, truck, bus or other motor vehicle repair, salvage or wrecking
Commercial truck park	G7	Truck bulk freight handling