



Warren Rospad  
 Manitoba Environment & Climate  
 Environmental Approvals

Remedial Plan (Risk Management), 366 Marion Street

May 2, 2023

Preface

J& D Environmental on behalf of Freedhome Developments, submits the following remediation plan (RP) for the risk manage-in-place actions proposed for 366 Marion Street, Winnipeg, Manitoba (Site) for Manitoba Environment & Climate’s (MEC) review.

A September 2014 Wiebe Phase III Environmental Site Assessment (ESA) was conducted at 366 Marion Street to delineate a hydrocarbon exceedance (20.7 vs 2.8 mg/kg) discovered and reported in a January 2014 Phase II ESA conducted at this former gasoline service station property.

The Phase III ESA focused on the location where the January 2014 (BH5) exceedance was discovered in an area where a pump island and USTs were once located. Table 2 from the September 2014 Phase III ESA shows the benzene referenced guideline exceedances discovered in soil samples recovered from four of the seven boreholes drilled to delineate the impact.

Table 2  
 Laboratory Analysis of Soil Samples For Petroleum Hydrocarbons  
 Phase III Environmental Site Assessment  
 Degagne Motors 1990  
 366 Marion Street  
 Winnipeg, Manitoba

Sample Id	PHCs				BTEX				Hexane Vapour Concentration (ppm)
	F1	F2	F3	F4	Benzene	Toluene	Ethylbenzene	Xylenes	
11-2.4	850	136	<50	<50	25	64.2	21.7	126	8750
12-1.5	2040	838	<50	<50	16.5	8.1	54.6	170	>12 500
13-2.25	1720	494	136	71	13.2	4.6	51.5	89.3	4125
14-2.25	475	516	<50	<50	1.23	1.2	11.6	33.6	5250
15-3.0	1960	522	85	131	3.24	1.8	39.9	204	>12 500
CCME Commercial Soil Quality Guidelines <sup>1</sup>	4600/800 <sup>2</sup>	23 000/1000 <sup>3</sup>	NG/5000 <sup>4</sup>	NG/10 000 <sup>5</sup>	2.8 <sup>6</sup>	13.00	6500	1600	NG

Table 2: Wiebe Environmental September 2014 Phase III ESA

Based on the test results reported in the September 2014 Phase III ESA Wiebe Environmental estimated that 900 to 1300 m<sup>3</sup> of soil has been impacted with hydrocarbons that exceed the commercial land use human health vapour inhalation (indoor) benzene guidelines (2.8 mg/kg). The approximately 20 m x 10 m (200 m<sup>2</sup>) impacted area extends south of Marion Street and west of the public lane to an estimated depth of 3.5 m. The locations of the boreholes with benzene exceedances and the estimated area of impact are shown in Figure 3 from the Wiebe report.

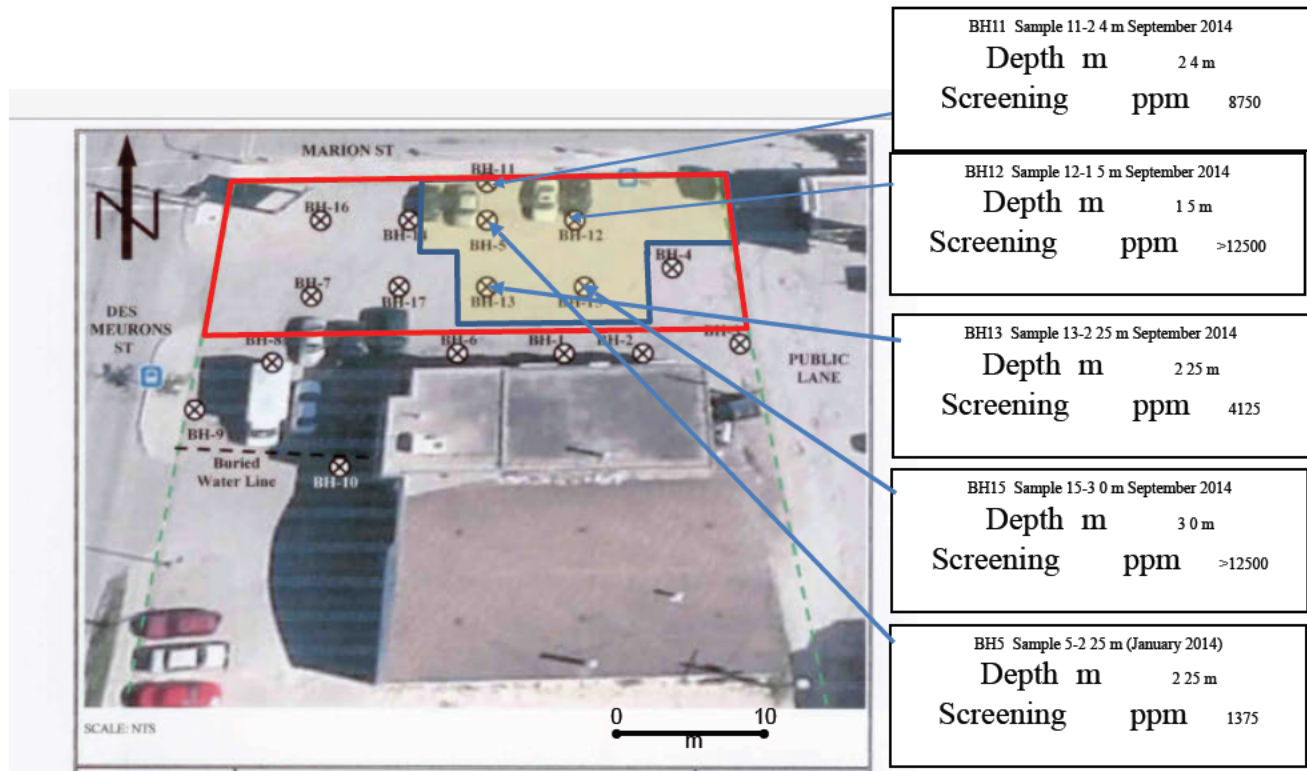
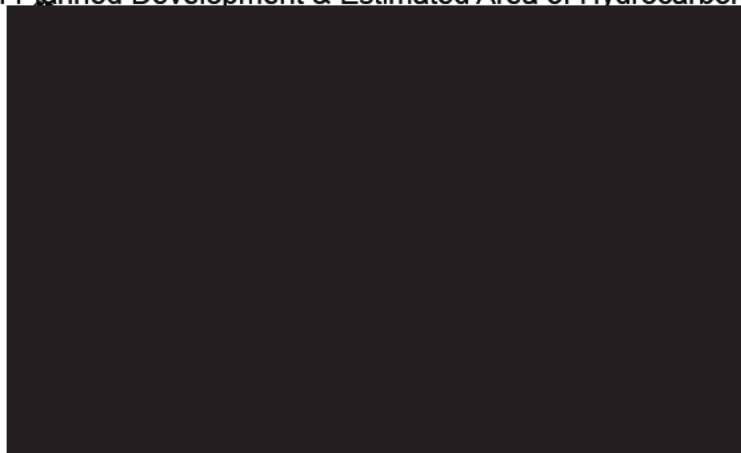


Figure 3: Impacted area as per September 2014 Wiebe Report & Commercial Area of Planned Development

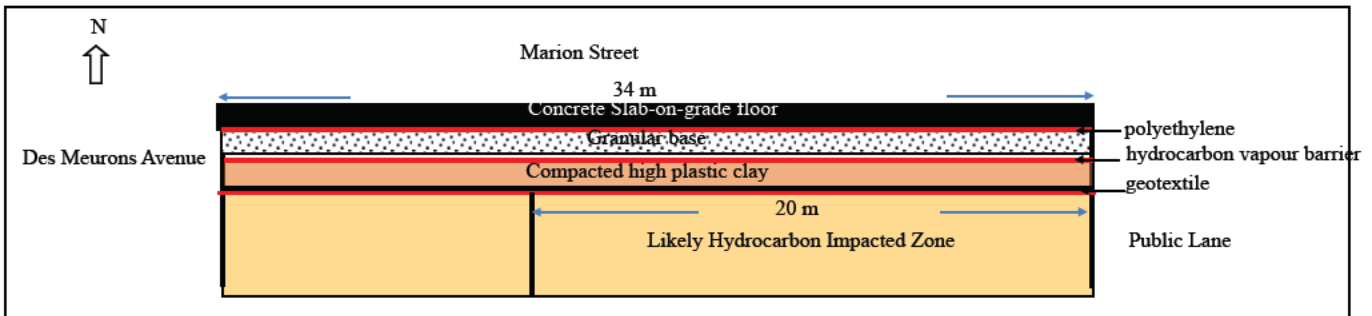
366 Marion Street has been purchased by Freedhome Developments with plans for a commercial/residential development. Rather than embark upon a very costly remediation project to remove and replace the impacted soil, the owner in discussions with Manitoba Environment and Climate Environmental Approvals has requested a manage in place plan that will act as a barrier preventing potential hydrocarbon vapours from migrating into the Site commercial portion of the building. The estimated impact is illustrated on the drawing of the planned building.

#### Commercial Portion of Planned Development & Estimated Area of Hydrocarbon Impacted Area



## Remediation Plan (Risk Management Plan)


- Excavation of a 10 m x 35 m area of soil along the entire Marion Street property line to accommodate the slab-on-grade concrete floor of the commercial portion of the building is recommended. This excavation will include the estimated 10 m x 20 m area of impacted soil as per the Wiebe September 2014 Phase III ESA. See Figure 3 on p. 2. The depth of this excavation must accommodate the addition of geotextile on the excavation surface, 30 cm compacted high plastic clay, covered by a polypropylene liner (hydrocarbon vapour barrier), granular base, polyethylene and concrete slab floor. Cross section of the excavation is shown below. Spec details for this excavation and its risk management components will be sourced and supplied by the owner.



Looking North Cross Section of Required Excavation for Risk Management Plan, 366 Marion Street

- Caveats:
  - Samples of soil that appear stained and/or have odours that can be attributed to hydrocarbons excavated and removed from this location will be screened for hydrocarbon vapours. Those with high screening results will be selected for BTEX and PHC Fraction F1 to F4 analysis. Soil with test results that exceed referenced guidelines must be delivered to a landfill licensed to receive hydrocarbon impacted soil.
  - All soil cuttings augered for pile drilling that also appear stained and/or have odours that can be attributed to hydrocarbons must be screened for hydrocarbon vapours. Those with high screening results will be selected for BTEX and PHC Fraction F1 to F4 analysis. Soil with test results that exceed referenced guidelines must also be delivered to a landfill licensed to receive hydrocarbon impacted soil.
  - Soil from the base of the excavation that appears stained and/or has odours that can be attributed to hydrocarbons must be sampled and analyzed for BTEX and PHC Fractions F1 to F4 to provide baseline information regarding the remaining soil beneath the commercial portion of the building.
  - The risk management plan was based on the information gathered from the Wiebe September 2014 Phase III ESA and its estimate of hydrocarbon impacted soil at this site. J & D will provide the environmental services and prepare a closure report to be submitted to Manitoba Environment and Climate.

Respectfully submitted,



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Danial Kolba  
J & D Environmental  
[daniel@jdenviro.ca](mailto:daniel@jdenviro.ca)  
(204) 294-9002