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Phase I - Environmental Site Assessment

Existing Commercial Property
1050 Somerset Street West
Ottawa, Ontario

Prepared For

Claridge Homes (Hintonburg) Inc.

Paterson Group Inc.

Consulting Engineers
28 Concourse Gate - Unit 1
Ottawa (Nepean), Ontario
Canada K2E 7T7

Tel: (613) 226-7381
Fax: (613) 226-6344
www.patersongroup.ca

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EXECUTIVE SUMMARY

Assessment

Paterson Group was retained by Claridge Homes (Hintonburg) Inc. to conduct a Phase I - Environmental Site Assessment (ESA) of the existing commercial property, addressed as 1050 Somerset Street West, in the City of Ottawa, Ontario. The purpose of this Phase I – Environmental Site Assessment (Phase I – ESA) was to research the past and current use of the site and study area and to identify any environmental concerns with the potential to have impacted the subject property.

The results of the historical research identified the current use of the subject property as an automotive service garage. The presence of a furnace oil underground storage tank, strip drains and an oil-water separator are considered potentially contaminating activities. The former presence of a gasoline UST on the southeast portion of the site is also considered a potential contaminating activity. Fill material identified in one of the boreholes placed on the southeast portion of the site is an area of environmental concern. The site inspection indicated the current presence of six (6) potentially contaminating activities within the Phase I study area; however, none of these facilities are expected to have impacted the site given their distances and/or down- or cross-gradient orientations with respect to the subject property.

A Phase II Environmental Site Assessment was conducted to assess the subsurface condition of soil and groundwater on the subject property in 2011. Boreholes/monitoring wells and a test pit were placed on the site to assess the aforementioned areas of potential environmental concern. Petroleum hydrocarbon soil contaminants were identified in the area of the furnace oil UST and beneath the floor slab on the interior of the garage building. Lead contaminated soil was identified in the fill layer on the southwest portion of the site. Petroleum hydrocarbon groundwater contaminants were identified in the groundwater beneath the floor slab on the interior of the garage building. Groundwater was not assessed in the area of the furnace oil UST.

Based on the results of the assessment, **it is our opinion that additional environmental investigation and remediation in the form of a Phase II – Environmental Site Assessment, will be required for the site to delineate and remediate the identified soil and groundwater contamination on the subject property.**

1.0 INTRODUCTION

At the request of Claridge Homes (Hintonburg) Inc., Paterson Group conducted a Phase I - Environmental Site Assessment (ESA) of the existing commercial property at 1050 Somerset Street West, in the City of Ottawa, Ontario. The purpose of this Phase I – Environmental Site Assessment (Phase I – ESA) was to research the past and current use of the site and study area and to identify any environmental concerns with the potential to have impacted the subject property.

Paterson Group was engaged to conduct this Phase I – ESA by Mr. Neil Malhotra of Claridge Homes (Hintonburg) Inc., 2001-210 Gladstone Avenue, Ottawa, Ontario, K2P 0Y6. Mr. Malhotra can be reached by telephone at (613) 233-6030.

This report has been prepared specifically and solely for the above noted project which is described herein. It contains all of our findings and results of the environmental conditions at this site.

This Phase I - Environmental Site Assessment report has been prepared in general accordance with the agreed scope-of-work and the requirements of Ontario Regulation 179/11 amending O. Reg. 511/09, made under the Environmental Protection Act and also complies with the requirements of CSA Z768-01. The conclusions presented herein are based on information gathered from a limited historical review and field inspection program. The findings of the Phase I - ESA are based on a review of readily available geological, historical and regulatory information and a cursory review made at the time of the field assessment. The historical research relies on information supplied by others, such as, local, provincial and federal agencies and was limited within the scope-of-work, time and budget of the project herein.

2.0 PHASE I PROPERTY INFORMATION

Address:	1050 Somerset Street West, Ottawa, Ontario.
Legal Description:	Lots 1 to 4 on Plan 73, West side of Breezehill Avenue North, in the City of Ottawa.
Property Identification Numbers:	04099-0347, 04099-0348, 04099-0349 and, 04099-0350.
Location:	The subject property is located on the southwest corner of the Somerset Street West and Breezehill Avenue North intersection, in the City of Ottawa, Ontario. Refer to Figure 1 - Key Plan following the body of this report for the site location.
Latitude and Longitude:	45° 24' 23" N, 75° 43' 10" W

Site Description:

Configuration:	Rectangular.
Site Area:	2415 m ² (approximate).
Zoning:	TM [126] H(15) – Traditional Mainstreet Zone.
Current Use:	The site is currently occupied by a single storey vacant commercial building and an automotive garage. The northern portion of the building has a basement level while the southern portion is a slab-on-grade style.
Services:	The subject site is located in a municipally serviced neighbourhood.

3.0 SCOPE OF INVESTIGATION

The Scope of work for this Phase I – Environmental Site Assessment was as follows:

- Determine the historical activities on the subject site and study area by conducting a review of available records, reports, photographs, plans, mapping, databases and regulatory agencies;
- Investigate the existing conditions present at the subject site and study area by conducting site reconnaissance;
- Conduct interviews with persons knowledgeable of current and historic operations on the subject property, and if warranted, neighbouring properties;
- Present the results of our findings in a comprehensive report in general accordance with the requirements of Ontario Regulation 269/11 amending O.Reg. 153/04 made under the Environmental Protection Act and also complies with the requirements of CSA Z768-01;
- Provide a preliminary environmental site evaluation based on our findings;
- Provide preliminary remediation recommendations and further investigative work if contamination is suspected or encountered.

4.0 RECORDS REVIEW

4.1 General

Phase I Study Area Determination

A radius of approximately 250 m was determined to be appropriate as a Phase I study area. The Ottawa River is present approximately 650 m north of the site. It is expected that groundwater flow in the Phase I study area is towards the Ottawa River to the north, the closest significant water body. Properties outside the 250 m radius are not considered to have had the potential to have impacted the subject land.

First Developed Use Determination

The site is currently occupied by a single storey commercial building, the date of construction of this building is suspected to be circa 1964, which is evidenced by the Chain of Title, City of Ottawa Street directories and aerial photographs. The 1928, 1946 and 1958 aerial photographs indicate the presence of residential dwellings on the north portion of the site (along Somerset Street West) and the presence of residential townhouses on the east portion of the site (along Breezehill Avenue North). According to the street directories (detailed below) the site has been occupied by individuals (residential use) since 1909. For the purposes to this report, the first developed use of the site is considered to be 1909.

Fire Insurance Plans

Fire Insurance Plans (FIPs) were reviewed for the site and neighbouring properties. Volume 3, sheets 317, 319 and 320 from the December 1956 FIPs depict the site and neighbouring properties. According to the FIPs the site was occupied by three (3) residential dwellings addressed 1052, 1054 and 1058 Somerset West and by residential townhouses addressed 50-60 Breezehill Avenue.

The property to the south of the site is occupied by “Devonshire Public School”. The properties immediately north of Somerset Street West are occupied by residential dwellings followed by a lumber shed and lumber mill to the northwest. The properties to the west of the laneway west of the site, were occupied by residential dwellings. The properties to the east of Breezehill Avenue are shown as being occupied by a “coal shed”, “Auto Repairs” and “Bruce Coal Co. Limited” followed by the Canadian National Railways. A Planing Mill was observed to the northeast of the Somerset West Bridge crossing Canadian National Railways intersection, an underground storage tank was observed on this property, approximately 175 m east of the site.

Gasoline service stations were identified approximately 150 m west and 150 m northwest of the site. A railway “Round House” and tum table were identified approximately 250 m north of the site.

City of Ottawa Street Directories

City directories from 1908 to 2000 were reviewed in approximate 10 year intervals at the national archives as part of the Phase I ESA. The following listings were identified for the subject property in the city directories.

Table 1: City Directories – Site Listings		
Site Occupant	Years Listed	Potential Environmental Concern (Y / N)
1050 Somerset Street West		
Actek Automotive	2000	Y
Acklands Limited	1984, 1992	Y
National Brake & Clutch	1964, 1974	Y
1052, 1054 and 1058 Somerset Street West		
Residential Listings	1909, 1918, 1929, 1936, 1944, 1954	N
50-60 Breezehill Avenue		
Residential Listings	1909, 1918, 1929, 1936, 1944, 1954	N

The presence of automotive service and repair facilities on the site represents an area of potential environmental concern for the subject land.

Neighbouring properties have been used for residential, institutional, commercial or industrial purposes since their development. Fourteen (14) potentially contaminating activities were identified in the directories and are summarized in Table 2 below.

Address	Listed Activity (years listed)	Distance / Orientation from site	Potential Environmental Concern for Subject Site (Y / N)
989 Somerset Street West	Canadian Oil Serv. Stn. (1929, 1920, 1910, 1908)	250 m east	N
1040 Somerset Street West	Paradise Auto (2000, 1984)	25 m east	N
1106 Somerset Street West	Capital Iron Works (1974)	200 m west	N
1112 Somerset Street West	Imperial Tire Sales (1964)	250 m west	N
1 Breezehill Avenue North	Grant's Body Shop (1974)	120 m north	N
45 Breezehill Avenue North	Canadian Oil Company (1945, 1933, 1923)	70 m northeast	N
53 Breezehill Avenue North	Bruce Fuels / Bruce Coal (1974, 1964, 1954, 1944, 1933, 1923)	30 m southeast	Y
55 Breezehill Avenue North	Corrigan Auto Body Shop (1982, 1978, 1974)	40 m southeast	N
109 Breezehill Avenue North	Alaska Steel & Welding (1984, 1974)	110 m southeast	N
14 Bayswater Avenue	Randall Lester C Printers & Publishers (1951)	100 m northwest	N
1 Spadina Avenue	Pantalone's Service Stn / Drienzo Automotive (2000, 1984, 1974)	140 m west	N
927 Wellington Street West	Bary's Fina Serv. Stn. (1964, 1954)	150 m northwest	N

Table 2: City Directories – Potentially Contaminating Activities in Phase I Study Area

Address	Listed Activity (years listed)	Distance / Orientation from site	Potential Environmental Concern for Subject Site (Y / N)
930 Wellington Street West	Gibeault's Serv. Stn. (1964, 1954, 1944)	110 m northwest	N
973-977 Wellington Street West	Neighbourhood Service Repair Shop (2000, 1992, 1964)	225 m west	N

One of the land uses identified in the city directories research is considered to have had the potential to impact the subject site. The Bruce Fuels facility located approximately 30 m southeast of the site has the potential to have impacted the site given its distance and orientations with respect to the subject property. The other properties listed from the city directory review are located a significant distance and/or down- or cross-gradient with respect to the site and are not considered significant concerns to the subject land.

Chain of Title

Paterson verified the current land title with Read Abstracts Limited. The current land title indicated that since September 2011, the registered owner of the subject site was Claridge Homes (Hintonburg) Inc. According to the Chain of Title dated December 13, 2011, this is the current owner of the subject property. The site was registered to individuals from at least 1894 to 1963, with the exception of Toronto General Corp, who was the registered owner from 1932 to 1939. One commercial owner and one commercial lessee of the site were identified, "National Brake & Clutch Service Limited." and "Acklands Ltd.", occupied the site between 1963 and 1984; however, it is suspected that these occupants used the site as an automotive garage. The remaining listed owners were individuals. A copy of the Chain of Title is provided in Appendix 1.

Environmental Reports

An inquiry to the property owner was made to obtain a copy of any previously prepared reports for the subject property, including:

- Environmental site assessment reports,
- Remediation reports,

- Reports prepared in response to an order or request of the Ministry; and,
- Any other reports relating to the presence of a contaminant on, in or under the site or the existence of an area of potential environmental concern.

The following reports prepared for the site were reviewed as part of this assessment:

“Phase I-II - Environmental Site Assessment, 1050 Somerset Street West, Ottawa, Ontario” prepared by Paterson Group, dated July 2011;

“Designated Substance Survey, 1050 Somerset Street West, Ottawa, Ontario” prepared by Paterson Group, dated October 2011;

The Phase I-II ESA report indicated that the site was occupied by an automotive service garage. The potential presence of a reported former on-site gasoline UST and a suspected existing furnace oil UST, which were not in use, were investigated at the time of the Phase I-II ESA. The current use of the southern portion of the site building as an automotive garage was also noted as a potential concern.

A subsurface investigation program consisting of four (4) boreholes and one (1) testpit was conducted for the subject property. Concentrations of petroleum hydrocarbons (PHCs) were detected in excess of the selected MOE standards in the analysed soil samples in the vicinity of the underground furnace oil tank and on the interior of the garage building. A layer of metals (Lead) impacted fill was observed in one of the boreholes on the southern portion of the site. Two groundwater samples were collected from monitoring wells installed on the subject property. The groundwater sample in the vicinity of the underground furnace oil tank was found to have concentrations of petroleum hydrocarbons (PHCs) in excess of the selected MOE standards. The report recommended that the underground furnace oil tank be removed in accordance with TSSA regulations. The report also stated that when the site is to be redeveloped, an environmental remediation program of the soil and groundwater in excess of the MOE standards should be conducted at that time.

The designated substance survey involved testing of suspected asbestos containing materials (ACMs) and potential lead based paint. Based on the analytical testing, the following materials are considered to be ACMs: pipe insulation, vinyl floor tiles and ceiling plaster. Some of the analysed paint samples were also determined to be lead based.

Current Plan of Survey

A current plan of survey was provided to Paterson for review. The site is oriented as shown on the City of Ottawa eMap website. The existing buildings are shown in their present orientation on the northeast and southwest portions of the site. The plan was prepared by Annis, O'Sullivan, Vollebekk Ltd., dated April 19, 2011.

4.2 Environmental Source Information

Environment Canada

A search of the National Pollutant Release Inventory (NPRI) was conducted electronically on December 8, 2011. The subject site and adjacent properties were not listed in the NPRI database for the years 1994 to 2010. A listing was identified for the property at 975 Gladstone Avenue, approximately 200 m southeast of the site. According to this listing the site has generated hexavalent chromium for Off-Site disposal for the years 2002, 2004-2010. These releases are not expected to have impacted the site.

PCB Inventory

A search of national PCB waste storage sites was conducted. No PCB waste storage sites are located within the Phase I study area.

Ontario Ministry of Environment (MOE) Instruments

A request was submitted to the MOE Freedom of Information office for information with respect to certificates of approval, permits to take water, certificates of property use or any other similar MOE issued instruments for the site. At the time of issuance of this report a response had not been received from the MOE. An addendum letter will be prepared should the MOE response indicate any potential environmental concerns for the subject site. A copy of the search request is included in Appendix 2.

MOE Coal Gasification Plant Inventory

The Ontario Ministry of Environment document titled "Municipal Coal Gasification Plant Site Inventory, 1991" was reviewed to reference the locations of former plants with respect to the site. No coal gasification plants were identified within 1 km of the subject site.

MOE Incident Reports

A request was submitted to the MOE Freedom of Information office for information with respect to records concerning environmental incidents, orders, offences, spills, discharges of contaminants or inspections maintained by the MOE for the site or adjacent properties. At the time of issuance of this report a response had not been received from the MOE. An addendum letter will be prepared should the MOE response indicate any potential environmental concerns for the subject site. A copy of the search request is included in Appendix 2.

MOE Waste Management Records

A request was submitted to the MOE Freedom of Information office for information with respect to records concerning environmental waste management records. Applicable information of current and historical waste storage locations, waste generators and waste receivers pursuant to Regulation 347 of the Revised Regulations of Ontario, 1990 (O. Reg. 347) was considered in this review. At the time of issuance of this report a response had not been received from the MOE. An addendum letter will be prepared should the MOE response indicate any potential environmental concerns for the subject site. A copy of the search request is included in Appendix 2.

MOE Submissions

A request was submitted to the MOE Freedom of Information office for information with respect to reports related to environmental conditions are expected to have been submitted to the MOE. At the time of issuance of this report a response had not been received from the MOE. An addendum letter will be prepared should the MOE response indicate any potential environmental concerns for the subject site. A copy of the search request is included in Appendix 2.

Ontario Ministry of the Environment (MOE) Notices and Instruments

A search of the MOE Brownfields Environmental Site Registry was conducted as part of this assessment for the site, neighbouring properties and the general area of the site. No records of site condition (RSCs) were identified within the Phase I study area. No concerns were identified in the review of the MOE Brownfields database.

MOE Waste Disposal Site Inventory

The Ontario Ministry of Environment document titled "Waste Disposal Site Inventory in Ontario, 1991" was reviewed as part of the historical research. This document includes all recorded active and closed waste disposal sites, industrial manufactured gas plants and coal tar distillation plants in the Province of Ontario. Based on the available information, no waste disposal sites were present within the Phase I study area. One (1) closed landfill site (LeBreton Flats) is located approximately 350 m northeast, and down-gradient of the subject site. This former landfill site is not expected to have impacted the subject land.

Areas of Natural and Scientific Interest

The Ontario Ministry of Natural Resources (MNR) Biodiversity Explorer geographic information system (GIS) website was consulted for areas of natural significance and features within 250 m of the subject site. The Ottawa River was observed approximately 650 m north of the subject site. According to the MNR's GIS website, no provincially significant wetlands (PSWs) or areas of natural and scientific interest (ANSI) are located within the area of the site.

Technical Standards and Safety Authority (TSSA)

The TSSA, Fuels Safety Branch in Toronto, was contacted electronically on December 12, 2011 to inquire about current and former underground storage tanks, spills and incidents for the site and neighbouring properties. No records are listed in the TSSA registry for the general area of the site. A copy of the TSSA correspondence is included in Appendix 2.

City of Ottawa Landfill Document

The document prepared by Golder Associates entitled "Old Landfill Management Strategy, Phase I – Identification of Sites, City of Ottawa", was reviewed. Two (2) former landfill sites were identified within 500 m of the subject property. These sites are summarized in Table 3 below.

Site	Address	Activity Period	Owner	Location
Ur-41	Bayswater Avenue at Wellington Street West - west of Bayswater Avenue between Wellington Street West and Somerset Street West.	pre-1928	Private	100 m NW
Ur-6	Nepean Bay - green space between Ottawa Parkway, C.P. Railway, Scott Street and LeBreton Flats.	1963-1964	NCC	400 m N

These sites are not considered to have had the potential to impact to the subject site based on their distance from the subject property and their down gradient location from the subject site.

City of Ottawa Historical Land Use Inventory

A requisition form was sent to the City of Ottawa to request information from the City's Historical Land Use Inventory (HLUI 2005) database for the subject property. The response was received from the City of Ottawa on January 20, 2012. The search revealed that there were two (2) activities associated with the site (1050 Somerset Street West) in the HLUI database. A total of 20 off-site activities were identified within 50 m of the subject site. These activities are listed in Table 4 below. The distances / orientations with respect to the site listed in Table 4 are based on depicted locations in the overview map attached by the City. A copy of the City's response has been included in Appendix 2.

Address	Name / Activity	Distance / Orientation from site	Potential Environmental Concern (Y / N)
1050 Somerset Street West	Acteck Automotive (Motor Vehicles, wholesale)	Subject Site	Y
1050 Somerset Street West	National Brake and Clutch Service Limited (Motor Vehicle Repair Shops)	Subject Site	Y
100 Breezehill Avenue	OCDSB – Devonshire School (Elementary and Secondary Education)	Adjacent to south	N
73 Breezehill Avenue	Charcoal Supply Co. (Petroleum Products, wholesale)	40 m southeast	Y

Table 4: HLUI Identified Activities (continued)			
Address	Name / Activity	Distance / Orientation from site	Potential Environmental Concern (Y / N)
53 Breezehill Avenue	Bruce Coal Co. (Lumber and Building Materials, wholesale)	20 m east	N
55 Breezehill Avenue	Breezehill Auto Body (Motor Vehicle Repair Shops)	30 m southeast	N
55 Breezehill Avenue	Japan Auto Svc Inc. (Motor Vehicles, wholesale)	30 m southeast	N
1040 Somerset Street West	Paradise Auto Repair (Motor Vehicles, wholesale)	20 m east	N
1040 Somerset Street West	A-Sandor Inc. (Machine Shop Industry)	20 m east	N
1040 Somerset Street West	Aero Mechtronics Limited (Stamped, Pressed and Coated Metal Products Industries)	20 m east	N
1040 Somerset Street West	Al's Body Shop (Motor Vehicle Repair Shops)	20 m east	N
49 Bayswater Avenue	Franco's Enterprises Heating (Plumbing, Heating and Air Conditioning, Mechanical Work)	10 m west	N
1066 Somerset Street West	Esprit De Corps (Combined Publishing and Printing Industries)	10 m west	Y
Breezehill Avenue	Slack's Garage (Motor Vehicle Repair Shops)	45 m northeast	N
47 Breezehill Avenue North	Takaki Automotive Co. (Motor Vehicles, Wholesale)	40 m northeast	N
Breezehill Avenue	Canadian Oil Co. Limited (Petroleum Products, Wholesale)	40 m northeast	N
50 Breezehill Avenue	Whelan Motors Limited (Motor Vehicle Repair Shops)	40 m north	N
2 Breezehill Avenue	Unnamed Auto Repairs (Motor Vehicle Repair Shops)	50 m north	N
25 Bayswater Avenue	Cattroll & Photo Associates (Photographers)	45 m north	N
25 Bayswater Avenue	D. Kemp Edwards (Lumber and Building Materials, Wholesale)	45 m north	N

Table 4: HLUI Identified Activities (continued)			
Address	Name / Activity	Distance / Orientation from site	Potential Environmental Concern (Y / N)
Breezehill Avenue	George M. Mason (Sawmill, Planing Mill and Shingle Mill Products Industries)	40 m north	N
2 Breezehill Avenue	George M. Mason Co. (Sawmill, Planing Mill and Shingle Mill Products Industries)	40 m north	N

A total of four (4) potentially contaminating activities were identified in the HLUI search. Two of these activities are associated with the automotive service facility on-site. Two additional properties in the general area of the site, a petroleum products wholesaler and printers, are considered to have the potential to have impacted the subject site. Given the information gathered from the Phase I-II ESA conducted on the subject property in 2011, it is not expected that any of the aforementioned off-site potential environmental concerns have impacted the subject property.

Former Industrial Sites

The report entitled “Mapping and Assessment of Former Industrial Sites, City of Ottawa” prepared by Intera Technologies Limited was also reviewed. Four (4) former industrial sites, were identified within 500 m of the subject property, as presented in Table 5.

Table 5 Former Industrial Sites				
Site No.	Location	Types of Industry	Operator	Approx. Distance from Subject Site
61	East side of Breezehill Avenue North, north of Somerset Street West	Bulk oil and gas storage.	Canadian Oil Company Limited.	100 m NE
76	North side of Wellington Street at Breezehill Avenue North	Non-industrial site - railway workshops and roundhouses.	Canadian Pacific Railway.	200 m N
62	Northeast corner of Bayview Road and O'Mera Avenue	Non-industrial site - railway workshops and roundhouses.	Canadian Pacific Railway.	300 m N
50	975 Gladstone Avenue	Printing, publishing and allied Industries	British American Bank Note Company Limited.	400 m S

These industrial sites are not considered to have the potential to impact the subject site based on either their distance from the subject property or their suspected down gradient location.

4.3 Physical Setting Sources

Aerial Photographs

Historical air photos from the National Air Photo Library were reviewed. The review period dates back the earliest available aerial photography up to present site conditions. Based on the review, the following observations have been made:

- 1928 The subject has been developed by what appear to be three (3) residential dwellings on the north portion of the site and by a residential townhouse block on the southeast portion of the site. Somerset Street West has been constructed to the north of the site, while Breezehill Avenue North has been constructed to the east. Neighbouring properties to the north and west appear to be occupied by residential dwellings at this time. The neighbouring property to the south is occupied by a school while the neighbouring properties to the east of Breezehill Avenue appear to be used for industrial purposes. A railway line is present further east of the site.
- 1946 No significant changes appear to have been made to the subject site or neighbouring properties.
- 1958 A gasoline service station is present to the northwest of the Wellington Street West and Bayview Avenue intersection. No other significant changes appear to have been made to the subject site or neighbouring properties.
- 1966 The present day commercial buildings are present on the subject property. A property to the southwest of the site has been developed with a residential apartment building. A commercial building has been constructed to the northeast of the Somerset Street West Bridge. No other significant changes appear to have been made to the subject site or neighbouring properties.

- 1986 An addition can be seen on the southern portion of the subject building (garage portion of building). Redevelopment can be seen on the neighbouring properties to the east and west at this time. No other significant changes appear to have been made to the subject site or neighbouring properties.
- 2002 The properties further north of Somerset Street West have been redeveloped with what appear to be residential townhouses. No other significant changes appear to have been made to the subject site or neighbouring properties.
- 2008 (City of Ottawa Website) No significant changes have been made to the subject site or neighbouring properties.

Laser copies of some of the aerial photographs reviewed are included in Appendix 1 of this report.

Topographic Maps

Topographic maps were obtained from Natural Resources Canada – The Atlas of Canada website and from the City of Ottawa website. The topographic mapping indicates the presence of urbanization on the site and in the Phase I study area. The topographic maps indicate that the regional topography in the general area of the site slopes down to the north-northwest. According to the mapping, The Ottawa River is present approximately 650 m of the site. A railway line and several commercial or industrial buildings are present to the east of the site. No potential environmental concerns were identified in the Phase I study area in the review of topographic maps. An illustration of the referenced topographic map is presented on Figure 2 – Topographic Map following the body of this report.

Physiographic Maps

A Physiographic Map was reviewed from the Natural Resources Canada – The Atlas of Canada website. According to this physiographic map, the site is located in the St. Lawrence Lowlands. According to the mapping description provided: “The lowlands are plain-like areas that were all affected by the Pleistocene glaciations and are therefore covered by surficial deposits and other features associated with the ice sheets.” The subject site is located in the Central St. Lawrence Lowland, which is generally less than 150 m above sea level.

Geological Maps

The Geological Survey of Canada website on the Urban Geology of the National Capital Area was consulted as part of this assessment. Based on the information from Natural Resources Canada (NRCAN), bedrock in the area of the site consists of interbedded limestone and shale of the Verulam Formation. Based on the maps, the thickness of overburden ranges from 0 to 5 m and consists of Paleozoic Rocks or Paleozoic Bedrock.

Water Well Records

A requisition was made to the MOE to provide water well records for all drilled, bored and dug wells within 500 m of the subject site. The MOE response provided 12 well records, however, the response did not include any water wells or monitoring wells within the Phase I study area. A copy of the MOE response is provided in the Appendix 2.

Water Bodies and Areas of Natural Significance

The Ottawa River is the closest significant water body and is present approximately 650 m north-northwest of the site. The majority of the study area consists of residential dwellings, which are serviced by municipally supplied water and sewer services. Past known land use in the study area is residential, commercial and industrial. No areas of natural significance are known to exist within the Phase I study area.

Fill Materials

No evidence of soil disturbance was observed in a review of the historical information. No signs of soil disturbance or the placement of fill were observed at the time of the site inspection. Furthermore, the site is at grade with the neighbouring properties and it is therefore unlikely that fill has been placed specifically on the site for the purpose of raising the grade.

5.0 INTERVIEWS

Mr. Boyd, co-owner and mechanic at the automotive service garage was interviewed at the time of the site inspection. We were informed by garage personnel that the suspected furnace oil underground storage tank on the west side of the building was used to supply heating fuel to the former on-site grocery store. Paterson was also informed that the garage previously had an in-ground hoist, which was removed in 1995. Mr. Boyd also indicated that all waste oil was stored in 200 L drums within the garage, which are emptied by a licensed contractor on an as needed basis. The garage staff also indicated that a former gasoline underground storage tank was located in the southeast corner of the property.

6.0 SITE RECONNAISSANCE

6.1 General Requirements

The site investigation was conducted between 3:00 and 5:00 PM on April 13, 2011. Mr. Dan Arnott, B.A.Sc. from the Environmental Department of Paterson Group conducted the site investigation. The weather conditions were cloudy with a temperature of 10° C. Mr. Luke Lopers, EIT from the Environmental Department of Paterson Group conducted a return site investigation on February 2, 2012 between 10 AM and 12:30 PM. The weather conditions were sunny with a temperature of -5 ° C. The site was snow covered at the time of the return site investigation.

6.2 Specific Observations at Phase I Property

Buildings and Structures

The subject site is occupied by a one storey commercial building, with a partial mezzanine level. The northern portion of the building is a single storey vacant former grocery store which has a basement level and a flat tar and gravel style roof. The southern portion of the building is occupied by a single storey slab on grade style automotive garage which also has a flat tar and gravel style roof. The northern portion of the building is currently heated with a natural gas fired furnace and electric baseboard heaters, while the southern portion of the building is heated with a natural gas fired HVAC unit. The building had a concrete foundation, was finished off on the exterior with concrete block and had a flat tar and gravel roof.

Below Ground Structures

Strip drains were located in the garage portion of the subject building. The strip drains extend approximately 0.15 m into the concrete floors and are connected by underground piping to an oil-water separator. A concrete contained oil-water separator was also observed in the garage portion of the building and extends approximately 1 m into the concrete floor.

Underground Utilities

The site is supplied with natural gas, telecommunications and municipal water and sewer services through underground connections. Underground locates were completed in April of 2011 as part of the previous Phase II – ESA conducted on the site. The underground natural gas and water and sewer services are located to the south of the commercial (north) portion of the building and extend to Breezehill Avenue North, to the east of the site. Underground hydro and telecommunications connections are present to the west of the commercial portion of the building.

Storage Tanks

Vent and fill pipes were observed on the west exterior wall of the garage (south) portion of the subject building. These pipes enter the asphalt and are associated with an underground storage tank (UST). The presence of this UST was confirmed in 2011 when a test pit was advanced in the suspected location of the UST for the purpose of confirming its presence. A furnace oil underground storage tank, and associated piping, was encountered during the excavation of TP1. The tank was approximately 3 m x 2 m in size. It should be noted that the condition of the entire tank was not evaluated as only one of the sides was exposed during this portion of the field program. It should also be noted that suspected petroleum hydrocarbon impacted soil was encountered under the tank. This material was subsequently sampled for laboratory analysis. No other signs of underground storage tanks (USTs) or aboveground storage tanks (ASTs) were observed at the time of the assessment.

A partially full 50 L hydraulic fluid container was observed within the basement at the time of our inspection. No concerns were noted with the storage of this container.

One (1) 205 litre waste oil AST was observed in the garage. The AST stores engine oil for vehicle oil changes. Cleaning solvents, antifreeze, and gear lube were also observed in the garage. Staining on the concrete was observed at several locations within the garage at the time of our assessment.

Water Source

The source of water at the subject site is expected to be municipally treated water. The water connection and water meter were not observed at the time of the site inspection, this connection is expected to be located in the interior of the basement of the subject building.

Building Entry/Exit Points

Four (4) bay doors were observed on the east side of the garage portion of the subject building. Seven (7) man doors were observed on the exterior of the building. The location of the aforementioned entry/exit points are labelled on Drawing PE2278-3 Conceptual Site Model.

Heating/Cooling Systems

The presence of natural gas meters on the subject building indicates that the building is currently heated and cooled by natural gas fired equipment. No details of the current or former heating systems were available at the time of the site assessment, however, given that an furnace oil UST was observed to still be in place, it is expected that at least a portion of the building was formerly heated by heating oil prior to conversion to natural gas.

Ground Surface

The ground surface on the subject site consists of asphaltic concrete, used for parking, on the southeast and northwest portions of the site. The remainder of the site is occupied by the subject building. No signs of surficial staining were observed at the time of the site assessment.

Railway Lines

No railway lines were observed on the subject site. A railway line is present within the Phase I study area, approximately 65 m east of the site. A review of aerial photographs and fire insurance plans indicated the historical presence of a railway line in its current configuration.

Potentially Contaminating Activities

The presence of an automotive service garage with associated strip drains, an oil water separator and wash basins are considered to represent potentially contaminating activities at the site. The presence of an underground storage tank (UST) which is no longer in use is considered a potentially contaminating activity for the site.

Potentially Hazardous Building Products

- **Asbestos-Containing Materials (ACMs)**

Based on the approximate date of construction of the structure, (1960's), some building materials are considered to have the potential to contain asbestos. The suspected ACMs include the suspended ceiling tiles, hard plaster finishes and the thermal pipe insulation. The suspected ACMs were generally in good condition and do not represent an immediate concern.

- **Lead-Based Paint**

Based on the approximate date of construction of the subject building, lead-based paints may be present throughout the structure. Painted surfaces were generally in fair condition.

Neighbouring Properties

An inspection of the neighbouring properties was conducted at the time of the site inspection. Six (6) potentially contaminating activities were observed in the Phase I study area which includes immediately adjacent properties and properties within 250 m of the subject site. A total of five (5) automotive service garages and one (1) dry cleaners were observed within the Phase I study area. None of these facilities are expected to have impacted the site given their distances and/or down- or cross-gradient orientations with respect to the subject property.

Land use adjacent to the subject site was as follows:

- North - Somerset Street West followed by a commercial building, restaurant and residential dwellings;
- East - Breezehill Avenue North followed by commercial businesses;
- South - Devonshire Public School followed by Laurel Street;
- West - Access laneway followed by a commercial office building and residential dwellings.

The current use of the immediately adjacent properties and other neighbouring properties within 250 m of the subject site is not considered to pose an environmental concern to the subject site. Current land use in the Phase I Study area is illustrated on Drawings: PE2278-4 - Surrounding Land Use Plan in the Figures section of this report, following the text.

7.0 REVIEW AND EVALUATION OF INFORMATION

7.1 Land Use History

The following table indicates the current and past uses of the site as well as ownership and other observations dating back to the first known date of ownership of the site.

Table 6 - Land Use History				
Year	Name of Owner	Description of Property Use	Property Use	Other Observations from Aerial Photographs, Fire Insurance Plans, Etc.
1894 to 1963	13 land transfers between individuals	Residential dwellings	Residential Use	Three dwellings along Somerset, townhouses present on Breezehill
1963 to 2011	Lazarus Mirsky / National Brake & Clutch Service Limited	Grocery Store / Automotive Service Garage	Commercial Use	Developed with present day commercial building
2011 to Present	Claridge Homes (Hintonburg) Inc.	Vacant Commercial / Automotive Service Garage	Commercial Use	Developed present day building

Potentially contaminating activities were identified on the subject site with its use as an automotive service garage. The presence of in-ground hoists, strip-drains and an oil-water separator present potential environmental concerns for the site. Additionally, the presence of an underground furnace oil storage tank (UST) on the site represents a significant area of potential environmental concern for the subject property. The former presence of a gasoline UST on the southeast portion of the site represents an area of potential environmental concern for the subject property.

7.2 Areas of Potential Environmental Concern and Potential Contaminating Activities

Table 7: Areas of Potential Environmental Concern					
Area of Potential Environmental Concern (APEC)	Location of APEC on Phase One Property	Potential Contaminating Activities (PCA)	Location of PCA (on-site / off-site)	Contaminants of Potential Concern (CPC)	Media Potentially Impacted (Groundwater, Soil and/or Sediment)
Furnace Oil Underground Storage Tank (APEC 1)	Northwest of Garage (south) portion of site building	Leakage of UST and/or piping, discharge of petroleum hydrocarbons	On-site	BTEX / PHCs	Soil / Groundwater
Former gasoline underground storage tank (APEC 2)	East of Garage (south) portion of site building	Leakage of UST and/or piping, discharge of petroleum hydrocarbons	On-site	BTEX / PHCs, lead	Soil / Groundwater
Automotive service garage (APEC 3)	South portion of site	Leakage of strip drains, oil-water separator, spillage	On-site	BTEX / PHCs, VOCs	Soil / Groundwater

A Phase II Environmental Site Assessment was conducted in 2011 to assess the subsurface condition of soil and groundwater on the subject property. Boreholes/monitoring wells and a test pit were placed on the site to assess the aforementioned areas of potential environmental concern. Petroleum hydrocarbon soil contaminants were identified in the area of the furnace oil UST and beneath the floor slab on the interior of the garage building. Lead contaminated soil was identified in the fill layer on the southwest portion of the site. Petroleum hydrocarbon groundwater contaminants were identified in the groundwater beneath the floor slab on the interior of the garage building. Groundwater was not assessed in the area of the furnace oil UST.

7.3 Conceptual Site Model

Existing Buildings and Structures

The subject site is occupied by a one storey commercial building with a partial mezzanine level, the location of which is shown on Drawing PE2278-3 Conceptual Site Model.

The immediately adjacent properties to the north (across Somerset Street West), east (across Breezehill Avenue North) and west (across Bayswater Avenue) are used for commercial purposes. The immediately adjacent property to the south is occupied by a public school. The majority of the properties to the south of the site are used for residential purposes. The uses of each of the properties in the Phase I study area are indicated on the surrounding land use plan, however, the footprint of each individual building was not drawn on this figure.

Water Bodies

There are no water bodies on the subject site or within the Phase I study area. The closest water body to the site is the Ottawa River, located approximately 650 m north of the site. The location of this water body is shown on Drawing PE2278-3 Conceptual Site Model.

Areas of Natural Significance

No areas of natural significance were observed on the site or in the Phase I study area.

Drinking Water Wells

The properties in the Phase I Study area are serviced by municipal water and sewage services. As such, drinking water wells are not expected to be located at the subject site or neighbouring properties within the Phase I study area.

Neighbouring Land Use

Neighbouring land use in the Phase I study area was predominantly residential and commercial. Six (6) potentially contaminating activities were observed in the Phase I study area which includes immediately adjacent properties and properties within 250 m of the subject site. A total of five (5) automotive service garages and one (1) dry cleaners were observed within the Phase I study area. None of these facilities are expected to have impacted the site given their distances and/or down- or cross-gradient orientations with respect to the subject property.

Areas of Potential Contaminating Activities and Potential Environmental Concerns

Three (3) areas of potential environmental concern were observed on the subject site. Potentially contaminating activities and areas of potential environmental concern were identified on the subject site with its use as an automotive service garage. The presence of in-ground hoists, strip-drains and an oil-water separator present areas of potential environmental concern for the site. Additionally, the presence of an underground furnace oil storage tank (UST) on the site represents a significant area of potential environmental concern for the subject property. The former presence of a gasoline UST on the southeast portion of the site represents an area of potential environmental concern for the subject property.

8.0 CONCLUSIONS

Assessment

The results of the historical research identified the current use of the subject property as an automotive service garage. The presence of a furnace oil underground storage tank, strip drains and an oil-water separator are considered potentially contaminating activities. The former presence of a gasoline UST on the southeast portion of the site is also considered a potential contaminating activity. Fill material identified in one of the boreholes placed on the southeast portion of the site is an area of environmental concern. The site inspection indicated the current presence of six (6) potentially contaminating activities within the Phase I study area; however, none of these facilities are expected to have impacted the site given their distances and/or down- or cross-gradient orientations with respect to the subject property.

A Phase II Environmental Site Assessment was conducted to assess the subsurface condition of soil and groundwater on the subject property in 2011. Boreholes/monitoring wells and a test pit were placed on the site to assess the aforementioned areas of potential environmental concern. Petroleum hydrocarbon soil contaminants were identified in the area of the furnace oil UST and beneath the floor slab on the interior of the garage building. Lead contaminated soil was identified in the fill layer on the southwest portion of the site. Petroleum hydrocarbon groundwater contaminants were identified in the groundwater beneath the floor slab on the interior of the garage building. Groundwater was not assessed in the area of the furnace oil UST.

Recommendations

Based on the results of the assessment, **it is our opinion that additional environmental investigation and remediation in the form of a Phase II – Environmental Site Assessment, will be required for the site to delineate and remediate the identified soil and groundwater contamination on the subject property.**

The fuel oil underground storage tank, which is not in use, needs to be removed from the subject site. A remediation of the surrounding impacted soil and groundwater in this area should be conducted at this time.

It is our understanding that the future intent is to redevelop the Phase I property to a more sensitive land use. Prior to redevelopment, a record of site condition (RSC) would be required. An environmental remediation program would need to be completed in accordance with O. Reg. 269/11 prior to submitting an RSC. In the meantime, if the site is to be continued to be used for commercial purposes, the presence of the identified soil and groundwater contaminants do not pose a risk to the occupants of the building.

9.0 STATEMENT OF LIMITATIONS

This Phase I - Environmental Site Assessment report has been prepared in general accordance with the agreed scope-of-work, in general according with O. Reg. 269/11 amending O. Reg. 153/04 and meets the requirements of CSA Z768-01. The conclusions presented herein are based on information gathered from a limited historical review and field inspection program. The findings of the Phase I - ESA are based on a review of readily available geological, historical and regulatory information and a cursory review made at the time of the field assessment. The historical research relies on information supplied by others, such as, local, provincial and federal agencies and was limited within the scope-of-work, time and budget of the project herein.


Should any conditions be encountered at the subject site and/or historical information that differ from our findings, we request that we be notified immediately in order to allow for a reassessment.

This report was prepared for the sole use of Claridge Homes (Hintonburg) Inc. Permission and notification from Claridge Homes (Hintonburg) Inc. and Paterson will be required to release this report to any other party.

Paterson Group Inc.



Luke Lopers, B.A.Sc.



Mark S. D'Arcy, P.Eng.



Report Distribution:

Claridge Homes (Hintonburg) Inc. (3 copies and 1 PDF copy)
Paterson Group (1 copy)

10.0 REFERENCES

Federal Records

Air photos at the Energy Mines and Resources Air Photo Library.
National Archives.
Maps and photographs (Geological Survey of Canada surficial and subsurface mapping).
Natural Resources Canada – The Atlas of Canada.
Environment Canada, National Pollutant Release Inventory.
PCB Waste Storage Site Inventory.

Provincial Records

MOE Freedom of Information and Privacy Office.
MOE Municipal Coal Gasification Plant Site Inventory, 1991.
MOE document titled “Waste Disposal Site Inventory in Ontario”.
MOE Brownfields Environmental Site Registry.
Office of Technical Standards and Safety Authority, Fuels Safety Branch.
MNR Areas of Natural and Scientific Interest.
MOE Water Well Inventory.

Municipal Records

The City of Ottawa eMap website.

Local Information Sources

Chain of Title obtained through Read Abstracts, December 2011.
Plan of Survey obtained through Annis, O’Sullivan, Vollebek Ltd, April 2011.
Previous Environmental Reports.
Personal Interviews.

Public Information Sources

Google Earth.
Google Maps/Street View.

FIGURES

FIGURE 1 – KEY PLAN

FIGURE 2 – TOPOGRAPHIC MAP

DRAWING PE2278-3 – CONCEPTUAL SITE MODEL

DRAWING PE2278-4 – SURROUNDING LAND USE PLAN

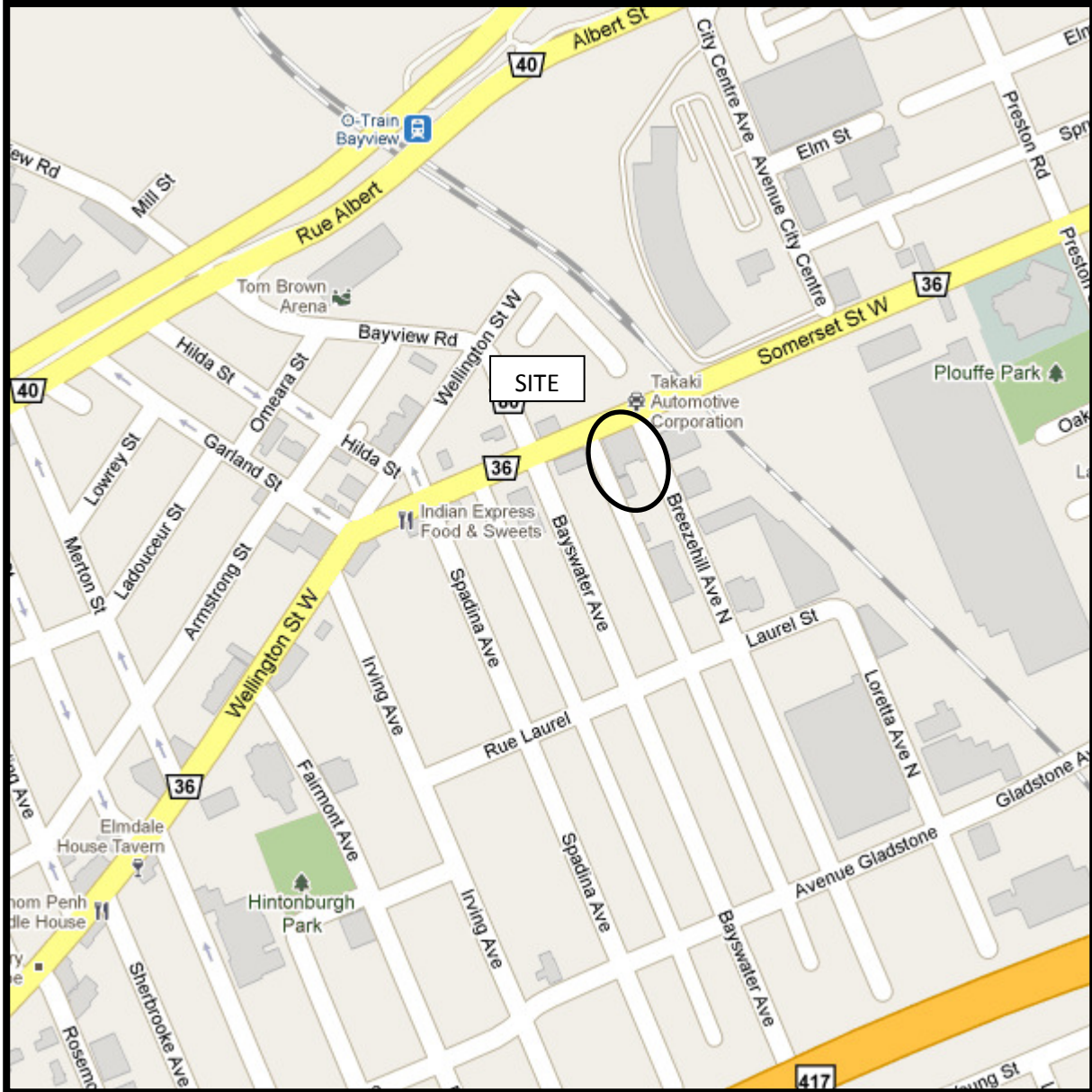


FIGURE 1
KEY PLAN

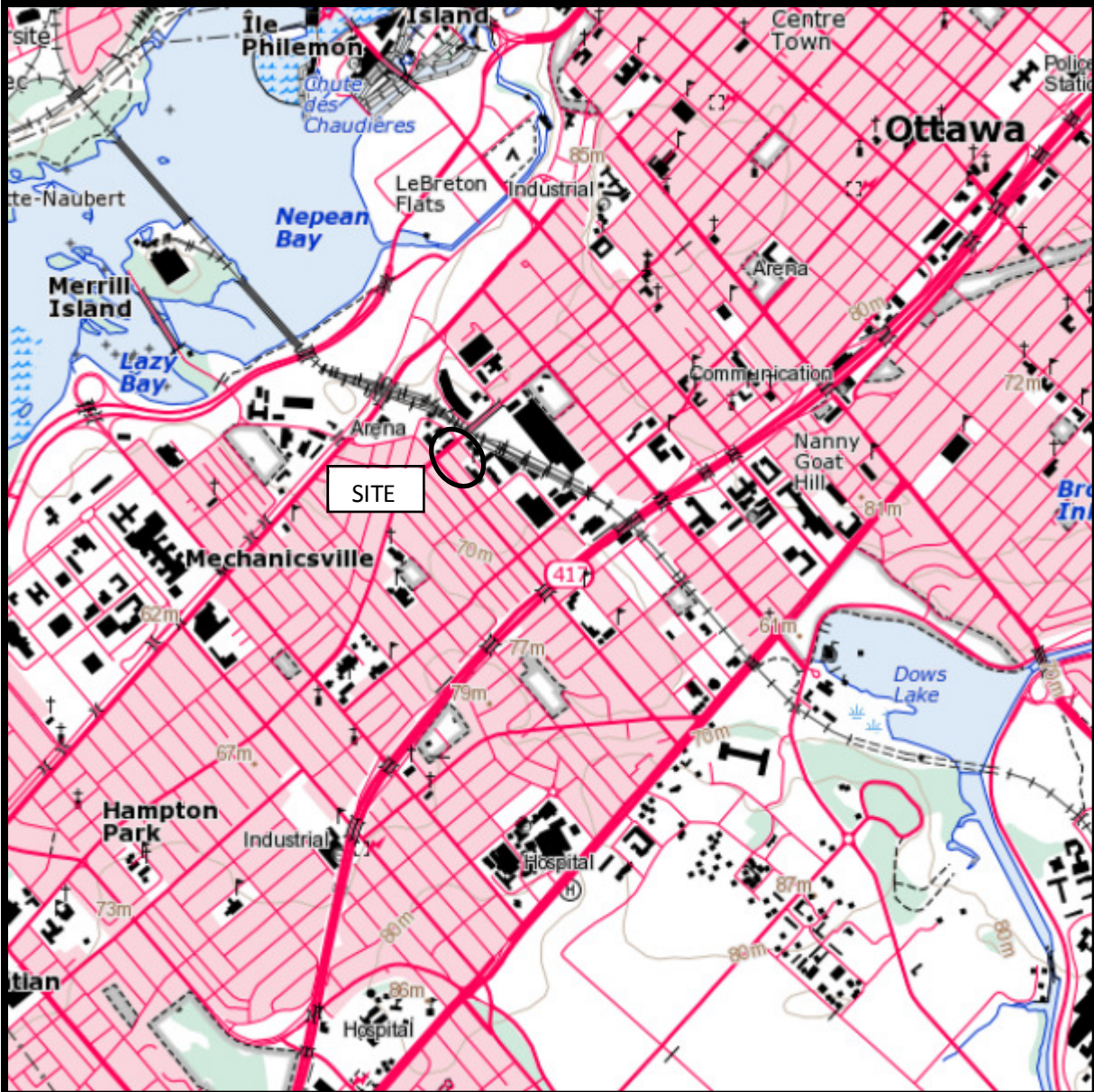


FIGURE 2
TOPOGRAPHIC MAP

#47 BREEZEHILL AVENUE N.
TAKAKI AUTO SERVICE

#1040 SOMERSET STREET W.
STUDIO FLAMEWORKED GLASS

COMMERCIAL

#47 BREEZEHILL AVENUE N.
MING AUTO SERVICE

BREEZEHILL AVE. N.

BREEZEHILL AVENUE NORTH

WEST
STREET
SOMERSET

RESIDENTIAL

#1053
SOMERSET ST. W.
RESTAURANT

#1055
SOMERSET ST. W.
RESTAURANT

#29 BAYSWATER AVE.
OFFICE BUILDING

#1050 SOMERSET STREET W.
COMMERCIAL (VACANT)

ASPHALTIC CONCRETE
PARKING LOT

ACCESS LANEWAY

#1066 SOMERSET STREET W.
BAYSWATER SQUARE (OFFICES)

CLARIDGE HOMES

PHASE I - ENVIRONMENTAL SITE ASSESSMENT
1050 SOMERSET STREET WEST

OTTAWA,

ONTARIO

BH 2
62.56

BH 7
62.00
[50.72]

BH 1
62.44

BH 6

BH 5

BH 3
61.84
[50.87]

BH 8
62.49

BH 4
62.69

TP 1

APPROX. LOCATION OF SUSPECTED
FORMER GASOLINE UNDERGROUND
STORAGE TANK




#100 BREEZEHILL AVENUE N.
DEVONSHIRE PUBLIC SCHOOL

ASPHALTIC CONCRETE
PARKING LOT

AUTOMOTIVE GARAGE

UNDERGROUND FURNACE
OIL STORAGE TANK

LEGEND:

-  BOREHOLE LOCATION
-  BOREHOLE LOCATION, MONITORING WELL INSTALLED
-  TEST PIT LOCATION
- 62.00 GROUND SURFACE ELEVATION (m)
- [50.72] BEDROCK SURFACE ELEVATION (m)

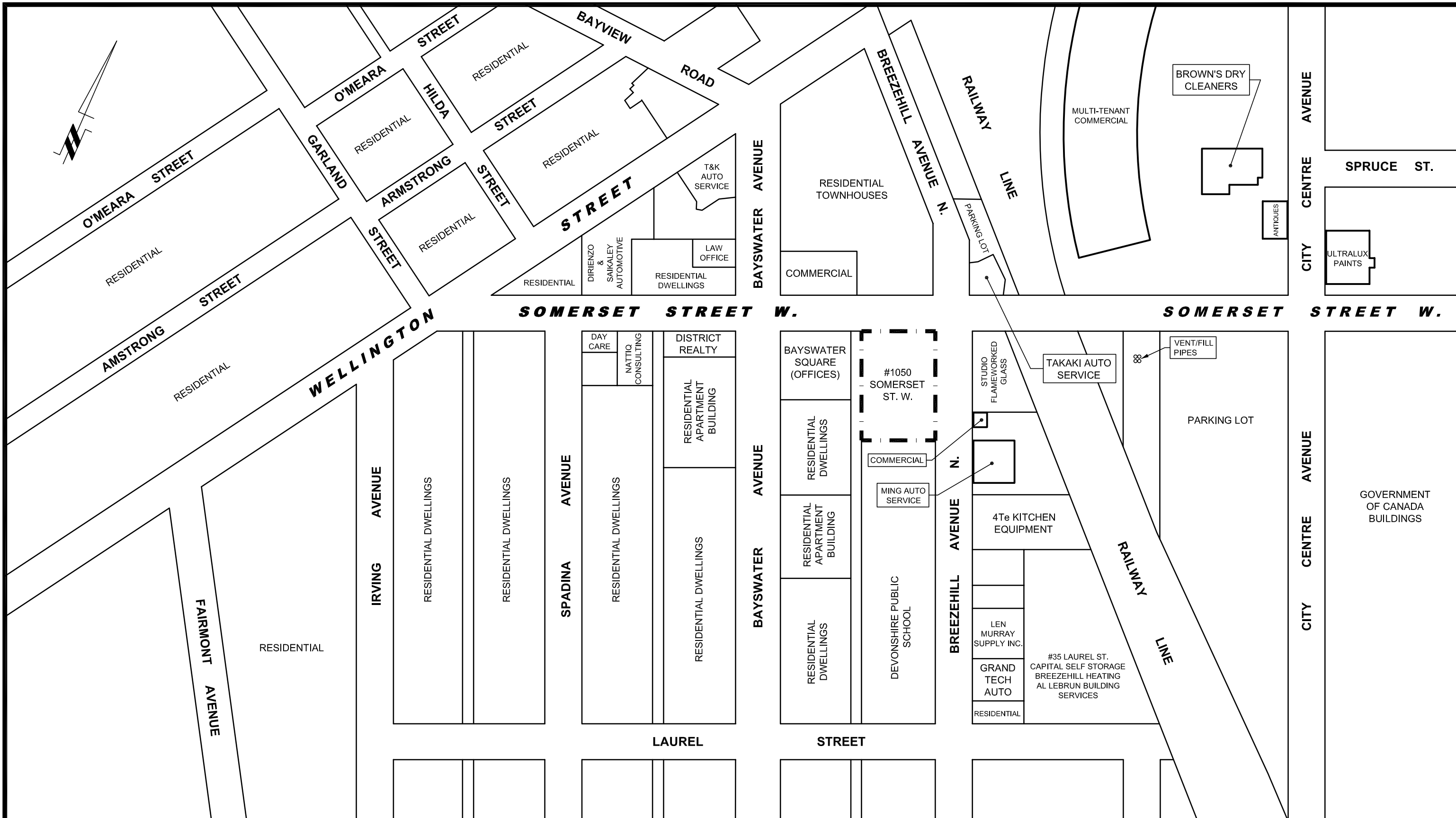
TBM - MAG NAIL IN HYDRO POST. GEODETIC
ELEVATION = 63.136, PROVIDED BY ANNIS,
O'SULLIVAN, VOLLEBEKK LIMITED.

patersongroup
consulting engineers
28 Concourse Gate, Unit 1, Ottawa, Ontario K2E 7T7

Scale: 1:300
Des.: LAL
Dwn.: MPG
Chkd.: MSD

CONCEPTUAL SITE MODEL

Dwg. No.
PE2278-3
Report No.: PE2278-3
Date: 02/2012



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 consulting engineers
 28 Concourse Gate, Unit 1, Ottawa, Ontario K2E 7T7

Scale: 1:2000
 Des.: LAL
 Dwn: MPG
 Chkd: MSD

CLARIDGE HOMES
 PHASE I - ENVIRONMENTAL SITE ASSESSMENT
 1050 SOMERSET STREET WEST
 OTTAWA, ONTARIO

SURROUNDING LAND USE PLAN

Dwg. No. **PE2278-4**
 Report No.: PE2278-3
 Date: 02/2012