



Geotechnical
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Hydrogeology

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Materials Testing

Building Science

Archaeological
Services

Phase I Environmental Site Assessment

Vacant Land
1125 Colonel By Drive
Ottawa, Ontario

Prepared For

Carleton University c/o ZW Group

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EXECUTIVE SUMMARY

Assessment

A Phase I – Environmental Site Assessment was carried out for area of the proposed new residence building at Carleton University, located at 1125 Colonel By Drive, in the City of Ottawa, Ontario. The purpose of this environmental assessment was to research the past and current use of the subject site and adjacent properties and identify any environmental concerns with the potential to have impacted the subject property.

Based on the available historical data, the subject site appears to have always been vacant or used as a parking lot. The university began acquiring properties (which make up the current campus) as early as 1947 and gained ownership of the present day campus property by 1972. Surrounding land use has been largely vacant, possible farmstead use, some domestic landfilling activities, university usage, with a railway line further to the east of the subject site and more recently parking lots to the north and east of the subject site. The land to the west and north of the subject site has never been developed.

During the development of various university buildings, soil excavated from the building footprints was placed on the eastern portion of the subject site and lands to the north and east of the subject site. The fill was assessed during a fill characterization program, carried out in prior to this assessment, in conjunction with a geotechnical investigation. The fill material is not considered to be contaminated material.

Two (2) potentially contaminating activities (PCAs) were identified within the Phase I study area during the historical review. Neither of the PCAs are considered to represent an area of potential environmental concern for the subject site.

Following the historical review, a site visit was conducted. The site consists of a raised parking area on the east side and a depressed marsh on the western portion. The escarpment separating the two sides is partially covered with rip rap, which water from the parking lot is diverted down, to the marsh area. Minimal staining was observed on the asphalt surface of the parking lot and no olfactory or visual signs of contamination were identified in the marsh portion of the subject site. No concerns were identified with respect to the current use of the subject site.

Surrounding land use consisted of vacant (marsh or parking lots), university residences and commons buildings. No concerns with respect to the current use of the neighbouring properties were identified in the Phase I-ESA study area.

Conclusion

Based on the results of this Phase I Environmental Site Assessment, **in our opinion, a Phase II-Environmental Site Assessment will not be required for the subject property.**

1.0 INTRODUCTION

At the request of ZW Group Inc. (ZWG), on behalf of Carleton University, Paterson Group (Paterson) conducted a Phase I - Environmental Site Assessment (Phase I-ESA) of the parcel of land on the northwest portion of the Carleton University campus, located at 1125 Colonel by Drive, in the City of Ottawa, Ontario. The purpose of this 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 was engaged to conduct this Phase I-ESA by Mr. Dan Belcourt of ZWG acting on the behalf of Carleton University. The Carleton University offices are located at 1125 Colonel By Drive. Mr. Belcourt can be reached by telephone at (613) 596-9663.

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-ESA report has been prepared in general accordance with the requirements of Ontario Regulation 153/04 as amended by O.Reg. 269/11 (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

Addresses: The subject site consists of a portion of the Carleton University campus, located at 1125 Colonel By Drive, Ottawa, Ontario.

Legal Description: Part Lot L, Concession B, Nepean Township, Rideau Front.

Property Identification
Numbers (PIN): 04098-0065, 04087-0068.

Location: The site is located on the east side of Colonel By Drive, in the north end of the Carleton University Campus, in the City of Ottawa, Ontario. The subject site is shown on Figure 1 - Key Plan following the body of this report.

Latitude and Longitude: 45° 23' 20" N, 75° 41' 56" W.

Site Description:

Configuration: Rectangular.

Site Area: 4,058 m² (approximate)

Zoning: I2A F – Institutional Zone

Current Use: The east side of the subject site is used as an asphaltic parking area and the west side of the subject site is a vacant marshy area.

Services: Municipal water and sewage services are available in the area of the subject site. The subject site is not currently serviced by water or sewer services.

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 readily 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 in compliance 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-ESA Study Area Determination

A radius of approximately 250 m was determined to be appropriate as a Phase I-ESA study area for this assignment. Properties outside the 250 m radius are not considered to have had the potential to impact the subject land, based on their significant distance from the site.

First Developed Use Determination

According to the aerial photographs reviewed as part of this assessment, the northeastern portion of the subject site appears to have been initially used as a parking lot by 1984. The remaining portion has always been vacant. Based on the aerial photograph review and observations made during the site visit, the subject site has never been developed with any buildings.

Fire Insurance Plans

Fire Insurance Plans (FIPs) are not available for the area of the subject site. The nearest FIP shows the men's and women's residences on the north side of Library Road, further to the south of the subject site.

City of Ottawa Street Directories

City directories are not available for the area of the subject site and Phase I-ESA study area.

Chain of Title

The chain of title, which was prepared for the entire Carleton University campus, indicates that part of the property was owned by individuals as early as 1801. In 1875 part of the property was acquired by St. Lawrence & Ottawa Railway Co., by 1947 The Ottawa Association for the Advancement of Learning (now Carleton University) began acquiring portions of the current campus. By 1972 the university owned the present day campus property.

Previous Engineering Reports

Paterson has carried out a geotechnical investigation and a fill characterization program at the subject site in 2014.

The geotechnical investigation was carried out in August, 2014. At that time, several test pits (TPs) and boreholes (BHs) were dug/drilled to various depths on and around the subject site. The borehole and test pit locations provide general

coverage of the subject site and adjacent lands. No visual or olfactory evidence of potential contamination was observed during the drilling program. Fill material generally consisting of silty clay, silty sand, gravel, boulders and topsoil was observed in all of the boreholes and test pits.

The fill material was assessed for metal impacts during the fill characterization assessment in August, 2014. Four (4) test pits were advanced through the fill to the native glacial till. Four (4) samples selected from the two (2) distinct fill layers were selected for analysis. All parameters were found to comply with the MOE Table 1 standards, as a result, the fill on-site is not considered to be contaminated and is suitable for off-site use as clean fill.

Since the fill quality has been determined, the fill material on the subject site is not considered to be a potentially contaminating activity (PCA).

The presence of the fill on the subject site is discussed throughout the report.

Current Plan of Survey

A current plan of survey was not available for review at this time.

4.2 Environmental Source Information

Environment Canada

A search of the National Pollutant Release Inventory (NPRI) was conducted electronically on August 7, 2014. Carleton University (NPRI ID 10602) has records from 2002 to 2008 for releases of carbon monoxide, nitrogen oxides, sulphur dioxide, volatile organic compounds and particulate matter, into the air. None of these releases are suspected to have originated on the subject site or have negatively impacted the subject property.

PCB Inventory

A search of national PCB waste storage sites was conducted. One (1) PCB storage site was listed for Carleton University. The Carleton University PCB storage site is listed as the Maintenance Building and was considered to be a major storage site, storing 23.0 liquid tonnes. The Maintenance Building is located approximately 500 m southeast of the subject site, is not within Phase I-study area and is not considered to have the potential to generate an area of potential environmental concern on the subject site. Furthermore, the most recent update to the MOE regarding the contents of the PCB waste storage site on the Carleton University campus indicate that all of the PCB wastes have been removed from the property for destruction and only an empty container remains.

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. The response from the MOE included approvals for permits to take water, alterations or installations of fume hoods, ventilation/exhaust/heating systems, generators and paint spray booths, and repairs/construction for municipal and private sewers. None of these approvals are considered to represent any potential environmental concerns or potentially contaminating activities.

The MOE was responsible for regulating the PCB waste storage site at the Carleton University Maintenance Building. The MOE requested frequent updates whenever the contents of the PCB waste storage site changed and documents detailing the removal and destination of all PCB contaminated materials. With the exception of light staining around the transformers within the buildings (prior to reclassification or disassembly) no signs or leaks, spills or staining were reported in any of the PCB Inventory Inspection Reports, ENSR letters (who were reclassifying the PCB contaminated transformers) or updates from Carleton University regarding the PCB waste storage site.

As Carleton University is all on the same municipal address, 1125 Colonel By Drive, the response contains all the available information pertaining to the entire campus. The vast majority of the reports contained within the response were for buildings located on the older portion of the campus, further to the south of the Phase I study area. A copy of the MOE response (CD) is provided 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 the Phase I study area.

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.

The response contained many reports of incidents/occurrences which involved spills, leaks or releases of chemicals were identified. These releases included natural gas leaks, releases of refrigerants and fire retardant chemicals, an illegal dumping event of kitchen grease, discharge of E.coli and sediment to natural

water bodies, mixed solvents to municipal sanitary sewers and various fuels, lubricants and automotive fluids to the roadways, buildings and parking areas. All of the incident/occurrence reports concluded that the response had been appropriate and that no further action was required. Typically these spills were for parts of the campus further to the south of the Phase I study area, however several of the spills reports did not provide a reference point and may have taken place closer to the subject site. None of the spill incident reports are considered to represent a potentially contaminating activity with the potential to generate an area of potential environmental concern on the subject site.

There are two (2) sets of orders issued from the MOE to Carleton University. One (1) order pertained to halting drilling activities until adequate mitigation measures were in place to reduce the total dissolved solids in the discharge water entering Rideau River. The other order was requesting compliance with O.Reg 127/01, specifically requesting that the University conducts monitoring, calculating and reporting air contaminant emissions. This order was either reoccurring or duplicated in the response. Neither order is considered to represent a potentially contaminating activity with the potential to impact the subject site.

MOE Waste Management Records

A request was submitted to the MOE Freedom of Information office for information with respect to waste management records. A review of the response identified several emergency waste generator numbers issued for one-time events, such as moving equipment (that required draining), decommissioning of equipment or spills.

The MOE carried out various inspections with respect waste management records including, PCB site inspections, waste audits, waste reduction work plan inspections, source separation inspection and waste generator inspections. The MOE often requested updates and increased detail with respect to the waste management strategies, but no actions were recommended in the inspection reports.

Carleton University holds waste generator numbers for a broad array of waste classes generated and removed from site and maintains a PCB waste storage site. These materials are largely associated with the buildings on the southern portion of the campus and outside of the scope of this project. Waste generation within the Phase I study area is believed to be limited to domestic waste, recycling and food waste from the cafeterias and residences. None of the waste management records identified any potentially contaminating activities with the potential to have impacted the subject site.

MOE Submissions

A request was submitted to the MOE Freedom of Information office for information with respect to reports related to environmental conditions that have been submitted to the MOE. No reports related to the environmental condition of the subject site were included in the response from the MOE.

MOE Brownfields Environmental Site Registry

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 for the subject site or any other properties within the Phase I-ESA study area.

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, there is one (1) waste disposal site (x 1012), located approximately 200 m east of the subject site, on the Carleton Campus in the area of the sports fields, parking lots and recreation facility. Based on the available data the landfill was closed in 1946. More details regarding this landfill are discussed under the heading City of Ottawa Landfill Document in this section.

Areas of Natural and Scientific Interest (ANSI)

A search for areas of natural significance and features within the Phase I study area was conducted on the web site of the Ontario Ministry of Natural Resources (MNR) on August 7, 2014. The search did not identify any provincially significant life sciences or earth sciences areas of natural heritage and scientific interest within the Phase I study area.

Technical Standards and Safety Authority (TSSA)

The TSSA, Fuels Safety Branch in Toronto was contacted electronically on August 7, 2014 to inquire about current and former underground storage tanks, spills and incidents for the site and immediately adjacent properties. The TSSA had records for eight (8) active underground fuel oil storage tanks. A copy of the TSSA correspondence is included in Appendix 2.

Based on discussions with Kevin Gallinger (Assistant Director of Maintenance Services at Carleton University), these tanks are considered to be associated with the buildings further to the south, outside of the Phase I study area. He mentioned the tanks were associated with the Science Buildings, Maintenance Buildings and the heating plant. Furthermore, he indicated that the buildings

within the Phase I study area were heated via the central heating plant (which provides heat via steam) and supplemental electrical heat. None of the TSSA records are considered to be for buildings within the Phase I-study area.

City of Ottawa Landfill Document

The document entitled “Old Landfill Management Strategy, Phase I – Identification of Sites, City of Ottawa”, was reviewed. One (1) former landfill site was identified within the Phase I study area. Landfill site Ur-7 (x 1020), is privately owned by Carleton University and is located on the eastern portion of the campus approximately 200 m east of the subject site. The landfill is located in the area of the Carleton University playing fields, between Bronson Avenue and University Drive. The site was active in the early 1930’s and closed in 1946. The waste is reportedly mainly domestic, between 3.0 and 4.6 m thick with an site area of approximately 7 ha. Based on the distance from the site this landfill is not considered to represent a potentially contaminating activity with the potential to generate an area of potential environmental concern on the subject site.

City of Ottawa Historical Land Use Inventory

A requisition form was sent to the City of Ottawa on August 19, 2014 to request information from the City’s Historical Land Use Inventory (HLUI 2005) database for the subject property.

The response from the City indicated that two (2) landfills are present on the Carleton University campus, Carleton University Landfill (Ur-7, x 1012) and Brewer’s Park Landfill (Ur-32, x 1013). As previously discussed the Carleton University landfill is not considered to represent a significant concern. The Brewer’s Park landfill is located approximately 450 m southeast of the subject site, approximately 200 m beyond the Phase I study area. The response indicates that the city conducted an analysis of the city-owned portion of Ur-7 to identify any potential human health risks associated with the site’s current land use, for which, none were identified.

The Sewer Use Program noted that there is information about recent environmental reports, past control orders or work orders, violations of environmental statues, regulations or by-laws and other environmental information. This information is considered to correspond to some of the information recovered in the MOE Freedom of Information search. Based on the available data, this information is not anticipated to represent a concern for current or proposed use of the subject site.

The search of the HLUI identified six (6) activities on the Carleton University Campus and four (4) activities associated with the adjacent properties. Three (3)

of the activities reported two (2) fuel oil USTs located at the Tory building, which is located further to the south, beyond the extent of the Phase I study area.

One (1) listing referred to an unnamed waste disposal site, Site x 1102. This is believed to be an erroneous report, as site x 1102 is located 1.75 km north of the subject site. It is likely this was a typographical error, as site x 1012 (Carleton University landfill) is located just 200 m east of the subject site. Regardless, as mentioned previously in this report, no landfill sites are considered to represent an area of potential environmental concern for the subject site due to their distance and age.

The HLUI activities listed Public Works and Government Services Canada (PWGSC) at 1008 Colonel By Drive, which is considered to be no less than 200 m east of the subject site, across the railway line. The exact location of the PWGSC facility was not determined, however, based on the approximated distance from the subject site this activity is not considered to pose a risk to the subject site.

One (1) activity was listed as Environment Canada CWS, services incidental to agricultural crops, which was identified in the National Wildlife Research Centre (NWRC). The NWRC building is located on the south end of the campus, approximately 600 m south of the subject site, adjacent to the Rideau River. This building is considered to be too far from the subject site to represent a risk.

The remaining activities were for a residential property developer and an elevator and escalator company. Both of these listings are considered to be temporary activities, which are not considered to be potentially contaminating activities with the potential to represent a concern for the subject site.

The review of the HLUI response did not identify any potentially contaminating activities with the potential to generate any areas of potential environmental concern for the subject property.

4.3 Physical Setting Sources

Aerial Photographs

Historical air photos from the National Air Photo Library were reviewed in approximate ten (10) year intervals. The review period dates back to the first available air photos for the site. Based on the review, the following observations have been made:

1945 The subject site appears vacant, with trees on the west side of the site. Neighbouring lands appear vacant or used for agricultural purposes. Colonel By Drive, Bronson Avenue and the rail line further to the east of the subject site are present. The Carleton

University landfill (Ur-7, x1012) is present further to the east of the subject site, across the rail line.

- 1950 The subject site remains vacant. The Carleton University landfill appears to be closed. The lands on the west side of the canal appear to have been altered. A small path from the area of the subject site across the railway to Bronson is present, no other apparent changes have been made to the subject site or neighbouring properties.
- 1953 The eastern land of the subject site and the lands to the north and east of the subject site appear to be disturbed. No other apparent changes have been made to the subject site or neighbouring properties.
- 1970 The subject site remains vacant at this time. The vegetation on the land to the east and north of the subject site has been disturbed. Many of the university buildings have been constructed further to the south of the subject site. Campus Avenue, University Drive and Library Road have been constructed further to the south of the subject site.
- 1984 The eastern portion of the subject site appears to be utilised as a crushed stone parking lot. Lands to the north and east of the subject site are also utilized as a crushed stone parking area. No apparent changes have been made to lands to the west of the subject site. Lands to the south of the subject site cannot be assessed in this photograph.
- 1993 The parking lot has been expanded further to the north of the subject site. Additional university buildings are present to the south of the subject site.
- 2002 The subject site remains occupied by trees on the west side and a parking lot on the east side. The residence building immediately south of the subject site has been constructed. Another parking area is present further to the east of the subject site. No other changes are apparent in this photograph.
- 2011 (City of Ottawa website) The tennis courts further to the east of the subject site appear to have been covered or replaced with a dome. No other changes appear to have been made to the subject site or neighbouring properties.

Laser copies of selected aerial photographs reviewed are included in Appendix 1.

Topographic Maps

Topographic maps were obtained from The Atlas of Canada – Toporama website and from the City of Ottawa website. The topographic maps depicts the subject site in a generally flat area. The overall region slopes down towards the Rideau River to the east of the subject site. The maps depict the railway line to the north and east of the subject site. According to the maps, the nearest water body is the Rideau Canal, located approximately 75 m west of the subject site. An illustration of the referenced topographic map is presented on Figure 2 – Topographic Map, appended to 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 this information, bedrock in the area of the site consists of interbedded Limestone and Shale of the Verulam Formation. Overburden consists of organic deposits, with a drift thickness on the order of 5 to 10 m.

Water Well Records

A review of the online MOE Well Record Data map identified records of three (3) well records in the Phase I-ESA study area. One (1) of the records was for air conditioning (ventilation for tunnels) and is apparently located to the north of the subject site in the parking lot area. One (1) of the records was for a well near the science building, which is considered to be outside of the Phase I study area. The final record was for abandonment of a well. Based on the presence of municipal services on the campus, it is considered unlikely that any drinking water wells are present in the Phase I study area.

Water Bodies and Areas of Natural and Scientific Interest

No areas of natural and scientific interest (ANSIs) are known to exist within the Phase I study area. The Rideau Canal is present approximately 75 to the west of the subject site. No other bodies of water are present in the Phase I-ESA study

area, however, the Rideau River is present approximately 750 m south of the subject site.

Fill Materials

Fill material consisting of soil and stone excavated during the development of several campus buildings has been placed in the area of the parking lot on the subject site and lands to the north and east of the subject site. This fill material was assessed in the Fill Characterization Analysis that took place prior to this assessment. Furthermore, several boreholes have been placed on the subject site during recent and former geotechnical investigations and no signs of contamination or deleterious fill were identified in the boreholes. Evidence of waste disposal was not identified during the former or current subsurface investigations at the subject site. The landfilling activities further to the east at the Carleton University landfill (Ur-7, x 1012) are not considered to have taken place in the area of the subject site.

Based on the subsurface investigation in the area of the subject site, the fill deposited on the subject site is considered to be of known quality (meets MOE background standards) and is not considered to be an area of potential environmental concern that requires further assessment.

5.0 INTERVIEWS

Property Owner Representative

Mr. Dan Belcourt, of ZW Group Inc., was present during a site visit in August for questioning. Mr. Belcourt indicated the fill in the area of the parking lot had been removed from other areas of the campus during the development of several buildings.

Conversations with Mr. Kevin Gallinger (Assistant Manager of the Maintenance Services Department of Carleton University) provided additional details pertaining to the services at the subject site. He indicated that the buildings within the Phase I study area have never been heated by fuel oil. He mentioned that no USTs or ASTs have been present in that portion of the campus. Mr. Gallinger indicated that the USTs identified by the TSSA were associated with the Science, Maintenance and Heating Plant buildings located further to the south and southeast of the subject site, beyond the Phase I study area limits.

With the exception of the landfills in the area of Carleton University, neither Mr. Belcourt nor Mr. Gallinger was aware of any potential environmental concerns associated within the area of the subject site. The information obtained from the interview with Mr. Belcourt and Mr. Gallinger is consistent with site information obtained from other sources and is considered to be valid.

6.0 SITE RECONNAISSANCE

6.1 General Requirements

The site visit was conducted on August 7, 2014 between 12:30 PM and 2:00 PM. Weather conditions for the site visit were partially cloudy, with a temperature of approximately 20°C. Mr. Sean Moggridge from the Environmental Department of Paterson Group conducted the site assessment. In addition to the subject site, the uses of neighbouring properties within the Phase I study area were also assessed from publicly accessible roadways at the time of the site visit.

Access was available to the entire site. At the time of the assessment, the site consisted of a portion of a parking lot on the top of an escarpment and a marsh lowland area at the base of the escarpment. The site is vacant with the exception of the parking area. Ground cover consisted of cat tails, tall grasses, bushes and trees on and at the bottom of the slope, while the parking area has an asphaltic concrete surface. Surface water flows to the southwest corner of the parking lot, where it drains to the marshy area on the western portion of the subject site. Rip rap is present along the escarpment directing the run-off to the depressed marsh area.

Very few minor stains were observed in the parking lot portion of the subject site; several cars were present obscuring several areas. Standing water was present in the marshy area during the site visit, at which time no visual or olfactory signs of contamination were observed.

6.2 Specific Observations at Phase I Property

Buildings and Structures

No buildings or structures, aside from those noted above, are present on the subject site.

Below Ground Structures

No below ground structures, aside from those noted above, are known to exist on the subject site.

Storage Tanks

No aboveground storage tanks (ASTs) or signs of underground storage tanks (USTs) were observed on the subject property during the site visit. No significant staining or stressed vegetation was observed on the ground surface at the subject site.

Water Source

The subject site currently utilized as a parking lot, no water services are present on the subject site.

Underground Utilities

Private electrical conduits servicing the parking lot lights and communications cables are present on the subject site. No other underground services are suspected to be present on the subject site.

Unidentified Substances

There were no unidentified substances on the subject property at the time of the site visit. Furthermore, no unidentified substances were identified in the test pits excavated in the fill characterization assessment.

Groundwater Monitoring Wells

Several groundwater monitoring wells were identified on the subject site and within the Phase I study area. These monitoring wells are known to be associated with geotechnical work for the proposed development on the subject site.

Sewage Works

No sewage works were identified on the subject site. No private sewage systems are suspected to exist on the subject site.

Site Features

The site consists of a portion of a parking lot on the east side and a marsh area on the west. The parking lot is situated on a fill pile of soil and rock accrued from the development of various Carleton University Structures and the trench for the rail line. No structures are present on the subject site. Ground cover consists of a range of grasses, cat tails, shrubs/bushes and asphaltic concrete. The site topography generally slopes to the west (lower marsh area), while the parking lot is sloped towards the southwest corner to rip rap that diverts surficial water flow to the marsh area. The regional topography in the area of the subject site is generally undulating, with overall slopes to the west and east, towards the Rideau Canal and the nearby railway line. No areas of significant staining were identified in the parking lot. No visual or olfactory signs indicating contamination were identified in the water in the marsh area.

Railway and Spur Lines

No evidence of current or former railway or spur lines was observed on the subject property at the time of the site inspection. One (1) rail line is present approximately 100 m further to the east of the subject site.

Potentially Contaminating Activities

No historical or existing potentially contaminating activities (PCAs) were identified on the subject site. The fill quality was previously assessed and is therefore not considered to be a PCA.

Neighbouring Properties

An inspection of the neighbouring properties was conducted from publicly accessible roadways at the time of the site inspection. Land use adjacent to the subject site was as follows:

- North - Parking lot;
- South - University residence;
- East - Parking lot, followed by a rail line;
- West - Vacant, followed by Colonel By Drive.

No potential environmental concerns were identified with respect to the current use of the neighbouring properties. Current land use in the Phase I Study area is illustrated on Drawing PE3367-2 - 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

According to the Chain of Title, part of the campus property was owned by individuals as early as 1801. In 1875 part of the property was acquired by St. Lawrence & Ottawa Railway Co., by 1947 The Ottawa Association for the Advancement of Learning (now Carleton University) began acquiring portions of the current campus. By 1972 the university owned the present day campus property. It should be noted that the chain of title was prepared for the current address 1125 Colonel By Drive, which consists of the entire campus property.

Based on the aerial photographs and discussions with personnel from the University, the subject site is considered to have been vacant since prior to the 1928. In the 1980s, the northeastern part of the property began to be used as a parking lot. Otherwise, no permanent structures have been developed on the subject site.

Potentially Contaminating Activities

Two (2) potentially contaminating activities (PCAs) were identified in the Phase I study area:

- Former use of lands further to the east of the subject site as a landfill (Ur-7, Carleton University).
- The presence of the railway line further to the east of the subject site.

Based on their distances from the subject site, the former use of the landfill site Ur-7 and the presence of the railway line are not considered to represent areas of potential environmental concern (APEC).

Areas of Potential Environmental Concern

No APECs are considered to exist on the Phase I property.

Contaminants of Potential Concern

Since there are no APECs on the subject site, there are no contaminants of potential concern (CPCs) for the subject site.

7.2 Conceptual Site Model

Geological and Hydrogeological Setting

Based on the previous geotechnical investigations at the subject site, approximately 4.5 m of fill is present on the subject site. The fill consists of brown silty clay and silty sand, some to trace gravel, cobbles and boulders. The fill is underlain by glacial till. Based on the available geological survey maps, bedrock consists of Shale of Verulam Formation and is present between 5 to 10 m below the native glacial till. Based on the site topography groundwater flow is interpreted to be moving in a northwesterly direction.

Contaminants of Potential Concern

As indicated in Section 7.1 of this report, no Contaminants of Potential Concern (CPCs) were identified on the subject site.

Existing Buildings and Structures

No structures are present on the subject site, aside from the parking lot.

Water Bodies

The closest body of water to the subject site is the Rideau Canal, located approximately 75 m west of the subject site. No other bodies of water are present within the Phase I study area.

Areas of Natural and Scientific Interest

No areas of natural and scientific interest were identified on the site or in the Phase I study area.

Drinking Water Wells

Based on a review of the MOE Well Record Data maps, three (3) well records were identified within the Phase I study area. As discussed in Section 4.3, only one (1) of these records was identified as a well within the Phase I study area. This record was for air condition and is not considered to be a drinking water well. No drinking water wells were identified on the subject site or within the Phase I study area during the Phase I site visit.

Neighbouring Land Use

Neighbouring land use in the Phase I study area consists of parking structures, vacant land and residential or institutional university buildings. No environmental concerns were identified during the review of neighbouring land use.

Potentially Contaminating Activities and Areas of Potential Environmental Concerns

As per Section 7.1 of this report, two (2) PCAs were identified within the Phase I study area, neither of these are considered to represent APECs on the subject site.

Assessment of Uncertainty and/or Absence of Information

The information available for review as part of the preparation of this Phase I-ESA, is considered to be sufficient to conclude that there are no areas of potential environmental concern on the subject site.

8.0 CONCLUSIONS

Assessment

A Phase I – Environmental Site Assessment was carried out for area of the proposed new residence building at Carleton University, located at 1125 Colonel By Drive, in the City of Ottawa, Ontario. The purpose of this environmental assessment was to research the past and current use of the subject site and

adjacent properties and identify any environmental concerns with the potential to have impacted the subject property.

Based on the available historical data, the subject site appears to have always been vacant or used as a parking lot. The university began acquiring properties (which make up the current campus) as early as 1947 and gained ownership of the present day campus property by 1972. Surrounding land use has been largely vacant, possible farmstead use, some domestic landfilling activities, university usage, with a railway line further to the east of the subject site and more recently parking lots to the north and east of the subject site. The land to the west and north of the subject site has never been developed.

During the development of various university buildings, soil excavated from the building footprints was placed on the eastern portion of the subject site and lands to the north and east of the subject site. The fill was assessed during a fill characterization program, carried out in prior to this assessment, in conjunction with a geotechnical investigation. The fill material is not considered to be contaminated material.

Two (2) potentially contaminating activities (PCAs) were identified within the Phase I study area during the historical review. Neither of the PCAs are considered to represent an area of potential environmental concern for the subject site.

Following the historical review, a site visit was conducted. The site consists of a raised parking area on the east side and a depressed marsh on the western portion. The escarpment separating the two sides is partially covered with rip rap, which water from the parking lot is diverted down, to the marsh area. Minimal staining was observed on the asphalt surface of the parking lot and no olfactory or visual signs of contamination were identified in the marsh portion of the subject site. No concerns were identified with respect to the current use of the subject site.

Surrounding land use consisted of vacant (marsh or parking lots), university residences and commons buildings. No concerns with respect to the current use of the neighbouring properties were identified in the Phase I-ESA study area.

Conclusion

Based on the results of this Phase I Environmental Site Assessment, **in our opinion, a Phase II-Environmental Site Assessment will not be required for the subject property.**

9.0 STATEMENT OF LIMITATIONS

This Phase I - Environmental Site Assessment report has been prepared in general accordance with O.Reg. 153/04 as amended by O.Reg. 269/11, 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 Carleton University and ZW Group Inc. Permission and notification from Carleton University and Paterson will be required to release this report to any other party.

Paterson Group Inc.



Sean Moggridge, B.Eng.



Mark S. D'Arcy, P.Eng.

Report Distribution:

- ZW Group Inc.
- Paterson Group



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 Significance.
MOE Water Well Inventory.
Chapman, L.J., and Putnam, D.F., 1984: ‘The Physiography of Southern Ontario, Third Edition’, Ontario Geological Survey Special Volume 2.

Municipal Records

City of Ottawa Document “Old Landfill Management Strategy, Phase I - Identification of Sites.”, prepared by Golder Associates, 2004.
City of Ottawa, Infrastructure Services and Community Sustainability Department Planning and Growth Management Branch.
City of Ottawa Access to Information and Privacy Office
The City of Ottawa “geoOttawa” Mapping website.

Local Information Sources

Chain of Title obtained through Read Abstracts Limited, May 2014.
Current Topographical Plan, prepared by Stantec Geomatics Ltd.
Personal Interviews.

Public Information Sources

Google Earth.
Google Maps/Street View.

FIGURES

FIGURE 1 – KEY PLAN

FIGURE 2 – TOPOGRAPHIC MAP

DRAWING PE3367-1 –SITE PLAN

DRAWING PE3367-2 – SURROUNDING LAND USE PLAN

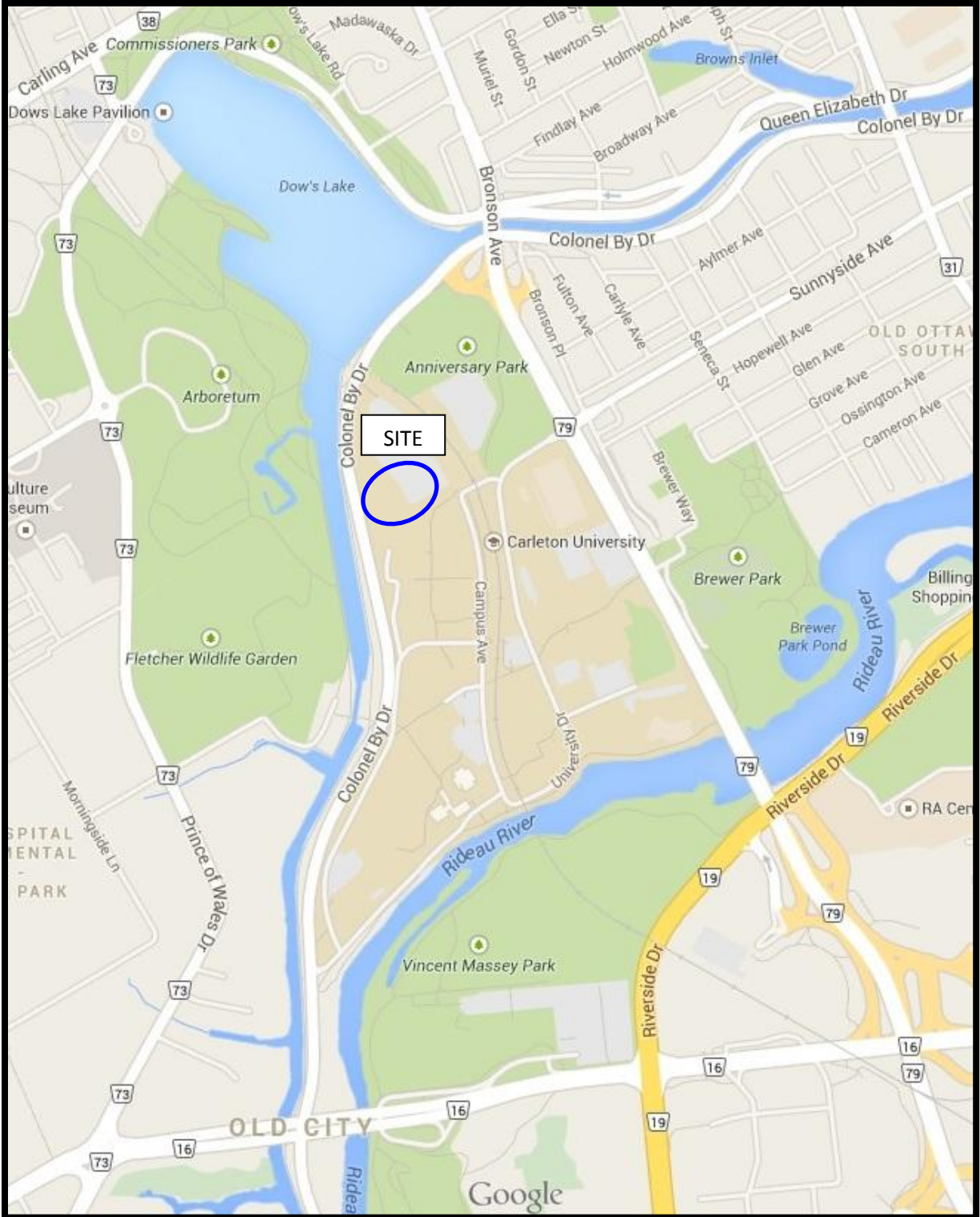


FIGURE 1
KEY PLAN

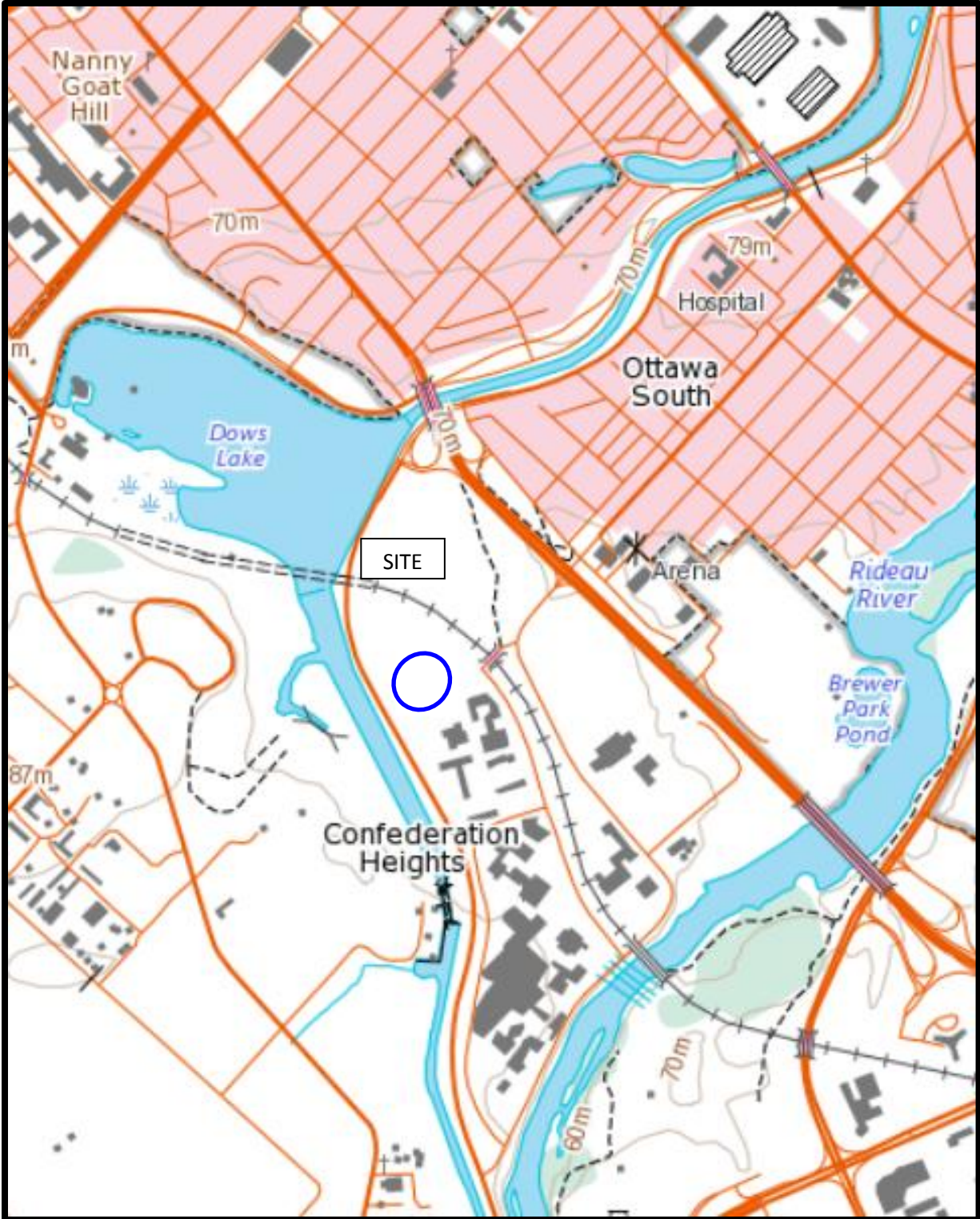
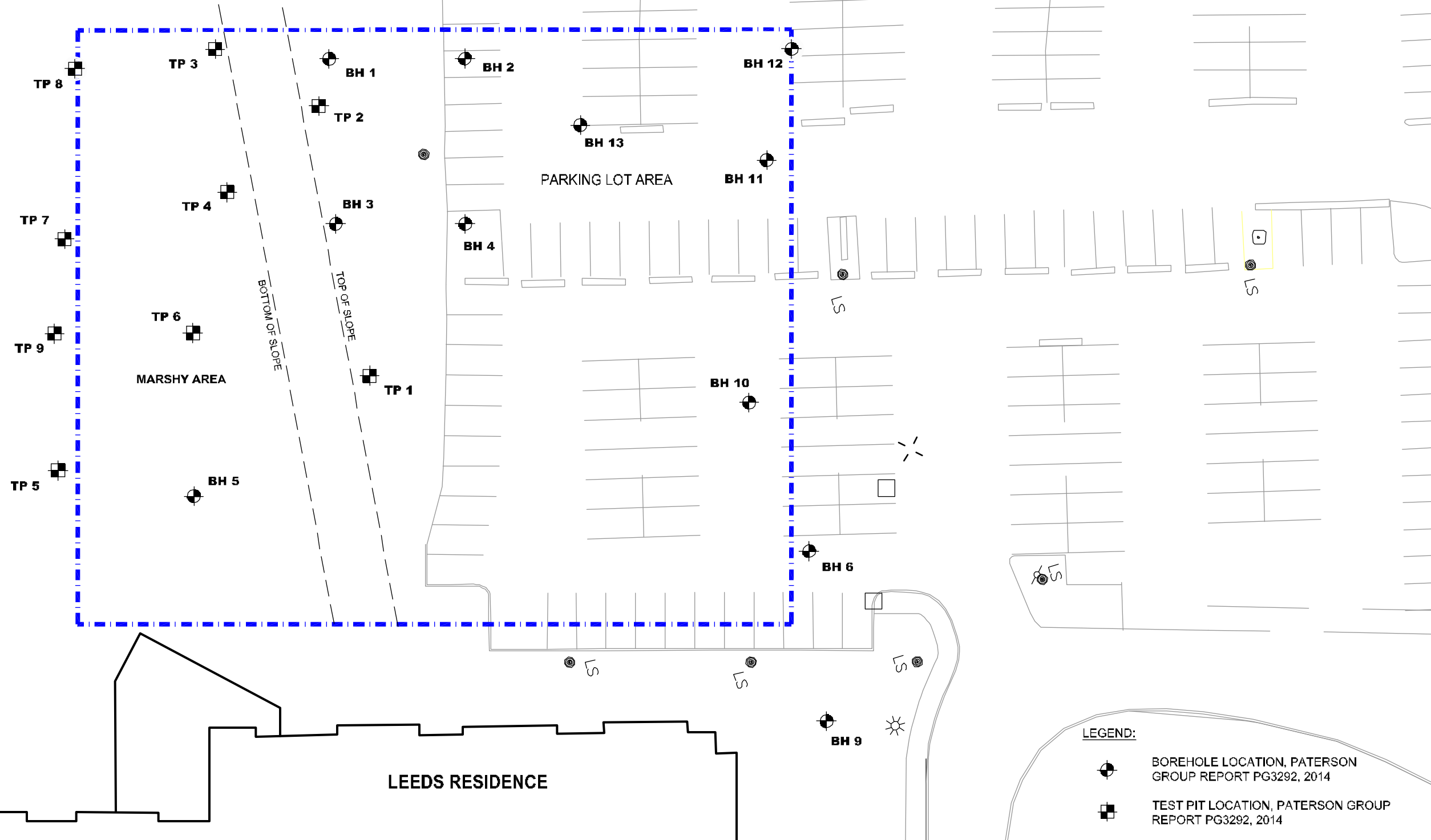
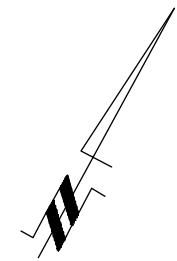


FIGURE 2
TOPOGRAPHIC MAP

← COLONEL BY DRIVE



LEGEND:
 ● BOREHOLE LOCATION, PATERSON GROUP REPORT PG3292, 2014
 ■ TEST PIT LOCATION, PATERSON GROUP REPORT PG3292, 2014

paterson group
 consulting engineers

154 Colonnade Road South
 Ottawa, Ontario K2E 7J5
 Tel: (613) 226-7381 Fax: (613) 226-6344

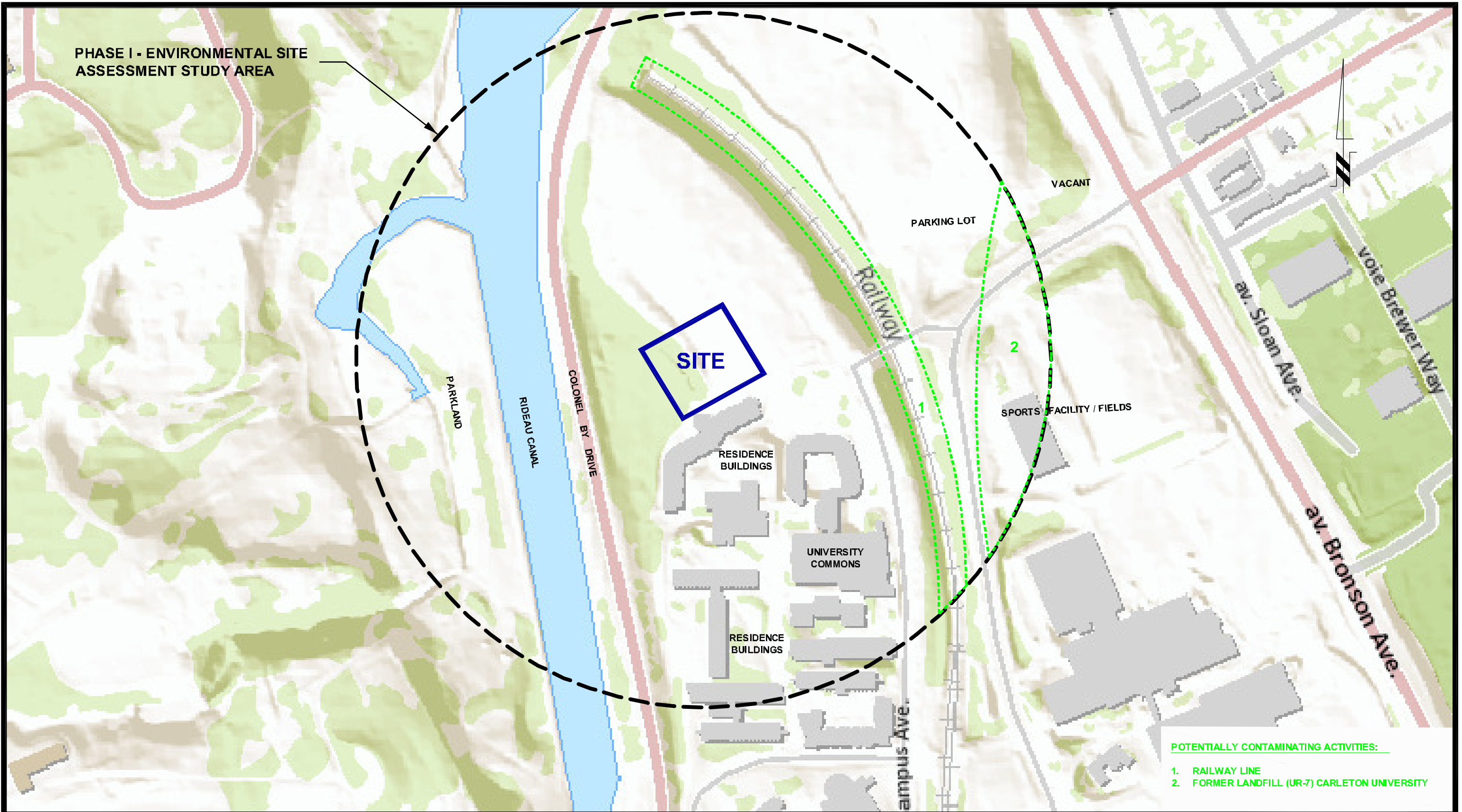
NO.	REVISIONS	DATE	INITIAL

CARLETON UNIVERSITY
 PHASE I - ENVIRONMENTAL SITE ASSESSMENT
 PROPOSED RESIDENCE BUILDING - 1125 COLONEL BY DRIVE
 OTTAWA, ONTARIO

SITE PLAN

Scale:	1:400	Date:	11/2014
Checked by:	SM	Report No.:	PE3367-1
Approved by:	MSD	Drawing No.:	PE3367-1
Drawn by:	AG		

p:\autocad drawings\environmental\pe3367-1\pe3367-1 site plan.dwg



- POTENTIALLY CONTAMINATING ACTIVITIES:**
1. RAILWAY LINE
 2. FORMER LANDFILL (UR-7) CARLETON UNIVERSITY

patersongroup
consulting engineers

154 Colonnade Road South
Ottawa, Ontario K2E 7J5
Tel: (613) 226-7381 Fax: (613) 226-6344

NO.	REVISIONS	DATE	INITIAL

CARLETON UNIVERSITY
PHASE I - ENVIRONMENTAL SITE ASSESSMENT
PROPOSED RESIDENCE BUILDING - 1125 COLONEL BY DRIVE

OTTAWA, ONTARIO

SURROUNDING LAND USE PLAN

Scale:	1:1000	Date:	11/2014
Checked by:	SM	Report No.:	PE3367-1
Approved by:	DJG	Drawing No.:	PE3367-2
Drawn by:	AG		

APPENDIX 1

CHAIN OF TITLE

AERIAL PHOTOGRAPHS

SITE PHOTOGRAPHS



READ Abstracts Limited

331 Cooper Street, Suite 300, Ottawa, Ontario K2P 0A4

Email: search@readsearch.com

Tel.: 613-236-0664

Fax: 613-236-3677

ENVIRONMENTAL SEARCH

Aug 8, 2014

Patersongroup
Attn: Xavier Redhead

RE: 1125 Colonel By Drive

BRIEF DESCRIPTION OF LAND:

Part lots L, M, N, Con B RF, as in NP58418,
CR307274, CR307038, CR434029, Cr585555,
CR585557

PIN: 04087-0065

Part lots L, M, N, Con B RF, as in CR307396,
CR608320 except CR417078, CR585556 and part
2 on 5R5113

PIN: 04087-0068

LAST REGISTERED OWNER: CARLETON UNIVERSITY

CHAIN OF TITLE:

LOT L, CON B RF

Patent dated Sept 6, 1906
From Crown to Estate of H. C. Monk

Deed 21143 registered Sept 13, 1906
From Crown to Estate of Henry Monk

Patent dated Nov 30, 1906
From Crown to Estate of H. C. Monk

Deed 21297 registered Jan 14, 1907
From Crown to Estate of H. C. Monk

Deed 56609 registered Jan 31, 1947
From Estate of Augusta Monk to Duncan K. MacTavish

Deed 58418 registered Nov 4, 1947
From Duncan K. MacTavish to The Ottawa Association for the Advancement of Learning

Patent 387696 registered May 8, 1959
From Crown to Federal District Commission

Patent 387697 registered May 8, 1959
From Crown to Federal District Commission

Quit Claim Deed 553943 registered Jan 21, 1969
From Canadian Pacific Railway Co. to National Capital Commission

Deed 585557 registered Dec 30, 1970
From National Capital Commission to Carleton University

Deed 608320 registered April 4, 1972
From National Capital Commission to Carleton University

LOT M, CON B RF

Patent dated June 30, 1801
From Crown to John Stegman

Deed 23 registered June 15, 1802
From John Stegman to Thomas Fraser

Deed 312 registered June 5, 1830
From Duncan Fraser to Donald Kennedy

Deed 811 registered Feb 16, 1835
From Donald Kennedy to Alex. Kennedy

Deed 27224 registered May 29, 1867
From Donald Kennedy to Jas. Kennedy

Patent dated Jan 16, 1871
From Crown to D. Kennedy

Deed 803 registered June 1, 1871
From James Kennedy to St. Lawrence & Ottawa Railway Co.

Deed 823 registered June 8, 1871
From Alex. Kennedy to St. Lawrence & Ottawa Railway Co.

Patent dated Feb 17, 1873
From Crown to D. Kennedy

Deed 3480 registered April 20, 1875
From D. Kennedy to James Kennedy

Deed 22879 registered Aug 6, 1909
From Jas. Kennedy to Wm. E. Cousens

Deed 23586 registered June 13, 1910
From Hannah McIntosh and Wm. A. McIntosh to Thos M. Mulligan

Mortgage 23587 registered June 13, 1910
From Thos. M. Mulligan to Hannah McIntosh

Deed 23588 registered June 13, 1910
From Thos M. Mulligan to Rideau Heights Property Company Ltd.

Deed 23755 registered Sept 2, 1910
From Wm. C. Cousens to Ottawa South Property Co. Ltd.

Deed 23883 registered Oct 27, 1910
From Rideau Heights Property Co. Ltd. to Ottawa South Property Co. Ltd.

Deed 40238 registered Aug 18, 1927
From Ottawa South Property Co. Ltd. to Estate of Margaret Lumsden

Deed 55868 registered Oct 2, 1946
From Trustees of Margaret Lumsden trust to Duncan K. MacTavish

Deed 56054 registered Oct 26, 1946
From Hannah McIntosh to Duncan K. MacTavish

Deed 58418 registered Nov 4, 1947
From Duncan K. MacTavish to The Ottawa Association for the Advancement of Learning

Deed 307038 registered Dec 29, 1952
From Duncan K. MacTavish to Carleton College

Deed 307396 registered Jan 15, 1953
From Duncan K. MacTavish to Carleton College

Patent 434029 registered Oct 25, 1961
From Crown to Carleton University

Quit Claim Deed 553943 registered Jan 21, 1969
From Canadian Pacific Railway Company to National Capital Commission

Deed 585555 registered Dec 30, 1970
From National Capital Commission to Carleton University

LOT N, CON B RF

Patent dated April 7, 1852
From Crown to D. Kennedy

Deed 27224 registered May 29, 1867
From D. Kennedy to James Kennedy

Patent dated Jan 16, 1871
From Crown to D. Kennedy

Patent dated Jan 20, 1875
From Crown to D. Kennedy

Deed 2305 registered Jan 20, 1875
From Crown to D. Kennedy

Patent dated Feb 18, 1875
From Crown to St. Lawrence & Ottawa Railway Co.

Deed 3480 registered April 20, 1875
From D. Kennedy to James Kennedy

Will 13203 registered March 27, 1888
From D. Kennedy to Hannah Kennedy

Deed 22879 registered Aug 6, 1909
From Jas. Kennedy to Wm. C. Cousens

Deed 23586 registered June 13, 1910
From Hannah McIntosh and Wm. A. McIntosh to Thos M. Mulligan

Mortgage 23587 registered June 13, 1910
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Deed 307396 registered Jan 15, 1953
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From National Capital Commission to Carleton University



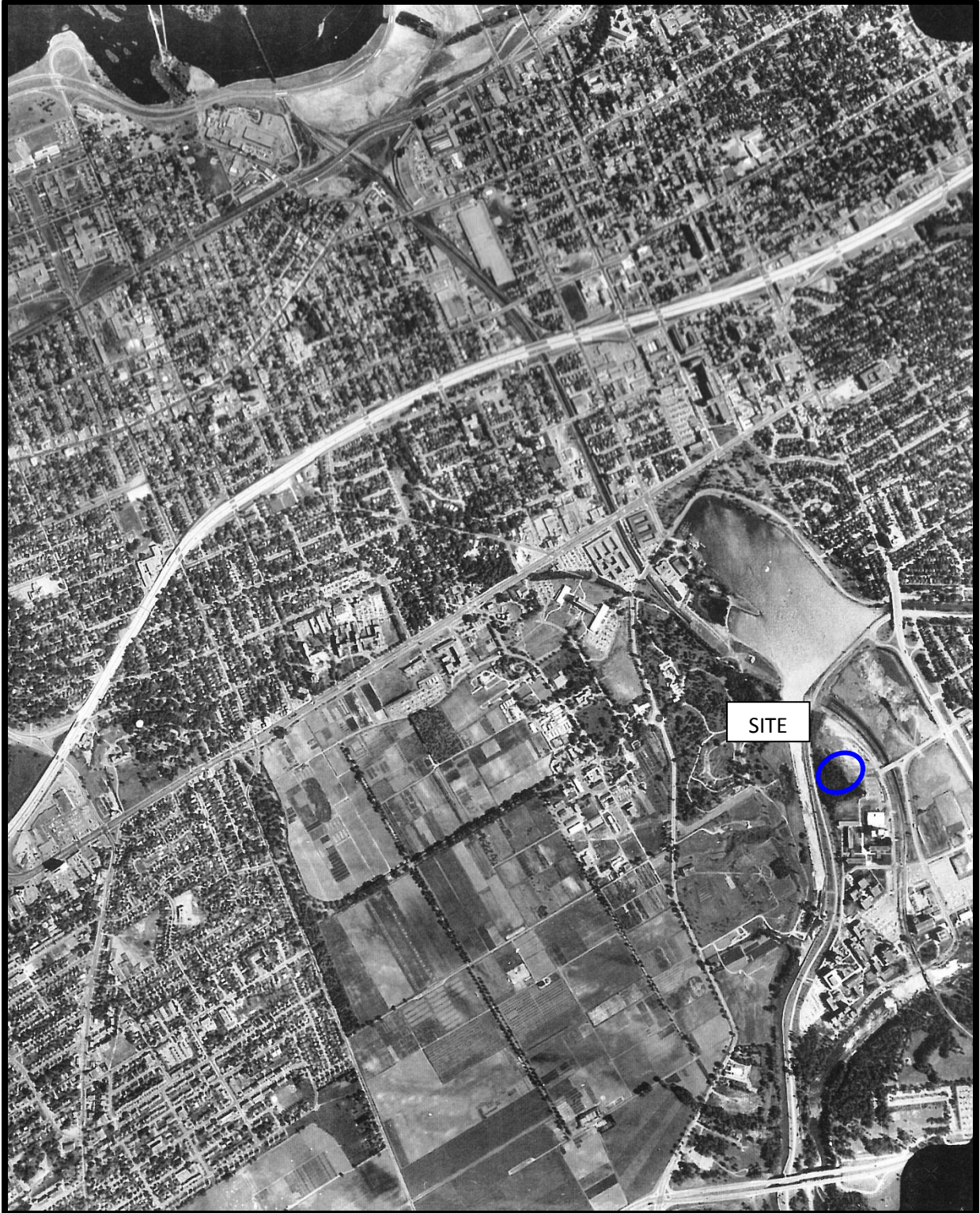
AERIAL PHOTOGRAPH
1945



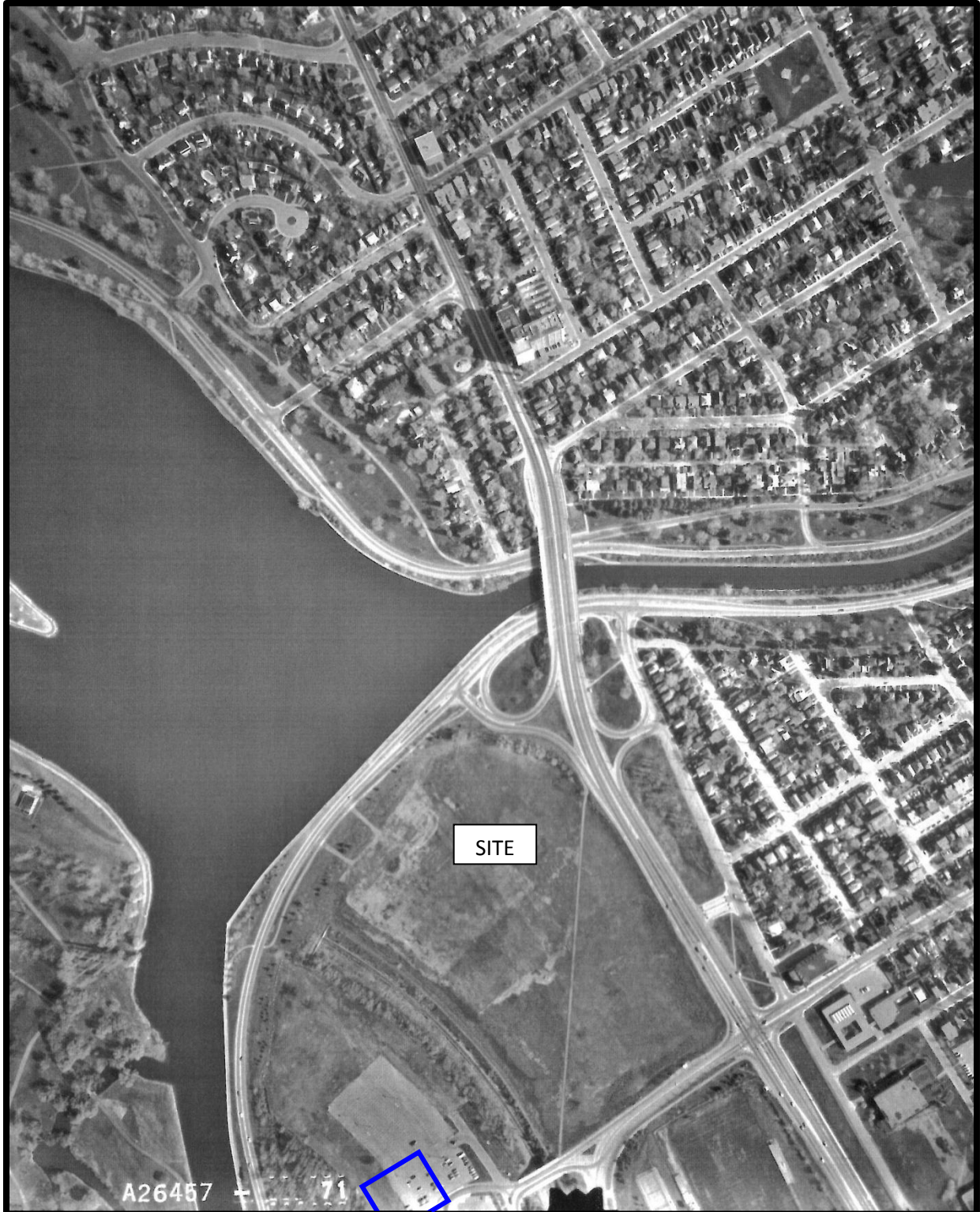
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1950



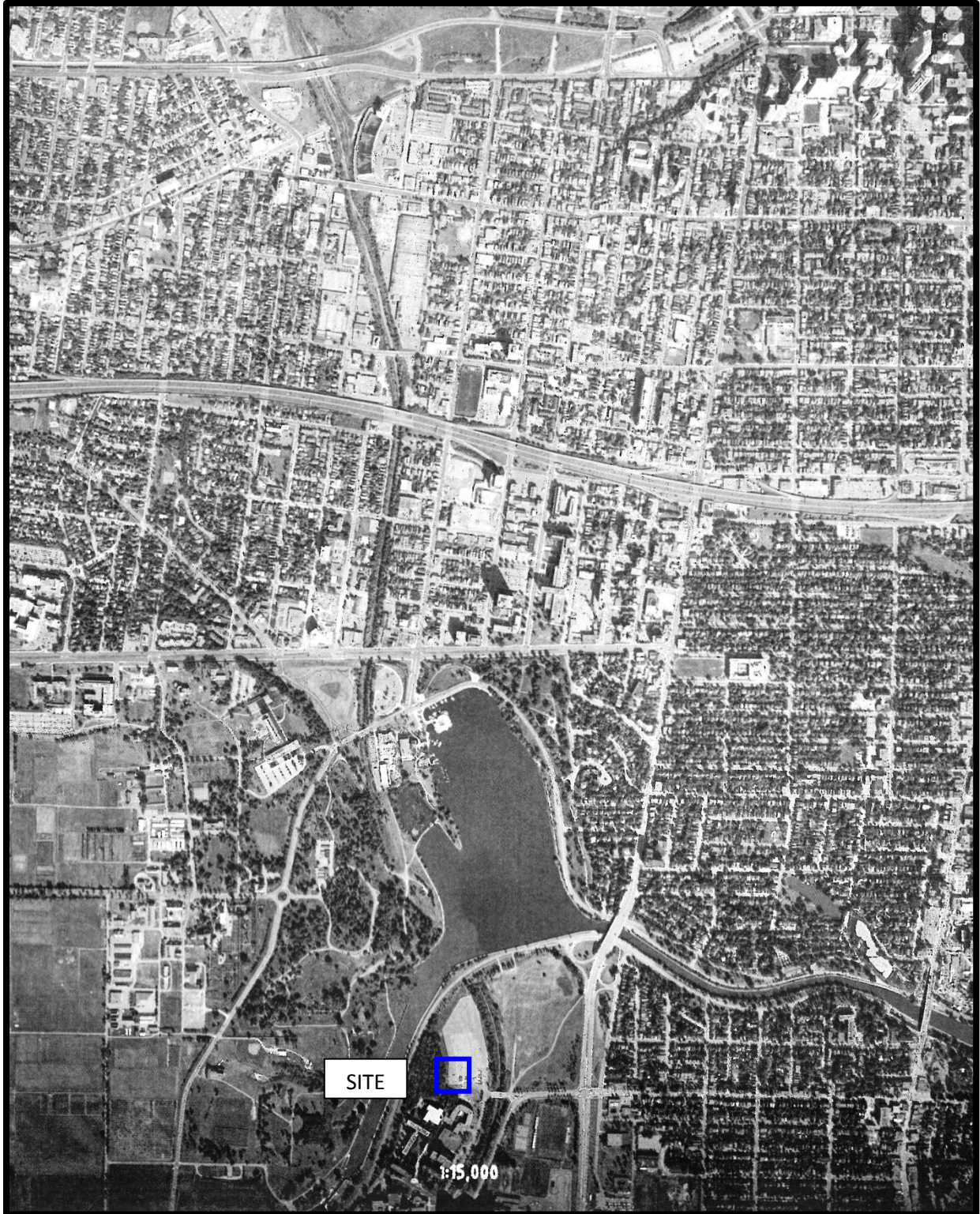
AERIAL PHOTOGRAPH
1953



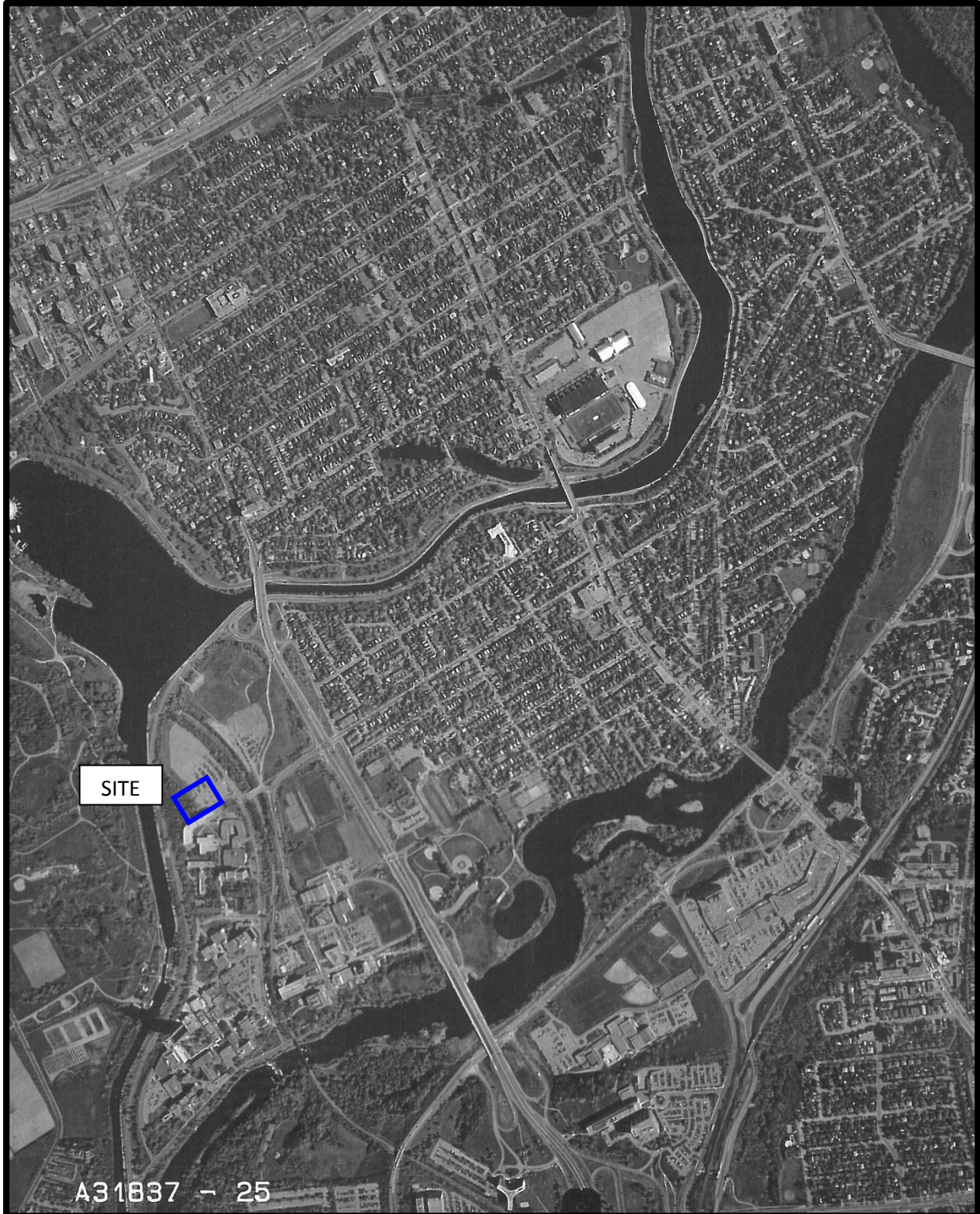
AERIAL PHOTOGRAPH
1970



AERIAL PHOTOGRAPH
1984



AERIAL PHOTOGRAPH
1993



AERIAL PHOTOGRAPH
2002

Site Photographs

PE3367

1125 Colonel By Drive, Ottawa, ON

July 16, 2014



Photograph 1: View from north of the subject site, looking south along escarpment. Photograph illustrates elevation change between marsh area to the west and the parking area to the east.



Photograph 2: View of southwest portion of the parking lot. Photograph depicts fill at apex of the escarpment, as well as, the location where surface sheet flow is diverted.

Site Photographs

PE3367

1125 Colonel By Drive, Ottawa, ON

July 16, 2014



Photograph 3: View of top of escarpment on west side of parking area. Photograph illustrates fill on top of escarpment.



Photograph 4: View from north of the subject site. Photograph illustrates the nearby air conditioning well (used for tunnel ventilation), as well as the parking area on the east side of the subject site and general neighbouring property use.

APPENDIX 2

MOE FREEDOM OF INFORMATION REQUEST


MOE WELL RECORDS

TSSA CORRESPONDENCE

CITY OF OTTAWA HLUI SEARCH RESULTS

Freedom of Information Request

This form is for requesting documents which are in the Ministry's files on environmental concerns related to properties. Please refer to the guide on completion and use of this form. Our fax no. is (416) 314-4285.

Requester Data			For Ministry Use Only	
Name, Company Name, Mailing Address and Email Address of Requester Paterson Group Inc. 154 Colonnade Road Ottawa, ON K2E 7J5 Email address: xredhead@patersongroup.ca			FOI Request No.	Date Request Received
Telephone/Fax Nos. Tel. 613-226-7381 Fax 613-226-6344			Fee Paid <input type="checkbox"/> ACCT <input type="checkbox"/> CHQ <input type="checkbox"/> VISA/MC <input type="checkbox"/> CASH <input type="checkbox"/> CNR <input type="checkbox"/> ER <input type="checkbox"/> NOR <input type="checkbox"/> SWR <input type="checkbox"/> WCR <input type="checkbox"/> SAC <input type="checkbox"/> IEB <input type="checkbox"/> EAA <input type="checkbox"/> EMR <input type="checkbox"/> SWA	
Your Project/Reference No. PE3367	 Signature/Print/Name of Requester Xavier Redhead			

Request Parameters

Municipal Address / Lot, Concession, Geographic Township (Municipal address essential for cities, towns or regions)

1125 Colonel By Drive, Ottawa, Ontario

Present Property Owner(s) and Date(s) of Ownership Carleton University

Previous Property Owner(s) and Date(s) of Ownership

Present/Previous Tenant(s), (if applicable)

Search Parameters

Files older than 2 years may require \$60.00 retrieval cost. There is no guarantee that records responsive to your request will be located.

Specify Year(s) Requested

Environmental concerns (General correspondence, occurrence reports, abatement)	all
Orders	all
Spills	all
Investigations/prosecutions ➤ Owner AND tenant information must be provided	all
Waste Generator number/classes	all

Certificates of Approval ➤ Proponent information must be provided

1985 and prior records are searched manually. Search fees in excess of \$300.00 could be incurred, depending on the types and years to be searched. Specify Certificates of Approval number(s) (if known). If supporting documents are also required, mark SD box and specify type e.g. maps, plans, reports, etc.

	SD	Specify Year(s) Requested
air - emissions		1986-present
water - mains, treatment, ground level, standpipes & elevated storage, pumping stations (local & booster)		1986-present
sewage - sanitary, storm, treatment, stormwater, leachate & leachate treatment & sewage pump stations		1986-present
waste water - industrial discharges		1986-present
waste sites - disposal, landfill sites, transfer stations, processing sites, incinerator sites		1986-present
waste systems - PCB destruction, mobile waste processing units, haulers: sewage, non-hazardous & hazardous waste		1986-present
pesticides - licenses		1986-present

A \$5.00 non-refundable application fee, payable to the Minister of Finance, is mandatory. The cost of locating on-site and/or preparing any record is \$30.00/hour and 20 cents/page for photocopying and you will be contacted for approval for fees in excess of \$30.00.



Measurements recorded in: Metric Imperial

Page 1 of 1

Well Owner's Information

First Name: CARLETON UNIVERSITY, Last Name: MEYKNECHT-LISHER, E-mail Address: CONTRACTORS, Well Constructed by Well Owner:

Mailing Address: 145 WALGREEN ROAD, Municipality: CARP, Province: ON, Postal Code: K0A 1L0, Telephone No.: (413) 831-3232

Well Location

Address of Well Location: CAMPUS AVE, Township: _____, Lot: _____, Concession: _____

County/District/Municipality: OTTAWA/CARLETON, City/Town/Village: OTTAWA, Province: Ontario, Postal Code: _____

UTM Coordinates: Zone: 18, Easting: 45160, Northing: 3026676, Municipal Plan and Sublot Number: _____, Other: COMMONS LEASING BOOK

Overburden and Bedrock Materials/Abandonment Sealing Record (see instructions on the back of this form)

Table with columns: General Colour, Most Common Material, Other Materials, General Description, Depth (m) From, To. Handwritten entry: EXISTING DRILLED WATER WELL (6") (NORTH OF RES COMMONS BLUE CLAYING ROCKS), Depth: 0.00 to 30.42.

Annular Space table with columns: Depth (m) From, To; Type of Sealant Used; Volume Placed (m³). Handwritten entry: 1.52-30.42, Hodgepodge bentonite grout, 0.55.

Method of Construction and Well Use table. Includes checkboxes for Cable Tool, Rotary, Boring, etc. and Public, Commercial, Industrial, etc. Well Use: Not used.

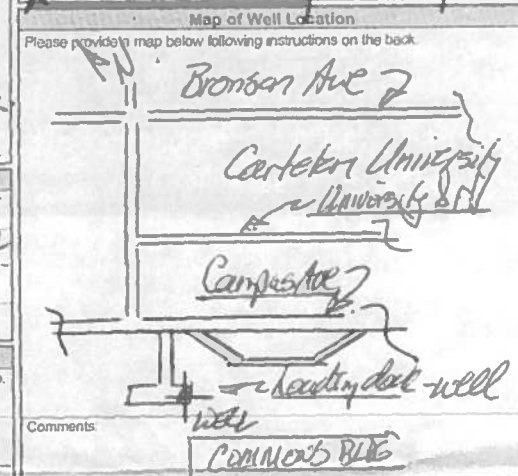
Construction Record - Casing table with columns: Inside Diameter, Open Hole OR Material, Well Thickness, Depth (m) From, To. Status of Well: Abandoned, other, specify.

Construction Record - Screen table with columns: Outside Diameter, Material, Slot No., Depth (m) From, To. Status of Well: Abandoned, other, specify.

Water Details table with columns: Water found at Depth (m), Kind of Water (Fresh, Untested, Gas, Other), Hole Diameter (Depth, Diameter). Handwritten entries: 0.00, 30.42, 15.00.

Well Contractor and Well Technician Information. Business Name: SPARKS DRILLING INC, Well Construction License No.: 4875, Business Address: 505 217, ST. PIERRE ARCHES DE PAROISSAN.

Results of Well Yield Testing table. Columns: Draw Down (Time, Water Level), Recovery (Time, Water Level). Includes a graph showing draw down and recovery curves.



Well information package delivered: Yes, No. Date Work Completed: 2010 08 11. Ministry Use Only: Audit No. 2102919, Date Work Completed: 2010 08 11.

UTM 18
 WEL 44531010E
 5R 50258910N



GROUND WATER BORING
 150 No 80
 ONTARIO WATER RESOURCES COMMISSION
 OTTAWA

The Ontario Water Resources Commission Act

Elev. 41R 02100

WATER WELL RECORD

Basin 25
 County or District Carleton

Township, Village, Town or City Glebe

Con. - Lot - Date completed 16 August 1963
 (day month year)

Owner Carleton University
 (print in block letters)

Address Bronson Avenue, Ottawa, Ont.

Casing and Screen Record

Inside diameter of casing 6 3/16"
 Total length of casing 90'
 Type of screen -
 Length of screen -
 Depth to top of screen -
 Diameter of finished hole 6"

Pumping Test

Static level 30'
 Test-pumping rate 30 G.P.M.
 Pumping level 200
 Duration of test pumping 1 hour
 Water clear or cloudy at end of test clear
 Recommended pumping rate 30 G.P.M.
 with pump setting of 200' feet below ground surface

Well Log

Water Record

Overburden and Bedrock Record	From ft.	To ft.	Depth(s) at which water(s) found	Kind of water (fresh, salty, sulphur)
Clay	0	20	80 - 150	fresh
Limestone	20	215	200	

For what purpose(s) is the water to be used?
Science Building

Is well on upland, in valley, or on hillside? **Upland**

Drilling or Boring Firm **J.B. Dufresne & Co. Ltd.,**
1014 Maitland Avenue,
OTTAWA 3, Ont.

Address

Licence Number **1032**

Name of Driller or Borer **R. Laniel**

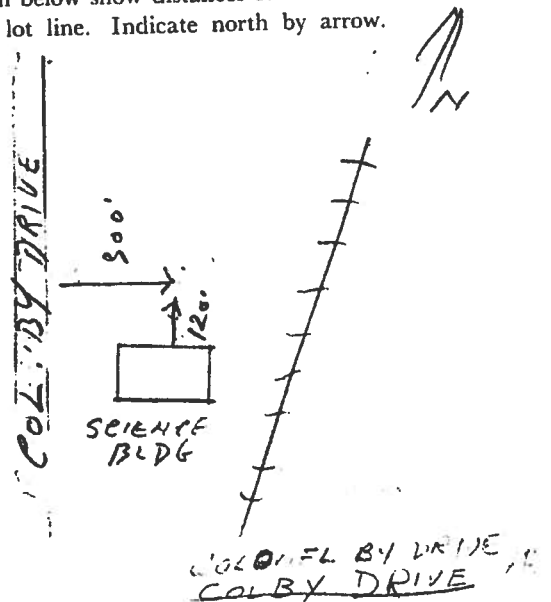
Address **Ironside, Quebec.**

Date **17 August, 1963.**

(Signature of Licensed Drilling or Boring Contractor)

Location of Well

In diagram below show distances of well from road and lot line. Indicate north by arrow.



Form 7 15M-60-4138

OWRC COPY

Xavier Redhead

From: squibell@tssa.org on behalf of Public Information Services
[publicinformationsservices@tssa.org]
Sent: August-07-14 4:43 PM
To: Xavier Redhead
Subject: Re: 1125 Colonel By Drive

Hi Xavier,

Thank you for your inquiry.

I have searched the below noted address (addresses) and I have located the following record:

1125 Colonel By Dr, Ottawa has record of 8 active fuel oil tanks.

For a more detailed report including underground fuel storage tank details and copies of all inspection reports, please submit your request in writing to Public Information Services via e-mail (publicinformationsservices@tssa.org) or through mail along with a fee of \$56.50 (including HST) per location. The fee is payable with credit card (Visa or MasterCard) or with a cheque made payable to TSSA.

Although TSSA believes the information provided pursuant to your request is accurate, please note that TSSA does not warrant this information in any way whatsoever.

Thank you and have a great day!

Regards,

Sarah Quibell

Public Information Services

TECHNICAL STANDARDS & SAFETY AUTHORITY
"Putting Public Safety First"
14th Floor, Centre Tower
3300 Bloor Street West

Toronto, ON M8X 2X4

www.tssa.org

Toll-Free: 1-877-682-8772

On Thu, Aug 7, 2014 at 4:36 PM, Xavier Redhead <XRedhead@patersongroup.ca> wrote:

Good afternoon,

Could you please complete a search of your records for underground/aboveground storage tanks, historical spills or other infractions for the following addresses for properties located in Ottawa, Ontario.

1000, 1010, 1012, 1125, 1780 Colonel By Drive

930 Carling Avenue

135 Prince of Wales Drive

499 Sunnyside Avenue

1240 Bronson Avenue

Thank you,

Xavier Redhead, B.Eng.

patersongroup

solution oriented engineering

154 Colonnade Road South

Ottawa, Ontario, K2E 7J5

Tel: [\(613\) 226-7381 Ext. 232](tel:(613)226-7381)

Fax: [\(613\) 226-6344](tel:(613)226-6344)

Email: xredhead@patersongroup.ca

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File Number: C10-01-14-0207

October 16, 2014

Sean Moggridge
Paterson Group Inc.
154 Colonnade Road South
Ottawa, ON

Sent via email [smoggridge@patersongroup.ca]

Dear Mr. Moggridge,

**Re: Information Request
1125 Colonel By Drive, Ottawa, Ontario (“Subject Property”)**

Internal Department Circulation

The Planning and Growth Management Department has the following information in response to your request for information regarding the Subject Property:

- The Disposals and Environmental Remediation Unit notes that the subject property is within the footprint of two former landfills; Ur-07 – Carleton University (jointly owned by the city and others), and Ur-32 Brewer Park/Carleton University (under private ownership). A data gap analysis was conducted on the city-owned portion of Ur-07 to identify any potential human health risks associated with the site’s current land use, however none were identified. The City has no information on the current environmental conditions of the Ur-32 landfill site as this site is under private ownership.
- The Sewer Use Program notes that there is information about recent environmental reports, past control orders or work orders, violations of environmental statutes, regulations or by-laws and other environmental information

Information Request searches include recent environmental reports; past control orders or work orders; violations of environmental statutes, regulations or by-laws; certificates; approvals; permits; and any other environmental information.

*Shaping our future together
Ensemble, formons notre avenir*

City of Ottawa
Infrastructure Services and Community
Sustainability Department
Planning and Growth Management Branch

110 Laurier Avenue West, 4th Floor
Ottawa, ON K1P 1J1
Tel: (613) 580-2424 ext. 14743
Fax: (613) 560-6006
www.ottawa.ca

Ville d'Ottawa
Services d'infrastructure et Viabilité des
collectivités
Direction de l'approbation des demandes
d'aménagement et d'infrastructure

110, avenue Laurier Ouest, 4e étage
Ottawa (Ontario) K1P 1J1
Tél.: (613) 580-2424 ext. 14743
Télééc: (613) 560-6006
www.ottawa.ca

Please note that they cannot comment on properties adjacent to or in proximity to the subject properties without consent from the owners of those properties. As well, the Sewer Use Program cannot guarantee or make comments on the environmental condition of the properties you described, as the Sewer Use Program does not have the necessary data to make such an evaluation, you may wish to contact the Ministry of Environment. If you have any questions or concerns, please do not hesitate to contact me at extension 22170.

Search of Historical Land Use Inventory

This acknowledges receipt of the signed Disclaimer regarding your request for information from the City's Historical Land Use Inventory (HLUI 2005) database for the Subject Property.

A search of the HLUI database revealed the following information:

- There are 6 activities associated with the Subject Property: Activity Number 11068, 13103, 4561, 5377 and 7951.

The HLUI database was also searched for activity associated with properties located within 50m of the Subject Property. The search revealed the following:

- There are 4 activities associated with properties located within 50m of the Subject Property: Activity Number 3178, 11356, 14515 and 3178.

A site map has been included to show the location of the Subject Property as well as the location of all the activities noted above.

Additional information may be obtained by contacting:

Ontario's Environmental Registry

The Environmental Registry found at <http://www.ebr.gov.on.ca/ERS-WEB-External/> contains "public notices" about environmental matters being proposed by all government ministries covered by the Environmental Bill of Rights. The public notices may contain information about proposed new laws, regulations, policies and programs or about proposals to change or eliminate existing ones. By using keys words i.e. name of proponent/owner and the address one can ascertain if there is any information on the proponent and address under the following categories: Ministry, keywords, notice types, Notice Status, Acts, Instruments and published date (all years).

The Ontario Land Registry Office

Registration of real property is recorded in the Ontario Land Registry Office through the Land Titles Act or the Registry Act. Documents relating to title and other agreements that may affect your property are available to the public for a fee. It is recommended that a property search at the Land Registry Office be included in any investigation as to the historic use of your property. The City of Ottawa cannot comment on any documents to which it is not a party.

Court House
161 Elgin Street 4th Floor
Ottawa ON K2P 2K1
Tel: (613) 239-1230
Fax: (613) 239-1422

Please note, as per the HLUI Disclaimer, that the information contained in the HLUI database has been compiled from publicly available records and other sources of information. The HLUI may contain erroneous information given that the records used as sources of information may be flawed. For instance, changes in municipal addresses over time may introduce error. Accordingly, all information from the HLUI database is provided on an "as is" basis with no representation or warranty by the City with respect to the information's accuracy or exhaustiveness in responding to the request.

Furthermore, the HLUI database and the results of this search in no way confirm the presence or absence of contamination or pollution of any kind. This information is provided on the assumption that it will not be relied upon by any person for any purpose whatsoever. The City of Ottawa denies all liability to any persons attempting to rely on any information provided from the HLUI database.

Please note that in responding to your request, the City of Ottawa does not guarantee or comment on the environmental condition of the Subject Property. You may wish to contact the Ontario Ministry of Environment for additional information.

If you have any further questions or comments, please contact Alejandra Garavito at 613-580-2424 ext. 14743 or HLUI@ottawa.ca

Sincerely,



David Wise, MUP, MCIP, RPP
Program Manager
Development Review (Suburban Services) - West
Planning and Growth Management Department

DW/AG

Attach: 16

cc: File no. C10-01-14-0207



CITY OF OTTAWA

HLUI ID: __670HQA

AREA (Square Metres): 282632.354

Report: RPTC_OT_DEV0122

Run On: 10 Oct 2014 at: 09:16:03

Study Year
1998

PIN
040870065

Multi-NAIC
Y

Multiple Activities
Y

Activity ID: 11068 Multiple PINS: Y

PIN Certainty: 1 Previous Activity ID(s) :

Related PINS: 040870065

Name: PORTRAITS NOW

Address: 1125 COLONEL BY DRIVE,

Facility Type: Photographers

Comments 1:

Comments 2:

Generator Number:

Storage Tanks:

HL References 1:

HL References 2:

HL References 3: 2005 Select Phone

NAICS	SIC
541920	0

Company Name	Year of Operation
PORTRAITS NOW	c. 2001
PORTRAITS NOW	c. 2005



CITY OF OTTAWA

HLUI ID: __670HQA

AREA (Square Metres): 282632.354

Report: RPTC_OT_DEV0122

Run On: 10 Oct 2014 at: 09:16:03

Study Year
1998

PIN
040870065

Multi-NAIC
Y

Multiple Activities
Y

Activity ID: 13103 Multiple PINS: Y

PIN Certainty: 1 Previous Activity ID(s) :

Related PINS: 040870065

Name: SPORTS MEDICINE CLINIC X-RAY

Address: 1125 COLONEL BY DRIVE,

Facility Type: Medical and Other Health Laboratories

Comments 1:

Comments 2:

Generator Number:

Storage Tanks:

HL References 1:

HL References 2:

HL References 3: 2005 Select Phone

NAICS	SIC
621510	0

Company Name

SPORTS MEDICINE CLINIC X-RAY

Year of Operation

c. 2005



CITY OF OTTAWA
 HLUI ID: __670HQA
 AREA (Square Metres): 282632.354

Report: RPTC_OT_DEV0122
 Run On: 10 Oct 2014 at: 09:16:03

Study Year: 1998 PIN: 040870065 Multi-NAIC: Y Multiple Activities: Y

Activity ID: 3178 Multiple PINS: Y
 PIN Certainty: 1 Previous Activity ID(s) : 2663

Related PINS: 040870065

Name: CARLETON UNIVERSITY
 Address: 1125 COLONEL BY DRIVE, OTTAWA
 Facility Type: University Education

Comments 1:
 Comments 2:

Generator Number: ON0051100

Storage Tanks: 2 UST - fuel oil, located east of N corner of H.M. Tory (Science) building

HL References 1: M.1960, M 1964, M.1970, M.1980, MOEE PCB Inventory-1995; SC98. FIP1963-515-51500,vol 5,1922-DMD-TM-Ottawa, Sheet #14, 1948-DND-ASE-NTS-31G/5, 1967-EMR-SMB-NTS-31G/5-7th ed., 1985-EMR-SMB-NTS-31G/5-11th ed.

HL References 2:

HL References 3: 2000 PID

NAICS	SIC
221121	491
323116	281
562920	499
221119	491
493130	479
611310	853
221111	491
323115	281
611510	0
221320	499
611210	0
221113	491
221122	491
221330	499
493120	479
493190	479
562990	499
611310	0
221112	491
323114	281
323119	281
562210	499
611610	0



CITY OF OTTAWA
HLUI ID: __670HQA

Report: RPTC_OT_DEV0122
Run On: 10 Oct 2014 at: 09:16:03

AREA (Square Metres): 282632.354

Study Year
1998

PIN
040870065

Multi-NAIC
Y

Multiple Activities
Y

Company Name

Year of Operation

CARLETON UNIVERSITY

c. 2000

Carleton University

c. 1960-1999

CARLETON UNIVERSITY

c. 2003

CARLETON UNIVERSITY

c. 2005

CARLETON UNIVERSITY

c. 2001



CITY OF OTTAWA

HLUI ID: __670HQA

AREA (Square Metres): 282632.354

Report: RPTC_OT_DEV0122

Run On: 10 Oct 2014 at: 09:16:03

Study Year
1998

PIN
040870065

Multi-NAIC
Y

Multiple Activities
Y

Activity ID: 4561 Multiple PINS: Y

PIN Certainty: 1 Previous Activity ID(s) :

Related PINS: 040870065

Name: ENVIRONMENT CANADA CWS
Address: 1125 COLONEL BY DRIVE, OTTAWA
Facility Type: Services Incidental to Agricultural Crops
Comments 1: NWRC, Carleton University, BUILDING 33
Comments 2:

Generator Number: ON1473889

Storage Tanks:

HL References 1:

HL References 2:

HL References 3: 2003 PID

NAICS SIC
541380 0

Company Name

ENVIRONMENT CANADA CWS

Year of Operation

c. 2003



CITY OF OTTAWA
HLUI ID: __670HQA

Report: RPTC_OT_DEV0122
Run On: 10 Oct 2014 at: 09:16:03

AREA (Square Metres): 282632.354

Study Year
1998

PIN
040870065

Multi-NAIC
Y

Multiple Activities
Y

Activity ID: 5377 Multiple PINS: Y

PIN Certainty: 1 Previous Activity ID(s) :

Related PINS: 040870065

Name: FRECON CONSTRUCTION LIMITED

Address: 1125 COLONEL BY DRIVE,

Facility Type: Residential Building and Development

Comments 1:

Comments 2:

Generator Number:

Storage Tanks:

HL References 1:

HL References 2:

HL References 3: 2005 Select Phone

NAICS SIC
236110 0

Company Name

Year of Operation

FRECON CONSTRUCTION LIMITED

c. 2005



CITY OF OTTAWA
 HLUI ID: __670HQA
 AREA (Square Metres): 282632.354

Report: RPTC_OT_DEV0122
 Run On: 10 Oct 2014 at: 09:16:03

Study Year
 1998

PIN
 040870065

Multi-NAIC
 Y

Multiple Activities
 Y

Activity ID: 7951 **Multiple PINS:** Y

PIN Certainty: 1 **Previous Activity ID(s) :**

Related PINS: 040870065

Name: KONE INC.

Address: 1125 COLONEL BY DRIVE, OTTAWA

Facility Type: Other Trade Work

Comments 1:

Comments 2: MacKenzie Building

Generator Number: ON6027439

Storage Tanks:

HL References 1:

HL References 2:

HL References 3: 2003 PID

NAICS	SIC
238291	0

Company Name

KONE INC.

Year of Operation

c. 2003



CITY OF OTTAWA

HLUI ID: __679GF1

AREA (Square Metres): 35135.085

Report: RPTC_OT_DEV0122

Run On: 10 Oct 2014 at: 09:16:11

Study Year
1998

PIN
040870066

Multi-NAIC
Y

Multiple Activities
N

Activity ID: 3178 Multiple PINS: Y
PIN Certainty: 1 Previous Activity ID(s) : 2663

Related PINS: 040870065

Name: CARLETON UNIVERSITY
Address: 1125 COLONEL BY DRIVE, OTTAWA
Facility Type: University Education

Comments 1:
Comments 2:

Generator Number: ON0051100

Storage Tanks: 2 UST - fuel oil, located east of N corner of H.M. Tory (Science) building

HL References 1: M.1960, M 1964, M.1970, M.1980, MOEE PCB Inventory-1995; SC98. FIP1963-515-51500,vol
5.1922-DMD-TM-Ottawa, Sheet #14, 1948-DND-ASE-NTS-31G/5, 1967-EMR-SMB-NTS-31G/5-7th ed.,
1985-EMR-SMB-NTS-31G/5-11th ed.

HL References 2:

HL References 3: 2000 PID

NAICS	SIC
221121	491
323116	281
562920	499
221119	491
493130	479
611310	853
221111	491
323115	281
611510	0
221320	499
611210	0
221113	491
221122	491
221330	499
493120	479
493190	479
562990	499
611310	0
221112	491
323114	281
323119	281
562210	499
611610	0



CITY OF OTTAWA

HLUI ID: __679GF1

AREA (Square Metres): 35135.085

Report: RPTC_OT_DEV0122

Run On: 10 Oct 2014 at: 09:16:11

Study Year
1998

PIN
040870066

Multi-NAIC
Y

Multiple Activities
N

Company Name

Year of Operation

CARLETON UNIVERSITY

c. 2000

Carleton University

c. 1960-1999

CARLETON UNIVERSITY

c. 2003

CARLETON UNIVERSITY

c. 2005

CARLETON UNIVERSITY

c. 2001



CITY OF OTTAWA

HLUI ID: __670HRZ

AREA (Square Metres): 323470.317

Report: RPTC_OT_DEV0122

Run On: 10 Oct 2014 at: 09:16:17

Study Year
1998

PIN
040870068

Multi-NAIC
Y

Multiple Activities
Y

Activity ID: 11356 Multiple PINS: N
 PIN Certainty: 1 Previous Activity ID(s) :
 Related PINS: 040870068
 Name: PUBLIC WORKS AND GOVERNMENT SERVICES CANADA
 Address: 1008 COLONEL BY DRIVE, OTTAWA
 Facility Type: Other Utility Industries n.e.c.
 Comments 1: LORNE BUILDING
 Comments 2:
 Generator Number: ON0144794
 Storage Tanks:
 HL References 1:
 HL References 2:
 HL References 3: 2000 PID

NAICS	SIC
221320	0
221310	0
562990	0
562210	0

Company Name	Year of Operation
PUBLIC WORKS AND GOVERNMENT SERVICES CANADA	c. 2000



CITY OF OTTAWA

HLUI ID: __670HRZ

AREA (Square Metres): 323470.317

Report: RPTC_OT_DEV0122

Run On: 10 Oct 2014 at: 09:16:17

Study Year
1998

PIN
040870068

Multi-NAIC
Y

Multiple Activities
Y

Activity ID: 14515

Multiple PINS: Y

PIN Certainty: 1

Previous Activity ID(s) : 6190, 6060, 6064, 6082, 6077, 6084, 6094, 6095, 6098, 6099, 6102, 6103, 6105, 6108, 6109, 6110, 6111, 6112, 6115, 6117, 6121, 6122, 6124, 6125, 6127, 6129, 6130, 6190, 6191, 6192, 6193, 6198, 6200, 6202, 6203, 6238, 6240, 6243, 6245, 6280, 6282, 6284, 62

Related PINS: 041330051

Name: UNNAMED WASTE DISPOSAL SITE

Address: , OTTAWA

Facility Type: Other Utility Industries n.e.c.

Comments 1: UTM = 445870E, 5028130N, map 31G/5. Site #X1102 of closed sites in the MOE inventory (pg134).

Comments 2:

Generator Number:

Storage Tanks:

HL References 1: 1991-WDSI/WMB/MOE; RBE 1992; MC Staff, 19/02/99; 1922DMD-TM-Ottawa-Sheet #14, 1948DND-ASE-NTS-31G/5, 1967-EMR-SMB-NTS-31G/5-7th ed., 1985-EMR-SMB-NTS-31G/5-11th ed., City of Gloucester-File #8-400-Box 130;

HL References 2: City of Gloucester File # 6-79A: Subject-Health/Dumping -Box 75 -28/12/64; 1938-39-DND-ASE-NTS-31B/13W-2nd ed., 1964-DND-MCE-NTS-31B/13-3rd ed., 1976-EMR-SMB-NTS-31B/13-4th ed., 1979-EMR-SMB-NTS-31B/13-5th ed.

HL References 3:

NAICS	SIC
562210	499
221330	499
221320	499
562920	499
562990	499



CITY OF OTTAWA

HLUI ID: __670HRZ

AREA (Square Metres): 323470.317

Report: RPTC_OT_DEV0122

Run On: 10 Oct 2014 at: 09:16:17

Study Year
1998

PIN
040870068

Multi-NAIC
Y

Multiple Activities
Y

Company Name

Year of Operation

Unnamed Waste Disposal Site	c. <1991
Unnamed Waste Disposal Site	c. 1953
Unnamed Waste Disposal Site	c. 1946
Unnamed Waste Disposal Site	c. 1924
Unnamed Waste Disposal Site	c. 1958
Unnamed Waste Disposal Site	c. 1979
Unnamed Waste Disposal Site	c. 1965
Unnamed Waste Disposal Site	c. 1974
Unnamed Waste Disposal Site	c. 1920-1931
Unnamed Waste Disposal Site	c. 1973
Unnamed Waste Disposal Site	c. 1927
Unnamed Waste Disposal Site	c. 1966-1991
Unnamed Waste Disposal Site	c. 1947
Unnamed Waste Disposal Site	c. 1976
Unnamed Waste Disposal Site	c. 1940
Unnamed Waste Disposal Site	c. 1962
Unnamed Waste Disposal Site	c. 1926
Unnamed Waste Disposal Site	c. 1944
Unnamed Waste Disposal Site	c. 1972
Unnamed Waste Disposal Site	c. 1935
Unnamed Waste Disposal Site	c. 1921-1945
Unnamed Waste Disposal Site	c. 1977
Unnamed Waste Disposal Site	c. 1947
Unnamed Waste Disposal Site	c. 1950
Unnamed Waste Disposal Site	c. 1981
Unnamed Waste Disposal Site	c. 1971
Unnamed Waste Disposal Site	c. 1963
Unnamed Waste Disposal Site	c. <1990
Unnamed Waste Disposal Site	c. 1964
Unnamed Waste Disposal Site	c. 1920
Unnamed Waste Disposal Site	c. 1938
Unnamed Waste Disposal Site	c. 1929



CITY OF OTTAWA

HLUI ID: __670HRZ

AREA (Square Metres): 323470.317

Report: RPTC_OT_DEV0122

Run On: 10 Oct 2014 at: 09:16:17

Study Year
1998

PIN
040870068

Multi-NAIC
Y

Multiple Activities
Y

Unnamed Waste Disposal Site

c. 1966



CITY OF OTTAWA

HLUI ID: __670HRZ

AREA (Square Metres): 323470.317

Report: RPTC_OT_DEV0122

Run On: 10 Oct 2014 at: 09:16:17

Study Year
1998

PIN
040870068

Multi-NAIC
Y

Multiple Activities
Y

Activity ID: 3178 Multiple PINS: Y
PIN Certainty: 1 Previous Activity ID(s) : 2663
Related PINS: 040870065

Name: CARLETON UNIVERSITY
Address: 1125 COLONEL BY DRIVE, OTTAWA
Facility Type: University Education

Comments 1:
Comments 2:

Generator Number: ON0051100

Storage Tanks: 2 UST - fuel oil, located east of N corner of H.M. Tory (Science) building

HL References 1: M.1960, M 1964, M.1970, M.1980, MOEE PCB Inventory-1995; SC98. FIP1963-515-51500,vol 5.1922-DMD-TM-Ottawa, Sheet #14, 1948-DND-ASE-NTS-31G/5, 1967-EMR-SMB-NTS-31G/5-7th ed., 1985-EMR-SMB-NTS-31G/5-11th ed.

HL References 2:

HL References 3: 2000 PID

NAICS	SIC
221121	491
323116	281
562920	499
221119	491
493130	479
611310	853
221111	491
323115	281
611510	0
221320	499
611210	0
221113	491
221122	491
221330	499
493120	479
493190	479
562990	499
611310	0
221112	491
323114	281
323119	281
562210	499
611610	0



CITY OF OTTAWA
HLUI ID: __670HRZ
AREA (Square Metres): 323470.317

Report: RPTC_OT_DEV0122
Run On: 10 Oct 2014 at: 09:16:17

Study Year
1998

PIN
040870068

Multi-NAIC
Y

Multiple Activities
Y

Company Name

Year of Operation

CARLETON UNIVERSITY

c. 2000

Carleton University

c. 1960-1999

CARLETON UNIVERSITY

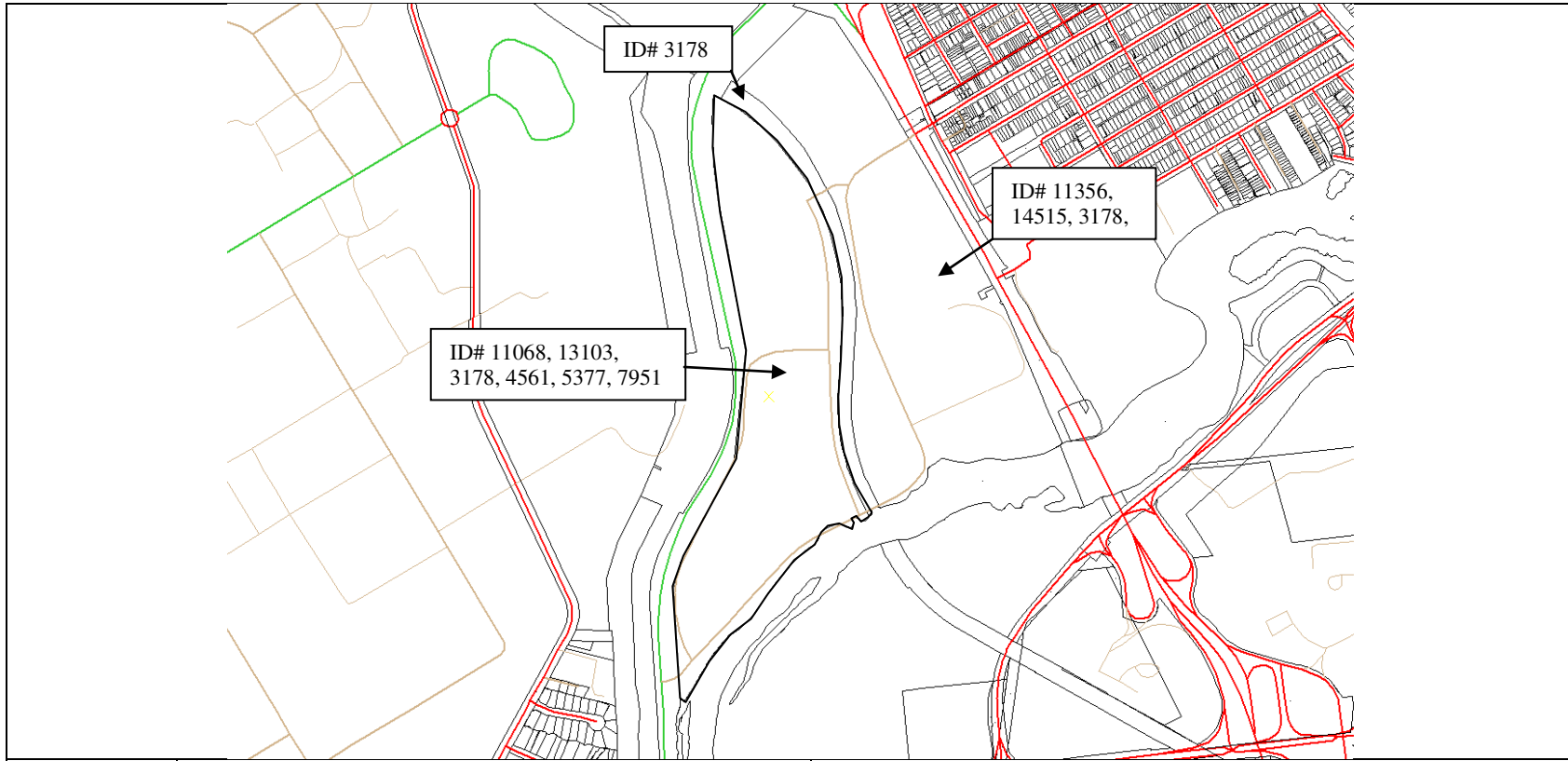
c. 2003

CARLETON UNIVERSITY

c. 2005

CARLETON UNIVERSITY

c. 2001




Scale 1: n/a

1125 Colonel By Drive
 Ottawa, ON
 File # C10-01-14-0207
 Alejandra Garavito



ID# = Activity Identification Number

 = Subject Site

Overview

APPENDIX 3

QUALIFICATIONS OF ASSESSORS

Sean Moggridge
B.Eng.

patersongroup

POSITION

Junior Environmental Engineer

EDUCATION

Dalhousie University, B.Eng., 2010
Environmental Engineering

EXPERIENCE

2011 to Present:

Paterson Group Inc.

Consulting Engineers
Environmental Division
Junior Engineer

SELECT LIST OF PROJECTS

Remediation Supervision of Former Alcan Plant – Kingston
Remediation Supervision of Bulk Fuel Depot Site – Ottawa
Remediation Supervision of Biohazard Site – Ottawa
Post-construction Impact Monitoring – Ottawa, Cornwall
Designated Substance and Asbestos Surveys – Various Locations, Ottawa
Asbestos Air Testing – Various Locations, Ottawa
Groundwater Monitoring and Sampling – Various Location, Ottawa
Phase I & II ESA – Various Locations, Ontario and West Quebec

**Environmental
Engineering**

**Geotechnical
Engineering**

**Materials Testing
Quality Control**

Building Sciences

Hydrogeology

**Archaeological
Services**

POSITION

Associate and Supervisor of the Environmental Division
Senior Environmental/Geotechnical Engineer

EDUCATION

Queen's University, B.A.Sc.Eng, 1991
Geotechnical / Geological Engineering

MEMBERSHIPS

Ottawa Geotechnical Group
Professional Engineers of Ontario
Consulting Engineers of Ontario

EXPERIENCE

1991 to Present

Paterson Group Inc.

Associate and Senior Environmental/Geotechnical Engineer
Environmental and Geotechnical Division
Supervisor of the Environmental Division

**Environmental
Engineering**

**Geotechnical
Engineering**

**Materials Testing
Quality Control**

Building Science

Hydrogeology

**Archaeological
Services**

SELECT LIST OF PROJECTS

Mary River Exploration Mine Site - Northern Baffin Island
Rideau Centre Expansion project - Ottawa
Agricultural Supply Facilities - Eastern Ontario
Laboratory Facility – Edmonton (Alberta)
Ottawa International Airport - Contaminant Migration Study - Ottawa
Investigation and Remediation – Cotton Mill Redevelopment, Cornwall
Billings Hurdman Interconnect - Ottawa
Bank Street Reconstruction - Ottawa
Environmental Review – Various Laboratories across Canada - CFIA
Dwyer Hill Training Centre – Ottawa
Nortel Networks Environmental Monitoring - Carling Campus – Ottawa
Remediation Program - Block D Lands – Kingston
Investigation of former landfill sites – City of Ottawa
Record of Site Condition for Railway Lands – North Bay
Assessment and Remediation - North Bay Airport
Commercial Properties – Guelph and Brampton
Brownfields Remediation – Alcan Site - Kingston
PWGSC Building – 90 Elgin Street - Ottawa
Remediation Program - Ottawa Train Yards
MHLH Facility – CFB Petawawa
Ottawa Congress Centre
Lansdowne Park Redevelopment - Ottawa