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ORIGINAL REPORT

Stage 1 Archaeological Assessment

Proposed Commercial Development

4497 O'Keefe Court

Concession 4 R.F., Part Lot 21,
Geographic Township of Nepean
City of Ottawa, Ontario

Prepared For

Michel Pilon
O'Keefe Court Properties
236 Metcalfe Street, Suite 206
Ottawa, ON
K2P 1R3
(613) 369-5466
Ottawa, Ontario

September 2015

Submitted for Review October 1, 2015

PIF: P369-0037-2015

Ben Mortimer, MA (Licence Number P369)

Paterson Group Inc.
Consulting Engineers
154 Colonnade Road South
Ottawa (Nepean), Ontario
Canada K2E 7J5

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

Report: PA1061-1

1.0 Executive Summary

Paterson Group was contracted by O'Keefe Court Properties to conduct a Stage 1 archaeological assessment of 4497 O'Keefe Court, on Part Lot 21, Concession 4 R.F., in the former township of Nepean, Carleton County (Map 1). O'Keefe Court Properties is planning to develop the property into warehouse/industrial use (Map 2). This archaeological assessment has been required by the City of Ottawa as part of the Site Plan Control application process under the Planning Act.

The Stage 1 assessment included a review of updated Ontario Ministry of Tourism, Culture and Sport (MTCS) archaeological site databases, a review of relevant environmental, historical and archaeological literature, primary historical research, including: historical maps, aerial photographs, and land registry records, and a property inspection. While a small section of the southern extent of the property once had potential, the subject property retains no archaeological potential based on extensive and complete disturbance associated with previous aggregate removal.

Based on the results of this investigation it is recommended:

1. No further archaeological study is required for the study property as delineated in Map 1.

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3.0 Project Personnel

Field Director/ Licensee	Ben Mortimer, MA (P369)
Report Preparation	Ben Mortimer, MA (P369)
Archival Research	Ben Mortimer, MA (P369))
GIS and Mapping	Ben Mortimer, MA (P369)
Report Review	Nadine Kopp, MA (P378)

4.0 Project Context

4.1 Development Context

Paterson Group was contracted by O'Keefe Court Properties to conduct a Stage 1 archaeological assessment of 4497 O'Keefe Court, on Part Lot 21, Concession 4 R.F., in the former township of Nepean, Carleton County (Map 1). O'Keefe Court Properties is planning to develop the property into warehouse/industrial use (Map 2). This archaeological assessment has been required by the City of Ottawa as part of the Site Plan Control application process under the Planning Act.

The City of Ottawa has an archaeological management plan which was developed in 1999, *The Archaeological Resource Potential Mapping Study of the Regional Municipality of Ottawa-Carleton*. The management plan covers the Township of Nepean (Archaeological Services Inc. and Geomatics International Inc. 1999). According to the management plan, a small portion of the property along Fallowfield Road had archaeological potential (Map 3).

At the time of the archaeological assessment, the study area was owned by O'Keefe Court Properties. Permission to access the study property was granted by O'Keefe Court Properties prior to the commencement of any field work; no limits were placed on this access.

4.2 Historical Context

4.2.1 Historic Documentation

The subject property is located in the geographic township of Nepean, former County of Carleton. Nepean was one of the first townships in the country to be surveyed (Belden 1879). The early history of Nepean is best described in Bruce Elliot's *The City Beyond: A History of Nepean, Birthplace of Canada's Capital* (1991). Other useful resources include Sara Craig's *Hello Nepean* (1974), *The Carleton Saga* by Harry and Olive Walker (1968), Courtney Bond's *The Ottawa Country* (1968), and Belden's *Illustrated Historical Atlas of Carleton County* (1879).

4.2.2 Pre-Contact Period

The Ottawa Valley was not hospitable to human occupation until the retreat of glaciers and the draining of the Champlain Sea, some 10,000 years ago. The Laurentide Ice Sheet of the Wisconsinian glacier blanketed the Ottawa area until about 11,000 B.P. At this time the receding glacial terminus was north of the Ottawa Valley, and water from the Atlantic Ocean flooded the region to create the Champlain Sea. The Champlain Sea encompassed the lowlands of Quebec on the north shore of the Ottawa River and most of Ontario east of Petawawa, including the Ottawa Valley and Rideau Lakes. However, by 10,000 B.P. the Champlain Sea was receding and within 1,000 years was gone from Eastern Ontario (Watson 1990:9).

By circa 11,000 B.P., when the Ottawa area was emerging from glaciations and being flooded by the Champlain Sea, northeastern North America was home to what are commonly referred to as the Paleo-Indian people. For Ontario the Paleo-Indian period is divided into the Early Paleo-Indian period (11,000 - 10,400 B.P.) and the Late Paleo-Indian period (10,500-9,400 B.P.), based on changes in tool technology (Ellis and Deller 1990). The Paleo people, who had moved into hospitable areas of southwest Ontario (Ellis and Deller 1990), likely consisted of small groups of exogamous hunter-gatherers relying on a variety of plants and animals who

ranged over large territories (Jamieson 1999). The few possible Paleo-Indian period artifacts found, as surface finds or poorly documented finds, in the broader region are from the Rideau Lakes area (Watson 1990) and Thompson's Island near Cornwall (Ritchie 1969:18). In comparison, little evidence exists for Paleo-Indian occupations in the immediate Ottawa Valley, as can be expected given the environmental changes the region underwent, and the recent exposure of the area from glaciations and sea. However, as Watson (1999:38) suggests, it is possible Paleo-Indian people followed the changing shoreline of the Champlain Sea, moving into the Ottawa Valley in the late Paleo-Indian Period, although archaeological evidence is absent.

As the climate continued to warm, the ice sheet receded further allowing areas of the Ottawa Valley to be travelled and occupied in what is known as the Archaic Period (9,500 – 2,900 B.P.). This period is generally characterized by increasing populations, developments in lithic technology (e.g., ground stone tools), and emerging trade networks. Archaic populations remained hunter-gatherers with an increasing emphasis on fishing. Sites from this period in the region include Morrison's Island-2 (BkGg-10), Morrison's Island-6 (BkGg-12) and Allumette Island-1 (BkGg-11) near Pembroke, and the Lamoureux site (BiFs-2) in the floodplain of the South Nation River (Clermont 1999).

The Woodland Period is characterized by the introduction of ceramics. Populations continued to participate in extensive trade networks that extended across much of North America. Social structure appears to have become increasingly complex with some status differentiation recognized in burials. Towards the end of this period domesticated plants were gradually introduced to the region. This coincided with other changes including the development of semi-permanent villages. The Woodland period is commonly divided into the Early Woodland (1000 – 300 B.C.), Middle Woodland (400 B.C. to A.D. 1000), and the Late Woodland (A.D. 900 – European Contact) periods.

The Early Woodland is typically noted via lithic point styles (i.e., Meadowood bifaces) and pottery types (i.e., Vinette I). Early Woodland sites in the Ottawa Valley region include Deep River (CaGi-1) (Mitchell 1963), Constance Bay I (BiGa-2) (Watson 1972), and Wyght (BfGa-11) (Watson 1980). The Middle Woodland period is identified primarily via changes in pottery style (e.g., the addition of decoration). Some of the best documented Middle Woodland Period sites from the region are from Leamy Lake Park (BiFw-6, BiFw-16) (Laliberté 1999).

The identification of pottery traditions or complexes (Laurel, Point Peninsula, Saugeen) within the Northeast Middle Woodland, the identifiers for the temporal and social organizational changes signifying the Late Woodland Period, subsequent phases within in the Late Woodland, and the overall 'simple' culture history model assumed for Ontario at this time (e.g., Ritchie 1969; Wright 1966, 2004) are much debated in light of newer evidence and improved interpretive models (Engelbrecht 1999; Ferris 1999; Hart 2011; Hart and Brumbach 2003, 2005, 2009; Hart and Engelbrecht 2011; Martin 2008; Mortimer 2012). Thus the shift into the period held as the Late Woodland is extremely fuzzy. Needless to say there are general trends for increasingly sedentary populations, the gradual introduction of agriculture, and changing pottery and lithic styles. However, nearing the time of contact, Ontario was populated with somewhat distinct regional populations that broadly shared many traits. In the southwest, in good cropland areas, groups were practicing corn-bean-squash agriculture in semi-permanent, often palisaded villages which are commonly assigned to Iroquoian peoples (Wright 2004:1297-1304). On the shield and in other non-arable environments, including portions of the Ottawa Valley, there seems to remain a less sedentary lifestyle often associated with the Algonquian groups noted in the region at contact (Wright 2004:1485-1486).

4.2.3 Post-Contact Period

The Township of Nepean was first surveyed in 1794, and was named for Sir Evan Nepean, a British Administrator (Elliot 1991). It was laid out in the typical mile and a quarter concessions, but had two fronts: one facing the Ottawa River, and one facing the Rideau River (Belden & Co. 1971:207). Settlement during the first 30 years after survey was slow and by 1822 Nepean's population was only 191, divided between 35 families (Elliot 1991:13). Most of the township was initially granted to United Empire Loyalists and then changed hands, but was never settled (Elliot 1991:6).

The first settler in Nepean was Ira Honeywell, who in 1810 built a cabin on the Ottawa River (Elliot 1991:9). Ira was given 1,000 acres (five U.E.L. claims) that his father Rice Honeywell of Prescott had acquired from Loyalists that had not settled but instead sold off their claims (Belden & Co. 1971:207). In 1814, American Jerard B. Chapman became Nepean's second settler, establishing himself near the Jock River (Elliot 1991:10). Road surveys in the late 1820s and early 1830s led to some settlement in the interior of Nepean, and the establishment of communities such as Jockvale.

The population of Nepean did not see major increases until influxes of immigrants and settlers began with the construction of the Rideau Canal and more so into the mid 1800s. By 1851, the Township of Nepean had grown to 3,800 inhabitants. At this time there were 21 stone houses, 21 frame houses, 306 log cabins and 238 shanties. By 1861, 4,410 people called Nepean home, living in 36 stone houses, 45 frames houses, and 539 log cabins (Bond 1968:22-24). By 1878, Nepean was the wealthiest township of Carleton County. It had a population of 7,031. The 60,774 acres that encompassed the township held 2,540 head of cattle, 2,504 sheep, 1,399 horses, and 1,117 pigs (Belden & Co. 1971:105).

4.2.4 Study Area Specific History

A review historical maps shows Lot 21, Concession 4 R.F. subdivided amongst the O'Keefe family, with multiple dwellings as early as 1863 (Map 4). At this time the lot shows M. O'Kief [sp] (Michael) at the western side, a D. O'Kief [sp] (David) centrally located on the southern side, P. (Patrick) O'Kief in the southeast corner, and a Jua (Johsua) Burns to the north of that. Notably none of the structures are within the study area, which is likely within M. O'Kief's holdings.

The 1851 census of Nepean Township provides some insight into the O'Keefe family and lists Michael (Sr.) O'Kief at age 68. He is a farmer of Irish decent, married to Ester, age 44, from Lower Canada. In 1851 they had eight children ranging in age from 28 to 4: Patrick, David, Ellen, Michael (Jr.), Margaret, Cornelius, Johannah, Bridged, and Francis. An eleventh resident, Mary O'Kief, is listed last in the chronologically ordered census of the dwelling at age 24; she is likely a wife of one of the elder sons. At the time, all 11 people lived in a single story log house (Ancestry.com 1851).

By 1871, Michael Sr. was deceased, leaving his widow Ester living with their son Francis (as the head of the household), and daughter Johanna (Ancestry.com 1871). At this time Patrick and David are listed in the census in their own homes, which are also shown in the 1879 map (Map 4) where the more formal division of the lot is noted. Again at this time there are no structures within the study area. The O'Keefe family maintained a presence in the area for generations, and today the street fronting the property is named for the family.

Aerial photography (Map 5) from 1955 shows the property and adjacent ones in use as agricultural fields and no structures are present on the study property. It is likely the study area was used as an agricultural field from the time the O'Keefe's settled until circa 1960.

By 1965 resource extraction was underway, and most of the topsoil had been stripped from the site. In the 1976 air photo the beginnings of the berms, noted in the property inspection, are seen along the southern edge, and are appear to be granular or other limestone product. The full extent of the berm is visible along the east side of the property in the 1991 air photo.

4.3 Archaeological Context

4.3.1 Current Conditions

The subject property is located at the western end of O'Keefe Court. The property is accessed via a gravel road from O'Keefe Court, or via pedestrian paths from the north. Neighbouring land use is mostly vacant. The property is bound to the north by mixed woodland, to the east by a Lytle Park, to the south by O'Keefe Court then vacant scrub lot, and to the west by The Queens Highway 416. The property encompasses a total area of approximately 6.88 ha (17.5 acres).

The site is part of a former aggregate extraction site, as noted in the air photographs (Map 5). The property is currently vacant, overgrown scrubland with small barren patches of limestone granular. The north, east, and south perimeters of the site are delineated by a large artificial berm. The berm stands from 2 to 3 m in height over the subject property, and slopes more significantly to the adjacent properties to the north and east. In the northernmost portions of the property there is a small wooded pocket with a drainage ditch running along the northern side of the berm. Excluding the berm and wooded area, the remainder of property is topographically flat with a few areas of standing water.

4.3.2 Physiography

The study area lies in the the Ottawa Valley Clay Plain with the northern portion exhibiting limestone plains and the southern clay plane landforms (Map 6). The region is characterized by poorly drained topography of clay plains interrupted by ridges of rock or sand that offer moderately better drainage. This topography was influenced by the post glacial sequence Champlain Sea (ca. 10,500 to 8,000 B.C.) that deposited these clay soils and were subsequently covered by sand deposits from the emerging fresh water drainage. Some of these sands were eroded to the underlying clay deposits by later channels of the developing Ottawa River. The sections to the north and south of the Ottawa River are characteristically different. On the Ontario side there is a gradual slope, although there are also some steep scarps (Chapman and Putnam 2007:205-208).

Soils of the study area are unknown, and were likely stripped for aggregate extractions activity prior to the soil survey. As shown on the soils map (Map 6), the entire study area is a Rock Quarry (RQ) (Marshall 1979).

4.3.3 Previous Archaeological Assessments

Archaeological work in the region has primarily consisted of cultural resource management studies related to specific properties or development projects. This includes Stage 1 & 2 Assessments of 4310 Fallowfield Road and 4401 Fallowfield Road to the east, neither recommending further studies (Adams 2011a, b). A Stage 1 assessment of the proposed

Nortel Networks Strandherd Campus, to the southeast, found potential and recommended Stage 2 Assessment (Adams 2000). Slightly farther afield, in 2013, Paterson conducted a Stage 1-3 assessment of the Hoolahan Farmhouse site (BhFw-30) (Paterson Group 2013b, c).

4.3.4 Registered Archaeological Sites and Commemorative Plaques

A search of the Ontario Archaeological Sites Database on September 23, 2015 indicated that no registered archaeological sites are located within a 1 km radius of the study area.

No commemorative plaques or monuments are located near the subject property.

4.4 Archaeological Potential

Based on the Archaeological Resource Potential Map, the southern portions of the property had archaeological potential for historic resources at the time of the study (Map 3) (Archaeological Services Inc. and Geomatics International Inc. 1999). This potential has subsequently been removed via the extensive stripping and other activity associated with the quarry previously occupying this property.

Similarly, precontact archaeological potential is noted in the Archaeological Resource Potential map as existing along the northern periphery of the property, related to better drained soils in this area. However, the potential does not extend onto the property as the area has been extensively disturbed by the quarrying activity as noted on the potential map, and through the site inspection.

While the study area had historic potential and borders precontact archaeological potential, all the potential for the property has been completely removed through years of extensive disturbances related to resource extraction.

5.0 Field Methods

A field inspection of the subject property was undertaken on September 15, 2015. Permission to access the property was provided by O'Keefe Court Properties, with no limitations. Weather conditions were sunny, with a light breeze and temperatures of 25° Celsius. During the site visit the entire property was systematically inspected.

This inspection was undertaken to confirm the extent of disturbances related to the former quarrying activity noted in the air photographs, and to determine what survey strategies would be appropriate for a Stage 2 assessment, should it be required.

Areas of archaeological potential, as indicated by the City of Ottawa archaeological management plan (Archaeological Services Inc. and Geomatics International Inc. 1999), were examined to confirm if features of archaeological potential were present and if there were any areas of disturbance which would have removed archaeological potential. Section 1.4.2 of the Standards and Guidelines for Consultant Archaeologists (MTC 2011:21-22) states that areas that are shown to have archaeological potential in a municipal archaeological management plan can only be exempt from a Stage 2 if they have been confirmed to be disturbed through a property inspection.

The property is currently vacant, overgrown scrubland with small barren patches of limestone granular (Figures 1 to 6). The north, east, and south perimeters of the site are delineated by a large artificial berm (Figure 2). The berm stands from 2 to 3 m in height over the subject property, and slopes more significantly to the adjacent properties to the north and east. In the northernmost corner of the property is a small wooded area with a drainage ditch running along the northern side of the berm (Figure 5). Excluding the berm and the northeastern corner, the remainder of property is topographically flat with a few small areas of standing water. Evidence of previous disturbance is evident across the entire surface of the property within the berms; the entire area appears to be a granular limestone surface.

Field notes and photographs of the property were taken during the visit in order to document the current land conditions as per Standard 1.a., Section 7.8.6 (MTCS 2011). The photograph locations and directions were noted and all photographs were catalogued (see Appendix B). Photograph locations and directions are shown on Map 3.

6.0 Record of Finds

Despite the southern portion of the property having had archaeological potential, and being bordered on the north by an area of potential, all archaeological potential has been removed from this property through years of aggregate extraction activity. This is clearly documented through the air photographs (Map 5), and was further noted during the property inspection via granular on all exposed on the surfaces and the lack of intact natural soils.

One area warranting additional comment is the northeastern wooded corner of the property. It appears on the air photographs to have remained undisturbed through the years of aggregate extraction (Map 5). However, test pits excavated for a Phase II Environmental Site Assessment in 2006 by Paterson Group (2006a, b) found this area to be extensive deposits of fill ranging in thickness from approximately 2 m to just over 3 m. This clearly demonstrates that this area is as disturbed as elsewhere (see Map 3 for test pit locations and Appendix A for the test pit logs).

See Appendices B, C, and D for records of photographs, maps, and field notes.

7.0 Analysis and Conclusions

While Lot 21, Concession 4 R.F. was settled relatively early by the O'Keefe family, any structures related to their occupation of the property were likely not within the study area. Furthermore, archaeological potential for the property has been removed through deep and extensive disturbances related to aggregate extraction confirmed via air photography, environmental test pits, and a site visit.

8.0 Recommendations

The subject property retains no archaeological potential based on extensive and complete disturbance associated with previous aggregate removal.

Based on the results of this investigation it is recommended:

1. No further archaeological study is required for the study property as delineated in Map 1.

9.0 Advice on Compliance with Legislation

- a. This report is submitted to the *Minister of Tourism and Culture* as a condition of licencing in accordance with Part VI of the *Ontario Heritage Act*, R.S.O. 1990, c 0.18. The report is reviewed to ensure that it complies with the standards and guidelines that are issued by the Minister, and that the archaeological fieldwork and report recommendations ensure the conservation, protection and preservation of the cultural heritage of Ontario. When all matters relating to archaeological sites within the project area of a development proposal have been addressed to the satisfaction of the Ministry of Tourism and Culture, a letter will be issued by the ministry stating that there are no further concerns with regard to alterations to archaeological sites by the proposed development.
- b. It is an offence under Sections 48 and 69 of the *Ontario Heritage Act* for any party other than a licenced archaeologist to make any alteration to a known archaeological site or to remove any artifact or other physical evidence of past human use or activity from the site, until such time as a licensed archaeologist has completed archaeological fieldwork on the site, submitted a report to the Minister stating that the site has no further cultural heritage value or interest , and the report has been filed in the Ontario Public Register of Archaeology Reports referred to in Section 65.1 of the *Ontario Heritage Act*.
- c. Should previously undocumented archaeological resources be discovered, they may be a new archaeological site and therefore subject to Section 48 (1) of the *Ontario Heritage Act*. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licenced consultant archaeologist to carry out archaeological fieldwork, in compliance with Section 48 (1) of the *Ontario Heritage Act*.
- d. The *Cemeteries Act*, R.S.O. 1990 c. C.4 and the *Funeral, Burial and Cremation Services Act*, 2002, S.O. 2002, c.33 (when proclaimed in force) require that any person discovering human remains must notify the police or coroner and the Registrar of Cemeteries at the Ministry of Consumer Services.

10.0 Closure

Paterson has prepared this report in a manner consistent with the time limits and physical constraints applicable to this report. No other warranty, expressed or implied is made. The strategies incorporated in this study comply with those identified in the Ministry of Tourism, Culture and Sport's *Standards and Guidelines for Consultant Archaeologists* (2011) however; archaeological assessments may fail to identify all archaeological resources.

The present report applies only to the project described in the document. Use of this report for purposes other than those described herein or by person(s) other than O'Keefe Court Properties or their agent(s) is not authorized without review by this firm for the applicability of our recommendations to the altered use of the report.

Unless otherwise indicated, all materials in the report are copyrighted by Paterson Group. All rights reserved. Paterson Group authorizes the client and approved users to make and distribute copies of this report only for use by those parties. No part of this document either text, map, or image may be used for any purpose other than those described herein. Therefore, reproduction, modification, storage in a retrieval system or retransmission, in any form or by any means, electronic, mechanical or otherwise, for reasons other than those described herein, is strictly prohibited without prior written permission of Paterson Group.

This report is pending Ministry approval.

If you have any questions or we may be of further assistance, please contact the undersigned.

Paterson Group Inc.

A handwritten signature in black ink, appearing to read 'Ben Mortimer', is positioned above the printed name.

Ben Mortimer, M.A., A.P.A.
Senior Archaeologist

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OLR

Ontario Land Registry Office Records, Ontario.

Paterson Group

2013a *Phase I - Environmental Site Assessment Residential and Vacant Property 1034 McGarry Terrace and 1117 Longfields Drive, Ottawa, Ontario.*

2013b *Stage 1 and 2 Archaeological Assessment 3288 Greenbank Rd., Concession 3 R.F., Part Lot 14, Geographic Township of Nepean, City of Ottawa, Ontario.* Copies available from P378-005-2013.

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12.0 Images



Figure 1: Overview to berm (D04).



Figure 2: View along top of berm on eastern perimeter (D14).



Figure 3: Detail of typical ground surface throughout property (D11).



Figure 4: Overview south from top of berm (D022).

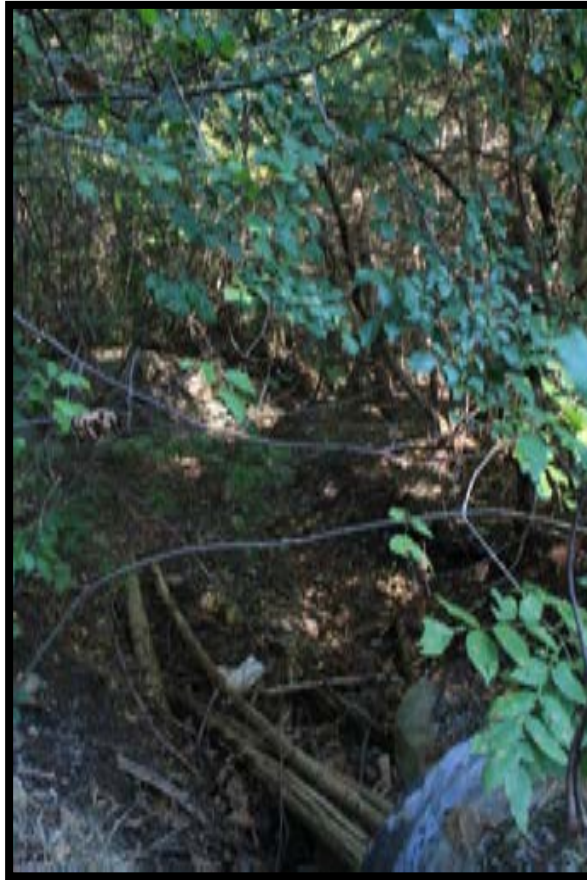
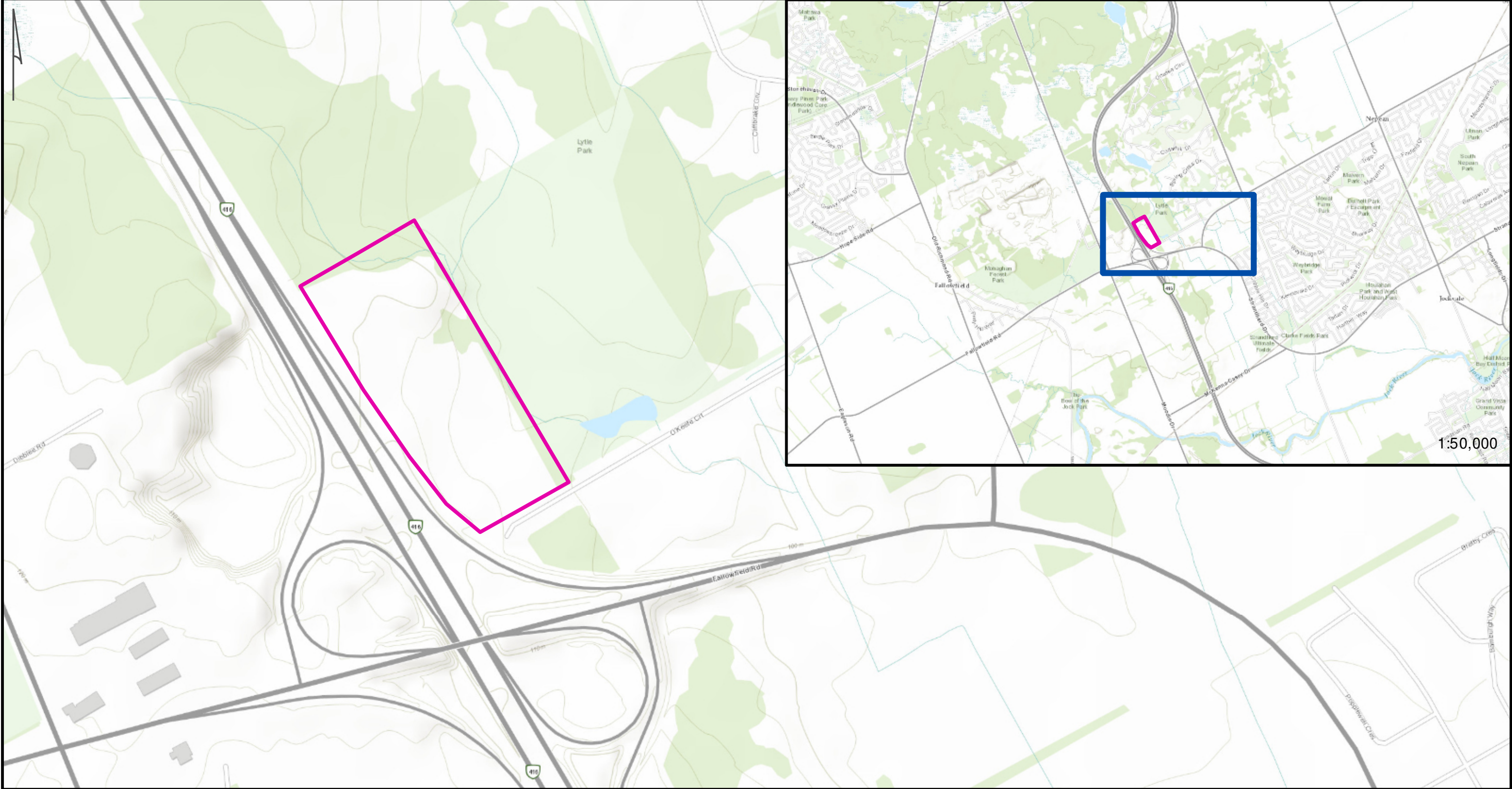



Figure 5: Drainage ditch north of northern berm, along northern perimeter. (D24)

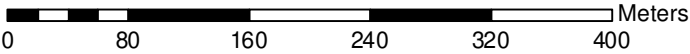


Figure 6: View west in the northern part of the property with gravel surface and low berm on the left (D29).

13.0 Maps

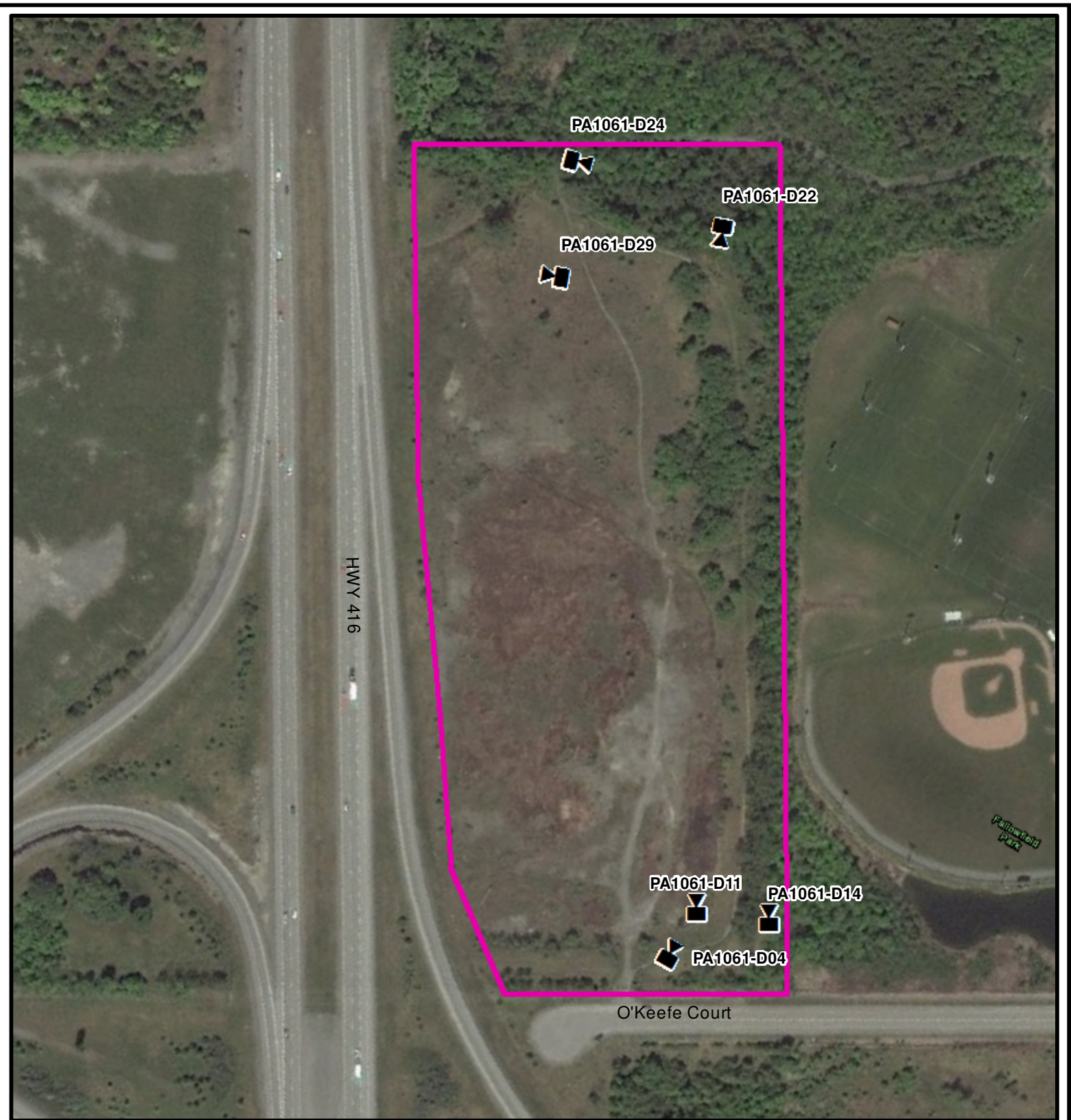
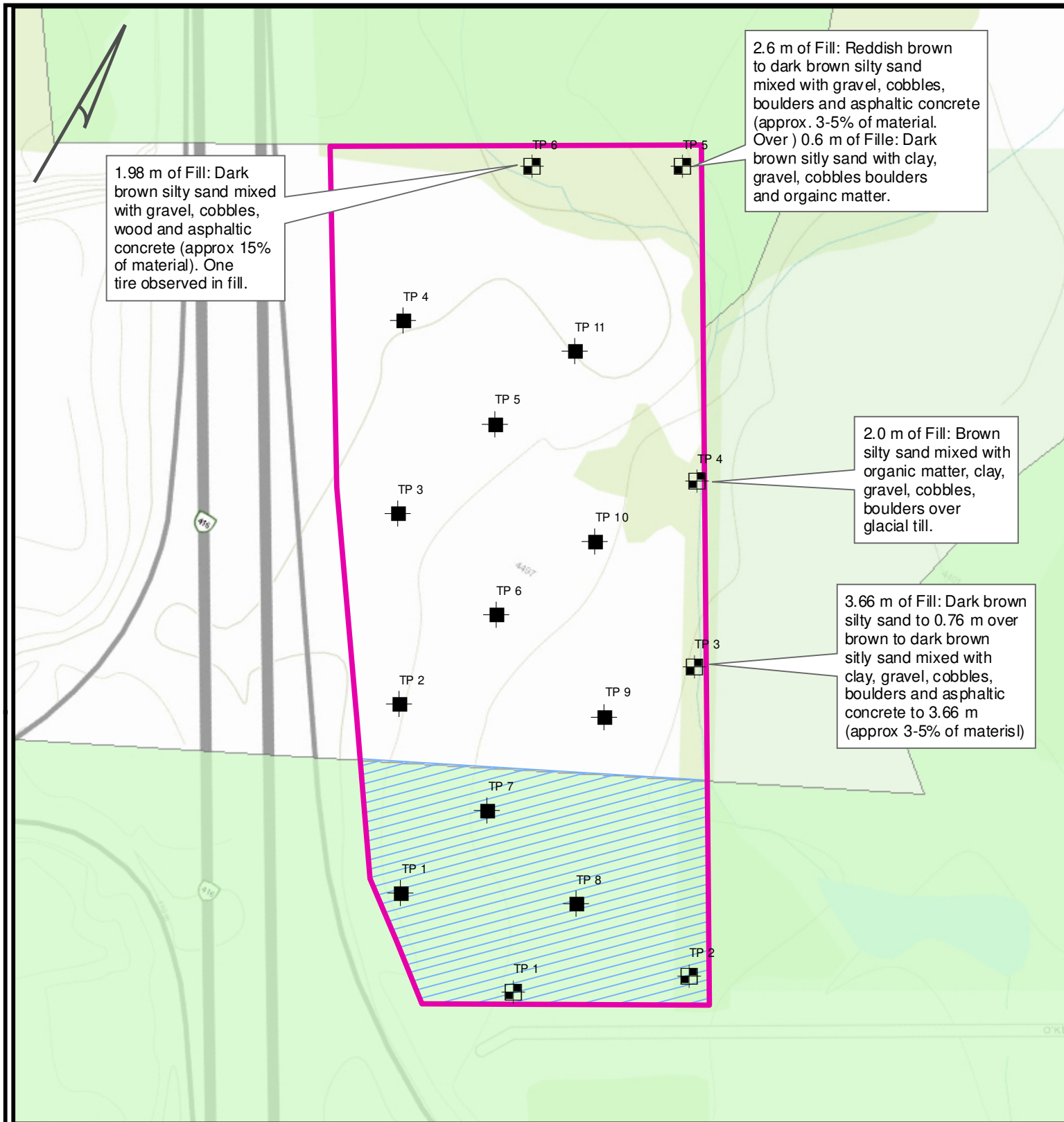


 Study Area



References:
Projection: Transverse Mercator Datum NAD 83, UTM Zone 18
Service Layer Credits: Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, and the GIS User Community

paterson group consulting engineers 154 Colonnade Road South, Ottawa, Ontario K2E 7J5	Scale 1:5,000 Des BM Drawn BM Chkd BM	Project PA1061	Stage 1 Assessment O'Keefe Court Properties Proposed Development 4497 O'Keefe Court, Ottawa, ON	LOCATION	File: PA1061-MAP ST1 PIF
		Borden None			Date: 15-Sep-2015 Map: 1



- Study Area
- Potential Removed
- Archaeological Potential

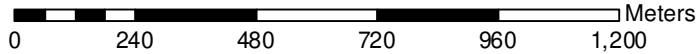
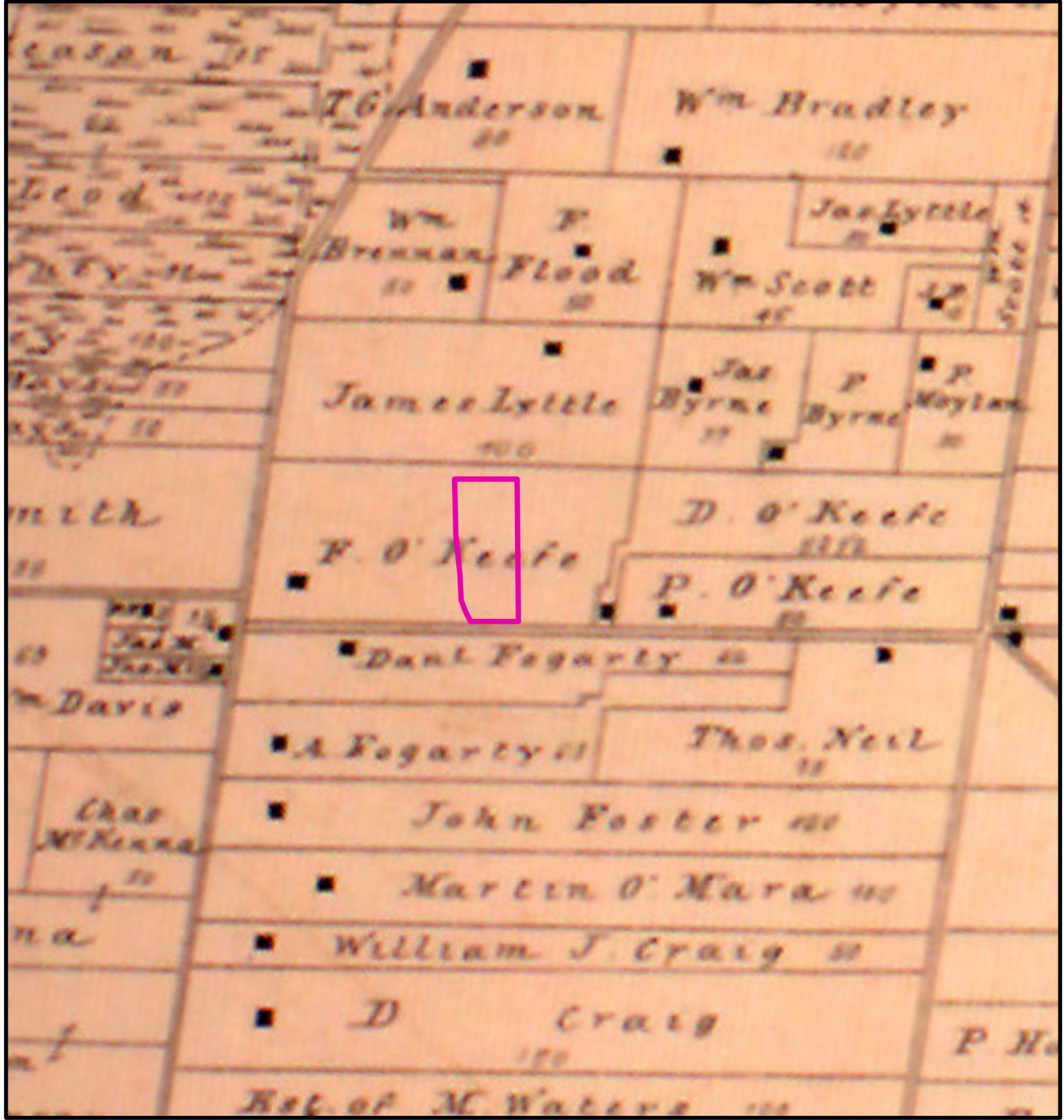
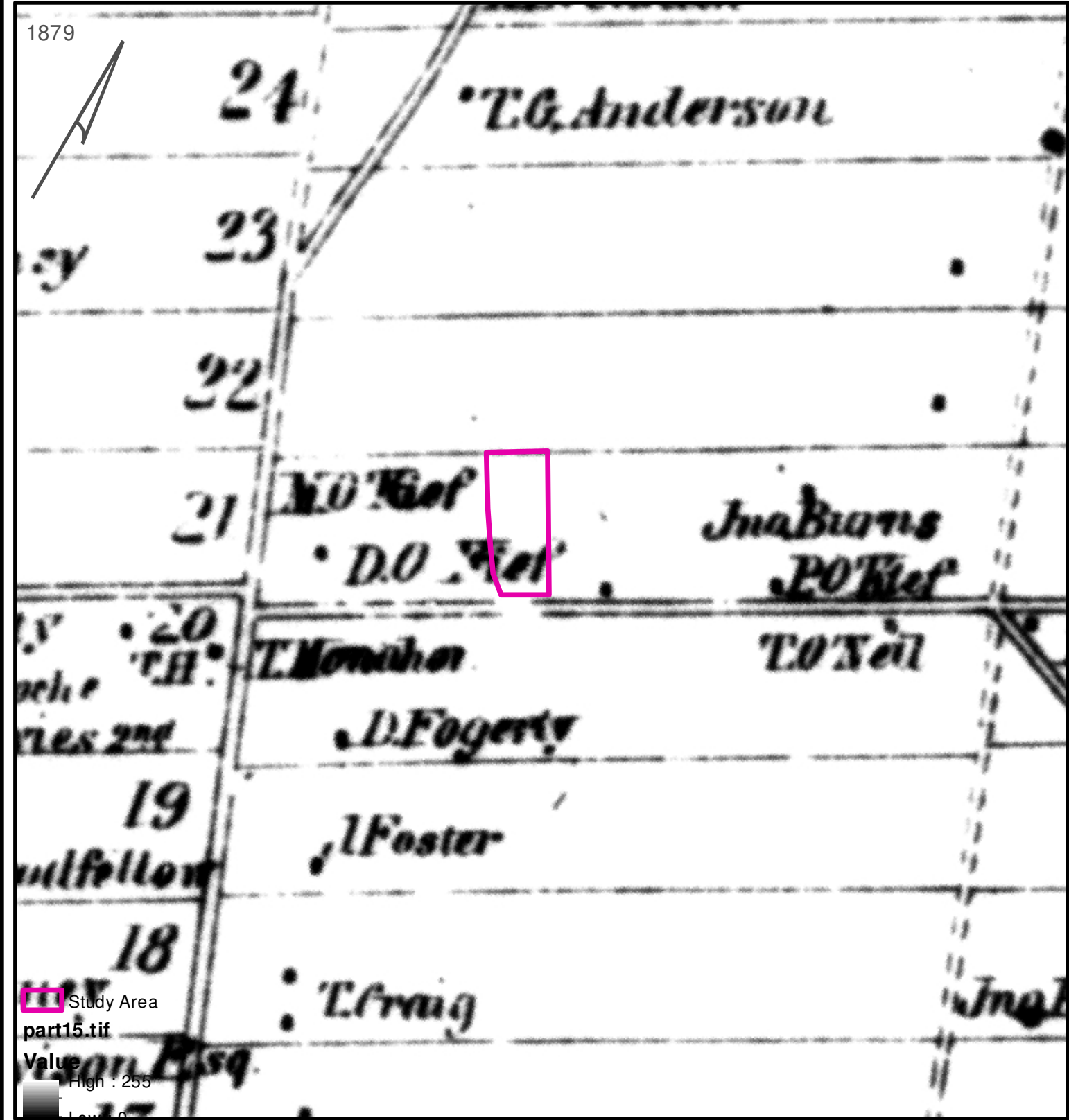
Test Pits (2006)

- PE0775 - Phase I-II Environmental Assessment
- PH0208 - Hydrogeological Study

0 40 80 120 160 200 Meters

References:

Projection: Transverse Mercator Datum NAD 83, UTM Zone 18
 Archaeology Potential from The Archaeological Resource Potential Mapping Study of the Regional Municipality of Ottawa-Carleton
 Service Layer Credits: Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, and the GIS User Community
 Copyright:© 2012 Esri, DeLorme, NAVTEQ, TomTom

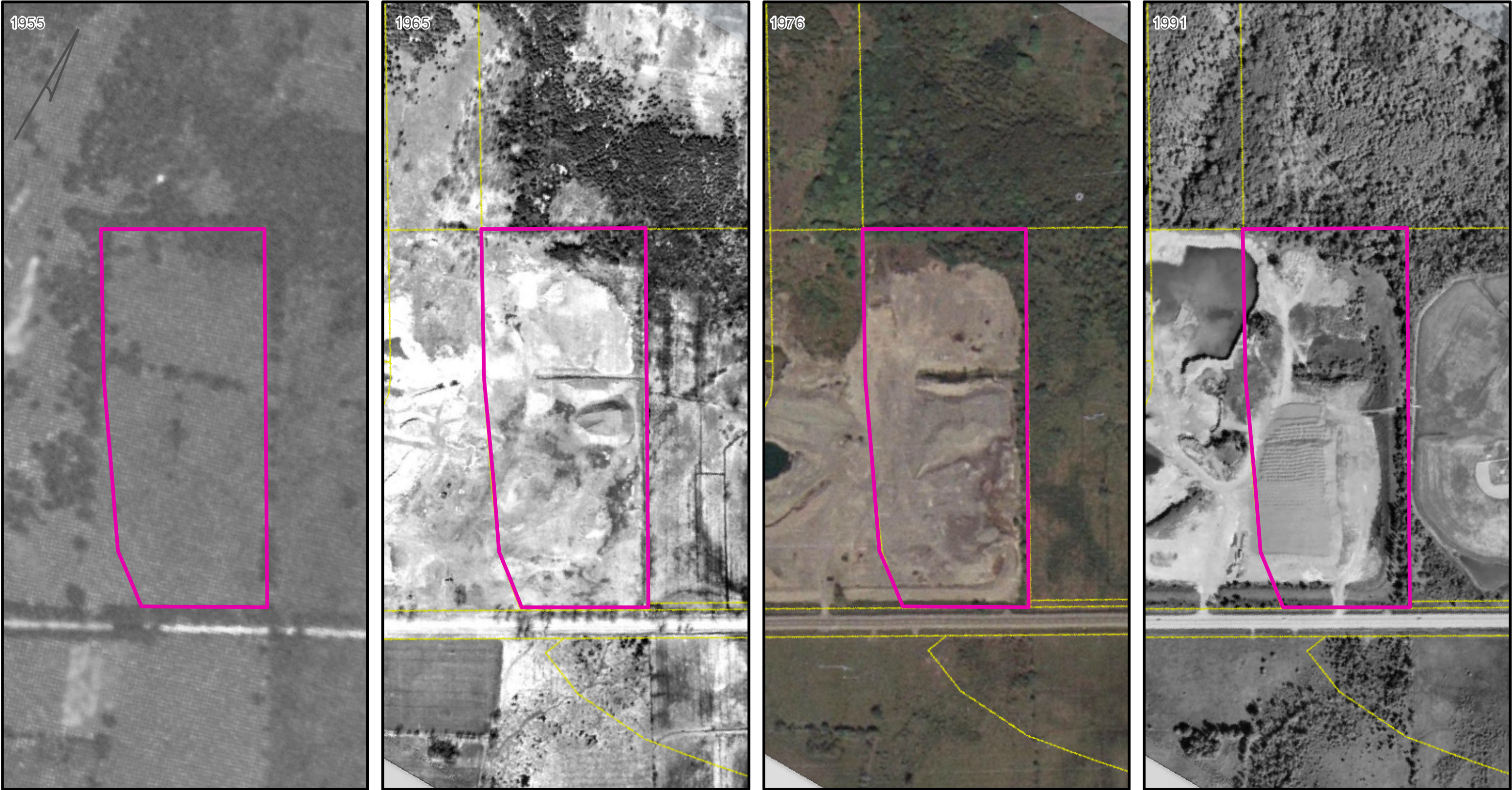



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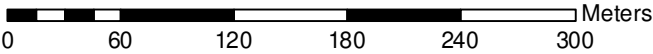
Projection: Transverse Mercator Datum NAD 83, UTM Zone 18

Segment of Walling 1863, Map of the County of Carleton, Canada West. D.P. Putnam, Ontario. (NMC 14834).

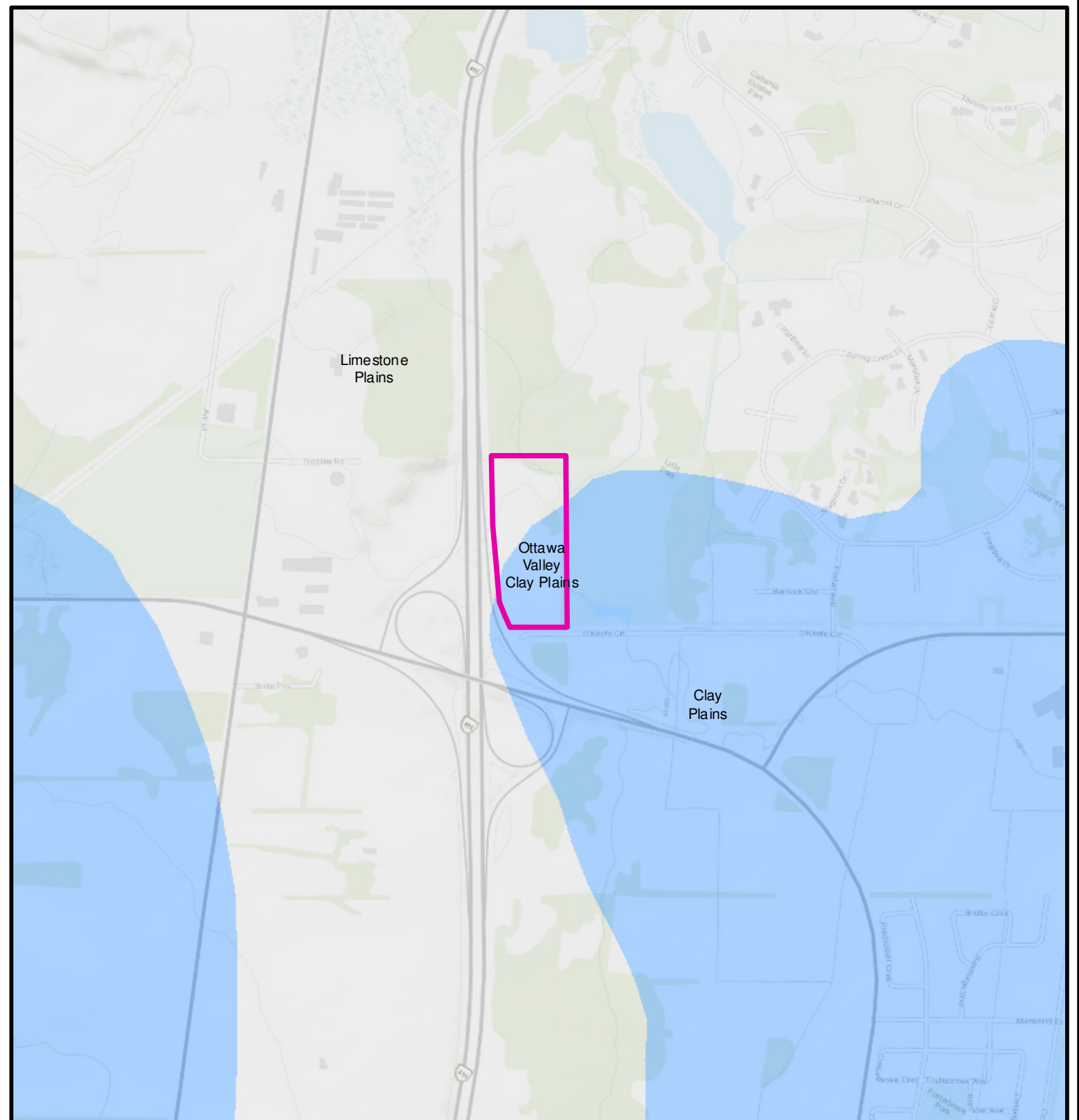
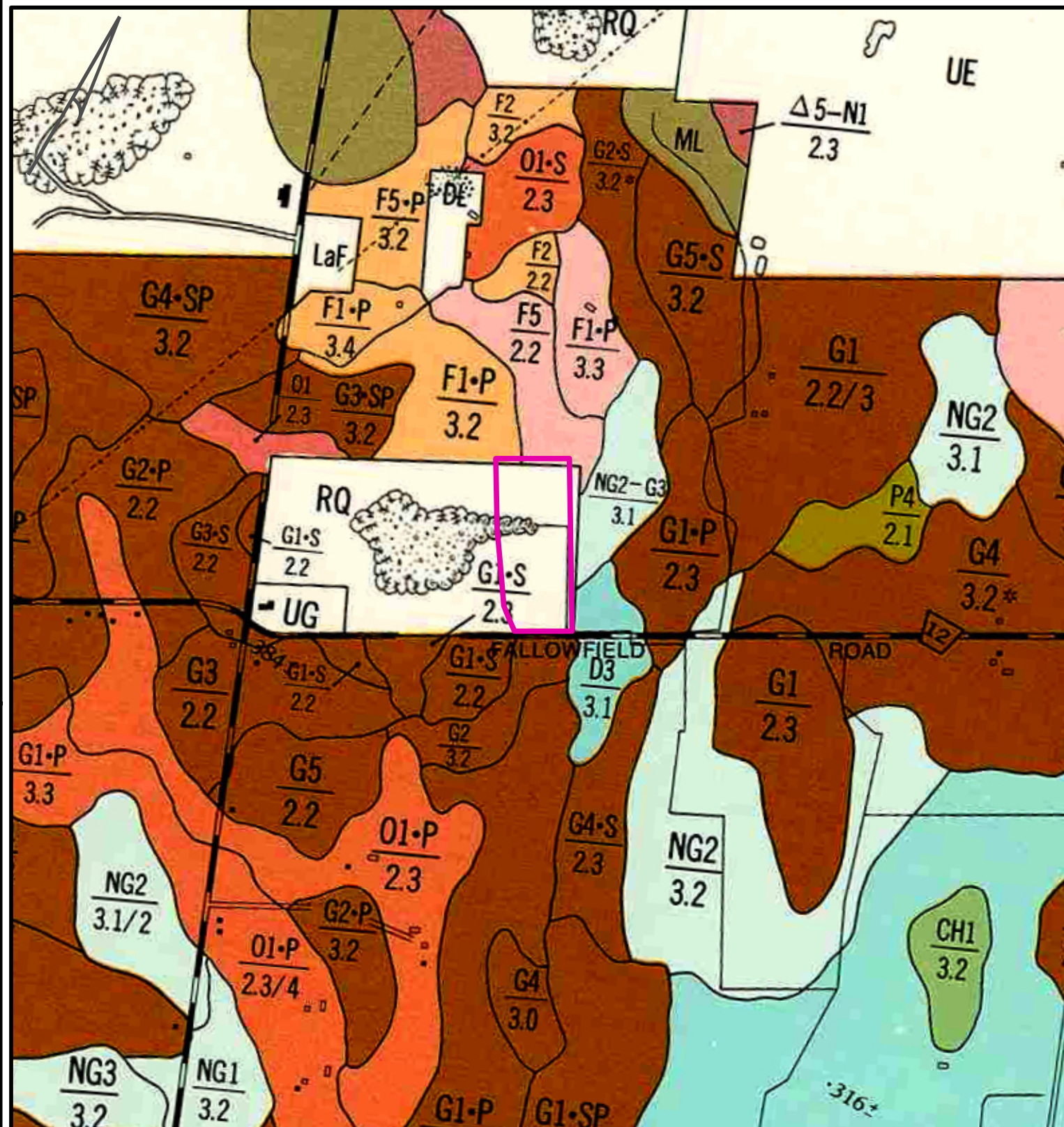
Segment of Nepean Township from Belden, 1879 Illustrated Historical Atlas of the County of Carleton



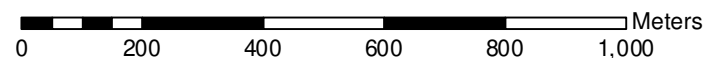
 Study Area



References:
Projection: Transverse Mercator Datum NAD 83, UTM Zone 18
1955 - A14755-113
1965, 1976, 1991 - GeoOttawa



 Study Area



References:

Projection: Transverse Mercator Datum NAD 83, UTM Zone 18

Marshall, Dumanski, Huffman, and Lajoie 1979

Chapman and Putnam 2007

Service Layer Credits: Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, and the GIS User Community

Appendix A: Paterson Group Test Pit Logs

<p>patersongroup Consulting Engineers 28 Concourse Gate, Unit 1, Ottawa, ON K2E 7T7</p>					<p>SOIL PROFILE & TEST DATA Phase I-II Environmental Site Assessment O'Keefe Court and Highway 416 Ottawa, Ontario</p>				
<p>DATUM</p>					<p>FILE NO. PE0775</p>				
<p>REMARKS</p>					<p>HOLE NO. TP 1</p>				
<p>BORINGS BY Backhoe</p>					<p>DATE 24 MAR 06</p>				
SOIL DESCRIPTION	STRATA PLOT	SAMPLE				DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Lower Explosive Limit % 20 40 60 80	Monitoring Well Construction
		TYPE	NUMBER	% RECOVERY	N VALUE or ROD				
GROUND SURFACE						0			
FILL: Dark brown silty sand mixed with clay, gravel, cobbles and asphaltic concrete		G	1						
0.76									
FILL: Dark brown silty sand mixed with gravel, crushed stone, cobbles, boulders, asphaltic concrete and organic matter (asphalt, approx. 15% of fill material)		G	2						
		G	3						
		G	4						
2.59									
End of Test Pit									

100 200 300 400 500
 Gastech 1314 Rdg. (ppm)
 ▲ Fuel Gas Resp. △ Methane Elin.

patersongroup Consulting Engineers 28 Concourse Gate, Unit 1, Ottawa, ON K2E 7T7					SOIL PROFILE & TEST DATA Phase I-II Environmental Site Assessment O'Keefe Court and Highway 416 Ottawa, Ontario			
DATUM					FILE NO. PE0775			
REMARKS					HOLE NO. TP 2			
BORINGS BY: Backhoe					DATE: 24 MAR 06			
SOIL DESCRIPTION	STRATA PLOT	SAMPLE			DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Lower Explosive Limit %	Monitoring Well Construction
		TYPE	NUMBER	RECOVERY N VALUE or ROD				
GROUND SURFACE					0			
FILL: Dark brown silty sand mixed with gravel, crushed stone, cobbles, boulders, asphaltic concrete and organic matter (asphalt, approx. 3-5% of fill material)		G	1					
		G	2		1			
		G	3					
		G	4		2			
End of Test Pit					2.74			

100 200 300 400 500
Gastech 1314 Rdg. (ppm)
 ▲ Fuel Gas Resp. ▲ Methane Emt.

patersongroup Consulting Engineers 22 Concourse Gate, Unit 1, Ottawa, ON K2E 7T7					SOIL PROFILE & TEST DATA Phase I-II Environmental Site Assessment O'Keefe Court and Highway 416 Ottawa, Ontario				
DATUM					FILE NO. PE0775				
REMARKS					HOLE NO. TP 3				
BORINGS BY Backhoe					DATE 24 MAR 06				
SOIL DESCRIPTION	STRATA PLOT	SAMPLE				DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Lower Explosive Limit %	Monitoring Well Construction
		TYPE	NUMBER	% RECOVERY	N VALUE or ROD				
GROUND SURFACE						0			
FILL: Dark brown silty sand with topsoil		G	1						
						0.76			
FILL: Brown to dark brown silty sand mixed with clay, gravel, cobbles, boulders and asphaltic concrete (asphalt, approx. 3-5% of fill material)		G	2			1			
		G	3						
		G	4			2			
		G	5			3			
End of Test Pit						3.66			



100 200 300 400 500
Gastech 1314 Rdg. (ppm)
▲ Full Gas Resp. ▲ Methane Elm.


patersongroup Consulting Engineers 28 Concourse Gate, Unit 1, Ottawa, ON K2E 7T7					SOIL PROFILE & TEST DATA Phase I-II Environmental Site Assessment O'Keefe Court and Highway 416 Ottawa, Ontario			
DATUM					FILE NO. PE0775			
REMARKS					HOLE NO. TP 4			
BORINGS BY Backhoe					DATE 24 MAR 06			
SOIL DESCRIPTION	STRATA PLOT	SAMPLE			DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Lower Explosive Limit %	Monitoring Well Construction
		TYPE	NUMBER	RECOVERY % N VALUE or ROD				
GROUND SURFACE					0			
FILL: Brown silty sand mixed with organic matter, clay, gravel, cobbles, boulders		G	1					
		G	2		1			
		G	3					
					2			
GLACIAL TILL: Dark brown silty clay with sand, gravel and cobbles		G	4					
		G	5		3			
End of Test Pit					3.35			

2.00

3.35

100 200 300 400 500
Gastech 1314 Rdg. (ppm)
▲ Full Gas Resp. Δ Methane Elm.

patersongroup Consulting Engineers 28 Concourse Gate, Unit 1, Ottawa, ON K2E 7T7					SOIL PROFILE & TEST DATA Phase I-II Environmental Site Assessment O'Keefe Court and Highway 416 Ottawa, Ontario				
DATUM						FILE NO. PE0775			
REMARKS						HOLE NO. TP 5			
BORINGS BY Backhoe						DATE 24 MAR 06			
SOIL DESCRIPTION	STRATA PLOT	SAMPLE				DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Lower Explosive Limit % 20 40 60 80	Monitoring Well Construction
		TYPE	NUMBER	% RECOVERY	N VALUE or RQD				
GROUND SURFACE						0			
FILL: Reddish brown to dark brown silty sand mixed with gravel, cobbles, boulders and asphaltic concrete (asphalt, approx. 3-5% of fill material)		G	1						
		G	2			1			
		G	3			2			
		G	4			2			
FILL: Dark brown silty sand with clay, gravel, cobbles, boulders and organic matter End of Test Pit		G	5			3			
100 200 300 400 500 Gastech 1314 Rdg. (ppm) ▲ Full Gas Resp. △ Methane Elm.									

patersongroup Consulting Engineers 28 Concourse Gate, Unit 1, Ottawa, ON K2E 7T7					SOIL PROFILE & TEST DATA Phase I-II Environmental Site Assessment O'Keefe Court and Highway 416 Ottawa, Ontario					
DATUM						FILE NO. PE0775				
REMARKS						HOLE NO. TP 6				
BORINGS BY: Beckhoe						DATE: 24 MAR 06				
SOIL DESCRIPTION	STRATA PLOT	SAMPLE				DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m • 50 mm Dia. Cone ○ Lower Explosive Limit % 20 40 60 80	Monitoring Well Construction	
		TYPE	NUMBER	% RECOVERY	N VALUE or RQD					
GROUND SURFACE						0				
FILL: Dark brown silty sand mixed with gravel, cobbles, wood and asphaltic concrete (asphalt, approx. 15% of fill material) (one tire observed in fill)		G	1							
		G	2			1				
		G	3							
End of Test Pit	1.98									
100 200 300 400 500 Gastech 1314 Rdg. (ppm) ▲ Full Gas Resp. △ Methane Elin.										

Appendix B: Photo Catalogue

Catalogue Number	Subject	Direction	Date	Photographer
PA1061-D001	View from O'Keefe Court to property entrance	NE	15-09-2015	BM
PA1061-D002	Berm east of southern entrance	E	15-09-2015	BM
PA1061-D003	Berm west of southern entrance	W	15-09-2015	BM
PA1061-D004	Overview	N	15-09-2015	BM
PA1061-D005	Overview	NW	15-09-2015	BM
PA1061-D006	Overview	NW	15-09-2015	BM
PA1061-D007	Overview	NW	15-09-2015	BM
PA1061-D008	Overview	NW	15-09-2015	BM
PA1061-D009	Overview	W	15-09-2015	BM
PA1061-D010	View to side of eastern berm in SE corner.	E	15-09-2015	BM
PA1061-D011	Typical surface cover	N	15-09-2015	BM
PA1061-D012	View from southern perimeter berm	NW	15-09-2015	BM
PA1061-D013	View from southern perimeter berm	W	15-09-2015	BM
PA1061-D014	View along eastern perimeter berm	NW	15-09-2015	BM
PA1061-D015	View along eastern perimeter berm	N	15-09-2015	BM
PA1061-D016	View from NE corner	SW	15-09-2015	BM
PA1061-D017	Northeastern corner	N	15-09-2015	BM
PA1061-D018	Northeastern corner	N	15-09-2015	BM
PA1061-D019	Northeastern corner	NW	15-09-2015	BM
PA1061-D020	Northeastern corner	NW	15-09-2015	BM
PA1061-D021	Northeastern corner	NW	15-09-2015	BM
PA1061-D022	Overview form northern berm	S	15-09-2015	BM
PA1061-D023	Standing water along northern bundary	S	15-09-2015	BM
PA1061-D024	Drainage ditch north or northern berm	E	15-09-2015	BM
PA1061-D025	Drainage ditch north or northern berm	W	15-09-2015	BM
PA1061-D026	Drainage ditch north or northern berm	E	15-09-2015	BM
PA1061-D027	Drainage ditch north or northern berm	E	15-09-2015	BM
PA1061-D028	Gravel groundcover	S	15-09-2015	BM
PA1061-D029	Gravel groundcover	S	15-09-2015	BM
PA1061-D030	Area of standing water	N	15-09-2015	BM
PA1061-D031	Paths through area with standing water	S	15-09-2015	BM
PA1061-D032	View to eastern berm	E	15-09-2015	BM

Appendix C: Map Catalogue

Map Number	Description	Created By
1	Location	B. Mortimer
2	Development Map	B. Mortimer
3	Archaeological Potential/ Conditions/Photo Key	B. Mortimer
4	Historic Overlays	B. Mortimer
5	Air Photos	B. Mortimer
6	Soils	B. Mortimer

Appendix D: Document Catalogue

Project	Description	Created By
PA1061	4497 O'Keefe Court Field Notes, Stage 1 Site Visit (scanned to PDF "PA1061 – O'Keefe Court – Field Notes.pdf")	B. Mortimer