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ORIGINAL REPORT

Stage 1 and 2 Archaeological Assessment 3311 Greenbank Road, Lots 12 and 13, Concession 2, Nepean Township, Carleton County City of Ottawa, Ontario

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PIF Number: P1077-0024-2017

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REPORT



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Executive Summary

The Executive Summary highlights key points from the report only; for complete information and findings, as well as the limitations, the reader should examine the complete report.

Golder Associates Limited (Golder) was retained by Minto Communities Canada (“Minto”) to complete a Stage 1 and 2 archaeological assessment for the property located at 3311 Greenbank Road. The subject property is located within part of Lots 12 and 13, Concession 2 (Rideau Front), Nepean Township, Carleton County, City of Ottawa (Map 1, p.27).

The subject property encompasses approximately 5.55 hectares (13.7 acres) and is proposed to be incorporated into a residential development. The western limit of the study area is located immediately east of Greenbank Road and approximately 600 meters south of the intersection with Jockvale Road, with the eastern limit extending to Jockvale Road. The northern portion of the study area is bound by St. Joseph’s Intermediate School, with the southern boundary represented by undeveloped land owned by the City of Ottawa (Maps 2-3, p.28-29). This Stage 1 and 2 archaeological assessment was triggered by the *Planning Act*, as a condition for site plan approval. At the time of this report a project specific development site plan has not yet been developed or is currently available.

The principal objectives of this Stage 1 and 2 archaeological assessment were to identify known archaeological resources on and within the vicinity of the study area, to assess the archaeological potential of the subject property under investigation, to test the study area for archaeologically significant resources, to determine whether any identified archaeological resources required further assessment (e.g. Stage 3) and to recommend appropriate Stage 3 archaeological assessment strategies if significant archaeological resources were identified.

Although 19th century historic mapping does not indicate any settlement or structures within the subject property, it does depict both Greenbank Road and Jockvale Road as historic transportation routes within 100 metres of the study area. The 19th century mapping also confirms the presence of a structure within 300 metres of the subject property located on the north bank of the Jock River.

Four archaeological assessments have been previously completed within 250 metres of the study area, and identified the potential for archaeological resources within the surrounding landscape (Map 9, p.35).

Three registered archaeological sites are known to exist within one kilometre of the study area, with only the Jock River 1 Site (BhFw-121) situated within 300 metres of the study area.

The determination of archaeological potential for the entire study area is based on the criteria that the original Greenbank Road and Jockvale Road are identified as historic transportation corridors, the location of the 19th century historically significant structure on the north bank of the Jock River less than 300 metres from the study area, the proximity of the study area to the Jock River 1 (BhFw-121) registered archaeological site located less than 300 metres west of the subject property, as well as the proximity of the Jock River which is located less than 300 metres south of the study area.

Based on these archaeological potential attributes, the entire study area is considered to possess the potential for archaeological resources (Map 10, p.36) and a Stage 2 archaeological field investigation was completed within previously unassessed lands over two days on 26 July and 8 August, 2017.



STAGE 1 AND 2 ARCHAEOLOGICAL ASSESSMENT 3311 GREENBANK ROAD

The Stage 2 study area was divided into two segments identified as Operations, with Operation 1 designated as the test pitted area and Operation 2 denoted as the pedestrian survey area (Map 11, p.37). Of the 5.55 ha. overall study area, 0.43 ha (8%) has been previously assessed under PIF P1077-0010-2015 and cleared by the MTCS, with 1.97 ha (35%) subjected to hand excavated test pits (Operation 1) and 3.15 ha (57%) tested by pedestrian survey (Operation 2).

No artifacts or archaeologically significant features were identified during the Stage 2 field investigation within the study area.

This Stage 1 and 2 archaeological assessment has provided the basis for the following recommendations:

- 1) Since the Stage 2 archaeological field investigation did not identify any archaeological resources of cultural heritage value or interest within the study area, it is recommended that the Ontario Ministry of Tourism, Culture and Sport issue a letter concurring that no additional archaeological investigations are required for the study area detailed on Map 2 (p.28); and,
- 2) Should future development, or any associated construction disturbance activities, extend beyond the boundary of the study area detailed in this report, additional archaeological investigations may be required based on the triggers identifying archaeological potential of the general vicinity detailed in Section 3.4 of this report.

This report is submitted to the Ministry of Tourism, Culture and Sport as a condition of licensing in accordance with Part VI of the *Ontario Heritage Act*, R.S.O. 1990, c. 0.18. The report is reviewed to ensure that the licensed consultant archaeologist has met the terms and conditions of their archaeological license, and that the archaeological field work and report recommendations ensure the conservation, protection and preservation of the cultural heritage of Ontario.



STAGE 1 AND 2 ARCHAEOLOGICAL ASSESSMENT 3311 GREENBANK ROAD

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1.0 PROJECT CONTEXT

1.1 Objectives

The principal objectives of this Stage 1 and 2 archaeological assessment are to identify known archaeological sites on and within the vicinity of the study area, to assess the archaeological potential of the subject property under investigation and test the study area for significant archaeological resources. The objectives of a Stage 1 and 2 Archaeological Assessment are based on principals outlined in the *Ontario Heritage Act* (Consolidated 2007) and the *Standards and Guidelines for Consultant Archaeologists* (2011). More specifically, this Stage 1 and 2 Archaeological Assessment was completed with the following objectives:

- To provide information about the study area's geography, environment, cultural history, previous archaeological fieldwork and current land condition;
- To evaluate in detail the property's archaeological potential and determine whether the property contains archaeological resources requiring field archaeological assessment (Stage 2);
- To document archaeological resources on the property;
- Determine whether further work within the study area is required based on findings of the current investigation; and,
- To recommend appropriate Stage 3 assessment strategies for archaeological sites identified (if required).

1.2 Development Context

Golder Associates Limited (Golder) was retained by Minto Communities Canada ("Minto") to complete a Stage 1 and 2 archaeological assessment for the property located at 3311 Greenbank Road. The subject property is located within part of Lots 12 and 13, Concession 2 (Rideau Front), Nepean Township, Carleton County, City of Ottawa (Map 1, p.27).

The subject property encompasses approximately 5.55 hectares (13.7 acres) and is proposed to be incorporated into a residential development. The western limit of the study area is located immediately east of Greenbank Road and approximately 600 meters south of the intersection with Jockvale Road, with the eastern limit extending to Jockvale Road. The northern portion of the study area is bound by St. Joseph's Intermediate School, with the southern boundary represented by undeveloped land owned by the City of Ottawa (Maps 2-3, p.28-29).

This Stage 1 and 2 archaeological assessment was triggered by the *Planning Act*, as a condition for site plan approval. At the time of this report a project specific development site plan has not yet been developed or is currently available.

Permission to access the subject property to conduct all required archaeological fieldwork was granted by Catherine Tremblay, Minto Communities Canada, with no limitations or restrictions.



2.0 HISTORIC CONTEXT

2.1 Regional Aboriginal History

The Ottawa Valley was covered by the Laurentide Ice sheet until approximately 11,000 years before present (BP). After the period of deglaciation, the Ottawa Valley was inundated by the Champlain Sea. This sea extended from Rideau Lakes in the south, along the Ottawa Valley and St. Lawrence areas, ending at approximately Petawawa in the west. The exact western boundary is unknown as current elevation levels reflect the isostatic rebound of the land following the melting of the glaciers and cannot be used to determine the exact location of the Champlain Sea at the time of its existence. The eastern portion of the sea extended into the Atlantic Ocean.

The earliest possible settlement in the Ottawa area would have occurred following the recession of the Champlain Sea when the vegetation and wildlife had the opportunity to develop within the area and enable the sustainability of humans (Watson, 1999a).

During the Early and Middle Paleo-Indian Periods (12,000–10,000 BP) Ottawa would have remained inundated by the Champlain Sea, but as the Champlain Sea receded during the Late Paleo-Indian Period (10,000–9,000 BP) it is possible that people migrated along the changing waterfront eventually moving into the Ottawa Valley (Watson, 1999a).

Paleo-Indians were characterized by their nomadic lifestyle. These highly mobile hunters and gatherers relied on caribou, small game, fish and wild plants found in the sub-arctic environment of the time. Although evidence exists of Paleo-Indian occupation in Ontario as early as 11,000 years BP, minimal evidence exists for occupation within the Ottawa Valley during this period.

Evidence of earlier occupation by Paleo-Indians in the Ottawa Valley included two bi-facially fluted projectile points found near the Rideau Lakes. This location would have been near the shore of the Champlain Sea during the time fluted points were being used (Watson, 1999b). A Late Paleo-Dovetail point has also been recovered in Ottawa South sometime around 1918 (Pilon & Fox, 2015) as well as material interpreted as being Paleo-Indian during archaeological investigations near Greenbank Road (Swayze, 2003) Albion Road and Rideau Road (Swayze, 2004).

The environment of Ontario approached present conditions during the succeeding Archaic Period (9,500-2,500 BP). Stone tool technologies changed during this time as a broader range of tool types were created, although the skill and workmanship shifted from earlier Paleo-Indian standards. Ground stone tools appeared, such as adzes and gouges, tool types indicating increased wood working and greater adaptation to new environmental conditions. By 6,000 years ago, copper was being mined in the Upper Great Lakes and was traded into southern Ontario influencing a trade network throughout the region.

During the Middle and Late segments of the Archaic Period, trading networks spanning east and west along the Ottawa River and south to the Great Lakes developed. Sites with Archaic components which demonstrate this expanding network include Morrison's Island and Allumette Island in the Outaouais region of the Ottawa River (Clermont, 1999), sites identified at Lake Leamy near the junction of the Gatineau and Ottawa Rivers, and also in the Rideau Lakes area (Watson, 1982). Other sites with Archaic Period components in the Ottawa Valley include Jessup Falls near the mouth of the South Nation River and at Spencerville near the source of the South Nation River (Daechsel, 1980).



The Archaic Period was followed by the Woodland Period, beginning around 2,500 years ago in Ontario, and lasting until 450 years ago. This period is distinguished by the first appearance of ceramics. Within eastern Ontario, Woodland subsistence strategies were still based on hunting and gathering and their migratory routes followed seasonal patterns to proven hunting locations rather than following migrating herds. Trade networks continued to flourish throughout the Woodland Period and reached their peak around 1,800 years ago when they covered much of North America.

Initial pottery forms were crude and imitated vessels originally constructed during the Archaic Period out of steatite. One example of this type of pot was located along the Ottawa River at registered site CaGi-1 located in Hull, Québec (Watson, 1999b). Over time, pottery became more refined and began to include elaborate decorative patterns. These decorative styles are distinct for specific regional populations as well as specific date ranges (Laliberté, 1999).

Towards the end of the Middle Woodland Period (approximately 1,500 years ago) agriculture was introduced and commenced to take on a significant role in subsistence strategies. It began with the cultivation of corn, beans, tobacco, and eventually led to the development of semi-permanent and permanent villages. Many of these villages were surrounded by palisades, indicating increased hostilities between neighbouring groups. This settlement pattern was more common in regions with arable land such as southern Ontario. The impact of these changes did not appear to have been significantly felt in the areas north of the St. Lawrence Valley which continued to be used as a hunting area and trade route where many groups retained a semi-nomadic lifestyle. Middle Woodland sites have been identified in the South Nation Drainage Basin (Daechsel, 1980), within the City of Ottawa west of Bank Street (Golder, 2014) and along the Ottawa River including the northwest end of Ottawa at Marshall's and Sawdust Bays (Daechsel, 1981).

During the Late Woodland Period, the South Nation River basin appears to have been a zone of interaction between Iroquoian speaking populations who relied primarily on domesticated crops to the south and Algonquian speaking groups who continued a primarily hunter-gatherers lifestyle to the north. The Huron peoples along the north shore of Lake Ontario had moved to the Lake Simcoe – Georgian Bay region, leaving the area of eastern Ontario, except for some small Algonquin groups, unoccupied by the time early French explorers arrived in the area at the beginning of the seventeenth century.

2.2 European Contact and Initial Settlement in the Ottawa Valley

The St. Lawrence Iroquois disappeared in the sixteenth century not long after initial contact with Jacques Cartier in 1535. Étienne Brûlé is reported to have been the first European to pass through what is now the Ottawa area when he portaged at the Rideau Falls in 1610, followed by Champlain in 1613. The Ottawa River served as a major route for explorers, traders and missionaries throughout the seventeenth and eighteenth centuries, with a series of trading posts and forts being constructed by the French along the river in the early eighteenth century.

The French documented three Algonquin groups in the regional vicinity of the study area (Heidenreich & Wright, 1987). These included the Matouweskaroni along the Madawaska River, the Onontcharonon in the Gananoque River Basin, and the Weskarini, the largest of the three, situated on the Petite Nation River Basin. It is likely that prolonged occupation in the Ottawa area was avoided at this time likely due to hostilities with Iroquoian speaking populations to the south, although it is suggested that at least the northern reaches of the South Nation River Basin were used as hunting territories by these groups.



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Settlement in the Ottawa area was not actively encouraged by the colonial government until the late eighteenth century.

Commonly acknowledged as the first permanent European resident in the area, Philemon Wright settled in Hull Township with five families and thirty-three men in 1800 (Bond, 1984). This community grew over the next few years along the north shore of the Ottawa River and by 1805 Wright had initiated what would become significant lumbering activity in the area. Settlement along the south shore was very slow through the early nineteenth century. In 1809, Jehiel Collins erected a store at what was to become known as Bellows and later Richmond Landing and in 1810 Ira Honeywell constructed a cabin west of the Chaudière Rapids (Bond, 1984). Another early settler was Braddish Billings, who established a small cabin in Gloucester Township in 1812. Billings went into the lumbering business with Philemon Wright and developed his homestead into a large family estate along the banks of the Rideau River.

The scarcity of roads and poor state of transportation beyond the Ottawa River shoreline slowed settlement in many parts of the Ottawa Valley (Belden, 1879), although with the construction of the Rideau Canal (1827-1832) the new settlement of Bytown experienced its first major growth in population. This resulted in the development of two primary residential areas, with Lower Bytown situated east of the Canal and largely populated by French Canadian and Irish labourers and merchants, and Upper Bytown situated to the west with a predominantly white Anglo-Saxon Protestant population. Bytown was incorporated as the City of Ottawa on January 1, 1855, with a population of 10,000. The selection of Ottawa as the capital of Canada in 1857 was the major catalyst in the subsequent development of the city.

2.3 Nepean Township

Two years after the 1791 division of the Province of Quebec into Upper and Lower Canada, John Stegman, the Deputy Surveyor for the Province of Upper Canada, undertook an initial survey of four townships (Nepean, North Gower, Osgoode and Gloucester) straddling the Rideau River near its junction with the Ottawa River. This survey was undertaken in conjunction with Lieutenant Governor of the Province of Upper Canada John Graves Simcoe's proclamation aimed at attracting new settlers to the region.

John Stegman's survey of Nepean Township was completed in anticipation of 143 settlers arriving in the area lead by George Hamilton, an Irish veteran of the Revolutionary War (Elliott, 1991). Unfortunately though, this first wave of settlers never materialized and the government revoked Hamilton's grant soon after. Those few who did eventually arrive to Nepean found the land to be without any roads and so remote from any settlement that they quickly left the area. By the early 1800s, the original Loyalist settler's children were coming of age and began to claim their inherited land grants. Between 1800 and 1812, Loyalist heirs received 200 grants in Nepean and another portion of the township was set aside for crown and clergy reserves (Elliott, 1991). The land grants did not immediately encourage settlement as the grant holders continued to live along the St. Lawrence and Lake Ontario waterfronts holding their lands in Nepean as investment properties. As such, these properties were the object of speculation and many of the grants were consolidated into the hands a few families. The largest landowners in Nepean during this period were the Fraser family who held 40 lots along the Rideau River in Nepean, including much of what was later to become Ottawa, by acquiring land through their Loyalist rights and then increasing their holdings with speculative purchases (Elliot, 1991).



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Despite the numerous land grants, Nepean remained largely an untamed wilderness until the end of the War of 1812. Following the war, a depression in Great Britain coupled with the lack of enthusiasm displayed during the war by the loyalists to take up arms to defend British North America from their neighbours to the south lead the Colonial Office to disband some units of the army in the colony. The Richmond military settlement in Goulbourn Township was founded under this directive and a road was cut through Nepean Township from the Ottawa River in the area now called Lebreton Flats to the new village site of Richmond on the Jock River (Elliott, 1991). This transportation route, known today as Richmond Road, is the oldest thoroughfare in Ottawa (Woods Jr, 1980) and became Bytown's first road into the hinterland (Taylor, 1986).

In 1833, a forced Road (Jockvale Road/Bren Maur Road) was built from Richmond Road through to Chapman's Mill and onto the Rideau River. A somewhat dispersed community developed around Chapman's Mill, spreading along the forced Road, which eventually became known as Jockvale (Elliott, 1991).

The construction of the Rideau Canal (1826 - 1832) accelerated settlement in Nepean Township and brought a large population of labourers to the area which necessitated infrastructure improvements as new roads were cut to facilitate construction activities. Bytown began to develop at the junction of the Rideau Canal and the Ottawa River. The influx of labourers increased the population of the township from 580 in 1827 to 2,758 just a year later. Much of this population was transient and left the area following the completion of the canal, although some stayed and established homesteads in the area. By 1832, the population of Nepean was sustained at 940, with many of these residents settling within the burgeoning Bytown settlement (Elliott, 1991).

The Jockvale area remained a small rural settlement during this period with many of the surrounding residents developing agricultural and animal husbandry enterprises. The development of reliable transportation routes provided the ability for rural settlers to travel to Bytown to sell their produce at local markets.

2.4 General Property History

The study area is located within the general vicinity of the former historic settlement of Jockvale, which shares its name with the Jock River located to the south of the study area. Among the aspiring enterprises within this small settlement was a cheese factory, blacksmith shop and a general store. By 1875, a post office had been established to serve the local residents (Walker and Walker, 1975).

Walling's 1863 map of Nepean Township shows Greenbank Road and Jockvale Roads as accessible transportation routes fronting the eastern and western boundaries of the study area, but does not indicate any settlement or structures within the subject property. The closest structure depicted on the 1863 map is located on the northern bank of the Jockvale River on the west side of Jockvale Road, approximately 130 metres from the southern boundary of the study area (Map 4, p.30).

Belden's 1879 map of Nepean Township also documents both Greenbank and Jockvale Roads respectively and also provides evidence that the only structure within 300 metres of the subject property is the same residence shown on the 1863 map, south of the study area on the northern bank of the Jock River. Although the subject property is shown to have been owned by Mr. D. Clocheare, there is no indication a structure had been established within the subject property by 1879 (Map 4, p.30).

Twentieth century aerial imagery provides additional evidence that no residential structures were located within the subject property, as it remained agricultural lands through to the mid-20th century (Map 5, p.31).



3.0 ARCHAEOLOGICAL CONTEXT

3.1 Subject Property Environment

The majority of the study area is situated within the Ottawa Valley Clay Plains (Map 6, p.32) which consists of clay plains interrupted by ridges of rock or sand (Chapman and Putnam, 1973). This region is characterized by generally low, level clay plains mixed with outcrops of bedrock and deposits of sand with a predominately flat, poorly drained topography. The eastern extent of the subject property extends into a drumlinized till plain which was formed under a moving glacier producing till within streamlined contours and drumlin features producing ridges across the topography.

The surficial geology within the study area consists of till which is characterized by stone-poor sandy silt to silty sand textured till on Paleozoic terrain (Map 7, p.33).

The soil matrix within the western portion of the subject property consists of Grenville Loam, which is comprised of brown loam over light brown and dark brown loam over greyish till. This soil is relatively stoney, strongly undulating and provides good drainage. The eastern portion of the study area is comprised of Rideau Clay which is generally derived of light brown and grey clay over grey-brown heavy clay (Marshall *et al*, 1979) (Map 8, p.34).

The study area lies within the Upper St. Lawrence sub-region of the Great Lakes/St. Lawrence Forest Region (Rowe, 1977). The trees characteristic of this sub-region include sugar maple, beech, red maple, yellow birch, basswood, white ash, largetooth aspen, red oak and burr oak. Coniferous species include eastern hemlock, eastern white pine, white spruce and balsam fir. Poorly drained areas typically contain swamp adapted hardwoods, black spruce or white cedar (Rowe, 1977). Settlement and agricultural development have left little, if any, of the original forest cover intact.

The Jock River is located less than 300 metres from the southern limit of the study area and provides the primary drainage for the landscape, with the surrounding topography sloping towards the river from the study area (Map 3, p.29). The Jock River is a tributary of the Rideau River which is located approximately 2.3 kilometers east of the study area.

3.2 Previous Archaeological Investigations

Three prior archaeological investigations have been completed within 50 metres of the study area detailed in this report, with a fourth located within 250 metres of the study area (Map 9, p.35).

The first and second archaeological assessments completed within 50 metres of the current study area were undertaken as part of the South Nepean Collector (SNC) project completed in 2015. The Stage 1 assessment for the SNC project corridor extended through Lots 12 and 13, Concession 2 (Rideau Front) and identified the potential for the archaeological resources within the corresponding portion of the current study and recommended a Stage 2 archaeological assessment (Golder, 2015a).

The Stage 2 assessment for the SNC project was completed in November 2015 and included a segment within the southern extent of the current study area. Although historic material was identified within the SNC corridor, it was outside the limit of the current study area and was deemed insufficient to recommend any additional archaeological investigations. The Stage 2 archaeological report was reviewed by the MTCS and accepted into the public registry on 2 February, 2016, with the recommendation that no additional archaeological investigations were required for the SNC Stage 2 study area (Golder, 2015b).



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The third archaeological assessment completed within 50 metres of the subject property is a Stage 1 and 2 investigation undertaken for the Burnett Lands residential development on the west side of Greenbank Road. This assessment identified the potential for archaeological resources within the entire study area, with a quartzite expedient knife being recovered during the Stage 2 field investigation. The find location was registered as the Jock River 1 Site (BhFw-121) (Golder, 2017a) and subjected to a Stage 3 investigation which did not identify any additional archaeological resources and no additional archaeological investigations were recommended (Golder, 2017b).

The fourth project completed within 250 metres of the study area was a Stage 1 and 2 archaeological assessment which was completed within the eastern part of Lot 14, Concession 3 (Rideau Front), northwest of the subject property (Patterson, 2013a). This Stage 1 and 2 assessment resulted in the discovery and registration of the Hoolahan Farmhouse Site (BhFw-30), which was subsequently subjected to a Stage 3 archaeological investigation (Patterson, 2013b). Following the completion of the Stage 3 assessment, the entire Stage 1 & 2 study area shown on Map 9 (p.35) was recommended to be cleared for development to the Ontario Ministry of Tourism, Culture and Sport.

3.3 Known Archaeological Sites

The primary source of information regarding known archaeological sites within the province is the Ontario Ministry of Tourism, Culture and Sport's archaeological site database (ASDB). This database contains archaeological sites registered according to the Borden system. Under the Borden system, Canada is divided into grid blocks based on latitude and longitude. A Borden Block is approximately 13 kilometres east to west and approximately 18.5 kilometres north to south. Each Borden Block is referenced by a four-letter designator and sites within a block are numbered sequentially as they are found. The study area under review is located in Borden Block BhFw.

Three registered archaeological sites are known to exist within one kilometre of the study area.

The Jock River 1 Site (BhFw-121) was identified during the Stage 1 and 2 archaeological assessment for the proposed Burnett Lands residential development on the west side of Greenbank Road within Lot 13, Concession 3, Nepean Township. The site was discovered approximately 285 metres from the current study area and consisted of one quartzite expedient knife (Golder, 2017a). A Stage 3 archaeological investigation was conducted at the site, although no additional archaeological resources were identified and no additional archaeological assessment was recommended (Golder, 2017b).

The Hoolahan Farmhouse Site (BhFw-30) is located on the eastern portion of Concession 3, Lot 14, and situated approximately 450 metres northwest of the study area. This site was identified during a Stage 2 field assessment (Patterson, 2013a) and was subjected to a Stage 3 investigation (Patterson, 2013b). The artifact assemblage suggests the site dates to the mid to late 19th century and no additional work was recommended following the Stage 3 assessment.

Situated approximately 550 meters southeast of the study area on Concession 2, Lot 11, is the McGuire Site (BhFw-17). This site, suggested to date between the late 1840s and late 1870s, was identified during a Stage 2 field assessment and included an artifact assemblage containing ceramics and glass collected over an area measuring 35 meters by 15 meters (ASI, 2007). Additional cultural heritage value or interest (CHVI) was identified and a Stage 3 has been completed for the site (Golder, 2009). No additional archaeological investigations were recommended and a residential subdivision development has since been constructed within the location of this site.



3.4 Archaeological Potential

A number of factors are employed when determining archaeological potential within a particular area. In addition to the proximity to known archaeological sites, factors for determining Aboriginal and historical archaeological potential include watershed area (primary and secondary watercourses), distance from water, drainage patterns, identification of past water sources (beach ridges, river beds, relic creeks, ancient shorelines, etc.), elevated topography, identification of significant physiological and geological features (knolls, drumlins, eskers, plateaus, etc.), soil geomorphology, distinctive land formations (mounds, caverns, waterfalls, peninsulas, etc.), known burials sites and cemeteries, biological features (distribution of food and animal resources before colonization), features identifying early Euro-Canadian settlements (monuments, structures, etc.), historic transportation routes (historic roads, trails, portages, rail corridors, etc.) and properties designated and/or listed under the *Ontario Heritage Act*. Local knowledge from Aboriginal communities and heritage organizations, as well as consultation of available historical and archaeological literature and cartographic resources, aids in the identification of features possessing archaeological potential.

These criteria are based on the Ontario Ministry of Tourism, Culture and Sports' *Standards and Guidelines for Consultant Archaeologists* (2011) and were used to identify archaeological potential for the study area under investigation. Three main triggers for establishing archaeological potential were identified for the study area including all property within 300 metres proximity of the Jockvale River, the area located within 100 metres of Greenbank and Jockvale Roads, both identified as historic transportation routes as depicted on 19th century maps (Map 4, p.30) and the portion of the study area situated within 300 metres of the historic structure on the north bank of the Jock River located approximately 200 metres from the southern boundary of the study area (Map 4, p.30). The proximity of the Jock River 1 Site also triggers archaeological potential for all property within 300 metres of the registered archaeological site. Archaeological potential for the study area was also identified in the City of Ottawa Archaeological Master Plan (ASI & GII, 1999).

Based on these archaeological potential attributes, the entire study area is considered to possess the potential for archaeological resources (Map 10, p.36). This assessment also conforms to the City of Ottawa archaeological master plan which has also identified the entire study area as possessing archaeological potential (ASI & GII, 1999).

Factors removing archaeological potential within the study area include landscapes previously assessed archaeologically and cleared by the Ontario Ministry of Tourism, Culture and Sport, which includes a portion of the southern extent of the current subject property (Map 10, p.36).



4.0 STAGE 2 ARCHAEOLOGICAL ASSESSMENT

4.1 Stage 2 Field Methodology

Due to the identified archaeological potential for portions of the study area, a Stage 2 archaeological investigation was completed over two days on 26 July and 8 August, 2017.

Based on the landscape of the Stage 2 study area it was divided into two segments identified as operations, with Operation 1 representing the area surveyed with hand excavated test pits and Operation 2 correlating to the area assessed during the pedestrian survey (Map 11, p.37). Of the 5.55 ha. overall study area, 0.43 ha (8%) had been previously assessed under PIF P1077-0010-2015 and cleared by the MTCS, with 1.97 ha (35%) subjected to hand excavated test pits (Operation 1) and 3.15 ha (57%) tested by pedestrian survey (Operation 2).

The subsurface archaeological investigation in Operation 1 consisted of hand excavated test pits placed at 5 metre intervals and dug at least 30 centimetres in diameter and at least 5 centimetres into the sterile subsoil (Image 1, p.22). Each individual test pit was examined for stratigraphy, cultural features and evidence of fill or previous disturbances and backfilled upon completion. No test pits were located within 1 metre of built structures as no built structures were present within the study area.

The pedestrian survey within Operation 2 consisted of field walking former agricultural fields that had been ploughed, disked and sufficiently weathered prior to completion of the surface survey. Ploughing was deep enough to provide representative soil exposure, but was not deeper than previous ploughing. At least 80% of the ploughed surface was visible during the pedestrian survey (Image 2, p.22) with field transects completed at a maximum of 5 metre intervals.

A field log was maintained for the duration of the Stage 2 investigation detailing pertinent information and digital photographs were taken of the tested areas, general field conditions, specific representative test pits and general landscape and topography. The location and direction of representative photos collected during the Stage 2 field investigation is provided on Map 12 (p.38).

A Garmin GPSMap 64s handheld unit was used to record spatial data of archaeological interest and photographic locations. The study area boundaries for the Stage 2 project area were also uploaded to the Garmin GPSMap 64s handheld unit to ensure the entire Stage 2 study area was tested.

The Garmin GPSMap 64s handheld unit has a built-in 12 channel high sensitivity receiver (WAAS-enabled) capable of providing solutions utilizing the GPS and GLONASS satellite constellations. The accuracy of this unit is <10 meters 95% typical. Observations recorded during the Stage 2 archaeological assessment were typically accurate to five metres or less. All observations collected with the Garmin GPSMap 64s referenced the UTM coordinate system (Zone 18) and the NAD83 datum and recorded as six digit easting and seven digit northing coordinates.

The Stage 2 archaeological investigation was undertaken over two days on 26 July and 8 August, 2017. All fieldwork was completed under favourable weather conditions that did not hinder the archaeological fieldwork or recording of archaeological deposits. The weather conditions for each field day are provided in Table 1 below.



STAGE 1 AND 2 ARCHAEOLOGICAL ASSESSMENT 3311 GREENBANK ROAD

Table 1: Weather Conditions during Stage 2 Archaeological Assessment.

Date of Stage 2 Fieldwork	Weather Conditions in Field	Temperature High (°C)
26 July 2017	Sun with Cloud	26
8 August 2017	Sun with Cloud	23

Permission to access the site was provided by Catherine Tremblay, Minto Communities Canada, with no restrictions or limitations.



5.0 RECORD OF FINDS

The Stage 2 archaeological fieldwork was conducted employing methods described in Section 4.1 of this report. An inventory of the documentary record generated from the fieldwork is provided in Table 2, and the results of the Stage 2 archaeological fieldwork are described below.

Table 2: Inventory of Documentary Record.

Document Type	Current Location of Document	Additional Comments
Field Notes	Golder Associates Ltd. Ottawa Office	Original field note book with photocopies in project file.
Maps provided by Client	Golder Associates Ltd. Ottawa Office	Stored in the project file.
Digital Photographs	Golder Associates Ltd. Ottawa Office	Stored electronically in the project file.
GPS Data	Golder Associates Ltd. Ottawa Office	Stored electronically in the project file.

Based on the existing landscape, the Stage 2 study area was divided into two operations defined by landscape environment and method of archaeological testing (Map 11, p.37).

5.1 Operation 1

Survey Method: Shovel test pits at 5 metre intervals

Size of Area Surveyed: 1.97 ha. (Map 11, p.37)

Number of Artifacts: 0

Date Tested: 26 July 2017

Weather Conditions: Sun with cloud, 26°C

Operation 1 correlated to the portion of the Stage 2 study area that was archaeologically investigated with test pits hand excavated at 5 metre intervals to a depth of at least 5 centimetres into sterile subsoil. The landscape within Operation 1 consisted of wood lot (Image 3, p.23), a fallow area with trees and shrubs that has not been previously ploughed and is not currently ploughable (Image 4, p.23) and a small sloped grassed area that had not been previously ploughed or utilized for agricultural production (Image 1, p.22).

The soil matrix within the sloped grass area produced evidence of previous disturbance, likely from landscaping activities associated with the construction of the school to the immediate north of this area. Test pits were hand excavated to an average depth of 65 centimetres, with Lot 1 consisting of moderately compact brown sandy loam with root inclusions and a thickness of 10 centimetres situated over a mottled brown sandy loam with a silt component and pebble inclusions (Lot 2) (Image 5, p.24).

The stratigraphy within the remaining portions of Operation 1 produced a similar soil complex, with moderately compact medium brown sandy loam with roots inclusions and an average thickness of 15 centimetres (Lot 1) over reddish brown silty sand sterile subsoil with root inclusions (Lot 2) (Images 6 and 7, pp.24 and 25).

No artifacts or archaeologically significant features were identified during the Stage 2 field investigation in Operation 1.



5.2 Operation 2

Survey Method: Pedestrian survey at 5 metre intervals

Size of Area Surveyed: 3.15 ha. (Map 11, p.37)

Number of Artifacts: 0

Date Tested: 8 August, 2017

Weather Conditions: Sun with cloud, 23°C

Operation 2 correlated to the portion of the Stage 2 study area that was archaeologically investigated by pedestrian survey. This portion of the study area was ploughed, disked and sufficiently weathered by rainfall prior to the archaeological survey. Surface visibility was greater than 80% during the field assessment, with the soils consisting of brown sandy loam and contained approximately 5-10% inclusions of small rocks and pebbles (Image 8, p.25).

No artifacts or archaeologically significant features were identified during the Stage 2 field investigation in Operation 2.



6.0 ANALYSIS AND CONCLUSIONS

On behalf of Minto Communities Canada ("Minto"), Golder Associates completed a Stage 1 and 2 archaeological assessment for the 5.55 hectare property located at 3311 Greenbank Road. The subject property is located within part of Lots 12 and 13, Concession 2 (Rideau Front), Nepean Township, Carleton County, City of Ottawa.

The principal objectives of this assessment were to identify known archaeological resources on and within the vicinity of the study area, to assess the archaeological potential of the subject property under investigation, to test the study area for archaeologically significant resources, to determine whether any identified archaeological resources required further assessment (e.g. Stage 3) and to recommend appropriate Stage 3 archaeological assessment strategies if significant archaeological resources were identified.

The Stage 2 Archaeological Investigation was completed over two days on 26 July and 8 August, 2017. The study area was divided into two separate Operations, with Operation 1 subjected to test pits hand excavated at 5 metre intervals and Operation 2 archaeologically investigated by pedestrian surface survey.

No artifacts or archaeologically significant features were identified during the Stage 2 field investigation within the study area.



7.0 RECOMMENDATIONS

This Stage 1 and 2 archaeological assessment has provided the basis for the following recommendations:

- 1) Since the Stage 2 archaeological field investigation did not identify any archaeological resources of cultural heritage value or interest within the study area, it is recommended that the Ontario Ministry of Tourism, Culture and Sport issue a letter concurring that no additional archaeological investigations are required for the study area detailed on Map 2 (p.28); and,
- 2) Should future development, or any associated construction disturbance activities, extend beyond the boundary of the study area detailed in this report, additional archaeological investigations may be required based on the triggers identifying archaeological potential of the general vicinity detailed in Section 3.4 of this report.

This report is submitted to the Ministry of Tourism, Culture and Sport as a condition of licensing in accordance with Part VI of the *Ontario Heritage Act*, R.S.O. 1990, c. 0.18. The report is reviewed to ensure that the licensed consultant archaeologist has met the terms and conditions of their archaeological license, and that the archaeological field work and report recommendations ensure the conservation, protection and preservation of the cultural heritage of Ontario.



8.0 ADVICE ON COMPLIANCE WITH LEGISLATION

This report is submitted to the Minister of Tourism and Culture as a condition of licensing 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.

It is an offence under Sections 48 and 69 of the *Ontario Heritage Act* for any party other than a licensed 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.

Should previously undocumented archaeological resources be discovered, they may be a new archaeological site and therefore subject 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 licensed consultant archaeologist to carry out archaeological fieldwork, in compliance with Section 48(1) of the Ontario Heritage Act. Archaeological sites recommended for further archaeological fieldwork or protection remains subject to Section 48 (1) of the *Ontario Heritage Act* and may not be altered, or have artifacts removed from them, except by a person holding an archaeological licence.

The Funeral, Burial and Cremation Services Act, 2002, S.O. 2002, c.33, requires that any person discovering or having knowledge of a burial site shall immediately notify the police or coroner. It is recommended that the Registrar of Cemeteries at the Ontario Ministry of Consumer Services is also immediately notified.



9.0 IMPORTANT INFORMATION AND LIMITATIONS OF THIS REPORT

Golder Associates Ltd. (Golder) has prepared this report in a manner consistent with that level of care and skill ordinarily exercised by members of the archaeological profession currently practicing under similar conditions in the jurisdiction in which the services are provided, subject to the time limits and physical constraints applicable to this report. No other warranty, expressed or implied, is made.

This report has been prepared for the specific site, design objective, developments and purpose described to Golder by Minto Communities Canada (the Client). The factual data, interpretations and recommendations pertain to a specific project as described in this report and are not applicable to any other project or site location.

The information, recommendations and opinions expressed in this report are for the sole benefit of the Client. No other party may use or rely on this report or any portion thereof without Golder's express written consent. If the report was prepared to be included for a specific permit application process, then upon the reasonable request of the client, Golder may authorize in writing the use of this report by the regulatory agency as an Approved User for the specific and identified purpose of the applicable permit review process. Any other use of this report by others is prohibited and is without responsibility to Golder. The report, all plans, data, drawings and other documents as well as all electronic media prepared by Golder are considered its professional work product and shall remain the copyright property of Golder, who authorizes only the Client and Approved Users to make copies of the report, but only in such quantities as are reasonably necessary for the use of the report by those parties. The Client and Approved Users may not give, lend, sell, or otherwise make available the report or any portion thereof to any other party without the express written permission of Golder. The Client acknowledges the electronic media is susceptible to unauthorized modification, deterioration and incompatibility and therefore the Client cannot rely upon the electronic media versions of Golder's report or other work products.

Unless otherwise stated, the suggestions, recommendations and opinions given in this report are intended only for the guidance of the Client in the design of the specific project.

Special risks occur whenever archaeological investigations are applied to identify subsurface conditions and even a comprehensive investigation, sampling and testing program may fail to detect all or certain archaeological resources. The sampling strategies incorporated in this study comply with those identified in the Ministry of Tourism and Culture's Standards and Guidelines for Consultant Archaeologists (2011).



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STAGE 1 AND 2 ARCHAEOLOGICAL ASSESSMENT 3311 GREENBANK ROAD

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11.0 IMAGES



STAGE 1 AND 2 ARCHAEOLOGICAL ASSESSMENT 3311 GREENBANK ROAD



Image 1: Archaeologist completing test pit survey within Operation 1, view west.



Image 2: Field conditions within Operation 2 showing greater than 80% visibility during pedestrian survey, view east.



Image 3: Archaeologists completing test pit survey within wood lot portion of Operation 2, view northeast.



Image 4: Archaeologists completing test pit survey within fallow unploughable area of Operation 2, view west.



STAGE 1 AND 2 ARCHAEOLOGICAL ASSESSMENT 3311 GREENBANK ROAD



Image 5: Representative test pit hand excavated within sloped grass area in Operation 1, view north.



Image 6: Representative test pit hand excavated within fallow unploughable area of Operation 2, view north.



STAGE 1 AND 2 ARCHAEOLOGICAL ASSESSMENT 3311 GREENBANK ROAD



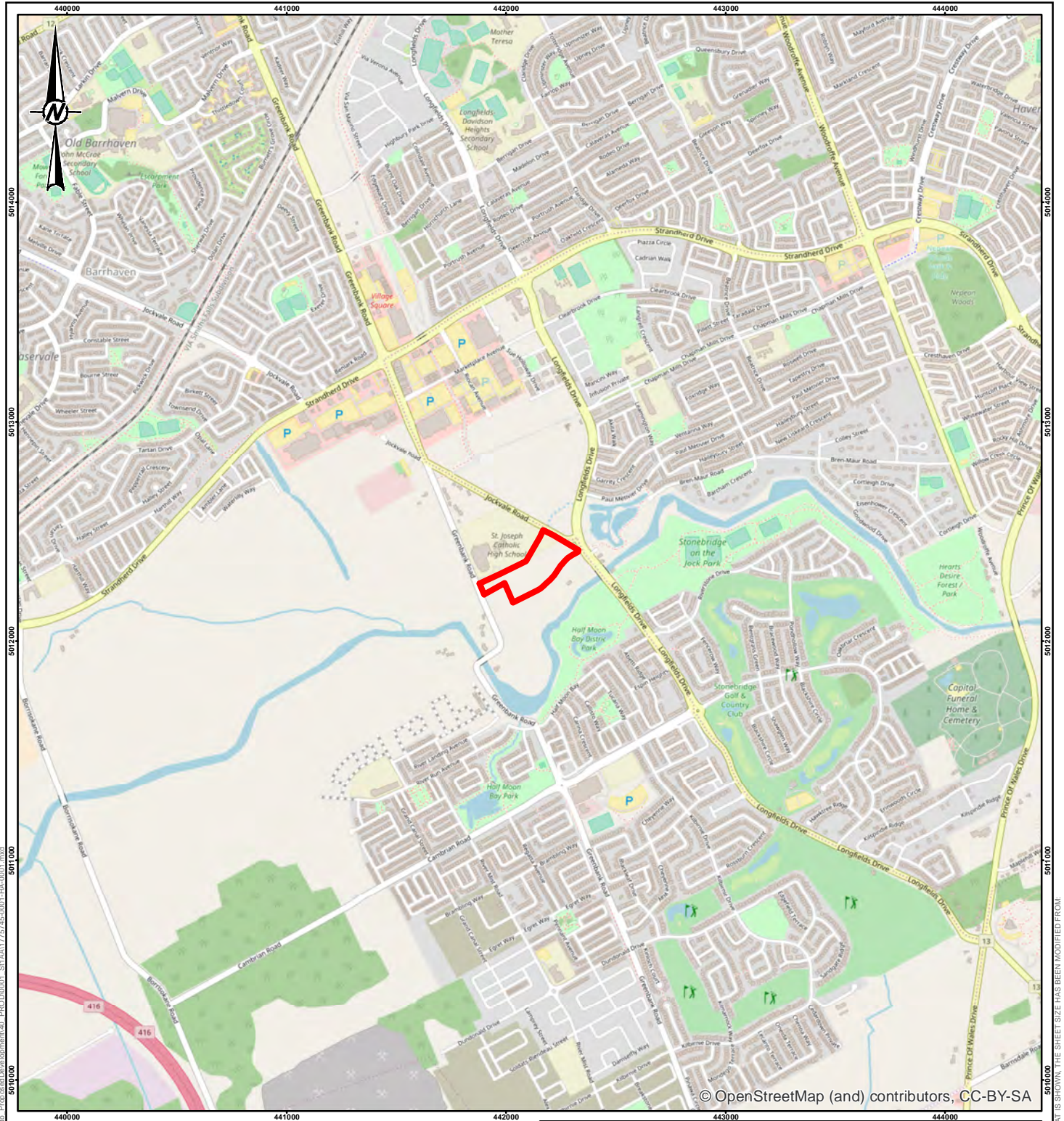
Image 7: Representative test pit hand excavated within wood lot portion of Operation 2, view north.



Image 8: Close up of soil matrix observed within Operation 2 during pedestrian survey, view northeast.




12.0 MAPS



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LEGEND

 STUDY AREA

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NOTE(S)

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REFERENCE(S)

1. PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83
COORDINATE SYSTEM: UTM ZONE 18 VERTICAL DATUM: CGVD28

CLIENT

MINTO COMMUNITIES - CANADA

PROJECT

STAGE 1 AND 2 ARCHAEOLOGICAL ASSESSMENT
3311 GREENBANK ROAD, NEPEAN TOWNSHIP, CITY OF
OTTAWA, ONTARIO

TITLE

KEY PLAN

CONSULTANT



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LEGEND

- ROADWAY
- WATERCOURSE
- WATERBODY
- WETLAND
- STUDY AREA

NOTE(S)

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CLIENT

MINTO COMMUNITIES - CANADA

PROJECT

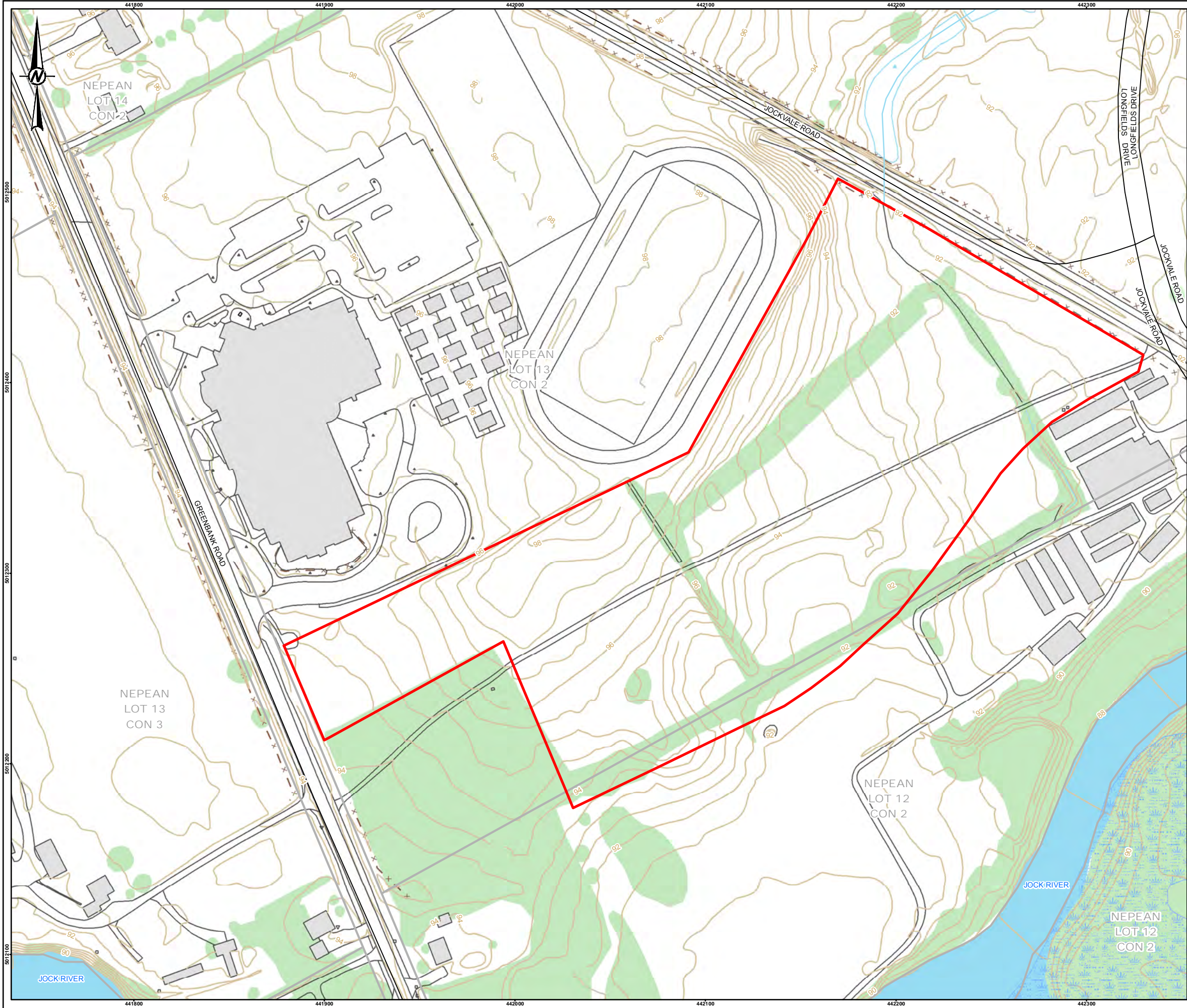
STAGE 1 AND 2 ARCHAEOLOGICAL ASSESSMENT
3311 GREENBANK ROAD, NEPEAN TOWNSHIP, CITY OF OTTAWA, ONTARIO

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LEGEND

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NOTE(S)

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PROJECT

STAGE 1 AND 2 ARCHAEOLOGICAL ASSESSMENT
3311 GREENBANK ROAD, NEPEAN TOWNSHIP, CITY OF OTTAWA, ONTARIO

TITLE

TOPOGRAPHIC MAP

CONSULTANT

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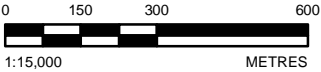
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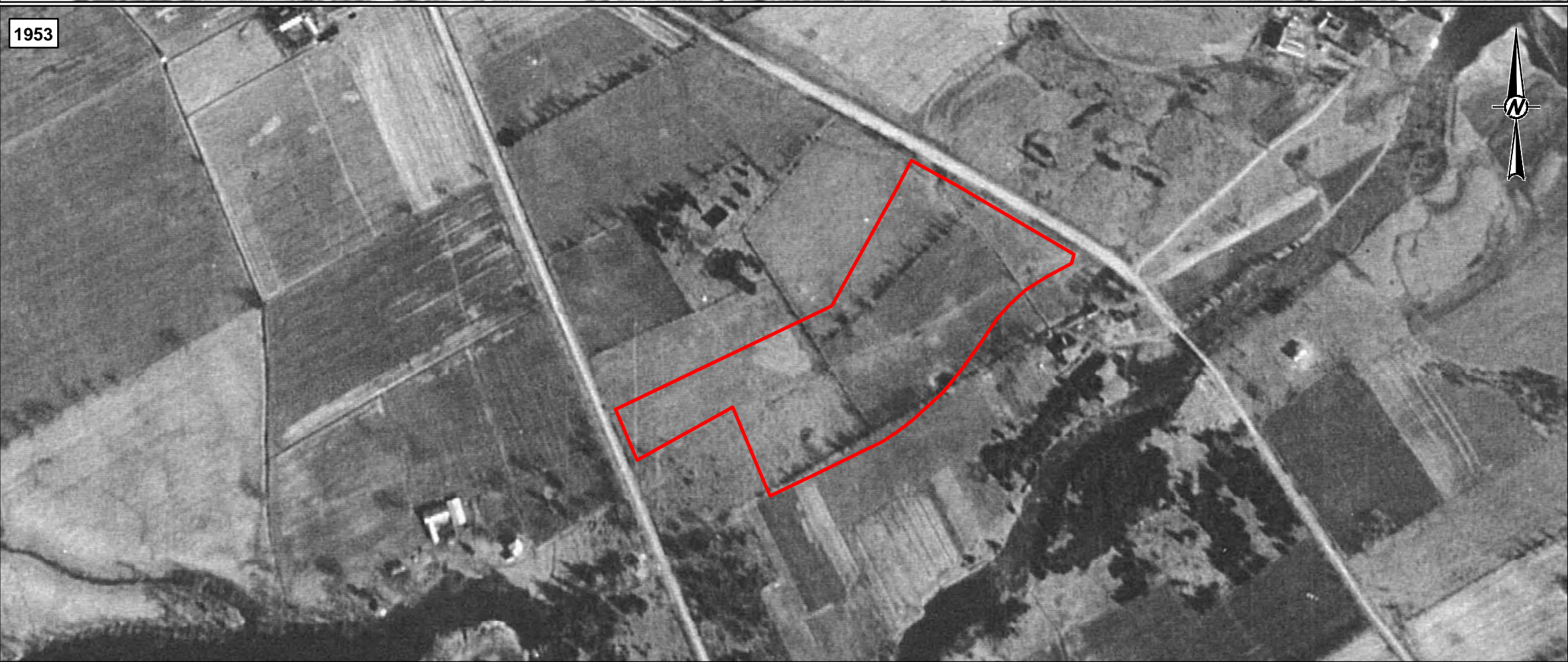
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STAGE 1 AND 2 ARCHAEOLOGICAL ASSESSMENT
3311 GREENBANK ROAD, NEPEAN TOWNSHIP, CITY OF OTTAWA, ONTARIO

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STUDY AREA

NOTE(S)

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REFERENCE(S)

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2. 1953 AIR PHOTO, NAPL, A13637-46.
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STAGE 1 AND 2 ARCHAEOLOGICAL ASSESSMENT
3311 GREENBANK ROAD, NEPEAN TOWNSHIP, CITY OF OTTAWA, ONTARIO

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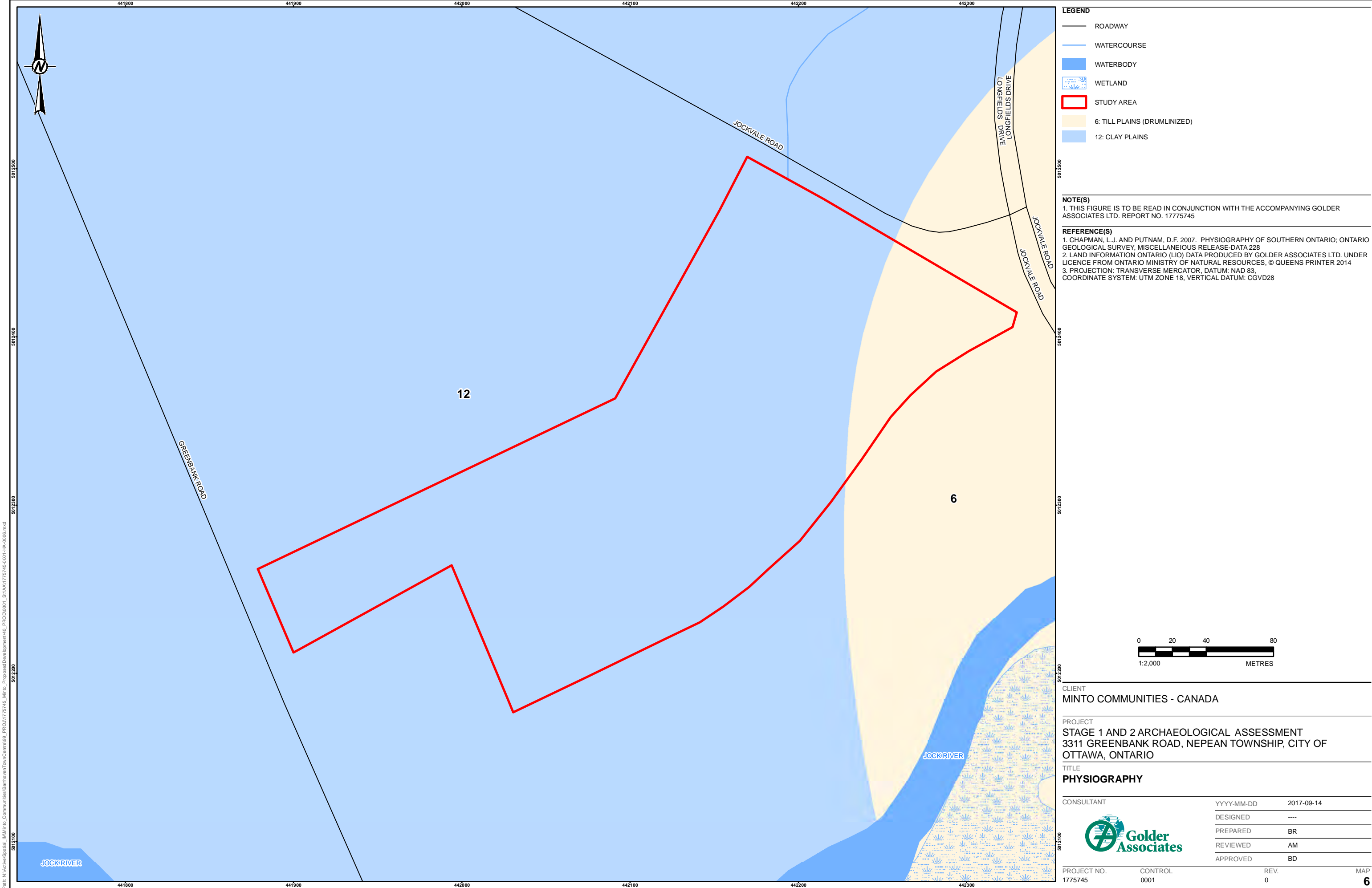
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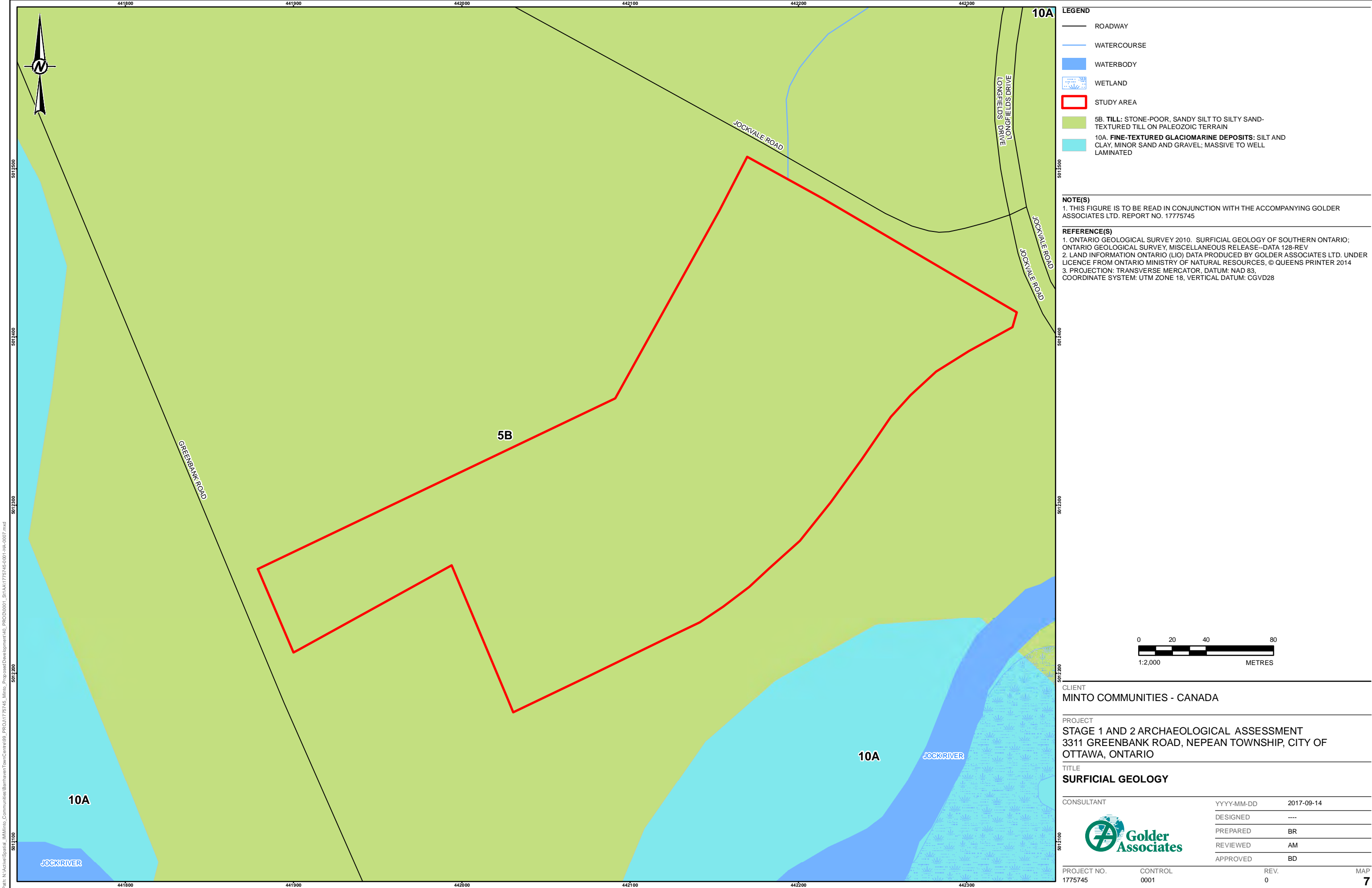
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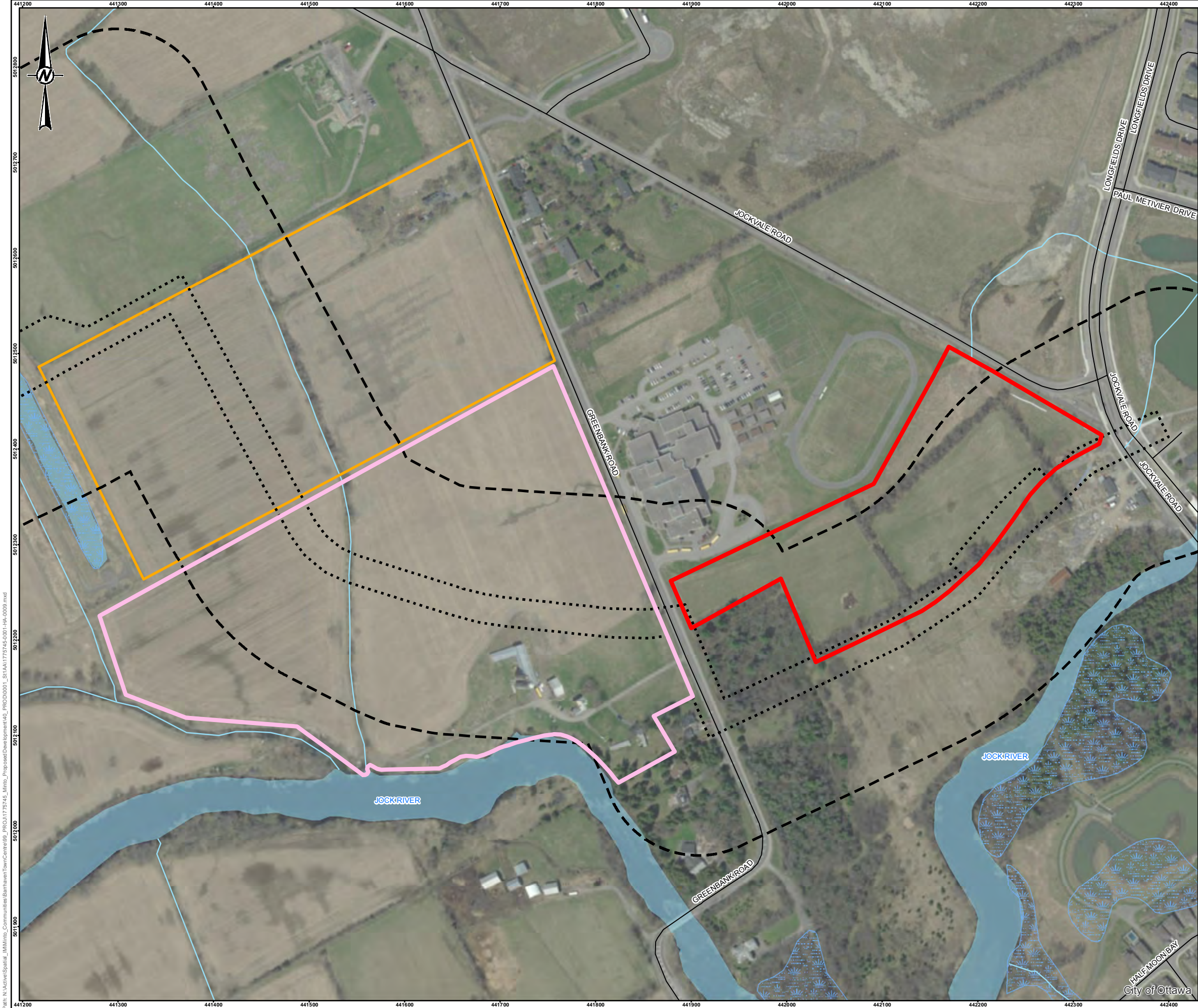
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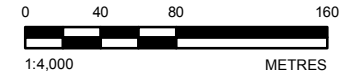
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- WATERBODY
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- STUDY AREA
- PREVIOUS ARCHAEOLOGICAL INVESTIGATIONS
 - PATTERSON 2013a
 - GOLDER 2015a
 - GOLDER 2015b
 - GOLDER 2016

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1. THIS FIGURE IS TO BE READ IN CONJUNCTION WITH THE ACCOMPANYING GOLDER ASSOCIATES LTD. REPORT NO. 17775745

REFERENCE(S)

- CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE – CITY OF OTTAWA
- LAND INFORMATION ONTARIO (LIO) DATA PRODUCED BY GOLDER ASSOCIATES LTD. UNDER LICENCE FROM ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2014
- PROJECTION: TRANSVERSE MERCATOR, DATUM: NAD 83, COORDINATE SYSTEM: UTM ZONE 18, VERTICAL DATUM: CGVD28



CLIENT
MINTO COMMUNITIES - CANADA

PROJECT
STAGE 1 AND 2 ARCHAEOLOGICAL ASSESSMENT
3311 GREENBANK ROAD, NEPEAN TOWNSHIP, CITY OF OTTAWA, ONTARIO

TITLE
PREVIOUS ARCHAEOLOGICAL INVESTIGATIONS

CONSULTANT	YYYY-MM-DD	2017-09-14
DESIGNED	---	
PREPARED	BR	
REVIEWED	AM	
APPROVED	BD	



PROJECT NO. 1775745	CONTROL 0001	REV. 0	MAP 9
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LEGEND

ROADWAY

WATERCOURSE

TOPOGRAPHIC CONTOUR, metres

WATERBODY

WETLAND

STUDY AREA

ARCHAEOLOGICAL POTENTIAL

PREVIOUSLY TESTED AND CLEARED BY MTCS (GOLDER, 2015b). NO ADDITIONAL
ARCHAEOLOGICAL ASSESSMENT REQUIRED.

NOTE(S)
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3. PROJECTION: TRANSVERSE MERCATOR, DATUM: NAD 83, COORDINATE SYSTEM: UTM ZONE 18, VERTICAL DATUM: CGVD28



CLIENT
MINTO COMMUNITIES - CANADA

PROJECT
STAGE 1 AND 2 ARCHAEOLOGICAL ASSESSMENT
3311 GREENBANK ROAD, NEPEAN TOWNSHIP, CITY OF OTTAWA, ONTARIO

TITLE
ARCHAEOLOGICAL POTENTIAL

CONSULTANT

YYYY-MM-DD
2017-09-14

DESIGNED

PREPARED

BR

REVIEWED

AM

APPROVED

BD

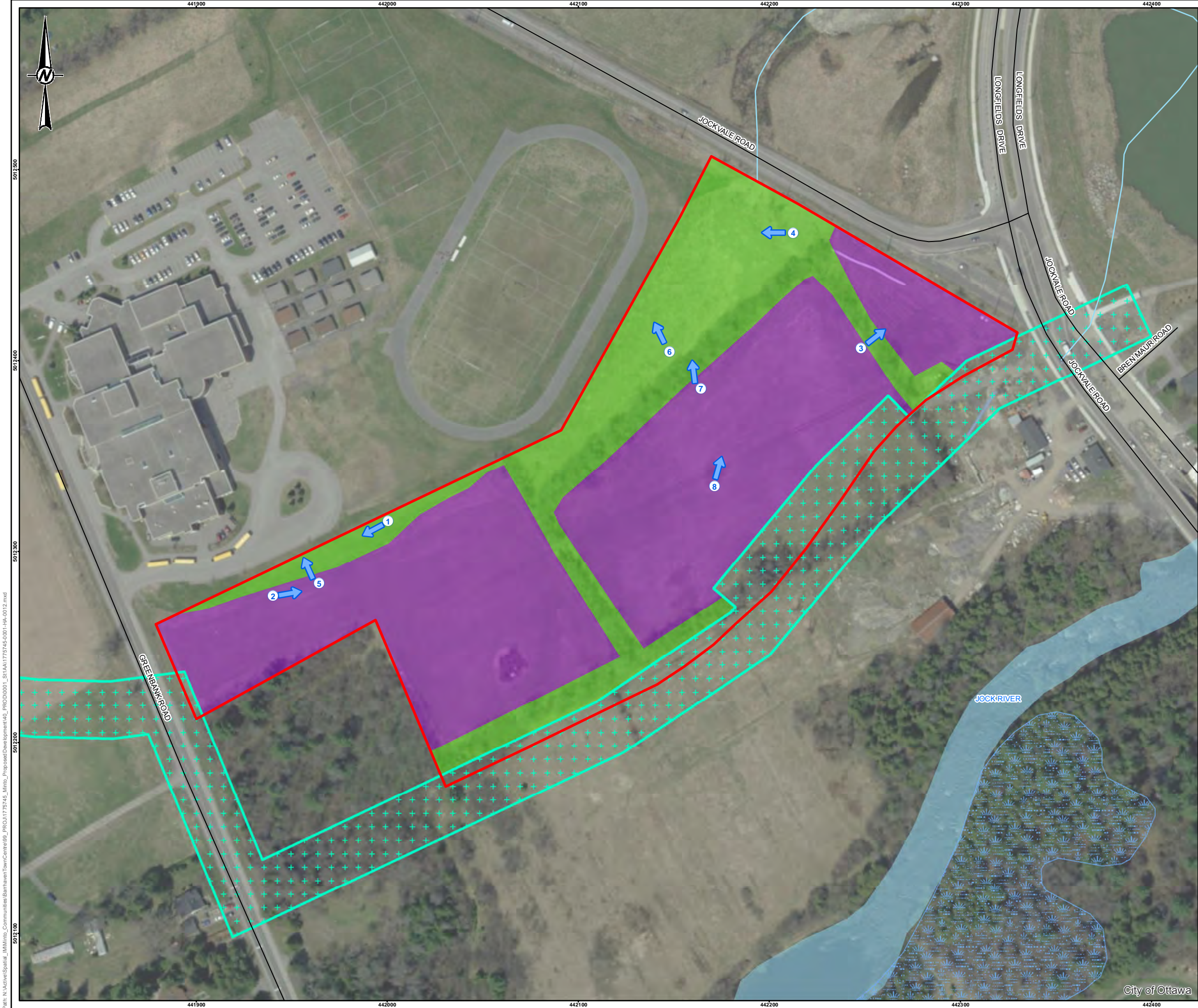
City of Ottawa

PROJECT NO.
17775745

CONTROL
0001

REV.
0

MAP
10



LEGEND

IMAGE LOCATION AND DIRECTION

ROADWAY

WATERCOURSE

WATERBODY

WETLAND

STUDY AREA

OPERATION 1: TEST PITTED AT 5 METRE INTERVALS

OPERATION 2: PEDESTRIAN SURVEY AT 5 METRE INTERVALS

PREVIOUSLY ASSESSED AND CLEARED BY MTCS

NOTE(S)

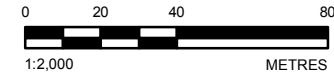
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REFERENCE(S)

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3. PROJECTION: TRANSVERSE MERCATOR, DATUM: NAD 83, COORDINATE SYSTEM: UTM ZONE 18, VERTICAL DATUM: CGVD28



CLIENT

MINTO COMMUNITIES - CANADA

PROJECT

STAGE 1 AND 2 ARCHAEOLOGICAL ASSESSMENT
3311 GREENBANK ROAD, NEPEAN TOWNSHIP, CITY OF OTTAWA, ONTARIO

TITLE

IMAGE LOCATIONS AND DIRECTIONS

CONSULTANT

YYYY-MM-DD

2017-09-14

DESIGNED

PREPARED

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REVIEWED

AM

APPROVED

BD

PROJECT NO.

1775745

CONTROL

0001

REV.

0

MAP

12



STAGE 1 AND 2 ARCHAEOLOGICAL ASSESSMENT 3311 GREENBANK ROAD

CLOSURE

We trust that this report meets your current needs. If you have any questions, or if we may be of further assistance, please contact the undersigned.

GOLDER ASSOCIATES LTD.

Aaron Mior, M.MA
Staff Archaeologist

Bradley Drouin, M.A.
Associate, Senior Archaeologist

AM/BD/ca

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