

## **Appendix B**

### **Archaeological Assessments**

**Stage 1 Archaeological Assessment  
Kingston Regional Biosolids and Biogas Facility  
Municipal Class Environmental Assessment  
City of Kingston  
Part of Lots 23–24, Concession 3  
Geographic Township of Kingston  
Former Frontenac County, Ontario**

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PIF #P007-1420-2022  
ARA File #2022-0071

**05/10/2023**

**Original Report**

## EXECUTIVE SUMMARY

Under a contract awarded in July 2022, Archaeological Research Associates Ltd. carried out a Stage 1 assessment of lands with the potential to be impacted by the Kingston Regional Biosolids and Biogas Facility in the City of Kingston, Ontario. Utilities Kingston completed a Master Plan for Enhanced Biosolids Management and Biogas Utilization in 2020, and it was recommended that an integrated biosolids and source separated organics processing facility be developed at a greenfield site. The opportunity site for consideration was located within the property boundary of Knox Farm. The assessment was carried out as one of the baseline studies to evaluate the suitability of Knox Farm in advance of formally initiating the Schedule 'C' Municipal Class Environmental Assessment in accordance with the *Environmental Assessment Act*. This report documents the background research and potential modelling involved in the investigation and presents conclusions and recommendations pertaining to archaeological concerns.

The Stage 1 assessment was conducted in October 2022 under Project Information Form #P007-1420-2020. The investigation encompassed the entire study area. Legal permission to enter and conduct all necessary fieldwork activities within the assessed lands was granted by the property owner (the City of Kingston). At the time of assessment, the study area consisted of access roads, a former dredge material storage site/dewatering facility, a snow management facility, several former agricultural fields and various overgrown and wooded areas.

The Stage 1 assessment determined that the study area comprises a mixture of areas of archaeological potential and areas of no archaeological potential. It is recommended that all areas of archaeological potential that could be impacted by the project be subject to a Stage 2 property assessment in accordance with Section 2.1 of the 2011 *Standards and Guidelines for Consultant Archaeologists*. The areas of no archaeological potential do not require any additional assessment.

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## **ABBREVIATIONS**

ARA – Archaeological Research Associates Ltd.  
MCM – Ministry of Citizenship and Multiculturalism  
PIF – Project Information Form  
S&Gs – Standards and Guidelines for Consultant Archaeologists



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## 1.0 PROJECT CONTEXT

### 1.1 Development Context

Under a contract awarded in July 2022, Archaeological Research Associates Ltd. (ARA) carried out a Stage 1 assessment of lands with the potential to be impacted by the Kingston Regional Biosolids and Biogas Facility in the City of Kingston, Ontario. Utilities Kingston completed a Master Plan for Enhanced Biosolids Management and Biogas Utilization in 2020, and it was recommended that an integrated biosolids and source separated organics processing facility be developed at a greenfield site. The opportunity site for consideration was located within the property boundary of Knox Farm. The assessment was carried out as one of the baseline studies to evaluate the suitability of Knox Farm in advance of formally initiating the Schedule 'C' Municipal Class Environmental Assessment in accordance with the *Environmental Assessment Act*. This report documents the background research and potential modelling involved in the investigation and presents conclusions and recommendations pertaining to archaeological concerns.

The study area consists of an irregularly shaped parcel of land with an area of 74.37 ha (Map 1). This parcel is generally bounded by Cataraqui Conservation offices to the north, Perth Road to the east, Highway 401 to the south and wooded lands to the west. In legal terms, the study area falls on part of Lots 23–24, Concession 3 in the Geographic Township of Kingston, former Frontenac County. These lands comprise part of the area subject to Crawford's Purchases in 1783, which involved agreements with the Mississauga to provide land to United Empire Loyalists and their Haudenosaunee allies (including the Mohawk) who fought on behalf of the British during the American Revolution. The descendants of those Mississauga now live at Alderville First Nation. Haudenosaunee presence along the north shore of Lake Ontario from the Pre-Contact period into the 1700s is clear, and this area also comprises part of the ancestral territory of the Huron-Wendat Nation. The northern part of the City of Kingston falls within the Algonquins of Ontario Settlement Area Boundary, but the Algonquins were not consulted about Crawford's Purchases.

The Stage 1 assessment was conducted in October 2022 under Project Information Form (PIF) #P007-1420-2022. The investigation encompassed the entire study area. Legal permission to enter and conduct all necessary fieldwork activities within the assessed lands was granted by the property owner (the City of Kingston). As set out in Section 1.0 of the 2011 *Standards and Guidelines for Consultant Archaeologists (S&Gs)*, the investigation was carried out to achieve the following objectives:

- Provide information about geography, history and current land conditions;
- Determine whether any previous archaeological fieldwork has been completed;
- Evaluate in detail the study area's archaeological potential; and
- Recommend appropriate strategies for Stage 2 assessment, if necessary.

The Ministry of Citizenship and Multiculturalism (MCM) is asked to review the results and recommendations presented herein and enter the report into the Ontario Public Register of Archaeological Reports. ARA was not directed to engage with any Indigenous groups over the course of the subject investigation, as engagement will occur as part of the greater project.



## 1.2 Historical Context

After a century of archaeological work in southern Ontario, scholarly understanding of the historical usage of the area has become very well-developed. With occupation beginning in the Palaeo period approximately 11,000 years ago, the greater vicinity of the study area comprises a complex chronology of Indigenous and Euro-Canadian histories. Section 1.2.1 summarizes the region's settlement history and Section 1.2.2 documents past and present land uses. No previous archaeological reports containing relevant background information were identified during the research component of the study.

### 1.2.1 Settlement History

#### 1.2.1.1 Pre-Contact

The Pre-Contact history of the region is lengthy and rich, and a variety of Indigenous groups inhabited the landscape. Archaeologists generally divide this vibrant history into three main periods: Palaeo, Archaic and Woodland. Each of these periods comprise a range of discrete sub-periods characterized by identifiable trends in material culture and settlement patterns, which are used to interpret past lifeways. The principal characteristics of these sub-periods are summarized in Table 1.

**Table 1: Pre-Contact Settlement History**  
(Wright 1972; Ellis and Ferris 1990; Warrick 2000; Munson and Jamieson 2013)

Sub-Period	Timeframe	Characteristics
Early Palaeo	9000–8400 BC	Gainey, Barnes and Crowfield traditions; Small bands; Mobile hunters and gatherers; Utilization of seasonal resources and large territories; Fluted points
Late Palaeo	8400–7500 BC	Holcombe, Hi-Lo and Lanceolate biface traditions; Continuing mobility; Campsite/Way-Station sites; Smaller territories are utilized; Non-fluted points
Early Archaic	7500–6000 BC	Side-Notched, Corner-Notched (Nettling, Thebes) and Bifurcate traditions; Growing diversity of stone tool types; Heavy woodworking tools appear (e.g., ground stone axes and chisels)
Middle Archaic	6000–2500 BC	Stemmed (Kirk, Starly/Neville), Brewerton Side- and Corner-Notched traditions; Reliance on local resources; Populations increasing; More ritual activities; Fully ground and polished tools; Net-sinkers common; Earliest copper tools
Late Archaic	2500–900 BC	Narrow Point (Lamoka), Broad Point (Genesee) and Small Point (Crawford Knoll) traditions; Less mobility; Use of fish-weirs; True cemeteries appear; Stone pipes emerge; Long-distance trade (marine shells and galena)
Early Woodland	900–400 BC	Meadowood tradition; Crude cord-roughened ceramics emerge; Meadowood cache blades and side-notched points; Bands of up to 35 people
Middle Woodland	400 BC–AD 600	Point Peninsula tradition; Vignette 2 ceramics appear; Small camp sites and seasonal village sites; Influences from northern Ontario and Hopewell area to the south; Hopewellian influence can be seen in continued use of burial mounds
Middle/Late Woodland Transition	AD 600–900	Gradual transition between Point Peninsula and later traditions; Princess Point tradition emerges elsewhere (i.e., in the vicinity of the Grand and Credit Rivers)
Late Woodland (Early)	AD 900–1300	Glen Meyer tradition; Settled village-life based on agriculture; Small villages (0.4 ha) with 75–200 people and 4–5 longhouses; Semi-permanent settlements
Late Woodland (Middle)	AD 1300–1400	Uren and Middleport traditions; Classic longhouses emerge; Larger villages (1.2 ha) with up to 600 people; More permanent settlements (30 years)
Late Woodland (Late)	AD 1400–1600	Huron-Petun tradition; Globular-shaped ceramic vessels, ceramic pipes, bone/antler awls and beads, ground stone celts and adzes, chipped stone tools, and even rare copper objects; Large villages (often with palisades), temporary hunting and fishing camps, cabin sites and small hamlets; Territorial contraction in early 16 <sup>th</sup> century; Fur trade begins ca. 1580; European trade goods appear



Although Iroquoian-speaking populations tended to leave a much more obvious mark on the archaeological record and are therefore emphasized in the Late Woodland entries above, it must be understood that Algonquian-speaking populations also represented a significant presence in southern Ontario. Due to the sustainability of their lifeways, archaeological evidence directly associated with the Anishinaabeg remains elusive, particularly when compared to sites associated with the more sedentary agriculturalists. Many artifact scatters in southern Ontario were likely camps, chipping stations or processing areas associated with the more mobile Anishinaabeg, utilized during their travels along the local drainage basins while making use of seasonal resources. This part of southern Ontario represents the ancestral territory of various Indigenous groups, each with their own land use and settlement pattern tendencies.

### 1.2.1.2 Post-Contact

The arrival of European explorers and traders at the beginning of the 17<sup>th</sup> century triggered widespread shifts in Indigenous lifeways and set the stage for the ensuing Euro-Canadian settlement process. Documentation for this period is abundant, ranging from the first sketches of Upper Canada and the written accounts of early explorers to detailed township maps and lengthy histories. The Post-Contact period can be effectively discussed in terms of major historical events, and the principal characteristics associated with these events are summarized in Table 2.

**Table 2: Post-Contact Settlement History**  
(Smith 1846; Coyne 1895; Lajeunesse 1960; MSSSL 1971; Rollason 1982; Ellis and Ferris 1990; Surtees 1994; AO 2022)

Historical Event	Timeframe	Characteristics
Early Contact	Early 17 <sup>th</sup> century	Brûlé explores southern Ontario in 1610/11; Champlain travels through in 1613 and 1615/1616, making contact with a number of Indigenous groups (including the Algonquin, Huron-Wendat and other First Nations); European trade goods become increasingly common and begin to put pressure on traditional industries
Increased Contact and Conflict	Mid- to late 17 <sup>th</sup> century	Conflicts between various First Nations during the Beaver Wars result in numerous population shifts; European explorers continue to document the area, and many Indigenous groups trade directly with the French and English; 'The Great Peace of Montreal' treaty established between roughly 39 different First Nations and New France in 1701
Fur Trade Development	Late 17 <sup>th</sup> to mid-18 <sup>th</sup> century	Growth and spread of the fur trade; Fort Frontenac established on the Cataraqui River by Comte de Frontenac in 1673, but very little settlement took place outside of the compound; Peace between the French and English with the Treaty of Utrecht in 1713; Ethnogenesis of the Métis; Hostilities between French and British lead to the Seven Years' War in 1754; French surrender in 1760
British Control	Mid-18 <sup>th</sup> century	<i>Royal Proclamation</i> of 1763 recognizes the title of the First Nations to the land; Numerous treaties subsequently arranged by the Crown; First land cession under the new protocols is the Seneca surrender of the west side of the Niagara River in 1764; The Niagara Purchase (Treaty 381) in 1781 included this area
Loyalist Influx	Late 18 <sup>th</sup> century	United Empire Loyalist influx after the American Revolutionary War (1775–1783); British develop interior communication routes and acquire additional lands; Crawford's Purchases completed in 1783 to provide land for the Loyalists; <i>Constitutional Act</i> of 1791 creates Upper and Lower Canada
County Development	Late 18 <sup>th</sup> to early 19 <sup>th</sup> century	Became part of Frontenac County in 1792; Townships of Kennebec, Olden and Oso added in 1821; Barrie, Clarendon and Palmerston in 1845 and Miller, North Canonto and South Canonto in 1860; United Counties of Frontenac, Lennox and Addington established after the abolition of the district system in 1849; Independent in 1865; Population and industry focused around Kingston

Historical Event	Timeframe	Characteristics
Township Formation	Late 18 <sup>th</sup> to early 19 <sup>th</sup> century	First survey of Upper St. Lawrence started in 1783, and by the next year Township No. 1 (King's Township/Township of Kingston) had been surveyed; Settlement started before surveying could be completed, and numerous boundary realignments occurred over the ensuing years; Loyalists were led to the township by Captain M. Grass, who was the second of twenty-five men to draw their lots; Tools, seed and a mill were at their disposal; Rideau Canal opened in 1832
Township Development	19 <sup>th</sup> century	Population reached 6,289 by 1846, which included the outskirts of the Town of Kingston; 19,283 ha taken up at that time, with 6,563 ha under cultivation; 2 grist mills and 3 saw mills in operation; Traversed by the Grand Trunk Railway (1856) and Kingston & Pembroke Railway (1875); Principal community was at Kingston, with smaller settlements at Cataraqui (Waterloo), Collins Bay, Elginburg, Glenburnie, Glenvale, Portsmouth, Sharpton and Westbrook

## 1.2.2 Past and Present Land Use

### 1.2.2.1 Overview

During Pre-Contact and Early Contact times, the vicinity of the study area would have comprised a mixture of coniferous trees, deciduous trees and open areas. Indigenous communities would have managed the landscape to some degree. During the late 18<sup>th</sup> century, Euro-Canadian settlers arrived in the area and began to clear the forests for agricultural and settlement purposes. The study area was located north of the historical limits of Kingston. The land use at the time of assessment can be classified as a mixture of infrastructural and open space.

### 1.2.2.2 Mapping and Imagery Analysis

In order to gain a general understanding of the study area's past land uses, two historical settlement maps, one topographic map and two aerial images were examined during the research component of the study. Specifically, the following resources were consulted:

- The *Map of the United Counties of Frontenac, Lennox and Addington, Canada West* (1860) (OHCMP 2019);
- The *Illustrated Historical Atlas of the Counties of Frontenac, Lennox and Addington, Ontario* (1878) (MU 2001);
- A topographic map from 1916 (OCUL 2022); and
- Aerial images from 1954 and 2011 (City of Kingston 2022; U of T 2022).

The limits of the study area are shown on georeferenced versions of the consulted historical resources in Map 2–Map 6.

The *Map of the United Counties of Frontenac, Lennox and Addington, Canada West* (1860) indicates that the study area traversed the northern part of the Rev. J. Brock's property on Lot 23 and the northern part of the Rev. P. Muir's holding on Lot 24 (Map 2). The associated farmhouses are illustrated to the south along what became John Counter Boulevard. The historical alignment of Perth Road is shown along the eastern edge of the study area, and an unnamed road abuts the northern edge. A stream and the Grand Trunk Railway traversed the southern half of each property.



The *Illustrated Historical Atlas of the Counties of Frontenac, Lennox and Addington, Ontario* (1878) shows that the Rev. James Brock continued to occupy Lot 23, while Lot 24 was held by the Muir Estate (Map 3). The earlier structure within Brock's holding is no longer shown, although the Muir farmhouse remains. A tollhouse is depicted at the intersection of John Counter Boulevard and Perth Road, and the Kingston & Pembroke Railway traversed both parcels.

The topographic map from 1916 indicates that some parts of the study area had been cleared, but the majority seems to have comprised deciduous forest or mixed forest (Map 4). One wooden house is shown within the eastern part of the study area. The aerial image from 1954 largely confirms this land use pattern, and the occupation in the east appears to have comprised several buildings (Map 5). Highway 401 to the south was under construction at this time.

By 2011, the northern part of Perth Road had been realigned and only a few fields in the east were still under cultivation (Map 6). The earlier structure appears to have been removed, and the southern part of the study area contained the access roads, cells and settling ponds associated with the former Cataraqui River dredge material storage site as well as the snow management facility.

### 1.3 Archaeological Context

The Stage 1 assessment (property inspection) was conducted on October 12, 2022 under PIF #P007-1420-2022. ARA utilized an Apple iPhone 11 with a built-in GPS/GNSS receiver during the investigation (UTM18/NAD83). The limits of the study area were confirmed using project-specific GIS data translated into GPS points for reference in the field, in combination with aerial imagery showing physical features in relation to the subject lands.

The archaeological context of any given study area must be informed by 1) the condition of the property as found (Section 1.3.1), 2) a summary of registered or known archaeological sites located within a minimum 1 km radius (Section 1.3.2) and 3) descriptions of previous archaeological fieldwork carried out within the limits of, or immediately adjacent to the property (Section 1.3.3).

#### 1.3.1 Condition of the Property

The study area lies within the Great Lakes–St. Lawrence forest region, which is a transitional zone between the southern deciduous forest and the northern boreal forest. This region extends along the St. Lawrence River across central Ontario to Lake Huron and west of Lake Superior along the border with Minnesota, and its southern portion extends into the more populated areas of Ontario. It is dominated by hardwood forests, although coniferous trees such as white pine, red pine, hemlock and white cedar commonly mix with deciduous broad-leaved species like yellow birch, sugar and red maples, basswood and red oak (MNRF 2023).

In terms of local physiography, the subject lands fall within the Napanee Plain. This region comprises a flat-to-undulating plain of limestone that has been largely stripped of overburden through glacial action. Centered on Napanee, this plain covers an area of approximately 1,812 km<sup>2</sup>. It is characterized by shallow soils and scattered drumlins, although soils increase in depth towards the north along the Dummer Moraines. The Salmon and Napanee River Valleys show the greatest relief within the region and contain a wide variety of alluvial deposits compared to the surrounding landscape (Chapman and Putnam 1984:186).



According to the Ontario Soil Survey, the study area consists primarily of Farmington loam, with small pockets of a Gananoque clay-Napanee clay soil complex in the northwest and southeast. The characteristics of these soil types are summarized in Table 3 (Gillespie et al. 1966).

**Table 3: Soil Types**

Soil Type	Great Group	Parent Materials	Drainage
Farmington loam	Brown Forest	Calcareous stony loam till	Well drained
Gananoque clay	Grey Wooded	Calcareous lacustrine clay	Well drained
Napanee clay	Humic Gleysol	Calcareous lacustrine clay	Poorly drained

The subject lands fall within the Little Cataraqui Creek drainage basin, which is under the jurisdiction of Cataraqui Conservation (CC 2022). Specifically, the study area is traversed by several unnamed wetlands and is located 70 m west of an unnamed stream.

At the time of assessment, the study area consisted of access roads, a former dredge material storage site/dewatering facility, a snow management facility, several former agricultural fields and various overgrown and wooded areas. Soil conditions were ideal for the activities conducted. No unusual physical features were encountered that affected the results of the Stage 1 assessment.

### **1.3.2 Registered or Known Archaeological Sites**

The Ontario Archaeological Sites Database and the Ontario Public Register of Archaeological Reports were consulted to determine whether any registered or known archaeological resources occur within a 1 km radius of the study area. The available search facility returned one registered site located within at least a 1 km radius (the facility returns sites in a rectangular area, rather than a radius, potentially resulting in returns beyond the specified distance). No unregistered sites were identified within a 1 km radius of the study area. The site is summarized in Table 4.

**Table 4: Registered or Known Archaeological Sites**

Borden No. / ID No.	Site Name / Identifier	Time Period	Affinity	Site Type	Distance from Study Area
BbGd-29	G. Orser	Post-Contact	Euro-Canadian	Homestead	300 m–1 km

This previously identified site is not located within or immediately adjacent to the subject lands; accordingly, it has no potential to traverse the study area. The site represents a distant archaeological resource located over 300 m away.

### **1.3.3 Previous Archaeological Work**

A review of available archaeological management plans and/or other archaeological potential mapping was undertaken to inform the assessment process. Specifically, the City of Kingston's *Planning for the Conservation of Archaeological Resources in the City of Kingston* was examined for information that could influence the choice of fieldwork techniques or recommendations. The associated mapping indicates that the majority of the study area has archaeological potential. Only

the vicinity of the dewatering facility and snow management facility in the south and a pocket of lands in the north-centre are shown as having no archaeological potential (Map 7).

Reports documenting assessments conducted within the subject lands and assessments that resulted in the discovery of sites within adjacent lands were also sought during the research component of the study. In order to ensure that all relevant past work was identified, an investigation was launched to identify reports involving assessments within 50 m of the study area. The investigation determined that there are no available reports documenting previous archaeological fieldwork within the specified distance.



## **2.0 STAGE 1 BACKGROUND STUDY**

### **2.1 Background**

The Stage 1 assessment involved background research to document the geography, history, previous archaeological fieldwork and current land condition of the study area. This desktop examination included research from archival sources, archaeological publications and online databases. It also included the analysis of a variety of historical maps and aerial imagery. The results of the research conducted for the background study are summarized below.

With occupation beginning approximately 11,000 years ago, the greater vicinity of the study area comprises a complex chronology of Pre-Contact and Post-Contact histories (Section 1.2.1). Artifacts associated with Palaeo, Archaic, Woodland and Early Contact traditions are well-attested in the City of Kingston, and Euro-Canadian archaeological sites dating to pre-1900 and post-1900 contexts are likewise common. The presence of one previously identified site in the surrounding area demonstrates the desirability of this locality for early settlement (Section 1.3.2). The investigation confirmed that this site does not extend into the subject lands. Background research did not identify any areas of previous assessment within the study area (Section 1.3.3).

The natural environment of the study area would have been attractive to both Indigenous and Euro-Canadian populations as a result of proximity to Little Cataraqui Creek. The areas of Farmington loam and Gananoque clay would have been ideal for agriculture, and the diverse local vegetation would also have encouraged settlement throughout Ontario's lengthy history. Euro-Canadian populations would have been particularly drawn to the adjacent historical thoroughfares.

In summary, the background study included an up-to-date listing of sites from the Ontario Archaeological Sites Database (within at least a 1 km radius), the consideration of previous local archaeological fieldwork (within at least a 50 m radius), the analysis of historical maps (at the most detailed scale available) and the study of aerial imagery. A review of an archaeological management plan was also carried out. ARA therefore confirms that the standards for background research set out in Section 1.1 of the 2011 S&Gs were met.

### **2.2 Field Methods (Property Inspection)**

In order to gain first-hand knowledge of the geography, topography and current condition of the study area, a property inspection was conducted on October 12, 2022. Environmental conditions were ideal during the inspection, with overcast skies, diffuse to bright lighting and a temperature of 19 °C. ARA therefore confirms that fieldwork was carried out under weather and lighting conditions that met the requirements set out in Section 1.2 Standard 2 of the 2011 S&Gs.

The study area was subjected to random spot-checking. The inspection confirmed that all surficial features of archaeological potential were present where they were previously identified and did not result in the identification of any additional features of archaeological potential not visible on mapping (e.g., relic water channels, patches of well-drained soils, etc.).



The inspection determined that parts of the study area were disturbed by past construction activities. No natural features (e.g., permanently wet lands, sloped lands, overgrown vegetation, heavier soils than expected, etc.) or significant built features (e.g., heritage structures, landscapes, plaques, monuments, cemeteries, etc.) that would affect assessment strategies were identified.

## 2.3 Analysis and Conclusions

In addition to relevant historical sources and the results of past archaeological assessments, the archaeological potential of a property can be assessed using its soils, hydrology and landforms as considerations. Section 1.3.1 of the 2011 *S&Gs* recognizes the following features or characteristics as indicators of archaeological potential: previously identified sites, water sources (past and present), elevated topography, pockets of well-drained sandy soil, distinctive land formations, resource areas, areas of Euro-Canadian settlement, early transportation routes, listed or designated properties, historic landmarks or sites, and areas that local histories or informants have identified with possible sites, events, activities or occupations.

The Stage 1 assessment resulted in the identification of several features of archaeological potential in the vicinity of the study area (Map 8). The closest and most relevant indicators of archaeological potential (i.e., those that would affect survey interval requirements) include multiple primary water sources (Little Cataraqui Creek, the Little Cataraqui Creek Reservoir, an unnamed stream and two historical watercourses), multiple secondary water sources (the Little Cataraqui Creek Wetland Complex and various unnamed wetlands), one physiographic landform (a bedrock escarpment), two historical roadways (Perth Road and an unnamed road) and seven historical structure localities (mid- to late 19<sup>th</sup>-century houses). Background research did not identify any features indicating that the study area has potential for deeply buried archaeological resources.

Although proximity to a feature of archaeological potential is a significant factor in the potential modelling process, current land conditions must also be considered. Section 1.3.2 of the 2011 *S&Gs* emphasizes that 1) quarrying, 2) major landscaping involving grading below topsoil, 3) building footprints and 4) sewage/infrastructure development can result in the removal of archaeological potential, and Section 2.1 states that 1) permanently wet areas, 2) exposed bedrock and 3) steep slopes (> 20°) in areas unlikely to contain pictographs or petroglyphs can also be evaluated as having no or low archaeological potential. Areas previously assessed and not recommended for further work also require no further assessment.

The City of Kingston's *Planning for the Conservation of Archaeological Resources in the City of Kingston* indicates that the majority of the study area has archaeological potential. Only the vicinity of the dewatering facility and snow management facility in the south and a pocket of lands in the north-centre are shown as having no archaeological potential (Map 7). However, this modelling was not the result of a property-specific assessment and therefore does not fully account for land-use history and current conditions. Background research did not identify any previously assessed areas of no further concern within the study area.

ARA's visual inspection, coupled with the analysis of historical sources and digital environmental data, resulted in the identification of several areas of no archaeological potential. Specifically, deep land alterations have resulted in the removal of archaeological potential from the access roads, berms and turnaround/work areas (Image 1–Image 4). These areas have clearly been impacted by

past earth-moving/construction activities, resulting in the disturbance of the original soils to a significant depth and severe damage to the integrity of any archaeological resources.

The remainder of the study area has potential for Indigenous and Euro-Canadian archaeological materials or requires test pit survey to confirm disturbance (Image 5–Image 10). The areas of archaeological potential include the former fields in the northeast and various grassed and wooded areas. It seems likely that the former dewatering facility, the snow management facility and other lands south of the access road were previously impacted, but this could not be verified based on the inspection alone. Accordingly, these lands have been categorized as areas of archaeological potential and must be empirically tested to confirm that archaeological potential has been removed.

In summary, the Stage 1 assessment determined that the study area comprises a mixture of areas of archaeological potential and areas of no archaeological potential. The potential modelling results are presented in Map 9. The study area is depicted as a layer in this map.



### **3.0 RECOMMENDATIONS**

The Stage 1 assessment determined that the study area comprises a mixture of areas of archaeological potential and areas of no archaeological potential. It is recommended that all areas of archaeological potential that could be impacted by the project be subject to a Stage 2 property assessment in accordance with Section 2.1 of the 2011 *S&Gs*. The areas of no archaeological potential do not require any additional assessment.

The former agricultural fields have been allowed to naturalize for an extended period of time, and ploughing does not appear to be possible or viable due to the level of brush and weed growth. Accordingly, the former fields, overgrown and wooded areas must be assessed using the test pit survey method. A survey interval of 5 m will be required due to the proximity of the lands to the identified features of archaeological potential. Given the likelihood that the former dewatering facility, the snow management facility and other lands south of the access road were previously impacted, a combination of visual inspection and test pit survey should be utilized to confirm the extent of disturbance in accordance with Section 2.1.8 of the 2011 *S&Gs*. This will allow for the empirical evaluation of the integrity of the soils and the depth of any impacts. If these areas are determined to have archaeological potential, then a test pit survey interval of 5 m must be maintained. Each test pit must be excavated into at least the first 5 cm of subsoil, and the resultant pits must be examined for stratigraphy, potential features and/or evidence of fill. The soil from each test pit must be screened through mesh with an aperture of no greater than 6 mm and examined for archaeological materials. If archaeological materials are encountered, all positive test pits must be documented, and intensification may be required.



## 4.0 ADVICE ON COMPLIANCE WITH LEGISLATION

Section 7.5.9 of the 2011 *S&Gs* requires that the following information be provided for the benefit of the proponent and approval authority in the land use planning and development process:

- This report is submitted to the Minister of Citizenship and Multiculturalism 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 MCM, 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 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 licensed consultant archaeologist to carry out archaeological fieldwork, in compliance with Section 48 (1) of the *Ontario Heritage Act*.
- The *Funeral, Burial and Cremation Services Act*, 2002, S.O. 2002, c.33 requires that any person discovering human remains must notify the police or coroner and the Registrar at the Ministry of Public and Business Service Delivery.

## 5.0 IMAGES



**Image 1: Disturbed Lands**  
(October 12, 2022; Northwest)



**Image 2: Disturbed Lands**  
(October 12, 2022; Facing Southeast)



**Image 3: Disturbed Lands**  
(October 12, 2022; Facing Northwest)



**Image 4: Disturbed Lands**  
(October 12, 2022; Facing Southeast)





**Image 5: Area of Potential**  
(October 12, 2022; Facing Northeast)



**Image 6: Area of Potential**  
(October 12, 2022; Facing North)



**Image 7: Area of Potential**  
(October 12, 2022; Facing West)



**Image 8: Area of Potential**  
(October 12, 2022; Facing South)



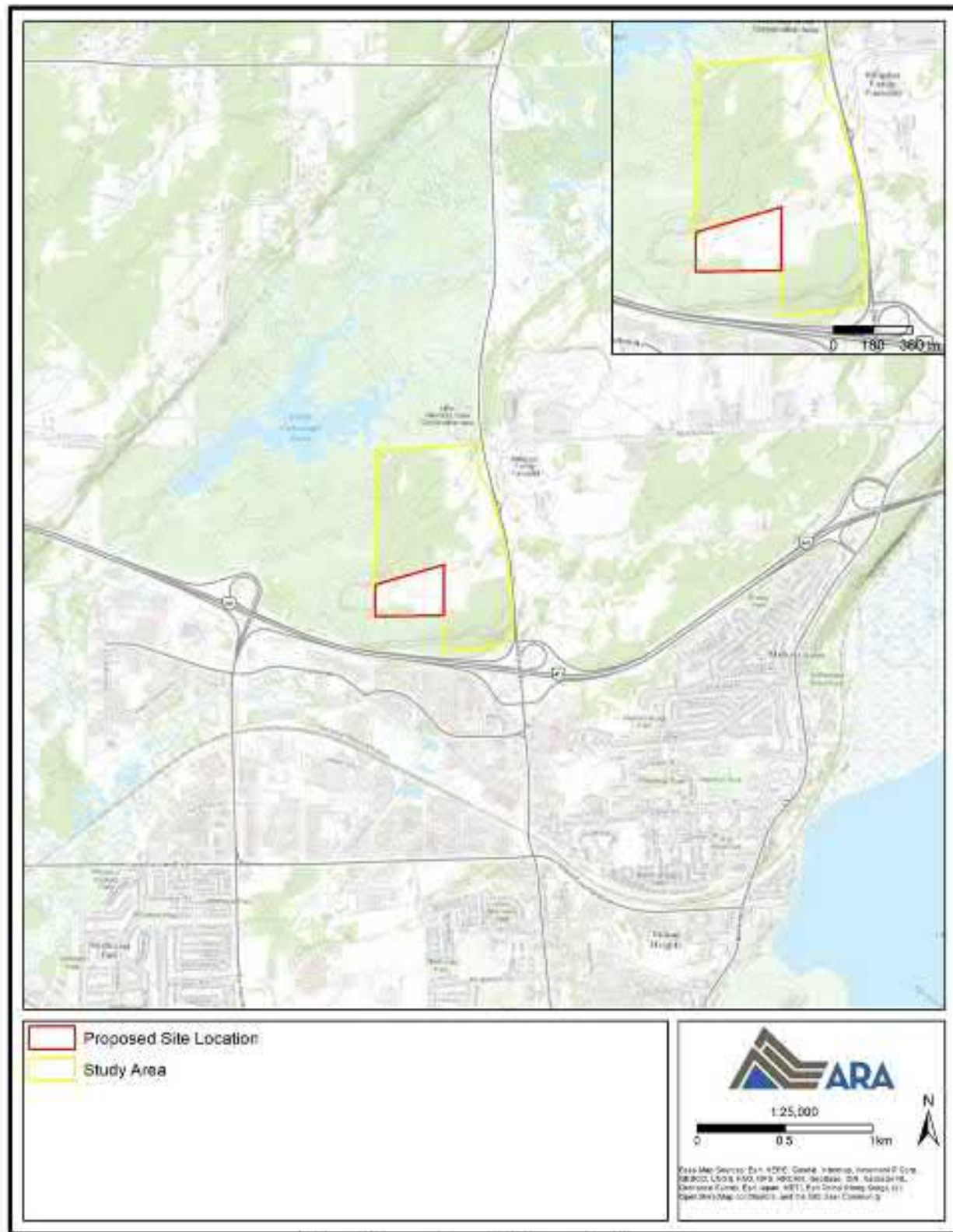
**Image 9: Area of Potential**  
(October 12, 2022; Facing West)

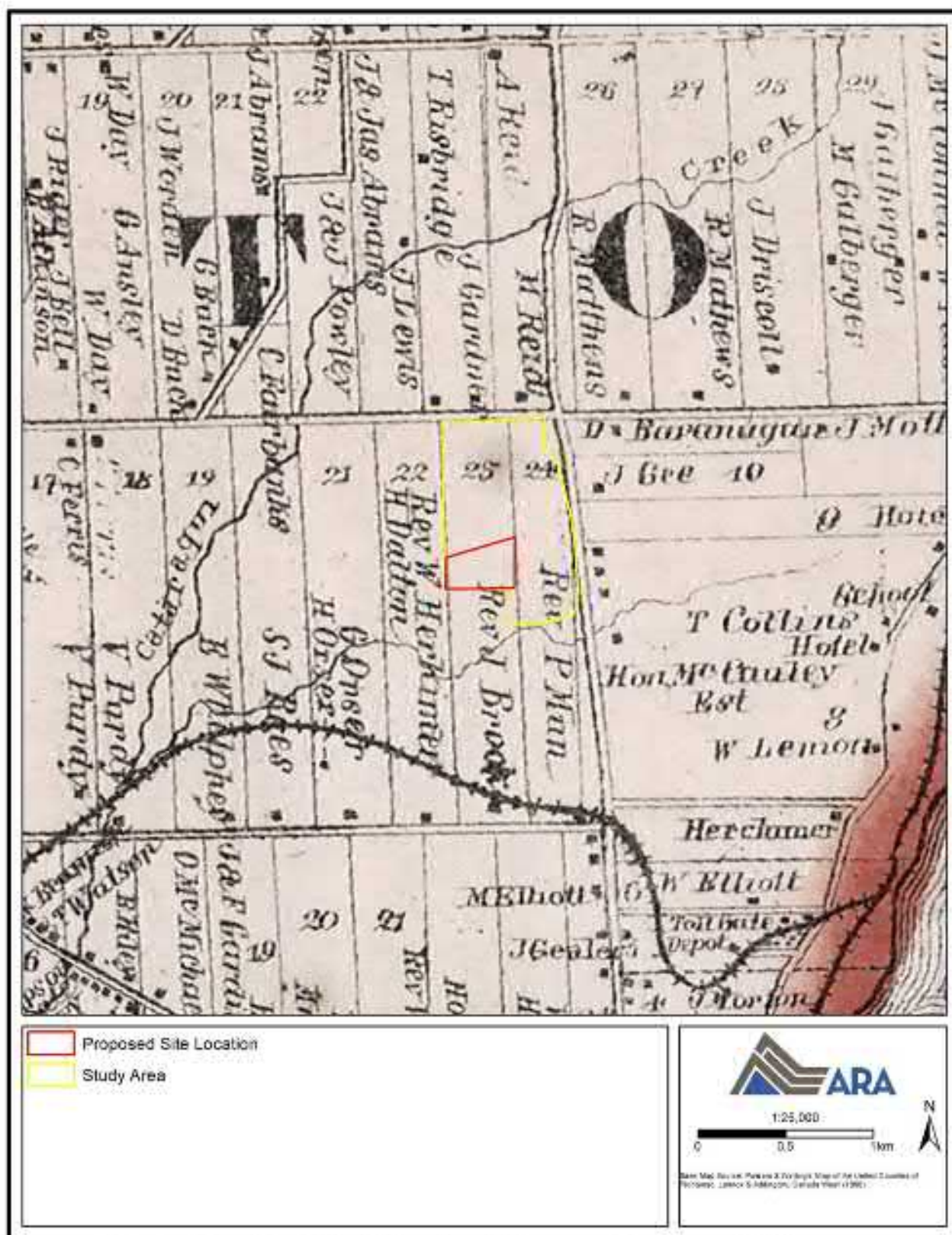


**Image 10: Area of Potential**  
(October 12, 2022; Facing Southeast)

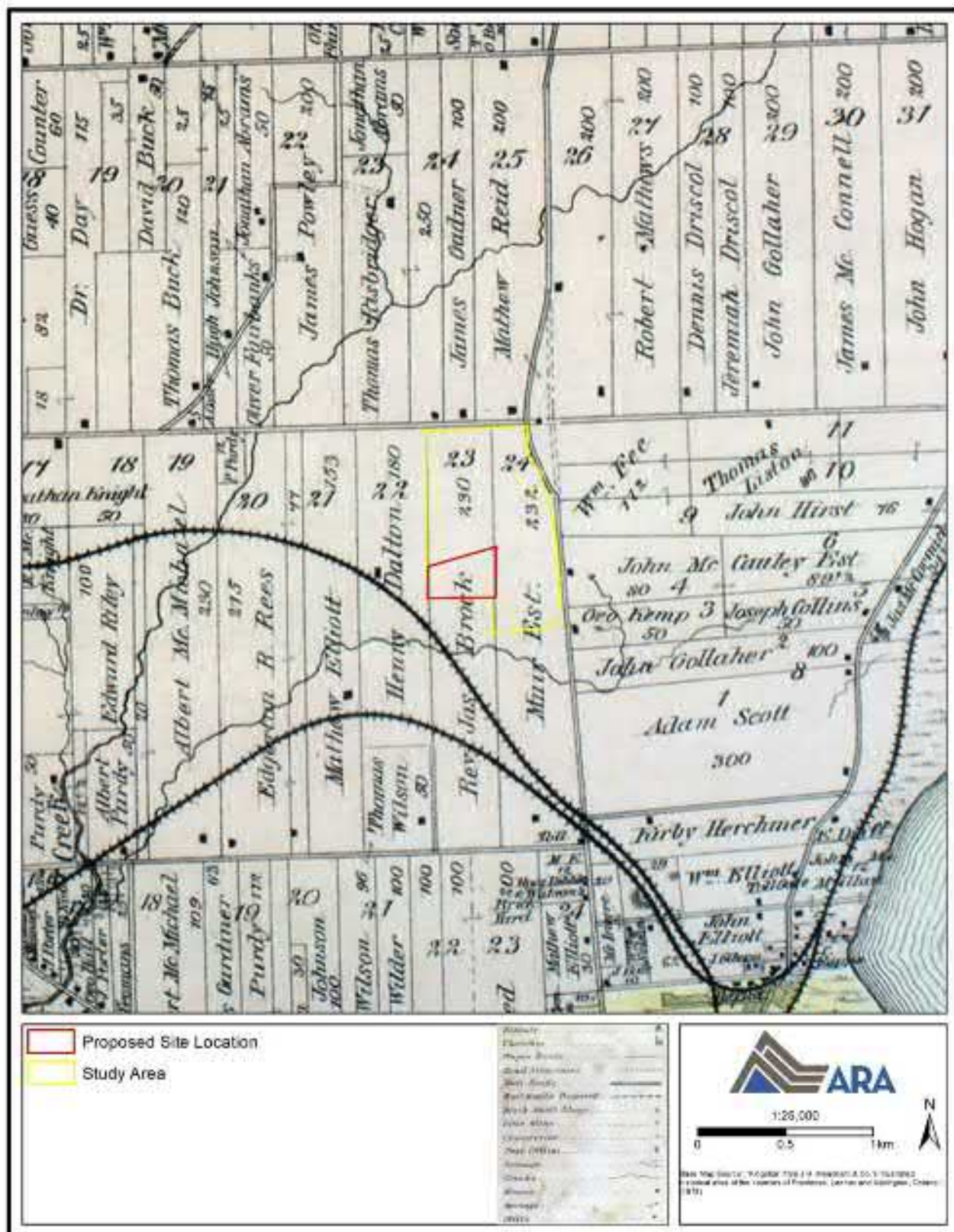


## 6.0 MAPS

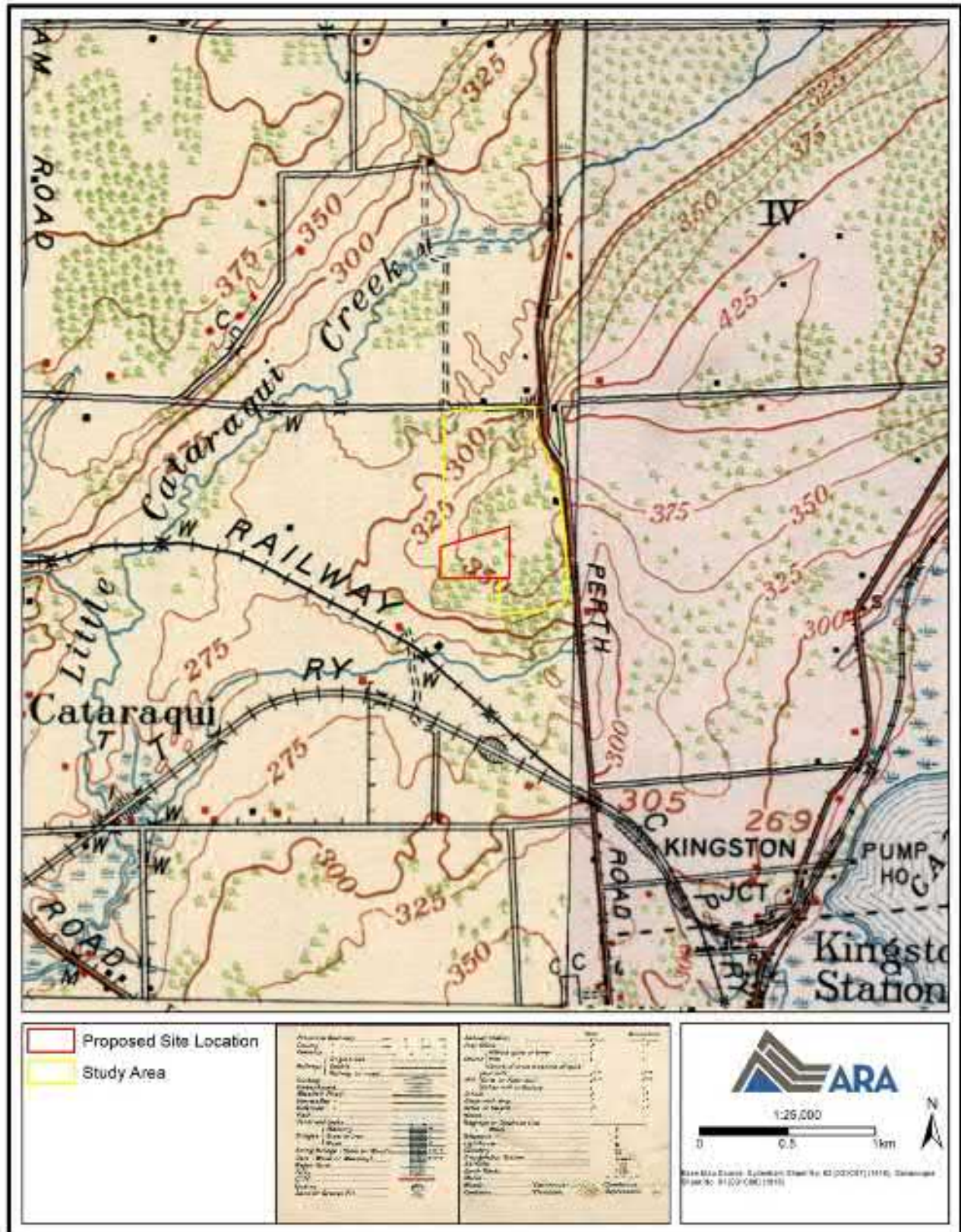






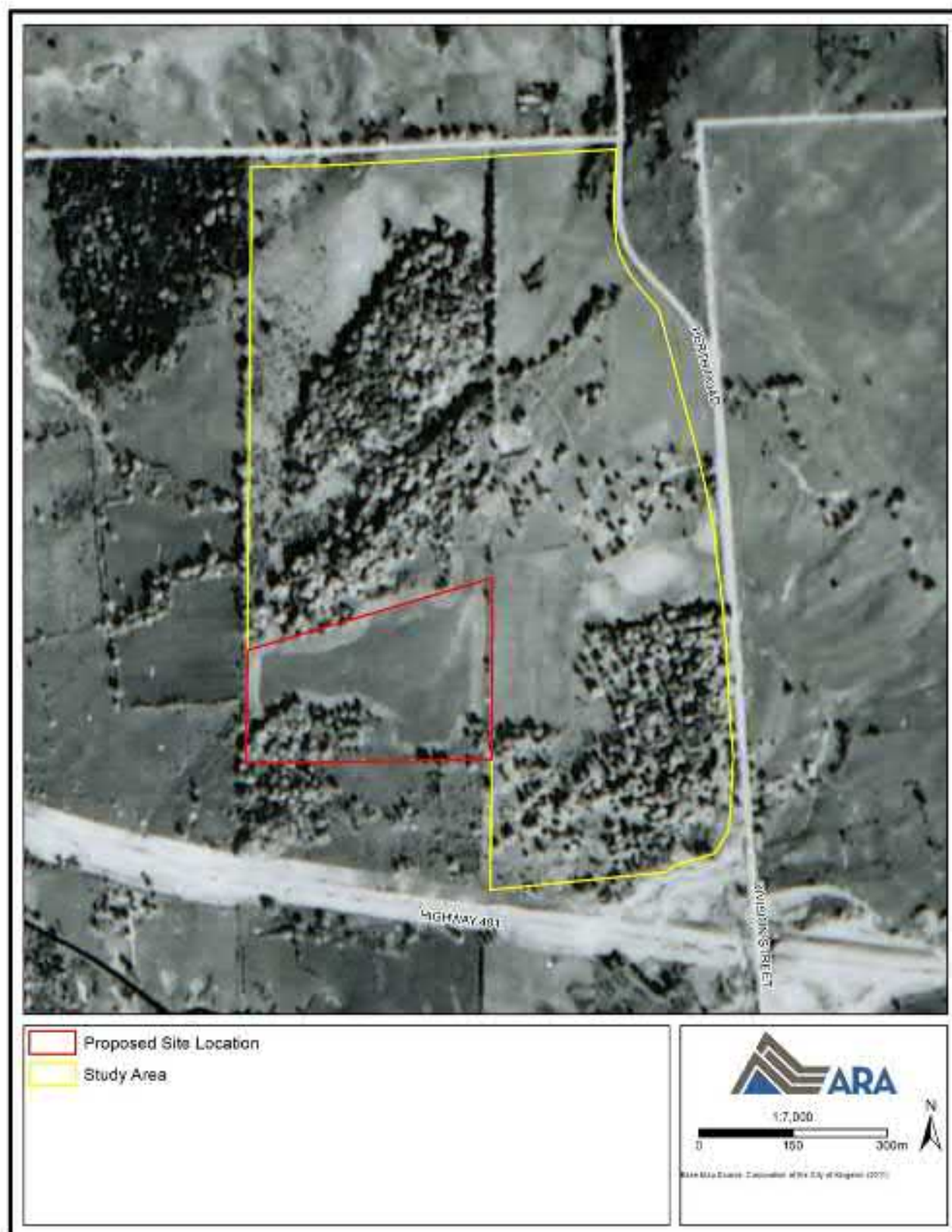






**Map 4: Topographic Map (1916)**  
(Produced under licence using ArcGIS® software by Esri, © Esri; OCUL (2022))



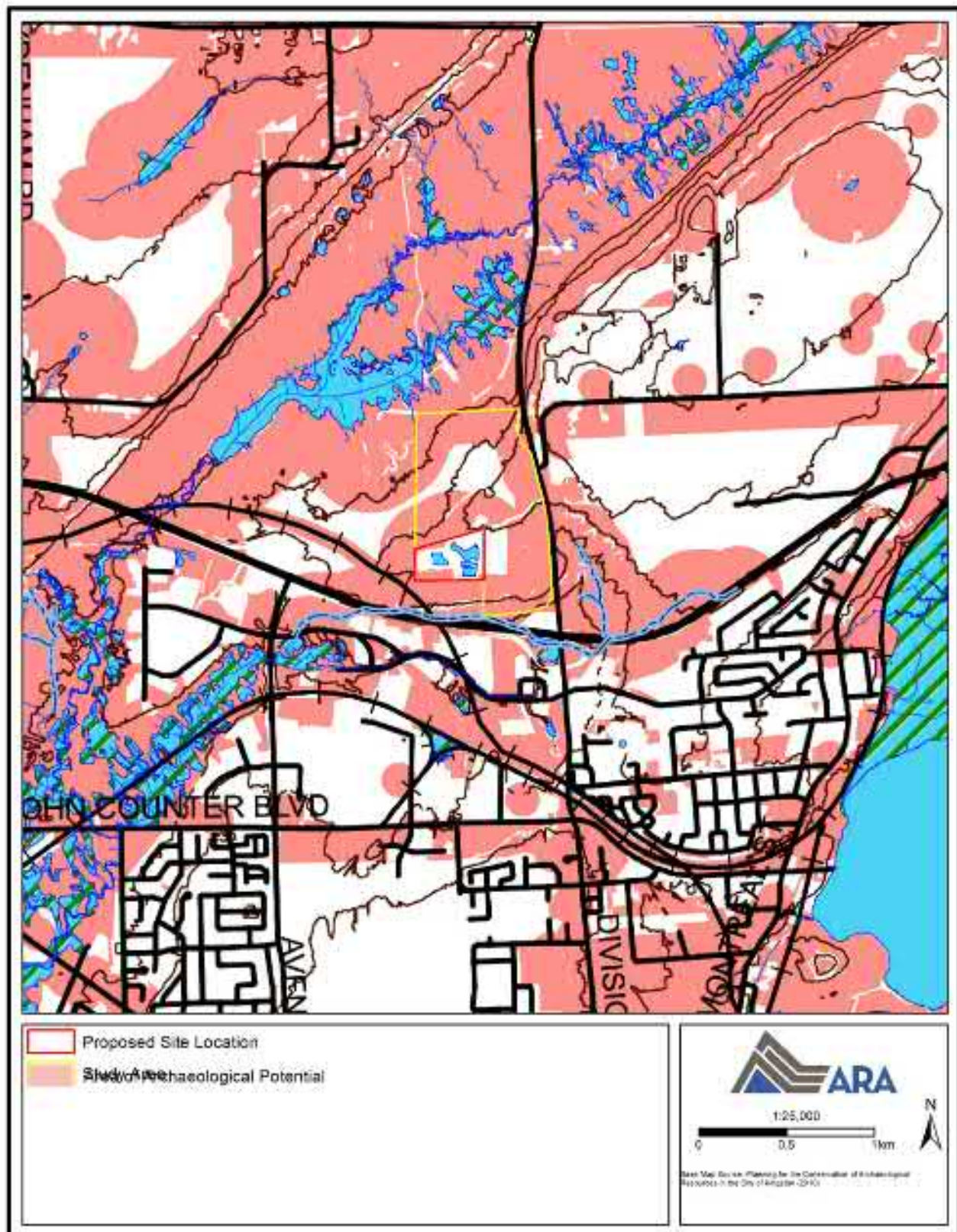


**Map 5: Aerial Image (1954)**  
(Produced under licence using ArcGIS® software by Esri, © Esri; U of T 2022)



**Map 6: Aerial Image (2011)**  
(Produced under licence using ArcGIS® software by Esri, © Esri; City of Kingston 2022)





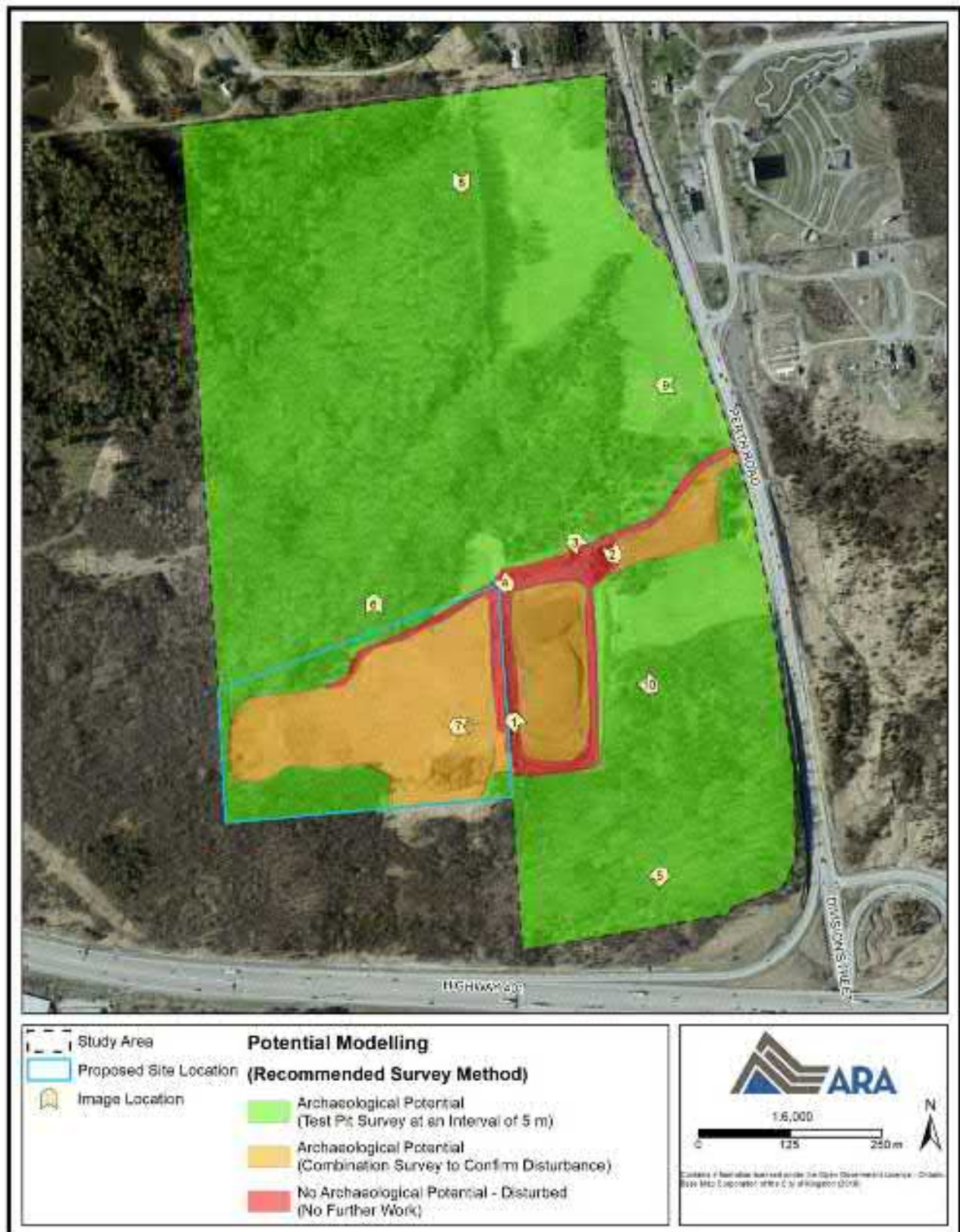
**Map 7: Planning for the Conservation of Archaeological Resources in the City of Kingston**

(Produced under licence using ArcGIS® software by Esri, © Esri; ASI 2010)









**Map 9: Potential Modelling and Recommendations**  
(Produced under licence using ArcGIS® software by Esri, © Esri)

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**Stage 2 Archaeological Assessment  
Kingston Regional Biosolids and Biogas Facility  
Municipal Class Environmental Assessment  
City of Kingston  
Part of Lots 22–24, Concession 3  
Geographic Township of Kingston  
Former Frontenac County, Ontario**

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Licensed under  
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MCM Licence #P007  
PIF #P007-1543-2023  
ARA File #2023-0365

**25/07/2024**

**Original Report**



## EXECUTIVE SUMMARY

Under a contract awarded in September 2023, Archaeological Research Associates Ltd. carried out a Stage 2 assessment of lands with the potential to be impacted by the Kingston Regional Biosolids and Biogas Facility in the City of Kingston, Ontario. Utilities Kingston completed a Master Plan for Enhanced Biosolids Management and Biogas Utilization in 2020, and it was recommended that an integrated biosolids and source separated organics processing facility be developed at a City-owned vacant site. The opportunity site (study area) for consideration was located within the property boundary of Knox Farm. The assessment was carried out as one of the supporting studies associated with a Schedule 'C' Municipal Class Environmental Assessment in accordance with the *Environmental Assessment Act* and is a follow-up to the Stage 1 assessment and Knox Farm suitability investigations. This report documents the background research and fieldwork involved in the investigation and presents conclusions and recommendations pertaining to archaeological concerns.

The Stage 2 assessment was conducted in November 2023 under Project Information Form P007-1543-2023. The investigation encompassed the proposed site for the new facility as well as an adjacent access road within the Knox Farm property. It is not anticipated that the remainder of the Knox Farm property would be developed as part of the subject project and therefore was excluded from the scope of the Stage 2 investigation. Should additional areas of Knox Farm be considered for development, recommendations from the Stage 1 assessment would continue to apply. Legal permission to enter and conduct all necessary fieldwork activities within the assessed lands was granted by the property owner (the City of Kingston). At the time of assessment, the study area consisted of an access road, a parking area and grassed and forested areas.

The Stage 2 assessment did not result in the identification of any archaeological materials. It is recommended that no further assessment be required within the study area. The remainder of the Knox Farm property was not assessed and may require further assessment if development is contemplated in the future. Potential modelling and recommendations for the remainder of the Knox Farm property appear in the Stage 1 assessment report (ARA 2023).

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## ABBREVIATIONS

ARA – Archaeological Research Associates Ltd.  
MCM – Ministry of Citizenship and Multiculturalism  
PIF – Project Information Form  
S&Gs – Standards and Guidelines for Consultant Archaeologists

## PERSONNEL

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*Project Archaeologist:* M. McCready (#P490)  
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*Report Writer:* S. Goldberg  
*Editor:* D. Worby (#R1190)

## ENGAGED GROUPS

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*Contact:* J. Kapyrka  
*Field Representative:* None

Huron-Wendat Nation  
*Contacts:* M.-S. Gendron, D. Lesage  
*Field Representative:* G. Savard



## 1.0 PROJECT CONTEXT

### 1.1 Development Context

Under a contract awarded in September 2023, Archaeological Research Associates Ltd. (ARA) carried out a Stage 2 assessment of lands with the potential to be impacted by the Kingston Regional Biosolids and Biogas Facility in the City of Kingston, Ontario. Utilities Kingston completed a Master Plan for Enhanced Biosolids Management and Biogas Utilization in 2020, and it was recommended that an integrated biosolids and source separated organics processing facility be developed at a City-owned vacant site. The opportunity site (study area) for consideration was located within the property boundary of Knox Farm. The assessment was carried out as one of the supporting studies associated with a Schedule 'C' Municipal Class Environmental Assessment in accordance with the *Environmental Assessment Act* and is a follow-up to the Stage 1 assessment and Knox Farm suitability investigations. This report documents the background research and fieldwork involved in the investigation and presents conclusions and recommendations pertaining to archaeological concerns.

The study area consists of an irregularly shaped parcel of land with an area of 11.33 ha (Map 1). This parcel is generally bounded by forested lands to the north, the Little Cataraqui Creek CA Trails to the northwest, Perth Road to the east, Highway 401 to the south and wooded lands to the west. In legal terms, the study area falls on part of Lots 22–24, Concession 3 in the Geographic Township of Kingston, former Frontenac County. These lands comprise part of the area subject to Crawford's Purchases in 1783, which involved agreements with the Mississauga to provide land to United Empire Loyalists and their Haudenosaunee allies (including the Mohawk) who fought on behalf of the British during the American Revolution. The descendants of those Mississauga now live at Alderville First Nation. Haudenosaunee presence along the north shore of Lake Ontario from the Pre-Contact period into the 1700s is clear, and this area also comprises part of the ancestral territory of the Huron-Wendat Nation. The northern part of the City of Kingston falls within the Algonquins of Ontario Settlement Area Boundary, but the Algonquins were not consulted about Crawford's Purchases.

The Stage 2 assessment was conducted in November 2023 under Project Information Form (PIF) #P007-1543-2023. The investigation encompassed the proposed site for the new facility as well as an adjacent access road within the Knox Farm property. It is not anticipated that the remainder of the Knox Farm property would be developed as part of the subject project and therefore was excluded from the scope of the Stage 2 investigation. Should additional areas of Knox Farm be considered for development, the recommendations from the Stage 1 assessment would continue to apply. Legal permission to enter and conduct all necessary fieldwork activities within the assessed lands was granted by the property owner (the City of Kingston).

As set out in Section 2.0 of the 2011 *Standards and Guidelines for Consultant Archaeologists (S&Gs)*, the investigation was carried out to achieve the following objectives:

- Document all archaeological resources within the study area;
- Determine whether there are sites requiring further assessment; and
- Recommend appropriate strategies for Stage 3 assessment, if necessary.



The Ministry of Citizenship and Multiculturalism (MCM) is asked to review the results and recommendations presented herein and enter the report into the Ontario Public Register of Archaeological Reports. A Record of Indigenous Engagement is included in the project report package in accordance with the requirements set out in Section 7.6.2 of the 2011 *S&Gs*.

## 1.2 Historical Context

After a century of archaeological work in southern Ontario, scholarly understanding of the historical usage of the area has become very well-developed. With occupation beginning in the Palaeo period approximately 11,000 years ago, the greater vicinity of the study area comprises a complex chronology of Indigenous and Euro-Canadian histories. Section 1.2.1 summarizes the region's settlement history and Section 1.2.2 documents past and present land uses. Two previous archaeological reports containing relevant background information were obtained during the research component of the study. These reports are summarized in Section 1.3.3, and the references (including title, author and PIF number) appear in Section 7.0.

### 1.2.1 Settlement History

#### 1.2.1.1 Pre-Contact

The Pre-Contact history of the region is lengthy and rich, and a variety of Indigenous groups inhabited the landscape. Archaeologists generally divide this history into three main periods: Palaeo, Archaic and Woodland. Each period comprises a range of sub-periods characterized by identifiable trends in material culture and settlement patterns, which are used to interpret past lifeways. The principal characteristics of these sub-periods are summarized in Table 1.

**Table 1: Pre-Contact Settlement History**  
(Wright 1972; Ellis and Ferris 1990; Warrick 2000; Munson and Jamieson 2013)

Sub-Period	Timeframe	Characteristics
Early Palaeo	9000–8400 BC	Gainey, Barnes and Crowfield traditions; Small bands; Mobile hunters and gatherers; Utilization of seasonal resources and large territories; Fluted points
Late Palaeo	8400–7500 BC	Holcombe, Hi-Lo and Lanceolate biface traditions; Continuing mobility; Campsite/Way-Station sites; Smaller territories are utilized; Non-fluted points
Early Archaic	7500–6000 BC	Side-Notched, Corner-Notched (Nettling, Thebes) and Bifurcate traditions; Growing diversity of stone tool types; Heavy woodworking tools appear (e.g., ground stone axes and chisels)
Middle Archaic	6000–2500 BC	Stemmed (Kirk, Starly/Neville), Brewerton Side- and Corner-Notched traditions; Reliance on local resources; Populations increasing; More ritual activities; Fully ground and polished tools; Net-sinkers common; Earliest copper tools
Late Archaic	2500–900 BC	Narrow Point (Lamoka), Broad Point (Genesee) and Small Point (Crawford Knoll) traditions; Less mobility; Use of fish-weirs; True cemeteries appear; Stone pipes emerge; Long-distance trade (marine shells and galena)
Early Woodland	900–400 BC	Meadowood tradition; Crude cord-roughened ceramics emerge; Meadowood cache blades and side-notched points; Bands of up to 35 people
Middle Woodland	400 BC–AD 600	Point Peninsula tradition; Vignette 2 ceramics appear; Small camp sites and seasonal village sites; Influences from northern Ontario and Hopewell area to the south; Hopewellian influence can be seen in continued use of burial mounds
Middle/Late Woodland Transition	AD 600–900	Gradual transition between Point Peninsula and later traditions; Princess Point tradition emerges elsewhere (i.e., in the vicinity of the Grand and Credit Rivers)



Sub-Period	Timeframe	Characteristics
Late Woodland	AD 900–1600	Area occupied by Algonquian-speaking Anishinaabeg and Iroquoian-speaking peoples such as the Huron-Petun; Early focus on the latter linguistic group identified Glen Meyer, Uren, Middleport and later traditions and tended to emphasize a linear 'Iroquoian' developmental sequence; There was likely a close interaction sphere between the two groups, which may have resulted in shared material culture and even some cohabitation; Algonquian sites or shared sites possibly linked with more diverse raw materials and a greater reliance on quartz; Huron-Petun associated with large villages, hunting and fishing camps, cabin sites and hamlets; Fur trade begins ca. 1580; European trade goods appear

### 1.2.1.2 Post-Contact

The arrival of European explorers and traders at the beginning of the 17<sup>th</sup> century triggered widespread shifts in Indigenous lifeways and set the stage for the ensuing Euro-Canadian settlement process. Documentation for this period is abundant, ranging from the first sketches of Upper Canada and the written accounts of early explorers to detailed township maps and lengthy histories. The Post-Contact period can be effectively discussed in terms of major historical events, and the principal characteristics associated with these events are summarized in Table 2.

**Table 2: Post-Contact Settlement History**  
(Smith 1846; Coyne 1895; Lajeunesse 1960; MSSL 1971; Rollason 1982; Ellis and Ferris 1990; Surtees 1994; AO 2024)

Historical Event	Timeframe	Characteristics
Early Contact	Early 17 <sup>th</sup> century	Brûlé explores southern Ontario in 1610/11; Champlain travels through in 1613 and 1615/1616, making contact with a number of Indigenous groups (including the Algonquin, Huron-Wendat and other First Nations); European trade goods become increasingly common and begin to put pressure on traditional industries
Increased Contact and Conflict	Mid- to late 17 <sup>th</sup> century	Conflicts between various First Nations during the Beaver Wars result in numerous population shifts; European explorers continue to document the area, and many Indigenous groups trade directly with the French and English; 'The Great Peace of Montreal' treaty established between roughly 39 different First Nations and New France in 1701
Fur Trade Development	Late 17 <sup>th</sup> to mid-18 <sup>th</sup> century	Growth and spread of the fur trade; Fort Frontenac established on the Cataragui River by Comte de Frontenac in 1673, but very little settlement took place outside of the compound; Peace between the French and English with the Treaty of Utrecht in 1713; Ethnogenesis of the Métis; Hostilities between French and British lead to the Seven Years' War in 1754; French surrender in 1760
British Control	Mid-18 <sup>th</sup> century	<i>Royal Proclamation</i> of 1763 recognizes the title of the First Nations to the land; Numerous treaties subsequently arranged by the Crown; First land cession under the new protocols is the Seneca surrender of the west side of the Niagara River in 1764; The Niagara Purchase (Treaty 381) in 1781 included this area
Loyalist Influx	Late 18 <sup>th</sup> century	United Empire Loyalist influx after the American Revolutionary War (1775–1783); British develop interior communication routes and acquire additional lands; Crawford's Purchases completed in 1783 to provide land for the Loyalists; <i>Constitutional Act</i> of 1791 creates Upper and Lower Canada
County Development	Late 18 <sup>th</sup> to early 19 <sup>th</sup> century	Became part of Frontenac County in 1792; Townships of Kernebec, Olden and Oso added in 1821, Barrie, Clarendon and Palmerston in 1845 and Miller, North Canoto and South Canoto in 1860; United Counties of Frontenac, Lennox and Addington established after the abolition of the district system in 1849; Independent in 1865; Population and industry focused around Kingston

Historical Event	Timeframe	Characteristics
Township Formation	Late 18 <sup>th</sup> to early 19 <sup>th</sup> century	First survey of Upper St. Lawrence started in 1783, and by the next year Township No. 1 (King's Township/Township of Kingston) had been surveyed; Settlement started before surveying could be completed, and numerous boundary realignments occurred over the ensuing years; Loyalists were led to the township by Captain M. Grass, who was the second of twenty-five men to draw their lots; Tools, seed and a mill were at their disposal; Rideau Canal opened in 1832
Township Development	19 <sup>th</sup> century	Population reached 6,289 by 1846, which included the outskirts of the Town of Kingston; 19,283 ha taken up at that time, with 6,563 ha under cultivation; 2 grist mills and 3 saw mills in operation; Traversed by the Grand Trunk Railway (1856) and Kingston & Pembroke Railway (1875); Principal community was at Kingston, with smaller settlements at Cataraqui (Waterloo), Collins Bay, Elginburg, Glenburnie, Glenvale, Portsmouth, Sharpton and Westbrook

## 1.2.2 Past and Present Land Use

### 1.2.2.1 Overview

During Pre-Contact and Early Contact times, the vicinity of the study area would have comprised a mixture of coniferous trees, deciduous trees and open areas. Indigenous communities actively utilized the land and its resources well into Post-Contact times, and they would have managed the landscape to varying degrees (e.g., establishing clearings for campsites, plant cultivation, etc.) During the late 18<sup>th</sup> century, Euro-Canadian settlers arrived in the area and began to clear the forests for agricultural and settlement purposes. The study area was located north of the historical limits of Kingston. The land use at the time of assessment can be classified as infrastructural.

### 1.2.2.2 Mapping and Imagery Analysis

In order to gain a general understanding of the study area's past land uses, two historical settlement maps, one topographic map and two aerial images were examined during the research component of the study. Specifically, the following resources were consulted:

- The *Map of the United Counties of Frontenac, Lennox and Addington, Canada West* (1860) (OHCMP 2019);
- The *Illustrated Historical Atlas of the Counties of Frontenac, Lennox and Addington, Ontario* (1878) (MU 2001);
- A topographic map from 1916 (OCUL 2024); and
- Aerial images from 1954 and 2011 (City of Kingston 2024; U of T 2024).

The limits of the study area are shown on georeferenced versions of the consulted historical resources in Map 2–Map 6.

The *Map of the United Counties of Frontenac, Lennox and Addington, Canada West* (1860) indicates that the study area traversed the central part of Rev. W. Herkimer and H. Dalton's properties on Lot 22, the central part of Rev. J. Brock's property on Lot 23 and the central part of Rev. P. Muir's holding on Lot 24 (Map 2). The associated farmhouses are illustrated to the south along what became John Counter Boulevard. The historical alignment of Perth Road is shown to the east. A stream traversed the study area through its southern half, and the Grand Trunk Railway is shown to the south.



The *Illustrated Historical Atlas of the Counties of Frontenac, Lennox and Addington, Ontario* (1878) shows that Henry Dalton subsequently occupied all of Lot 22, Rev. James Brock continued to occupy Lot 23, whereas Lot 24 was held by the Muir Estate (Map 3). The earlier structure within Brock's holding is no longer shown, although the Muir farmhouse remains. The farmhouse of Henry Dalton is shown to the west of the study area. A tollhouse is depicted at the intersection of John Counter Boulevard and Perth Road, and the Kingston & Pembroke Railway is shown to the south.

The topographic map from 1916 indicates that some parts of the study area had been cleared, but the majority seems to have comprised deciduous forest or mixed forest (Map 4). One wooden house is shown within the eastern part of the study area. The aerial image from 1954 largely confirms this land use pattern, and the occupation in the east appears to have comprised several buildings (Map 5). Highway 401 to the south was under construction at this time.

By 2011, the northern part of Perth Road had been realigned and only a few fields in the east were still under cultivation (Map 6). The earlier structure appears to have been removed, and the southern part of the study area contained access roads, cells and settling ponds associated with the former Cataraqui River dredge material storage site as well as the snow management facility.

### 1.3 Archaeological Context

The Stage 2 assessment was conducted between November 20 and November 24, 2023 under PIF #P007-1543-2023. ARA utilized an Apple iPhone 11 Pro and a Samsung SM-G990W2 with built-in GPS/GNSS receivers during the investigation (UTM18/NAD83). The limits of the study area were confirmed using project-specific GIS data translated into GPS points for reference in the field, in combination with aerial imagery showing physical features in relation to the subject lands.

The archaeological context of any given study area must be informed by 1) the condition of the property as found (Section 1.3.1), 2) a summary of registered or known archaeological sites located within a minimum 1 km radius (Section 1.3.2) and 3) descriptions of previous archaeological fieldwork carried out within the limits of, or immediately adjacent to the property (Section 1.3.3).

#### 1.3.1 Condition of the Property

The study area lies within the Great Lakes–St. Lawrence forest region, which is a transitional zone between the southern deciduous forest and the northern boreal forest. This region extends along the St. Lawrence River across central Ontario to Lake Huron and west of Lake Superior along the border with Minnesota, and its southern portion extends into the more populated areas of Ontario. It is dominated by hardwood forests, although coniferous trees such as white pine, red pine, hemlock and white cedar commonly mix with deciduous broad-leaved species like yellow birch, sugar and red maples, basswood and red oak (MNR 2024).

In terms of local physiography, the subject lands fall within the Napanee Plain. This region comprises a flat-to-undulating plain of limestone that has been largely stripped of overburden through glacial action. Centered on Napanee, this plain covers an area of approximately 1,812 km<sup>2</sup>. It is characterized by shallow soils and scattered drumlins, although soils increase in depth towards the north along the Dummer Moraines. The Salmon and Napanee River Valleys show the greatest

relief within the region and contain a wide variety of alluvial deposits compared to the surrounding landscape (Chapman and Putnam 1984:186). According to the Ontario Soil Survey, the study area consists of Farmington loam. Farmington loam is a calcareous stony loam till that is well-drained (Gillespie et al. 1966).

The subject lands fall within the Little Cataraqui Creek drainage basin, which is under the jurisdiction of Cataraqui Conservation (CC 2024). Specifically, the study area is traversed by two unnamed wetlands, and is located 200 m west of a tributary of an unnamed wetland.

At the time of assessment, the study area consisted of an access road, a parking area and grassed and forested areas. Soil conditions were ideal for the activities conducted. No unusual physical features were encountered that affected fieldwork strategy decisions or the identification of artifacts or cultural features (e.g., dense root mats, boulders, rubble, etc.).

### 1.3.2 Registered or Known Archaeological Sites

The Ontario Archaeological Sites Database and the Ontario Public Register of Archaeological Reports were consulted to determine whether any registered or known archaeological resources occur within a 1 km radius of the study area. The available search facility returned one registered site located within at least a 1 km radius (the facility returns sites in a rectangular area, rather than a radius, potentially resulting in returns beyond the specified distance). No unregistered sites were identified within a 1 km radius of the study area. The site is summarized in Table 3.

**Table 3: Registered or Known Archaeological Sites**

Borden No. / ID No.	Site Name / Identifier	Time Period	Affinity	Site Type	Distance from Study Area
BbGid-29	G. Orser	Post-Contact	Euro-Canadian	Homestead	300 m–1 km

This previously identified site is not located within or immediately adjacent to the subject lands; accordingly, it has no potential to traverse the study area. The site represents a distant archaeological resource located over 300 m away.

### 1.3.3 Previous Archaeological Work

A review of available archaeological management plans and/or other archaeological potential mapping was undertaken to inform the assessment process. Specifically, the City of Kingston's *Planning for the Conservation of Archaeological Resources in the City of Kingston* was examined for information that could influence the choice of fieldwork techniques or recommendations. The associated mapping indicates that the northwestern, southwestern and southeastern corners of the study area have archaeological potential. The vicinity of the former dewatering facility and snow management facility in the southeastern part of the study area are shown as having no archaeological potential (Map 7).



Reports documenting assessments conducted within the subject lands and assessments that resulted in the discovery of sites within adjacent lands were also sought during the research component of the study. In order to ensure that all relevant past work was identified, an investigation was launched to identify reports involving assessments within 50 m of the study area. The investigation determined that there are two available reports documenting previous archaeological fieldwork within the specified distance. The relevant results and recommendations are summarized below as required by Section 7.5.8 Standards 4–5 of the 2011 *S&Gs*.

#### *1.3.3.1 1431 McAdoos Lane (Stage 1–2)*

In June 2021, Stage 1 and 2 assessments were conducted for 1431 McAdoos Lane under PIF #P246-0532-2021 (AAS 2021). The assessed area falls within 50 m of the northeastern part of the study area. The investigation did not result in the identification of any archaeological materials, and no further assessment was recommended (AAS 2021:16).

#### *1.3.3.2 Kingston Regional Biosolids and Biogas Facility (Stage 1)*

In October 2022, a Stage 1 assessment was carried out for the subject project under PIF #P007-1420-2022 (ARA 2023). The investigation identified a mixture of areas of archaeological potential and areas of no archaeological potential. It was recommended that all areas of archaeological potential that could be impacted by specific planned or ongoing projects be subject to a Stage 2 assessment. The following field methods were recommended:

The former agricultural fields have been allowed to naturalize for an extended period of time, and ploughing does not appear to be possible or viable due to the level of brush and weed growth. Accordingly, the former fields, overgrown and wooded areas must be assessed using the test pit survey method. A survey interval of 5 m will be required due to the proximity of the lands to the identified features of archaeological potential. Given the likelihood that the former dewatering facility, the snow management facility and other lands south of the access road were previously impacted, a combination of visual inspection and test pit survey should be utilized to confirm the extent of disturbance in accordance with Section 2.1.8 of the 2011 *S&Gs*. This will allow for the empirical evaluation of the integrity of the soils and the depth of any impacts. If these areas are determined to have archaeological potential, then a test pit survey interval of 5 m must be maintained. Each test pit must be excavated into at least the first 5 cm of subsoil, and the resultant pits must be examined for stratigraphy, potential features and/or evidence of fill. The soil from each test pit must be screened through mesh with an aperture of no greater than 6 mm and examined for archaeological materials. If archaeological materials are encountered, all positive test pits must be documented, and intensification may be required (ARA 2023:11).

The associated report was entered into the Ontario Public Register of Archaeological Reports on October 19, 2023. These recommendations were followed during the subject investigation.



## 2.0 STAGE 2 PROPERTY ASSESSMENT

### 2.1 Field Methods

The Stage 2 assessment involved visual inspection, test pit survey and a combination of visual inspection and test pit survey. Environmental conditions were generally ideal during the investigation, permitting good visibility of land features and providing an increased chance of finding evidence of archaeological resources. A breakdown of the specific fieldwork activities, weather and lighting conditions appears in Table 4. Although there were instances of light rain or intermittent rain, there was no reduction in the ability to observe features of potential or identify archaeological resources. ARA therefore confirms that fieldwork was carried out under weather and lighting conditions that met or exceeded the requirements set out in Section 1.2 Standard 2 and Section 2.1 Standard 3 of the 2011 S&Gs.

**Table 4: Fieldwork Activities and Environmental Conditions**

Date	Activity	Lighting	Cloud Cover	Precipitation	Temperature (°C)
20/11/2023	Combination survey	Bright	None	None	4
21/11/2023	Test pit survey; Combination survey	Diffuse	Overcast	Light	1
22/11/2023	Combination survey	Diffuse	Overcast	Intermittent	4
23/11/2023	Test pit survey; Combination survey	Diffuse	Overcast	None	5
24/11/2023	Test pit survey; Combination survey	Diffuse	Partial	None	2

The identified areas of archaeological potential were subjected to a systematic visual inspection in accordance with the requirements set out in Section 1.2 of the 2011 S&Gs. This component of the investigation was conducted concurrently with the property survey. The inspection confirmed that all surficial features of archaeological potential were present where they were previously identified and did not result in the identification of any additional features of archaeological potential not visible on mapping (e.g., relic water channels, patches of well-drained soils, etc.).

The visual inspection did not result in the identification of any additional areas of disturbance. No natural features (e.g., permanent wet lands, sloped lands, overgrown vegetation, heavier soils than expected, etc.) or significant built features (e.g., heritage structures, landscapes, plaques, monuments, cemeteries, etc.) that would affect assessment strategies were identified.

The test pit survey method was utilized to complete the assessment because ploughing was not possible or viable. Using this method, ARA crewmembers hand excavated small regular test pits with a minimum diameter of 30 cm at prescribed intervals in accordance with Section 2.1.2 of the 2011 S&Gs. Since the areas were located less than 300 m from any feature of archaeological potential, a maximum interval of 5 m was warranted (Image 1–Image 5).

Disturbed soils resulting from construction activities related to the access road were encountered in the northeastern part of the study area. Additionally, disturbed soils were also identified in the field of wild grass where the former Cataraqui River dredge material storage site and snow management facility were located in the southwestern part of the study area. A combination of visual inspection and test pit survey was utilized to confirm the extent of disturbance within these areas in accordance with Section 2.1.8 of the 2011 S&Gs (the remaining areas were tested at an



interval of 5 m). Test pits were excavated according to professional judgement to verify that these areas had been completely disturbed by previous land alterations (Image 6–Image 10).

As required by Section 2.1.2 Standard 4 of the 2011 *S&Gs*, test pits were excavated to within 1 m of all built structures or until test pits exhibited evidence of ground disturbance. Each test pit was excavated into at least the first 5 cm of subsoil, and the resultant pits were examined for stratigraphy, potential features and/or evidence of fill. Natural test pits generally comprised dark grey sandy clay loam topsoil (Lot 1) with an average depth of 23 cm over medium yellow silty clay subsoil (Lot 4) or light grey bedrock (Lot 3). Stratigraphy within disturbed test pits was more variable. In the north along the access road, disturbed soils consisted of dark grey silty loam fill with inclusions of gravel, asphalt and barbed wire (Lot 2). In the field of wild grass in the southwest, disturbed soils comprised medium grey silty clay with gravel inclusions that in some cases reached a depth of 32 cm while in other areas disturbed test pits encountered the water table (Lot 5) at around 60 cm. The presence of disturbed soil in the southwest field is likely the result of the former Cataraqui River dredge material storage site which contained material dredged from Kingston Harbour. All soils were screened through mesh with an aperture of no greater than 6 mm and examined for archaeological resources. No locations of archaeological materials were encountered during the test pit survey. The test pits were backfilled upon completion.

The utilized field methods are presented in Map 8–Map 10. The study area is depicted as layers in these maps. A breakdown of field methods appears in Table 5.

**Table 5: Field Methods**

Category	Breakdown
Pedestrian survey at an interval of 5 m	0.00% (0.00 ha)
Test pit survey at an interval of 5 m	27.92% (3.16 ha)
Test pit survey at an interval of 10 m	0.00% (0.00 ha)
Test pit survey at a modified interval due to physical constraint	0.00% (0.00 ha)
Combination of visual inspection and test pit survey to confirm disturbance	61.47% (6.96 ha)
Not assessed due to physical constraint	0.00% (0.00 ha)
Not assessed due to permanently wet areas	0.00% (0.00 ha)
Not assessed due to exposed bedrock	0.00% (0.00 ha)
Not assessed due to sloped areas	0.00% (0.00 ha)
Not assessed due to disturbed areas	0.00% (0.00 ha)
Previously assessed and of no further concern	10.61% (1.20 ha)
Total	100.00% (11.33 ha)

## 2.2 Record of Finds

The investigation did not result in the discovery of any archaeological materials. An inventory of the documentary record generated in the field is presented in Table 6.

**Table 6: Documentary Record**

Category	Total	Nature	Location
Field notes	6	Digital	50 Nebo Road, Unit 1, Hamilton
Maps	3	Digital	50 Nebo Road, Unit 1, Hamilton
Photographs	51	Digital	50 Nebo Road, Unit 1, Hamilton

### **2.3 Analysis and Conclusions**

No archaeological sites were identified within the assessed lands.



### **3.0 RECOMMENDATIONS**

The Stage 2 assessment did not result in the identification of any archaeological materials. It is recommended that no further assessment be required within the study area. The remainder of the Knox Farm property was not assessed and may require further assessment if development is contemplated in the future. Potential modelling and recommendations for the remainder of the Knox Farm property appear in the Stage 1 assessment report (ARA 2023).

## 4.0 ADVICE ON COMPLIANCE WITH LEGISLATION

Section 7.5.9 of the 2011 *S&Gs* requires that the following information be provided for the benefit of the proponent and approval authority in the land use planning and development process:

- This report is submitted to the Minister of Citizenship and Multiculturalism 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 MCM, 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 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 licensed consultant archaeologist to carry out archaeological fieldwork, in compliance with Section 48 (1) of the *Ontario Heritage Act*.
- The *Funeral, Burial and Cremation Services Act*, 2002, S.O. 2002, c.33 requires that any person discovering human remains must notify the police or coroner and the Registrar at the Ministry of Public and Business Service Delivery.



## 5.0 IMAGES



**Image 1: Test Pit Survey**  
(November 20, 2022; Facing Northeast)



**Image 2: Test Pit Survey**  
(November 21, 2023; Facing Southwest)



**Image 3: Test Pit Survey**  
(November 22, 2023; Facing North)



**Image 4: Test Pit Survey**  
(November 23, 2023; Facing Southwest)



**Image 5: Test Pit Survey**  
(November 22, 2023; Facing North)



**Image 6: Combination Survey**  
(November 20, 2023; Facing Northeast)



**Image 7: Combination Survey**  
(November 24, 2023; Facing Southwest)



**Image 8: Combination Survey**  
(November 20, 2023; Facing Southeast)



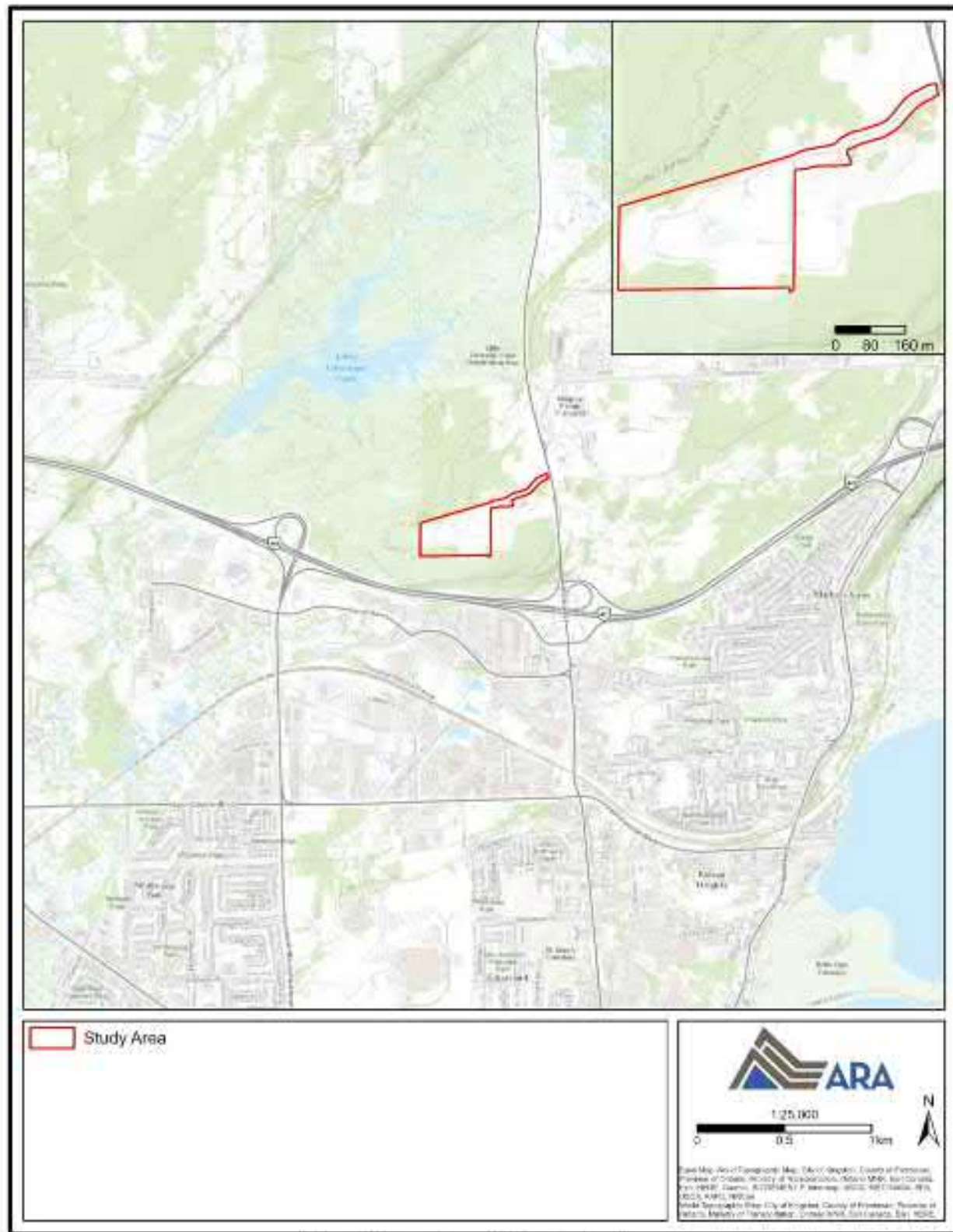
**Image 9: Combination Survey**  
(November 21, 2023; Facing Northeast)



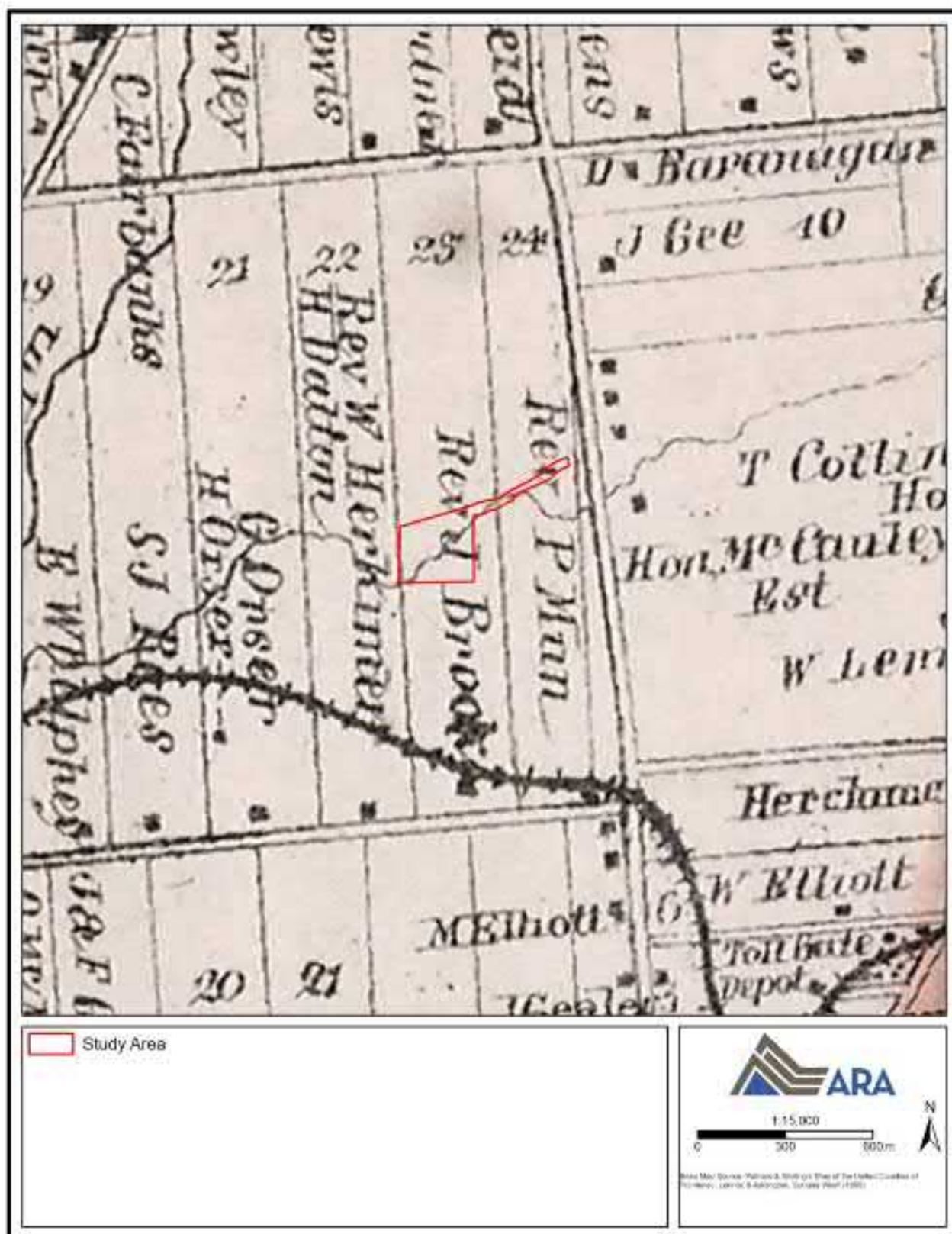
**Image 10: Combination Survey**  
(November 23, 2023; Facing North)



## 6.0 MAPS

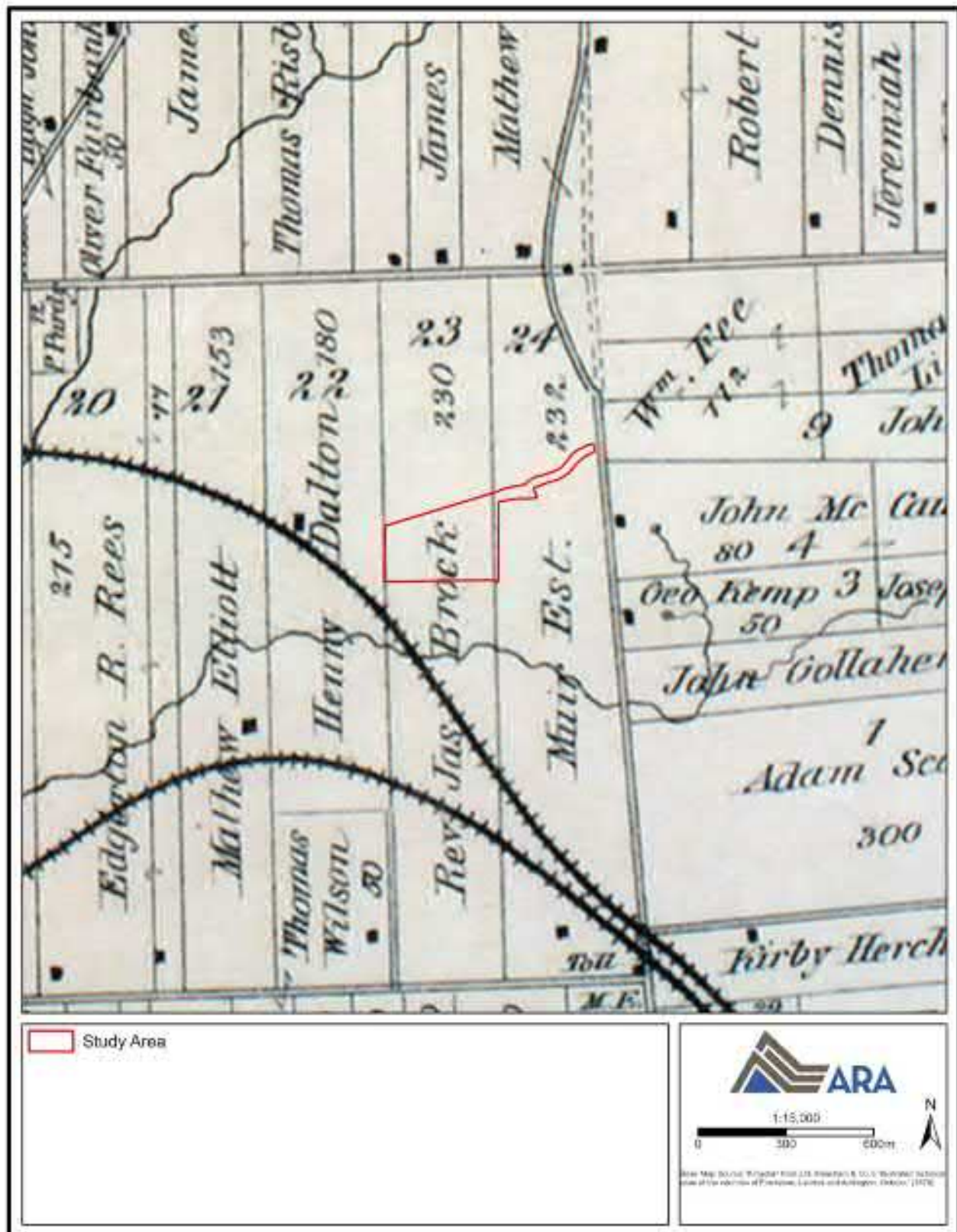


**Map 1: Location of the Study Area**  
(Produced under licence using ArcGIS® software by Esri, © Esri)



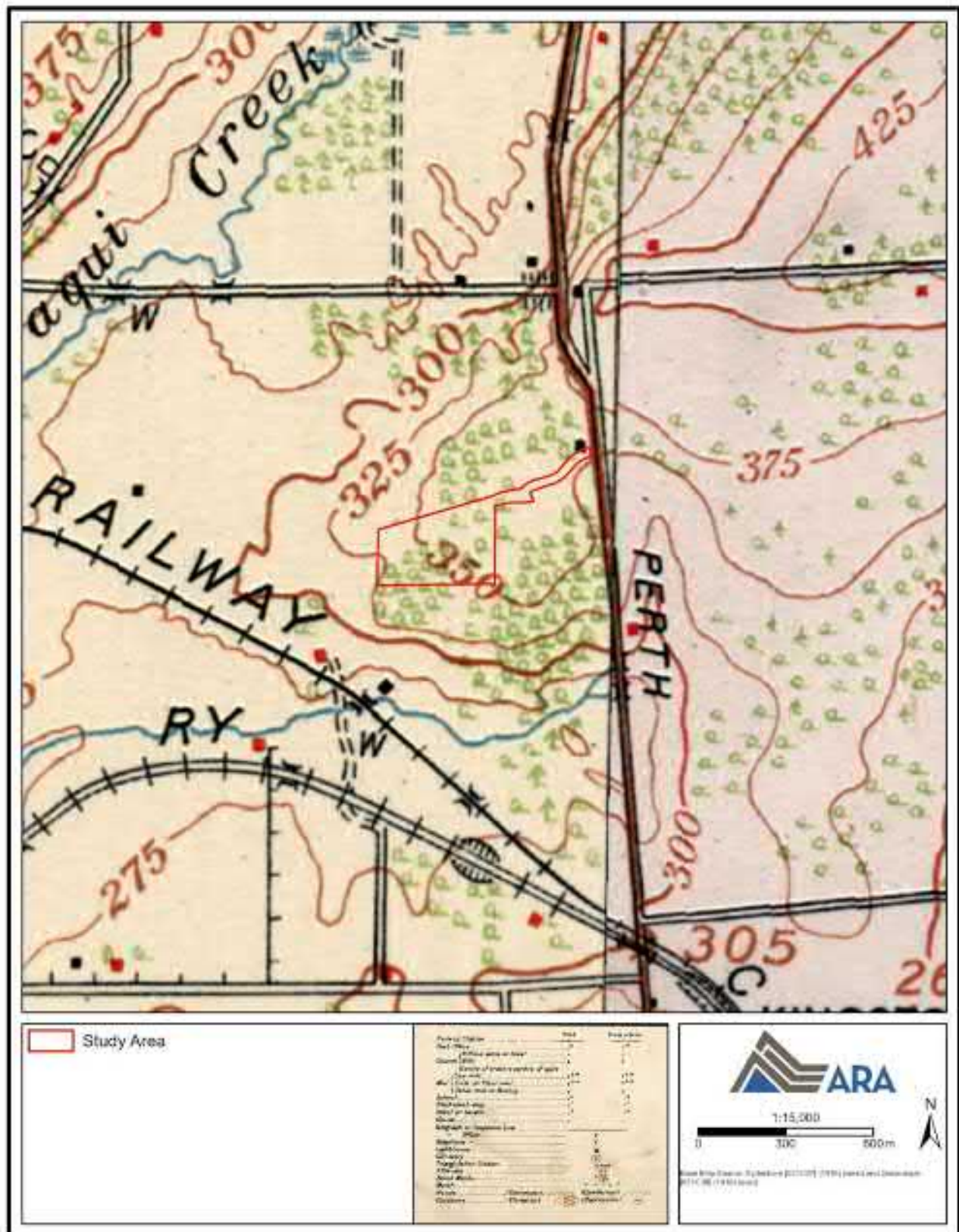
**Map 2: Map of the United Counties of Frontenac, Lennox and Addington,  
Canada West (1860)**  
(Produced under licence using ArcGIS® software by Esri, © Esri; OHCMP 2019)





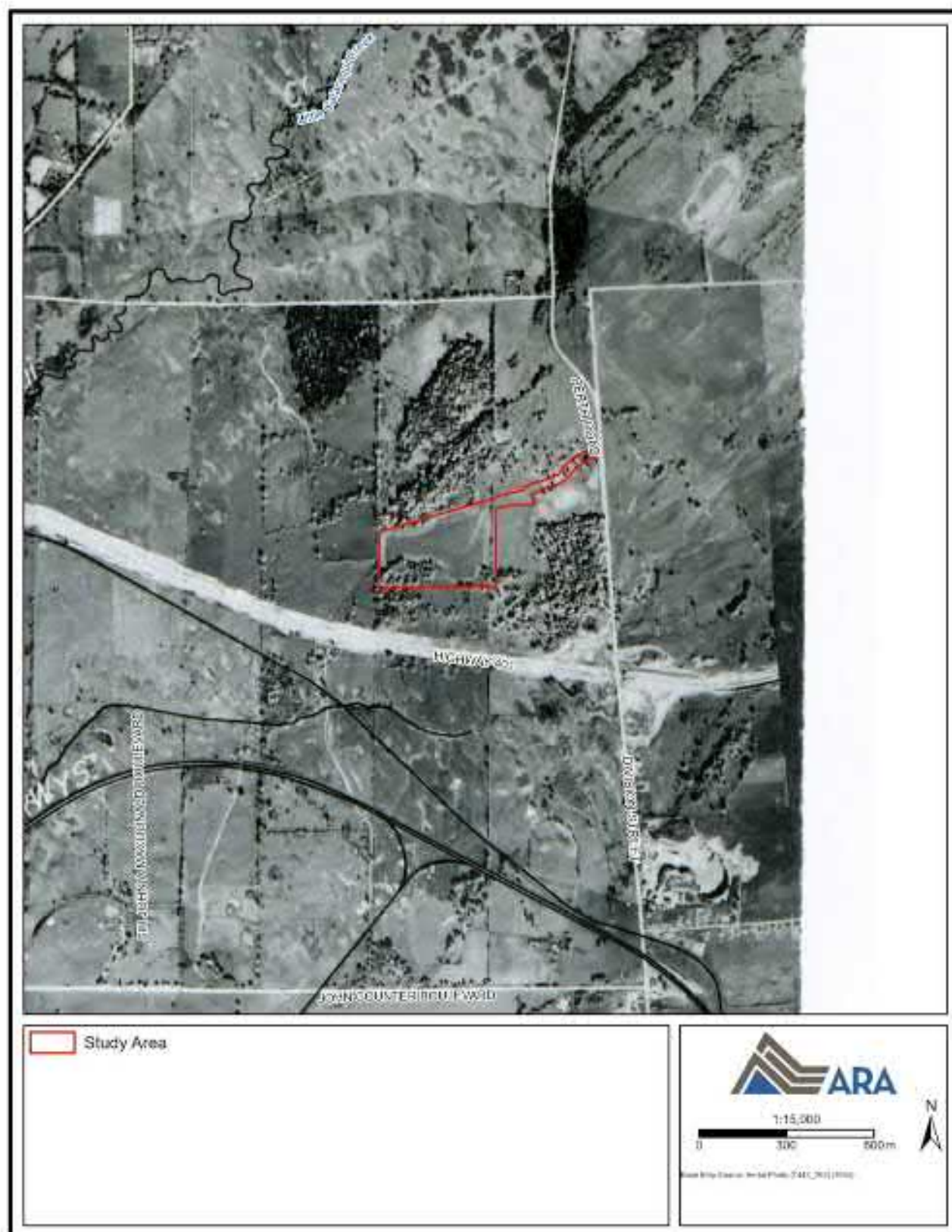
**Map 3: Illustrated Historical Atlas of the Counties of Frontenac, Lennox and Addington, Ontario (1878)**

(Produced under licence using ArcGIS® software by Esri, © Esri; MU 2001)



**Map 4: Topographic Map (1916)**  
(Produced under licence using ArcGIS® software by Esri, © Esri; OCUL 2024)



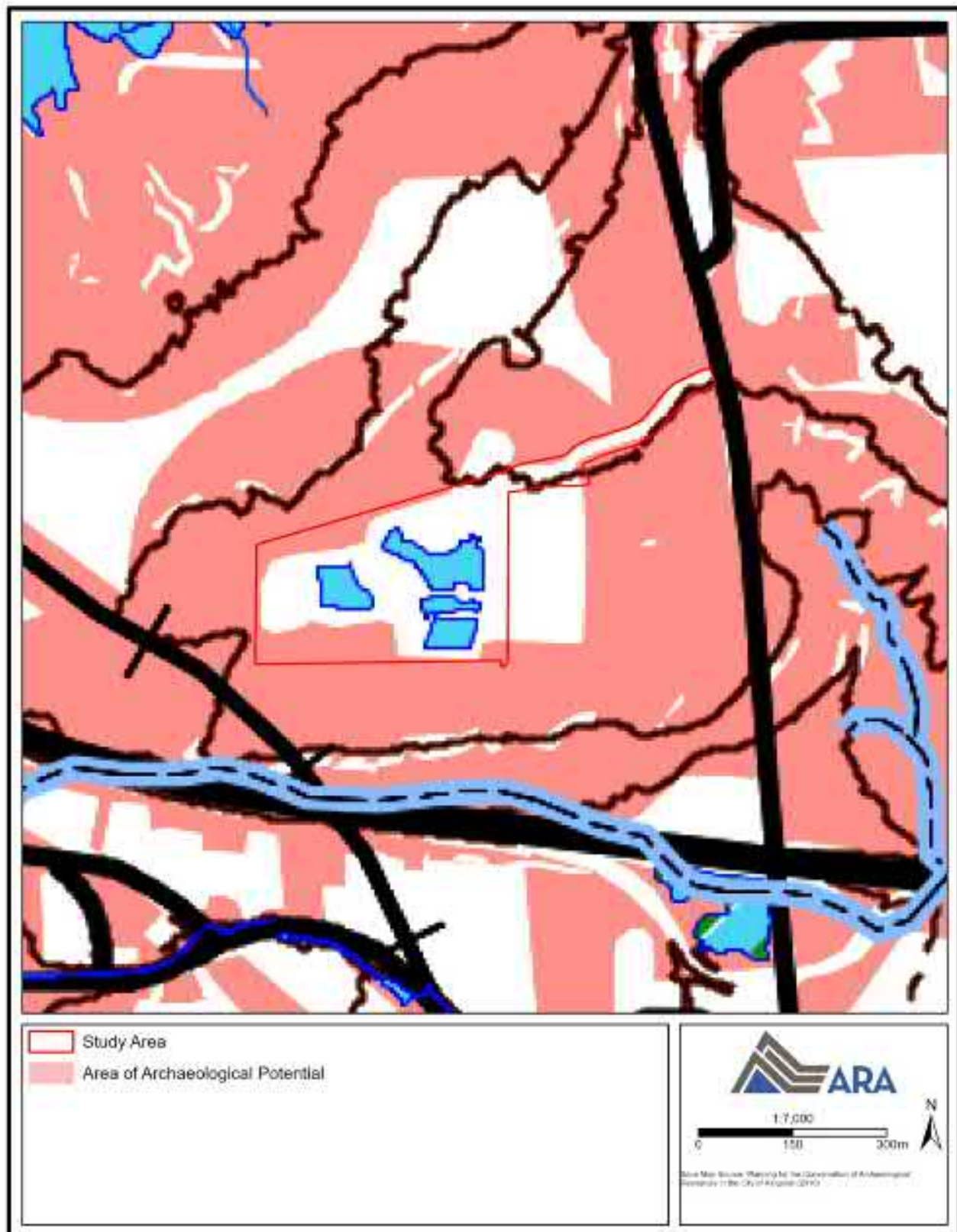


**Map 5: Aerial Image (1954)**  
(Produced under licence using ArcGIS® software by Esri, © Esri; U of T 2024)



**Map 6: Aerial Image (2011)**  
(Produced under licence using ArcGIS® software by Esri, © Esri; City of Kingston 2024)



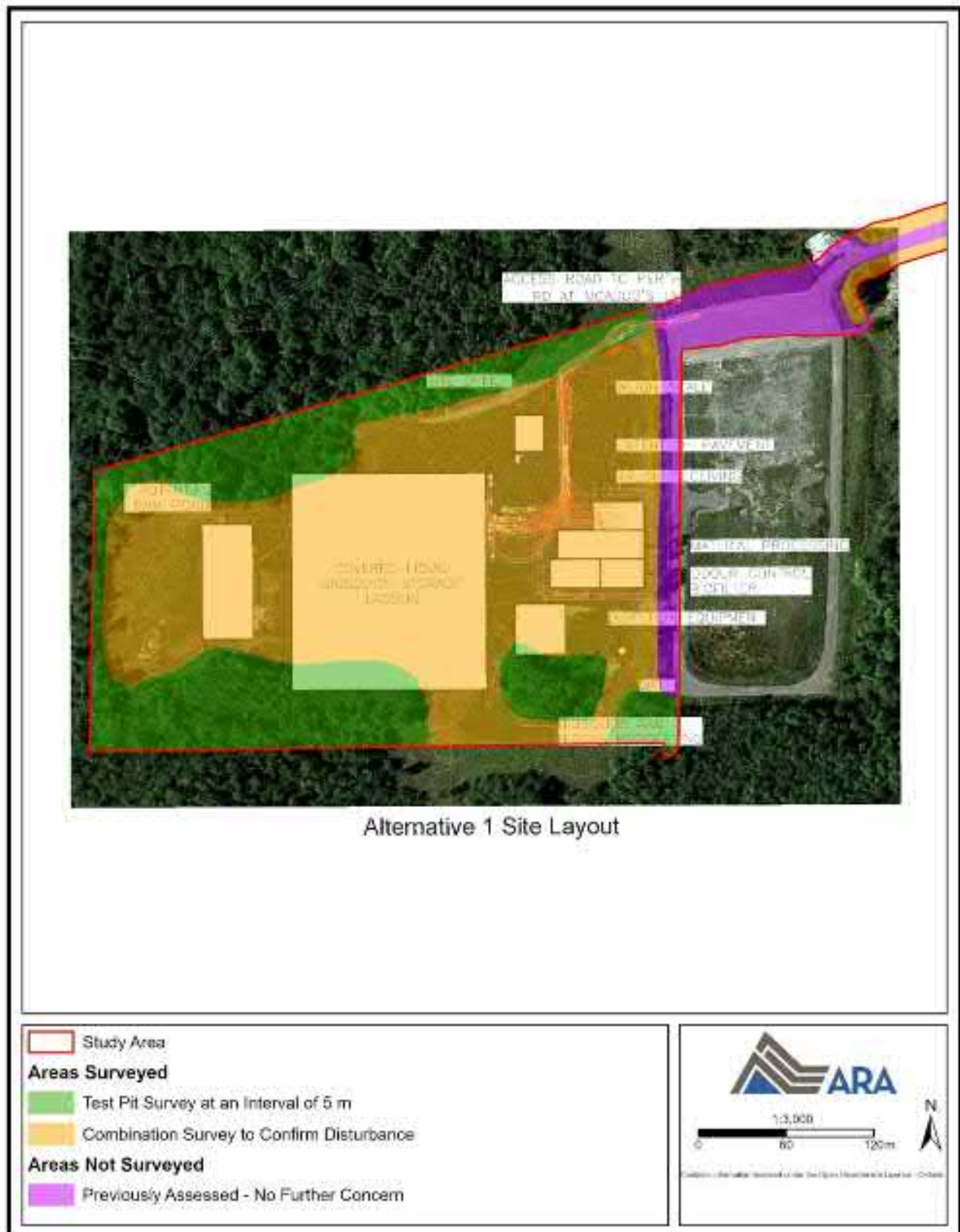


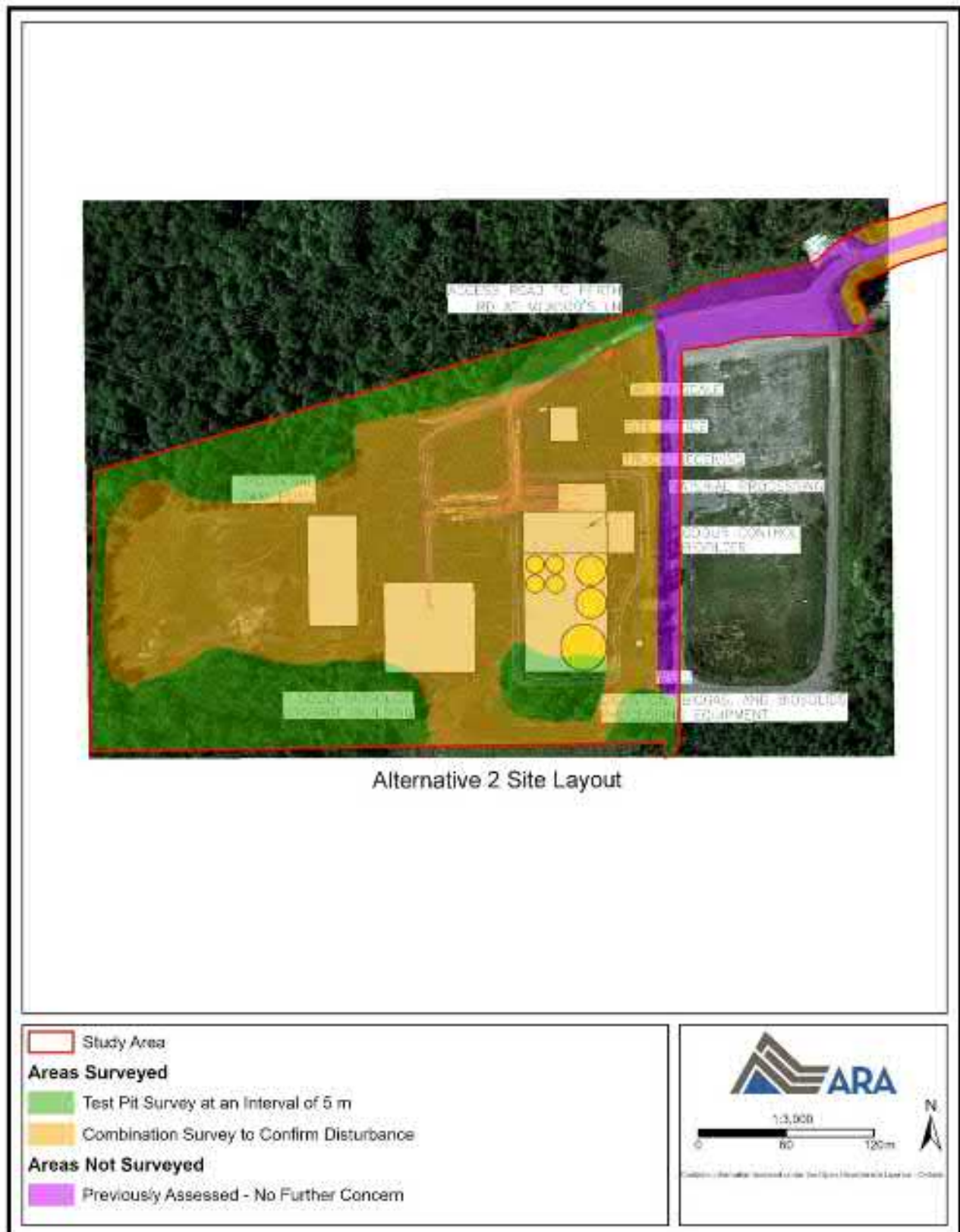
**Map 7: Planning for the Conservation of Archaeological Resources in the City of Kingston**  
(Produced under licence using ArcGIS® software by Esri, © Esri; ASI 2010)













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**Stage 2 Archaeological Assessment  
Kingston Regional Biosolids and Biogas Facility  
Municipal Class Environmental Assessment  
City of Kingston  
Part of Lots 22–24, Concession 3  
Geographic Township of Kingston  
Former Frontenac County, Ontario**

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Licensed under  
**P.J. Racher**  
MCM Licence #P007  
PIF #P007-1543-2023  
ARA File #2023-0365

**18/07/2024**

**Record of Indigenous Engagement**



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## 1.0 RECORD OF INDIGENOUS ENGAGEMENT

### 1.1 Summary of Events

The identification of Indigenous engagement contacts was based on knowledge about treaty areas and traditional territories. Engagement was initiated by the proponent, and the following groups were contacted to determine whether they had an interest in participating in the project:

- Alderville First Nation (AFN);
- Algonquins of Ontario (AOO);
- Algonquins of Pikwākanagān First Nation (AOPFN);
- Curve Lake First Nation (CLFN);
- Hiawatha First Nation (HFN);
- Huron-Wendat Nation (HWN);
- Kawartha Nishnawbe First Nation (KNFN);
- Métis Nation of Ontario (MNO);
- Mississaugas of Scugog Island First Nation (MSIFN);
- Mohawks of the Bay of Quinte (MBQ);
- Mohawk Council of Akwesasne (MCA);
- Shabot Obaadjiwan First Nation (SOFN); and
- Six Nations of the Grand River (SNGR).

Only AFN and HWN indicated that they were interested in participating. Accordingly, Archaeological Research Associates Ltd. (ARA) engaged with these two groups over the course of the investigation. In keeping with the requirements set out in Section 7.6.2 of the 2011 *Standards and Guidelines for Consultant Archaeologists*, a description of ARA's involvement in the process is summarized below. The 2011 *Engaging Aboriginal Communities in Archaeology* draft technical bulletin was also consulted for guidance.

ARA's involvement in the engagement process consisted of conversations with the coordinators regarding the scheduling of fieldwork and on-site discussions with the field representative. A summary of engagement events appears in RoIE Table 1, and a breakdown of representative participation is presented in RoIE Table 2. It is ARA's understanding that the representative concurred with the strategies, methods and results of the investigation.

**RoIE Table 1: Summary of Engagement Events**

Group	Date	Engagement Event	Nature
AFN Contact: J. Kapyrka	16-Nov-23	Deployment details circulated for the following week.	Email
	-	Draft report circulated by proponent.	-
	-	No comments received.	-
HWN Contacts: M.-S. Gendron, D. Lesage	16-Nov-23	Deployment details circulated for the following week.	Email
	-	Draft report circulated by proponent.	-
	-	No comments received.	-



**RoIE Table 2: Summary of Participating Representatives**

Group	Representative	Participation
AFN	None	N/A
HWN	G. Savard	November 20–22, 2023