



January 23rd, 2012

REPORT



STAGE 1 ARCHAEOLOGICAL ASSESSMENT

**Nyon Energy Park,
Part of Lots 23, 24 and 25,
Concession 4 and
Part of Lots 16, 17, 18 and 19,
Concession 5,
City of Port Colborne,
R.M. of Niagara, Ontario**

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PIF Number PIF#: P218-188-2011

Report Number: 11-1154-0075-R01

Distribution:

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STAGE 1 ARCHAEOLOGICAL ASSESSMENT NYON ENERGY PARK, CITY OF PORT COLBORNE, ONTARIO.

Executive Summary

An archaeological assessment (Stage 1) was conducted on behalf of Nyon Oil Inc. by Golder Associates Ltd. for an approximately 313 hectare property located on part of Lots 23, 24 and 25, Concession 4 and part of Lots 16, 17, 18 and 19, Concession 5, City of Port Colborne, formerly Geographical Township of Humberstone, R.M. of Niagara, formerly Welland County, Ontario. This assessment was conducted to assist with the modification of the existing OPA and ZBLA applications to redesignate these lands to provide for the development of an energy park.

The objective of the Stage 1 archaeological assessment was to compile all available information about the known and potential cultural heritage resources within the study area and to provide specific direction for the protection, management and/or recovery of these resources, consistent with Ministry of Tourism, Culture and Sport guidelines.

The Stage 1 archaeological assessment has resulted in the determination that the subject property has been partially impacted by 20th century disturbance and modification, severely limiting the archaeological potential of the western and northern boundaries of the study area. The current and former route of the Air Railway Line, cutting across the north-central portion of the study area from east to west also represents disturbance and those routes are considered to have low archaeological potential. Despite these disturbances, other portions of the study area appear to remain intact. Those areas that retain archaeological potential comprise agricultural fields, bushlots and residential lands in the central, southern and eastern portions of the study area. As a result, **Stage 2 archaeological assessment is recommended**. Stage 2 archaeological assessment will take the form of both pedestrian survey and test pit survey.

The Ontario Ministry of Tourism and Culture is asked to review the results presented and accept this report into the Ontario Public Register of Archaeological Reports. The Ministry is also asked to inform the proponent that the provincial concerns for archaeological resources for this project have been met.

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.



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1.0 PROJECT CONTEXT

1.1 Development Context

An archaeological assessment (Stage 1) was conducted on behalf of Nyon Oil Inc. by Golder Associates Ltd. for an approximately 313 hectare property located on part of Lots 23, 24 and 25, Concession 4 and part of Lots 16, 17, 18 and 19, Concession 5, City of Port Colborne, formerly Geographical Township of Humberstone, R.M. of Niagara, formerly Welland County, Ontario (Map 1). This assessment was conducted to assist with the modification of the existing OPA and ZBLA applications to re-designate these lands to provide for the development of an energy park (Map 2).

The objective of the Stage 1 assessment was to compile all available information about the known and potential archaeological resources within the subject property and to provide specific direction for the protection, management and/or recovery of these resources. In compliance with the provincial standards and guidelines set out in the *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011a), the objectives of the Stage 1 Archaeological Overview/Background Study are as follows:

- To provide information about the subject property's geography, history, previous archaeological fieldwork and current land conditions;
- To evaluate in detail the subject property's archaeological potential, which will support recommendations for Stage 2 survey for all or parts of the property; and
- To recommend appropriate strategies for further archaeological assessment.

To meet these objectives Golder archaeologists employed the following research strategies:

- A review of relevant archaeological, historic and environmental literature pertaining to the subject property;
- A review of the land use history, including pertinent historic maps;
- An examination of the Ontario Archaeological Sites Database (ASDB) to determine the presence of known archaeological sites in and around the subject property; and
- A property inspection.

In addition to the property inspection of the subject property, and consultation of McGill's Canadian County Digital Atlas Project, background research was conducted at the Land Registry Office in St. Catharines and in Golder's corporate library.

The property inspection for the Stage 1 assessment was conducted on December 1st, 2011 under archaeological consulting licence P218, issued to Scott Martin, Ph.D., by the Ontario Ministry of Tourism Culture and Sport. Permission to enter the property for the inspection was given by Mr. Gordon R. Baker, Q.C., President, Nyon Oil Inc.



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1.1.1 The Natural Environment

The study area is situated within the Haldimand Clay Plain physiographic region (Chapman & Putnam 1984:156-159) and is described as

Lying between the Niagara Escarpment and Lake Erie, thus occupying all of the Niagara Peninsula except the fruit belt below the escarpment, the Haldimand clay plain has an area of about 1,350 square miles. Although it was all submerged in Lake Warren, the till is not all buried by stratified clay; it comes to the surface generally in low morainic ridges in the north. In fact, there is in that area a confused intermixture of stratified clay and till. The northern part has more relief than the southern part where the typically level lake plains occur.

(Chapman and Putnam 1984:156)

The soils of the former Welland County are mainly heavy clay and the southern part of the R.M. of Niagara is poorly drained with Wainfleet and Humberstone marshes, featuring peat bogs (Chapman and Putnam 1984:157; Ontario Division of Mines 1972). The lands of Humberstone township are relatively flat and soils are loam and amenable to farming (H.R. Page 1876:11), favourable to farming, although extensive marshland permitted a commercial enterprise in peat cutting for use as fuel by the Ontario Peat Company (H.R. Page 1876:11). Map 3 illustrates the current surficial geology of the property and surrounding land noting large areas of recent man-made deposits.

1.2 Historical Context

1.2.1 Post-contact Aboriginal Resources and Archaeological Potential

The criteria used by the Ontario Ministry of Tourism and Culture to determine potential for post-contact Aboriginal archaeological sites include the presence of: previously identified archaeological sites; particular, resource-specific features that would have attracted past subsistence or extractive uses; early historic transportation routes; elevated topography; and properties designated under the *Ontario Heritage Act*.

Distance to modern or ancient water sources is generally accepted as the most important determinant of past human settlement patterns and, considered alone, may result in a determination of archaeological potential. However, any combination of two or more other criteria, such as well-drained soils or topographic variability, may also indicate archaeological potential. Finally, extensive land disturbance can eradicate archaeological potential (Wilson and Home 1995). In archaeological potential modeling a distance to water criterion of 300 metres is generally employed. Soil texture can be an important determinant of past settlement, usually in combination with other factors such as topography. The Ontario Ministry of Tourism and Culture also views the presence of previously registered archaeological resources as a prime indicator of archaeological potential.

The post-contact Aboriginal occupation of Southern Ontario was heavily influenced by the dispersal of various Iroquoian-speaking peoples by the New York State Iroquois and the subsequent arrival of Algonkian-speaking groups from northern Ontario at the end of the 17th century and beginning of the 18th century (Schmalz 1991).

The nature of their settlement size, population distribution, and material culture shifted as European settlers encroached upon their territory. However, despite this shift, "written accounts of material life and livelihood, the correlation of historically recorded villages to their archaeological manifestations, and the similarities of those



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sites to more ancient sites have revealed an antiquity to documented cultural expressions that confirms a deep historical continuity to Iroquoian systems of ideology and thought" (Ferris 2009:114). As a result, First Nation peoples of Southern Ontario have left behind archaeologically significant resources throughout Southern Ontario which show continuity with past peoples, even if they have not been recorded in historical Euro-Canadian documentation.

The subject property first enters the historic record when the Mississauga First Nation entered into a treaty arrangement in 1784, known as Treaty No. 3. This treaty

was made with the Mississaugas Indians 7th December, 1792, though purchased as early as 1784. This purchase in 1784 was to procure for that part of the Six Nation[s] Indians coming into Canada a permanent abode. The area included in this Treaty is, Lincoln County excepting Niagara Township; Saltfleet, Binbrook, Barton, Glanford and Acaster Townships, in Wentworth County, Brantford, Onondaga, Tuscarora, Oakland and Burford Townships in Brand County; East and West Oxford, North and South Norwich, and Dereham Townships in Oxford County; North Dorchester Township in Middlesex County; South Dorchester, Malahide and Bayham Townships in Elgin County; all Norfolk and Haldimand Counties; Pelham, Wainfleet, Thorold, Cumberland and Humberstone Townships in Welland County.

(Morris 1943:17-18)

Following actual survey and a geographical revision of the first version, the treaty lands were described as:

All that parcel or tract of land lying and being between the Lakes Ontario and Erie, beginning at Lake Ontario, four miles south westerly from the point opposite to Niagara Fort, known by the name of Mississauga Point, and running from thence along the said lake to the creek that falls from a small lake, known by the name of Washquarter into the said Lake Ontario, and from thence north forty-five degrees west, fifty miles; thence south forty-five degrees west, twenty miles; and thence south until it strikes the River La Tranche; then down the stream of the said river to that part or place where a due south course will lead to the mouth of Catfish Creek emptying into Lake Erie, and from the above mentioned part or place of the aforementioned River La Tranche following the south course to the mouth of the said Catfish Creek; thence down Lake Erie to the lands heretofore purchased from the Nation of Mississauga Indians; and from thence along the said purchase at Lake Ontario, at the place of beginning as above mentioned, together with all the woods, ways, paths, water, watercourses and appurtenances thereunto belonging."

(Morris 1943:18)

The Treaty was signed by six representatives of the King, John Butter, R. Hamilton, Robert Kerr, Peter Russell, John McGill and David William Smith and five Mississauga chiefs, Wabukanyne (or Wabukayine), Wabanip, Kautubus (or Kautabus), Wabaninship and Mattatow together with J. Graves Simcoe (Morris 1943:18).

While it is difficult to exactly delineate treaty boundaries today, Map 4 provides an approximate outline of the limits of Treaty Number 3. In accordance with the Ministry of Tourism and Culture's Technical Bulletin on *Engaging Aboriginal Communities in Archaeology* (Government of Ontario 2011b), it is best practice to identify



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Aboriginal communities for the purpose of providing information on traditional use areas, sacred sites, and other sites when available and relevant to the property. For the subject property, the Mississaugas of the New Credit First Nation are considered descendants of the signatories of Treaty No. 3 and those they represented.

Due to the proximity of the study area to Indian Creek and Lyons Creek, as possible waterways and potable water sources, and to historic transportation routes, particularly rail lines, and the presence of known historic inhabitations in the vicinity, the potential for post-contact Aboriginal archaeological resources is judged to be moderate to high.

1.2.2 Historic Euro-Canadian Resources and Archaeological Potential

The criteria used by the Ontario Ministry of Tourism and Culture to determine potential for historic Euro-Canadian archaeological sites include the presence of: previously identified archaeological sites; particular, resource-specific features that would have attracted past subsistence or extractive uses; areas of initial, non-Aboriginal settlement; early historic transportation routes; elevated topography; and properties designated under the *Ontario Heritage Act*.

Distance to modern or ancient water sources is generally accepted as the most important determinant of past human settlement patterns and, considered alone, may result in a determination of archaeological potential. However, any combination of two or more other criteria, such as well-drained soils or topographic variability, may also indicate archaeological potential. Finally, extensive land disturbance can eradicate archaeological potential (Wilson and Horne 1995). In archaeological potential modeling a distance to water criterion of 300 metres is generally employed. Soil texture can be an important determinant of past settlement, usually in combination with other factors such as topography. The Ontario Ministry of Tourism and Culture also views the presence of previously registered archaeological resources as a prime indicator of archaeological potential.

The subject property falls within the former Geographical Township of Humberstone, Welland County (Map 5). It was first settled in 1785. By 1817, the township comprised 75 inhabited houses. As of 1875, the population was approximately 4400, including Port Colborne, which became an incorporated village in 1870 (Page 1876:11). By 1859, Port Colborne was the southern terminus of the Welland Railway, passing through the western portion of the township, and was also an important stop on the Grand Trunk Railway's Buffalo and Goderich Division (Page 1876:11; Russell 2011). At that time, the Welland Railway Company's grain elevator in Port Colborne was capable of off-loading 45,000 bushels of grain per hour from ships and transferring these stores to rail cars (Page 1876:11).

Work on the Welland Canal project began in 1824 and cut through the western side of the township (Page 1876:11). The route of the canal changed in subsequent years (Westwater 2010) and Page makes reference to the enlargement of the canal still underway in 1875 (Page 1876:11). Work on this Third Welland Canal was completed in 1881 and it remained in use until it was decommissioned in 1932 (Westwater 2010).

In 1875, the Canada Southern Railway cut across the extreme northeastern corner of Humberstone Township (Page 1876). The Canada Air Line Railway, competitor to the Canada Southern Railway was chartered by the Great Western Railway in 1869 and completed in 1873. This line runs east-west through Humberstone Township and cuts across the study area. During the late 19th century, the closest villages would have been



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Humberstone (Petersburg) and Port Colborne, approximately 3 km and 5 km, respectively, to the southwest of the study area.

The Fourth Welland Canals' Welland By-Pass canal was constructed between 1967 and 1973 (Westwater 2010). This served to reduce the number of locks and bridges on the canal system, increase capacity and decrease travel time for shipping (Westwater 2010). The Welland By-Pass serves as the western boundary of the study area. Highway 58A (Townline Road) is the northern boundary of the study area. Where Highway 58A crosses beneath the Welland By-Pass via the Townline Tunnel, constructed at the same time as this portion of the Welland By-Pass. Excavated spoil from both the By-Pass and the Townline Tunnel have been heaped up along the western and northern edges of the study area in series of massive fill events. These areas are indicated in quaternary geology maps (Ontario Division of Mines 1972; Upper Canada Consultants 2011) and available as GIS data layers from the Ontario Ministry of Natural Resources (Government of Ontario 2008). Areas where a number of historic houses, stood in 1875, as depicted by Page (1876:11), are now covered by this fill.

Although the routes of these have been diverted during episodes of canal construction, Lyons Creek runs east-west through the middle of the study area in the vicinity of the Air Line and Indian Creek runs east-west along the southern edge of the study area. Page (1976) depicts 'Indian Creek' running in the vicinity of Lyons Creek.

Due to the proximity of the study area to Indian Creek and Lyons Creek, as possible waterways and potable water sources, and to historic transportation routes, particularly rail lines, and the presence of known historic inhabitations in the vicinity, the potential for historic Euro-Canadian archaeological resources is judged to be moderate to high.

1.3 Archaeological Context

1.3.1 Previously Known Archaeological Sites and Surveys

In order that an inventory of archaeological resources could be compiled, the registered archaeological site records kept by the Ontario Ministry of Tourism Culture and Sport were consulted. In Ontario, information concerning archaeological sites is stored in the ASDB maintained by the Ministry of Tourism Culture and Sport. 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 subject property under review is within Borden Block *AfGt*. A search in the ASDB concluded that there are no registered archaeological sites within one kilometre of the subject property or previous archaeological assessments within 50 metres of the subject property (Robert von Bitter, Pers. Comm., December 5, 2012).

Information concerning specific site locations is protected by provincial policy, and is not fully subject to the Freedom of Information Act. The release of such information in the past has led to looting or various forms of illegally conducted site destruction. Confidentiality extends to all media capable of conveying location, including maps, drawings, or textual descriptions of a site location. The Ministry of Tourism Culture and Sport will provide information concerning site location to the party or an agent of the party holding title to a property, or to a licensed archaeologist with relevant cultural resource management interests.



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Previous archaeological assessments and research surveys in the R.M. of Niagara have demonstrated the presence of pre-contact Aboriginal communities (Archaeologix 2004; Pengelly and Pengelly 1986; Williamson and MacDonald (editors) 1997). The Wainfleet Marsh, southwest of the study area, provided plentiful natural resources for occupation in the area at least since the late Early Archaic Bifurcate Base period (Pengelly and Tinkler 2004). Chert quarries and outcrops are also plentiful in the Port Colborne area with Onondaga chert quarries along the Erie shore (Eley and von Bitter 1989:28) and inland (Archaeologix 2004:3), while Haldimand 'Colborne' chert also occurs inland (Fox 1979:6, 2009:361). Findspots and lithic reduction sites have been documented from the late Palaeo-Indian period on (Archaeologix 2004; Pengelly and Tinkler 2004). During periods of higher water levels in Lake Erie, a greater proportion of sites are recovered inland, as opposed to along the Lake Erie shore. One such period was the Nipissing High Stand, approximately 3780-2490 B.C., occurring during the Middle Archaic and into the early Late Archaic. Exotic lithic materials from the Midwestern United States declined during this period, possibly implying reduced mobility or exchange (Pengelly and Tinkler 2004). Table 1 summarises the culture history of the R.M. of Niagara, based on Ellis and Ferris (editors) (1990).

Table 1: Cultural Chronology for the R.M. of Niagara

Period	Characteristic Elements	Time Period	Comments
Early Palaeo-Indian	Fluted Projectiles	9000 - 8400 B.C.	spruce parkland/caribou hunters
Late Palaeo-Indian	Hi-Lo Projectiles	8400 - 8000 B.C.	smaller but more numerous sites
Early Archaic	Kirk and Bifurcate Base Points	8000 - 6000 B.C.	slow population growth
Middle Archaic	Brewerton-like points	6000 - 2500 B.C.	environment similar to present
Late Archaic	Lamoka (Narrow Points)	2000 - 1800 B.C.	increasing site size
	Broad Points	1800 - 1500 B.C.	large chipped lithic tools
	Small Points	1500 - 1100 B.C.	introduction of bow hunting
Terminal Archaic	Hind Points	1100 - 950 B.C.	emergence of true cemeteries
Early Woodland	Meadowood Points	950 - 400 B.C.	introduction of pottery
Middle Woodland	Dentate/Pseudo-Scallop Pottery	400 B.C. - A.D. 500/800	increased sedentism
Late Woodland	Princess Point	A.D. 500 - 1000	introduction of corn
	Early Ontario Iroquoian	A.D. 1000 - 1300	emergence of agricultural villages
	Middle Ontario Iroquoian	A.D. 1300 - 1400	long longhouses (100m+)
	Late Ontario Iroquoian	A.D. 1400 - 1650	tribal warfare and displacement
Contact Aboriginal	Various Algonkian Groups	A.D. 1700 - 1875	early written records and treaties
Late Historic	Euro-Canadian	A.D. 1796 - present	European settlement



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1.3.2 Pre Contact Aboriginal Resources and Archaeological Potential

The criteria used by the Ontario Ministry of Tourism Culture and Sport to determine potential for pre-contact Aboriginal archaeological sites include: proximity to previously identified archaeological sites, distance to various types of water sources, soil texture and drainage, glacial geomorphology, elevated topography and the general topographic variability of the area.

Distance to modern or ancient water sources is generally accepted as the most important determinant of past human settlement patterns and, considered alone, may result in a determination of archaeological potential. However, any combination of two or more other criteria, such as well-drained soils or topographic variability, may also indicate archaeological potential. Finally, extensive land disturbance can eradicate archaeological potential (Wilson and Horne 1995). In archaeological potential modeling a distance to water criterion of 300 metres is generally employed. Soil texture can be an important determinant of past settlement, usually in combination with other factors such as topography. The Ontario Ministry of Tourism Culture and Sport also views the presence of previously registered archaeological resources as a prime indicator of archaeological potential.

Due to the proximity of the study area to Indian Creek and Lyons Creek, as possible waterways and potable water sources, as well as the proximity to marshlands, the potential for pre-contact Aboriginal archaeological resources is judged to be moderate to high.



2.0 FIELD METHODS

The Stage 1 property inspection was conducted on December 1st, 2011 under archaeological consulting license P218 issued to Scott Martin, Ph.D. of Golder by the Ministry of Tourism Culture and Sport. The weather during the property inspection was cool with a mix of sun and cloud. At no time were the conditions detrimental to the inspection and visibility was excellent. The subject property covers roughly 313 hectares in total, and consists of areas of recent mounded fill, agricultural land, scrubland, residential lands railway lines and an extensive bushlot. Images 1-16 depict portions of the study area. Map 6 illustrates the photographic locations and directions of these Images.

At the northern portion of the study area, there is evidence of massive earth moving activities due to the construction of Townline Tunnel Road (Images 1 and 2). The northern face of the fill mounds, immediately south of the Canadian Pacific Railway line and Townline Tunnel Road, exhibits extensive terracing, due to the volume of relocated soil and measures ostensibly taken to minimize the risk of slump onto the rail line. In the central portion of the study area on Forks Road, the large mounds of soil from the Townline Road vicinity were also visible and are the northern boundary of current agricultural fields (Images 5-7). West on Forks Road, more mounds of earthen fill were observed perpendicular to the mounds to the north at Townline Road. These mounds were less uniform in height and width than those of northern edge of the study area and paralleled the eastern side of the Welland By-Pass canal (Images 3-5). Images 9 and 10 show both sets of linear mounds in the background. A creek near the end of Forks Road barred access to the mounds and canal of the western central portion of the study area (Images 11 and 12). It was unclear how far south these mounds extended or if areas of agricultural land or bushlots existed along the western edge of the southern portion of the study area. A bushlot extends to the south along the eastern side of the southern portion of the study area (Image 12). The southern boundary of the study area consists of residential dwellings (Image 13), a bushlot and bordering scrubland (Images 14 and 15). From the top of the mound or berm area adjacent the canal at the southwestern corner of the study area, it is evident that the mound that runs along the eastern edge of the canal extends north continuously to the northwestern corner of the study area to meet those observed at the western end of Forks Road (Images 15 and 16). Although the study area is bordered on the western and northern sides by mounds of soil and is interspersed with residential dwellings and railway lines, for example the Air Line Railway (Image 10), it was evident that the agricultural fields in the central and eastern part of the northern portion of the study area and the bushlot and scrubland of the central and eastern part of the southern portion are amenable to Stage 2 pedestrian survey and test pit survey, respectively.



3.0 ANALYSIS AND CONCLUSIONS

Archaeological potential is established by determining the likelihood that archaeological resources may be present on a subject property. In accordance with the MTC's 2011 *Standards and Guidelines for Consultant Archaeologists* the following are features or characteristics that indicate archaeological potential:

- Previously identified archaeological sites;
- Water sources:
 - Primary water sources (lakes, rivers, streams, creeks)
 - Secondary water sources (intermittent streams and creeks; springs; marshes; swamps)
 - Features indicating past water sources (e.g. glacial lake shorelines indicated by the presence of raised gravel, sand, or beach ridges; relic river or stream channels indicated by clear dip or swale in the topography; shorelines of drained lakes or marshes; and cobble beaches)
 - Accessible or inaccessible shoreline (e.g. high bluffs, swamps or marsh fields by the edge of a lake; sandbars stretching into marsh);
- Elevated topography (eskers, drumlins, large knolls, plateaux);
- Pockets of well drained sandy soil, especially near areas of heavy soil or rocky ground;
- Distinctive land formations that might have been special or spiritual places, such as waterfalls, rock outcrops, caverns, mounds, and promontories and their bases (there may be physical indicators of their use, such as burials, structures, offerings, rock paintings or carvings);
- Resource areas including:
 - Food or medicinal plants
 - Scarce raw minerals (e.g. quartz, copper, ochre or outcrops of chert)
 - Early Euro-Canadian industry (fur trade, mining, logging);
- Areas of Euro-Canadian settlement; and
- Early historical transportation routes.

When the above noted archaeological potential criteria are applied to the subject property, the archaeological potential for pre-contact Aboriginal sites as well as historic Aboriginal and Euro-Canadian sites is deemed to be moderate to high. This assessment is due to the proximity of the study area to Indian Creek and Lyons Creek, as possible waterways and potable water sources and of historic transportation routes, the presence of known pre-contact Aboriginal sites and historic Euro-Canadian inhabitations in the vicinity, as well as the suitability of the soils and topography for agricultural practices, the potential for pre-contact Aboriginal archaeological resources is judged to be moderate to high.



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4.0 RECOMMENDATIONS

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The Stage 1 archaeological assessment has resulted in the determination that the subject property has been partially impacted by 20th century disturbance and modification, severely limiting the archaeological potential of the western and northern boundaries of the study area (Map 6). The current and former route of the Air Railway Line, cutting across the north-central portion of the study area from east to west also represents disturbance and those routes are considered to have low archaeological potential. However, portions of the study area appear to remain intact. Those areas that retain archaeological potential comprise agricultural fields, bushlots and residential lands in the central, southern and eastern portions of the study area. As a result, **Stage 2 archaeological assessment is recommended.**



5.0 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 archaeological 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 Culture and Sport, 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 fieldwork on the site, submitted a report to the Minister stating that the site has no further archaeological 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 *Cemeteries Act*, R.S.O. 1990 c. C.4 and the *Funeral, Burial and Cremation Services Act*, 2002, S.O. 2002, c.33 (when proclaimed in force) require that any person discovering human remains must notify the police or coroner and the Registrar of Cemeteries at the Ministry of Consumer Services.

Archaeological sites recommended for further archaeological fieldwork or protection remain 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 license.



6.0 BIBLIOGRAPHY AND SOURCES

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7.0 IMAGES

Image 1: Fill Mound Terracing at Northern Boundary of Study Area, Facing Southwest



Image 2: Townline Tunnel at Northwestern Corner of Study Area, Facing West





STAGE 1 ARCHAEOLOGICAL ASSESSMENT NYON ENERGY PARK, CITY OF PORT COLBORNE, ONTARIO.

Image 3: Scrubland and Fill Mound in Background, Northwestern Portion of Study Area, Facing Northeast



Image 4: Agricultural Field and Fill Mound in Background, North-Central Portion of Study Area, Facing West





STAGE 1 ARCHAEOLOGICAL ASSESSMENT NYON ENERGY PARK, CITY OF PORT COLBORNE, ONTARIO.

Image 5: Agricultural Field and Fill Mound in Background, North-Central Portion of Study Area, Facing Northwest



Image 6: Agricultural Field and Fill Mound in Background, North-Central Portion of Study Area, Facing North





STAGE 1 ARCHAEOLOGICAL ASSESSMENT NYON ENERGY PARK, CITY OF PORT COLBORNE, ONTARIO.

Image 7: Agricultural Field and Fill Mound in Background, North-Central Portion of Study Area, Facing Northeast



Image 8: Agricultural Field, North-Central Portion of Study Area, Facing East





**STAGE 1 ARCHAEOLOGICAL ASSESSMENT
NYON ENERGY PARK, CITY OF PORT COLBORNE, ONTARIO.**

Image 9: Agricultural Field and Fill Mound in Background, Northern Portion of Study Area, Facing Northwest



Image 10: Existing Rail Line and Route of Earlier Rail Line (Air Line Railway), Northern Portion of Property, Facing West





**STAGE 1 ARCHAEOLOGICAL ASSESSMENT
NYON ENERGY PARK, CITY OF PORT COLBORNE, ONTARIO.**

Image 11: Bushlot Edge and Fill Mound in Background, West-Central Portion of Study Area, Facing Southwest



Image 12: Bushlot Edge and Fill Mound in Background, West-Central Portion of Study Area, Facing West





STAGE 1 ARCHAEOLOGICAL ASSESSMENT NYON ENERGY PARK, CITY OF PORT COLBORNE, ONTARIO.

Image 13: Residence and Babion Bushlot, Southeastern Corner of Snider Road and Third Concession Road, Facing West



Image 14: Scrubland Edge and Babion Bushlot, South-Central Portion of Study Area, Facing Northwest





**STAGE 1 ARCHAEOLOGICAL ASSESSMENT
NYON ENERGY PARK, CITY OF PORT COLBORNE, ONTARIO.**

Image 15: Scrubland and Babion Bushlot Edge, Southwestern Corner of Study Area from Top of Fill Mound, Facing East



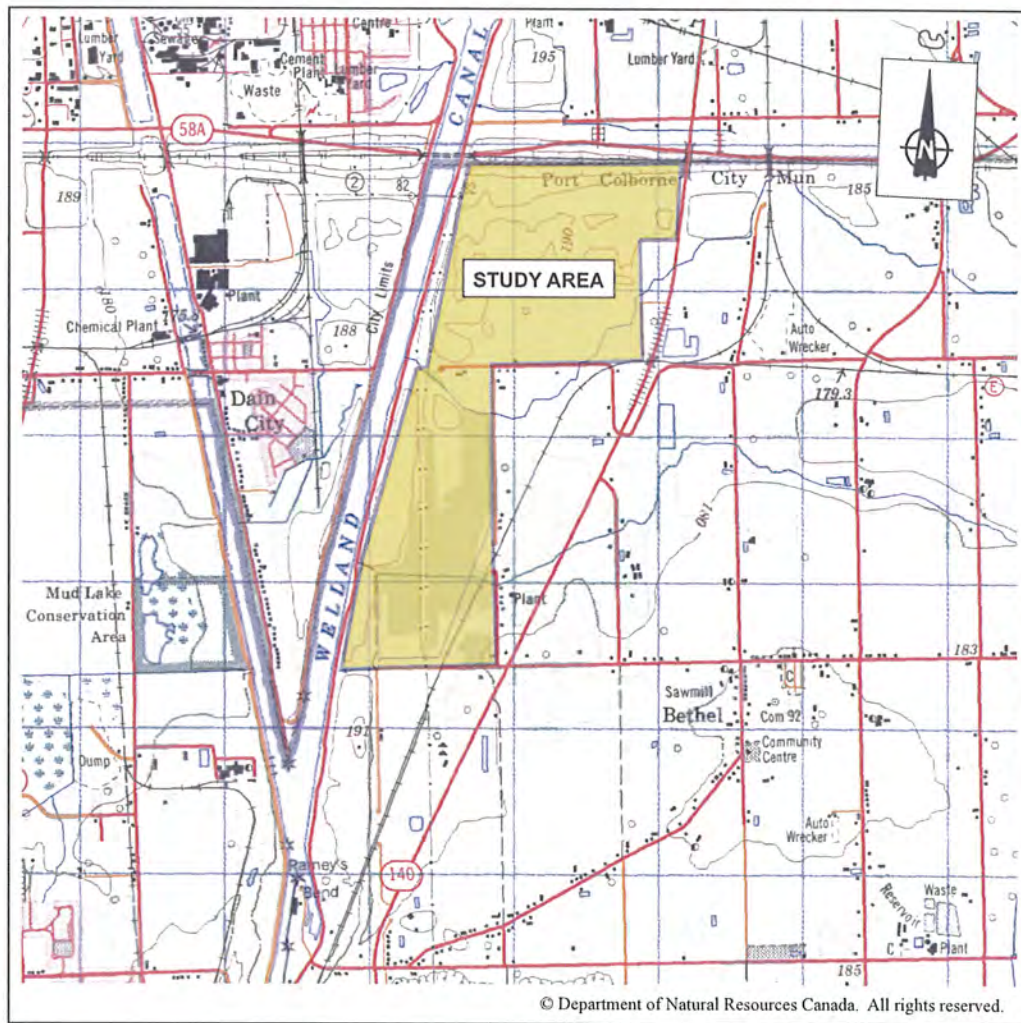
Image 16: Welland By-Pass Canal and Top of Fill Mound, Southwestern Corner of Study Area, Facing North





8.0 MAPS

Maps 1-6 follow on the succeeding pages.



LEGEND

STUDY AREA

REFERENCE

DRAWING BASED ON

GOVERNMENT OF CANADA
1996 TOPOGRAPHIC MAP SHEET 40 L/14: WELLAND
(EDITION 7). CANADA CENTRE FOR MAPPING,
NATURAL RESOURCES CANADA, OTTAWA.

NOTES

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ALL LOCATIONS ARE APPROXIMATE.

PROJECT STAGE 1 ARCHAEOLOGICAL ASSESSMENT,
NYON ENERGY PARK,
CITY OF PORT COLBORNE, R.M. OF NIAGARA, ONTARIO

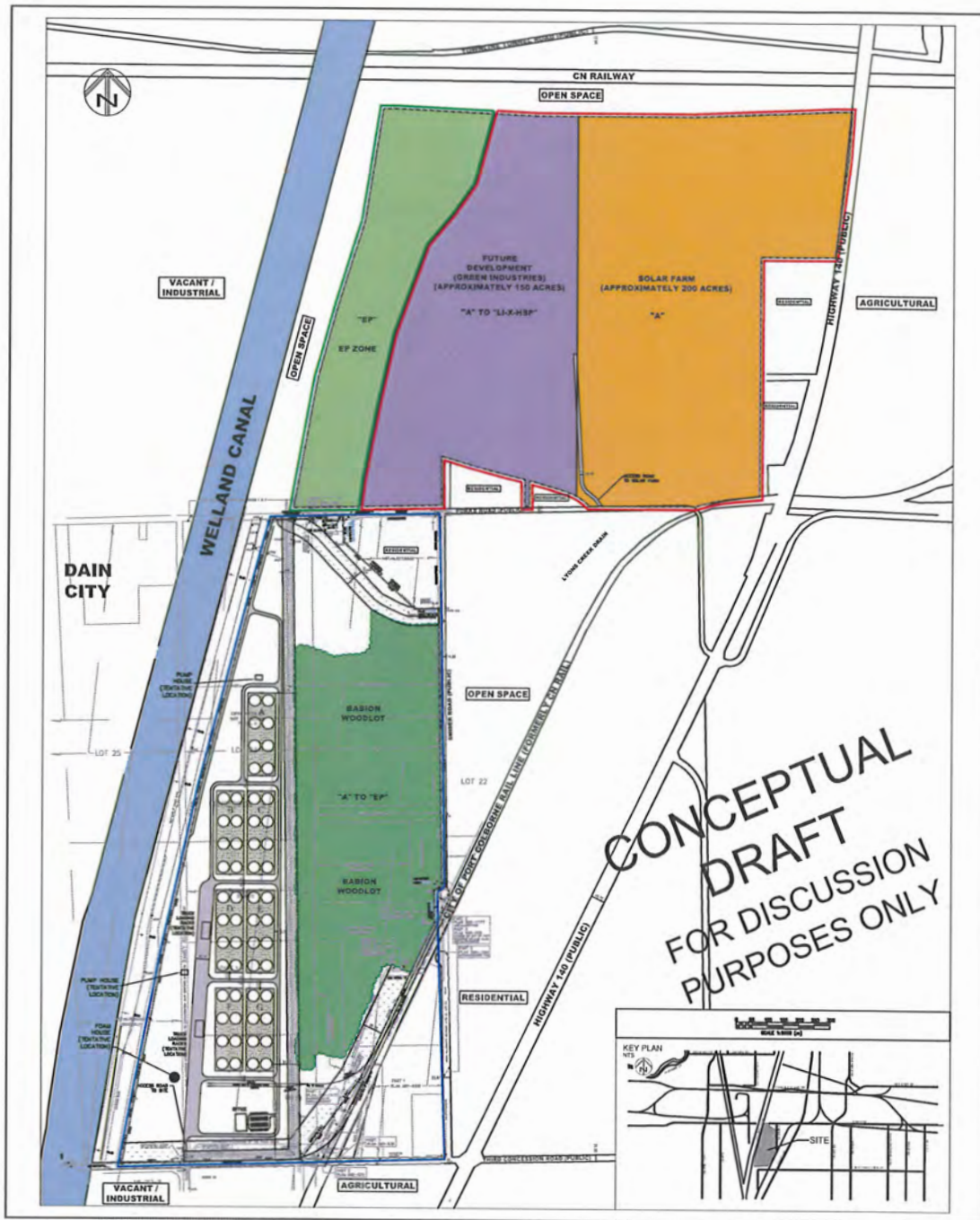
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LOCATION OF STUDY AREA



PROJECT No.	11-1154-0075	FILE No.	1111540075-R01001
CADD	SM/AL	DEC 2/11	SCALE 1:50,000 REV.
CHECK			

MAP 1



SITE LEGEND:

- PROPERTY BOUNDARY
- STORAGE FACILITY
- WATERCOURSE BUFFER
- WOODLOT
- HYDRO CORRIDOR
- SECONDARY ACCESS ROUTES

OFFICIAL PLAN DESIGNATIONS

- DEFERRED INDUSTRIAL
- AGRICULTURAL
- OPEN SPACE

REFERENCE

DRAWING BASED ON

Conceptual Draft Plan Compiled by:
MMM Group Limited, 100 Commerce Valley Drive West,
Thornhill, On L3T 0A11

NOTES

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PROJECT

STAGE 1 ARCHAEOLOGICAL ASSESSMENT,
NYON ENERGY PARK,
CITY OF PORT COLBORNE, R.M. OF NIAGARA, ONTARIO

TITLE

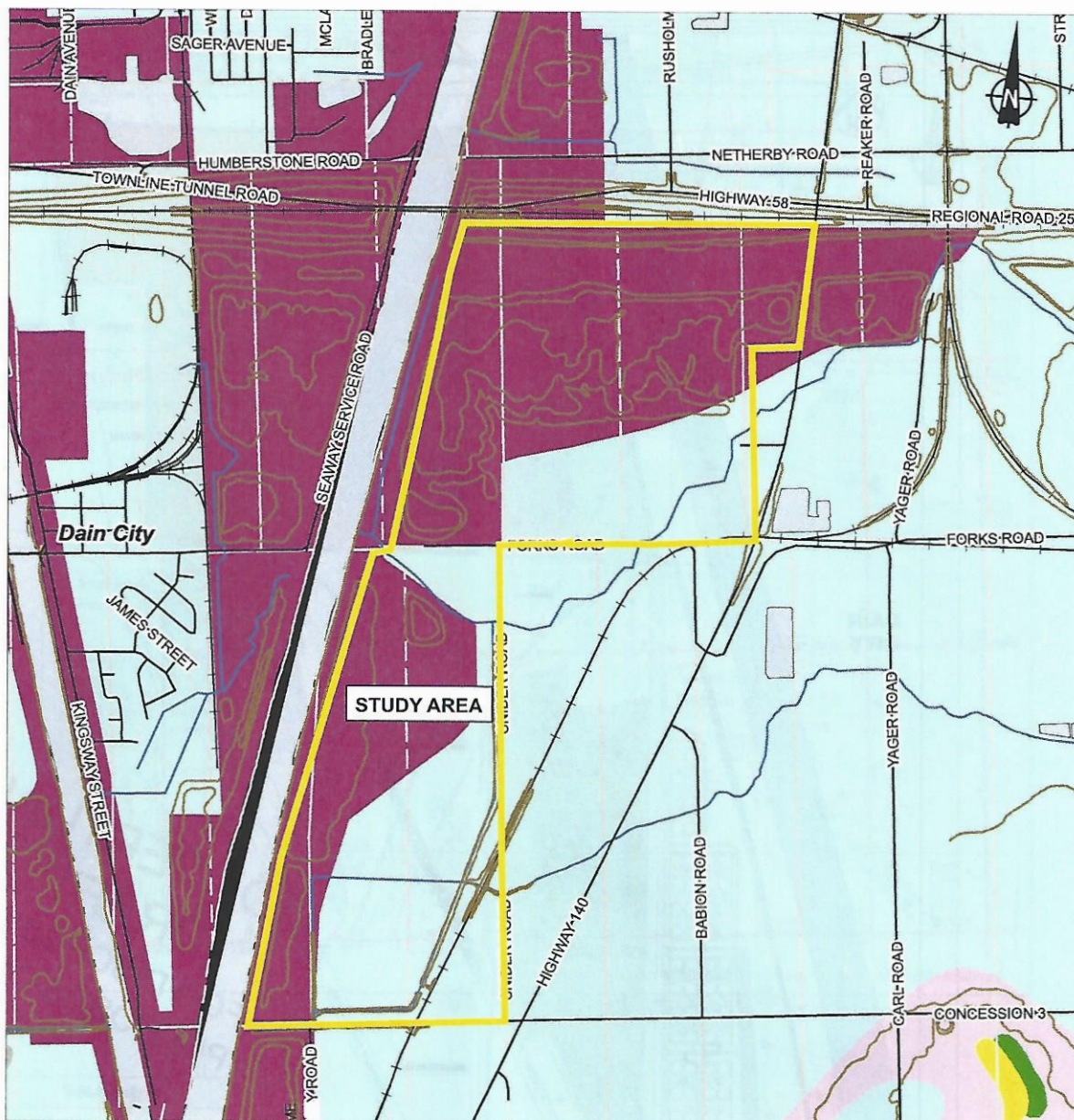
DEVELOPMENT PLAN OF STUDY AREA



Golder
Associates

PROJECT No.	11-1154-0075	FILE No.	1111540075-R01002
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CHECK			

MAP 2

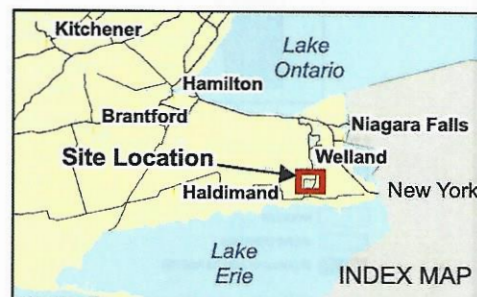
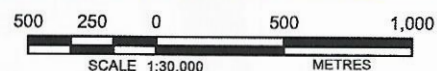


LEGEND

- STUDY AREA
- 3 PHOTO DIRECTION AND PLATE NUMBER
- ROADS
- + RAILWAY
- 5m CONTOURS
- WATERCOURSE
- LOT/CONCESSION
- WATERBODY

SURFICIAL GEOLOGY

- 3: PALEOZOIC BEDROCK
- 5d: GLACIOLACUSTRINE-DERIVED SILTY TO CLAYEY TILL
- 8a: MASSIVE-WELL LAMINATED
- 9: COARSE-TEXTURED GLACIOLACUSTRINE DEPOSITS
- 21: MAN-MADE DEPOSITS



REFERENCE

Base Data - MNR NRVIS, obtained 2004, Canvec V.6, 2010
 Surficial Geology - MRD128-Surficial Geology of Ontario, 2006
 Produced by Golder Associates Ltd under licence from
 Ontario Ministry of Natural Resources, © Queens Printer 2008
 Projection: Transverse Mercator Datum: NAD 83 Coordinate System: UTM Zone 17N

NOTES

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PROJECT

**STAGE 1 ARCHAEOLOGICAL ASSESSMENT,
 PART OF LOT 5, CONCESSION 2, BEASLEY'S LOWER BLOCK,
 CITY OF CAMBRIDGE, R.M. OF WATERLOO, ONTARIO**

TITLE

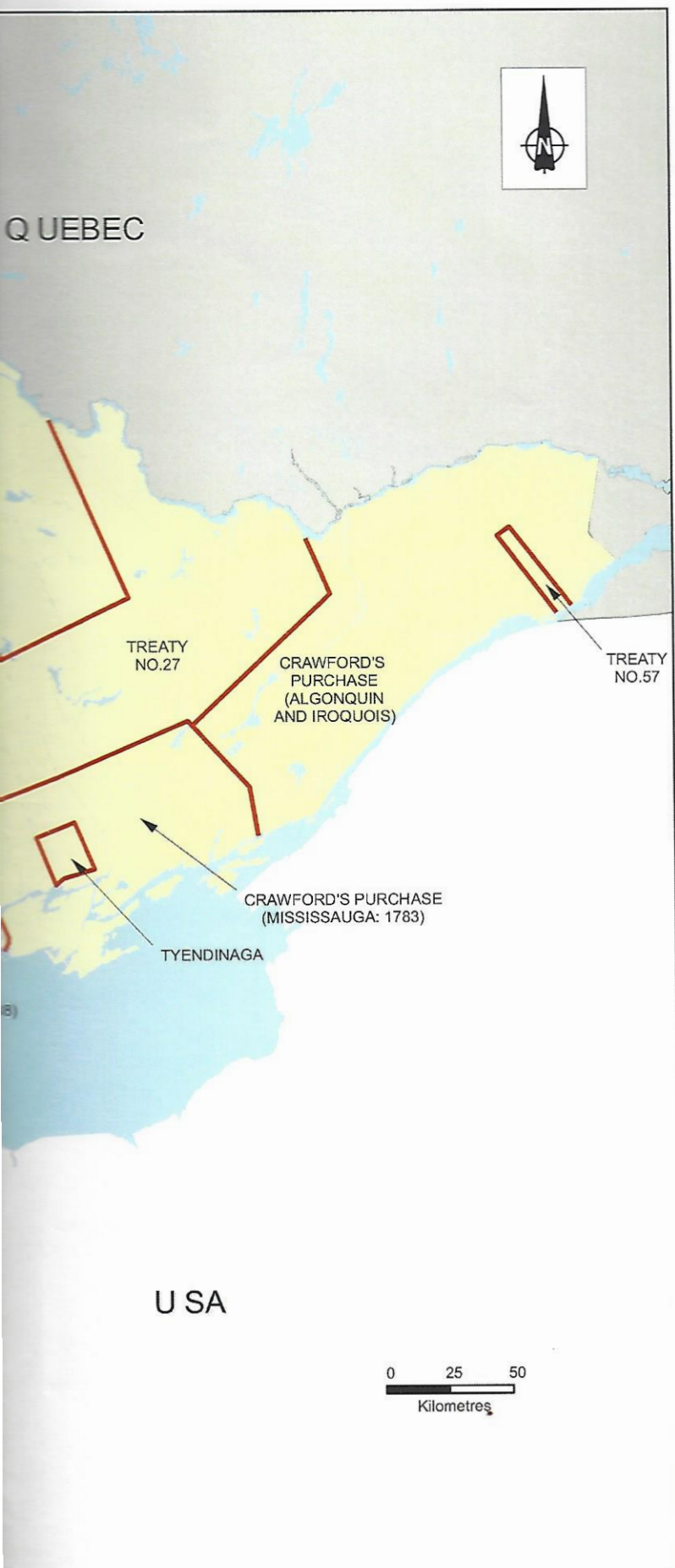
SURFICIAL GEOLOGY OF STUDY AREA



PROJECT No.	10-1154-0075	FILE No.	1011540075-R01005
GIS	JC	DEC 06/11	SCALE AS SHOWN REV
CADD	JC/SM	DEC 06/11	
CHECK			

MAP 3





LEGEND

- Treaty Boundary
- Approximate Location of Study Area

Treaty No. 381, Volume 3 (May 9th, 1781): Mississauga and Chippewa
Crawford's Purchase (Oct. 9th, 1783): Algonquin and Iroquois
Crawford's Purchase (Oct. 9th, 1783): Mississauga
Crawford's Purchases (1784, 1787, 1788): Mississauga
John Collins' Purchase (1785): Chippewa
Treaty No. 2 (May 19th, 1790): Odawa, Chippewa, Pottawatomi, and Huron
Treaty No. 3 (Dec. 2nd, 1792): Mississauga
Haldimand Tract: from the Crown to the Mohawk (1793)
Tyendinaga: from the Crown to the Mohawk (1793)
Treaty No. 3½ (Oct. 24th, 1795): from the Crown to Joseph Brant
Treaty No. 5 (May 22nd, 1798): Chippewa
Treaty No. 6 (Sep. 7th, 1796): Chippewa
Treaty No. 7 (Sep. 7th, 1796): Chippewa
Treaty No. 13 (Aug. 1st, 1805): Mississauga
Treaty No. 13A (Aug. 2nd, 1805): Mississauga
Treaty No. 16 (Nov. 18th, 1815): Chippewa
Treaty No. 18 (Oct. 17th, 1818): Chippewa
Treaty No. 19 (Oct. 28th, 1818): Chippewa
Treaty No. 20 (Nov. 5th, 1818): Chippewa
Treaty No. 21 (Mar. 9th, 1819): Chippewa
Treaty No. 27 (May 31st, 1819): Mississauga
Treaty No. 27½ (Apr. 25th, 1825): Ojibwa and Chippewa
Treaty No. 35 (Aug. 13th, 1833): Wyandot or Huron
Treaty No. 45 (Aug. 9th, 1836): Chippewa and Odawa
Treaty No. 45½ (Aug. 9th, 1836): Saugeen
Treaty No. 57 (Jun. 1st, 1847): Iroquois of St. Regis
Treaty No. 61, Robinson Treaty (Sep. 9th, 1850): Ojibwa
Treaty No. 72 (Oct. 30th, 1854): Chippewa
Treaty No. 82 (Feb. 9th, 1857): Chippewa
Williams Treaty (Oct. 31st and Nov. 15th, 1923): Chippewa and Mississauga
Williams Treaty (Oct. 31st, 1923): Chippewa

NOTES

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ALL LOCATIONS ARE APPROXIMATE.

REFERENCE

1. Base Data - MNR NRVIS, obtained 2004, CANMAP v2006.4
 2. Treaty Boundary - Approximate Treaty Boundary was created by Golder Associates Ltd. Jan. 2009.
- MORRIS, J.L. 1943. Indians Of Ontario. Reprinted 1964. Department Of Lands And Forests, Toronto.
- Produced by Golder Associates Ltd under licence from Ontario Ministry of Natural Resources. © Queens Printer 2008
- Projection: Transverse Mercator Datum: NAD 83 Coordinate System: UTM Zone 17

PROJECT
**STAGE 1 ARCHAEOLOGICAL ASSESSMENT,
NYON ENERGY PARK,
CITY OF PORT COLBORNE, R.M. OF NIAGARA, ONTARIO**

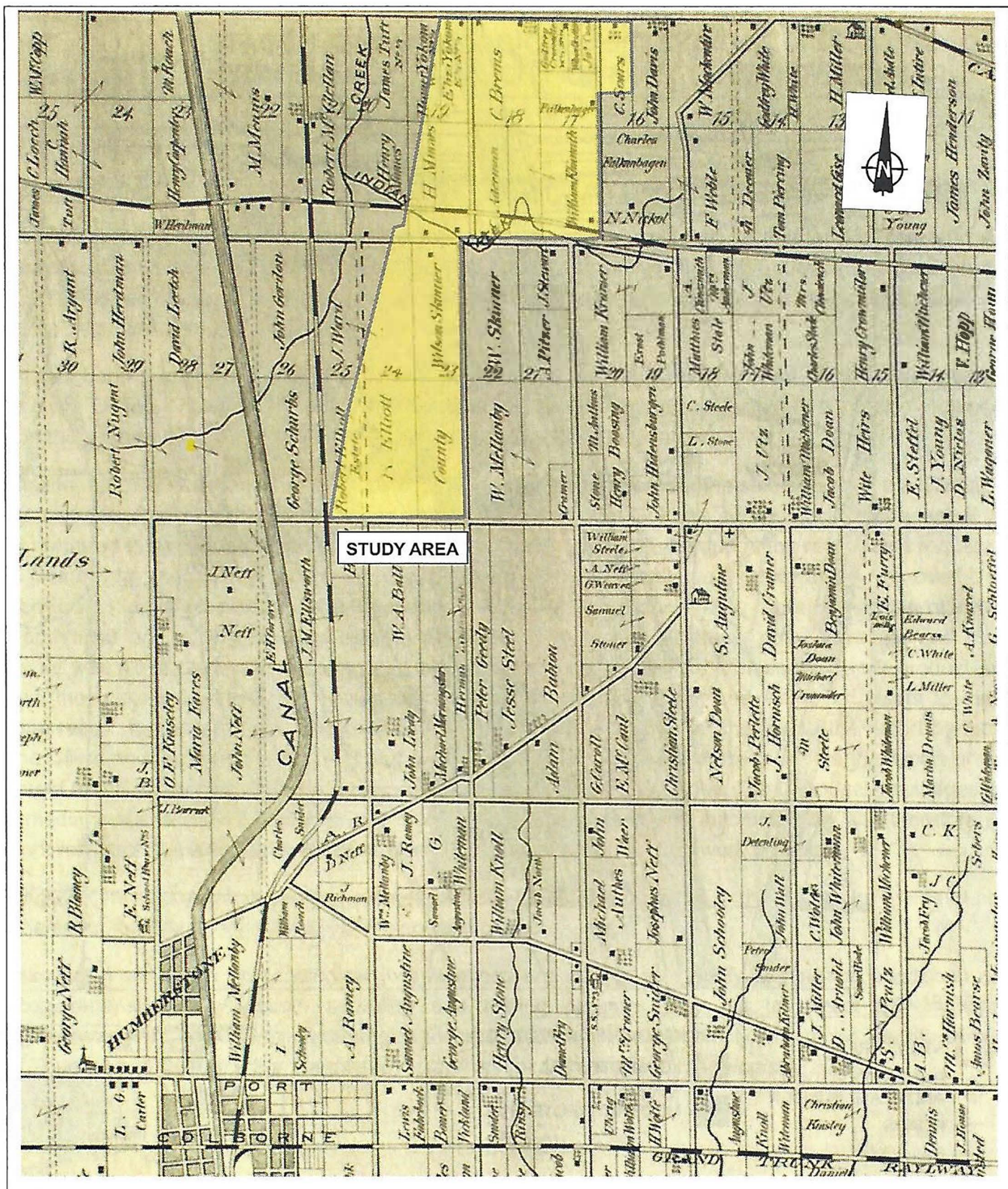
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CADD	SM	DEC 5/11	
CHECK			

MAP 4



LEGEND



STUDY AREA

REFERENCE

DRAWING BASED ON

PAGE, H.R.
1976 ILLUSTRATED HISTORICAL ATLAS OF THE
COUNTIES OF LINCOLN AND WELLAND, ONT.
H.R. PAGE, TORONTO.

NOTES

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PROJECT

STAGE 1 ARCHAEOLOGICAL ASSESSMENT,
NYON ENERGY PARK,
CITY OF PORT COLBORNE, R.M. OF NIAGARA, ONTARIO

TITLE

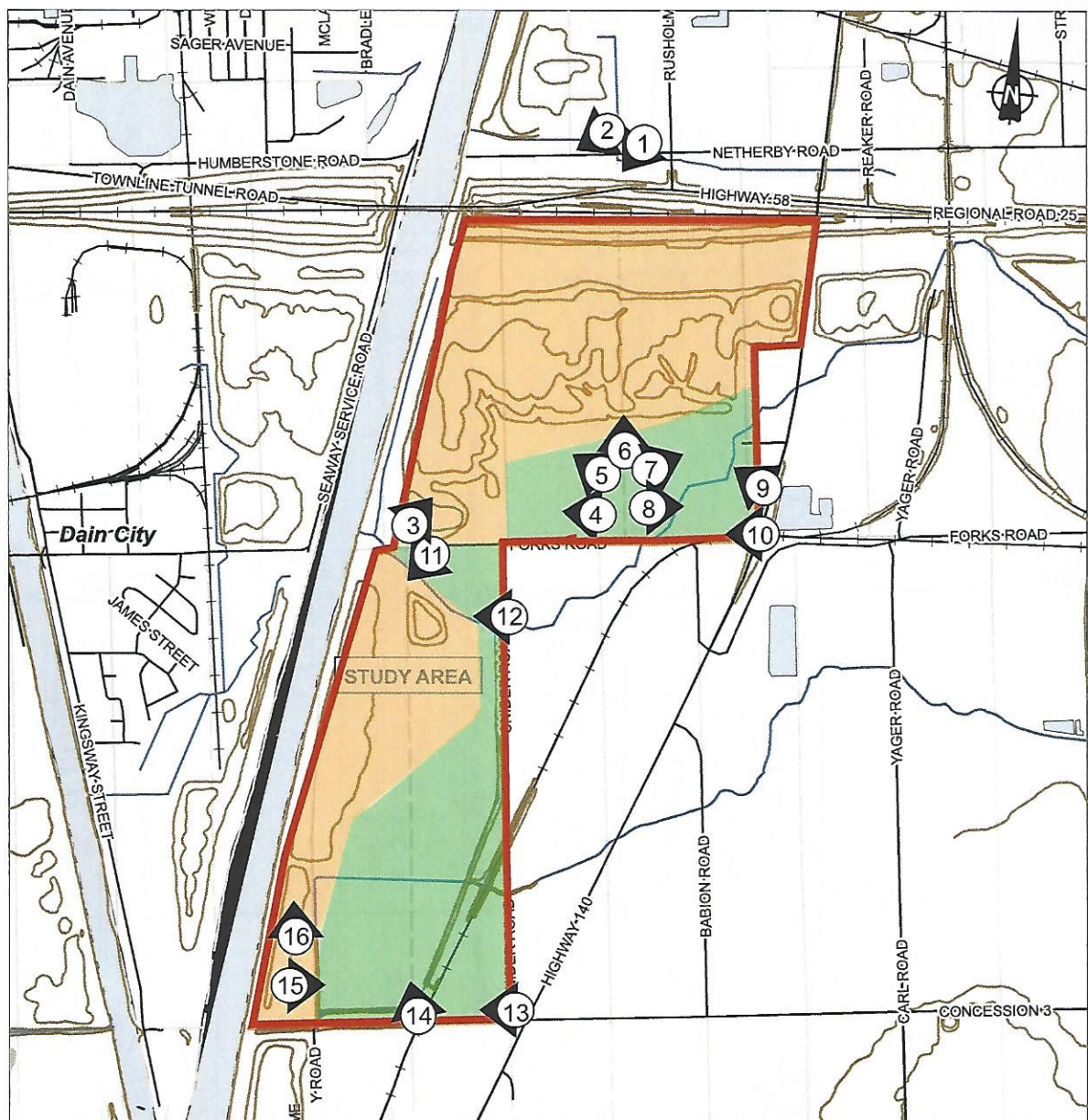
A PORTION OF THE 1876 HISTORICAL ATLAS



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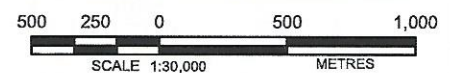
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CHECK			

MAP 5



LEGEND

- | | |
|--|---|
| STUDY AREA | LOW POTENTIAL |
| PHOTO DIRECTION AND PLATE NUMBER | MODERATE POTENTIAL |
| — ROADS | |
| — RAILWAY | |
| — 5m CONTOURS | |
| — WATERCOURSE | |
| — LOT/CONCESSION | |
| WATERBODY | |



REFERENCE

Base Data - MNR NRVIS, obtained 2004, Carvec V.6,2010
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NOTES

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PROJECT

**STAGE 1 ARCHAEOLOGICAL ASSESSMENT,
 PART OF LOT 5, CONCESSION 2, BEASLEY'S LOWER BLOCK,
 CITY OF CAMBRIDGE, R.M. OF WATERLOO, ONTARIO**

TITLE

ARCHAEOLOGICAL POTENTIAL OF STUDY AREA



PROJECT No	10-1154-0075	FILE No	1011540075-R01005
GIS	JC	DEC 06/11	SCALE AS SHOWN REV
CADD	JC/SM	DEC 06/11	
CHECK			

MAP 6



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 Nyon Oil Inc. 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 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)*.



**STAGE 1 ARCHAEOLOGICAL ASSESSMENT
NYON ENERGY PARK, CITY OF PORT COLBORNE, ONTARIO.**

Report Signature Page

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SWJM/CAP/JAW/gf

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