REGIONAL MUNICIPALITY OF NIAGARA
SOUTH NIAGARA FALLS WASTEWATER SOLUTIONS

V3.2 – Archaeological Assessments

Niagara Region is committed to reviewing its practices, processes and the built environment for barriers to access for persons with disabilities. If you require additional or other formats for communicating the details of the appendices in this attached report, please contact the project team new.treatment.plant@niagararegion.ca

LIST OF APPENDICES

V3.2.2

REGIONAL MUNICIPALITY OF NIAGARA
SOUTH NIAGARA FALLS WASTEWATER SOLUTIONS

Archaeological Assessments

Stage 1 AA (Marine) – Preferred Outfall Location

Original Report:
Marine Archaeological Assessment

South Niagara Falls Wastewater Treatment Plant, Phase 2 Lands
Welland River along Lots 7 to 9 Broken Front on Chippewa Creek, Geographic Township of Willoughby, Former County of Welland, now the City of Niagara Falls, Regional Municipality of Niagara, Ontario

Project #: OCUL2001

Archaeological Consulting License #P362 (Popkin)
Marine Archaeological License 2021-22

April 13, 2022

Prepared for:
Niagara Region
1815 Sir Isaac Brock Way, Thorold, Ontario, L2V 4T7

wood.

Marine Archaeological Assessment

South Niagara Falls Wastewater Treatment Plant, Phase 2 Lands
Welland River along Lots 7 to 9 Broken Front on Chippewa Creek, Geographic Township of Willoughby, Former County of Welland, now the City of Niagara Falls, Regional Municipality of Niagara, Ontario

Project # OCUL2001

PREPARED FOR:
Niagara Region Water & Wastewater Engineering
1815 Sir Isaac Brock Way, Thorold, Ontario, L2V 4T7

PREPARED BY:
Wood Environment & Infrastructure Solutions, a Division of Wood Canada Limited
201 King Street, 4th Floor
London, Ontario, N6A 1C9
Canada

April 13, 2022

wood.

Executive Summary

Wood Environment & Infrastructure Solutions (“Wood”) was retained by Niagara Region to complete cultural heritage and archaeological consulting services in support of the Schedule “C” Municipal Class Environmental Assessment for the proposed South Niagara Falls Wastewater Treatment Plant (WWTP) and associated infrastructure in the City of Niagara Falls and City of Thorold, Niagara Region, Ontario. The project components assessed by Wood archaeology staff are depicted in Appendix A.

This report details the Marine Archaeological Assessment prepared for the section of the Welland River north of the proposed Phase 2 Wastewater Treatment Plant, in the City of Niagara Falls, Regional Municipality of Niagara, Ontario. In order to account for potential impacts to the riverbed resulting from the proposed Phase 2 Lands outfall the Marine AA Study Area (“Study Area”) is defined as approximately 930 metres (m) of the Welland River, where the watercourse is approximately 100-m wide, up to a distance of 25m from the north shore (9 ha total; Appendix B: Figure 1). The Study Area is historically located on Part of Lots 7 to 9 Broken Front on Chippewa Creek, Geographic Township of Willoughby, former County of Welland, now the City of Niagara Falls, Regional Municipality of Niagara, Ontario. This assessment was carried out on a portion of the Welland River that may be impacted by activities associated the proposed location of the outfall pipe. The development plan for the proposed Phase 2 Lands and associated outfall is provided in Appendix C.

The project information was acknowledged by the Ministry of Heritage, Sport, Tourism and Culture Industries (MHSTCI) on 23 August 2021 with the issuance of Marine License 2021- 22. Permission to enter the Study Area for the purposes of the Marine Archaeological Assessment was granted to Wood by the Client on 11 August 2020.

The Marine Archaeological Assessment background study indicated that the Study Area had general archaeological potential for the following reasons:

1) There are 18 known archaeological sites registered within 1 km of the Study Area and seven sites located within 500 metres of the Study Area;
2) Previous archaeological assessment determined that the property adjacent to the Study Area, 6811 Reixinger Road, is known to have land-based archaeological potential for Pre-Contact Indigenous and 18th and 19th century Euro-Canadian land use;
3) The Welland River and property at 6811 Reixinger Road were identified as a potential cultural heritage landscape in previous cultural heritage studies completed by Golder Associates in 2019 and Wood in 2020; and,
4) The Region of Niagara Archaeological Management Plan (AMP) identifies the land within the Study Area as having archaeological potential.

While there are indicators of archaeological potential in the Study Area, the background study also determined that the entire Study Area has been disturbed by extensive and

intensive dredging activities. The dredging activities within the Study Area are related to the realignment and widening of the Welland River to accommodate the demands of Sir Adam Beck Generating Station and associated Power Canal in 1920/1921 and subsequent dredging/widening of the Welland River in 1953 to further meet the requirements for the power generating station. Although these 1920/1921 and 1953 dredging activities pre-date 1960, they resulted in extensive and intensive disturbance the entire Study Area and have removed all archaeological potential. Therefore, the Marine Archaeological Assessment determined that the entire Study Area does not require further archaeological assessment.

Based on the findings of the Marine Archaeological Assessment of the Study Area, the following recommendation is made, subject to the conditions outlined below and in Section 5.0:

1) The Study Area requires no further archaeological assessment.

The above recommendation is subject to approval by the Ministry of Heritage, Sport, Tourism and Culture Industries. It is an offence to knowingly alter any portion of an archaeological site except by a person holding a professional archaeological license.

Table of Contents

Section Contents **Page**

List of Appendices

List of Tables

Supplementary Documentation

SECTION 1: INDIGENOUS ENGAGEMENT

Project Personnel

Project Director:	Peter Popkin, Ph.D., CAHP, MCIfA (License P362) Marine Archaeological License 2021-22
Project Manager:	Heidy Schopf, MES, CAHP
Field Director:	Chelsea Dickinson, B.A. (R1194)
Report Preparation:	Alejandra Cooney, B. Sc (R1188) Heidy Schopf, MES, CAHP Chelsea Dickinson, B.A. (R1194)
Graphics:	Lindsay Ketchabaw, CAD
Report Reviewers:	Peter Popkin, Ph.D., CAHP, MCIfA (P362) Henry Cary, Ph.D., CAHP, RPA (P327)

1.0 Project Context

1.1 Development Context

Wood Environment & Infrastructure Solutions ("Wood") was retained by Niagara Region to complete cultural heritage and archaeological consulting services in support of the Schedule "C" Municipal Class Environmental Assessment for the proposed South Niagara Falls Wastewater Treatment Plant (WWTP) and associated infrastructure in the City of Niagara Falls and City of Thorold, Niagara Region, Ontario. The project components assessed by Wood archaeology staff are depicted in Appendix A and summarized in the table below.

Proposed Project Components	Work Completed by Wood
Phase 1 Sewer Alignment/ Construction Shaft Locations	• Stage 1 Archaeological Assessment (P327-0013-2021; Wood 2022a)
Phase 2 Wastewater Treatment Plant	• Stage 1 and 2 Archaeological Assessment (P348-0106-2020 and P348-0107-2020; Wood 2022b) • Marine Archaeological Assessment (Marine Archaeological License 2021-22; Wood 2022c)
South Thorold Trunk and Blackhorse Sewage Pumping Station	• Stage 1 Archaeological Assessment (P327-0012-2021; Wood 2022d) • Stage 2 Archaeological Assessment for Blackhorse Sewage Pumping Station (P327-0019-2021) (Current Report)

This report contains the Marine Archaeological Assessment prepared for the section of the Welland River north of the proposed Phase 2 Wastewater Treatment Plant, in the City of Niagara Falls, Regional Municipality of Niagara, Ontario. In order to account for potential impacts to the riverbed resulting from the proposed Phase 2 Lands outfall the Marine AA Study Area ("Study Area") is defined as approximately 930 metres (m) of the Welland River, where the watercourse is approximately 100-m wide, up to a distance of 25m from the north shore (9 ha total; Appendix B: Figure 1). The Study Area is historically located on Part of Lots 7 to 9 Broken Front on Chippewa Creek, Geographic Township of Willoughby, former County of Welland, now the City of Niagara Falls, Regional Municipality of Niagara, Ontario. This assessment was carried out on a portion of the Welland River that may be impacted by activities associated the proposed location of the outfall pipe. The development plan for the proposed Phase 2 Lands and associated outfall is provided in Appendix C.

The project information was acknowledged by the Ministry of Heritage, Sport, Tourism and Culture Industries (MHSTCI) on 23 August 2021 with the issuance of Marine License 2021- 22. Permission to enter the Study Area for the purposes of the Marine Archaeological Assessment was granted to Wood by the Client on 11 August 2020. This

permission extended to all required archaeological fieldwork activities, including the recovery and removal of artifacts, as applicable.

This report presents the results of the Marine Archaeological Assessment background study and makes pertinent recommendations.

2.0 Methodology

2.1 Regulatory Requirements

The requirements to consider cultural heritage under the Environmental Assessment process are found in the *Provincial Policy Statement* (PPS) (Government of Ontario 2020), *Environmental Assessment Act* (Government of Ontario 2019), and the *Ontario Heritage Act*, R.S.O. 1990, c. O.18 (Government of Ontario 1990).

2.1.1 Provincial Policy Statement

The PPS provides policy direction on matters of provincial interest related to land use planning and development (Government of Ontario 2020:1). The PPS is applicable to the entire Province of Ontario. Under the PPS, the conservation of cultural heritage is identified as a matter of provincial interest. Section 2.6 of the PPS gives direction on the consideration of cultural heritage and archaeology (Government of Ontario 2020:31). Specifically, the following direction is given regarding archaeological sites:

> *2.6.2 Development and site alteration shall not be permitted on lands containing archaeological resources or areas of archaeological potential unless significant archaeological resources have been conserved.*
>
> *2.6.4 Planning authorities should consider and promote archaeological management plans and cultural plans in conserving cultural heritage and archaeological resources.*
>
> *2.6.5 Planning authorities shall engage with Indigenous communities and consider their interests when identifying, protecting and managing cultural heritage and archaeological resources.*
>
> (Government of Ontario 2020)

2.1.2 Environmental Assessment Act

The *Environmental Assessment Act* (EA Act) sets out planning and decision-making processes so that potential environmental effects are considered before a project begins (Government of Ontario 2019). The EA Act applies to provincial ministries and agencies, municipalities, and public bodies. Under the EA Act, there are two types of assessments: Individual EAs and Streamlined EAs. Individual EAs are large-scale, complex projects with the potential for significant environmental effects. Streamlined EAs are routine projects that have predictable and manageable environmental effects. This project falls under the Streamlined EAs process as a Schedule “C” Municipal Class EA.

The requirement to consider cultural heritage in Class EAs is discussed in the MCEA Manual (2015) where the cultural environment is identified as one of the key considerations in the MCEA process (MEA 2015: B.1.1). Under Section B of the MCEA Manual, the cultural environment includes archaeological resources, areas of archaeological potential, built heritage resources, cultural heritage landscapes, and

cultural heritage resources [MEA 2015: B.1.1(4)]. Further, the MCEA Manual [2015: B1.1(4)] gives the following direction regarding the cultural environment:

> *Significant cultural heritage and archaeological resources features should be avoided where possible. Where they cannot be avoided, then effects should be minimized where possible, and every effort made to mitigate adverse impacts, in accordance with provincial and municipal policies and procedures. Cultural heritage features should be identified early in the process in order to determine significant features and potential impacts.*

2.1.3 Ontario Heritage Act

The *Ontario Heritage Act,* R.S.O. 1990, c.018, provides a framework for the protection of cultural heritage resources in the province. It gives municipalities and the provincial government powers to protect heritage properties and archaeological sites. Under the *Ontario Heritage Act*, a marine archaeological site is an archaeological site that is fully or partially submerged or that lies below or partially below the high-water mark of any body of water (O. Reg. 170/04, s. 1).

2.1.4 Guidance Document

The MHSTCI is responsible for the administration of Part IV of the *Ontario Heritage Act*. This portion of the Act determines priorities, policies, and programs for the conservation of archaeological resources determined to have cultural heritage value. MHSTCI has developed checklists, information bulletins, standards and guidelines, and policies to support the conservation of Ontario's cultural heritage resources, including built heritage resources, cultural heritage landscapes, and archaeological sites.

This assessment was carried out in accordance with the best practises described in the marine archaeological license application approved by the MHSTCI. In addition, Wood utilized the *Criteria for Evaluating Marine Archaeological Potential: A Checklist for Non-Marine Specialists* (Marine Archaeology Checklist) (MHSTCI 2016a) to guide the evaluation of marine archaeological potential of the Study Area and make pertinent recommendations for future assessments, if required.

2.2 Scope of Work

This Marine Archaeological Assessment was carried out in accordance with the Terms of Reference provided in Wood's work agreement dated 19 May 2021.

A Marine Archaeological Assessment includes a systematic qualitative process executed in order to assess the archaeological potential of a Study Area based on the criteria for identifying marine archaeological potential contained in the MHSTCI Marine Archaeology Checklist. The objectives of this Marine Archaeological Assessment background study are to: 1) provide information about the Study Area's geography, history, previous archaeological fieldwork and current conditions; 2) evaluate in detail the Study Area's archaeological potential; and 3) recommend appropriate strategies to support recommendations for additional work if warranted.

The scope of work for this Marine Archaeological Assessment background study consists of the following tasks:

- Contacting the MHSTCI to determine if recorded marine or land based archaeological sites have been registered within a one kilometre [“km’”] radius of the Study Area, through a search of the Ontario Archaeological Sites Database maintained by that Ministry.
- Contacting the MHSTCI to determine if there are any known reports of previous archaeological field work within the Study Area or within a radius of 50 metres (“m”) around the Study Area, through a search of the *Ontario Public Register of Archaeological Reports* maintained by that Ministry.
- A desktop review of the Study Area’s physical setting to determine its potential for both pre-contact and post-contact period marine use, including its topography, hydrology, soils, and proximity to important resources and historical transportation routes and settlements;
- A desktop review to identify the marine features of the Study Area including, but not limited to, the following:
    - The presence of registered shipwreck sites or reports of lost ships within a five km radius of the Study Area
    - The presence of active or historic harbours, seaplanes, floatplane base, tunnel, ferry route, marine terminal or winter road located within a one km radius of the Study Area
    - The existence of a fourth order or higher watercourse (on the Strahler scale) within the Study Area and the potential to impact existing narrows, rapids, waterfalls and/or identify if the watercourse enters or leaves a body of water within 300 m of the property or project area.
    - Presence of known or potential built heritage resources or cultural heritage landscapes adjacent to the watercourse
    - Determine if there are beaches, bluffs, lakeshores, streams or river banks within 300 m of the Study Area
- Completion of historical research of relevant documentation including, but not limited to, historical mapping, land use records, and Niagara Region archives (if available);
- A visual inspection of the Study Area (not including in-water work) to gather first-hand and current evidence of its physical setting, and to aid in delineating areas where archaeological potential may have been impacted or removed by recent land-use practices.
- Mapping, photography and production of other relevant graphics;

- Report preparation for Client review of findings with recommendations regarding appropriate mitigation measures for potential archaeological finds within the Study Area and the need for further archaeological work if deemed necessary;
- Submission of the report to the MHSTCI;
- Upon MHSTCI acceptance, submission of a digital copy of the final marine archaeological report to the Client.

3.0 Background Study

As part of the Marine Archaeological Assessment, Wood queried the *Ontario Archaeological Sites Database* maintained by the MHSTCI to determine if archaeological sites have been registered within 1 km of the Study Area (Section 2.1.1) (MHSTCI 2021a). The *Ontario Public Register of Archaeological Reports* was also queried to determine whether previous archaeological assessments have been carried out within the Study Area, or within a 50 m radius of the Study Area (Section 2.1.2) (MHSTCI 2021b). Secondly, the principal determinants of marine archaeological potential, as identified in the Marine Archaeology Checklist, were examined to evaluate the Study Area's general marine archaeological potential. Thirdly, the specific potential for post-contact period archaeological resources was assessed through an examination of available historical maps and other archival sources (Section 2.2). Finally, a property inspection was conducted to confirm the desktop evaluation of archaeological potential and identify areas where recent land use has impacted or removed that potential.

3.1 Archaeological Context

3.1.1 Registered Archaeological Sites

In Ontario, information concerning archaeology sites is stored in the *Ontario Archaeological Sites Database* maintained by the MHSTCI. This database contains archaeological sites registered within the Borden system (Borden 1952). Under the Borden system, Canada has been divided into grid blocks based on longitude and latitude. A Borden block is approximately 13 km east to west, and approximately 18.5 km north to south. Each Borden block is referred to by a four-letter designation and sites located within the block are numbered sequentially as they are found. The Study Area is located within the *AgGs* Borden block. On the basis of a search of the *Ontario Archaeological Sites Database* through PastPort on 13 July 2021, there are no registered sites located within the Study Area, seven registered archaeological sites within 500 m of the Study Area, and 18 sites located within a 1 km radius of the Study Area. Information regarding registered archaeological sites is included in Table 1.

Table 1: Registered Archaeological Sites within 1-km Radius of the Study Area

Borden Number	Site Name	Cultural Affiliation	Site Type	Distance from Study Area	Development Review Status
AgGs-47	Crawford 1	Middle Archaic through to Post-Contact	Camp/Campsite	Adjacent to Study Area	Unknown
AgGs-48	Crawford 2	Middle Archaic	Camp/Campsite	Adjacent to Study Area	Further CHIV

Borden Number	Site Name	Cultural Affiliation	Site Type	Distance from Study Area	Development Review Status
		through to Post-Contact			
AgGs-50	Feren	Middle Archaic through to Post-Contact; Laurentian	Fishing, Homestead, Hunting	125m	Further CHIV
AgGs-379	-	-	Camp/Campsite	195m	Further CHIV
AgGs-380	-	-	Camp/Campsite	375m	Further CHIV
AgGs-381	-	-	Camp/Campsite	400m	Further CHIV
AgGs-49	Crawford 3	Middle Archaic through to Post-Contact	Campsite, Fishing, Hunting	485m	-
AgGs-387	AgGs-387	Post-Contact; Euro-Canadian	Homestead	745m	No further CHVI
AgGs-399	Parkway Site	Pre-Contact	Campsite	745m	No further CHVI
AgGs-236	Cabeiroi Camp 2	Pre-Contact	Campsite, scatter	815m	-
AgGs-21	MIA 8475	-	-	975m	-
AgGs-93	TCPL 90-13	-	Findspot	1,335m*	-
AgGs-34	MIA 8484	Early Woodland	Findspot	1,345m*	-
AgGs-5	Walters	-	-	1,530m*	-
AgGs-90	Walter	Late Archaic	Campsite	1,640m*	-
AgGs-95	TCPL 91-3	-	Findspot	1,680m*	-
AgGs-292	-	Late Woodland	Findspot	1,920m*	-
AgGs-298	-	Early Archaic; Kirk-Nettling	Campsite	2,225m*	No further CHVI

*Centre of site is outside 1 km radius, but undefined portion of site listed within this

radius on *Ontario Archaeological Sites Database*.

- Archaeological Site AgGs-47 (Crawford 1) is located on the shore of the Study Area. It is a multicomponent campsite that was identified on the south shore of the Welland River by William Parkins in 1969. Chipping detritus and other Indigenous cultural materials were recovered along the shore while remains of a 19th century house were discovered west of the lithic scatter. This site has a long occupation history, spanning from the Middle Archaic through to the Post-Contact period. There are no licensee recommendations or reports associated with this site (Golder 2019; MHSTCI 2021).
- Archaeological Site AgGs-48 (Crawford 2) is located on the south shore of the Study Area. The site was originally identified by William Parkins in 1976 and re-identified and assessed through pedestrian survey by Mayer Archaeological Consultants (MAC) in 2014. The site is described as a large plough-disturbed multi-component lithic scatter and consists of approximately 1,500 artifacts, including projectile points and other tools, within a 250 by 100 m area (Golder 2019; MAC 2015; MHSTCI 2021).
- Archaeological Site AgGs-50 (Feren) is approximately 125 m southwest of the Study Area. This site was originally identified by William Parkins in 1970 and re-identified and reassessed through pedestrian survey by MAC in 2014. It is described as a large plough-disturbed lithic scatter that spans an area of 140 by 100 m. Artifacts recovered include chipping detritus, tools, and seventeenth century trade beads (Golder 2019; MAC 2015; MHSTCI 2021).
- Archaeological Site AgGs-379 is located approximately 195 m south of the Study Area. This site was discovered during pedestrian survey by MAC in 2014 and is described as a small pre-contact, plough-disturbed lithic scatter consisting of 46 artifacts (MAC 2015; MHSTCI 2021).

3.1.2 History of Archaeological Investigations

Wood completed a search for archaeological reports within 50 m of the Study Area within the *Ontario Archaeological Sites Database* administered by the MHSTCI on 15 July 2021. Based on this search (by address, lot and concession, and above-mentioned archaeological sites), no archaeological assessments have been conducted within the Study Area and two archaeological assessments have been conducted within 50 m of the Study Area. Appendix B**:** Figure 10 shows the location of these previous studies and a summary of these reports is provided below in Table 2. Both of these reports were made available from MHSTCI at the time of the writing of this report.

Table 2: Related Archaeological Assessment Reports Within 50 m of the Study Area

Year	Title	Author	PIF
2015	Stage 1 & 2 Archaeological Assessment: 7047 Rexinger Road, Part of Lots 8, 9, and 10, Broken Front Concession, Formerly in the Township of Willoughby, City of Niagara Falls, Regional Municipality of Niagara, Ontario	Mayer Archaeological Consultants (MAC)	PIF P066-0210-2014
2021	Stage 1 Archaeological Assessment: South Niagara Falls Wastewater Solutions Schedule C Class Environmental Assessment, Various Lots and Concessions, Geographic Townships of Stamford, Willoughby and Crowland, Former County of Welland, City of Niagara Falls, Regional Municipality of Niagara, Ontario	Golder Associates Ltd. (Golder)	PIF P468-0036-2019
Ongoing	Stage 1 & 2 Archaeological Assessment South Niagara Falls Wastewater Treatment Plant, Phase 2 Lands. Part of Lots 7 to 10 Broken Front on Chippewa Creek, Geographic Township of Willoughby, Former County of Welland, now in the City of Niagara Falls, Regional Municipality of Niagara, Ontario.	Wood	PIF P348-0106-2020 and P348-0107-2020

- ***Archaeological Assessment (Stages 1 & 2), 7047 Reixinger Road, Part of Lots 8, 9 & 10, Broken Front Concession, Formerly in the Township of Willoughby, Now in the City of Niagara Falls, R.M. of Niagara, Ontario.*** **Prepared by Mayer Archaeological Consultants, dated 21 September 2015, Reference No. 14-001. PIF P066-0210-2015 (MAC 2015).**

In 2014, MAC conducted a Stage 1 and 2 Archaeological Assessment in advance of a residential and commercial development. The assessment's 37-ha study area covered a large portion of the preferred WWTP location within the current Study Area (see Appendix B: Figure 8). The Stage 1 background research determined that the assessment's study area had archaeological potential due to the proximity of nearby water sources including the Welland River, Grassy Brook Creek, and Lyon's Creek. In addition, a historic farmstead was noted on the property and there was a historic church and cemetery adjacent to the assessment's study area. Two previously registered

archaeological sites were located within the current Study Area.

Fourteen archaeological locations, identified as Locations 1 to 14, were documented during MAC's Stage 1 & 2 assessment (MAC 2015:15). These included seven Indigenous artifact findspots, five Indigenous sites, one Euro-Canadian findspot, and one multi-component site. Further Stage 3 fieldwork was recommended for five of the 14 sites. Specifically, Stage 3 fieldwork at Location 1 (registered in the *Ontario Archaeological Sites Database* as Site AgGs-50) and Location 3 (Site AgGs-48), which were described as large, plough-disturbed lithic scatters, was recommended to include the following:

> *"…fieldwork will involve controlled surface artifact collection followed by the placement of multiple grids over areas of artifact concentration (e.g. greater surface densities of artifacts, concentrations of diagnostics, apparent single-component concentrations, or defined activity areas). Hand excavation of 1 m square test units should be completed across these grids at 5 m intervals. Once these units are excavated, additional test units, amounting to 20% of the initial grid unit total should be excavated between areas of concentration to document areas of lower concentration. Further units, amounting to 10% of the initial grid unit total, should be placed on the periphery of the scatter to determine the site extent and sample the site periphery. If any features are encountered their planview should be recorded, covered in geotextiles and backfilled."* (MAC 2015:25-26).

Stage 3 fieldwork at Location 4 (AgGs-379), Location 12 (AgGs-380), and Location 14 (AgGs-381) identified small Pre-Contact Indigenous sites, but since it was not evident that their level of cultural heritage value or interest would require Stage 4 excavations, MAC recommended to conduct:

> *"…controlled surface artifact collection. This will be followed by the hand-excavation of 1 m square units in a 5 m grid across the site. Grid unit excavation should be followed by excavation of additional test units, amounting to 20% of the grid unit total, focusing on areas of interest within the site extent (such as distinct areas of higher concentrations of artifacts or adjacent to high-yield units) as per Section 3.2.2 and Table 3.2.1 of the Standards and Guidelines for Consultant Archaeologists. If any features are encountered their planview should be recorded, covered in geotextiles and backfilled."* (MAC 2015:26-28).

The remaining Locations 2, 5, 6, 7, 8, 9, 10, 11, and 12, were determined to have little cultural heritage value and no additional fieldwork was recommended (MAC 2015:25-28).

The portion of the assessment's study area adjacent to Dell Cemetery was recommended for further investigations to ensure no unmarked grave shafts extended into the assessment's study area. The following was recommended for the potion of the

Study Area adjacent to Dell Cemetery:

> *"…the Stage 3 should consist of mechanical removal of topsoil in a minimum 10 m wide path adjacent to the cemetery followed by cleaning of all exposed soil surfaces to aid in identifying the presence of grave shafts or other cultural features. If grave shafts or any other cultural features are recovered, mechanical excavation must extend to at least 10 m beyond any uncovered features."* (MAC 2015:28).

The environmentally sensitive woodlots within MAC's study area were not subject to a Stage 2 assessment due to their designation as part of an Environmentally Sensitive Area. However, these areas were determined to still retain archaeological potential and recommended for further Stage 2 test pit assessment (MAC 2015:28).

MHSTCI concurred that MAC's above recommendations were consistent with the conservation, protection, and preservation of the cultural heritage of Ontario and accepted the report into the *Ontario Register of Archaeological Reports* in a letter dated 02 October 2015 (MAC 2015).

- ***Stage 1 Archaeological Assessment, South Niagara Falls Wastewater Solutions Schedule C Class Environmental Assessment, Various Lots and Concessions, Geographic Townships of Stamford, Willoughby and Crowland, Former County of Welland, City of Niagara Falls, Regional Municipality of Niagara, Ontario*. Prepared by Golder Associates Ltd. ("Golder"), 04 March 2021. PIF P468-0036-2019.**

Golder conducted a Stage 1 Archaeological Assessment of ten distinct areas, labelled Areas 1 to 10, as part of a Schedule "C" Class EA. Area 8 of the report corresponds to the current Study Area (Golder 2021: Map 1). A section of Area 8 was documented as previously assessed (by MAC 2015, as described above), with five sites in the previously assessed area requiring Stage 3 assessment. The remainder of Area 8 were recommended for Stage 2 assessment at 5-m intervals through either pedestrian survey or test-pit survey (Golder 2021: Map 8).

Area 10, directly east of the current Study Area, was also recommended for Stage 2 assessment at 5-m intervals by means of either pedestrian survey or test pit survey (Golder 2021: Map 8).

The remaining Areas 1-7, and 9 were located greater than 50 m from the current Study Area.

- ***Stage 1 & 2 Archaeological Assessment South Niagara Falls Wastewater Treatment Plant, Phase 2 Lands. Part of Lots 7 to 10 Broken Front on Chippewa Creek, Geographic Township of Willoughby, Former County of Welland, now in the City of Niagara Falls, Regional Municipality of Niagara, Ontario.* PIF P348-0106-2020 (Stage 1) and P348-0107-2020 (Stage 2).**

Terrestrial impacts to the Phase 2 Lands are being addressed under a separate Stage

1-2 Archaeological Assessment which is being conducted concurrently by Wood. To date, the Stage 1 Archaeological Assessment report has not been entered into the *Ontario Public Register of Archaeological Reports,* therefore the associated project footprint is not included in Appendix B: Figure 10.

3.1.3 Environmental Context

The Study Area (Appendix B: Figures 1 to 3) is situated in the Haldimand Clay Plain physiographic region of Ontario (Chapman and Putnam 1984). This area is made up of a series of parallel belts between Lake Erie and the Niagara Escarpment that were once submerged in glacial Lake Warren. The highest ground adjoins the Niagara Escarpment. The soils of this region are known for their heavy clay texture and are often characterized by poor drainage. Several square kilometres of Welland County are covered in peat bogs.

The *Soil Survey of Welland County* (Acton 1935) indicates that the dominant surface soil types within the Study Area is Niagara Clay and Welland Clay. Niagara Clay has fair to good surface drainage while Welland Clay has fair to poor natural drainage. The topography of the Study Area is generally smooth with undulating uplands and some low swales and pond holes.

The natural water source within the Study Area is the Welland River with Grassy Brooks Creek directly southwest of the Study Area and Lyon Creek directly to the southeast. While the Study Area is currently within the bounds of the Welland River, the water levels of the Great Lakes region have fluctuated significantly throughout millennia.

The Welland River was originally called Chippawa Creek and drains a watershed area of approximately 990 km^2 from its headwaters in Ancaster to its historic outlet at the Niagara River (WSP 2018). The river drops only 82 m over its 135 km span to its discharge in the Niagara River (Niagara Peninsula Conservation Authority [NPCA] 2011). The water levels of both Lake Ontario and Lake Erie, as well as the Niagara River have had a significant impact on the Welland River. The Study Area lies just west of the Welland River's terminus at the Niagara River, and so the history of the Niagara River can inform the Study Area as well. Early Lake Erie, from which the Niagara River flows, developed following deglaciation of Lake Dana, which drained into the Ontario basin around 12,500 years before present (B.P.) (Coakley 1985). Lake levels have been theorized to be 45 m below current water levels at this time, suggesting that around 10,000 B.P. the Niagara River system was not flowing and therefore accessible to terrestrial inhabitants (Coakley 1985; Jackson *et al.* 2000). Lake Ontario experienced a similar period of low water levels (100 m below current levels) from 11,500 B.P. to when the St. Lawrence River outlet became established at approximately 10,500 B.P. (Anderson and Lewis 1985; Karrow and Warner 1990). During this period of lowered water levels in Lake Ontario, Lake Erie, and their connected waterways, the Welland River would have been similarly exposed as the Niagara River, and thus traversable by terrestrial travellers and inhabitants.

By 7,000 B.P., water levels in Lake Erie reached 5 m below the modern level, and by the Nipissing Phase (5,500-4,000 B.P.) had risen to 5 m above the modern level, inundating the Niagara River basin and submerging modern shorelines (Coakley 1985). Lake Erie experienced a rapid drop in water levels as the Niagara outlet widened around 3,900 B.P., followed by a gradual rise to current levels. Lake Ontario gradually rose throughout this period, by 3,000 B.P. reaching a level it maintained into the 19th century. Currently the Lower Welland River flows in an easterly direction from its headwaters in Ancaster to its physical outlet at the Niagara River but also partially flows north into the Power Canal for the Sir Adam Beck Generating Station No. 1 (WSP 2018).

3.2 Historical Context

3.2.1 A Cultural History for Southern and Eastern Ontario

The majority of interpretations of pre-contact Indigenous adaptations in Ontario derive from the analysis and interpretation of stone tools. Stone tools are made from specific types of rocks that fracture in ways that can be controlled, so that they are easily shaped into useful forms. These rocks include chert, chalcedony, quartzite, petrified wood, and volcanic glass, known as obsidian. Most stone tools found in southern Ontario are formed from types of chert that outcrop in local limestone formations, such as: Onondaga and Haldimand cherts, found near the north shore of Lake Erie; Kettle Point chert, which outcrops near Lake Huron; and Collingwood chert, which outcrops along the Niagara Escarpment near Georgian Bay.

Stone tools used as spear tips and arrowheads are the most commonly studied tool type. These are referred to as projectile points. As projectile point technology changed over time, styles and shapes of points changed also. Studying these changing point types has resulted in the development of a chronological framework for pre-contact times prior to 3,000 years ago, when Indigenous Nations began to make clay pottery. Later periods are defined both by point types and pottery characteristics. Radiocarbon dating of archaeological sites can only be done when organic materials are collected from those sites, so the dating of most sites is done by comparing the artifacts from dated sites to those from undated sites.

The following is an overview of the cultural history of southern and eastern Ontario as understood by archaeologists. It is based upon published syntheses of Indigenous cultural occupations (Wright 1968, Ellis and Ferris 1990, Adams 1994). For additional reference, Ellis and Ferris (1990) provide greater detail of the distinctive characteristics of each time period and cultural group.

The cultural history of southern Ontario began approximately 11,000 years ago when the glaciers had melted, and the land was re-exposed. The land was quickly settled by bands of hunters and gatherers who are thought to have been large game hunters. These people used large spear points that are distinctively shaped with long central grooves, called “flutes”. Archaeologists have defined a number of point types that date

to this time, including Gainey, Barnes, Crowfield, and Hi-Lo types. This period is referred to as the Paleo-Indian Period and it is thought to have lasted until approximately 9,000 years ago.

After 9,500 years ago, there was a long period when the climate was variable and the bare lands left by the glaciers were becoming re-forested, resulting in patchier, more diverse ecozones. During this time, which lasted until 3,000 years ago, people were adapting to diverse environmental settings. There appears to have been more reliance on local stone for making tools and more variable tool manufacturing technologies. The adoption of a spear-throwing board, known as an atlatl, was an important innovation, resulting in the ability to throw smaller darts with more force. Projectile points from this period, called the Archaic Period, are commonly side or corner-notched and are smaller than those of the preceding period. The Archaic adaptation is generally thought to have centered on localized resources, often forest resources, and groups of people are thought to have been less mobile, an adaptation that continued to develop until the arrival of Europeans.

In southern Ontario, the Archaic Period is divided into the Early, Middle and Late Archaic. Early point types include serrated Nettling and Bifurcate Base points. Middle types include Brewerton Corner Notched and Otter Creek, and Late types include Lamoka, Genesee, Crawford Knoll, and Innes. Most of these point types are named after archaeological sites where they were first identified.

The Archaic Period is followed by the Woodland Period. The major technological change in the Early Woodland Period is the introduction of pottery. During this time, people are thought to have developed more community organization and the manufacture of clay pottery is thought to indicate less residential mobility. Burial sites dating to this time often display evidence of ceremonial activities. Projectile points made at this time include much smaller types, probably used as arrow tips. Point types include Meadowood and Kramer and early ceramics with conoidal (pointed) bases. The Early Woodland Period transitioned into the Middle Woodland Period approximately 2,400 years ago.

During the Middle Woodland Period in southern Ontario, community and kin identity became more deeply entrenched, and more sedentary communities developed. Point types made at this time include Saugeen, Vanport, and Snyders. Ceramic vessels were conoidal in shape but were decorated with stamped designs in the soft clay. The Middle Woodland Period transitioned into the Late Woodland Period A.D. 500–900 with the earliest direct evidence for agriculture.

The Late Woodland Period saw the development of recognizable Iroquoian and Algonquian cultures in southern Ontario, characterized by the intensification of agriculture and the increased utilization of corn. Greater sedentism led to increasing settlement populations and greater complexity of settlement organization. Sites dating to this time are often found on terraces overlooking the floodplains of large rivers. Iroquoian villages tended to be small, palisaded compounds with longhouses occupied

by families. As the Late Woodland Period progressed, more intercommunity communication and integration became necessary to maintain the sedentary agricultural way of life. Later Iroquoian villages were larger and more heavily palisaded, and longhouses were also larger. Algonquian settlements tended to be less populous and temporary.

When European explorers and missionaries arrived in southern Ontario in the early seventeenth century, they described the local Iroquoian social organization as being under the direction of elected chiefs. Tribal confederacies and allegiances resulted in intertribal warfare, which was only made worse by the European presence. Three Ontario Iroquoian confederacies, the Huron, Petun, and Neutral, were driven from their traditional territories before the middle of the seventeenth century.

Archaeologists tend to describe a period of transition from Late Woodland to post-contact contact times as “proto-historic”. The dating of this period is variable and may be different from site to site within a region as it describes a time when local Indigenous peoples were acquiring European trade goods indirectly through other Indigenous middlemen rather than directly from European traders. This period was generally very short and is often difficult to differentiate archaeologically from later post-contact times, when trade goods were widely available, but it usually is identified by evidence of an intact traditional cultural adaptation with occasional European items used in traditional ways.

Table 3: Simplified Cultural Chronology of Southern and Eastern Ontario

Period	Complexes/Cultures, Some Diagnostic Artifacts
Early Paleo-Indian (9000–8500 B.C.)	Small nomadic hunter-gatherer bands. Early Paleo-Indian (EPI) rarely found in eastern Ontario. Gainey, Barnes, Crowfield fluted points.
Late Paleo-Indian (8500–7500 B.C.)	Small nomadic hunter-gatherer bands. Hi-Lo, Holcombe points, Lanceolate Bifaces.
Early Archaic (7500–6000/4500 B.C.)	Small nomadic hunter-gatherer bands. Nettling, Stanley/Neville points.
Middle Archaic (6000/4500–2500 B.C.)	Transition to territorial settlements. Seasonal round of subsistence introduced. Thebes (6000–5000 B.C.), Otter Creek points (4500–3000 B.C.). Brewerton Complex (3000–2500 B.C.). Brewerton points. Laurentian Complex (6000–2500 B.C.) (Eastern Ontario)
Late Archaic (2500–1000 B.C.)	More numerous territorial hunter- gatherer bands, increasing use of exotic materials and artistic items for grave offerings, regional trade networks. Narrowpoint Complex (2500–1850 B.C.). Lamoka points.

Period	Complexes/Cultures, Some Diagnostic Artifacts
	Broadpoint Complex (1850–1650 B.C.). Adder Orchard, Genesee points. Smallpoint Complex (1650–1000 B.C.). Crawford Knoll, Innes points. Terminal Archaic (1100–1000 B.C.) Glacial Kame Complex. Hind points.
Early Woodland (1000–400 B.C.)	Pottery introduced. Meadowood Notched points, Meadowood Cache Blades, Kramer, Adena points. Meadowood Complex (1000–400 B.C.). Middlesex Complex (650–400 B.C.). Introduction of true cemeteries.
Middle Woodland (400 B.C.–A.D. 500/900)	Saugeen, Snyders, Vanport, Port Maitland points. Point Peninsula Complex (Southcentral and eastern Ontario) Saugeen Complex (Southeast of Lake Huron and the Bruce Peninsula, London area, and possibly as far east as the Grand River) Couture Complex (Lake St. Clair and the western end of Lake Erie). Burial ceremonialism.
Transitional Woodland (A.D. 500–900)	Agriculture introduced. Levanna, Jacks Reef points. Princess Point Complex (Eastern end of Lake Erie and the western end of Lake Ontario). Rivière au Vase Phase of the Younge / Western Basin Tradition (Lake St. Clair and western end of Lake Erie) Sandbanks Complex (Kingston area).
Late Woodland (A.D. 900–1650)	Tribal differentiation. Transition to settled village life. Dewaele, Glen Meyer Tanged, Triangular Nanticoke, Notched Nanticoke, Triangular Daniels/Madison points. Ontario Iroquoian and St. Lawrence Iroquoian Traditions (Southcentral and eastern Ontario, respectively). Algonkian Western Basin Tradition (Lake St. Clair and the western end of Lake Erie).
Early Post-Contact (A.D. 1650–1763)	Iroquoian, Algonkian migrations and resettlement. French exploration and colonization
Late Post-Contact (A.D. 1763–1867)	Iroquoian, Algonkian migrations and resettlement. British and other European immigration increases.

In southern Ontario, significant post-contact archaeological sites are those that have an affiliation with an important historic event, figure, or family, but can also be anything dating to the original European settlement of a region. Often, these archaeological sites date to before A.D. 1830, but archaeologically significant Euro-Canadian sites can date

into the twentieth century.

3.2.2 Review of Historical Records

During pre-contact and early contact times, the landscape context of the Study Area would have consisted of a mixture of deciduous trees, coniferous trees, and open areas. In the early 19th century, Euro-Canadian settlers arrived and began to clear the forests for agricultural purposes. In the 19th and early 20th centuries, the Study Area and surrounding land were primarily used for agricultural purposes.

The Study Area is located within the Township of Willoughby, County of Welland. The earliest recorded European visitor to the area is Father Louis Hennepin, who explored as a missionary in 1678. He is best known for publishing an account of his travels, which include the first written description of Niagara Falls, published in 1689 (Page 1876). After the end of the American War of Independence in 1783, large numbers of United Empire Loyalists began to move into what is now the Niagara Region to take up land grants offered by the British.

Welland County was formed in 1851 from land in the southern section of Lincoln County (Mika and Mika 1983). The county was named after the Welland River, which, in turn, was named by John Graves Simcoe in 1792 after a river of the same name in Lincolnshire, England (Rayburn 1997:366).

The townships in this county were among the earliest Euro-Canadian settlements in Upper Canada (Carter 1984). Willoughby Township was first settled by Europeans in 1784 and was surveyed in 1787 (Armstrong 1930). Although, the first settlers were United Empire Loyalists, Pennsylvania Dutch families who had remained neutral during the War of Independence arrived in the 1790s. The 19th century saw increasing settlement, mainly by German-speaking farmers from Switzerland and other German regions attracted by cheap land (Page 1876). During the War of 1812, Willoughby Township was invaded by American forces and is the site of the Battle of Chippawa, fought on July 5, 1814 (Page 1876). The building of the first Welland Canal in the 1820s helped stimulate the growth of settlement in the area (Mika and Mika 1983).

For approximately two centuries, the Welland River has undergone several anthropogenic modifications relating to the Welland Canal, hydro operations, and flow modifications (NPCA 2011). Until the early 19th century, the only route from Lake Ontario to Lake Erie included an extended portage around Niagara Falls from Queenston to Chippawa Creek (Great Lakes St. Lawrence Seaway System 2003). However, in 1829 the Lower Welland River from Port Robinson to Chippawa served as an extension for the first Welland Canal (NPCA 2011). Completed in 1833, the first Welland Canal was 44 km long, there were 40 wooden locks, and had a depth of 2.4 m (Great Lakes St. Lawrence Seaway System 2003). From its terminus at Port Robinson ships would travel east along the Welland River to Chippawa then turn upstream on the Niagara River toward Lake Erie as show in Appendix D: Plate 1 (NPCA 2011). As traffic increased, the canal was extended directly to Lake Erie to Port Colborne to avoid the

strong currents of the Niagara River (Great Lakes St. Lawrence Seaway System 2003).

Between 1845 and 1886, plans were made to improve the canal by increasing its depth, reduce the number of locks, and replace the remaining locks in masonry. The route of the new canal, known as the second Welland Canal, used the channels and locks of the First Welland Canal as control weirs. To accommodate larger vessels the third Welland Canal was built between 1887 and 1931 but it soon became apparent that these vessels could not navigate many of the channels. As a result, between 1907 and 1912 plans were made to enlarge the Canal once more to accommodate even larger vessels (Great Lakes St. Lawrence Seaway System 2003). Appendix D: Plate 3 shows the channels that were widened, including the section of the Welland River where the Study Area is located. Widening the Canal was interrupted by the First World War, but resumed in 1919 and continued until 1932. The widening of the canal during this time is known as the fourth Welland Canal (Great Lakes St. Lawrence Seaway System 2003).

During the same period, construction of the Sir Adam Beck Generating Station No. 1 in 1920 and associated Queenston-Chippawa Power Canal in 1921 involved digging a channel to convey water from the upper Niagara River, via the lower Welland River, to the Queenston Heights Reservoir (Appendix D: Plate 4 and 5) (NPCA 2011). To take advantage of the full available head of water between Lake Erie and Lake Ontario, the Power Canal required excavation and dredging of 8.4 million m^2 of earth and 3 million m^2 of rock (Appendix D: Plate 6) (NPCA 2011). When the Queenston-Chippawa Power Canal opened in 1921, the meeting of the Niagara River water resulted in the flow reversal of the Welland River westward from the Niagara River to the mouth of the Power Canal. This dredging of the Welland River went as far west as Montrose Road and includes the Study Area, as seen in Appendix D: Plate 7-9.

In 1953, further dredging along the lower Welland River was carried out to widen and channelize the last seven km of the Welland River to accommodate the Niagara River flow toward the Queenston-Chippawa Power Canal and facilitate hydro operations (NPCA 2011). Today, water that gathers from the source in Hamilton is still harvested downstream for the Ontario Power Generation turbines at the Queenston-Chippawa Power Canal, which transmits electrical energy back to Hamilton and other cities across southern Ontario (Hogue 2014). Consequently, due to the intensive and extensive deep land alterations (commonly referred to as “disturbed” or “disturbance”) marine archaeological potential within the Study Area has been removed.

Historical records and mapping were examined for evidence of early Euro-Canadian use of the Study Area. The Study Area was located within Part of Lots 7 to 9 Broken Front on Chippewa Creek, Willoughby Township, in the County of Welland, Ontario.

As shown in Table 4, the following historical records were examined to determine the potential for archaeological evidence within and adjacent to the Study Area. Historical maps are provided in Appendix B.

Table 4: Review of Historical Records

Figure No.	Year	Map Title	Historical Feature(s)
Appendix B: Figure 4	1795	1795 Augustus Jones Willoughby Township No. 1 Map (Jones 1795)	• The Study Area is located south of the original/natural alignment of the Welland River in Lots 7-9 Broken Front at Chippewa Creek • A tributary of Welland River is illustrated transecting Lots 7-9 • Property owners are listed but due to degradation of the document and file resolutions the names are primarily illegible, names that are legible are provided below: o Lot 7 - Jonas [last name illegible] o Lot 8 - John Thomas o Lot 9 – John [last name illegible]
Appendix B: Figure 5	1862	1862 Tremaine's Map of the Counties of Lincoln and Welland (Tremaine 1862)	• Study Area is located south of the original/natural alignment of the Welland River in Lots 7-9 Broken Front at Chippewa Creek • Listed property owners and property features within the Study Area: o Estate of W. Miller (Lot 7), Henry Dell (Lot 8), and no owner listed (Lot 9) o A tributary of Welland River is illustrated transecting Lots 7-9 o Original/natural alignment of Welland River is north of the Study Area o The Evangelical Methodist Church is located south of the Study Area o Reixinger Road is illustrated south of the Study Area o Historical road allowances located between Lots 6/7 and Lots 8/9
Appendix B: Figure 6	1876	1876 Illustrated Historical Atlas of Lincoln and	• Study Area is located south of the original/natural alignment of the Welland River in Lots 7-9 Broken Front at Chippewa Creek

Figure No.	Year	Map Title	Historical Feature(s)
		Welland Counties (Page, H. R. & Co. 1876)	• Listed property owners and property features within the Study Area: o Henry Dewitt (Lots 7 and 8), Edward Dell (Lot 8 and south half of Lot 9), and James Malone (north half of Lot 9) o Reixinger Road is illustrated south of the Study Area o Historical road allowances located between Lots 6/7 and Lots 8/9 Welland River is adjacent to the Study Area to the north o Farmstead, orchard, Evangelical Methodist Church, and cemetery located in Lot 8 o Two orchards are depicted on Lots 9, northwest of the Study Area

3.2.3 Historical Plaques

The MHSTCI's *Standards and Guidelines for Consultant Archaeologists* (MHSTCI 2011:18) stipulates that areas of early Euro-Canadian settlement, including places of early military pioneer settlement (pioneer homesteads, isolated cabins, farmstead complexes), early wharf or dock complexes, pioneer churches and early cemeteries, are considered to have archaeological potential. There may be commemorative markers of their history, such as local, provincial, or federal monuments or heritage parks. Early historical transportation routes (trails, passes, roads, railways, portage routes), properties listed on a municipal register or designated under the *Ontario Heritage Act* or a federal, provincial, or municipal historic landmark or site, and properties that local histories or informants have identified with possible archaeological sites, historical events, activities, or occupations are also considered to have archaeological potential.

- A plaque detailing the history of Dell Cemetery is situated just outside the Study Area, along Reixinger Road. The plaque, placed by the City of Niagara Falls, reads:

  History: Henry Dell Sr., a loyalist soldier, received a portion of land in 1797. Henry Sr. deeded one acre of land to the Methodist Episcopal church in 1851 and was known as the Dell Chapel & Cemetery. First Known Burial: Mary, wife of Robert Dell, November 14, 1849

- A plaque detailing the history of Queenston-Chippawa Hydroelectric Development is situated outside the Study Area at the mouth of Welland River where it meets the Niagara River. The plaque, placed by the City of Niagara Falls, reads:

  This generating station, built between 1917 and 1922, was considered the

> *world's first true hydroelectric megaproject. Its massive scale required the use of construction equipment, power conversion units, and a Power Canal of an unprecedented magnitude. The Hydro-Electric Power Commission of Ontario was responsible for this feat of engineering. Under the chairmanship of Sir Adam Beck, it expanded the plant's capacity to supply inexpensive power to towns and cities, fueling the growth of industry, while supporting rural electrification. The Queenston-Chippawa Development was renamed the Sir Adam Beck Generating Station in 1950.*

- A plaque detailing the history of the Welland Canal is situated outside the Study Area near the Bridge at Allanburg Thorold, Ontario. The plaque was placed by the City of Thorold, reads:

> *Near this spot on 30th November, 1824, the first sod of the old Welland Canal was cut by George Keefer, President of the Welland Canal Company, in the presence of William Hamilton Merritt, chief promoter of the enterprise and about 200 other persons. This great work, connecting Lake Erie and Ontario for ship navigation, was planned and carried out by a private company.*

3.3 Marine Features

The MHSTCI's *Criteria for Evaluating Marine Archaeological Potential: A Checklist for Non-Marine Specialists* (MHSTCI 2016a), stipulates that properties or project in close proximity to various marine features including but not limited to shipwrecks, harbours, inundated beach, bluffs, lakeshores, streams or riverbanks, distinctive bathymetric formations or properties that are considered fourth order or higher water courses that also have a potential association with human activity have the potential to yield marine archaeological features.

Wood completed a review of the Marine Heritage database maintained by the Save Ontario Shipwrecks (SOS) and National Oceanic and Atmospheric Administration (NOAA) on 26 August 2021 to identify known shipwrecks in the vicinity of the Study Area. The SOS search identified five shipwrecks in the Niagara River region but all are outside of the 5 km radius listed as a checklist criterion.

However, the NOAA search results identified one shipwreck in the Niagara River region that is within a 5-km radius of the Study Area. This shipwreck is approximately 3.86 km northeast of the Study Area in the City of Niagara Falls and where Welland River meets the Niagara River. Although this is a reported shipwreck within the 5 km radius of the Study Area, the checklist indicates increased marine archaeological potential for additional marine wrecks only when there are two or more reported or registered shipwreck sites or reports of lost ships within a 5-kilometre radius.

The Welland River in the Study Area is classified as a third-order stream in the Strahler stream order system and, while it is in directly adjacent to Niagara River, it does not meet this criterion as a fourth order or higher watercourse with potential association with

human activity.

Wood also completed a search using the MHSTCI *Criteria for Evaluating Potential for Built Heritage Resources and Cultural Heritage Landscapes* on 5 November 2020. This identified four known and potential heritage properties within and adjacent to the Study Area:

- Welland Canal (within Study Area): The Welland Canal was identified as a potential cultural heritage landscape by Golder in 2019 and by Wood in 2020. A historical plaque commemorating the ground breaking of the first Welland Canal is located near Allanburg, Thorold (located approximately 8 km from the Study Area). The ground breaking event, which took place in 1824 is identified as a National Historic Event by the Historic Sites and Monuments Board of Canada (Parks Canada 2021b).
- 6811 Reixinger Road – Farm Complex: The farm complex is located approximately 0.75 km south of the Study Area.
- Dell Cemetery: The Dell Cemetery is located approximately 0.8 km south of the Study Area and directly west of the farm complex located at 6811 Reixinger Road.
- Sir Adam Beck I Generating Station complex (SAB1 Generating Station): The SAB1 Generating Station complex is a Provincial Heritage Property of Provincial Significance (PHPPS) and is comprised of the SAB Generating Station, SAB1 Lands, Montrose Gate, and Power Canal. The SAB1 Generating Station is located approximately 11 km north of the Study Area, but the southern terminus of the Power Canal is located approximately 150 m west of the Study Area. The SAB1 Generating Station is also known as the Queenston-Chippewa Hydroelectric Plant, which is a National Historic Site of Canada (Parks Canada 2021a).

3.4 Land Use History

Historical records and mapping were examined to gain an understanding of 20th century land use in the Study Area. While maps from 1906, 1907, 1908, 1915, 1920, 1925, 1928, 1930, 1938, 1939, 1942, 1962, 1963, and 1973 were examined, the historic maps from the years 1906, 1925 1930, 1938, and 1972 best illustrated the prominent changes of the Study Area and surrounding context in 20th century. A summary of these historical records is presented below in Table 5. Historical maps illustrating land use during the 20th century are provided in Appendix B: Figures 8 to 10.

Table 5: Review of 20th Century Historical Mapping

Figure No.	Map Title	Historical Feature (s)
Appendix B: Figure 7	1906 Topographic Map of Ontario, Niagara Sheet (Department of	• The Study Area is located south of the original/natural alignment of the Welland River • One pump station depicted northeast of the Study Area

Figure No.	Map Title	Historical Feature (s)
	Militia and Defense 1906)	• One railway depicted 400 m to the northwest of the Study Area • One (1) farmstead is shown south of the Study Area and one (1) farmstead is shown northeast of the Study Area One cemetery is shown south of the Study Area
Appendix B: Figure 8	1925 Topographic Map of Ontario, Niagara Sheet (Department of Militia and Defense 1925)	• The Study Area is located south of the original/natural alignment of the Welland River • One pump station depicted northeast of the Study Area • One railway depicted 400 m to the northwest of the Study Area • The Queenston- Chippawa Power Canal is depicted northwest of the Study Area The Welland River appears to have been widened
Appendix B: Figure 9	1942 Topographic Map of Ontario, Niagara Sheet (Department of Militia and Defense 1938)	• The Study Area falls within the Welland River in its current alignment • The pump station is no longer depicted northeast of the Study Area • Three structures are depicted east of the Study Area (south shore of the Welland River) • One Railway depicted 400 m to the northwest of the Study Area • One farmstead and one cemetery depicted south of the Study Area on the north side of Reixinger Road • The Queenston- Chippawa Power Canal is depicted northwest of the Study Area The Welland River appears to have been widened

In conjunction with the historical map review, aerial photographs of the Study Area were examined to gain insight on 20th and 21st century land use of the Study Area. Aerial photographs are presented in Appendix D**.** The aerial imagery from 1934, 1954-55, 1965, 1968, 1995, and 2000-2021 was reviewed but it was concluded that the aerials from the years 1954-55 and 1995 best illustrated the prominent changes of the Study Area. Table 6 provides a summary of these findings.

Table 6: Review of 20th Century Aerial Imagery

Year	Features
1943 (**Appendix D**: Plate 1)	• The Study Area is located within the Welland River • The Welland River has been realigned to its current configuration • The south and north shorelines of the Welland River have been altered and are very smooth. Vegetation along the shorelines is very light. • The Power Canal is located northwest of the Study Area • Agricultural fields are located south of the Study Area
1954/55 (**Appendix D**: Plate 2)	• Land use in the Study Area is stable and few changes are shown. The alignment of the Welland River, locations of agricultural fields, and configuration of the Power Canal has not changed.
1965 (**Appendix D**: Plate 3)	• Land use in the Study Area is stable and few changes are shown. The alignment of the Welland River, locations of agricultural fields, and configuration of the Power Canal has not changed.
1968 (**Appendix D**: Plate 4)	• Land use in the Study Area is stable and few changes are shown. The alignment of the Welland River, locations of agricultural fields, and configuration of the Power Canal has not changed.
1995 (**Appendix D**: Plate 5)	• Land use in the Study Area is stable and few changes are shown. The alignment of the Welland River, locations of agricultural fields, and configuration of the Power Canal has not changed. • Wood lots shown south and southeast of the Study Area
Various (2000 to 2021 Online Google Earth Aerial Imagery)	• The configuration of the Study Area is very stable and little change takes place.

3.5 Archaeological Master Plans

The Region of Niagara retained Archaeological Services Inc. (ASI) to prepare and consult on a Regional Archaeological Management Plan (AMP) in 2019 (Niagara Region 2019). The Niagara Region AMP includes two parts:

- Niagara Region Archaeological Management Plan: Phase II Research and Background Report (Niagara Region 2019)
- Niagara Region Archaeological Management Plan: Planning Context and Recommended Official Plan Policies (Niagara Region 2021)

According to the Region of Niagara AMP, the land within the Study Area was identified as having archaeological potential.

3.6 Potential for Marine Archaeological Resources

Archaeological potential is defined as the likelihood of finding archaeological sites within a Study Area. For planning purposes, determining marine archaeological potential provides a preliminary indication that marine archaeological sites might be found within the Study Area, and consequently, that it may be necessary to allocate time and resources for marine archaeological survey and mitigation.

The framework for determining the presence of marine archaeological potential within a Study Area has been drawn the *Criteria for Evaluating Marine Archaeological Potential: A Checklist for Non-Marine Specialists* (MHSTCI 2016a). The following are features or characteristics that can indicate marine archaeological potential:

- Are there known marine or land-based archaeological sites on or within 500 metres of the property or project area?
- Is there Aboriginal [Indigenous] or local knowledge or marine or land-based archaeological sites on or within 500 metres of the property or project area?
- Is there Aboriginal [Indigenous] knowledge or historically documented evidence of past Aboriginal use on or within 500 metres of the property or project area?
- Is there a known burial site or cemetery on the property or adjacent to the property or project area?
- Has the property or project area been recognized for its cultural heritage value?
- Has the entire property or project area been subjected to recent, extensive and intensive disturbance?
- Are there two or more reported or registered shipwreck sites or reports of lost ships within a five kilometre radius of the property or project area?
- Is the property or project area within one kilometre of an active or historic harbour, seaplane, or floatplane base, tunnel, ferry route, marine terminal, or winter road?
- Where the project impacts fourth order or higher watercourses, are there existing

narrows, rapids, waterfalls or does the watercourse enter or leave a body of water within 300 metres of the property or project area?

- Are there potential built heritage or cultural heritage landscape resources that may be of cultural heritage value or interest adjacent to the watercourse or water body?
- Are there inundated beaches, bluffs, lakeshores, streams, or river banks within 300 metres if the property or project area?
- Are there inundated beaches, lakeshores or river/creek banks beyond 300 metres and at a greater depth than the project area with evidence or two or more of the following in the project area?
    - Elevated bathymetric features such as drumlins, eskers, kames, ridges, etc.
    - Pockets of sandy lakebed
    - Distinctive bathymetric formation such as escarpments, shoals, promontories, reefs, etc.
    - Inundated resource extraction areas (quarry, fishery)
    - Inundated historical settlement including built heritage resources or cultural heritage landscapes
    - Inundated historical transportation routes

Archaeological potential for marine sites can be determined not to be present for all or parts of a project area when it is found to have been subjected to intensive or extensive deep land alterations that have severely damaged the integrity of any archaeological resources. This is commonly referred to as “disturbed” or “disturbance” and may include:

- recent disturbance post-1960
- quarrying
- dredging
- causeways
- bridges
- sewage and infrastructure development; and,
- aqua-cultural activities, areas of traditional or commercial harvesting or inundated agriculture lanes do not necessarily affect archaeological potential.

3.6.1 Indicators of Marine Archaeological Potential in the Study Area

The Study Area was evaluated for marine archaeological potential against the MHSTCI *Criteria for Evaluating Marine Archaeological Potential: A Checklist for Non-Marine Specialists* (MHSTCI 2016). A summary of the indicators of marine archaeological potential present in the Study Area is Table 7. A discussion of the indicators of marine archaeological potential present in the Study Area is provided below in Section 3.6.1.1.

Table 7: Indicators of Marine Archaeological Potential in the Study Area

Indicator of Marine Archaeological Potential	Present in the Study Area? (Y/N)	Notes
Are there known marine or land-based archaeological sites on or within 500 m of the property or project area?	Y	There are 18 known archaeological sites registered within 1 km of the Study Area and seven sites located within 500 m of the Study Area
Is there Aboriginal or local knowledge of marine or land-based archaeological sites on or within 500 metres of the property or project area?	Y	The directly adjacent property (within 500 m of the Study Area) at 6811 Reixinger is known to have *land-based* archaeological potential related to Indigenous land use and the historical use of the property by the Dell family during the 18th and 19th centuries.
Is there Aboriginal knowledge or historically documented evidence of past Aboriginal use on or within 500 metres of the property or project area?	Y	There are seven archaeological sites located within 500 metres of the Study Area. This suggests that the area was generally used by Indigenous people.
Is there a known burial site or cemetery on the property or adjacent to the property or project area?	N	The Dell Cemetery is located 0.8 km from the Study Area on the north side of Reixinger Road. It is separated from the Study Area by fallow fields. Accordingly, it is not considered to be adjacent to the Study Area.
Has the property or project area been recognized for its cultural	Y	This section of the Welland River was identified as a

Indicator of Marine Archaeological Potential	Present in the Study Area? (Y/N)	Notes
heritage value?		potential cultural heritage landscape by Golder in 2020 and Wood in 2021.
Has the entire property or project area been subjected to recent, extensive, and intensive disturbance?	Y	The entire Study Area was dredged in 1953 (NPCA 2011). Although this dredging was conducted before 1960, it is still considered to be recent.
Are there two or more reported or registered shipwreck sites or reports of lost ships within a five kilometre radius of the property or project area?	N	Although one shipwreck is located within 3.86 km of the Study Area, the presence of two or more shipwrecks is required to meet this criterion.
Is the property or project area within one kilometre of an active or historic harbour, seaplane, or floatplane base, tunnel, ferry route, marine terminal, or winter road?	N	There are no active or historic harbours, seaplane or floatplane bases, tunnels, ferry routes, marine terminals, or winter roads within 1 km of the Study Area.
Where the project impacts fourth order or higher watercourses, are there existing narrows, rapids, waterfalls or does the watercourse enter or leave a body of water within 300 metres of the property or project area?	N	The Study Area does not meet this criterion as the Welland River is a third-order stream on the Strahler scale.
Are there potential built heritage or cultural heritage landscape resources that may be of cultural heritage value or interest adjacent to the watercourse or water body?	Y	Golder (2019) and Wood (2020) identified the Welland River as a potential cultural heritage landscape and the adjacent property at 6811 Reixinger Road as a potential heritage property. This area was also identified as having archaeological potential in the Niagara Archaeological Managment Plan.
Are there inundated beaches, bluffs, lakeshores, streams or	N	There are no inundated beaches, bluffs, lakeshores,

Indicator of Marine Archaeological Potential	Present in the Study Area? (Y/N)	Notes
river banks within 300 metres of the property or project area?		streams or river banks within 300 metres of the Study Area.
Are there inundated beaches, lakeshores, or river/creek banks beyond 300 metres and at a greater depth than the project area with evidence of two or more of the following in the project area? • elevated bathymetric features such as drumlins, eskers kames, ridges, etc. • pockets of sandy lakebed • distinctive bathymetric formation such as escarpments, shoals, promontories, reefs, etc. • inundated resource extraction areas (quarry, fishery) • inundated historical settlement including built heritage resources or cultural heritage landscapes • inundated historical transportation routes	N	There are no inundated beaches, lakeshores, or river/creek banks beyond 300 metres and at a greater depth than the Study Area, nor is there evidence of two or more other relevant natural or cultural indicators such as elevated bathymetric features or inundated historical transportation routes.

3.6.1.1 Discussion of Marine Archaeological Potential in the Study Area

The Study Area is located within the Welland River, which flows in an easterly and westerly respectively toward the Queenston-Chippawa Power Canal (“Power Canal”; NPCA 2011). There are forested and scrub areas lining the Welland River as well as woodlots, agricultural fields, and residential areas adjacent to the Study Area. Due to the construction of the Welland Canal and the completion of the SAB1 Generating Station complex and associated Power Canal in 1920/1921, the river now partially flows into the Power Canal. This has resulted in a flow reversal between the meeting of the Welland River, the Power Canal, and the mouth of the Welland river at the Niagara River (NPCA 2011). The SAB1 Generating Station complex approximately 11 km north of the Study Area and associated Power Canal is a PHPPS and National Historic Site of

Canada. The Welland Canal was previously identified as a potential cultural heritage landscape by Golder (2019) and Wood (2020). This Study Area was also identified as having archaeological potential in the Niagara Region Archaeological Management Plan. Additionally, a historical plaque commemorating the ground breaking ceremony for the construction of the first Welland Canal as a National Historic Event of Canada is located approximately 8 km from the Study Area near Allanburg in the Town of Thorold. There is also direct evidence that this general area has been intensively utilized by Indigenous people, as there are 18 archaeological sites located within a 1 km radius of the Study Area, and seven of these sites are located within 500 m of the Study Area.

The MHSTCI's *Criteria for Evaluating Marine Archaeological Potential: A Checklist for Non-Marine Specialists* (MHSTCI 2016a), stipulates that properties or project in close proximity to various marine features including but not limited to shipwrecks, harbours, inundated beach, bluffs, lakeshores, streams or riverbanks, distinctive bathymetric formations or properties that are considered fourth order or higher water courses that also have a potential association with human activity have the potential to yield marine archaeological features. Although one shipwreck was identified to be within 5 km of the Study Area, this single site does not indicate increased marine archaeological potential for additional marine wrecks. There are no historic or current harbours near the Study Area and the Welland River, within the Study Area, is classified as a three in the Strahler stream order system and therefore not a fourth order or higher watercourse that has potential association with human activity.

Finally, according to the AMP the entirety of the Study Area was identified as having general overall archaeological potential.

3.6.2 Indicators of Disturbance in the Study Area

The Study Area was evaluated for indicators of disturbance per Section 8 of the MHSTCI Marine Archaeology Checklist (Table 8). Wood further understands that indicators of disturbance for marine archaeological sites *do not* include aqua-cultural activities (such as a fish farm), areas of traditional or commercial harvesting of fish, shellfish, or water-based vegetation, and traditional agricultural areas that have been inundated.

Table 8: Indicators of Disturbance in the Study Area

Indicator of Disturbance	Present in the Study Area? (Y/N)	Notes
Quarrying	N	No recent or historical quarrying activity was identified in the Study Area
Dredging	Y	The portion of the Welland River that comprises the Study Area

Indicator of Disturbance	Present in the Study Area? (Y/N)	Notes
		was realigned and widened in the early 20th century. This is evident in the historical map progression where significant changes in the river alignment are depicted between 1906 and 1920 when the Power Canal was constructed immediately west of the Study Area and between 1921 and 1942 (when the river was altered and widened to its current configuration). In addition, background research determined that the entire Study Area was dredged in 1953 to widen and channelize the Welland River to accommodate the Niagara River flow toward the Power Canal and increase hydro capacity (NPCA 2011).
Structural footprints and associated construction areas where the structure has deep foundations or footings	N	No causeways identified in the Study Area
Infrastructure development such as: • Dams • Pipelines, hydro lines or other utility trenches • Causeways • Bridges	N	There is no known current or historical infrastructure development in the Study Area.
Sewage and infrastructure development	N	There is no known recent sewage or infrastructure development in the Study Area

3.6.2.1 Discussion of Disturbance in the Study Area

The construction of SAB1 Generating Station and associated Power Canal in 1920-21

resulted in the permanent alteration through dredging and widening to the alignment and flow of the Welland River within the Study Area. Review of historical maps and aerial photographs completed for this background study also demonstrated that this section of the Welland River was realigned and widened between 1925 and 1942, and again in 1953 when dredging occurred to widen and channelize the last 7 km of the lower Welland River and increase flow toward the Power Canal (NPCA 2011).

The background study determined that the entire of Study Area has been disturbed through the alteration of the Welland River alignment and dredging and widening activities that took place during the middle decades of the 20th century. These activities were both extensive and intensive and resulted in the full disturbance of the Study Area and removal of archaeological potential.

3.7 Indigenous Engagement

The Study Area is within the treaty and/or traditional territories of numerous Indigenous Nations. This area was used and shared by many Indigenous groups over the millennia, each with their own traditions as to how they arrived, lived, and the major events of their history. One perspective is provided in the MCFN treaties booklet (Appendix G), which details the history of the Mississauga of the Credit First Nation and the 1792 Between the Lakes Treaty, No.3. It should be noted that this booklet does not necessarily reflect the views of other Nations, nor the consultant archaeologist.

A draft of this report was shared with the following three Indigenous Nations:

- Haudenosaunee Development Institute (HDI)
- Mississaugas of the Credit First Nation (MCFN)
- Six Nations of the Grand River Elected Council (SNGREC)

To date no comments from HDI have been received.

Comments received from MCFN and SNGREC are summarized in the Supplementary Documentation accompanying this report.

4.0 Marine Archaeological Assessment - Property Assessment

4.1 Methods

A property inspection was not completed for this background study. However, photos of the Study Area were taken as part of the Cultural Heritage Impact Assessment (CHIA) prepared for this project by Chelsea Dickinson (R1194) on 5 November 2020 (Wood 2022e). Weather conditions were clear and cool and did not impede the inspection in any way.

The review of the photographs confirmed that the Study Area is comprised of a dredged/widened section of the Welland River and confirmed the degree to which landscape alteration has affected the archaeological potential. Field observations were recorded on aerial maps (Appendix B: Figure 10) and photos of the Study Area are provided in Appendix F.

4.2 Results

Based on the review of recent photographs of the Study Area and background research, Wood determined that the Study Area is comprised of an altered section of the Welland River that has been subject to extensive and intensive land alterations that have removed the archaeological potential of this section of the Welland River. Accordingly, archaeological potential has been removed within 100% of the Study Area and no further marine archaeological assessment is warranted.

4.3 Documentary Record

The inventory of documentary records compiled as part of this assessment is provided in Table 9.

Table 9: Inventory of Documentary Record

Repository	Map and Photo(s)	Field Notes
Wood PLC (Burlington Office) 3450 Harvester Rd, Burlington, ON L7N 3W5	Two maps of the Study Area, one topographic map of the Study Area, six historical maps, and six photos showing the existing conditions of the Study Area that were taken as part of the CHIA that was prepared for this project	n/a

Documentation related to the archaeological assessment of this project will be curated by Wood until such time that arrangements for their ultimate transfer to Her Majesty the Queen in Right of Ontario, or other public institution, can be made to the satisfaction of the project owner, the MHSTCI and any other legitimate interest groups.

4.4 Marine Archaeological Assessment - Analysis and Conclusions

The Marine Archaeological Assessment background study indicated that the Study Area had general archaeological potential for the following reasons:

1) There are 18 known archaeological sites registered within 1 km of the Study Area and seven sites located within 500 metres of the Study Area;
2) Previous archaeological assessment determined that the property adjacent to the Study Area, 6811 Reixinger Road, is known to have land-based archaeological potential for Pre-Contact Indigenous and 18th and 19th century Euro-Canadian land use;
3) The Welland River and property at 6811 Reixinger Road were identified as a potential cultural heritage landscape in previous cultural heritage studies completed by Golder Associates in 2019 and Wood in 2020; and,
4) The Region of Niagara Archaeological Management Plan (AMP) identifies the land within the Study Area as having archaeological potential.

While there are indicators of archaeological potential in the Study Area, the background study also determined that the entire Study Area has been disturbed by the realignment/widening and dredging activities carried out in this section of the Welland River. The disturbance in this section of the Welland River is related to the realignment and widening of the Welland River to accommodate the demands of Sir Adam Beck Generating Station and associated Power Canal in 1920/1921 and subsequent dredging/widening of the Welland River in 1953 to further facilitate the requirements of the power generating station. The 1920/1921 and 1953 dredging activities resulted in the disturbance of the entire Study Area and has negated the archaeological potential of this section of the Welland River. Therefore, the Marine Archaeological Assessment determined that the entire Study Area is disturbed and does not require further archaeological assessment.

5.0 Recommendations

Based on the findings of the Marine Archaeological Assessment of the Study Area, the following recommendation is made, subject to the conditions outlined below and in 6.0:

1. The Study Area requires no further archaeological assessment.

The above recommendation is subject to approval by the Ministry of Heritage, Sport, Tourism and Culture Industries. It is an offence to knowingly alter any portion of an archaeological site except by a person holding a professional archaeological license.

6.0 Advice on Compliance with Legislation

a. This report is submitted to the Minister of Heritage, Sport, Tourism and Culture Industries as a condition of licensing in accordance with Part IV of the *Ontario Heritage Act, R.S.O. 1990, c O.18.* The report is reviewed to ensure that it complies with the standards and guidelines that are issued by the Minister, and that the archaeological fieldwork and report recommendations ensure the conservation, protection and preservation of the cultural heritage of Ontario. When all matters relating to archaeological sites within the project area of a development proposal have been addressed to the satisfaction of the Ministry of Heritage, Sport, Tourism and Culture Industries, a letter will be issued by the ministry stating that there are no further concerns with regard to alterations to archaeological sites by the proposed development.

b. It is an offence under Sections 48 and 69 of the *Ontario Heritage Act* for any party other than a 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 a 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 Archaeological Reports referred to in Section 65.1 of the *Ontario Heritage Act*.

c. Should previously undocumented archaeological resources be discovered, they may be a new archaeological site and therefore subject to Section 48 (1) of the *Ontario Heritage Act*. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out archaeological fieldwork, in compliance with Section 48 (1) of the *Ontario Heritage Act*.

d. The *Funeral, Burial and Cremation Services Act,* 2002, S.O. 2002, c.33 requires that any person discovering human remains must notify the local police or coroner and the Registrar of Cemeteries at the Ministry of Government and Consumer Services.

7.0 Assessor Qualifications

This report was prepared and reviewed by the undersigned, employees of Wood. Wood is one of North America's leading engineering firms, with more than 50 years of experience in the earth and environmental consulting industry. The qualifications of the assessors involved in the preparation of this report are provided in Appendix H.

8.0 Closure

This report was prepared for the exclusive use of Niagara Region and is intended to provide a Marine Archaeological Assessment of the Study Area. The property is located within the Welland River, north of 6811 Reixinger Road, City of Niagara Falls, Ontario.

Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of the third party. Should additional parties require reliance on this report, written authorization from Wood will be required. With respect to third parties, Wood has no liability or responsibility for losses of any kind whatsoever, including direct or consequential financial effects on transactions or property values, or requirements for follow-up actions and costs.

The report is based on data and information collected during the Marine Archaeological background study conducted by Wood. It is based solely a review of historical information, a property reconnaissance conducted on 5 November 2020 and data obtained by Wood as described in this report. Except as otherwise maybe specified, Wood disclaims any obligation to update this report for events taking place, or with respect to information that becomes available to Wood after the time during which Wood conducted the archaeological assessment. In evaluating the property, Wood has relied in good faith on information provided by other individuals noted in this report. Wood has assumed that the information provided is factual and accurate. In addition, the findings in this report are based, to a large degree, upon information provided by the current owner/occupant. Wood accepts no responsibility for any deficiency, misstatement or inaccuracy contained in this report as a result of omissions, misinterpretations or fraudulent acts of persons interviewed or contacted.

Wood makes no other representations whatsoever, including those concerning the legal significance of its findings, or as to other legal matters touched on in this report, including, but not limited to, ownership of any property, or the application of any law to the facts set forth herein. With respect to regulatory compliance issues, regulatory statutes are subject to interpretation and change. Such interpretations and regulatory changes should be reviewed with legal counsel.

This report is also subject to the further Standard Limitations contained in Appendix I.

We trust that the information presented in this report meets your current requirements. Should you have any questions, or concerns, please do not hesitate to contact the undersigned.

Respectfully Submitted,

Wood Environment & Infrastructure,
a Division of Wood Canada Limited

Prepared by,

Alejandra Cooney, B.Sc. (R1188)

Staff Archaeologist I Assistant Burlington Lab Coordinator

Heidy Schopf, MES, CAHP

Built Heritage and Cultural Landscape Team Lead

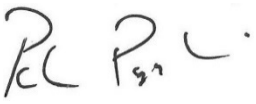
Chelsea Dickinson, B.A. (R1194)

Cultural Heritage Specialist I Research Archaeologist

Reviewed by,

Henry Cary, Ph.D., CAHP, RPA (P327)

Senior Staff Archaeologist



Peter Popkin, Ph.D., CAHP (P362)

Associate Archaeologist

9.0 Bibliography

Acton, C.J.
1935 *Soils of Welland County, Ontario. Soil Survey Report No. 5. Ontario Institute of Pedology*. Guelph, Ontario.

Adams, Nick
1994 *Field Manual for Avocational Archaeologists in Ontario.* Publication No.16, Ontario Archaeological Society Inc.

Anderson and Lewis
1985 *Postglacial water-level history of the Lake Ontario basin.* Geological Association of Canada. Special Paper 3. St. Johns.

Armstrong, G.H.
1930 *The Origin and Meaning of Place Names in Canada*. MacMillan: Toronto.

Borden, Charles E.
1952 *A Uniform Site Designation Scheme for Canada*. Anthropology in British Columbia, No. 3, 44-48.

Carter, Floreen Ellen
1984 *Place Names of Ontario, Volume 1*. Phelps Publishing, London.

Chapman, L.J. and D. F. Putnam
1984 *The Physiography of Southern Ontario.* Second Edition. Ontario Geological Survey, Special Volume
2. Ontario Ministry of Natural Resources, Toronto University Press, Toronto.

Coakley, John Phillip
1985 *Evolution of Lake Erie Base on the Postglacial Sedimentary Record Below the Long Point, Point Pelee, and Pointe-Aux-Pins Forelands*. PhD diss., University of Waterloo, Waterloo.

Department of Militia and Defence
1906 *National Topographic Map, Ontario, Niagara Sheet 030M03*. Available online: http://geo2.scholarsportal.info/#r/details/_uri@=HTDP63360K030M03_1906TIFF&_add:true. Last accessed August 17, 2020.

Department of National Defence
1925 *National Topographic Map, Ontario, Niagara Sheet 030M03*. Available online: http://geo2.scholarsportal.info/#r/details/_uri@=HTDP63360K030M03_1925TIFF

& _add:true. Last accessed August 17, 2020.

1942 *National Topographic Map, Ontario, Niagara Sheet 030M03*. Available online: http://geo2.scholarsportal.info/#r/details/_uri@=HTDP63360K030M03_1942TIFF&_add:true. Last accessed August 17, 2020.

Ellis, Chris J and Ferris, Neal
1990 *The Archaeology of Southern Ontario to A.D. 1650.* London Chapter OAS, London, Ontario

Golder Associates Ltd. (Golder)
2019 *South Niagara Falls Wastewater Solutions Schedule C Class Environmental Assessment for the New South Niagara Falls Wastewater Treatment Plant and Associated Collection and Conveyance Impacts, Regional Municipality of Niagara, Ontario Cultural Heritage Screening Report*. Golder File No. 18104462-3000-3003. On file at Wood.
2021 *Stage 1 Archaeological Assessment: South Niagara Falls Wastewater Solutions Schedule C Class Environmental Assessment, Various Lots and Concessions, Geographic Townships of Stamford, Willoughby and Crowland, Former County of Welland, City of Niagara Falls, Regional Municipality of Niagara, Ontario.* PIF P468-0036-2019. Report on file at Wood.

Government of Ontario
1990 *Ontario Heritage Act, R.S.O. 1990, Chapter O.18.* Last amendment: July 1, 2019. Electronic document: https://www.ontario.ca/laws/statute/90o18. Last accessed September 21, 2021.
2019 *Preparing environmental assessments: How to prepare different types of environmental assessments in Ontario.* Electronic document: https://www.ontario.ca/page/preparing-environmental-assessments#section-1. Last accessed September 21, 2021.
2020 *Provincial Policy Statement.* Electronic document: https://files.ontario.ca/mmah-provincial-policy-statement-2020-accessible-final-en-2020-02-14.pdf. Last accessed September 21, 2021.

Great Lakes St. Lawrence Seaway System
2003 *The Welland Canal Section of the St. Lawrence Seaway.* The St. Lawrence Seaway Management Corporation, Cornwall Ontario.

Hougue, Tom
2014 *Bend in the river: A journey down the Welland River from its headwaters in Hamilton*. Creative Niagara. Available online: https://stories.thespec.io/2014/09/17/hello-world/. Last accessed September 22, 2021.

Jackson, L.J., Ellis, C, Morgan, A.V., and J.H. Andrews.
2000 *The Welland Canals and Their Communities*. University of Toronto Press, Toronto.

Jones, Augustus
1795 *Willoughby Township No. 1 Map*. Copied from an original map signed by John Frederik
Holland, Samuel Holland and D.W. Smith. Source: Ontario Heritage Property Index.
http://ontario.heritagepin.com/willoughby-township-in-welland/

Karrow, P.F. and B.G. Warner
1990 Chapter 2: The Geological and Biological Environment for Human Occupation in Southern Ontario. In *The Archaeology of Southern Ontario to A.D. 1650.* Edited by C.J. Ellis and N. Ferris, pp 5-36. Occasional Publication of the London Chapter, OAS Number 5.

Mayer Archaeological Consultants (MAC)
2015 *Archaeological Assessment (Stages 1 & 2), 7047 Reixinger Road, Part of Lots 8, 9 & 10, Broken Front Concession, Formerly in the Township of Willoughby, Now in the City of Niagara Falls, R.M. of Niagara, Ontario.* Prepared by Mayer Archaeological Consultants, dated 21 September 2015, Reference No. 14-001. PIF P066-0210-2015. Report on file at Wood.

Middleton, Jesse Edgar & Fred Landon
1927 *Province of Ontario -- A History 1615 to 1927*. Dominion Publishing Company, Toronto.

Mika, Nick and Helma Mika
1983 *Places in Ontario: Their Name Origins and History, Part III N-Z*. Mika Publishing, Belleville.

Ministry of Heritage, Sport, Tourism and Culture Industries (MHSTCI)
2011 *Standards and Guidelines for Consultant Archaeologists*, Ontario Ministry of Heritage, Sport, Tourism and Culture Industries, Toronto.
2016a *Criteria for Evaluating Marine Archaeological Potential: A Checklist for Non-Marine Archaeologists*. Document on file at Wood.
2016b *Criteria for Evaluating Potential for Built Heritage Resources and Cultural Heritage Landscapes: A Checklist for the Non-Specialist*. Document on file at Wood.
2021a Sites Within a One Kilometre Radius of the Study Area Provided from the Ontario Archaeological Sites Database, 13 July 2021.

2021b Archaeological Assessments Completed Within the Study Area or Within 50 Metres of the Study Area Provided from the Ontario Public Register of Archaeological Reports, 15 July 2021.

Municipal Engineers Association.
2015 *Municipal Class Environmental Assessment Manual*. Electronic document: https://www.municipalclassea.ca/manual/. Last accessed September 21, 2021.

Niagara Peninsula Conservation Authority (NPCA)
2011 Lower Welland River Characterization Report. Available online: NPCA-Watershed-Plan-Lower_Welland_River_Characterization.pdf. Last accessed September 22, 2021.
2018 *Welland River Floodplain Mapping Update, Final Report*. Document on file at Wood.

Niagara Region
2019 *New Niagara Official Plan, Niagara Regional Archaeological Management Plan: Phase II Research and Background Report*. Available online: https://www.niagararegion.ca/projects/archaeological-management-plan/pdf/phase-two-research-background-report.pdf. Last accessed September 21, 2021.
2021 *New Niagara Official Plan, Niagara Regional Archaeological Management Plan: Planning Context and Recommended Official Plan Policies. Available online:* https://www.niagararegion.ca/projects/archaeological-management-plan/pdf/recommended-policies.pdf. *Last accessed September 21, 2021.*

Page, H. R. & Co.
1876 *Illustrated Historical Atlas of Lincoln and Welland Counties, Ontario*. Toronto.

Parks Canada
2021a *Queenston-Chippewa Hydro-Electric Development National Historic Site of Canada*. Available online: https://www.pc.gc.ca/apps/dfhd/page_nhs_eng.aspx?id=501. Last accessed September 21, 2021.
2021b *Welland Canal National Historic Event*. Available online: https://www.pc.gc.ca/apps/dfhd/page_nhs_eng.aspx?id=1583. Last accessed September 21, 2021.

Rayburn, Alan
1997 *Placenames of Ontario.* University of Toronto Press, Toronto.

Tremaine, G.R.
1862 *Tremaine's Map of the Counties of Lincoln and Welland, Canada West*. Toronto.

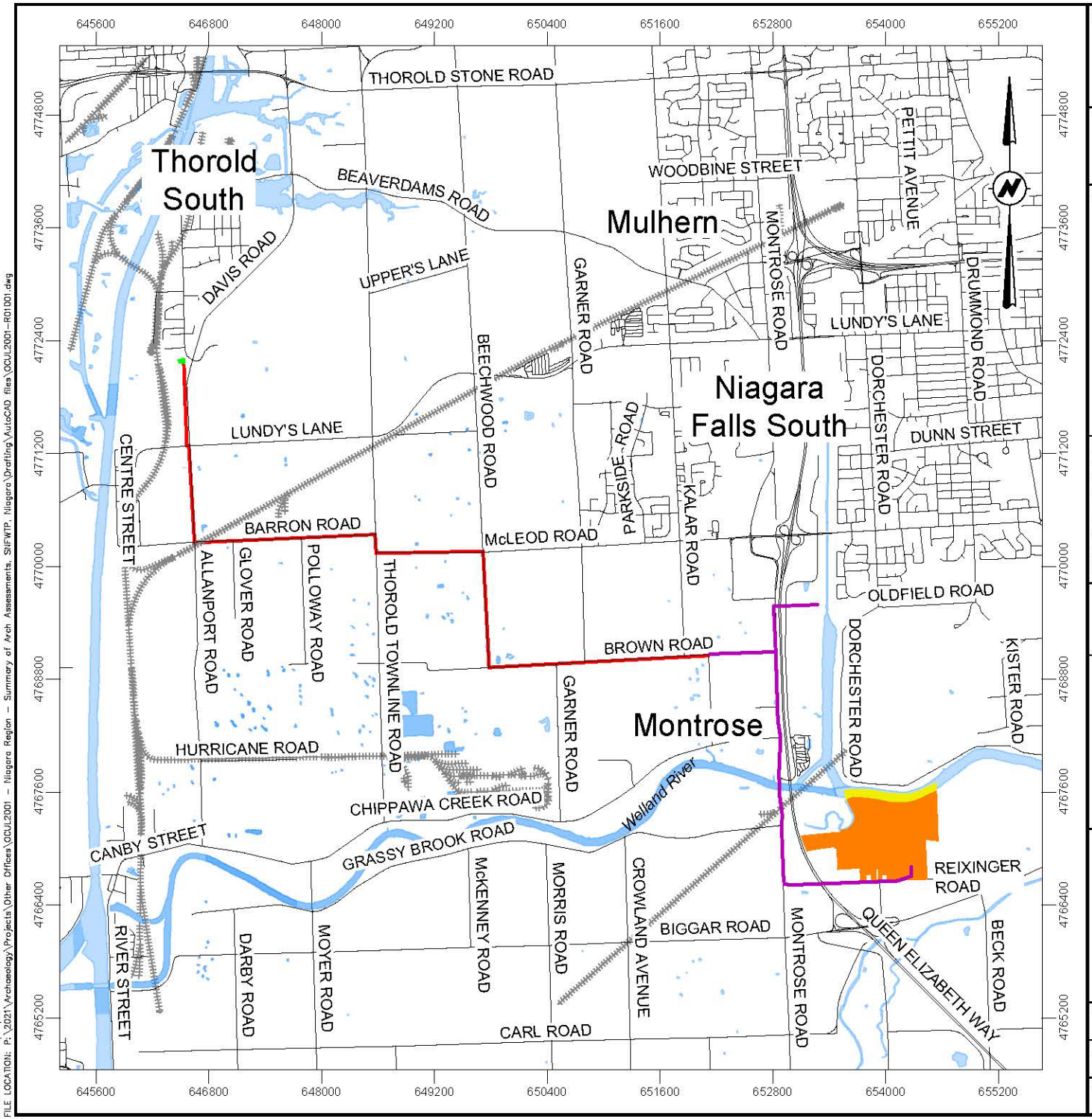
Wood PLC
2022a *Stage 1 Archaeological Assessment South Niagara Falls Wastewater Treatment Plant, Phase 1 Lands Part of Lots 186-187, 198 and 209-210 in the Township of Stamford, Lot 1 Broken Front at Chippewa Creek, Township of Crowland and Lots 7-10 Broken Front at Chippewa Creek, Township of Willoughby, Former County of Welland, now the City of Niagara Falls, Regional Municipality of Niagara, Ontario*. Draft Report on File with Wood. PIF P327-0013-2021.
2022b *Stage 1 & 2 Archaeological Assessment South Niagara Falls Wastewater Treatment Plant, Phase 2 Lands Part of Lots 7 to 10 Broken Front on Chippewa Creek, Geographic Township of Willoughby, Former County of Welland, now in the City of Niagara Falls, Regional Municipality of Niagara, Ontario.* DRAFT Report on File with Wood. PIFs P348-0106-2020 and P348-0107-2020
2022c *Stage 1 Archaeological Assessment South Niagara Wastewater Treatment Plant, South Thorold Trunk and Blackhorse Sewage Pumping Station, located in part of Lots 167-168, 181-184, and 201-208 in the Geographic Township of Stamford, Lincoln County, now City of Niagara Falls, and part of Lots 93-94, 112-117 and 123-140 in the Geographic Township of Thorold, Welland County, now City of Thorold, Regional Municipality of Niagara, Ontario* DRAFT Report on File with Wood. PIF P327-0012-2021
2022d *Stage 2 Archaeological Assessment South Niagara Wastewater Treatment Plant & Blackhorse Sewage Pumping Station, Part of Lot 94, Geographic Township of Thorold, Welland County, Now 701 Allanburg Road, City of Thorold, Regional Municipality of Niagara, Ontario*. DRAFT Report on File with Wood. PIF P327-0019-2021
2022e *Cultural Heritage Assessment Report: Existing Conditions and Preliminary Impact Assessment South Niagara Falls Wastewater Treatment Plant, Phase 2 Site, City of Niagara Falls, Ontario* DRAFT Report on File with Wood.

Wright James V.
1968 *Ontario Prehistory: an eleven thousand-year archaeological outline.* Archaeological Survey of Canada, National Museums of Canada, Ottawa.

Wybenga, Darin P
2017 Mississaugas of the Credit First Nation Treaties 1781-1820 MCFN Department of Consultation and Accommodation, Hagersville Ontario.

WSP
2018 *Welland River Floodplain Mapping Update*. *Final Report Niagara Peninsula Conversation Authority.* Project Number 15M-00704-01. Thornhill.

Appendix A: Summary of Archaeological Assessments



PROJECT:
ARCHAEOLOGICAL ASSESSMENT
SOUTH NIAGARA FALLS WASTEWATER TREATMENT PLANT
FORMER COUNTY OF WELLAND
NOW IN THE CITY OF NIAGARA FALLS
REGIONAL MUNICIPALITY OF NIAGARA, ONTARIO

TITLE:
SOUTH NIAGARA FALLS WASTEWATER TREATMENT PLANT
SUMMARY OF ARCHAEOLOGICAL ASSESSMENTS

LEGEND:

- STAGE 1 ARCHAEOLOGICAL ASSESSMENT (PIF P327-0012-2021)
- STAGE 1 ARCHAEOLOGICAL ASSESSMENT (PIF P327-0013-2021)
- STAGE 1 & 2 ARCHAEOLOGICAL ASSESSMENT (PIF P348-0106-2020 & PIF P348-0107-2020)
- STAGE 2 ARCHAEOLOGICAL ASSESSMENT (PIF P327-0019-2021)
- MARINE ARCHAEOLOGICAL ASSESSMENT (MARINE ARCHAEOLOGICAL LICENSE 2021-22)

NOTES:
THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH THE WOOD ENVIRONMENT & INFRASTRUCTURE SOLUTIONS REPORT No. OCUL2001.
ALL LOCATIONS ARE APPROXIMATE.
ORIGINAL PAPER SIZE: 8½ x 11.
REFERENCES:
CANMAP STREETFILES V2008.4.

0 600 1800 3000m
SCALE 1:60000

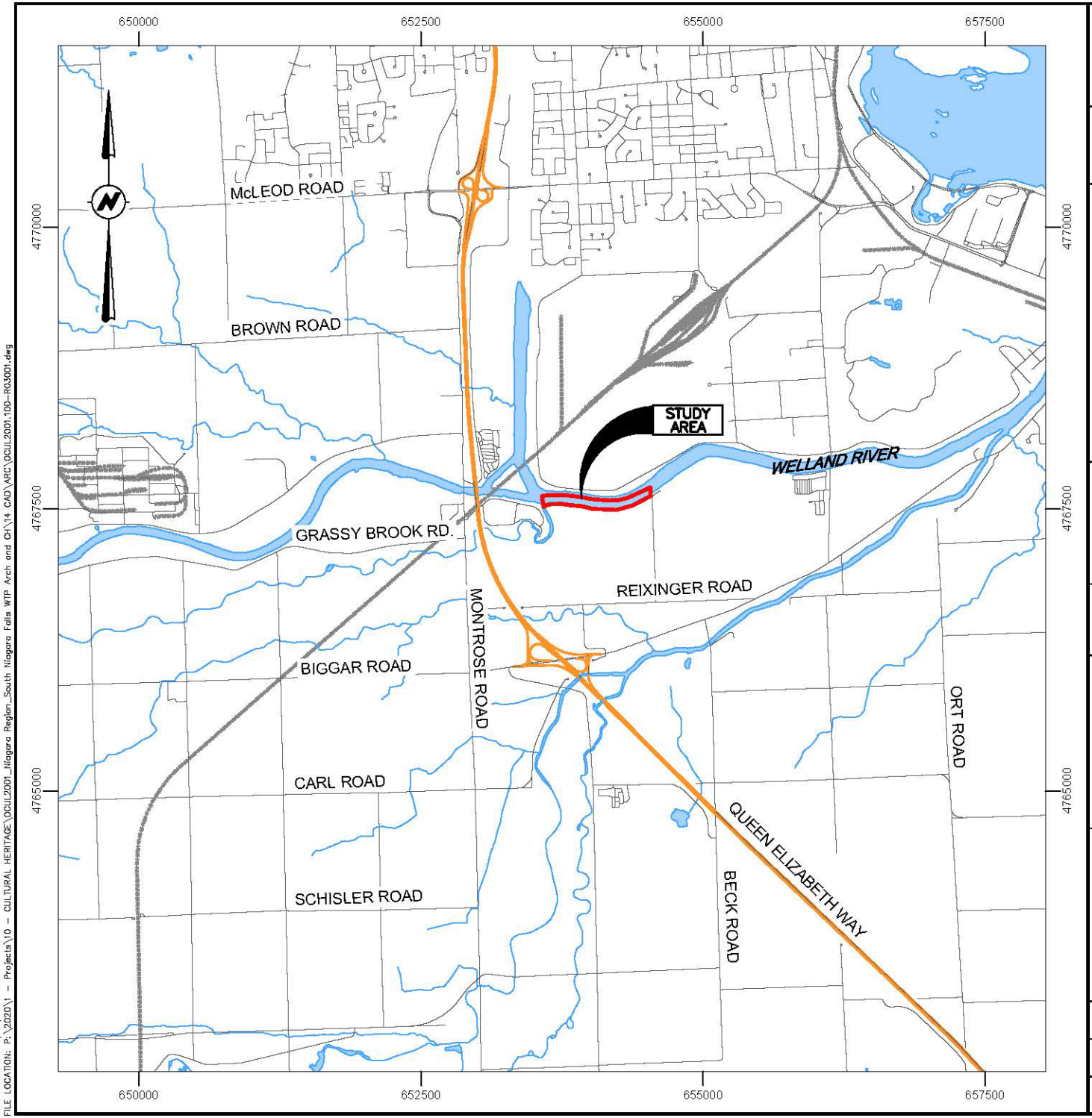
Niagara Region
1815 SIR ISAAC BROCK WAY, P.O. BOX 1042
THOROLD, ONTARIO, L2V 4T7

Wood
Environment & Infrastructure Solutions
50 VOGELL ROAD, UNIT 3
RICHMOND HILL, ONTARIO, L4B 3K6
647-689-4958

DWN BY:	CHK'D BY:	DATE:
SJL	CD	FEB. 10, 2022
DATUM:	PROJECTION:	PROJECT No:
NAD83	UTM Zone 17	OCUL2001
REV No:		
0		

DATE PLOTTED: 2/10/2022 4:19:02 PM
FILE LOCATION: P:\2021\Archaeology\Projects\Other Offices\OCUL2001 - Niagara Region - Summary of Arch Assessments, SNFWTP, Niagara\Drafting\AutoCAD files\OCUL2001-R01001.dwg

Appendix B: Figures



PROJECT:
MARINE ARCHAEOLOGICAL ASSESSMENT SOUTH NIAGARA WASTE WATER TREATMENT PLANT,
PHASE 2 LANDS, LOTS 7 TO 9 BROKEN FRONT ON CHIPPEWA CREEK, GEOGRAPHIC TOWNSHIP OF WILLOUGHBY, FORMER COUNTY OF WELLAND, NOW IN THE CITY OF NIAGARA FALLS, REGIONAL MUNICIPALITY OF NIAGARA, ONTARIO

TITLE:
LOCATION OF THE STUDY AREA

LEGEND:
STUDY AREA

NOTES:
THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH THE WOOD ENVIRONMENT & INFRASTRUCTURE SOLUTIONS REPORT No. OCUL2001.
ALL LOCATIONS ARE APPROXIMATE.

REFERENCES:
CANMAP STREETFILES V2008.4.

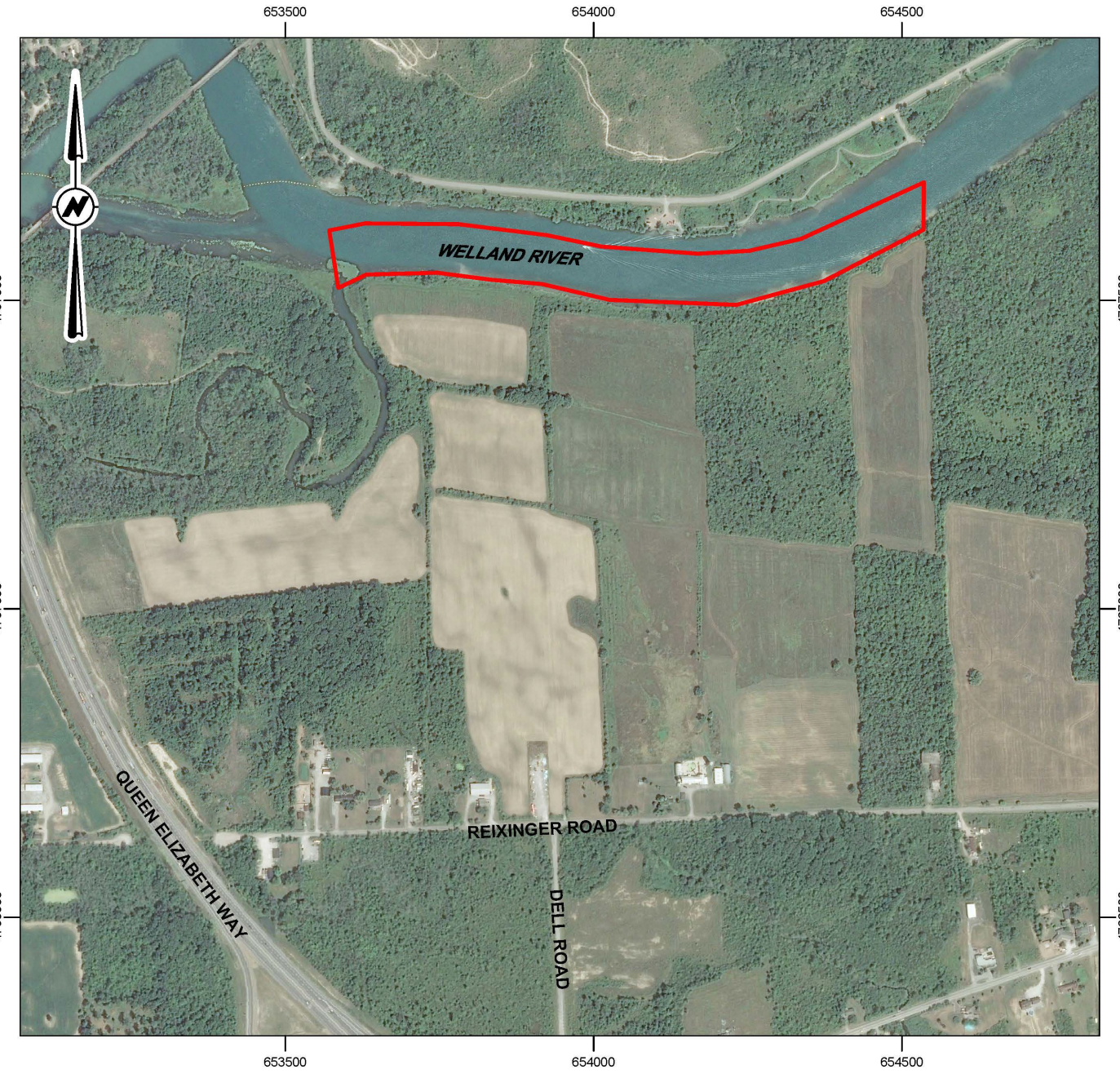
0 500 1,500 2,500m
SCALE 1:50,000

CLIENT:
Niagara Region
NIAGARA REGION WATER & WASTEWATER ENGINEERING
1815 SIR ISAAC BROCK WAY
THOROLD, ONTARIO, L2V 4T7

wood.
Wood Environment & Infrastructure Solutions
201 KING STREET
LONDON, ONTARIO
N6A 1C3
519-681-2400

DWN BY:	CHK'D BY:	DATE:
LMK	AC	SEP. 29, 2021
DATUM: NAD83	PROJECTION: UTM Zone 17	PROJECT No: OCUL2001
REV No: 0		FIGURE No: 1

DATE PLOTTED: 9/29/2021 10:47:01 AM
FILE LOCATION: P:\2020\ - Projects\10 - CULTURAL HERITAGE\OCUL2001_Niagara Region_South Niagara Falls WTP Arch and CH\14 CAD\ARC\OCUL2001.10D-R03001.dwg



PROJECT:
MARINE ARCHAEOLOGICAL ASSESSMENT SOUTH NIAGARA WASTE WATER TREATMENT PLANT,
PHASE 2 LANDS, LOTS 7 TO 9 BROKEN FRONT ON CHIPPEWA CREEK, GEOGRAPHIC TOWNSHIP OF WILLOUGHBY, FORMER COUNTY OF WELLAND, NOW IN THE CITY OF NIAGARA FALLS, REGIONAL MUNICIPALITY OF NIAGARA, ONTARIO

TITLE:
AERIAL PHOTOGRAPH SHOWING THE LOCATION OF THE STUDY AREA

LEGEND:
STUDY AREA

NOTES:
THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH THE WOOD ENVIRONMENT & INFRASTRUCTURE SOLUTIONS REPORT No. OCUL2001.

ALL LOCATIONS ARE APPROXIMATE.

REFERENCES:
BING IMAGERY AS OF AUGUST 17, 2020 (IMAGE DATE UNKNOWN); BING IMAGERY USED FOR ILLUSTRATION PURPOSES ONLY AND NOT TO BE USED FOR MEASUREMENTS.

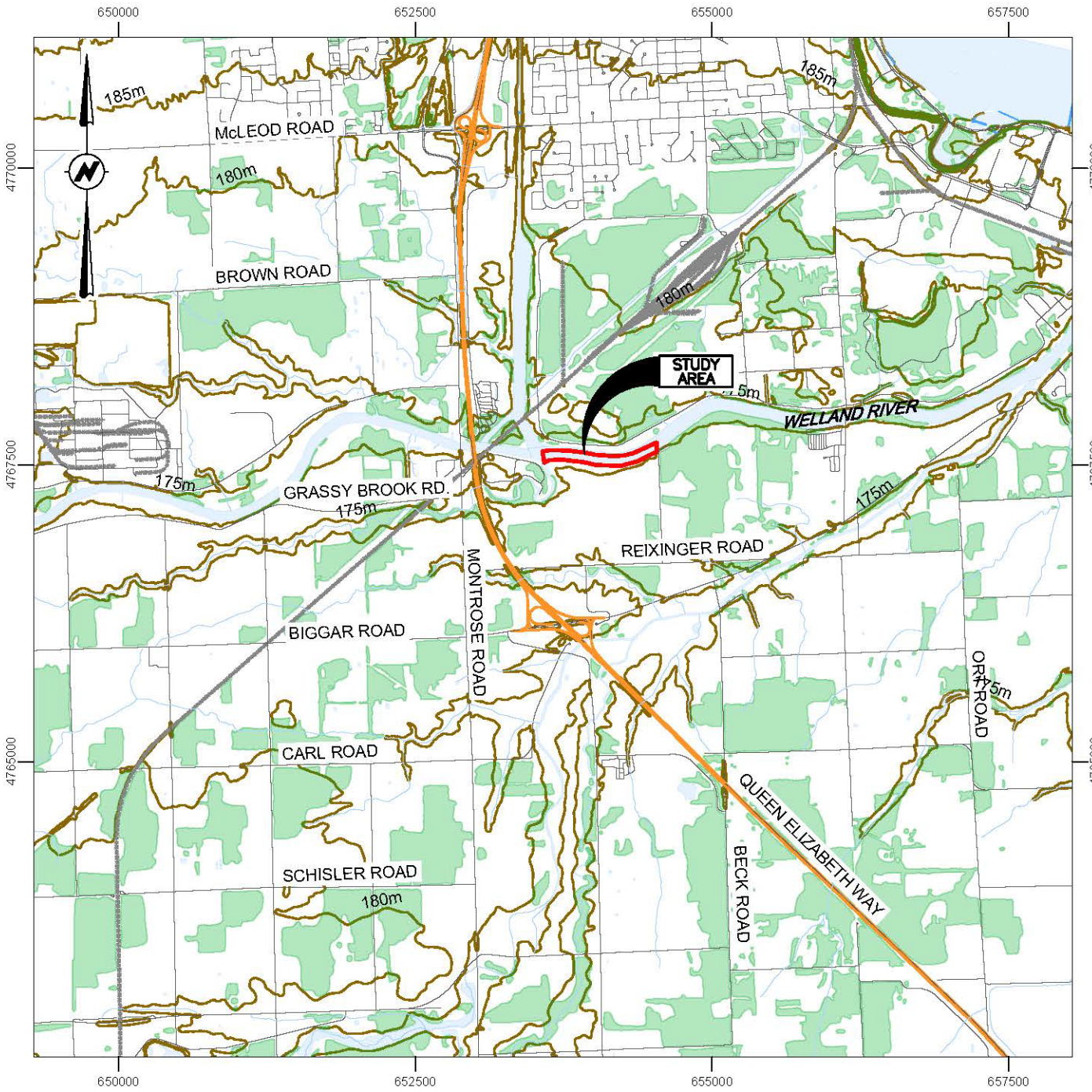
0 100 300 500m
SCALE 1:10,000

CLIENT:
Niagara Region
NIAGARA REGION WATER & WASTEWATER ENGINEERING
1815 SIR ISAAC BROCK WAY
THOROLD, ONTARIO, L2V 4T7

wood.
Wood Environment & Infrastructure Solutions
201 KING STREET
LONDON, ONTARIO
N6A 1C3
519-681-2400

DWN BY:	CHK'D BY:	DATE:
LMK	AC	SEP. 29, 2021
DATUM: NAD83	PROJECTION: UTM Zone 17	PROJECT No: OCUL2001
REV No: 0		FIGURE No: 2

DATE PLOTTED: 9/29/2021 10:48:58 AM
FILE LOCATION: P:\2020\10 - Projects\10 - CULTURAL HERITAGE\OCUL2001_Niagara Region_South Niagara Falls WTP Arch and CH\14 CAD\ARC\OCUL2001.100-R03001.dwg



PROJECT:
MARINE ARCHAEOLOGICAL ASSESSMENT SOUTH NIAGARA WASTE WATER TREATMENT PLANT,
PHASE 2 LANDS, LOTS 7 TO 9 BROKEN FRONT ON CHIPPEWA CREEK, GEOGRAPHIC TOWNSHIP OF WILLOUGHBY, FORMER COUNTY OF WELLAND, NOW IN THE CITY OF NIAGARA FALLS, REGIONAL MUNICIPALITY OF NIAGARA, ONTARIO

TITLE:
TOPOGRAPHIC MAP SHOWING THE LOCATION OF THE STUDY AREA

LEGEND:
STUDY AREA

NOTES:
THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH THE WOOD ENVIRONMENT & INFRASTRUCTURE SOLUTIONS REPORT No. OCUL2001.

ALL LOCATIONS ARE APPROXIMATE.

REFERENCES:
ONTARIO BASIC MAPPING (OBM).

0 500 1,500 2,500m
SCALE 1:50,000

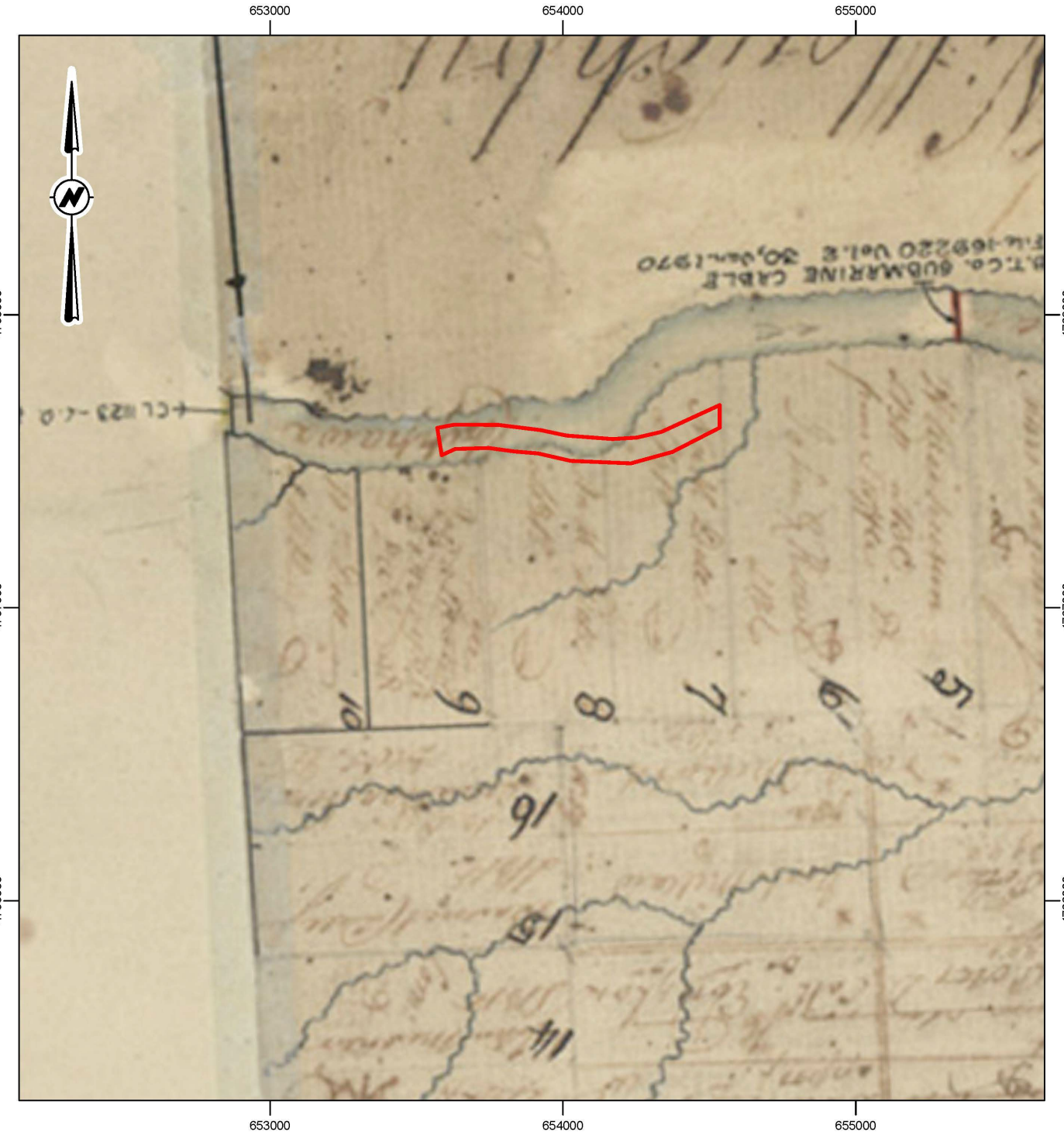
CLIENT:
Niagara Region

NIAGARA REGION WATER & WASTEWATER ENGINEERING
1815 SIR ISAAC BROCK WAY
THOROLD, ONTARIO, L2V 4T7

wood.
Wood Environment & Infrastructure Solutions
201 KING STREET
LONDON, ONTARIO
N6A 1C3
519-681-2400

DWN BY: LMK	CHK'D BY: AC	DATE: SEP. 29, 2021
DATUM: NAD83	PROJECTION: UTM Zone 17	PROJECT No: OCUL2001
REV No: 0		FIGURE No: 3

DATE PLOTTED: 9/29/2021 10:51:42 AM
FILE LOCATION: P:\2020\1 - Projects\10 - CULTURAL HERITAGE\OCUL2001_Niagara Region_South Niagara Falls WTP Arch and CH\14 CAD\ARC\OCUL2001_100-R03001.dwg



PROJECT:

MARINE ARCHAEOLOGICAL ASSESSMENT SOUTH NIAGARA WASTE WATER TREATMENT PLANT,
PHASE 2 LANDS, LOTS 7 TO 9 BROKEN FRONT ON CHIPPEWA CREEK, GEOGRAPHIC TOWNSHIP OF WILLOUGHBY, FORMER COUNTY OF WELLAND, NOW IN THE CITY OF NIAGARA FALLS, REGIONAL MUNICIPALITY OF NIAGARA, ONTARIO

TITLE:

1795 AUGUSTUS JONES WILLOUGHBY TOWNSHIP NO. 1 MAP

LEGEND:

STUDY AREA

NOTES:

THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH THE WOOD ENVIRONMENT & INFRASTRUCTURE SOLUTIONS REPORT No. OCUL2001.

ALL LOCATIONS ARE APPROXIMATE.

MAP SHOWN AT BEST AVAILABLE RESOLUTION.

ORIGINAL PAPER SIZE: 8½ x 11

REFERENCES:

AUGUSTUS JONES 1795. WILLOUGHBY TOWNSHIP NO. 1 MAP. COPIED FROM AN ORIGINAL MAP SIGNED BY JOHN FREDERIK HOLLAND, SAMUEL HOLLAND AND D.W. SMITH. SOURCE: ONTARIO HERITAGE PROPERTY INDEX.

0 200 600 1,000m

SCALE 1:20,000

CLIENT:

Niagara Region

NIAGARA REGION WATER & WASTEWATER ENGINEERING

1815 SIR ISAAC BROCK WAY
THOROLD, ONTARIO, L2V 4T7

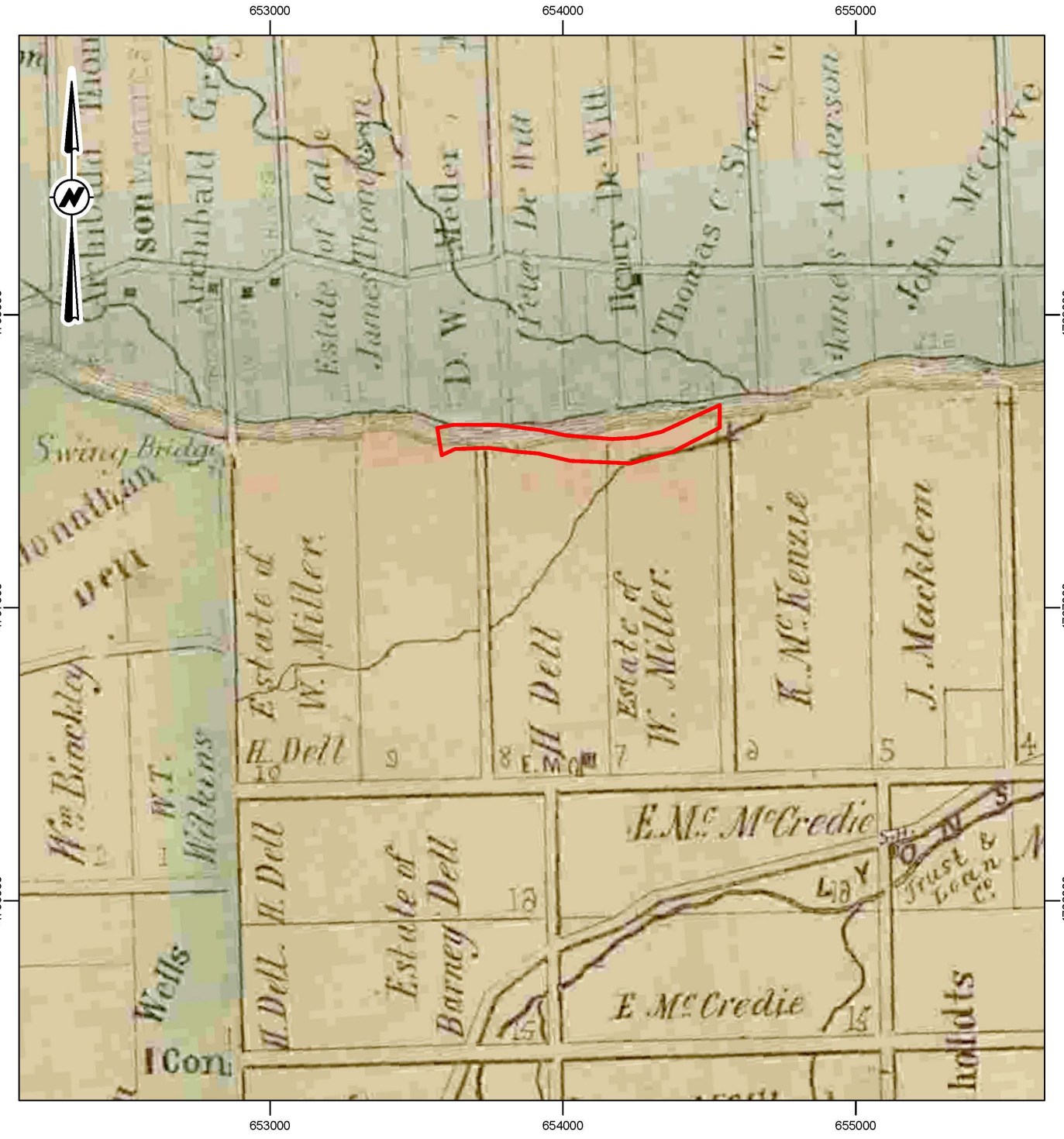
wood.

Wood Environment & Infrastructure Solutions

201 KING STREET
LONDON, ONTARIO
N6A 1C3
519-681-2400

DWN BY:	CHK'D BY:	DATE:
LMK	AC	SEP. 29, 2021
DATUM:	PROJECTION:	PROJECT No:
NAD83	UTM Zone 17	OCUL2001
REV No:		FIGURE No:
0		4

DATE PLOTTED: 9/29/2021 10:53:17 AM
FILE LOCATION: P:\2020\1 - Projects\10 - CULTURAL HERITAGE\OCUL2001_Niagara Region_South Niagara Falls WTP Arch and CH\14 CAD\ARC\OCUL2001.100-R03001.dwg



DATE PLOTTED: 9/29/2021 10:54:48 AM
FILE LOCATION: P:\2020\1 - Projects\10 - CULTURAL HERITAGE\OCUL2001_Niagara Region_South Niagara Falls WTP Arch and CH\14 CAD\ARC\OCUL2001.100-R03001.dwg

PROJECT:
MARINE ARCHAEOLOGICAL ASSESSMENT SOUTH NIAGARA WASTE WATER TREATMENT PLANT,
PHASE 2 LANDS, LOTS 7 TO 9 BROKEN FRONT ON CHIPPEWA CREEK, GEOGRAPHIC TOWNSHIP OF WILLOUGHBY, FORMER COUNTY OF WELLAND, NOW IN THE CITY OF NIAGARA FALLS, REGIONAL MUNICIPALITY OF NIAGARA, ONTARIO

TITLE:
1862 TREMAINE'S MAP OF THE COUNTIES OF LINCOLN AND WELLAND

LEGEND:
STUDY AREA

NOTES:
THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH THE WOOD ENVIRONMENT & INFRASTRUCTURE SOLUTIONS REPORT No. OCUL2001.

ALL LOCATIONS ARE APPROXIMATE.

MAP SHOWN AT BEST AVAILABLE RESOLUTION.

ORIGINAL PAPER SIZE: 8½ x 11

REFERENCES:
HISTORICAL COUNTY MAP OF WELLAND COUNTY, PUBLISHED BY TREMAINE, YEAR OF PUBLICATION 1862.

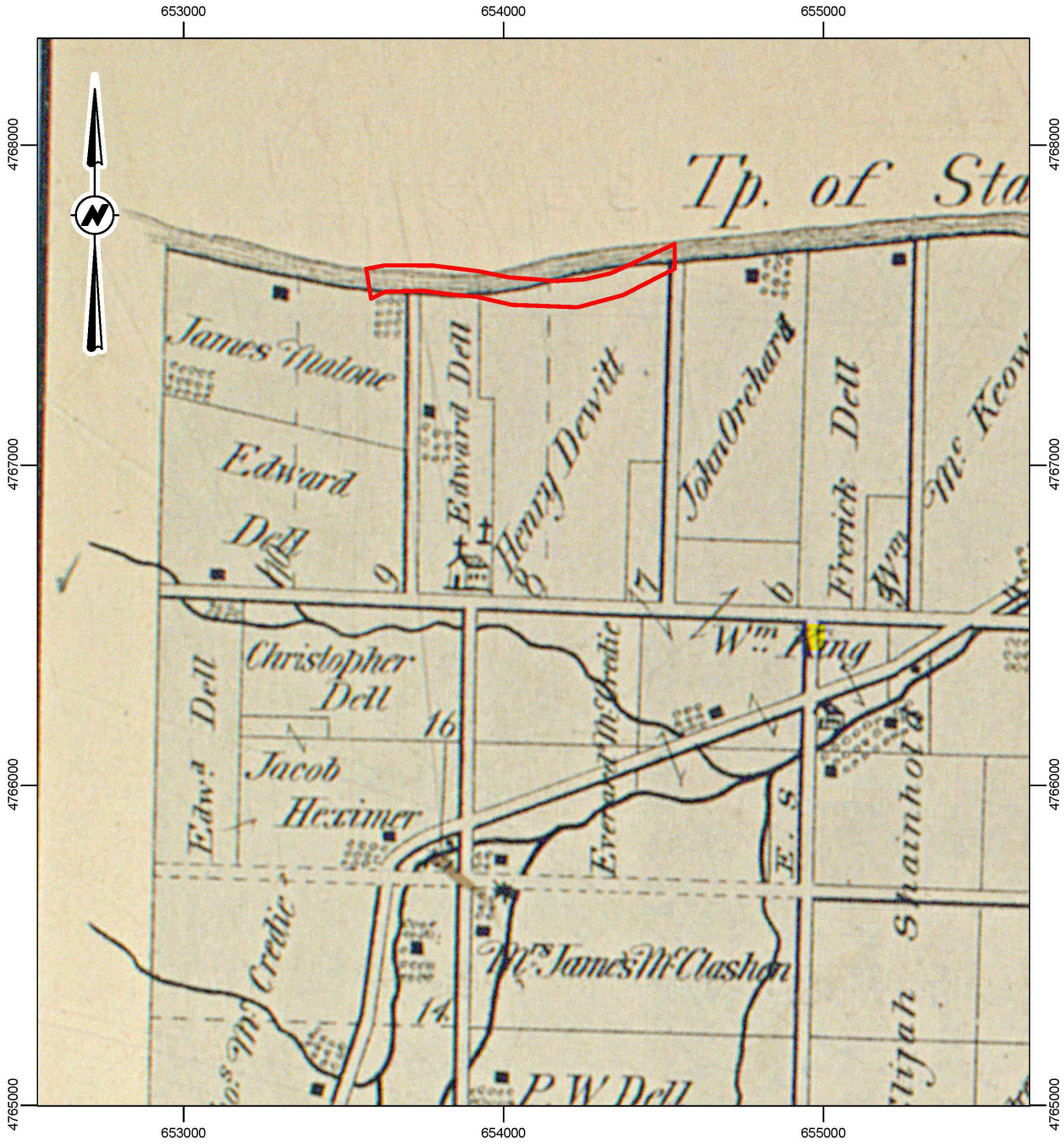
0 200 600 1,000m
SCALE 1:20,000

CLIENT:
Niagara Region

NIAGARA REGION WATER & WASTEWATER ENGINEERING
1815 SIR ISAAC BROCK WAY
THOROLD, ONTARIO, L2V 4T7

wood.
Wood Environment & Infrastructure Solutions
201 KING STREET
LONDON, ONTARIO
N6A 1C3
519-681-2400

DWN BY:	CHK'D BY:	DATE:
LMK	AC	SEP. 29, 2021
DATUM:	PROJECTION:	PROJECT No:
NAD83	UTM Zone 17	OCUL2001
REV No:		FIGURE No:
0		5



PROJECT:

MARINE ARCHAEOLOGICAL ASSESSMENT SOUTH NIAGARA WASTE WATER TREATMENT PLANT,
PHASE 2 LANDS, LOTS 7 TO 9 BROKEN FRONT ON CHIPPEWA CREEK, GEOGRAPHIC TOWNSHIP OF WILLOUGHBY, FORMER COUNTY OF WELLAND, NOW IN THE CITY OF NIAGARA FALLS, REGIONAL MUNICIPALITY OF NIAGARA, ONTARIO

TITLE:

1876 ILLUSTRATED HISTORICAL ATLAS MAP OF LINCOLN AND WELLAND COUNTIES

LEGEND:

STUDY AREA

NOTES:
THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH THE WOOD ENVIRONMENT & INFRASTRUCTURE SOLUTIONS REPORT No. OCUL2001.

ALL LOCATIONS ARE APPROXIMATE.

MAP SHOWN AT BEST AVAILABLE RESOLUTION.

ORIGINAL PAPER SIZE: 8½ x 11

REFERENCES:
ILLUSTRATED HISTORICAL ATLAS OF THE COUNTIES OF LINCOLN AND WELLAND, ONT., TORONTO : H.R. PAGE & CO., 1876.

0 200 600 1,000m

SCALE 1:20,000

CLIENT:

Niagara Region

NIAGARA REGION WATER & WASTEWATER ENGINEERING
1815 SIR ISAAC BROCK WAY
THOROLD, ONTARIO, L2V 4T7

wood.
Wood Environment & Infrastructure Solutions
201 KING STREET
LONDON, ONTARIO
N6A 1C3
519-681-2400

DWN BY:	CHK'D BY:	DATE:
LMK	AC	SEP. 29, 2021
DATUM:	PROJECTION:	PROJECT No:
NAD83	UTM Zone 17	OCUL2001
REV No:		FIGURE No:
0		6

DATE PLOTTED: 9/29/2021 10:56:17 AM
FILE LOCATION: P:\2020\1 - Projects\10 - CULTURAL HERITAGE\OCUL2001_Niagara Region_South Niagara Falls WTP Arch and CH\14 CAD\ARC\OCUL2001.100-R03001.dwg

PROJECT:
MARINE ARCHAEOLOGICAL ASSESSMENT SOUTH NIAGARA WASTE WATER TREATMENT PLANT,
PHASE 2 LANDS, LOTS 7 TO 9 BROKEN FRONT ON CHIPPEWA CREEK, GEOGRAPHIC TOWNSHIP OF WILLOUGHBY, FORMER COUNTY OF WELLAND, NOW IN THE CITY OF NIAGARA FALLS, REGIONAL MUNICIPALITY OF NIAGARA, ONTARIO

TITLE:
1906 TOPOGRAPHIC MAP OF ONTARIO, NIAGARA SHEET SHOWING THE LOCATION OF THE STUDY AREA

LEGEND:
STUDY AREA

NOTES:
THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH THE WOOD ENVIRONMENT & INFRASTRUCTURE SOLUTIONS REPORT No. OCUL2001.

ALL LOCATIONS ARE APPROXIMATE.

MAP SHOWN AT BEST AVAILABLE RESOLUTION.

ORIGINAL PAPER SIZE: 8½ x 11

REFERENCES:
DEPARTMENT OF MILITIA AND DEFENSE 1906.

0 200 600 1,000m

SCALE 1:20,000

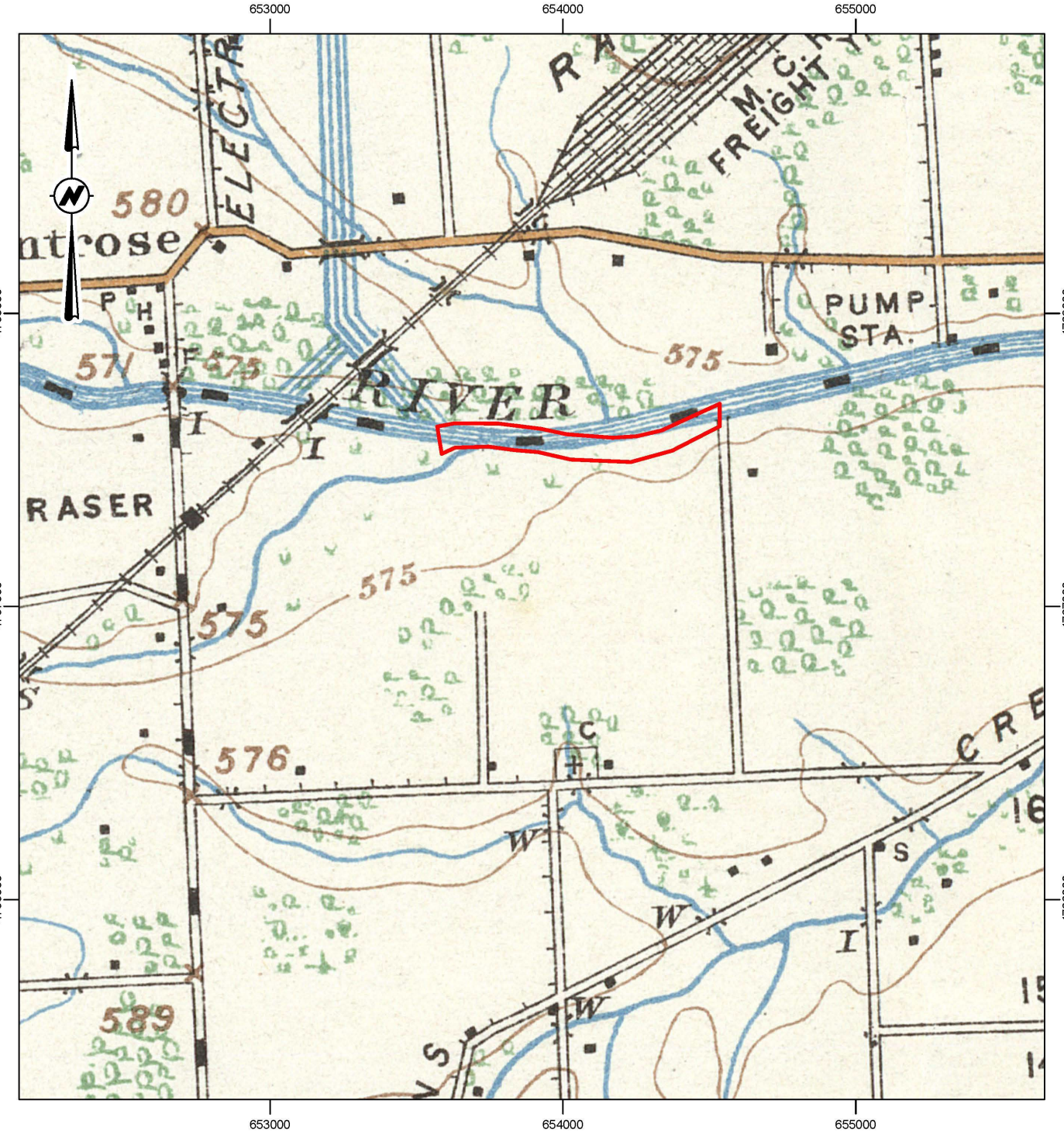
CLIENT:
Niagara Region

NIAGARA REGION WATER & WASTEWATER ENGINEERING
1815 SIR ISAAC BROCK WAY
THOROLD, ONTARIO, L2V 4T7

wood.
Wood Environment & Infrastructure Solutions
201 KING STREET
LONDON, ONTARIO
N6A 1C3
519-681-2400

DWN BY:	CHK'D BY:	DATE:
LMK	AC	SEP. 29, 2021
DATUM: NAD83	PROJECTION: UTM Zone 17	PROJECT No: OCUL2001
REV No: 0		FIGURE No: 7

DATE PLOTTED: 9/29/2021 10:57:48 AM
FILE LOCATION: P:\2020\1 - Projects\10 - CULTURAL HERITAGE\OCUL2001_Niagara Region_South Niagara Falls WTP Arch and CH\14 CAD\ARC\OCUL2001.100-R03001.dwg



PROJECT:
MARINE ARCHAEOLOGICAL ASSESSMENT SOUTH NIAGARA WASTE WATER TREATMENT PLANT,
PHASE 2 LANDS, LOTS 7 TO 9 BROKEN FRONT ON CHIPPEWA CREEK, GEOGRAPHIC TOWNSHIP OF WILLOUGHBY, FORMER COUNTY OF WELLAND, NOW IN THE CITY OF NIAGARA FALLS, REGIONAL MUNICIPALITY OF NIAGARA, ONTARIO

TITLE:
1925 TOPOGRAPHIC MAP OF ONTARIO, NIAGARA SHEET SHOWING THE LOCATION OF THE STUDY AREA

LEGEND:
STUDY AREA

NOTES:
THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH THE WOOD ENVIRONMENT & INFRASTRUCTURE SOLUTIONS REPORT No. OCUL2001.

ALL LOCATIONS ARE APPROXIMATE.

MAP SHOWN AT BEST AVAILABLE RESOLUTION.

ORIGINAL PAPER SIZE: 8½ x 11

REFERENCES:
DEPARTMENT OF MILITIA AND DEFENSE 1925.

0 200 600 1,000m
SCALE 1:20,000

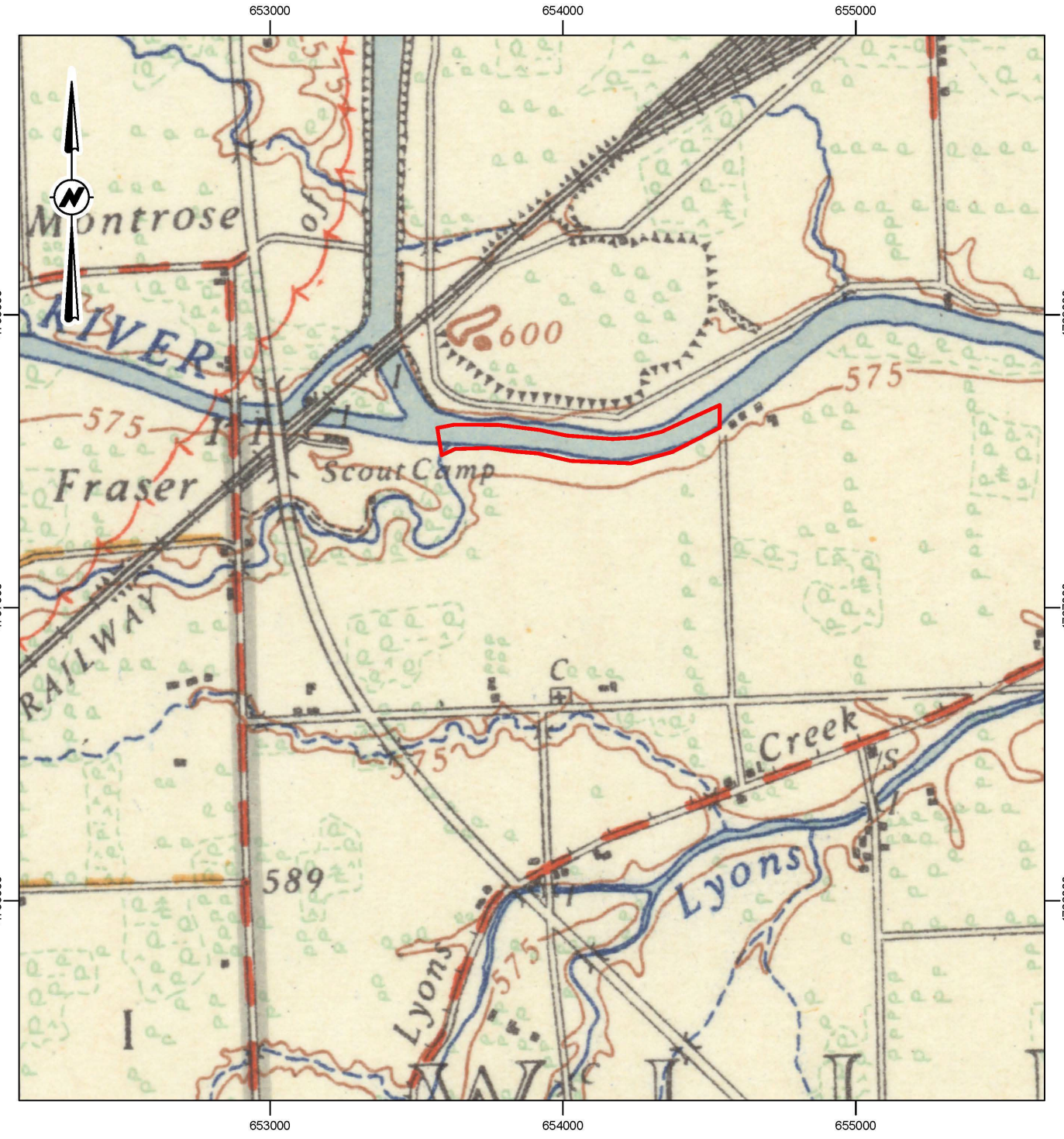
CLIENT:
Niagara Region

NIAGARA REGION WATER & WASTEWATER ENGINEERING
1815 SIR ISAAC BROCK WAY
THOROLD, ONTARIO, L2V 4T7

wood.
Wood Environment & Infrastructure Solutions
201 KING STREET
LONDON, ONTARIO
N6A 1C3
519-681-2400

DWN BY:	CHK'D BY:	DATE:
LMK	AC	SEP. 29, 2021
DATUM:	PROJECTION:	PROJECT No:
NAD83	UTM Zone 17	OCUL2001
REV No:		FIGURE No:
0		8

DATE PLOTTED: 9/29/2021 11:00:46 AM
FILE LOCATION: P:\2020\1 - Projects\10 - CULTURAL HERITAGE\OCUL2001_Niagara Region_South Niagara Falls WTP Arch and CH\14 CAD\ARC\OCUL2001.100-R03001.dwg



PROJECT:
MARINE ARCHAEOLOGICAL ASSESSMENT SOUTH NIAGARA WASTE WATER TREATMENT PLANT,
PHASE 2 LANDS, LOTS 7 TO 9 BROKEN FRONT ON CHIPPEWA CREEK, GEOGRAPHIC TOWNSHIP OF WILLOUGHBY, FORMER COUNTY OF WELLAND, NOW IN THE CITY OF NIAGARA FALLS, REGIONAL MUNICIPALITY OF NIAGARA, ONTARIO

TITLE:
1942 TOPOGRAPHIC MAP OF ONTARIO, NIAGARA SHEET SHOWING THE LOCATION OF THE STUDY AREA

LEGEND:
STUDY AREA

NOTES:
THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH THE WOOD ENVIRONMENT & INFRASTRUCTURE SOLUTIONS REPORT No. OCUL2001.

ALL LOCATIONS ARE APPROXIMATE.

MAP SHOWN AT BEST AVAILABLE RESOLUTION.

ORIGINAL PAPER SIZE: 8½ x 11

REFERENCES:
DEPARTMENT OF NATIONAL DEFENSE 1942.

0 200 600 1,000m
SCALE 1:20,000

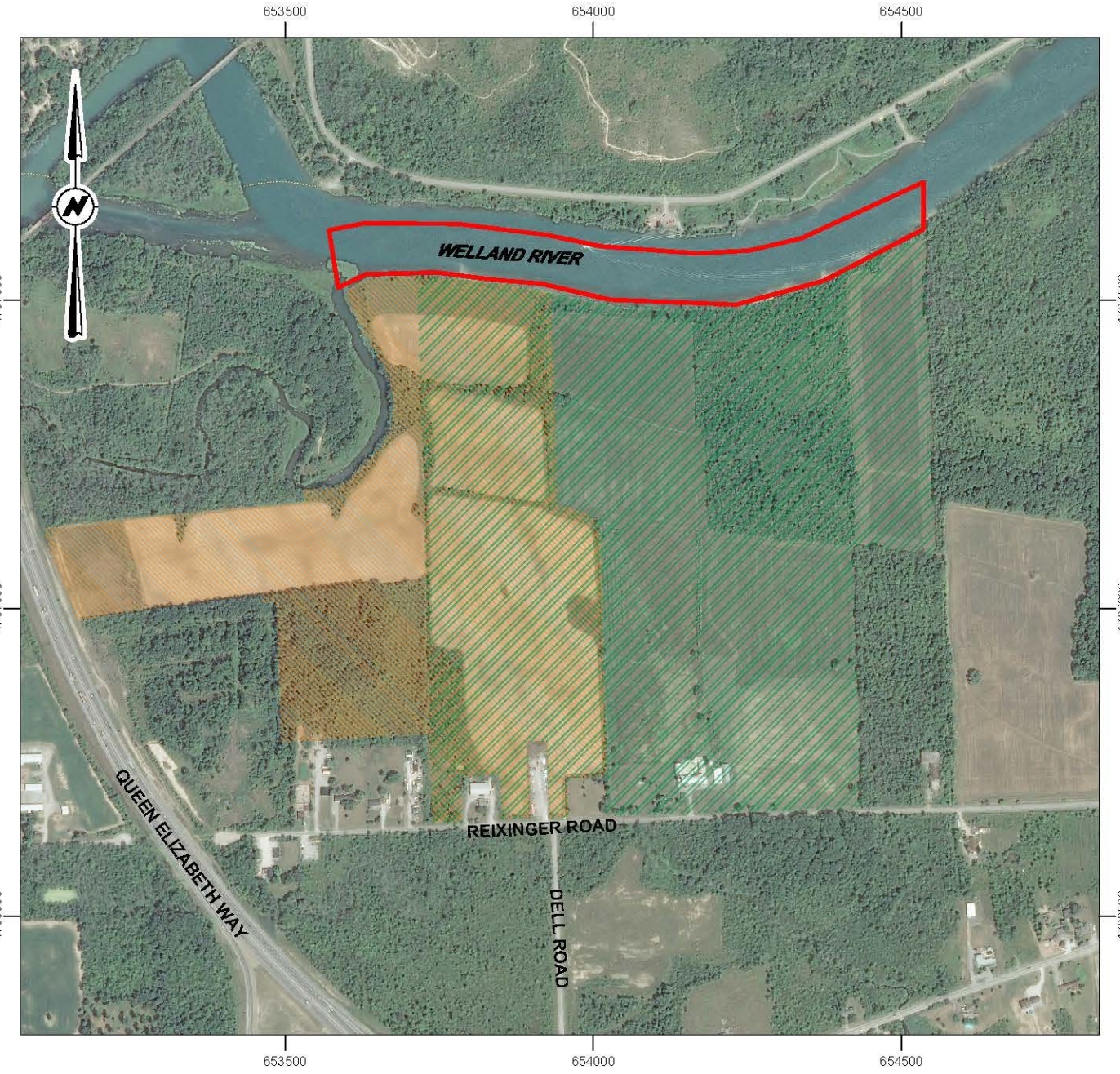
CLIENT:
Niagara Region

NIAGARA REGION WATER & WASTEWATER ENGINEERING
1815 SIR ISAAC BROCK WAY
THOROLD, ONTARIO, L2V 4T7

wood.
Wood Environment & Infrastructure Solutions
201 KING STREET
LONDON, ONTARIO
N6A 1C3
519-681-2400

DWN BY:	CHK'D BY:	DATE:
LMK	AC	SEP. 29, 2021
DATUM:	PROJECTION:	PROJECT No:
NAD83	UTM Zone 17	OCUL2001
REV No:		FIGURE No:
0		9

DATE PLOTTED: 9/29/2021 11:02:23 AM
FILE LOCATION: P:\2020\1 - Projects\10 - CULTURAL HERITAGE\OCUL2001_Niagara Region_South Niagara Falls WTP Arch and CH\14 CAD\ARC\OCUL2001.100-R03001.dwg



PROJECT:
MARINE STAGE 1 ARCHAEOLOGICAL ASSESSMENT SOUTH NIAGARA WASTE WATER TREATMENT PLANT,
PHASE 2 LANDS, LOTS 7 TO 9 BROKEN FRONT ON CHIPPEWA CREEK, GEOGRAPHIC TOWNSHIP OF WILLOUGHBY, FORMER COUNTY OF WELLAND, NOW IN THE CITY OF NIAGARA FALLS, REGIONAL MUNICIPALITY OF NIAGARA, ONTARIO

TITLE:
PREVIOUS ARCHAEOLOGICAL INVESTIGATIONS WITHIN THE STUDY AREA AND WITHIN 50 m OF THE STUDY AREA

LEGEND:

STUDY AREA

FURTHER STAGE 2 FIELDWORK RECOMMENDED:

STAGE 1 ASSESSMENT
(GOLDER 2019, PIF P468-0036-2019)

FURTHER STAGE 2 AND 3 FIELDWORK RECOMMENDED:

STAGE 1 & 2 ASSESSMENT
(MHCI 2015 PIF P066-0210-2014)

NOTES:
THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH THE WOOD ENVIRONMENT & INFRASTRUCTURE SOLUTIONS REPORT No. OCUL2001.

ALL LOCATIONS ARE APPROXIMATE.

REFERENCES:
BING IMAGERY AS OF AUGUST 17, 2020 (IMAGE DATE UNKNOWN); BING IMAGERY USED FOR ILLUSTRATION PURPOSES ONLY AND NOT TO BE USED FOR MEASUREMENTS.

0 100 300 500m

SCALE 1:10,000

CLIENT:

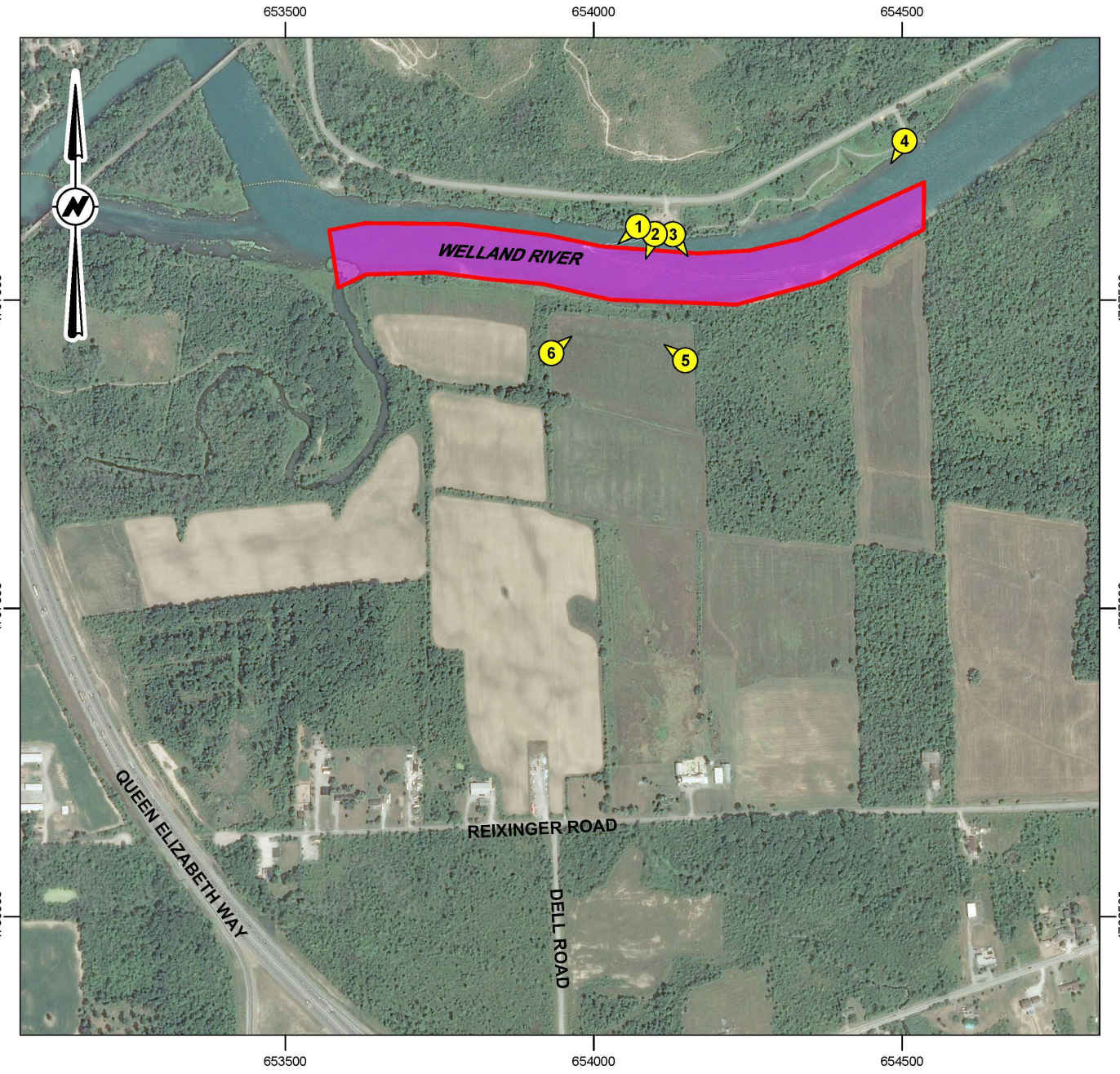
Niagara Region

NIAGARA REGION WATER & WASTEWATER ENGINEERING
1815 SIR ISAAC BROCK WAY
THOROLD, ONTARIO, L2V 4T7

wood.
Wood Environment & Infrastructure Solutions
201 KING STREET
LONDON, ONTARIO
N6A 1C3
519-681-2400

DWN BY:	CHK'D BY:	DATE:
LMK	AC	NOV. 26, 2021
DATUM:	PROJECTION:	PROJECT No:
NAD83	UTM Zone 17	OCUL2001
REV No:		FIGURE No:
0		10

DATE PLOTTED: 11/26/2021 3:03:44 PM
FILE LOCATION: P:\2020\1 - Projects\10 - CULTURAL HERITAGE\OCUL2001_Niagara Region_South Niagara Falls WTP Arch and CH\14 CAD\ARC\OCUL2001100-R03001.dwg



PROJECT:
MARINE STAGE 1 ARCHAEOLOGICAL ASSESSMENT SOUTH NIAGARA WASTE WATER TREATMENT PLANT,
PHASE 2 LANDS, LOTS 7 TO 9 BROKEN FRONT ON CHIPPEWA CREEK, GEOGRAPHIC TOWNSHIP OF WILLOUGHBY, FORMER COUNTY OF WELLAND, NOW IN THE CITY OF NIAGARA FALLS, REGIONAL MUNICIPALITY OF NIAGARA, ONTARIO

TITLE:
STAGE 1 RESULTS WITH PHOTOGRAPH LOCATIONS AND DIRECTIONS

LEGEND:
- STUDY AREA

AREA OF NO OR LOW ARCHAEOLOGICAL POTENTIAL:
- DISTURBED: NO FURTHER ASSESSMENT REQUIRED
- 2 PHOTOGRAPH LOCATION, VIEWING DIRECTION, AND PLATE NUMBER

NOTES:
THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH THE WOOD ENVIRONMENT & INFRASTRUCTURE SOLUTIONS REPORT No. OCUL2001.

ALL LOCATIONS ARE APPROXIMATE.

REFERENCES:
BING IMAGERY AS OF AUGUST 17, 2020 (IMAGE DATE UNKNOWN); BING IMAGERY USED FOR ILLUSTRATION PURPOSES ONLY AND NOT TO BE USED FOR MEASUREMENTS.

0 100 300 500m
SCALE 1:10,000

CLIENT:
Niagara Region

NIAGARA REGION WATER & WASTEWATER ENGINEERING
1815 SIR ISAAC BROCK WAY
THOROLD, ONTARIO, L2V 4T7

wood.
Wood Environment & Infrastructure Solutions
201 KING STREET
LONDON, ONTARIO
N6A 1C3
519-681-2400

DWN BY:	CHK'D BY:	DATE:
LMK	AC	NOV. 26, 2021
DATUM:	PROJECTION:	PROJECT No:
NAD83	UTM Zone 17	OCUL2001
REV No:		FIGURE No:
0		11

DATE PLOTTED: 11/28/2021 3:07:18 PM
FILE LOCATION: P:\2020\1 - Projects\10 - CULTURAL HERITAGE\OCUL2001_Niagara Region_South Niagara Falls WTP Arch and CH\14 CAD\ARC\OCUL2001.100-R03001.dwg

Appendix C: Development Plan

No.	Date	Description	By

STAMPS:

0 25 m 50 m 100 m

SCALE BAR

ARCHITECT:
C2 Architecture
C2 Architecture Inc.
415 Baseline Road West
Bowmanville, ON L1C 5M2
☎ 905.697.4464

CLIENT:

PROJECT NAME:
SOUTH NIAGARA FALLS WWTP CLASS EA AND CONCEPTUAL DESIGN

SHEET TITLE:
PHASE 1 SITE PLAN

DISCIPLINE:
GENERAL

DRAFTER: Author	SCALE: AS NOTED
DESIGNER: Designer	DATE:
APPROVER: Approver	CHECKER: Checker
PROJECT No: T001140A	DRAWING No: G-05-104
SHEET No: of	

NOTES/LEGEND

1. THE POSITION OF POLE LINES, CONDUITS, WATERMAINS, SEWER AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS AND, WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, THE CONTRACTOR SHALL INFORM HIMSELF OF THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

2. PROPERTY LINES WERE PLOTTED USING REGISTERED PLANS AND BARS LOCATED IN THE FIELD, TO VERIFY THE ACCURACY OF THESE PROPERTY LINES, A LEGAL SURVEY SHOULD BE PERFORMED PRIOR TO CONSTRUCTION.

NO.	REVISION	DATE	INIT.
0	CONCEPTUAL DESIGN ISSUED FOR REPORTS	2021-11-08	MF

DRAFTING	DR
DESIGN	MF
CHECKED BY	—
APPROVED BY	—

Niagara Region
PUBLIC WORKS

SOUTH NIAGARA FALLS WASTEWATER SOLUTIONS
TRUNK SANITARY SEWER
CONCEPTUAL DESIGN
OUTFALL
NIAGARA REGION
PLAN & PROFILE

CONSULTANT FILE No.	718002
DATE	2021-11-08
SCALE	Hor : 1:1250 m Ver : 1:125 m
REF. No.	#
DWG No.	**OUTFALL**
REV.	**0**

Appendix D: Historical Plans and Photographs of the Welland Canal

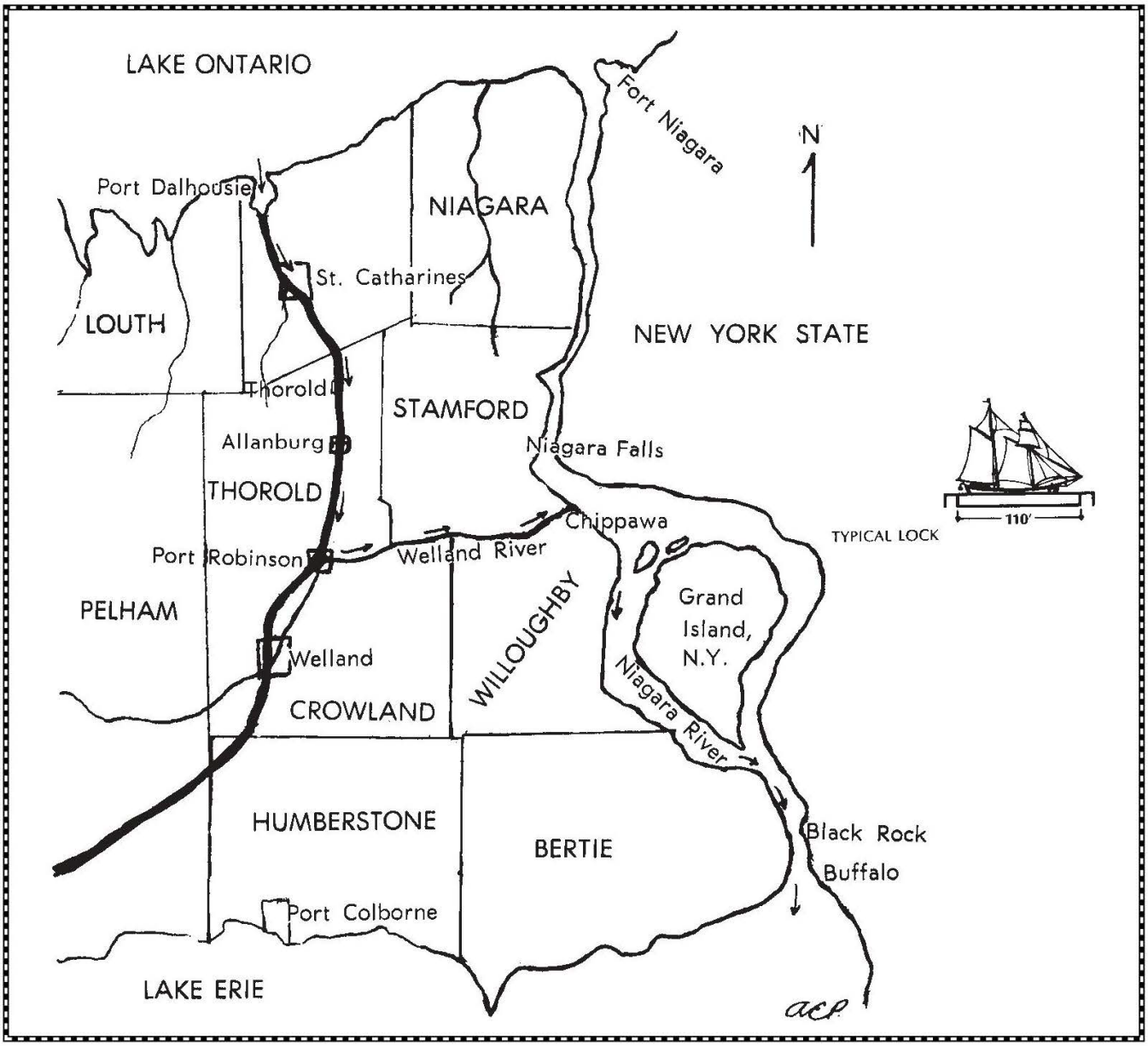


Plate 1: Historical Plan of the Welland Canal
Marine Stage 1 Archaeological Assessment
South Niagara Falls Wastewater Treatment Plant Site (Phase 2), City of Niagara, ON

wood.

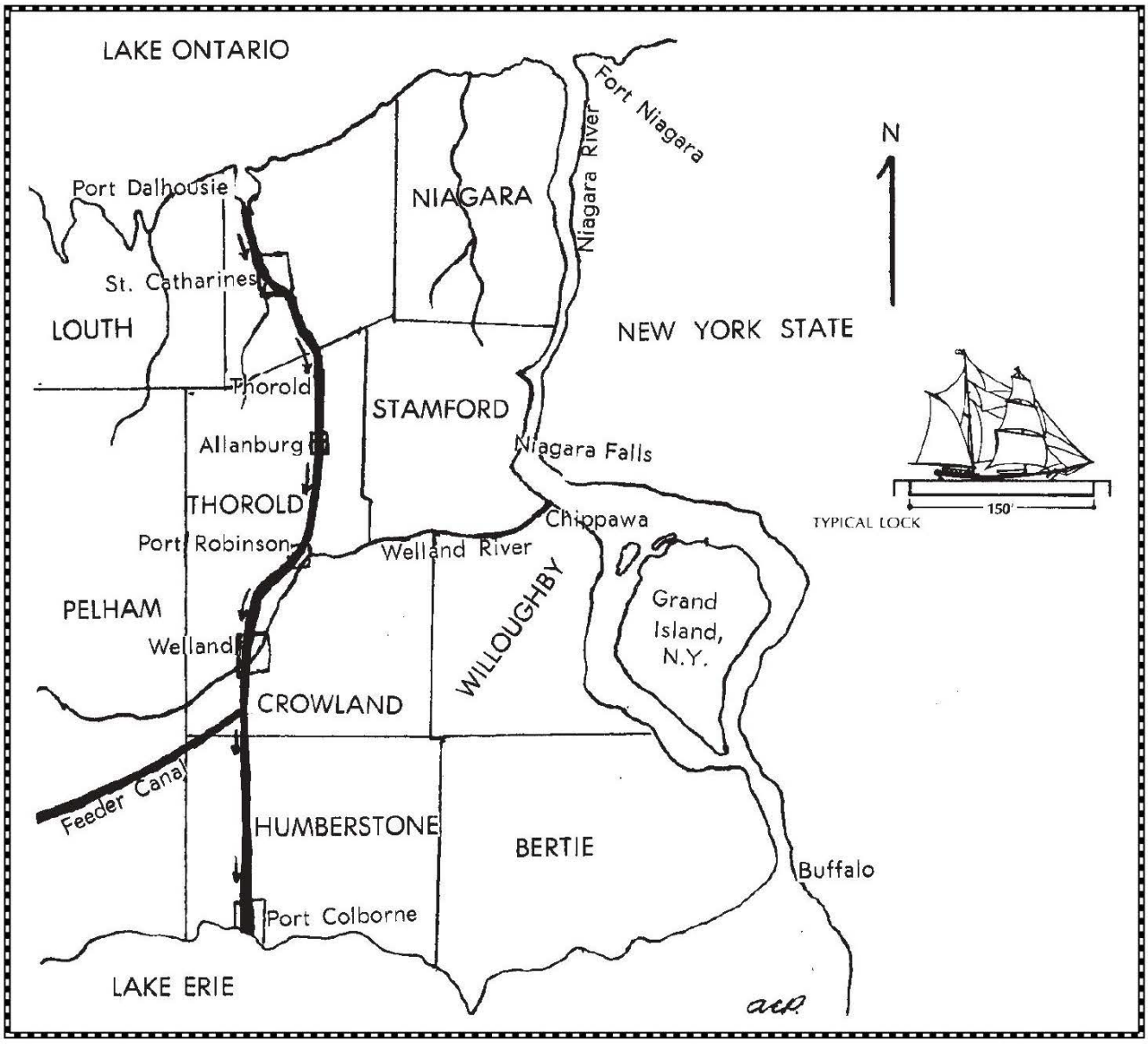


Plate 2: Historical Plan of the Welland Canal
Marine Stage 1 Archaeological Assessment
South Niagara Falls Wastewater Treatment Plant Site (Phase 2), City of Niagara, ON

wood.

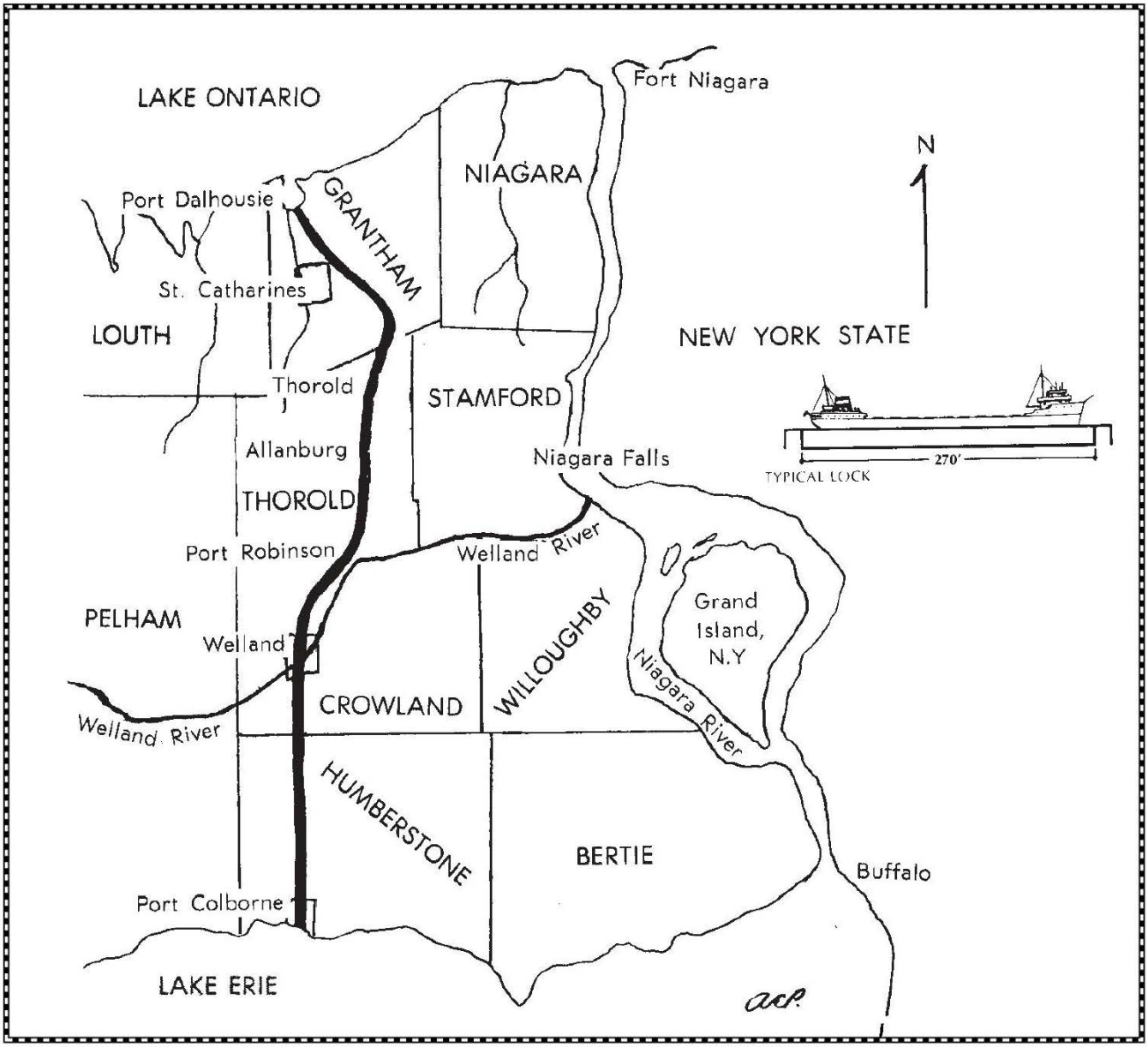
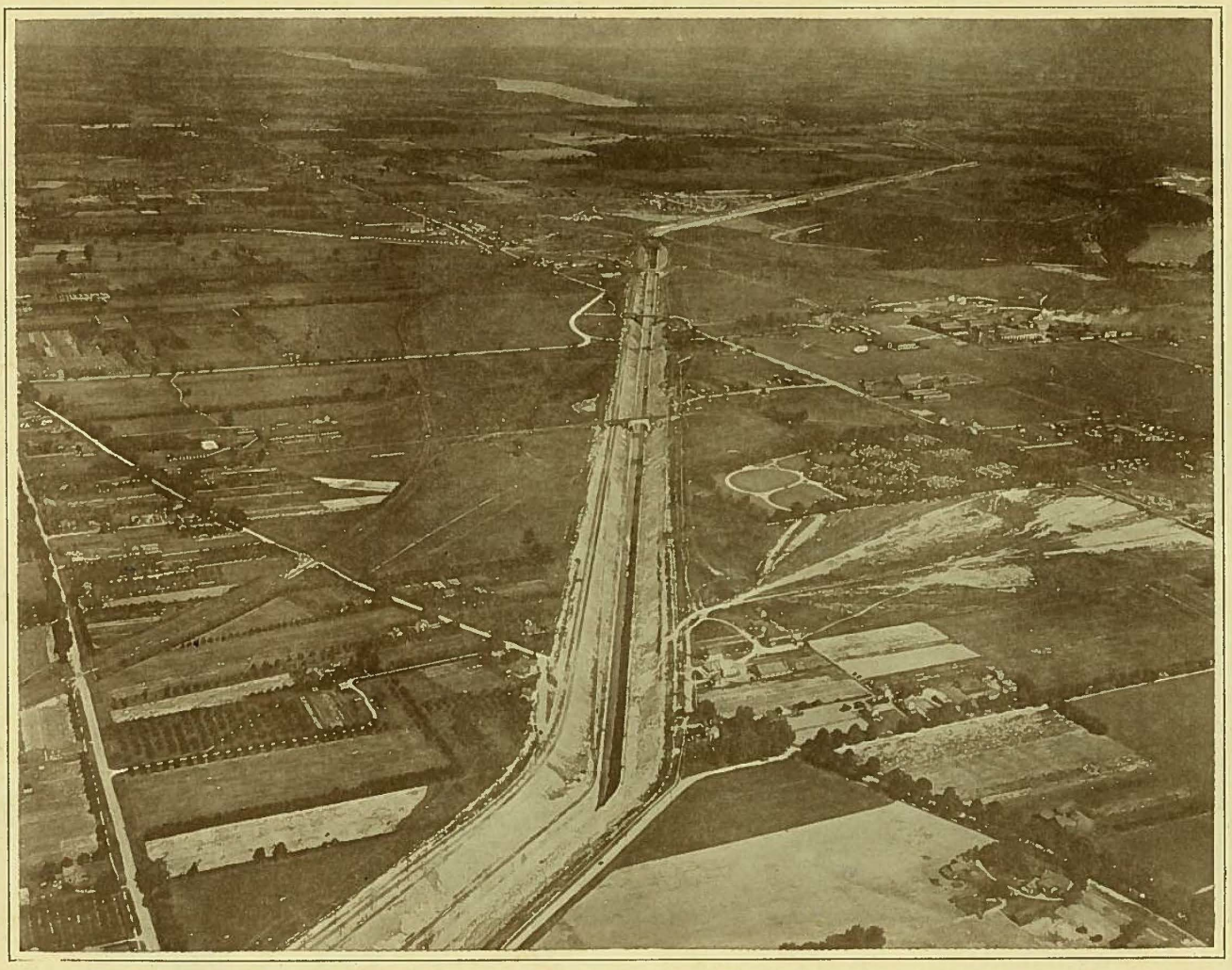


Plate 3: Widened Sections of the Welland Canal
Marine Stage 1 Archaeological Assessment
South Niagara Falls Wastewater Treatment Plant Site (Phase 2), City of Niagara, ON

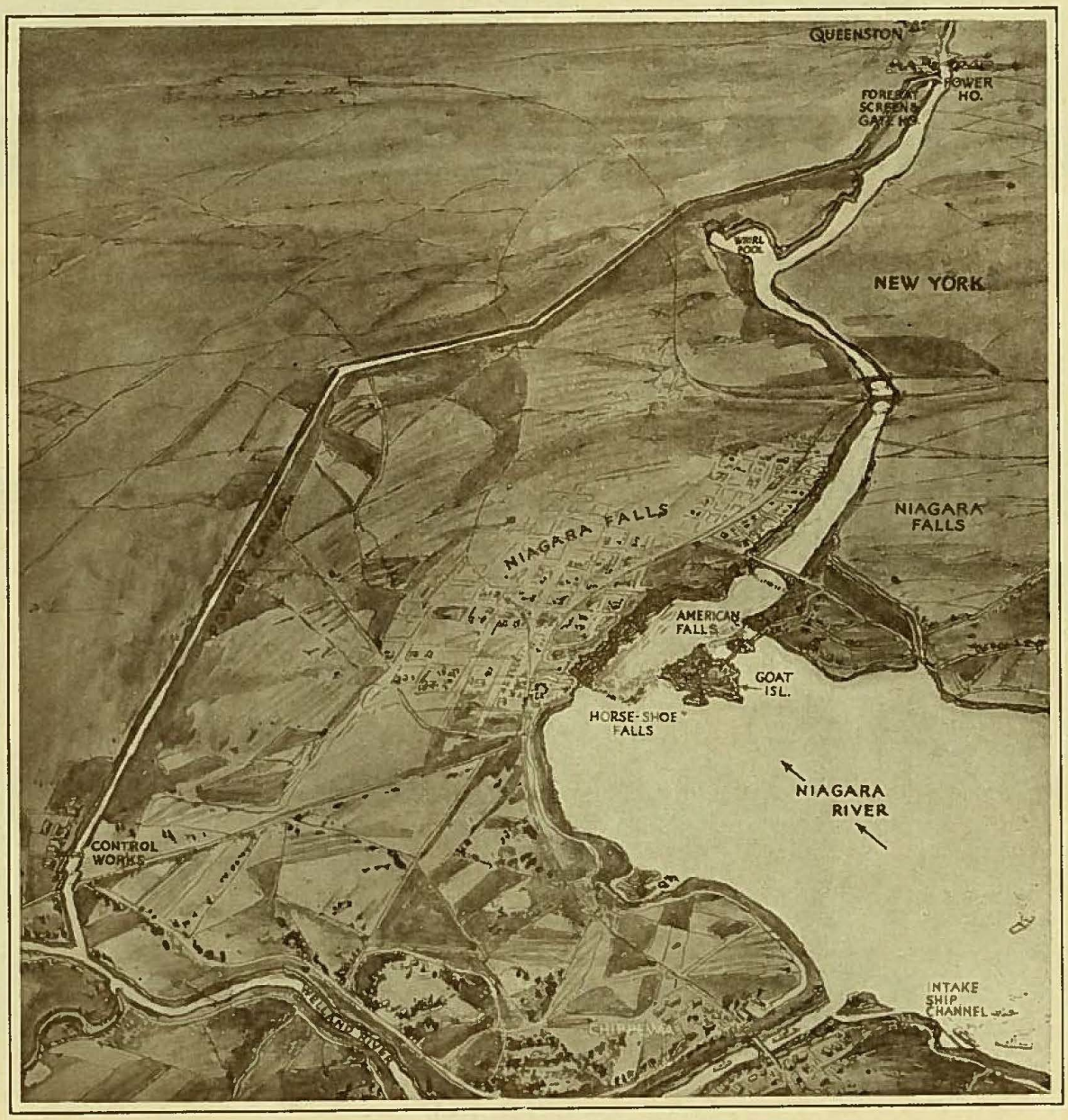


QUEENSTON—CHIPPAWA DEVELOPMENT.

FRONTISPIECE—Portion of completed Canal as seen from the air, showing approach to Whirlpool Gully and continuation to Forebay at top of picture.

Plate 4: 1921 Historic Photograph of Queenston-Chippawa Development
Marine Stage 1 Archaeological Assessment
South Niagara Falls Wastewater Treatment Plant Site (Phase 2), City of Niagara, ON

wood.



QUEENSTON—CHIPPAWA DEVELOPMENT

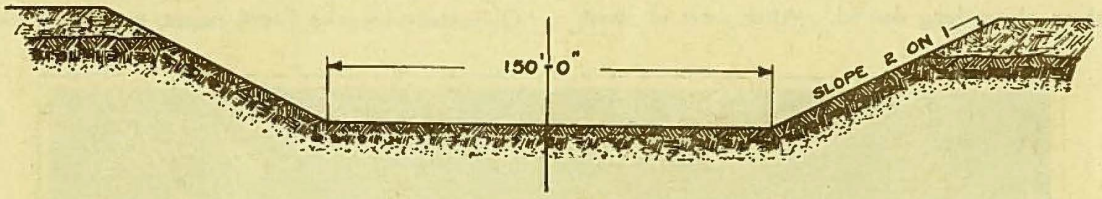
Fig. 2. Bird's eye view showing intake from Niagara River above the Falls with Welland River section in foreground leading water to Control Works at upper end of Canal which stretches to Power House at Queenston where water is returned to the lower Niagara River.

Plate 5: 1921 Historic Photograph of Queenston-Chippawa Development
Marine Stage 1 Archaeological Assessment
South Niagara Falls Wastewater Treatment Plant Site (Phase 2), City of Niagara, ON

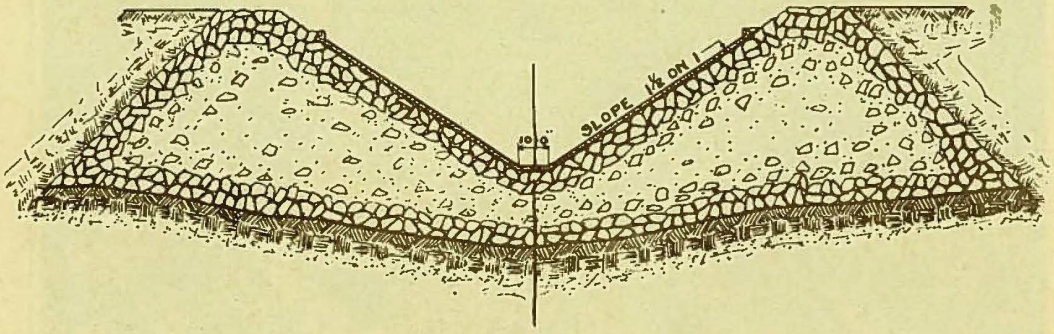
wood.

QUEENSTON-CHIPPAWA DEVELOPMENT

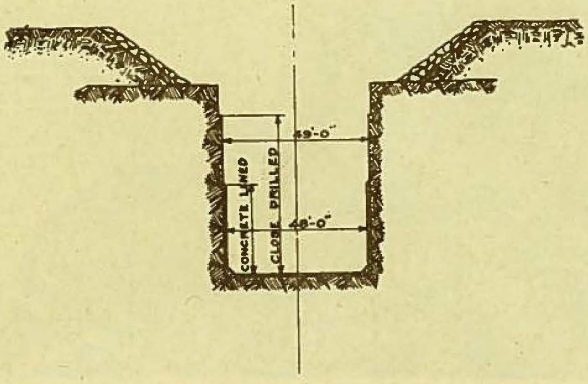
Typical Cross-Sections of Power Canal



Welland River after enlargement and portion of canal excavated entirely in earth.



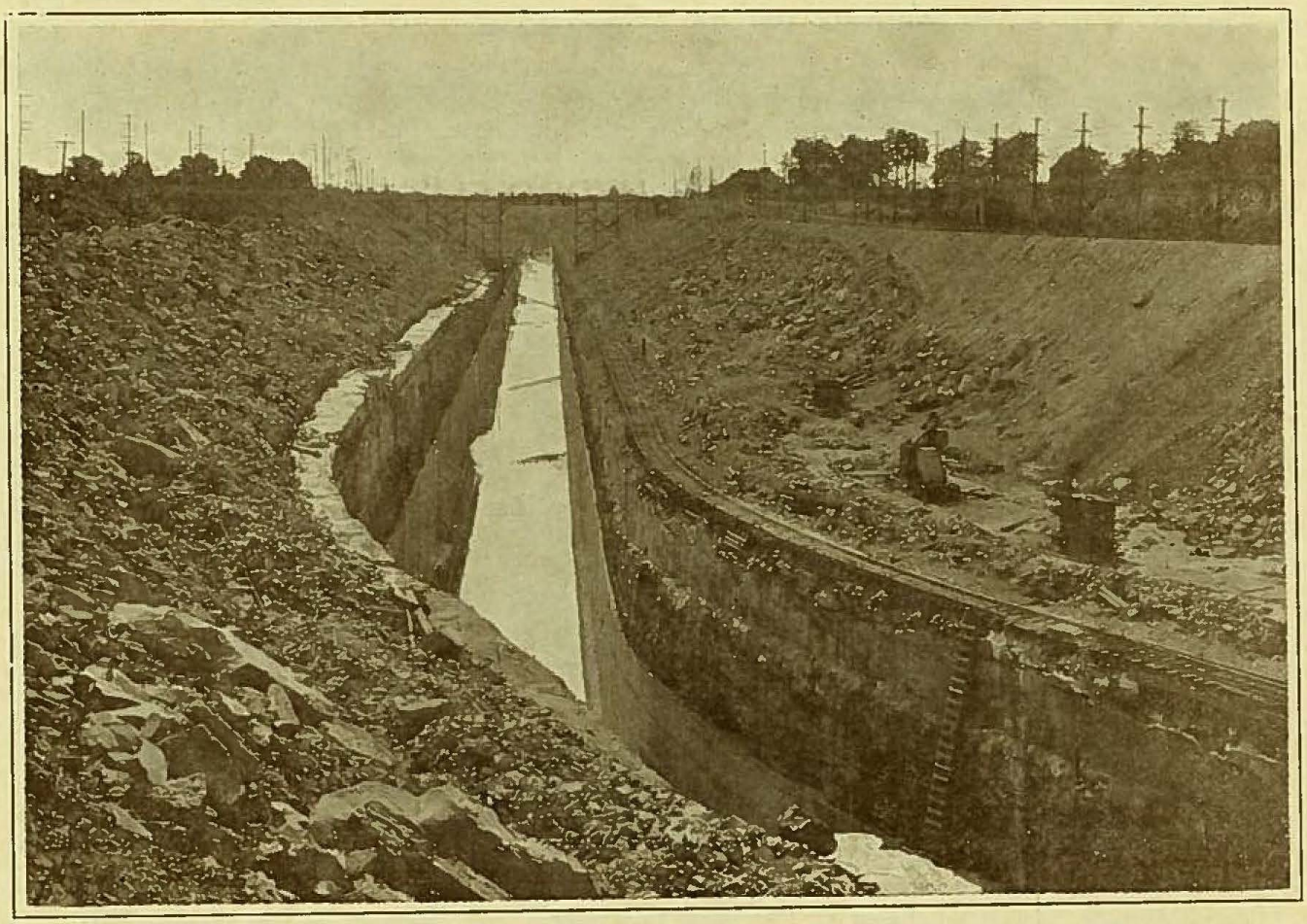
Canal crossing the Whirlpool Gully on Rock-fill.



Canal as excavated in Solid Rock showing Concrete Lining at bottom and Earth Slopes above.

Plate 6: Cross Sections of the Power Canal (1921)
Marine Archaeological Assessment
South Niagara Falls Wastewater Treatment Plant
Site (Phase 2), City of Niagara, ON

wood.

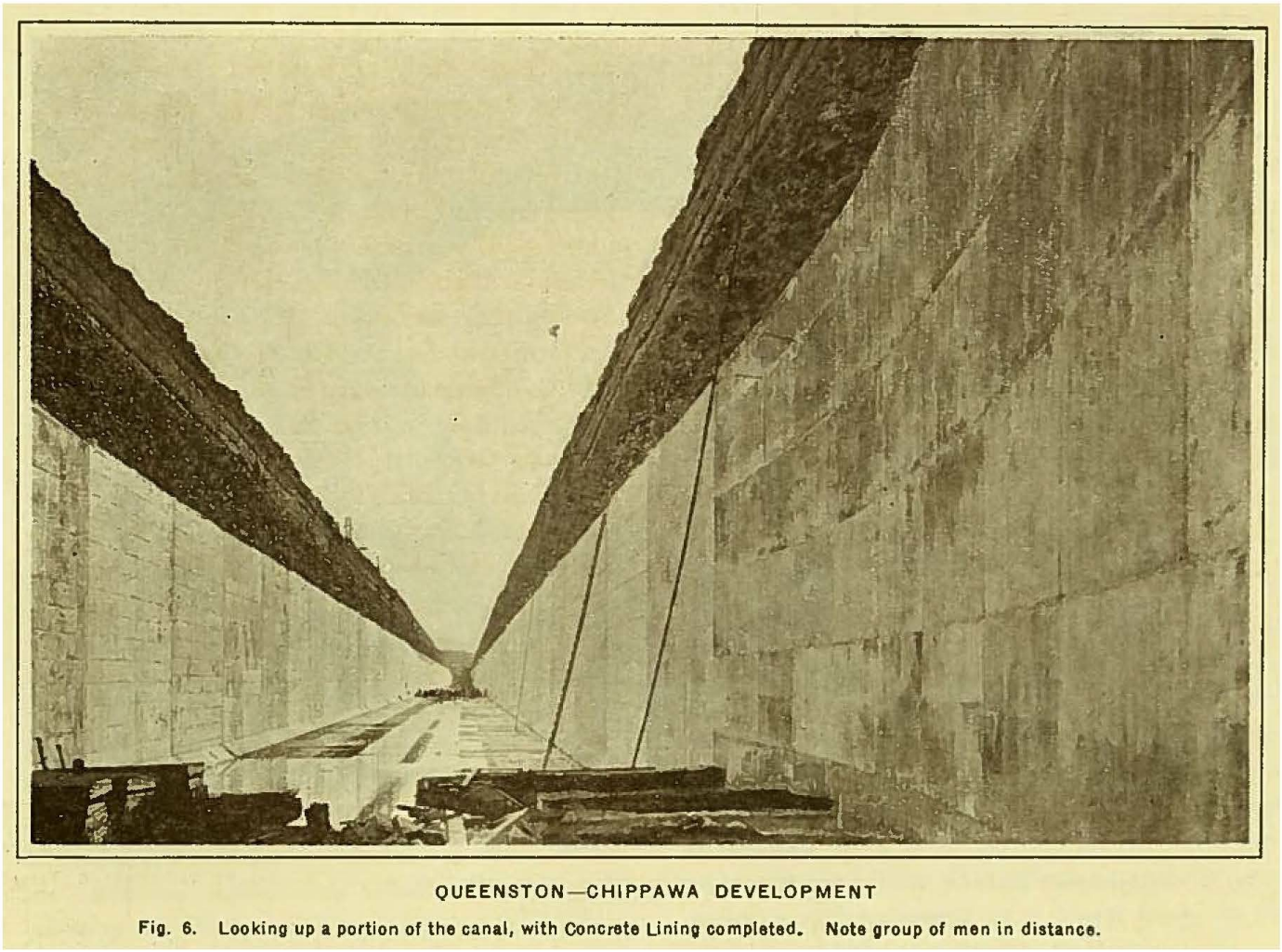


QUEENSTON—CHIPPAWA DEVELOPMENT

Fig. 5. Typical section of completed canal through deep rock cut, showing smooth concrete lining in lower portion.

Plate 7: 1921 Historic Photograph of Queenston-Chippawa Development
Marine Archaeological Assessment
South Niagara Falls Wastewater Treatment Plant Site (Phase 2), City of Niagara, ON

wood.

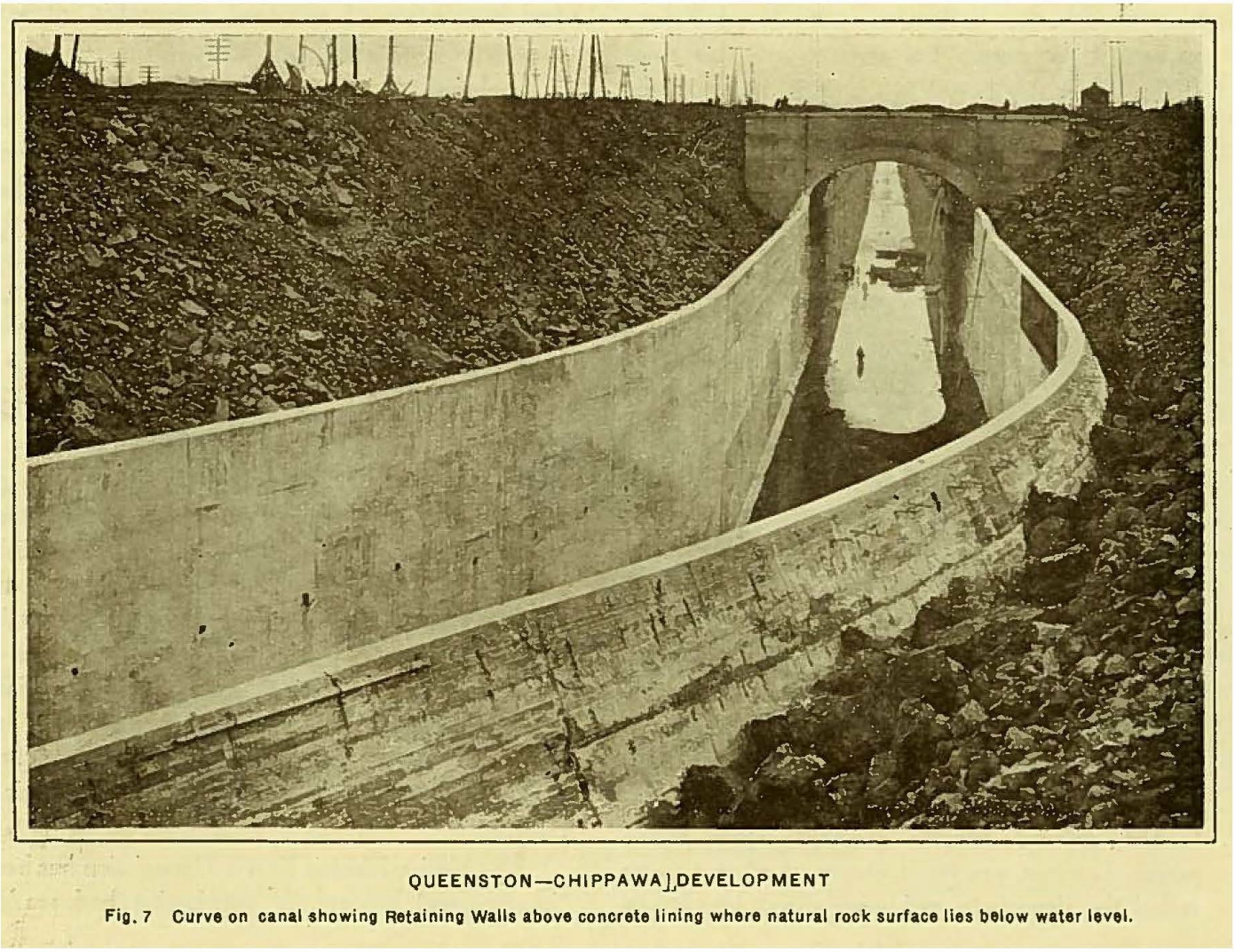


QUEENSTON—CHIPPAWA DEVELOPMENT

Fig. 6. Looking up a portion of the canal, with Concrete Lining completed. Note group of men in distance.

Plate 8: 1921 Historic Photograph of Queenston-Chippawa Development
Marine Archaeological Assessment
South Niagara Falls Wastewater Treatment Plant Site (Phase 2), City of Niagara, ON

wood.



QUEENSTON—CHIPPAWA DEVELOPMENT

Fig. 7 Curve on canal showing Retaining Walls above concrete lining where natural rock surface lies below water level.

Plate 9: Historic Photograph of Queenston-Chippawa Development
Marine Archaeological Assessment
South Niagara Falls Wastewater Treatment Plant Site (Phase 2), City of Niagara, ON

wood.

Appendix E: Aerial Photographs

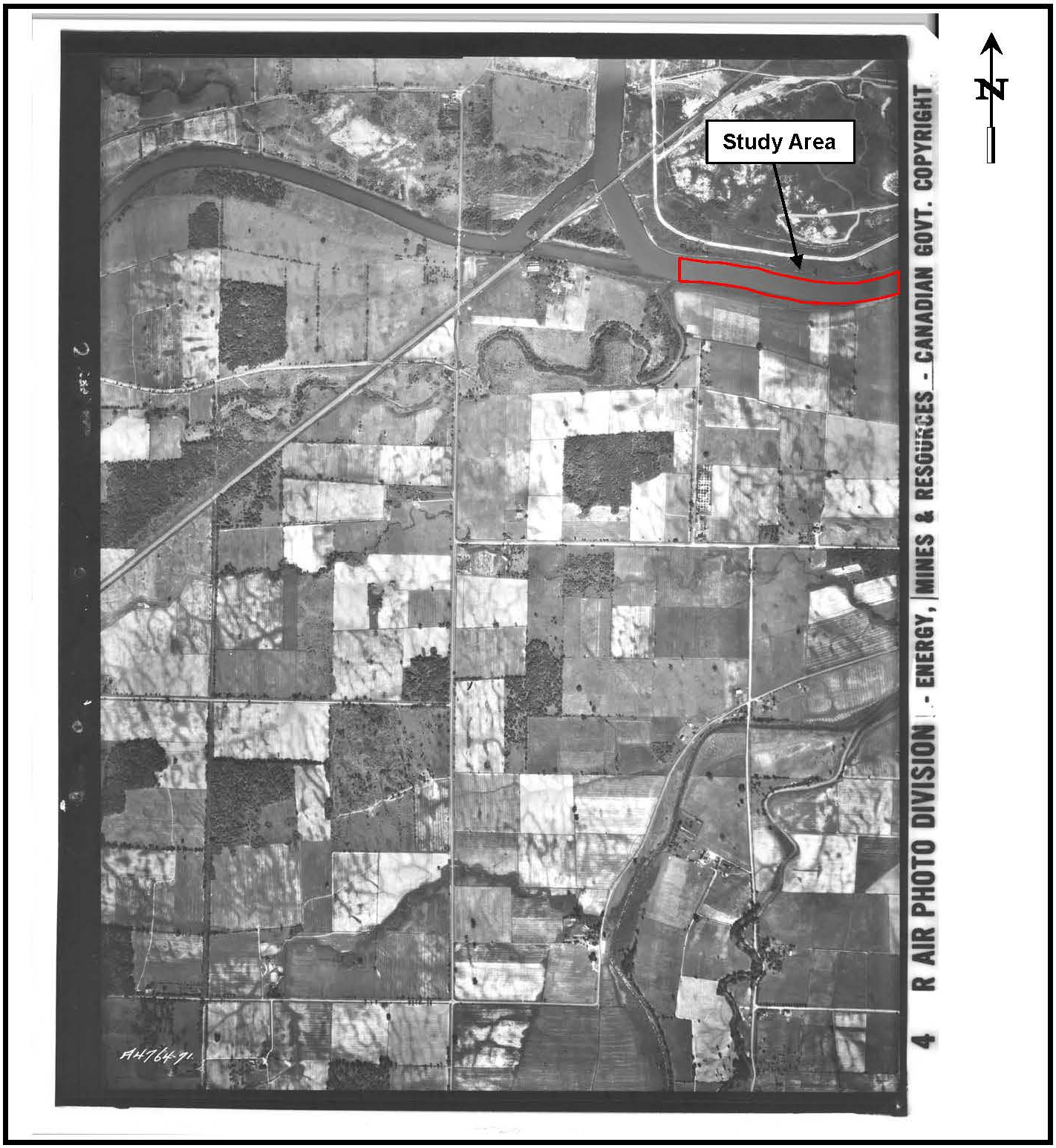


Plate 1: 1943 Aerial Photograph
Marine Archaeological Assessment
South Niagara Falls Wastewater Treatment Plant Site (Phase 2), City of Niagara, ON

wood.

Plate 2: 1954/55 Aerial Photograph
Marine Archaeological Assessment
South Niagara Falls Wastewater Treatment Plant Site (Phase 2), City of Niagara, ON

wood.

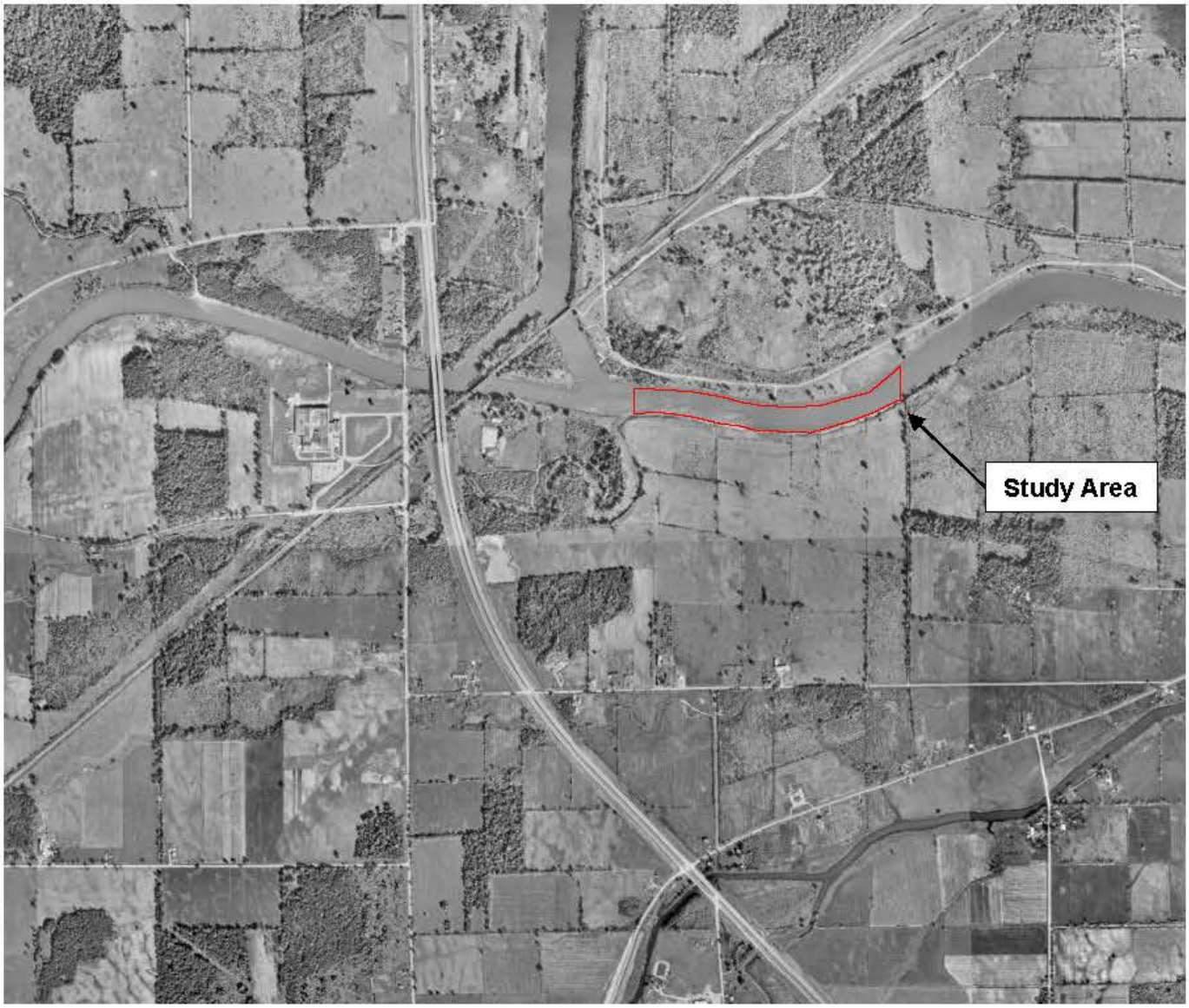


Plate 3: 1965 Aerial Photograph
Marine Archaeological Assessment
South Niagara Falls Wastewater Treatment
Plant Site (Phase 2), City of Niagara, ON

wood.

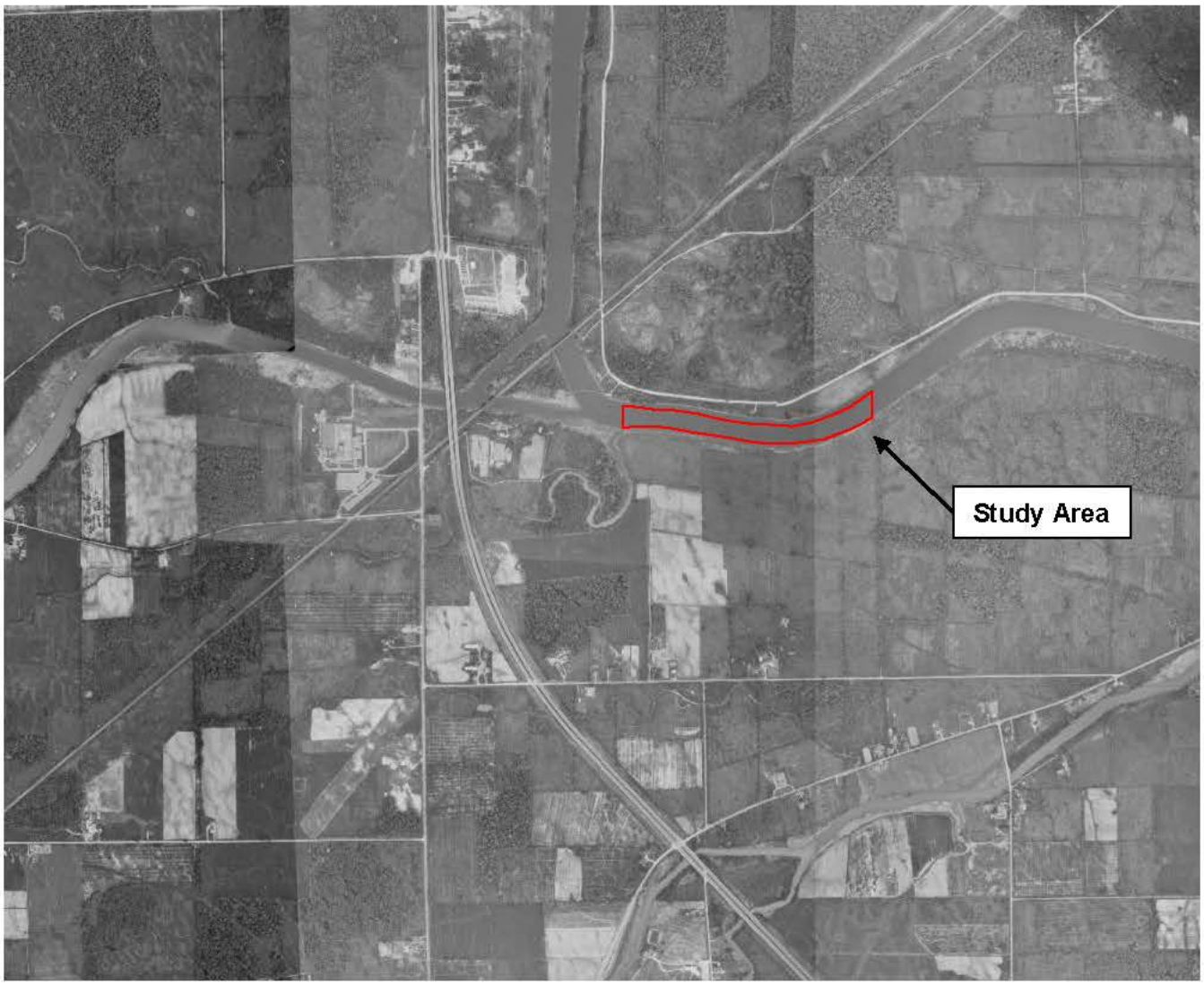


Plate 4: 1968 Aerial Photograph
Marine Archaeological Assessment
South Niagara Falls Wastewater Treatment
Plant Site (Phase 2), City of Niagara, ON

wood.

Plate 5: 1995 Aerial Photograph
Marine Archaeological Assessment
South Niagara Falls Wastewater Treatment Plant Site (Phase 2), City of Niagara, ON

wood.

Appendix F: Photographs of the Study Area

	PHOTOGRAPH 1 Southwest view of the Study Area from the north bank of the Welland River
	PHOTOGRAPH 2 South-southwest view of the Study Area from the north bank of the Welland River

	PHOTOGRAPH 3 South-southeast view of the Study Area from the north bank of the Welland River
	PHOTOGRAPH 4 Southwest view of the Study Area from the north bank of the Welland River (east end of the Study Area)

	PHOTOGRAPH 5 Northwest view of the Welland River from agricultural fields located at the rear of 6811 Reixinger Road
	PHOTOGRAPH 6 Northeast view of the Welland River from agricultural fields located at the rear of 6811 Reixinger Road

Appendix G: Excerpts from the MCFN Treaties Booklet

Mississaugas of the Credit Treaties

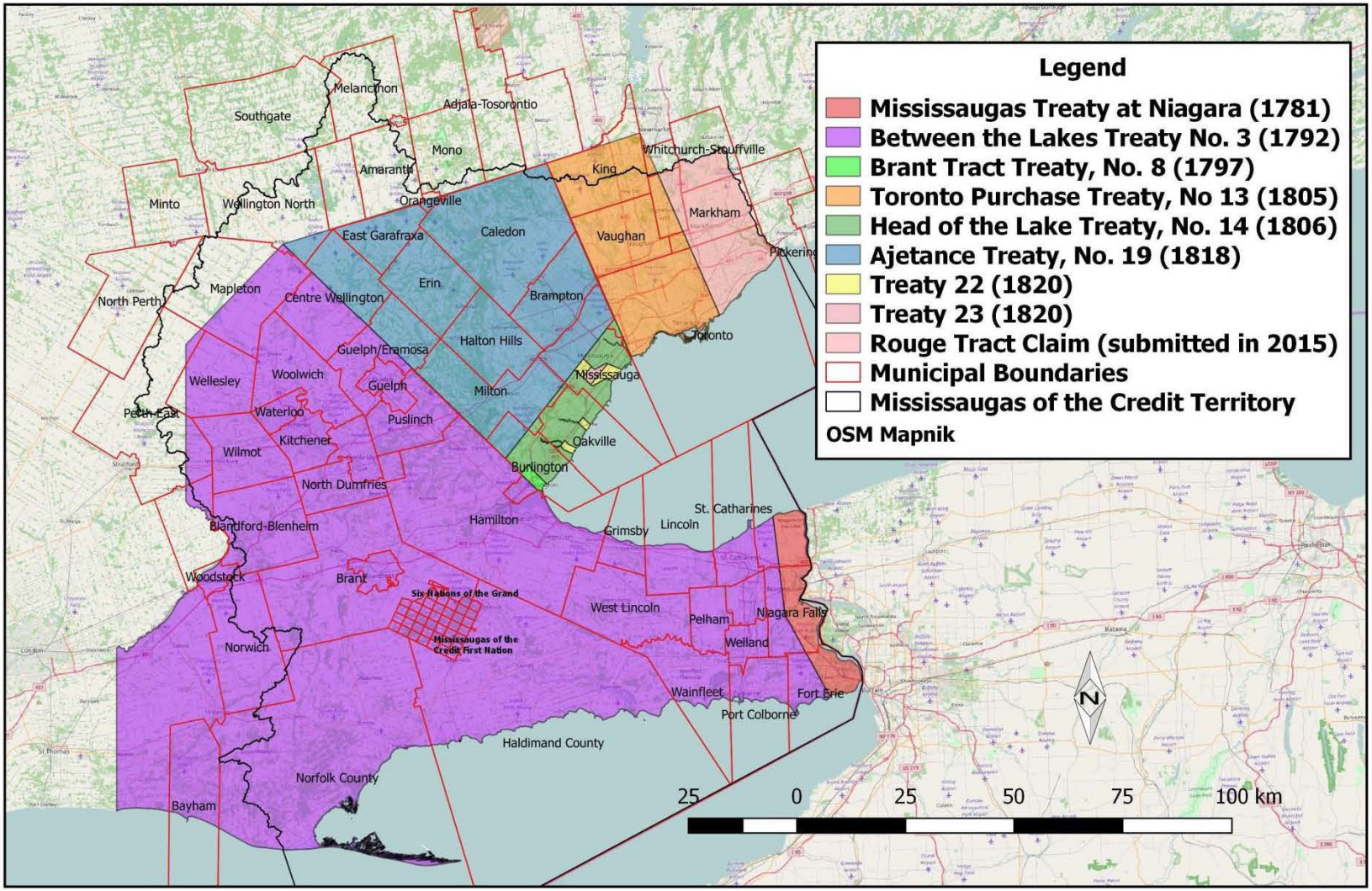
Prior to European contact, the ancestors of the Mississaugas of the New Credit First Nation occupied the lands north of Lake Superior and the area around Georgian Bay. The Mississaugas lived lightly on the lands they occupied and purposefully moved about the landscape harvesting resources as they became available.

Mississauga Territory

The ancestors of the Mississaugas of the Credit migrated into Southern Ontario by means of military conquest. After the Iroquois had expelled the Huron from Southern Ontario in 1649-50, they continued their attacks northward into the territories occupied by the Mississaugas and their allies. By the end of the 17th century, the Mississaugas and their allies had succeeded in driving the Iroquois back into their homelands south of Lake Ontario. At the conclusion of the conflict, many Mississaugas settled at the eastern end of Lake Ontario; other Mississaugas settled at the western end of the lake with their primary location at the mouth of the Credit River.

The Mississaugas of the Credit occupied, controlled and exercised stewardship over approximately 3.9 million acres of lands, waters, and resources in Southern Ontario. Their territory extended from the Rouge River Valley westward across to the headwaters of the Thames River, down to Long Point on Lake Erie and then followed the shoreline of Lake Erie, the Niagara River, and Lake Ontario until arriving back at the Rouge River Valley.

From the time of the conquest of New France in 1760, the British Crown recognized the inherent rights of First Nations and their ownership of the lands they occupied. The Royal Proclamation of 1763 confirmed First Nations' sovereignty over their lands and prevented anyone, other than the Crown, from purchasing that land. The Crown, needing First Nations' land for military purposes or for settlement, would first have to purchase it from its Indigenous occupants.



Municipal Boundaries Related to the Between the Lakes Treaty, No. 3 (1792)

Between the Lakes Treaty, No.3 (1792)

The arrival of Loyalists during and after the American Revolutionary War placed pressure on the British Crown to find lands on which to settle the newcomers. Among the Loyalists were approximately 2000 members of the Six Nations who had lost their homes fighting on behalf of the Crown.

Seeking to reward his First Nation allies for their loyalty during the war, Governor Haldimand offered homes to the Six Nations refugees in the remaining British colonies. One group of the Six Nations Loyalists settled at the eastern end of Lake Ontario, while another group, under the leadership of Mohawk Chief Joseph Brant, selected the Grand River Valley as an area for settlement.

Recognizing that under the terms of the Royal Proclamation of 1763 the land needed to be purchased from its owners before the resettlement of the Grand River Valley could begin, Col. John Butler was sent to negotiate with the Mississaugas at the western end of Lake Ontario. On May 22, 1784, for the sum of £1180 worth of trade goods, the Mississaugas of the Credit ceded to the Crown approximately 3 000 000 acres of land located between Lakes Huron, Ontario, and Erie. Of those lands, some 550 000 acres were granted to the Six Nations in the Haldimand Proclamation of October 25, 1784, with the remainder to be utilized for the settlement of other Loyalists. The land grant to the Six Nations was to extend six miles on both sides of the Grand River from its mouth to its source. When it was later discovered that the upper limits of the Between the Lakes Treaty were in error due to faulty geographical assumptions, actual boundaries were defined and a confirming document signed by the Mississaugas and the Crown in 1792.

Major population centres found within the boundaries of the Between the Lakes Treaty include Hamilton, Cambridge, Waterloo, Guelph, Brantford, and St. Catharines. The present location of the Mississaugas of the New Credit First Nation Reserve is located on Between the Lakes Treaty lands.

Appendix H: Assessor Qualifications

Assessor Qualifications

Peter Popkin, Ph.D., CAHP, MCIfA, Associate Archaeologist (P362) – Dr. Popkin is an Associate Archaeologist at Wood. Peter has over 20 years of professional experience in both consulting and academic archaeology within Canada and internationally. In Ontario he has successfully undertaken consultant archaeology projects triggered by: the Planning Act (subdivisions, site plans, re-zoning, official plan amendments, consent), the Environmental Assessment Act (individual and Class EAs, provincial and federal EAs), the Environmental Protection Act (Renewable Energy Approvals O.Reg 359/09), as well as the Aggregates Resources Act (aggregate pit extensions), and has managed projects under the National Energy Board Act (now the Canadian Energy Regulator Act). Dr. Popkin has lectured in archaeology at York University, the University of Toronto and Wilfrid Laurier University in Ontario, as well as University College London, King's College London, and Birkbeck College, in the UK. Dr. Popkin holds a Professional Archaeology Licence (P362) from the Ontario MHSTCI, is a Professional Member of the Canadian Association of Heritage Professionals (CAHP) and is a full Member of the Chartered Institute for Archaeologists (MCIfA). Dr. Popkin received his Ph.D. from the Institute of Archaeology, University College London, London, UK (2009).

Henry Cary, Ph.D., CAHP, RPA, Senior Staff Archaeologist (P327) - Dr. Henry Cary has over 20 years of public and private-sector experience directing archaeological and cultural heritage projects in urban, rural, Arctic and Sub-Arctic environments in Canada as well as the Republic of South Africa, Italy, and France. His career has included positions as project archaeologist and cultural resource management specialist for Parks Canada's Fort Henry National Historic Site Conservation Program and Western Arctic Field Unit, Heritage Manager for the Town of Lunenburg UNESCO World Heritage Site, and senior-level archaeologist and cultural heritage specialist for CH2M and Golder Associates. He holds a Professional Archaeology Licence (P327) issued by the Ontario Ministry of Heritage, Sport, Tourism and Culture Industries, is Ministry of Transportation Ontario RAQs-approved in Archaeology/Heritage and is a member of the Canadian Association of Heritage Professionals (CAHP) and Register of Professional Archaeologists (RPA). His education includes a B.A. (with distinction) in Prehistoric Archaeology and Anthropology from Wilfrid Laurier University, an MA in Historical Archaeology from Memorial University, and a Ph.D. in War Studies from the Royal Military College of Canada. Currently, Henry also holds academic positions as Adjunct Professor in the Anthropology Department at Saint Mary's University and as lecturer of archaeology in the Classics and Visual & Material Culture departments at Mount Allison University.

Heidy Schopf, MES, CAHP – Built Heritage and Cultural Landscape Team Lead - Ms. Schopf is a Senior Cultural Heritage Specialist at Wood and has worked in the field of Cultural Resource Management since 2007. She is a Professional Member of CAHP. She has worked on a wide variety of projects throughout Ontario, including cultural heritage resources assessments, heritage impact assessments, heritage documentation reports (photographic and 3D/LiDAR), cultural heritage evaluations, strategic conservation plans, HCD studies and plans, heritage feasibility studies, and archaeological assessments. Ms. Schopf has extensive experience applying local,

Provincial, and Federal heritage guidelines and regulations to evaluate protected and potential cultural heritage properties. She is skilled at carrying out impact assessments and developing mitigation measures to conserve the heritage attributes of properties where changes are proposed. Ms. Schopf has completed hundreds of cultural heritage projects under a variety of processes, including: Environmental Assessment Act, Planning Act, Ontario Heritage Act, Transit Project Assessment Process, Renewable Energy Approval, and Ontario Energy Board.

Chelsea Dickinson B.A., Research Archaeologist (R1194) - Ms. Dickinson has been working in consulting archaeology since 2015. During this time, Ms. Dickinson has developed a variety of archaeological skills, from background research to Stage 4 excavations laboratory work, and environmental assessments (EA) conducted for the development of wind and solar farms, hydro line corridors and municipal roadway. Ms. Dickinson has had the privilege of working alongside a multitude of First Nation community members while conducting archaeological assessments in both Northern and Southern Ontario. Ms. Dickinson holds an honorary Degree in Near Eastern and Classical Archaeology from Wilfrid Laurier University, and a Post-Graduate Certificate in Geographical Information Systems from Fanshawe College. Ms. Dickinson holds an Applied Research Licence (R1194) from the Ontario MHSTCI.

Alejandra Cooney, B.Sc., Junior Field Director (R1188) - Ms. Cooney holds a B.Sc. Degree in Anthropology and Biology from Trent University and has an Environmental Technician Diploma from Mohawk College. Ms. Cooney has been working in the field of archaeological consulting since 2013. She holds an Applied Research License (R1188) in archaeology from the Ontario MHSTCI. Ms. Cooney has conducted Stage 1 to 4 archaeological assessments in of environmental assessments, hydro line corridors, municipal roadways, residential and infrastructure development. Through her experience, she has gained expertise in archaeological projects in remote locations. A number of projects that Ms. Cooney has been involved in, have included Indigenous Engagement. Ms. Cooney's education and relevant work experience have provided her with knowledge of high precision GPS technologies, such as SX Blue, Top Con Hi SR and FC5000 global positioning systems, used to record architectural and natural features/ landscapes, cultural material, topographical anomalies and site boundaries. Ms. Cooney is a member of the Ontario Archaeological Society.

Appendix I: Limitations

Limitations

1. The work performed in the preparation of this report and the conclusions presented are subject to the following:
    a. The Standard Terms and Conditions which form a part of our Professional Services Contract;
    b. The Scope of Services;
    c. Time and Budgetary limitations as described in our Contract; and,
    d. The Limitations stated herein.
2. No other warranties or representations, either expressed or implied, are made as to the professional services provided under the terms of our Contract, or the conclusions presented.
3. The conclusions presented in this report were based, in part, on visual observations of the Study Area. Our conclusions cannot and are not extended to include those portions of the Study Area which were not reasonably available, in Wood Environment & Infrastructure's opinion, for direct observation.
4. The potential for archaeological resources, and any actual archaeological resources encountered, at the Study Area were assessed, within the limitations set out above, having due regard for applicable heritage regulations as of the date of the inspection.
5. Services including a background study and fieldwork were performed. Wood Environment & Infrastructure's work, including archival studies and fieldwork, were completed in a professional manner and in accordance with the Ministry of Heritage, Sport, Tourism and Culture Industries' guidelines. It is possible that unforeseen and undiscovered archaeological resources may be present at the Study Area.
6. The utilization of Wood Environment & Infrastructure's services during the implementation of any further archaeological work recommended will allow Wood Environment & Infrastructure to observe compliance with the conclusions and recommendations contained in the report. Wood Environment & Infrastructure's involvement will also allow for changes to be made as necessary to suit field conditions as they are encountered.
7. This report is for the sole use of the parties to whom it is addressed unless expressly stated otherwise in the report or contract. Any use which any third party makes of the report, in whole or in part, or any reliance thereon, or decisions made based on any information of conclusions in the report, is the sole responsibility of such third party. Wood Environment & Infrastructure accepts no responsibility whatsoever for damages or loss of any nature or kind suffered by any such third party as a result of actions taken or not taken or decisions made in reliance on the report or anything set out therein.
8. This report is not to be given over to any third-party other than a governmental entity, for any purpose whatsoever without the written permission of Wood Environment & Infrastructure, which shall not be unreasonably withheld.