

Engineering, Scientific, Planning and Management Consultants

2781 Lancaster Road Suite 200 Ottawa ON Canada K1B 1A7

> Bus 613 738 0708 Fax 613 738 0721

www.jacqueswhitford.com

Jacques Whitford

An Environment of Exceptional Solutions

Registered to ISO 9001:2000 & ISO 14001:1996

100% Post Consumer



FINAL REPORT

Stage 1 Archaeological Assessment, Watercourses 5 and 6 Class Environmental Assessment Study, Stoney Creek, City of Hamilton, Ontario

CITY OF HAMILTON

Project No. 1020491 CIF # P002-094-2006



PROJECT NO. 1020491

REPORT TO

City of Hamilton

77 James Street North, Suite 320

Hamilton, ON L8R 2K3

ON

Stage 1 Archaeological Assessment,

Watercourses 5 and 6 Environmental

Assessment Study, Stoney Creek, City Of

Hamilton, Ontario

February 8, 2007

Jacques Whitford Suite 200, 2781 Lancaster Road Ottawa, ON K1B 1A7

> Phone: 613-738-0708 Fax: 613-738-0721



Table of Contents			
1.0 1.1	INTRODUCTION		
2.0	PROJECT AREA6		
3.0 3.1 3.2	EXISTING CONDITIONS		
4.0	STUDY RESULTS11		
5.0	RECOMMENDATIONS14		
6.0	CLOSURE 15		
7.0 7.1 7.2	REFERENCES		
List	of Figures		
Figure Figure Figure Figure Figure Figure	1.1 - Location of Project Area		
Table	of Tables 1.1 - Proposed Drainage Improvement Works, Watercourses 5 and 6		

1.0 INTRODUCTION

The City of Hamilton (the City) has proposed to make improvements to drainage systems at Watercourses 5 and 6 (an area which encompasses Watercourses 5.1, 6.1, 6.2 and 6.3) in Stoney Creek, within the limits of the City of Hamilton, Ontario (Figure 1.1). Specifically the City will be replacing or making improvements to existing culverts on both watercourses, improving storm water storage at the head of Watercourse 5, and creating a diversion channel from Watercourse 6 to Watercourse 5 along the south side of the Queen Elizabeth Way (QEW) expressway. As part of the Class Environmental Assessment process which the City is undertaking, a Stage 1 Archaeological Assessment of the project area was required. The City contracted Jacques Whitford Limited (Jacques Whitford) to undertake the Stage 1 assessment under an existing Consultant Roster agreement (#18 - Archaeology). The report was prepared by Colin Varley, M.A., R.P.A., Senior Archaeologist and Heritage Planning Consultant with Jacques Whitford.

1.1 Proposed Project Components

The Corporation of the City of Stoney Creek commissioned a Master Drainage Plan, submitted in 1990, that addressed future drainage issues and contained a number of proposed works. Additional reports completed after that plan resulted in a number of proposed projects for Watercourses 5, 5.1, and 6 (Table 1.1 and Figures 1.2, 1.3, and 1.4). Recommended improvements to Watercourses 6.1, 6.2 and 6.3 had already been made redundant by previous work to improve those drainage channels. The majority of the projects involve the replacement or refurbishment of existing infrastructure within limits of ground which has already been disturbed. The two projects which appear to have potential to affect previously undisturbed ground (with the exception of ploughing for agricultural purposes, which does not seriously impact on archaeological resources) are the as yet undefined limits of the storm water management area south of Barton Street and the diversion channel from Watercourse 6 to 5 south of the QEW.

Table 1.1 - Proposed Drainage Improvement Works, Watercourses 5 and 6				
Map ID#	Watercourse	Intersection	Proposed Work	
1	5	Barton Street	Culvert replacement	
2	5	Arvin Avenue	Culvert underpinning	
3	5 and 5.1	C.N.R. rail line	Culvert replacement	
4	5	South Service Road	Culvert underpinning	
5	5	QEW Core Lanes	Culvert replacement	
6	5	North Service Road	Addition of culvert cell	
7	5 and 6	QEW, South Side	Flexible mat diversion channel	
8	6	QEW Core Lanes	Culvert replacement	
9	6	South Service Road	Culvert underpinning	
10	6	C.N.R. rail line	Culvert replacement	
11	5	South of Barton Street	Storm Water Management storage area	
12	6	Barton Street	Culvert replacement	



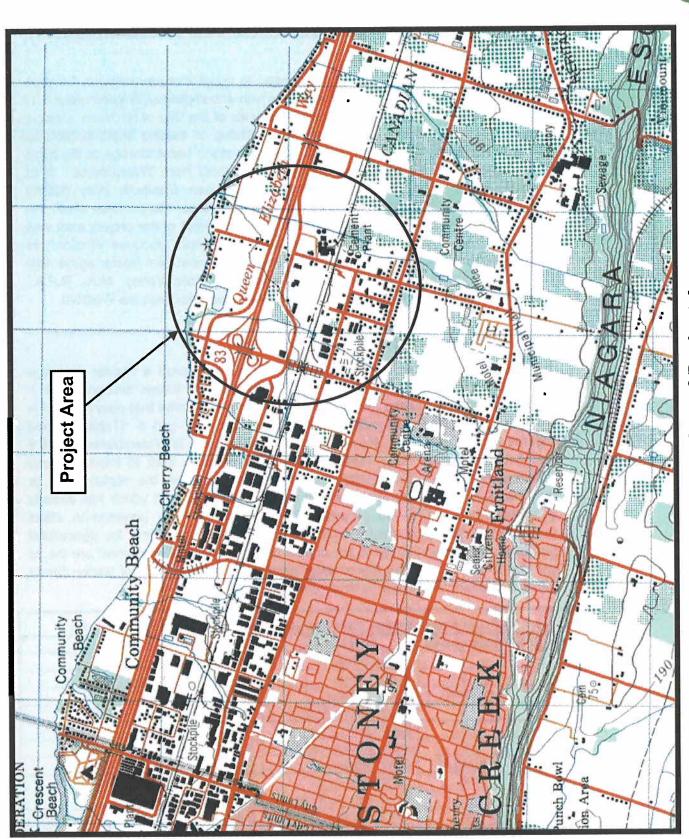


Figure 1.1 - Location of Project Area

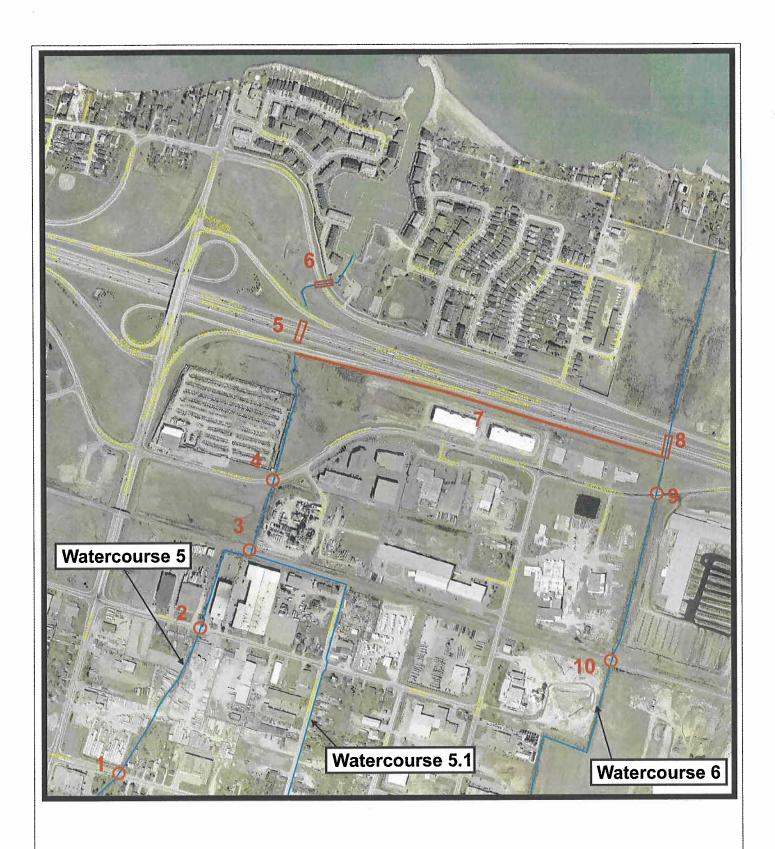


Figure 1.2 - North End of Project Area, Showing Watercourses 5, 5.1 and 6 and Proposed Works



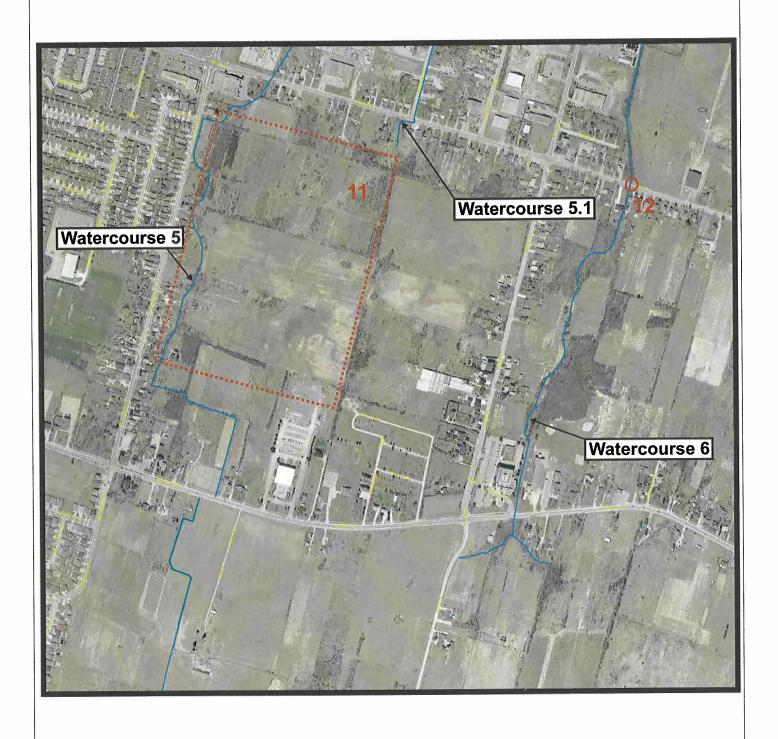


Figure 1.3 - South End of Project Area, Showing Watercourses 5, 5.1 and 6 and Proposed Works



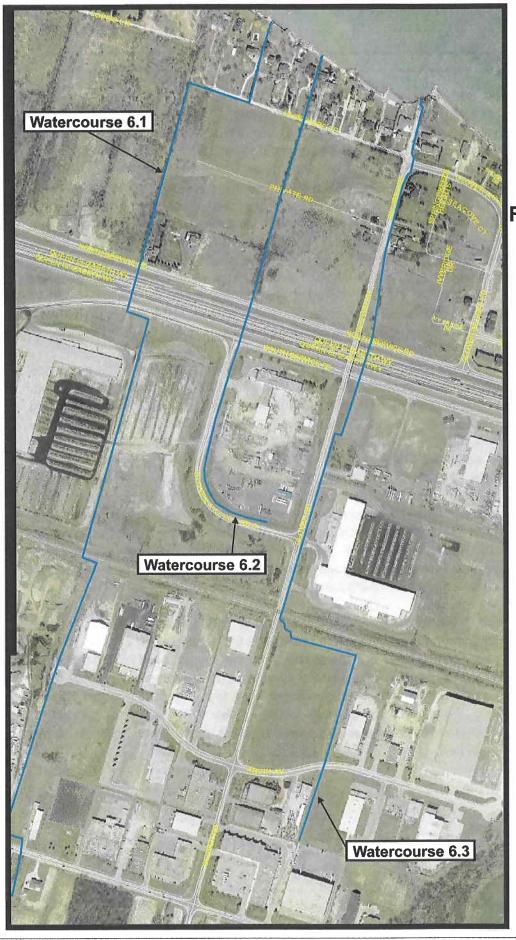


Figure 1.4 - Location of Watercourses 6.1, 6.2 and 6.3

2.0 PROJECT AREA

The project area is composed of portions of Lots 12, 13 and 14, Broken Front Concession and Concessions 1 and 2 in the former Saltfleet Township, Wentworth County, now part of the City of Hamilton. Overall the topography of the project area is a level plain that lies between the bottom of the Niagara Escarpment to the south and Lake Ontario to the north. Watercourses 5 and 6 are small, slow moving streams that run in a north-easterly direction from near the base of the escarpment. Watercourse 5 lies on the west side of the project area, nearest to Fruitland Road. Watercourse 6 is located on the east side of the project area, near Jones Road. Both watercourses cross Highway 8, Barton Street, the North and South Service Roads and the QEW (Figures 1.2 and 1.3). In the south end of the project area the setting is generally rural, and the streams run through agricultural lands. Between Barton Street and the QEW the project area is composed for the most part of industrial and commercial properties. North of the QEW is predominantly residential and parkland, with some commercial development along the lakefront.

The project area is part of the Iroquois Plain physiographic region, which surrounds the present day western shore line of Lake Ontario (Chapman and Putnam, 1984). The underlying bedrock is Queenston Formation shale, and the soils are heavy in texture and of low permeability, resulting in soils which shed water easily and dry out quickly (Chapman and Putnam, 1984). There are four soil types and two soil complexes within the project area (Figure 2.1). Two of the soil types are Morley and Trafalgar silty clay-loam soils, characterised by level or nearly level grade, imperfect to poor drainage and stone free or only slightly stoney composition. The other two soil types are Jeddo and Winona sandy-loam soils, characterised by level or nearly level grade, imperfect drainage and stone free composition (Presant et al., 1965). The two soil complexes evident in the project area are Winona-Jeddo sandy-loam and Trafalgar-Morley silty clay-loam, a mixture of the two named soil types which bear the same characteristics.

The present day watercourses show evidence of considerable anthropogenic realignment in some places. Along Watercourse 5 the section north of Arvin Avenue extending beyond the QEW and the section from the south project limit to just north of Highway 8 have been re-aligned as drainage ditches. Watercourse 6 has been altered as a drainage ditch from Barton Street north to its terminus (Figures 1.2 and 1.3). Along these portions of both watercourses it is extremely difficult to distinguish whether or not the present stream bed is even remotely similar to the natural stream bed.



6

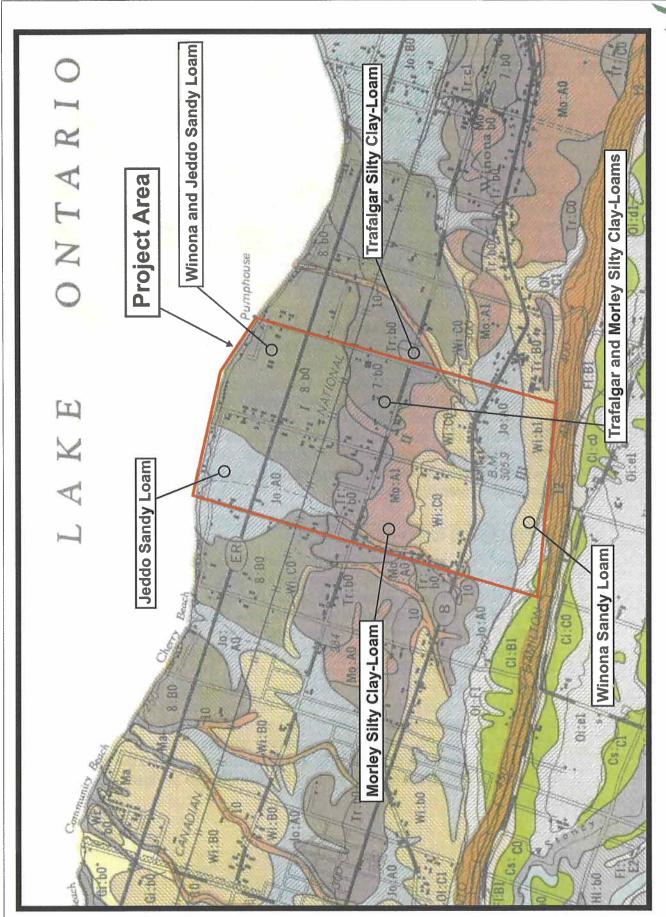


Figure 2.1 - Soil Types in the Project Area

3.0 EXISTING CONDITIONS

The assessment of archaeological potential for the site considered both prehistoric and historic period resources. Archaeological potential modeling for prehistoric era sites is based largely on the identification of landscape features which are either known to have attracted past habitation or land use, or which appear to have potential for attracting human use. These features include: navigable rivers and lakes; confluences of watercourses; smaller sources of potable water; ridges or knolls that overlook areas of resource potential; outcrops of high-quality stone for tool making; and, most importantly, combinations of these features. In general it has been demonstrated that areas within 200-300 m of watercourses, or other significant bodies of water (ASI, 1990; Cox, 1989), and in particular those areas with multiple water sources (Young et al., 1995), are considered to be of elevated archaeological potential.

Patterns of land use by historic period Euro-Canadians to some extent mirror those of the prehistoric period, since the same general needs must be met (i.e., proximity to potable water, access to natural resources, and a level, well drained habitation site). Conversely, the Euro-Canadian conversion of both fertile and more marginal land for agricultural purposes, the development of non-water travel routes, the exploitation of different resources such as subsurface mineral deposits, and other differences in land use patterns make potential modeling of Euro-Canadian and other non-Aboriginal historic sites somewhat less reliable. Fortunately, these sites are generally more visible than their prehistoric counterparts, which helps offset this lower level of predictive reliability.

3.1 PREHISTORIC RESOURCES

At present there are four registered prehistoric archaeological sites within 5 km of the project area (MoC, 2006). Three of these sites are located on the Niagara Escarpment, south-east of, and at significantly higher elevation than, the project area. The other site is located near the shoreline of Lake Ontario, a few hundred metres past the east limit of the current project area. One of the registered sites has been dated to the Late Palaeo-Indian archaeological period (c. 10,300-9,900 years before present (BP)) (Ellis and Deller, 1990). The Palaeo-Indians were the earliest inhabitants of Ontario, colonising areas shortly after the retreat of Wisconsin period glaciers. Another of the sites is a Late Woodland period burial site, dating to between 550-330 BP. The Late Woodland archaeological period is characterised by the large semi-permanent villages and associated satellite settlements. The remaining two sites, including the one close to the project area, are undated lithic scatters, the result of the manufacture or sharpening of stone tools.



Recently an as yet unregistered site has been identified in the project area. This previously private collection of artifacts includes sherds from ceramic vessels and fragments of ceramic smoking pipes and also appears to date to the Late Woodland period (Doroszenko, pers. comm.).

3.2 HISTORIC RESOURCES

At present there are no registered historic period archaeological sites on or near the project area (MoC, 2006). There are ten heritage buildings recognised by the Province of Ontario (Table 3.1), as well a historical plaque located at the former home of John Willson (sic) at 526 Winona Road North, 3.5 km east of the north part of the project area (OHF, 2006). The heritage buildings located on Lewis Road lie approximately 2.5 km to the east of the project area. The cluster of houses between 1317 and 1455 Highway 8 are approximately 4 km to the east. The house at 982 Highway 8 is also located approximately 1.5 km east of the project area.

Table 3.1 - Registered Heritage Buildings				
Location	Heritage Building			
1317 Highway No. 8	Pettit House - "Evanleigh"			
1420 Highway No. 8	Fred B Henry House - "Spruceway"			
1446 Highway No. 8	The Van Duzer House			
1455 Highway No. 8	Fifty United Church			
982 Highway No. 8	Jacob Smith House - "Langside"			
408, 418 & 428 Lewis Road	Hamilton District Yard - Residence & Garage (B21648) MBS- ORC			
408, 418 & 428 Lewis Road	Hamilton District Yard - Garage (B21647) MBS-ORC			
408, 418 & 428 Lewis Road	Hamilton District Yard - Bridge Crew Residence (B21646) MBS-ORC			
408, 418 & 428 Lewis Road	Hamilton District Yard - Zone Crew Residence (B19390) MBS-ORC			
265 Lewis Rd	Levi Lewis Homestead			

The general area of Saltfleet Township was settled in the late 18th century by United Empire Loyalists, and by the end of the first decade of the 19th century all of the Lots on Concession 1 of Saltfleet had been registered.

There are few early maps which show much detail with regard to occupation or development of the early years of the township. The most useful map from the 19th century is the one found in the 1875 Historical Atlas of Wentworth County (Page and Smith, 1875) (Figure 3.1). All of Lots 13 and 14 and part of Lot 12 of the Broken Front, and small portions Lots 12-14 in Concession 1, are shown as belonging to Charles Carpenter, who would have been 79 years old at that time (NAC, 1871) (Figure 3.1). Two buildings and an orchard are indicated in the lots in the Broken Front. The remaining land in Lots 13 and 14 in Concession 1 are owned by F. M. Carpenter, a farmer and at the time Reeve of Saltfleet Township. Reeve Carpenter originally settled on the property in 1843, and his residence and



9

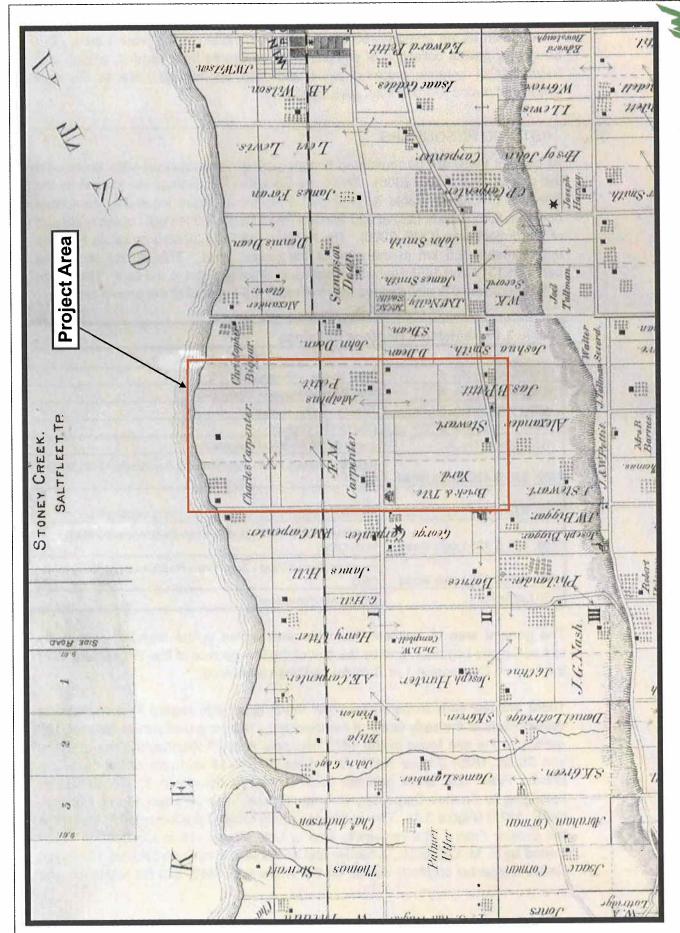


Figure 3.1 - Project Area As Shown on 1875 Page and Smith Historical Atlas

An orchard are shown as being in the south-west part of his property (Figure 3.1). Across the road from Reeve Carpenter's homestead, in the north part of both Lots 13 and 14 in Concession 2, there is shown a schoolhouse and another building, which may be a teacher's or headmaster's residence. The remainder of Lot 14, and a strip of Lot 13, is a brick and tile yard. The rest of Lot 13 is owned by Alexander Stewart, whose home and a small orchard are located immediately north of the road that is currently Highway 8 (Figure 3.1).

Lot 12 in Concession 1, as well as the north half of Concession 2, is the property of Adolphus Pettit. His property is shown as having three residence buildings, two on the north limit of Concession 2 and one house and an orchard on the south end of Concession 1 (Figure 3.1). It may be that two of the residences were unoccupied and had simply been acquired as part of a land purchase from earlier settlers. The south half of Lot 12, Concession 2 is owned by James B. Pettit, whose residence and orchard are shown as being on the south side of the current Highway 8 (Figure 3.1).

When the various residences and the schoolhouse are shown over current air photography of the project area it is evident that all of the former buildings have either been removed for previous development projects or are well removed from any of the proposed project areas (Figures 3.2 and 3.3).

4.0 STUDY RESULTS

Only two of the proposed infrastructure projects appear to have the potential to cause disturbance to previously undisturbed ground (with the exception of ploughing for agricultural purposes) within the project area. These two projects are the storm water management improvements south of Barton Street and the diversion channel on the south side of the QEW. The latter project may occur within previously disturbed ground. However, as the final location of the diversion channel has not been identified this cannot be certain.

Based on the results of the archival research and air photo interpretation there appears to be no potential for intact or significant historic period resources to be affected by proposed project activities in either the north or south parts of the project area.

In the north half of the project area the only part of the project which might have an impact on prehistoric archaeological resources is the construction of the diversion channel. However, this is possible if the diversion channel is not constructed in previously disturbed ground. If the ground has been previously disturbed below grade to any significant degree then it is unlikely that intact archaeological resources would have survived.

In the south half of the project area, between Barton Street and the headwaters of Watercourse 5, there is archaeological potential in the undisturbed portions of any fields which are currently used for agricultural purposes. Despite the fact that the



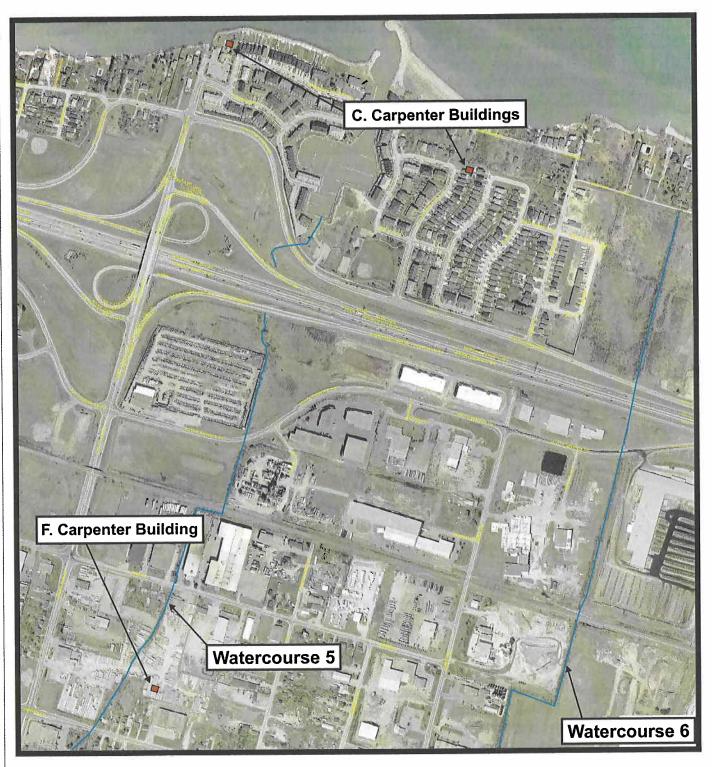


Figure 3.2 - Approximate Location of Buildings From 1875 Atlas
Over Current Air Photos, North End of Project Area



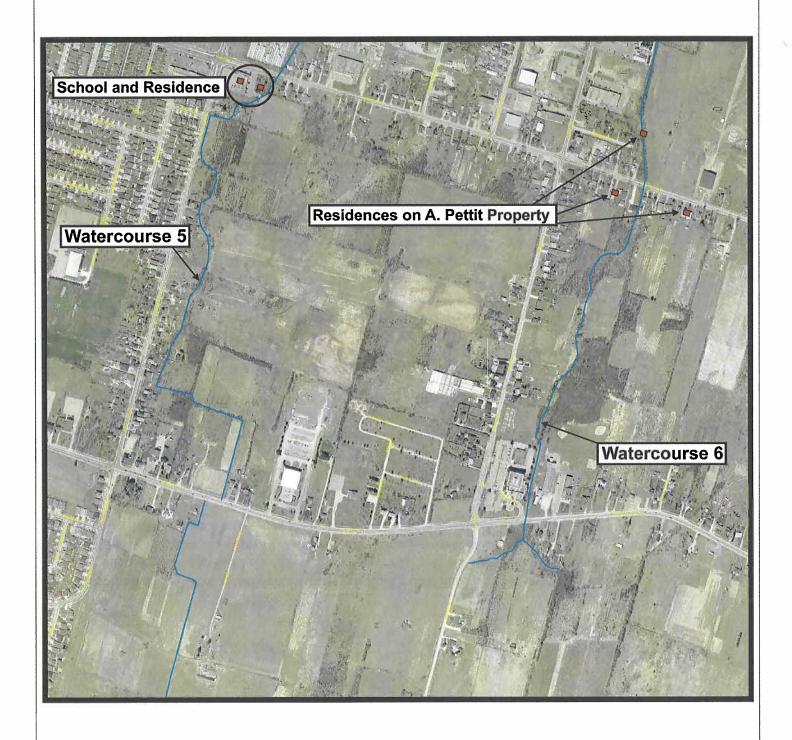


Figure 3.3 - Approximate Location of Buildings From 1875 Atlas
Over Current Air Photos, South End of Project Area



channel of Watercourse 5 has undergone considerable alteration, the ground around it in the south portion of the project area demonstrates characteristics which have been shown to be indicative of elevated archaeological potential, particularly for sites of 5m² or greater (e.g. ungulate potential, access to water resources) (Young et. al., 1995). Moreover, Late Woodland period sites have been demonstrated to be located well over 300 m away from any water source (Bellhouse et al., 1996).

5.0 RECOMMENDATIONS

Once a final location of the diversion channel is determined, if it falls outside the limits of previously disturbed ground any areas which may be disturbed by project related activities will need to be subject to Stage 2 archaeological assessment. As the area where the diversion channel is proposed to be located cannot be ploughed, Stage 2 assessment would require a test pit excavation strategy. Test pit excavation survey involves the excavation of 40 cm x 40 cm test pits through to subsoil. All soils excavated from the test pits is to be passed through a screen of not greater than 6 mm mesh. The interval at which the test pits are to be excavated is 5 or 10 m, depending on the perceived potential of the area to be tested. In this case it is recommended that testing occur at 10 m intervals

Once the location of any storm water management area is determined the limits of the permanent pond, and any peripheral areas which will be disturbed, will need to be subject to Stage 2 archaeological assessment. In this case, any portions of the pond site which are currently under cultivation, or which are not overgrown, would need to be assessed using a pedestrian survey strategy. A pedestrian survey requires that the ground be ploughed up as if it were being prepared for cultivation and allowed to weather through one hard rainfall, or several lighter rainfalls, and then examined by slowly walking over the field and looking for artifacts or other evidence of anthropogenic activity. Any parts of the pond area which is overgrown would be tested using a test pit excavation strategy. For both the pedestrian and test pit survey we recommend that the testing interval be at 5 m for this part of the project.



6.0 CLOSURE

This report has been prepared for the sole benefit of the City of Hamilton, and may not be used by any third party without the express written consent of Jacques Whitford Limited and City of Hamilton. Any use which a third party makes of this report is the responsibility of such third party.

The recommendations made in this report are in accordance with our understanding of the project as it was presented at the time of our report. In the event that changes or alterations are made to the project, we reserve the right to review our recommendations with respect to any such changes.

We trust this report meets your current requirements. Please do not hesitate to contact us should you require further information or have additional questions about any facet of this project.

Yours truly,

JACQUES WHITFORD LIMITED

Colin Varley, M.A., R.P.A. Senior Archaeologist and Heritage Planning Consultant Grant Aylesworth, Ph.D. Archaeologist, Reviewer



P:\2006\Archaeology\1020491 - Watercourses 5 and 6\Final Stage 1 Report 2007 02 08.doc

7.0 REFERENCES

7.1 Literature Cited

ASI (Archaeological Services Inc), 1990. A Guide to Prehistoric Archaeological Resources: Approaches to Site Potential Modeling for Environmental Assessment. Report on file, Land Use and Environmental Planning Department, Ontario Hydro, Toronto.

Bellhouse, , D.R., R.J. Pearce, J.H. Peters and L.W. Stitt, 1996. The Modelling of Ontario Iroquoian Archaeological Site Patterns: Distance to the Nearest Source of Water and Size of Site. **Ontario Archaeology.** No.61: 82-99.

Chapman, L.J., and D.F. Putnam, 1984. **The Physiography of Southern Ontario, 3rd Edition.** Ontario Geological Society, Special Volume 2. Toronto: Ministry of Natural Resources.

Cox, Steven L., 1989. Report on the Phase 1 Archaeological Survey of the Bangor Hydro-Electric Second 345 KV Tie Line Project Route. Report on file, Maine State Museum, Bangor, Maine.

Ellis, Chris J., and D. Brian Deller, 1990. Paleo-Indians, in **The Archaeology of Southern Ontario to A.D. 1650**, Chris J. Ellis and Neal Ferris (eds.). Occasional Publication of the London Chapter, Ontario Archaeological Society, No. 5.

MoC (Ministry of Culture, Ontario), 2006. Archaeological Sites Database. Records on file at the Heritage Unit, Toronto, Ontario

NAC (National Archives of Canada), 1871. Census Rolls of 1871. http://www.collectionscanada.ca/archivianet/020108_e.html

OHF (Ontario Heritage Foundation), 2006. Registered Heritage Properties Database. http://www.culture.gov.on.ca/english/culdiv/heritage/hpd.htm

Page and Smith, 1875. Illustrated Historical Atlas of the County of Wentworth, Ont. Toronto: Page & Smith Publishers.

Presant, E.W., R.E. Wicklund and B.C. Matthews, 1965. **The Soils of Wentworth County.** Report No. 32 of the Ontario Soil Survey. Ottawa: Canada Department of Agriculture and Ontario Department of Agriculture.

Young, P.M., M.R. Horne, C.D. Varley, P.J. Racher, and A.J. Clish, 1995. A **Biophysical Model for Prehistoric Archaeological Sites in Southern Ontario.** Research and Development Branch, Ministry of Transportation, Toronto, Ontario.

7.2 Personal Communications

Doroszenko, Dena, Archaeologist, Heritage Programs and Operations Branch, Ontario Heritage Foundation, Toronto, Ontario.

