25 March 2015

STAGE 3 ARCHAEOLOGICAL ASSESSMENT

Locations 4 (AhHc-249) and 9 (AhHc-251)
Dufferin Aggregates Paris Pit
Part of Lots 2 and 3
Concession 2 West of Grand River and
Part of Lot 27, Concession 2
South Dumfries Township
Brant County, Ontario

Submitted to:
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PIF Numbers:
Location 4 (AhHc-249): P364-0061-2014
Location 9 (AhHc-251): P364-0060-2014

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1 Copy - Dufferin Aggregates
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2 Copies - Golder Associates Ltd.
Executive Summary

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

A Stage 3 archaeological assessment was conducted by Golder Associates Ltd. (“Golder”) on behalf of Dufferin Aggregates for two pre-contact Aboriginal sites, Location 4 (AhHc-249) and Location 9 (AhHc-251), located within the extraction limits of the Dufferin Aggregates Paris Pit, legally described as Part of Lots 2 and 3, Concession 2 West of Grand River and Part of Lot 27, Concession 2, South Dumfries Township, Brant County, Ontario. The Dufferin Aggregates Paris Pit property was licensed in 1974 under the Pits and Quarries Control Act. At the time of licensing under this act, archaeological assessments were not required as part of the approval process as they currently are under the Aggregate Resources Act (Government of Ontario 1997). However, due to the proximity of the site to the Grand River, and as a due diligence process as part of their site preparation prior to commencing extraction, Dufferin Aggregates has committed to completing the archaeological assessments of the property.

The objective of the Stage 3 assessment was to conduct a systematic subsurface investigation of the archaeological sites identified during the previous Stage 2 assessment to increase the recovered artifact sample and delineate the boundaries of the sites, consistent with Ministry of Tourism, Culture and Sport’s (MTCS) Standards and Guidelines for Consultant Archaeologists (MTCS 2011). This report details the Stage 3 assessment of Location 4 (AhHc-249) and Location 9 (AhHc-251).

The Stage 3 site-specific archaeological assessment of Location 4 (AhHc-249) resulted in the recovery of two non-diagnostic pre-contact Aboriginal chert flakes and three pieces of historic Euro-Canadian refined white earthenware. No subsurface cultural features, fire cracked rocks, pre-contact Aboriginal ceramic sherds or diagnostic artifacts were identified during the Stage 3 assessment of Location 4 (AhHc-249). Based on the recovered artifact assemblage, Location 4 (AhHc-249) was interpreted as having no further cultural heritage value or interest; as a result no further archaeological mitigation is recommended for Location 4 (AhHc-249). This recommendation is consistent with the Standards and Guidelines for Consultant Archaeologists (Government of Ontario 2011), Section 3.4.1, Standards 1a-d, and Section 3.4.2, Standard 1a.

The Stage 3 site-specific archaeological assessment of Location 9 (AhHc-251) resulted in the recovery of one non-diagnostic pre-contact Aboriginal biface fragment, and one piece of window glass. No subsurface cultural features, fire cracked rocks, pre-contact Aboriginal ceramic sherds or diagnostic artifacts were identified during the Stage 3 assessment of Location 9 (AhHc-251). Based on the recovered artifact assemblage, Location 9 (AhHc-251) was interpreted as having no further cultural heritage value or interest; as a result, no further archaeological mitigation is recommended for this component of Location 9 (AhHc-251). This recommendation is consistent with the Standards and Guidelines for Consultant Archaeologists (Government of Ontario 2011), Section 3.4.1, Standards 1a-d, and Section 3.4.2, Standard 1a.
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1.0 PROJECT CONTEXT

1.1 Development Context

Golder Associates Ltd. (“Golder”) was contracted by Dufferin Aggregates to conduct Stage 3 site-specific archaeological assessments of two pre-contact Aboriginal sites, Location 4 (AhHc-249) and Location 9 (AhHc-251). These sites were initially identified during a Stage 1 and 2 archaeological assessment (Golder 2014; PIF#: P218-244-2012) of a 72.8 hectare parcel of land located on Part of Lots 2 and 3, Concession 2 West of Grand River and Part of Lot 27, Concession 2, South Dumfries Township, Brant County, Ontario (Map 1). These lands are part of the larger Dufferin Aggregates Paris Pit property, which was licensed in 1974 under the Pits and Quarries Control Act. At the time of licensing under this act, archaeological assessments were not required as part of the approval process as they currently are under the Aggregate Resources Act (Government of Ontario 1997). However, due to the proximity of the site to the Grand River, and as a due diligence process as part of their site preparation prior to commencing extraction, Dufferin Aggregates committed to completing the Stage 1 and 2 archaeological assessments of the property. The Stage 3 site-specific assessments of Location 4 (AhHc-249) and Location 9 (AhHc-251) were completed to fulfill archaeological commitments of Dufferin Aggregates under the Ontario Heritage Act.

In addition to Location 4 (AhHc-249) and Location 9 (AhHc-251), several other archaeological sites were identified during the previous Stage 1 and 2 assessment of the Paris Pit property and recommended for further Stage 3 site-specific assessment, including historic Euro-Canadian site Location 6 (AhHc-254) and historic Euro-Canadian site Location 8 (AhHc-254). This report only addresses the results of the Stage 3 archaeological assessment of Location 4 (AhHc-249) (PIF#: P364-0061-2014) and Location 9 (AhHc-251) (PIF#: P364-0060-2014). The results of the Stage 3 archaeological assessments of Location 6 (AhHc-254) (PIF#: P364-0058-2014) and Location 8 (AhHc-250) (PIF#: P364-0059-2014) are reported under separate cover.

Permission to enter the property and remove artifacts was given by Mr. Kevin Mitchell of Dufferin Aggregates.

The objective of the Stage 3 archaeological assessments of Locations 4 (AhHc-249) and 9 (AhHc-251) was to determine the extent of the sites, collect a representative sample of artifacts, and to assess their cultural heritage value or interest in order to make a determination of whether or not Stage 4 mitigations would be required, consistent with Ministry of Tourism, Culture and Sport standards (Government of Ontario 2011).

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

- A review of relevant archaeological, historic and environmental literature pertaining to the study area;
- Stage 3 controlled surface pickups; and,
- Stage 3 archaeological test unit excavations.

In addition, Golder also examined background data sources located at the Ministry of Tourism, Culture and Sport (MTCS) office in Toronto, the land registry office in Brantford, the Brant County Historical Society located in Brantford, information from local individuals, and Golder’s corporate library.

Given that the sites to be assessed through Stage 3 excavation are pre-contact Aboriginal in nature, and following MTCS recommendations under Section 2.2 of the Standards and Guidelines for Consultant Archaeologists (Government of Ontario 2011:39-40), several First Nations communities were engaged to
determine their interest in sending a community representative to act as a monitor for the project (see Supplementary Documentation for further details). The engagement of First Nation communities was also initiated in preparation for assessing the cultural heritage value or interest of the sites being investigated and when formulating potential Stage 4 mitigation strategies, if required, at the end of the Stage 3 assessment.

1.2 Historical Context

Locations 4 (AhHc-249) and 9 (AhHc-251) are both situated in an agricultural field on Part of Lot 27, Concession 2, South Dumfries Township, Brant County, Ontario. This area comprises the western portion of the study area, which also includes Part of Lots 2 and 3, Concession 2 West of Grand River, South Dumfries Township, Brant County, Ontario (Map 1).

1.2.1 Post-Contact Aboriginal Period

The earliest recorded history of Brant County begins with European documentation of Neutral Iroquoian groups during the early 17th century; however, little of this documentation exists. Although Champlain is accredited with coining the name ‘Neutral’ for these communities in 1615 (Biggar (ed.) 1922-1936[3]:99-100; White 1978:410), the general location of their territory first appeared on a map somewhat later in 1632 (Biggar (ed.) 1922-1936[3]: Plate 10; White 1978:407). Visits to Neutral country by Europeans took place from bases in Huronia, where French traders and missionaries were already well-established. Champlain’s protégé, Etienne Brûlé, reportedly passed through Neutral territory in 1615 and 1625, although no first-hand documentation was left (Finelayson 1998:26). French Recollet Father Daillon, likely inspired by Brûlé, visited the Neutral in 1626, spending three months there (White 1978:409). Daillon was adopted by the Tsouharissen, the supreme chief of the Neutral (Sagard 1866: [3]802; see also Noble 1985:133; White 1978:409). Daillon reportedly travelled the entire length of the Grand River and counted 28 Neutral villages in the area (Harper 1950:10-11; White 1978:410). Later, Jesuit Fathers Brébeuf and Chaumonot visited in 1640-1641, reporting nearly 40 villages for the Neutral (Thwaites (ed.) 1896-1901; cf. Noble 1985:134; White 1978:410).

The ability of the Neutral and their Middle Ontario Iroquoian ancestors (i.e. Middleport phase) to direct exchange networks into south-central Ontario from the Midwest, Allegheny Piedmont and Middle Atlantic coast and to redirect those materials away from competitors, such as the Huron of the southeastern Georgian Bay area and Five Nation Iroquois of New York (Jamieson 1992) may have been a factor in the retaliation of the Five Nations Iroquois during the early and mid-1600s. Population decline among the Neutral due to European-introduced epidemics in the late 1630s (White 1978:410) may have also encouraged this.

In 1647, the Seneca attacked one eastern group of the Neutral (White 1978:410) and, by 1653, the Neutral had been ‘dispersed’ and/or assimilated by the Five Nations (Jamieson 1992:80; Noble 1978:161). Most of those Neutral survivors who were adopted or assimilated were likely taken in by the Seneca, the western-most of the Five Nations (Noble 1978:161).

The Five Nations at least sparsely populated southern Ontario during the third quarter of the 1600s. The Seneca village of Quinnowatoua or Tinawatowa, near the western end of Lake Ontario, was reportedly visited by La Salle and the Sulpician Fathers Dollier de Casson and Galinée in 1669 (MacDonald 1992:4-7; Noble 1978:161-162; Stothers 1977:7). The Five Nations appear to have relinquished the Niagara Peninsula and northern Lake
Ontario area before 1700, however, at which time the Algonquian-speaking Mississauga began to move southwards from the Lake Huron watershed into the Lake Ontario and Lake Erie watersheds (Konrad 1981). Other migrations occurred during the 1700s, for example with Five Nations accepting the Tuscarora in 1722 (Pendergast 1995:107) in New York, together becoming the Six Nations.

During the American War of Independence, some factions within Six Nations sided with the British and others with the American cause. After the British defeat, United Empire Loyalists began to be granted land in southern Ontario and elsewhere in Eastern Canada. One proponent of the First Nation allies was the former Swiss mercenary, Sir Frederick Haldimand, Governor of Québec. Haldimand made preparations to grant a large plot of land in south-central Ontario to those Six Nations who were allies of the Crown (MacDonald 2004:10-12; Weaver 1978:525). Haldimand arranged for the purchase of territory in south-central Ontario from the Mississauga.

This is the Haldimand Tract, also known as the 1795 Crown Grant to the Six Nations, provided for in the Haldimand Proclamation of October 25th, 1784, which was intended to extend to six miles on each side of the Grand River over its entire length from mouth to source (or from Lake Erie to the ‘Nichol block’, see Weaver 1978:525). Regarding this tract, Haldimand proclaimed:

Whereas His Majesty having been pleased to direct that in consideration of the early attachment to His cause manifested by the Mohawk Indians and of the loss of their settlement which they thereby sustained that a convenient tract of land under His protection should be chosen as a safe and comfortable retreat for them and other Six Nations who have either lost their settlements within the Territory of the American States or wish to retire from them to the British. I have at the earnest desire of many of these His Majesty’s faithful allies purchased a tract of land from the Indians situated between the Lakes Ontario, Erie and Huron, and I do hereby in His Majesty’s name authorize and permit the said Mohawk Nation and such others of the Six Nations Indians as wish to settle in that quarter and to take possession of and settle upon the banks of the river commonly called Ouse or Grand River, running into Lake Erie, allotting to them for that purpose six miles deep from each side of the river...which them and their prosperity are to enjoy forever.

Canada 1891:251

Near the end of the American War of Independence, between 1779 and 1783, some Six Nations people were moving from New York into Ontario along the Niagara River (H.R. Page & Co. 1879:8). Beginning in late 1784 and early 1785, 1843 members of Six Nations, some from each member nation, as well as some other allies, relocated to the Haldimand Tract with Joseph Brant (Tanner (ed.) 1987:77-78; Weaver 1978:525). Most of those belonging to Six Nations relocated to the Brantford area, although Seneca, Delaware and Lower Cayuga initially settled along the Lower Grand River (Tanner (ed.) 1987:75; Weaver 1978:525). Parcels of land from this tract were being lost through various means not long after its establishment (MacDonald 2004; H.R. Page & Co. 1879:4; Weaver 1978:525). Indeed, in 1793, the Simcoe Patent reinforced that lands of the tract could not be sold by Six Nations to Euro-Canadians except on approval by the Crown.

This position, which reinforced a disparity between Euro-Canadian Loyalists, who could sell their land, and Six Nations’ land which was to be held in trust for Six Nations by the Crown, was rejected by Brant and other chiefs. By 1834, it was accepted by the Crown that losses of portions of the Haldimand Tract to Euro-Canadian settlers were too numerous for all lands to be returned. Lands in the Lower Grand River area were surrendered by the Six Nations to the Government in 1832 at which point most Six Nations people moved into Tuscarora Township.
in Brant County and a narrow portion of Oneida Township (H.R. Page & Co. 1879:8; Tanner (ed.) 1987:127; Weaver 1978:526). By the late 1830s, most of the Six Nations population lived, with some exceptions, on small farms averaging 20 acres, where corn and potatoes were grown and some kept hogs, cows and oxen (Weaver 1978:525-526).

1.2.2 Historic Euro-Canadian Period

The Brant County area first enters the Euro-Canadian historic record as part of the Haldimand Tract, which:

...is a parcel or tract of land given to the Six Nations Indians, by Governor Haldimand October 25th, 1784 ... and conveyed by Grant the 14th of January, 1793. ... This Grant was composed of the following Townships: Dunn, Sherbrooke, Moulton, Canborough, North and South Cayuga, Oneida and Seneca in Haldimand County; Tuscarora, Onondaga, Brantford and South Dumfries in Brant County; North Dumfries, Waterloo and Woolwich in Waterloo County; Pilkington and Nichol in Wellington County; and is described as a parcel or tract of land six miles on each side of the Ouse or Grand River from its mouth toward its source, to be bounded by the tract of land deemed December the 7th, 1792 by the Mississaug a Chiefs and people to the Crown. This part was set aside as a suitable retreat for the Six Nation Indians who had shewn attachment and Fidelity to the British Government during the troublous times 1759 to 1783 and was granted to the Chiefs, Warriors, Women and People of the Six nations and their heirs forever.

Morris 1943: 19-21

Initially formed in 1851, the historical County of Brant was bounded to the north by the township of Blenheim in Oxford County, North Dumfries in Waterloo County and Ancaster in Wentworth County, to the east by the townships of Seneca and Oneida in Haldimand County, to the south by the townships of Walpole in the County of Haldimand and Townsend and Windham in the County of Norfolk, and to the west by the townships of North Norwich and East Oxford in the County of Oxford. The County consisted of six townships, Burford, Brantford, South Dumfries, Oakland, Onondaga, and Tuscarora, and two incorporated towns, Brantford and Paris. South Dumfries Township, located in the north end of the county, and North Dumfries Township, located in Waterloo County, were initially purchased together as Block One in 1795 by Philip Steadman. After Steadman’s death in 1799, Block One changed ownership a number of times until it was eventually purchased in 1816 by William Dickson of Niagara. Dickson named the township Dumfries after his hometown in Scotland (Mulvany 1883). After the initial survey of 1816, settlement of the township progressed slowly. By 1817, only 38 families, primarily of Scotch descent, had settled in the vicinity of the village of St. George. In that year, 245 acres of land was cleared and the businesses of the township included one saw mill and one store, a distillery erected in St. George. By 1881, the total population of South Dumfries Township had reached 3,490.
The 1875 map of South Dumfries Township in the *Illustrated Historical Atlas of Brant County* (Page & Smith 1875) lists David E. Culp as the owner of Lot 27, Concession 2, on part of which the western portion of the study area lies (Map 2). A dwelling and an orchard are depicted at the northern end of the Culp property. Although the dwelling depicted on the 1875 map is located outside of the present study area, it should be noted that comparisons between this map and modern topographic mapping suggest that the historic dwelling was situated further south and east than the location of a yellow brick house that currently stands on the property.

1.2.2.1 Land Registry and Archival Research

Detailed land registry and archival research for the entire Dufferin Aggregates Paris Pit study area was presented as part of the Stage 1 and 2 archaeological assessment report (Golder 2014). Since Locations 4 (AhHc-249) and 9 (AhHc-251) are specifically located on Part of Lot 27, Concession 2, South Dumfries Township, Brant County, Ontario, only the land registry records (Table 1) and archival research regarding this portion of the study area will be reproduced here.

The first transaction for Lot 27, Concession 2 is an indenture from William Dickson to Absalom Shade in 1823. Absalom Shade subsequently sold the lot to David Culp and Abraham Culp in 1850. By 1857, David E. Culp owned the entire lot, having purchased 144 acres from Abraham. David E. Culp continued to own the lot until 1899, when the lot was purchased by Henry James Thomas.

Unfortunately, assessment roll records could not be located South Dumfries Township during the 19th century. Regardless of this lack of data, it was possible to determine some genealogical information about the prominent land owners of Lot 27, Concession 2 from Canadian census records, marriage and death records, and biographical sketches of Brant County residents written in 1883 (Mulvany 1883).

Archival research indicates that David E. Culp was born on January 20, 1827 in Clinton County, son of Jonas (1798-1845) and Mary Culp (1800-1877) (Mulvany 1883). David married Elizabeth Grobb on November 12, 1850, and by 1851, the couple had settled on Lot 27, Concession 2, South Dumfries Township (Mulvany 1883). The couple had nine children together, including: Herby, Mary, Dudley, Joshua, Martha, Elizabeth, Eleanor, Evelyn, and Silas. By the time of the 1861 census, the family was residing in a single story framed house. As indicated above, a yellow brick home currently stands on the property, which is located north and west of the structure that is depicted on the 1875 historical atlas map; therefore, it is possible that the structure depicted on the 1875 map was the original framed house indicated in the 1861 personal census. The construction of a brick house after 1875 is not unexpected as it has been suggested that it may have taken anywhere from 10 to 30 or more years before a farm was productive enough to permit financial investment in an improved house (Kenyon 1997). The family continued to reside on Lot 27, Concession 2 until just prior to David’s death on 29 December 1900.
### Table 1: Lot 27, Concession 2 Land Registry Records

<table>
<thead>
<tr>
<th>No.</th>
<th>Nature of Instrument</th>
<th>Date of Instrument</th>
<th>Date of Registry</th>
<th>Grantor</th>
<th>Grantee</th>
<th>Acres</th>
<th>Sq. Links</th>
<th>Amount of Mortgage/Amount of Consideration</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>980</td>
<td>Indenture</td>
<td>June 20, 1822</td>
<td>June 9, 1823</td>
<td>William Dickson</td>
<td>Absalom Shade</td>
<td>269 in all</td>
<td></td>
<td>All of said lot and the north ends of lots No. 27 and 28, 1st Concession</td>
<td></td>
</tr>
<tr>
<td>194</td>
<td>? B.S.</td>
<td>Oct. 4, 1850</td>
<td>Oct. 16, 1850</td>
<td>Absalom Shade</td>
<td>David Culp and Abraham Culp</td>
<td>200</td>
<td></td>
<td>All of said lot</td>
<td></td>
</tr>
<tr>
<td>206</td>
<td>Mortgage</td>
<td>Oct. 4, 1850</td>
<td>Nov. 14, 1850</td>
<td>David Culp and Abraham Culp</td>
<td>Absalom Shade</td>
<td>200</td>
<td></td>
<td>$1,138 ditto</td>
<td></td>
</tr>
<tr>
<td>424</td>
<td>Deed</td>
<td>Oct. 17, 1851</td>
<td>Nov. 5, 1851</td>
<td>Absalom Shade</td>
<td>Great Western Railroad Company</td>
<td>4 9/25</td>
<td></td>
<td>Part of said lot</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>ditto</td>
<td>Oct. 20, 1852</td>
<td>March 5, 1852</td>
<td>David Culp and wife</td>
<td>ditto</td>
<td>4 9/25</td>
<td></td>
<td>ditto</td>
<td></td>
</tr>
<tr>
<td>156</td>
<td>Release of Mortgage</td>
<td>June 24, 1854</td>
<td>July 11, 1854</td>
<td>Absalom Shade</td>
<td>David Culp</td>
<td></td>
<td></td>
<td>Discharge of No. 206</td>
<td></td>
</tr>
<tr>
<td>389</td>
<td>? B.S.</td>
<td>July 31, 1854</td>
<td>April 25, 1856</td>
<td>David Erastus Culp and wife and Abraham Culp</td>
<td>Hiram Capron</td>
<td>52 1/2</td>
<td></td>
<td>Part of said lot</td>
<td></td>
</tr>
<tr>
<td>522</td>
<td>ditto</td>
<td>Feb. 25, 1857</td>
<td>March 17, 1857</td>
<td>Abraham Culp</td>
<td>David E. Culp</td>
<td>144</td>
<td></td>
<td>ditto</td>
<td></td>
</tr>
<tr>
<td>2611</td>
<td>Will</td>
<td>Aug. 24, 1870</td>
<td>Dec. 31, 1872</td>
<td>Hiram Capron</td>
<td>His Family</td>
<td></td>
<td>ditto and other lands</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2629</td>
<td>Mortgage</td>
<td>Feb. 17, 1873</td>
<td>Feb. 18, 1873</td>
<td>William Capron and wife</td>
<td>Albert Huson</td>
<td></td>
<td>$1,500</td>
<td>Part of the S 1/2 of said lot</td>
<td></td>
</tr>
<tr>
<td>2889</td>
<td>Deed of ?</td>
<td>Jan. 13, 1875</td>
<td>Feb. 2, 1875</td>
<td>William H. Capron</td>
<td>Baufield Capron-?</td>
<td></td>
<td>$1</td>
<td>South part of said lot with other lands</td>
<td></td>
</tr>
<tr>
<td>2974</td>
<td>? B.S.</td>
<td>May 17, 1875</td>
<td>June 19, 1875</td>
<td>Baufield Capron-?</td>
<td>[illegible] Ausebrooks</td>
<td>52 1/2</td>
<td>$1,125</td>
<td>Part of said lot between 1st Conc. Road [illegible]</td>
<td></td>
</tr>
<tr>
<td>6747</td>
<td>Agreement for Sale of Lands</td>
<td>Nov. 11, 1898</td>
<td>Nov. 18, 1898</td>
<td>David E. Culp</td>
<td>Henry James Thomas</td>
<td>144</td>
<td></td>
<td>Said lot excepting there out part lying south of Grand Trunk Co. line</td>
<td></td>
</tr>
<tr>
<td>6791</td>
<td>B.S.</td>
<td>March 4, 1899</td>
<td>March 4, 1899</td>
<td>David Erastus Culp</td>
<td>Henry James Thomas</td>
<td>144</td>
<td></td>
<td>$9,700 Part of said lot lying N of Railway</td>
<td></td>
</tr>
<tr>
<td>6792</td>
<td>Dischard of Mortgage</td>
<td>March 4, 1899</td>
<td>March 4, 1899</td>
<td>Abram Horning</td>
<td>David E. Culp</td>
<td></td>
<td></td>
<td>Discharge of No. 5918 Illegible</td>
<td></td>
</tr>
<tr>
<td>7780</td>
<td>B.S.</td>
<td>Nov. 3, 1906</td>
<td>Dec. 5, 1906</td>
<td>Harry J. Thomas and wife</td>
<td>Mary Q. wife and James Watt</td>
<td>144</td>
<td></td>
<td>$10,000 That part of said lot lying N of Railway</td>
<td></td>
</tr>
<tr>
<td>7782</td>
<td>Dischard of Mortgage</td>
<td>Nov. 30, 1906</td>
<td>Dec. 6, 1906</td>
<td>William Thomas Henderson Trustees</td>
<td>Harry J. Thomas</td>
<td></td>
<td></td>
<td>Discharge of No. 7659</td>
<td></td>
</tr>
</tbody>
</table>
1.3 Archaeological Context

At present there is one registered archaeological site located within one kilometre of the study area (MTCS 2012). This site, Poland 1 (AhHc-80), consisted of a single Brewerton side-notched point discovered in a ploughed field 190 metres east of Grand River Street North. To the best of our knowledge, no previous archaeological assessment has been conducted within 50 metres of the study area. Table 2 provides a general outline of the culture history for Brant County drawn from Ellis and Ferris (1990).

Information concerning specific site locations is protected by provincial policy, and is not fully subject to the Freedom of Information Act. The release of such information in the past has led to looting or various forms of illegally conducted site destruction. Confidentiality extends to all media capable of conveying location, including maps, drawings, or textual descriptions of a site location. For this reason maps and data that provide information on archaeological site locations are provided as supplementary documentation and do not form part of this public report.

The Ministry of Tourism, Culture and Sport will provide information concerning site location to the party or an agent of the party holding title to a property, or to a licensed archaeologist with relevant cultural resource management interests.

Table 2: Cultural Chronology for Brant County

<table>
<thead>
<tr>
<th>Period</th>
<th>Characteristics</th>
<th>Time</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early Palaeo-Indian</td>
<td>Fluted Projectiles</td>
<td>9000-8400 B.C.</td>
<td>spruce parkland/caribou hunters</td>
</tr>
<tr>
<td>Late Palaeo-Indian</td>
<td>Hi-Lo Projectiles</td>
<td>8400-8000 B.C.</td>
<td>smaller but more numerous sites</td>
</tr>
<tr>
<td>Early Archaic</td>
<td>Kirk and Bifurcate Base Points</td>
<td>8000-6000 B.C.</td>
<td>slow population growth</td>
</tr>
<tr>
<td>Middle Archaic</td>
<td>Brewerton-like Points</td>
<td>6000-2500 B.C.</td>
<td>environment similar to present</td>
</tr>
<tr>
<td>Late Archaic</td>
<td>Narrow Point</td>
<td>2000-1800 B.C.</td>
<td>increasing site size</td>
</tr>
<tr>
<td></td>
<td>Broad Point</td>
<td>1800-1500 B.C.</td>
<td>large chipped lithic tools</td>
</tr>
<tr>
<td></td>
<td>Small Point</td>
<td>1500-1100 B.C.</td>
<td>introduction of bow hunting</td>
</tr>
<tr>
<td>Terminal Archaic</td>
<td>Hind Points</td>
<td>1100-950 B.C.</td>
<td>emergence of true cemeteries</td>
</tr>
<tr>
<td>Early Woodland</td>
<td>Meadowood Points</td>
<td>950-400 B.C.</td>
<td>introduction of pottery</td>
</tr>
<tr>
<td>Middle Woodland</td>
<td>Dentate/Pseudo-Scallop Pottery</td>
<td>400 B.C.-A.D. 500</td>
<td>increased sedentism</td>
</tr>
<tr>
<td></td>
<td>Princess Point</td>
<td>A.D. 550-900</td>
<td>introduction of corn</td>
</tr>
<tr>
<td>Late Woodland</td>
<td>Early Ontario Iroquoian</td>
<td>A.D. 900-1300</td>
<td>emergence of agricultural villages</td>
</tr>
<tr>
<td></td>
<td>Middle Ontario Iroquoian</td>
<td>A.D. 1300-1400</td>
<td>long longhouses (100m +)</td>
</tr>
<tr>
<td></td>
<td>Late Ontario Iroquoian</td>
<td>A.D.1400-1650</td>
<td>tribal warfare and displacement</td>
</tr>
<tr>
<td>Contact Aboriginal</td>
<td>Various Algonquian Groups</td>
<td>A.D. 1700-1875</td>
<td>early written records and treaties</td>
</tr>
<tr>
<td>Historic</td>
<td>French/Euro-Canadian</td>
<td>A.D. 1749-present</td>
<td>European settlement</td>
</tr>
</tbody>
</table>
1.3.1 The Natural Environment

The Dufferin Aggregates Paris Pit study area is situated within the Waterloo Hills physiographic region (Chapman and Putnam 1984:136-137).

The Waterloo hills region occupies about 300 square miles or 192,000 acres, lying chiefly in the Regional Municipality of Waterloo…The surface is composed of sandy hills, some of them being ridges of sandy till while others are kames or kame moraines, with outwash sands occupying the intervening hollows….Adjoining the hilly region is an extensive area of alluvial terraces of the Grand River spillway system which, although more nearly horizontal, contains similar but more uniform sandy and gravelly materials….The original forest consisted of splendid pines and hardwoods such as sugar maple, beech, wild cherry, and red oak.

Chapman and Putnam 1984:136

The topography of the study area is gently sloping and the soils are comprised of the well-drained Burford fluvial gravelly sand and gravel soil series. Bedrock deposits in the vicinity date from the Upper to Lower Silurian and consist of the Salina and Guelph formations (Hewitt 1972). The closest potable water sources are a small tributary of the Grand River that is located approximately 300 metres west of the study area, and the Grand River itself, which runs almost 700 metres southeast of the study area (Map 1). There is a pond or poorly drained area directly adjacent to the study area’s southern limits, however, it is not determined if this water source would have been acceptable for drinking.

1.3.2 Previous Archaeological Assessments of the Current Study Area

In the spring of 2012 and fall of 2013, Golder conducted Stage 1 and 2 archaeological assessments of the present study area (Golder 2014; PIF#: P218-244-2012). The Stage 1 assessment determined that areas of archaeological potential retaining archaeological integrity were likely in the study area and that a Stage 2 field assessment involving pedestrian survey at an interval of five metres should be conducted.

The Stage 2 archaeological assessment resulted in the identification of 12 archaeological sites, including nine pre-contact Aboriginal sites and three historic Euro-Canadian sites. Locations 1, 2, 3, 5, 10, 11 and 12 produced small amounts of pre-contact Aboriginal cultural material and, for this reason, their cultural heritage value or interest was judged to be low and no further archaeological assessment was recommended for these sites. Location 7 produced mid- to late 19th century historic Euro-Canadian cultural material at low surface densities and, for this reason, its cultural heritage value or interest was judged to be low and no further archaeological assessment was recommended for these sites.

Locations 4 (AhHc-249), Location 6 (AhHc-254), Location 8 (AHc-250) and Location 9 (AhHc-251) all produced cultural material determined to have cultural heritage value or interest (Golder 2014). A Late Archaic to Middle Woodland slate gorget fragment (broken at one drill hole) was recovered from Location 4 (AhHc-249). Along with a non-diagnostic biface, an Early Archaic Nettling projectile point was recovered from Location 9 (AhHc-251). Both the slate gorget and the Nettling projectile point are examples of artifacts of special interest and have cultural heritage value or interest.
Locations 6 (AhHc-254) and 8 (AhHc-250) both produced significant amounts of mid- to late 19th century cultural material during the Stage 2 assessment; and as a result, these sites were also deemed to have cultural heritage value or interest. Given the cultural heritage value or interest identified at Locations 4 (AhHc-249), Location 6 (AhHc-254), Location 8 (AHc-250) and Location 9 (AhHc-251), all four sites were registered as archaeological sites and recommended for Stage 3 site specific archaeological assessment (Golder 2014:44,45).
2.0 FIELD METHODS

Locations 4 (AhHc-249) and 9 (AhHc-251) were deemed to have cultural heritage value or interest in the Stage 1 and 2 archaeological assessment, and it was recommended that these sites be subjected to Stage 3 site-specific archaeological assessment. The Stage 3 fieldwork for Location 4 (AhHc-249) was conducted on May 27, June 4, 5, and 10, 2014 under Archaeological Consulting License P364 issued to Michael Teal of Golder (PIF#: P364-0061-2014), while the Stage 3 fieldwork for Location 9 (AhHc-251) was conducted on June 4, 5, and 10, 2014 under Archaeological Consulting License P346 issued to Michael Teal of Golder (PIF#: P364-0060-2014). The field work was supervised by Allison Nott (R460) and Rhiannon Fisher (R468).

All Stage 3 archaeological work was conducted in accordance with the 2011 Standards and Guidelines for Consulting Archaeologists (Government of Ontario 2011), and followed the recommendations of Golder’s Stage 1 and 2 archaeological assessment report (Golder 2014).

2.1 Existing Conditions

Locations 4 (AhHc-249) and 9 (AhHc-251) are both located in a cultivated agricultural field south of Watts Pond Road on Part of Lot 27, Concession 2, in the Geographic Township of South Dumfries, Brant County, Ontario. The sites are both located in the Dufferin Aggregates Paris Pit study area. Location 4 (AhHc-249) is situated on the downward slope of small knoll located just north of the site, while Location 9 (AhHc-251) is situated on relatively flat ground on top of a gentle slope.

2.2 Weather, Lighting and Visibility

The weather during the Stage 3 archaeological assessment was variable and is presented in Table 3. At no time were the conditions detrimental to the recognition and recovery of archaeological material; field visibility and lighting conditions were excellent. Photographs of field conditions during the Stage 3 fieldwork are provided in Section 8.0, and photo locations are illustrated on Maps 3 and 4.

Table 3: Weather During the Stage 3 Archaeological Assessment

<table>
<thead>
<tr>
<th>Date</th>
<th>Weather</th>
<th>Site(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>May 27, 2014</td>
<td>Cloudy with intermittent sunny periods</td>
<td>Location 4 (AhHc-249)</td>
</tr>
<tr>
<td>June 4, 2014</td>
<td>Sunny with some cloud cover</td>
<td>Locations 4 (AhHc-249) and 9 (AhHc-251)</td>
</tr>
<tr>
<td>June 5, 2014</td>
<td>Sunny and breezy</td>
<td>Locations 4 (AhHc-249) and 9 (AhHc-251)</td>
</tr>
<tr>
<td>June 10, 2014</td>
<td>Sunny and breezy</td>
<td>Locations 4 (AhHc-249) and 9 (AhHc-251)</td>
</tr>
</tbody>
</table>
2.3 Stage 3 Methodology

Locations 4 (AhHc-249) and 9 (AhHc-251) were relocated from the original Stage 2 assessment data, including field notes, maps, and high accuracy GPS coordinates taken of the positive test units. Permanent datum points were then established on the sites, oriented on magnetic north.

A controlled surface pickup (CSP) was then conducted at Locations 4 (AhHc-249) and 9 (AhHc-251) to establish the boundaries of the sites and to identify existing surface artifacts. At the time of the CSP, both sites were located in recently ploughed and weathered agricultural fields with visibility ranging between 80% and 95% (Images 1 and 6). Surface artifacts were mapped using a Trimble Nomad Global Navigation Satellite System (GNSS) unit with a ProXH high accuracy receiver and catalogued according to their locations. In total, two pieces of chert debitage were recovered from Location 4 (AhHc-249), and one biface fragment was recovered from Location 9 (AhHc-251). No artifacts were left in-situ at either site.

A network of five by five metre grid squares was then established across each site. The grid squares are referred to by the intersection coordinates of their southwest corner. Each five metre unit was further subdivided into 25 one metre units, with sub-square number one located in the southwest corner of the five metre unit, number five in the southeast corner, number six located immediately north of number one, and so on. A series of one metre units within the larger grid were strategically chosen and excavated by hand to test the nature and density of the artifact distributions at the site (Images 2, 3, 7, and 8). Grid squares were placed at five metre intervals according to the Standards and Guidelines for Consultant Archaeologists (Table 3.1, Government of Ontario 2011).

2.3.1 Location 4 (AhHc-249)

The Stage 3 assessment strategy for Location 4 (AhHc-249) was guided by the results of the Stage 2 assessment by Golder (2014) and the Stage 3 CSP, which indicated that the site was a small pre-contact site measuring approximately 10 metre by 10 metres. An isolated chert flake found during the Stage 3 CSP was not included in determining the size of Location 4 (AhHc-249) as it was located over 20 metres away from the other two surface finds and was thus considered an outlier. An intensified survey at one metre intervals around the isolated flake over a 20 metre radius failed to identify any additional artifacts. As it was not clearly evident that Location 4 (AhHc-249) should go to Stage 4 mitigation, the Stage 3 test units were placed at a five metre interval over the two Stage 2 and 3 surface find locations. A total of eight test units were excavated within the initial five meter grid, followed by an additional two infill units to satisfy the requirements outlined in Section 3.2.3, Table 3.1, Standards 1 and 2 of the Standards and Guidelines for Consultant Archaeologists (Government of Ontario 2011). Stage 3 excavations did not expand beyond the original grid as nine of the test units were culturally sterile and one test unit produced only three historic artifacts.

Each one-metre test unit was excavated to a depth of five centimetres into the subsoil, and all soil was screened through six millimetre hardware cloth to facilitate the recovery of small artifacts. The soil stratigraphy at the site included medium brown sandy loam topsoil overlaying orange-yellow sandy loam subsoil.

The subsoil surface of each unit was shovel shined and examined for evidence of subsurface cultural features prior to backfilling (Images 4 and 5). No subsurface cultural features were encountered during the Stage 3 archaeological assessment of Location 4 (AhHc-249); therefore, all test units were backfilled upon completion.
Test units ranged from 29 to 50 centimetres in depth and yielded from zero to two artifacts. All excavated artifacts were recorded with reference to their one metre sub-square unit number and retained for laboratory analysis and description, as per Section 6.0 of the Standards and Guidelines for Consultant Archaeologists (Government of Ontario 2011).

### 2.3.2 Location 9 (AhHc-251)

The Stage 3 assessment strategy for Location 9 (AhHc-251) was guided by the results of the Stage 2 assessment by Golder (2014) and the Stage 3 CSP, which indicated that the site was a small pre-contact site measuring approximately 15 metre by 10 metres (Map 3). As it was not clearly evident that Location 9 (AhHc-251) should go to Stage 4 mitigation, the Stage 3 test units were placed at a five metre interval over the two Stage 2 and 3 surface find locations. A total of ten test units were excavated within the initial five metre grid, followed by an additional two infill units to satisfy the requirements outlined in Section 3.2.3, Table 3.1, Standards 1 and 2 of the Standards and Guidelines for Consultant Archaeologists (Government of Ontario 2011). Stage 3 excavations did not expand beyond the original grid as eleven of the test units were culturally sterile and one test unit produced only two historic artifacts.

Each one metre test unit was excavated to a depth of five centimetres into the subsoil, and the soil from 80% (n=10) of the units excavated was screened through six millimetre hardware cloth to facilitate the recovery of small artifacts. As Location 9 (AhHc-251) is known to have an Early Archaic component (discussed in Section 1.3.2 above), and due to the presence of sandy soils at the site, the soil from the remaining 20% (n=2) of the units excavated was screened through three millimetre hardware cloth, as per Standard 7, Section 3.2.2 of the Ministry of Tourism, Culture and Sport's Standards and Guidelines for Consultant Archaeologists (Government of Ontario 2011). The stratigraphy at the site included medium to dark brown sandy loam topsoil overlaying yellow-orange sandy loam subsoil. The subsoil surface of each unit was shovel shined and examined for evidence of subsurface cultural features prior to backfilling (Images 9 and 10). No subsurface cultural features were encountered during the Stage 3 archaeological assessment of Location 9 (AhHc-251); therefore, all test units were backfilled upon completion.

Test units ranged from 25 to 42 centimetres in depth and yielded from zero to one artifact. All excavated artifacts were recorded with reference to their one metre sub-square unit number and retained for laboratory analysis and description, as per Section 6.0 of the Standards and Guidelines for Consultant Archaeologists (Government of Ontario 2011).

### 2.4 GPS Coordinates

All coordinates and elevations were collected in the UTM NAD 83 (Zone 17) datum using a Trimble Nomad Global Navigation Satellite System (GNSS) unit with a ProXH high accuracy receiver and referenced to the Hamilton base station coordinated within the Cansel network (Can-Net) for base station references. The collected coordinates are provided as a six digit easting with three decimal places, and a seven digit northing with three decimal places. Therefore, each survey observation can be considered a permanent and known datum point regardless of any future disturbance to the location of each observation.
The ProXH high accuracy GPS receiver has built in Wide-Area Augmentation System (WAAS) and European Geostationary Navigation Overlay Service (EGNOS) capability and supports a wide range of satellite signals, including GPS L1C/A/L2C/L2E, GLONASS L1C/A/L1P/L2C/A/L2P. The GNSS receiver is a dual frequency differential GPS (DGPS) capable of real time kinematic (RTK) corrections within the Can-Net Virtual Reference Station (VRS) network. The collected coordinates provide real time accuracy between 30 centimetres and 60 centimetres.

Relevant UTM coordinates for both locations are presented in the Supplementary Documentation, separate from this report. The Supplementary Documentation also contains a Tile showing the specific site locations.
3.0 RECORD OF FINDS

The Stage 3 excavations at Locations 4 (AhHc-249) and 9 (AhHc-251) were conducted employing the methods outlined in Section 2.0 of this report. Sections 3.1 and 3.2 provide a description of the location and the artifacts recovered, while Maps 3 and 4 show the location and distribution of the test units, as well as the UTM coordinate reference markers (datum stakes) for the site. The UTM coordinates for the datum stakes themselves are listed in the Supplementary Documentation that accompanies this report separately.

An inventory of the documentary record generated by the fieldwork at Location 4 (AhHc-249) is provided in Table 4, and a complete catalogue of all artifacts recovered during the Stage 3 assessment is provided in Table 6.

An inventory of the documentary record generated by the fieldwork at Location 9 (AhHc-251) is provided in Table 5, and a complete catalogue of all artifacts recovered during the Stage 3 assessment is provided in Table 7.

Material culture recovered from the Stage 3 assessments of Locations 4 (AhHc-249) and 9 (AhHc-251) has been washed, catalogued, and analyzed, and will be temporarily stored in one banker’s box, measuring 40.0 x 31.5 x 25.0 centimetres, at Golder’s London office until formal arrangements are made for their transfer to a Ministry of Tourism, Culture, and Sport collections facility.

Table 4: Inventory of Documentary Record at Location 4 (AhHc-249)

<table>
<thead>
<tr>
<th>Document Type</th>
<th>Current Location of Document</th>
<th>Additional Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Field Notes</td>
<td>Golder office in London</td>
<td>14 pages in original field book and photocopied in project file</td>
</tr>
<tr>
<td>Hand Drawn Maps</td>
<td>Golder office in London</td>
<td>1 map in original field book and photocopied in project file</td>
</tr>
<tr>
<td>Maps Provided by Client</td>
<td>Golder office in London</td>
<td>1 map stored in project file</td>
</tr>
<tr>
<td>Digital Photographs</td>
<td>Golder office in London</td>
<td>15 photos stored digitally in project file</td>
</tr>
</tbody>
</table>

Table 5: Inventory of Documentary Record at Location 9 (AhHc-251)

<table>
<thead>
<tr>
<th>Document Type</th>
<th>Current Location of Document</th>
<th>Additional Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Field Notes</td>
<td>Golder office in London</td>
<td>11 pages in original field book and photocopied in project file</td>
</tr>
<tr>
<td>Hand Drawn Maps</td>
<td>Golder office in London</td>
<td>2 map in original field book and photocopied in project file</td>
</tr>
<tr>
<td>Maps Provided by Client</td>
<td>Golder office in London</td>
<td>1 map stored in project file</td>
</tr>
<tr>
<td>Digital Photographs</td>
<td>Golder office in London</td>
<td>24 photos stored digitally in project file</td>
</tr>
</tbody>
</table>

For a list of terms and definitions regarding the pre-contact Aboriginal cultural material discussed in the present report, see Appendix A.
3.1 Location 4 (AhHc-249)

The Stage 3 archaeological assessment of Location 4 (AhHc-249) resulted in the recovery of five artifacts, including two pre-contact Aboriginal artifacts recovered during the CSP and three historic Euro-Canadian artifacts recovered during the test unit excavation.

The pre-contact Aboriginal portion of the artifact assemblage consisted entirely of lithic debitage (one secondary flake and one tertiary flake) manufactured on Onondaga chert (Image 11). Lithic debitage is the waste material created during the production of chipped stone tools and is the most frequently encountered type of pre-contact Aboriginal cultural material.

The secondary flake was recovered from the periphery of Location 4 (AhHc-249), more than 20 metres southeast of the location of the slate gorget identified during the Stage 2 assessment; thus, this artifact was considered an outlier. No further artifacts were identified around the isolated flake despite intensifying pedestrian survey at one metre intervals over a 20 metres radius around the find.

The historic Euro-Canadian portion of the artifact assemblage consisted of three pieces of plain or undecorated refined white earthenware, including one basal plate fragment and two indeterminate fragments (Image 11). Refined white earthenware is slightly porous, white-pasted earthenware with a near colourless glaze that replaced earlier near white ceramics, such as pearlware and creamware, by the early 1830s. The use of refined white earthenware continued throughout the 19th century, and is still used today, but its popularity began to decline by the 1840s with the introduction of ironstone and vitrified white earthenware (Adams et al 1994; Miller 2000:10, 13).

Since only two pre-contact Aboriginal artifacts were identified during the Stage 3 archaeological assessment of Location 4 (AhHc-249), it is not possible to comment on the artifact patterning or spatial distribution of this site. No subsurface cultural features were encountered during the Stage 3 archaeological assessment of Location 4 (AhHc-249). Table 6 below provides Golder’s Stage 3 artifact catalogue for Location 4 (AhHc-249).
Table 6: Location 4 (AhHc-249) Complete Stage 3 Artifact Catalogue

<table>
<thead>
<tr>
<th>Cat. #</th>
<th>Easting</th>
<th>Northing</th>
<th>Sub-unit</th>
<th>Depth (cm)</th>
<th>Artifact Group</th>
<th>Material Class 1</th>
<th>Material Class 2</th>
<th>Portion</th>
<th>Object &amp; Function</th>
<th>Freq</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>CSP 1</td>
<td>surface</td>
<td></td>
<td></td>
<td>pre-contact</td>
<td>secondary flake</td>
<td>Onondaga</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>CSP 3</td>
<td>surface</td>
<td></td>
<td></td>
<td>pre-contact</td>
<td>tertiary flake</td>
<td>Onondaga</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>295</td>
<td>505</td>
<td>1</td>
<td>39</td>
<td>ceramic tableware</td>
<td>refined white earthenware</td>
<td>base</td>
<td>flatware, plate</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>295</td>
<td>505</td>
<td>1</td>
<td>39</td>
<td>ceramic tableware</td>
<td>refined white earthenware</td>
<td>indeterminate</td>
<td></td>
<td>2</td>
<td>fragments</td>
<td></td>
</tr>
</tbody>
</table>
3.2 Location 9 (AhHc-251)

The Stage 3 archaeological assessment of Location 9 (AhHc-251) resulted in the recovery of two artifacts, including one pre-contact Aboriginal artifact recovered during the CSP and one historic Euro-Canadian artifact recovered during the test unit excavation.

The single pre-contact Aboriginal artifact recovered from Location 9 (AhHc-251) was a proximal fragment of a biface manufactured on Onondaga chert, which exhibited evidence of retouching along both lateral edges (Image 12). Based on Fisher’s (1997:25-29) definitions of biface reduction stages (see Appendix A – Glossary of Terms and Definitions), this artifact can be classified as a Stage 4 biface.

The single historic Euro-Canadian artifact recovered during the Stage 3 assessment of Location 9 (AhHc-251) was a window glass fragment (Image 12).

Since only a single pre-contact Aboriginal artifact was identified during the Stage 3 archaeological assessment of Location 9 (AhHc-251), it is not possible to comment on the artifact patterning or spatial distribution of this site. No subsurface cultural features were encountered during the Stage 3 archaeological assessment of Location 9 (AhHc-251). Table 7 below provides Golder’s Stage 3 artifact catalogue for Location 9 (AhHc-251).

Table 7: Location 9 (AhHc-251) Complete Stage 3 Artifact Catalogue.

<table>
<thead>
<tr>
<th>Cat. #</th>
<th>Easting</th>
<th>Northing</th>
<th>Sub-unit</th>
<th>Depth (cm)</th>
<th>Artifact Group</th>
<th>Material Class 1</th>
<th>Material Class 2</th>
<th>Portion</th>
<th>Freq.</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>CSP 2</td>
<td>surface</td>
<td>surface</td>
<td>30</td>
<td>pre-contact</td>
<td>biface</td>
<td>Onondaga</td>
<td>proximal</td>
<td>1</td>
<td>fragment; retouching along both lateral edges; L: 2.1cm, W: 2.1cm, T: 0.4cm</td>
</tr>
<tr>
<td>4</td>
<td>300</td>
<td>510</td>
<td>1</td>
<td>30</td>
<td>structural</td>
<td>glass</td>
<td>window</td>
<td></td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>
4.0 ANALYSIS AND CONCLUSIONS

4.1 Location 4 (AhHc-249)

The Stage 3 archaeological assessment of Location 4 (AhHc-249) resulted in the recovery of five artifacts, including two pieces of pre-contact Aboriginal lithic debitage, and three pieces of historic Euro-Canadian refined white earthenware. No subsurface cultural features, diagnostic artifacts, pre-contact Aboriginal ceramics, or fire cracked rocks were identified during the Stage 3 assessment of Location 4 (AhHc-249).

Based on the combined results of the Stage 2 and 3 assessments, the pre-contact Aboriginal component at Location 4 (AhHc-249) consists of a single slate gorget fragment and two Onondaga chert flakes. This small amount of material was all visually identified on the surface of the ground and widely dispersed. One flake was approximately four metres north of the gorget fragment, while the other was over 20 metres southeast. Given these findings, Location 4 (AhHc-249) is likely the result of transient loss sometime between the Late Archaic and Middle Woodland Periods (1,100 B.C. to A.D. 800).

The small quantity (n=2) of pre-contact Aboriginal material recovered at Location 4 (AhHc-249) during the Stage 3 assessment, combined with the absence of ceramics, subsurface cultural features, or additional diagnostic artifacts indicates that this component of the site has no further cultural heritage value or interest, as per Section 3.4.1 of the MTCS’s Standards and Guidelines for Consultant Archaeologists (Government of Ontario 2011).

In order to effectively engage with Aboriginal communities, the results of the Stage 3 archaeological assessment of Location 4 (AhHc-249) were presented to interested groups along with a request for input regarding the cultural heritage value of the site (see Supplementary Documentation for further details). However, as of July 31, 2014, input regarding the cultural heritage value or interest of Locations 4 (AhHc-249) has not been received.

In addition to the pre-contact Aboriginal material, the Stage 3 archaeological assessment of Location 4 (AhHc-249) yielded three historic Euro-Canadian artifacts from a single test unit. This portion of the artifact assemblage consisted entirely of mid-19th to 20th century refined white earthenware ceramic fragments. Based on the artifacts present in the assemblage, the historic Euro-Canadian component identified at the site appears to be consistent with incidental domestic refuse, likely related to the Culp family’s occupation of the northern portion of the study area during the 19th century.

The historic Euro-Canadian component at Location 4 (AhHc-249) exhibits no cultural heritage value or interest given that it does not meet the pre-1870 criterion identified in Section 3.4.2, Standard 1a of the Standards and Guidelines for Consultant Archaeologists (Government of Ontario 2011) triggering the need for Stage 4 mitigation.

4.2 Location 9 (AhHc-251)

The Stage 3 archaeological assessment of Location 9 (AhHc-251) resulted in the recovery of two artifacts, including one pre-contact Aboriginal biface fragment and one piece of historic Euro-Canadian window glass. No subsurface cultural features, diagnostic artifacts, pre-contact Aboriginal ceramics, or fire cracked rocks were identified during the Stage 3 assessment of Location 9 (AhHc-251).
Based on the combined results of the Stage 2 and 3 assessments, the pre-contact Aboriginal component at Location 9 (AhHc-251) consists of one Early Archaic projectile point, one non-diagnostic biface fragment, and one chert flake. This small amount of material was recovered from the surface of the site over a linear distance of approximately 15 metres. No additional pre-contact Aboriginal material was recovered during Stage 3 test unit excavations.

Based on these findings, Location 9 (AhHc-251) likely represents a very ephemeral use of the area during the Early Archaic Period (ca. 8,000 and 7,500 B.C.) (Fox 1980; see also Ellis et al. 1990; Ellis et al. 2009) perhaps associated with hunting activities or a very briefly occupied camp. The overall lack of lithic debitage at this site suggests that tool manufacture and/or maintenance did not likely occur here.

An occupation during the Early Archaic Period is represented at Location 9 (AhHc-251) by the recovery of a Nettling projectile point during the Stage 2 archaeological assessment. This period is characterized by the probable use of spear throwers and a likely increase in population over the late Paleo Period (Ellis, Timmins and Martelle 2009:800). A greater use of more locally available tool stone and more expedient flaked stone tools is also in evidence (Ellis, Timmins and Martelle 2009:799-800). Given the low number of finds from Location 9 (AhHc-251), an assessment of the use of local stone cannot be made. Populations may have been increasing in size through this period with people staying longer at particular habitation locations, as for example at the Nettling type site (AdHj-1) (Ellis, Timmins and Martelle 2009:798, 800); this is not consistent with the size of Location 9 (AhHc-251), which appears to be better characterized as a very ephemeral use of the area during the Early Archaic.

The small quantity (n=2) of pre-contact Aboriginal material recovered during the Stage 3 assessment of Location 9 (AhHc-251), combined with the absence of ceramics, subsurface cultural features, or additional diagnostic artifacts indicates that this component of the site has no further cultural heritage value or interest, as per Section 3.4.1 of the MTCS’s Standards and Guidelines for Consultant Archaeologists (Government of Ontario 2011).

In order to effectively engage with Aboriginal communities, the results of the Stage 3 archaeological assessment of Location 9 (AhHc-251) were presented to interested groups along with a request for input regarding the cultural heritage value of the site (see Supplementary Documentation for further details). However as of July 31, 2014 input regarding the cultural heritage value or interest of Locations 4 (AhHc-249) has not been received.

The single piece of historic Euro-Canadian window glass identified at the site appears to be consistent with incidental domestic refuse, likely related to the Culp family’s occupation of the northern portion of the study area during the 19th century.

The historic Euro-Canadian component at Location 9 (AhHc-251) exhibits no cultural heritage value or interest given that it does not meet the pre-1870 criterion identified in Section 3.4.2, Standard 1a of the Standards and Guidelines for Consultant Archaeologists (Government of Ontario 2011) triggering the need for Stage 4 mitigation.
5.0 RECOMMENDATIONS

Based on the Stage 3 archaeological assessments that were conducted at Locations 4 (AhHc-249) and 9 (AhHc-251) within the Dufferin Aggregates Paris Pit study area it is concluded that:

1) The pre-contact Aboriginal components at Locations 4 (AhHc-249) and 9 (AhHc-251) have no further cultural heritage value or interest and no further archaeological assessments are required.

2) The historic Euro-Canadian components at Locations 4 (AhHc-249) and 9 (AhHc-251) have no cultural heritage value or interest and no further archaeological assessments are required.

Given these findings the following recommendations are made below:

1) The cultural heritage value or interest of Location 4 (AhHc-249) has been sufficiently assessed and documented, the site may be considered free of further archaeological concern, and Stage 4 mitigation of impacts is not required.

2) The cultural heritage value or interest of Location 9 (AhHc-251) has been sufficiently assessed and documented, the site may be considered free of further archaeological concern, and Stage 4 mitigation of impacts is not required.
6.0 ADVICE ON COMPLIANCE WITH LEGISLATION

This report is submitted to the Minister of Tourism and Culture as a condition of licensing in accordance with Part VI of the Ontario Heritage Act, R.S.O. 1990, c 0.18 (Government of Ontario 1990b). The report is reviewed to ensure that it complies with the standards and guidelines that are issued by the Minister, and that the archaeological fieldwork and report recommendations ensure the conservation, protection and preservation of the cultural heritage of Ontario. When all matters relating to archaeological sites within the project area of a development proposal have been addressed to the satisfaction of the Ministry of Tourism and Culture, a letter will be issued by the ministry stating that there are no further concerns with regards to alterations to archaeological sites by the proposed development.

It is an offence under Section 48 and 69 of the Ontario Heritage Act for any party other than a licensed archaeologist to make any alterations to a known archaeological site or to remove any artifact or other physical evidence of past human use or activity from the site, until such time as a licensed archaeologist has completed archaeological fieldwork on the site, submitted a report to the Minister stating that the site has no further cultural heritage value or interest, and the report has been filed in the Ontario Public Register of Archaeological reports referred to in Section 65.1 of the Ontario Heritage Act (Government of Ontario 1990b).

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 (Government of Ontario 1990b).

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

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Page & Smith

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Thwaited, Reuben Gold (ed)


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8.0 IMAGES

8.1 Location 4 (AhHc-249) Photos

Image 1: Stage 3 archaeological assessment, Location 4 (AhHc-249), field conditions, controlled surface pickup in progress, facing south, June 4, 2014.

Image 2: Stage 3 archaeological assessment, Location 4 (AhHc-249), field conditions, test unit excavation in progress, facing north, June 10, 2014.
STAGE 3 ARCHAEOLOGICAL ASSESSMENT
DUFFERIN AGGREGATES PARIS PIT, LOCATIONS 4 AND 9
(AhHc-249 and AhHc-251)

Image 3: Stage 3 archaeological assessment, Location 4 (AhHc-249), field conditions, test unit excavation in progress, facing southwest, June 10, 2014.

Image 4: Stage 3 archaeological assessment, Location 4 (AhHc-249), unit 300E 510N:1 complete, facing north, June 10, 2014.
8.2 Location 9 (AhHc-251) Photos

Image 6: Stage 3 archaeological assessment, Location 9 (AhHc-251), field conditions, controlled surface pickup in progress, facing south, June 4, 2014.
Image 7: Stage 3 archaeological assessment, Location 9 (AhHc-251), field conditions, test unit excavation in progress, facing east, June 4, 2014.

Image 8: Stage 3 archaeological assessment, Location 9 (AhHc-251), field conditions, test unit excavation in progress, facing northeast, June 10, 2014.
STAGE 3 ARCHAEOLOGICAL ASSESSMENT
DUFFERIN AGGREGATES PARIS PIT, LOCATIONS 4 AND 9
(AhHc-249 and AhHc-251)

Image 9: Stage 3 archaeological assessment, Location 9 (AhHc-251), unit 300E 500N:1 complete, facing north, June 4, 2014.

Image 10: Stage 3 archaeological assessment, Location 9 (AhHc-251), unit 305E 505N:1 complete, facing west, June 10, 2014.
8.3 Location 4 (AhHc-249) Artifact Scans

Image 11: Lithic debitage and refined white earthenware recovered at Location 4 (AhHc-249).

8.4 Location 9 (AhHc-251) Artifact Scans

Image 12: Biface and window glass recovered at Location 9 (AhHc-251).
9.0 MAPS

All maps follow on the succeeding pages.
LEGEND

APPROXIMATE LIMITS OF ASSESSMENT AREA

REFERENCE

DRAWING BASED ON PAGE & SMITH 1875. ILLUSTRATED HISTORICAL ATLAS OF THE COUNTY OF BRANT, ONTARIO. 1973 REPRINT. EDWARD PHELPS, SARNIA.

NOTES

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ACCOMPANYING TEXT.
ALL LOCATIONS ARE APPROXIMATE ONLY.
LOCATION 4 (AhHc-249)

LOCATION 9 (AhHc-251)

LEGEND
- STAGE 3 UNIT
- STAGE 3 UNIT EXCAVATED WITH 3mm MESH
- TOTAL ABORIGINAL ARTIFACT COUNT (WITHIN STAGE 3 UNIT EXCAVATION)
- TOTAL HISTORIC ARTIFACT COUNT (WITHIN STAGE 3 UNIT EXCAVATION)
- SITE DATUM
- PHOTOGRAPH LOCATION, VIEWING DIRECTION, AND PLATE NUMBER
- APPROXIMATE LIMITS OF STUDY AREA
- STAGE 2 SURFACE FIND
- STAGE 3 SURFACE FINDS:
  - BIFACE
  - CHIPPING DETRITUS (COLLECTED)

REFERENCE
DRAWING BASED ON 2006 ORTHOGRAPHIC PHOTOGRAPHS PROVIDED BY THE GRAND RIVER CONSERVATION AUTHORITY.

NOTES
THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ACCOMPANYING TEXT.
ALL LOCATIONS ARE APPROXIMATE ONLY.

RESULTS OF THE STAGE 3 ARCHAEOLOGICAL ASSESSMENT AT LOCATION 4 (AhHc-249) and LOCATION 9 (AhHc-251)
DUFFERIN AGGREGATES PARIS PIT
SOUTH DUMFRIES TOWNSHIP, BRANT COUNTY, ONTARIO

MAP 3
10.0 IMPORTANT INFORMATION AND LIMITATIONS OF THIS REPORT

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

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

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

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

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

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

GOLDER ASSOCIATES LTD.

Michael Teal, M.A.
Project Archaeologist

Carla Parslow, Ph.D.
Associate, Senior Archaeologist

SS/MT/CP/slc/ly

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APPENDIX A
Glossary of Terms/Definitions
Chipped lithic tools and debitage were found at the site (or sites) described in this report. Some of the more common chert types found on pre-contact Aboriginal sites in southern Ontario are described below.

**Ancaster chert:** a moderate quality raw material that outcrops from the Lockport Formation near Hamilton. Secondary deposits can be found as far east as Grimsby (Eley and von Bitter 1989).

**Haldimand chert:** a relatively high quality raw material found within the Bois Blanc Formation which underlies the Onondaga Formation in the Onondaga Escarpment between Dunnville and Hagersville (Eley and von Bitter 1989; Fox 2009; Telford and Tarrant 1975).

**Kettle Point chert:** a relatively high quality raw material found within the Upper Devonian age Kettle Point Formation that outcrops between Kettle Point and Ipperwash, on Lake Huron. Currently, Kettle Point occurs as submerged outcrops extending for approximately 1,350 metres into Lake Huron. Secondary deposits of Kettle Point chert have been reported in Essex County and in the Ausable River watershed (Eley and von Bitter 1989; Fox 2009:362).

**Onondaga chert:** a high quality raw material found within the Onondaga Formation that outcrops along the north shore of Lake Erie west of the mouth of the Grand River as far west as Nanticoke, east of the mouth of the Grand River as far east as Fort Erie, and along the Onondaga Escarpment between Cayuga and Hagersville (Telford and Tarrant 1975). This material can also be recovered from secondary, glacial deposits across much of southwestern Ontario, east of Chatham (Eley and von Bitter 1989; Fox 2009:361-362).

**Selkirk chert:** a moderate to relatively high quality raw material that occurs within the Dundee Formation; it outcrops along Sandusk Creek and its tributaries just west of the village of Selkirk (Telford and Tarrant 1975). The chert ranges in colour from mottled or banded grey to a predominantly brown colour, the latter of which being of relatively more vitreous fabric than the former. Its distribution as a secondary source material is similar to Onondaga chert and it is frequently encountered as far west as the Chatham area (Eley and von Bitter 1989; Fox 2009:362).

**Non-chert:** some materials other than chert were occasionally used for the manufacture of chipped tools, and consequently some pieces of non-chert debitage may occur on some sites. Materials in the non-chert category may include quartzite, quartz-like materials, schist and slate or shale.

All chert types discussed herein were identified visually by comparison to reference materials located in Golder’s London offices. The flake assemblage was subject to morphological analysis following the classification scheme described by Lennox et al. (1986) and expanded upon by Fisher (1997), with the exception that no attempt was made to distinguish “primary” from “primary bipolar” flakes.

With reference to the analysis of lithic debitage, the following overview provides descriptions of the various types of cores and debitage commonly found on pre-contact Aboriginal sites.

**Cores:** Pieces of stone (usually chert) from which flakes or blades have been removed. A core may be uni-facetted (flake removed from one surface or edge only) or multi-facetted (flakes removed from two or more surfaces or edges. A core may retain a segment of its exterior, weathered surface.

**Primary Flakes:** are by-products of the initial stages of the reduction of lithic material, they are derived from cores and are generally attributed to direct hard hammer percussion. Primary flakes may exhibit a large cortical striking platform. This platform may appear on an otherwise unmodified flake scar or a crushed flake margin.
Where measureable the striking platform – ventral surface angle is approximately 90 degrees, usually unfacetted and large. Ventral surface attributes are usually well pronounced while the dorsal surface consists of 50-100% cortex, implying little or no modification of the core prior to the removal of the primary flake.

**Secondary Flakes**: are generally large, although smaller and thinner than primary flakes. They have a diffuse bulb of percussion and the striking platform is unfacetted and has an angle of approximately 90 degrees. The dorsal surface has up to 50% cortex present and usually bears the negative attributes of previous primary flake removals or remnants of the cortical chert nodule surface.

**Tertiary Flakes**: usually lack any traces of cortical surface and thus represent an advanced stage in the reduction sequence. They are thought to be the result of shaping and thinning bifaces by percussion or pressure flaking and can be sub-categorized into three classes. For the purpose of license report analysis Golder does not segregate the three subtypes of tertiary flakes.

Initial tertiary flakes are removed after primary and secondary flakes, and are associated with the core reduction process. They typically have little or no cortical surface with dorsal scars that are large and are few in number. Striking platforms are large, unprepared, with angles of approximately 90 degrees.

1) Biface thinning tertiary flakes are smaller and much thinner than initial flakes, being produced in the thinning and shaping stage of biface manufacture. Platforms range from small and multi-facetted to large and “pseudo” facetted and surfaces can be prepared by grinding. The platform angle is acute, usually ranging from 40 to 65 degrees and can form a ventrally overhanging lip.

2) Biface retouch tertiary flakes include small retouch flakes produced by manufacture and rejuvenation of a biface. They have an acute platform angle, usually an abraded platform, an overhanging lip and a diffuse or undetectable bulb of force. These flakes are small and generally only recovered from flotation samples.

*Note: faceting is thought to be the result of the flint-knapper attempting to provide a striking angle or thicker pre-form edge suitable for the detachment of the flake (Ellis 1979:48).

**Shatter**: usually consists of thick, blocky pieces of chert which lack striking platforms and ventral flake surface attributes. This category of debitage is thought to be a by-product of the initial stages of reduction through the uncontrolled breakage of the raw material along structural faults or irregularities. They commonly result from the use of horizontally and vertically flawed material, these flaws apparently a result of stresses occurring to the material while still within its primary deposit. A relatively high incidence of shatter is usually associated with the bipolar reduction strategy.

**Broken**: While proximal flake fragments can usually be assigned to one of the above categories, distal flake fragments (pieces that are broken or snapped) are simply tabulated under the debitage class of broken flake.

**Micro flake**: Very small broken flakes are classed as micro flakes, less than 3mm in size. These flakes are small and generally only recovered from floatation samples.

The following glossary defines some of the terms for some of the formal and informal chipped lithic tools from the sites discussed in this report. All of the definitions are derived from a reputable online sources such as www.archaeologywordsmith.com and www.wvculture.org/shpo/glossary.html.

**Artifact**: “any object made, modified or used by people”.

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Biface: “a stone tool which has been flaked on both surfaces or sides”; frequently made as roughed-out blanks or preforms intended for further reduction into finished tools such as projectile points or knives.

Burin: “from the French word burin, meaning cold chisel. A specialized engraving tool … that is cut or ground [or flaked] diagonally downward to form a diamond-shaped point at the tip… In its most characteristic form, the working tip is a narrow transverse edge formed by the intersection of two flake scars produced by striking at an angle to the main axis of the blade… Burins were used to carve or engrave softer organic materials such as antler, bone… or wood”.

Debitage: “the by-products or waste materials left over from the manufacture of stone tools”.

Diagnostic artifact: “an item that is indicative of a particular time period or cultural group”.

Drill: “a tool used to drill holes through or into wood, stone or bone”.

Graver: “a stone tool manufactured from a flake by chipping (pressure-flaking) it on two edges at one end so as to leave a sharp point. Gravers were used to cut or score organic materials such as bone, shell, wood and antler; perhaps for punching leather, and other purposes”.

Lithic: “stone, or made of stone”.

Knife: a purposefully formed cutting tool.

Perforator: “a flint [chert] tool for piercing holes”, or, “a small chipped stone implement with a rather long and slender point and usually a broad base, supposed to have been used for drilling or boring holes”. Perforators are sometimes referred to as borers.

Projectile point: “a general term for points [usually stone] that were hafted to darts, spears or arrows”; commonly referred to as either spearhead or arrowhead.

Retouched flake: “a flake that has had small flakes removed to blunt, sharpen, refine the outline or prepare the edge of the tool”.

Scraper: a stone tool formed by chipping [flaking] the end or side of a flake which can then be used to scrape animal hides or wood.

Spokeshave: “a stone tool with a semi-circular concavity on the edge, used for smoothing spear or arrow shafts; a drawknife or small transverse plane for planning convex surfaces”.

Utilized flake: “a piece of stone debitage that is used for cutting or slicing. The edge may be damaged from use, but not deliberately”.

Wedge: “an object used to split, force open or keep open another object; a tool used to split wood”.
Stages of Reduction for Chert Bifaces (based on Fisher 1997:25-29)

There have been several different approaches to the definition of the stages of biface reduction, in both Eurasia (Andrefsky 2005:32) and North America (i.e. Callahan 1979: 30-31). Many Ontario-based researchers have adopted the classification scheme used by Fisher (1997: 25-29), which was based largely on Callahan (1979: 30-31). Fisher’s definitions of Stage 1 (initial) through Stage 4 (final) bifaces take into consideration characteristics such as number and size of flakes removed, length and depth of flake scars, cross-section, length-width ratio, and edge configuration.

Stage 1: During this initial stage of biface reduction specimens are only roughly shaped. The biface cross-section is hexagonal, irregular to thick lenticular, and is not plano-convex at all (Callahan 1979:36). Biface thinning flake scars are deep, large and generally do not cross half of the biface width, leaving remnants of the original material surface. From a lateral view, the edge of the biface is jagged and highly irregular.

Stage 2: At this stage the biface is still relatively thick compared to its width, with more lateral flake removals crossing over half the biface width, leaving less of the original surface present. As well, thinning flakes are more numerous and smaller. The edge of the biface is still irregular, but less jagged.

Stage 3: This stage of reduction produces a biface with a lenticular cross-section, thinning flakes are shallow and are consistently greater than half the biface width. Also, there is a greater regularity to the edge, and bases may be formed, if only incipiently, on some specimens.

Stage 4: Stage 4 is represented by an almost finished projectile point with a relatively high width to thickness ratio, a relatively regular or even edge, some retouch, and a shaped base. Some items classed as Stage 4 specimens may have been finished projectile points. However, they are not as finely crafted as the definitive finished projectile points, perhaps due to material or knapping flaws, or skills of knappers.
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