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STAGE 1 ARCHAEOLOGICAL ASSESSMENT OF CHILDS PIT/QUARRY EXPANSION, CONCESSION 9 PART LOTS 14-16 & CONCESSION 10 LOTS 15-16 MACAULAY TWP. (GEO), MUSKOKA DISTRICT, TOWN OF BRACEBRIDGE

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STAGE 1 ARCHAEOLOGICAL ASSESSMENT OF CHILDS PIT/QUARRY EXPANSION, CONCESSION 9 PART LOTS 14-16 & CONCESSION 10 LOTS 15-16 MACAULAY TWP. (GEO), MUSKOKA DISTRICT, TOWN OF BRACEBRIDGE

In March 2012 the Fowler Construction Company Ltd., of Bracebridge, contracted Kinickinick Heritage Consulting, to prepare a Stage 1 archaeological assessment, according to the *Standards and Guidelines for Consultant Archaeologists* of a parcel of land in Bracebridge where an expansion to an existing pit/quarry is planned. The expansion area is located between the Muskoka River and the Bonnie Lake Road, about 10 km from the town of Bracebridge. The proposed expansion area is approximately 150 ha and borders the licensed operation.

The objective of a Stage 1 archaeological assessment is to provide background information about the development property's geography, history, land use, previous archaeological fieldwork, and current condition. These data are used to evaluate archaeological potential to determine if Stage 2 assessment is warranted for all, or part, of the expansion zone. Where Stage 2 assessment is warranted, the report recommends appropriate Stage 2 survey strategies.

Muskoka District, in which the study area lies, is underlain by the Pre-Cambrian igneous rock of the Canadian Shield. Although there are some glacio-lacustrine deposits and a thin veneer of glacial drift, the terrain is essentially "bedrock driven" and in most places it is difficult, rugged, country to traverse.

Muskoka District was made available for settlement in the 1860s and a number of settlers took up land in the proposed expansion areas. Many of these were still present in the 1880s when Belden's *Historical Atlas of Muskoka District* was prepared. The expansion area was settled by: J. Clerihue, in Lot 14 Concession 9; J. Smith in Lots 15 & 16 Concession 10; Charles Pickerel in Lot 15 Concession 9; and E. Neff in Lot 16 Concession 9. Aerial photographs HA333-91taken in 1929, shows that some of the land in the expansion areas was partly cleared pasture. The 1929 imagery does not show an open road allowance between lots 15 & 16 Concessions 9, however there may have been tracks or paths along these transects that were used by the settlers in the historical period to access their lots.

The period of maximum extent of Lake Algonquin, during the Kirkfield Outlet Phase, 11,200 BP, and the subsequent Main Lake Algonquin Phase, during the Fenelon Falls Outlet about 10,800 BP, corresponds with the Palaeo-Indian period throughout the Great Lakes Basin. The maximum extent of Kirkfield Phase Lake Algonquin in Bracebridge has been pegged at 293 m asl and, based on the projections compiled by the Geological Survey of Canada, it is reasonable to assume that there was a lower relic shoreline at 287 m asl during the Fenelon Falls Outlet Phase.

Areas of archaeological potential exist in a 150 m buffer around primary areas of archaeological interest and for 50 m around secondary areas of archaeological interest. There are a number of areas of archaeological in each of the expansion areas, which are illustrated in Figure 8.

The areas of archaeological potential shown in Figure 8 should be subjected to Stage 2 archaeological assessment to determine if archaeological material is present or not. The high potential areas, indicated by red and black bands in Figure 8, should be test pitted at 5 m intervals, while the areas of moderate pre-contact and historical potential, indicated by the yellow and orange bands should be test pitted at 10 m intervals. The field director should use discretion and employ "cluster testing" where it improves test pit density, while maintain a regular transect grid as best as possible.

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1.0 Development Context

In March 2012 the Fowler Construction Company Ltd., of Bracebridge, contracted Ken Swayze, of Kinickinick Heritage Consulting, to prepare a Stage 1 archaeological assessment, according to the *Standards and Guidelines for Consultant Archaeologists* (OMCT&S 2011) of a parcel of land in Bracebridge (Figures 1 and 3) where an expansion to an existing pit/quarry is planned (Figure 2). The *Aggregate Act* triggered this study. The expansion area is located between the Muskoka River and the Bonnie Lake Road, about 10 km from the town of Bracebridge (Figure 4). The proposed expansion area is approximately 150 ha and borders the licensed operation on the north and west sides.

The objective of a Stage 1 archaeological assessment is to provide background information about the development property's geography, history, land use, previous archaeological fieldwork, and current condition. These data are used to evaluate archaeological potential to determine if Stage 2 assessment is warranted for all, or part, of the expansion zone. Where Stage 2 assessment is warranted, the report recommends appropriate Stage 2 survey procedures.

Muskoka District, in which the study area lies, is underlain by the Pre-Cambrian igneous rock of the Canadian Shield (Chapman 1975). Although there are some glacio-lacustrine deposits and a thin veneer of glacial drift, the terrain is essentially "bedrock driven" and in most places it is difficult, rugged, country to traverse (Figure 13).

The expansion area is divided in half, north to south, by a road allowance, which serves in Concession 10 as part of the roadway between the excavation floor and the entrance at the Bonnie Lake Road but is unopened in Concession 9. There is a hydro corridor, approximately 1.5 km diagonally across Lot 14 in Concessions 9, which has about 2 ha in area. Sage Creek Valley is the most characteristic feature of the study area terrain. It runs east to west along the southern boundary of the expansion area, from the Bonnie Lake Road almost to the Muskoka River, above a deep ravine valley created by a steep rock escarpment, or fault-line. Sage Creek falls about 30 m, from 295 m asl at the Bonnie Lake Road to 265 m where it leaves lot 14. Overall, the expansion area has over 50 m of relief, from 285 m at the edge of the Sage Creek Valley to 336 m on a hill in Lot 16 Concession 10. The land rises in a series of benches from Sage Creek to the northeast corner and is characterized by bedrock knobs alternating with shallow areas of organic terrain (Figure 10).

In addition to Sage Creek, there are two small inland swamps, one in the middle of Lot 16 Concession 10 at the base of a hill and another in the northwest corner in Lot

15 Concession 10. Elsewhere, there are short intermittent streams that align with the northeast-southwest lineation of the landscape. Those in Concession 9 flow into Sage Creek; while those in Concession 10 run directly into the Muskoka River. The drainage of the expansion area is either excessive, where bedrock is exposed or close to the surface, or slow, where organic terrain occupies depressions in the surface of the bedrock. Where there are pockets of glacio-lacustrine deposits and shallow drift, shallow podzolic soil has developed.

A property inspection was carried out on April 24-25 2012 to help develop an investigation strategy for this large study area. The entire property and its periphery were inspected by means of random spot checks to identify or verify the presence or absence of features of archaeological potential, particularly small pockets that may possess a higher degree of potential than surrounding areas of low potential, such as an area of raised topography in the north end of the property near a now-dry, or intermittent, wetland. The thick re-growth of saplings on this recently logged landform did not make photographic documentation feasible. Another area of slightly elevated terrain, indicated on the contour map about the middle of the property, was not perceived as a noticeable landform during the site visit. Because of the dense vegetation in such areas, photographic documentation was not feasible. To compensate, photographs from the natural History report by Riverstone Environmental Solutions, Inc. (2014) are presented below.

2.0 Historical Context

Muskoka District was made available for settlement in the 1860s and a number of settlers took up land in the proposed expansion area. Many of these were still present in the 1880s when Belden's *Historical Atlas of Muskoka District* (Figure 5) was prepared. The study area was settled by: J. Clerihue, in Lot 14 Concession 9; J. Smith in Lots 15 & 16 Concession 10. Charles Pickerel in Lot 15 Concession 9; and E. Neff in Lot 16 Concession 9 (Figure 5).

Aerial photographs HA333-9 1taken in 1929, shows that the land throughout the expansion area was at that time partly cleared pasture (Figure 6); however, the only homestead visible is in Lot 17 Concession 9, which is outside the area to be licensed.

The 1929 imagery does not show an open road allowance between lots 15 & 16 or between Concessions 8 & 919th century that were used by the settlers to access their lots.

3.0 Archaeological Context

This section considers the known and recorded archaeological sites in the immediate vicinity of the study area as well as previous research and a discussion of the early postglacial period in the Huron-Georgian Bay Basin.

3.1 Known and Recorded Sites in the Vicinity

Charles Borden (1952) designed a site registration system that is used throughout Canada. A “Borden Block” is a co-ordinate system that uses upper and lower case letters and is ten degrees latitude (long) by ten degrees longitude (wide). Canadian archaeologists refer to “Borden Blocks” and “Borden Numbers” and “Bordenize” sites when they register them. Sites within a Borden Block are numbered sequentially.

The study area is in the BgGt Borden Block and, according to the OMCT&S site database, there are no archaeological sites recorded within 1 km of any part of the expansion areas.

3.2 Surficial Geology and Soils

The following account references the dates of geological episodes to cultural time periods in order to underline the effect these processes had upon the relative attractiveness of the property for human use, either for habitation or specific resource exploitation activities. The cultural periods referred to, and their approximate dates before present (BP) are: Palaeo-Indian 11,500-10,000 BP; Early Archaic 10,000-6,000 BP; Middle Archaic 6,000-4,500 BP; Late Archaic 4,500-2,500 BP; Woodland 2,500 BP-1,600 AD and Historic 1600-1900 AD. The consultant refers to a chronological framework established by Chapman 1975; and Lewis and Anderson 1989. Dates are expressed here as either ‘years ago’, or ‘BP’, which means Before Present (the ‘present’ being 1950 AD.)

The most significant and dramatic effect of deglaciation, in the Great Lakes Basin was the creation of long-lived glacial lakes during the late Pleistocene, which rose much higher than the modern day shorelines, and a series of post-glacial lakes that occupied a much smaller part of the modern Huron-Georgian Bay basin. The early high-level lakes occurred because of the great volume of melt-water received annually from great Lake Agassiz that occupied the long-grass prairie. The shallow lakes below modern levels occurred because Lake Aggassiz meltwater was diverted down the Mississippi River for several millennia

The period of maximum extent of Lake Algonquin, during the Kirkfield Outlet Phase, 11,200 BP and the subsequent Main Lake Algonquin Phase (during the Fenelon Falls Outlet about 10,800 BP) corresponds with the Palaeo-Indian period throughout the Great Lakes Basin. During the Fenelon Falls phase, a series of outlet sills in Algonquin Park and the Nipissing-Mattawa Lowlands were breached by Lake Algonquin with the result that the Main Phase was at least six metres lower. The maximum extent of Kirkfield Lake Algonquin in the Bracebridge has been pegged by Chapman (1975) at 293 m asl and, based on the projections compiled by the Geological Survey of Canada (Lewis and Anderson 1989), it is reasonable to assume that there was a lower relic shoreline at 287 m asl during the Fenelon Falls Outlet.

4.0 Analysis and Conclusion

Areas of archaeological potential exist in a 150 m buffer around primary areas of archaeological interest (such as the shorelines of lakes and rivers) and for 50 m around secondary areas of archaeological interest (like the shorelines of streams, wetlands, and intermittent creeks and landforms like lookouts, rock-faces, or sources of suitable rocks for tool manufacture). The areas of archaeological interest in the expansion area are illustrated in Figure 8.

There are two areas of pre-contact archaeological interest based on primary water sources; five based on secondary watercourses; and two based on landforms. In addition, there is potential for historical archaeological material along the unopened road allowance.

The areas of archaeological interest are:

1. The Lake Algonquin Relic Shoreline at 293 m asl, has archaeological potential for 150 m above this elevation. The first 50 m, which is indicated by a red band in Figure 8, has high potential; while from 50-150 m, indicated by a yellow band, the terrain has moderate potential.

2. The west bank of Sage Creek is excluded from the extraction area however a small band still exists in the upper reaches of these creek valleys. These are indicated in yellow in Figure 8.

3. The upper reaches of three Sage Creek Intermittent Stream Tributaries flow into Sage Creek on a seasonal basis. They have high archaeological potential for 50 m on each side however, since there is an environmental buffer for 30 m on each side of the creek, the area of potential, shown in black in Figure 8, is 20 m wide.

4. Two Swamps and an Intermittent Stream are tributaries of the Muskoka River and have high archaeological potential for 50 m on each side of the creek. There are no environmental buffers here because the water bodies will be completely removed (Riverstone 2014). These areas of interest are shown in black in Figure 8.

5. Two Hilltop Lookouts exist on heights of land: one in Lot 16 Concession 10 overlooking a swampy wetland; the other in Lot 15 Concession 9 overlooking Sage Creek and the Lake Algonquin Relic Shore.

6. The unopened road allowance has potential for 19th century archaeological material. Historical archaeological potential is indicated in Figure 8 by a green buffer.

These areas of interest are 23.1 ha, which is 15.4 % of the total expansion area, 12.6% tested at 5 m intervals and 2.7% at 10 m. The remainder of the property, 126.9 ha or 84.6% of the expansion area is low archaeological potential and was not tested.

The *Standards and Guidelines* make provisions for alternate strategies in the assessment of rugged rocky terrain of the Canadian Shield, such as the Childs Quarry/Pit expansion area. In areas where thick root mats occur over bedrock, it may not be feasible to excavate test pits with a shovel; rather, based on professional judgment, it may be more useful to use alternate strategies, provided the rationale for all variation from standards is documented in the Stage 2 report (OMCL 2011:35). In areas where archaeological potential occur on terraces, or patches of sand, the field director should use a "cluster sample" technique, while maintaining a standard survey grid as closely as possible. The provisions in the standards and guidelines allow the project archaeologist to decide that a Stage 2 survey is not required in locales that are (but not limited to): being permanently wet; being exposed bedrock; or characterized by steep slopes (greater than 20 degrees).

5.0 Recommendations

The areas of archaeological potential shown in Figure 8 should be subjected to Stage 2 archaeological assessment to determine if archaeological material is present or not. The high potential areas, indicated by red and black bands in Figure 8, should be test pitted at 5 m intervals, while the areas of moderate pre-contact and historical potential, indicated by the yellow bands in Figure 8, should be test pitted at 10 m intervals. Because of the rugged Canadian Shield terrain, the field director should employ cluster testing to improve test pit density, while at the same time striving to maintain a regular transect grid.

6.0 Advice on Compliance with Legislation

Standards

1. Advice on compliance with legislation is not part of the archaeological record. However, for the benefit of the proponent and approval authority in the land use planning and development process, the report must include the standard statements:

    a. 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, c0.18.The report is reviewed to ensure that it complies with the standards and guidelines that are issued by the Minister, and that the archaeological fieldwork and report recommendations ensure the conservation, protection and preservation of the cultural heritage of Ontario. When all matters relating to archaeological sites within the project area of a development proposal have been addressed to the satisfaction of the Ministry of Tourism and Culture, a letter will be issued

by the ministry stating that there are no further concerns with regard to alterations to archaeological sites by the proposed development.

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

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

d. The *Cemeteries Act,* R.S.O. 1990 c.C.4 and the *Funeral, Burial and Cremation Services Act*, 2002, S.O. 2002,c.33 (when proclaimed in force) require that any person discovering human remains must notify the police or coroner and the Registrar of Cemeteries at the Ministry of Small Business and Consumer Services.

2. Reports recommending further archaeological fieldwork or protection for one or more archaeological sites must include the following standard statement: "Archaeological sites recommended for further archaeological fieldwork or protection remain subject to Section 48(1) of the *Ontario Heritage Act* and may not be altered, or have artifacts removed from them, except by a person holding an archaeological licence."

7.0 References

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1880 *The Historical Atlas of Muskoka District* H. Belden & Co., Toronto.

Borden, Carl
1952 "A Uniform Site Designation Scheme for Canada" *Anthropology in British Columbia* vol. 3:44-48, Victoria.

Chapman, L.J.
1975 "The physiography of the Georgian Bay-Ottawa Valley Area of Southern Ontario" *Geoscience Report* 128, Ontario Division of Mines, Ministry of Natural Resources. Toronto.

Lewis C.F.M. and T.W. Anderson

1989 "Oscillations of levels and cool phases of the Laurentian Great Lakes caused by inflows from glacial Lake Agassiz and Barlow-Ojibway" *Journal of Palaeolimnology* v.2:99-146.

Ontario Ministry of Culture, Tourism and Sport (OMCT&S)
2011 *Standards and Guidelines for Consultant Archaeologists*. Ministry of Culture, Tourism and Sport, Toronto.

Riverstone Environmental Solutions
2014 "Natural Environment Report (Level 1 and Level 2 Assessments) Childs Pit"

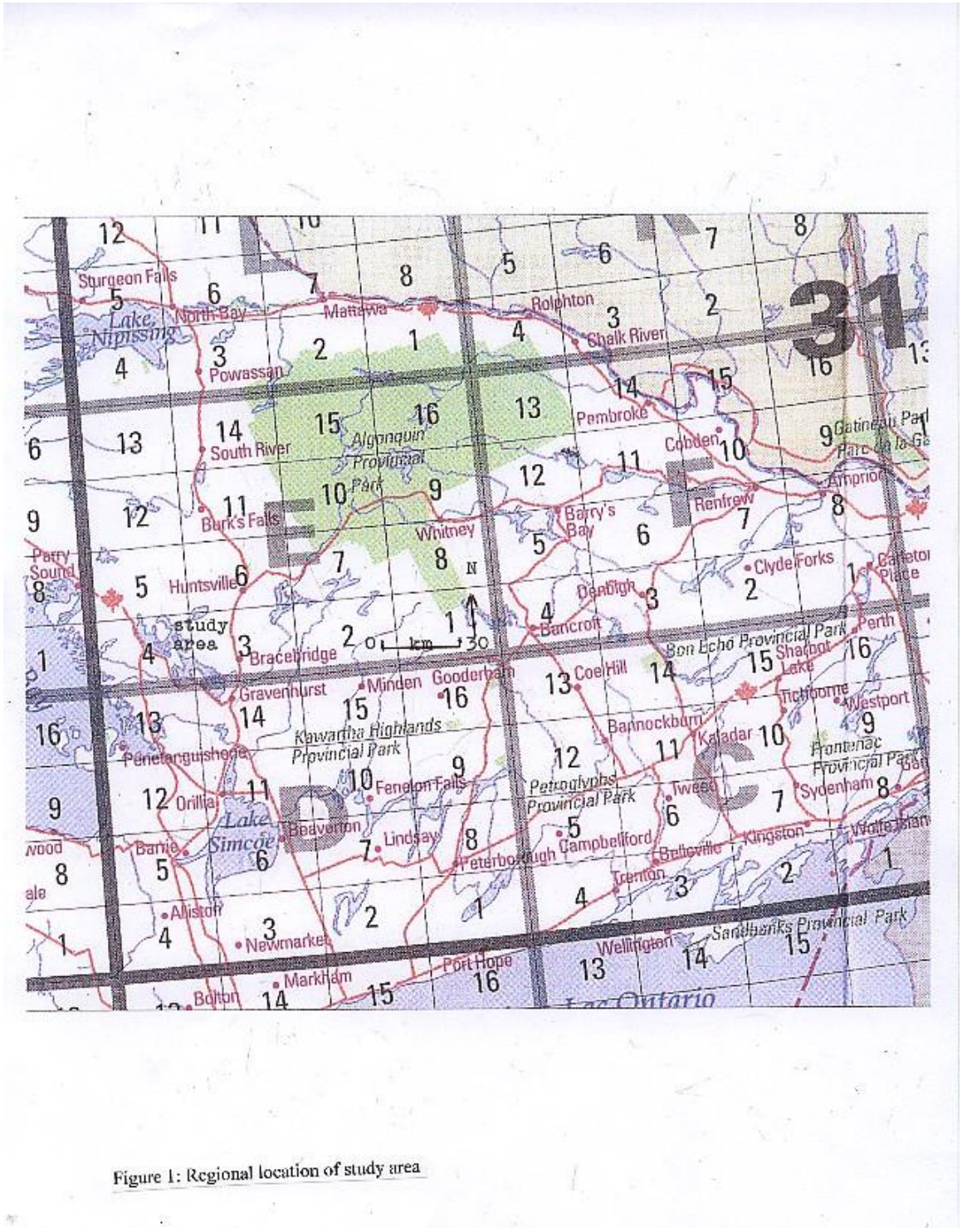


Figure 1: Regional location of study area

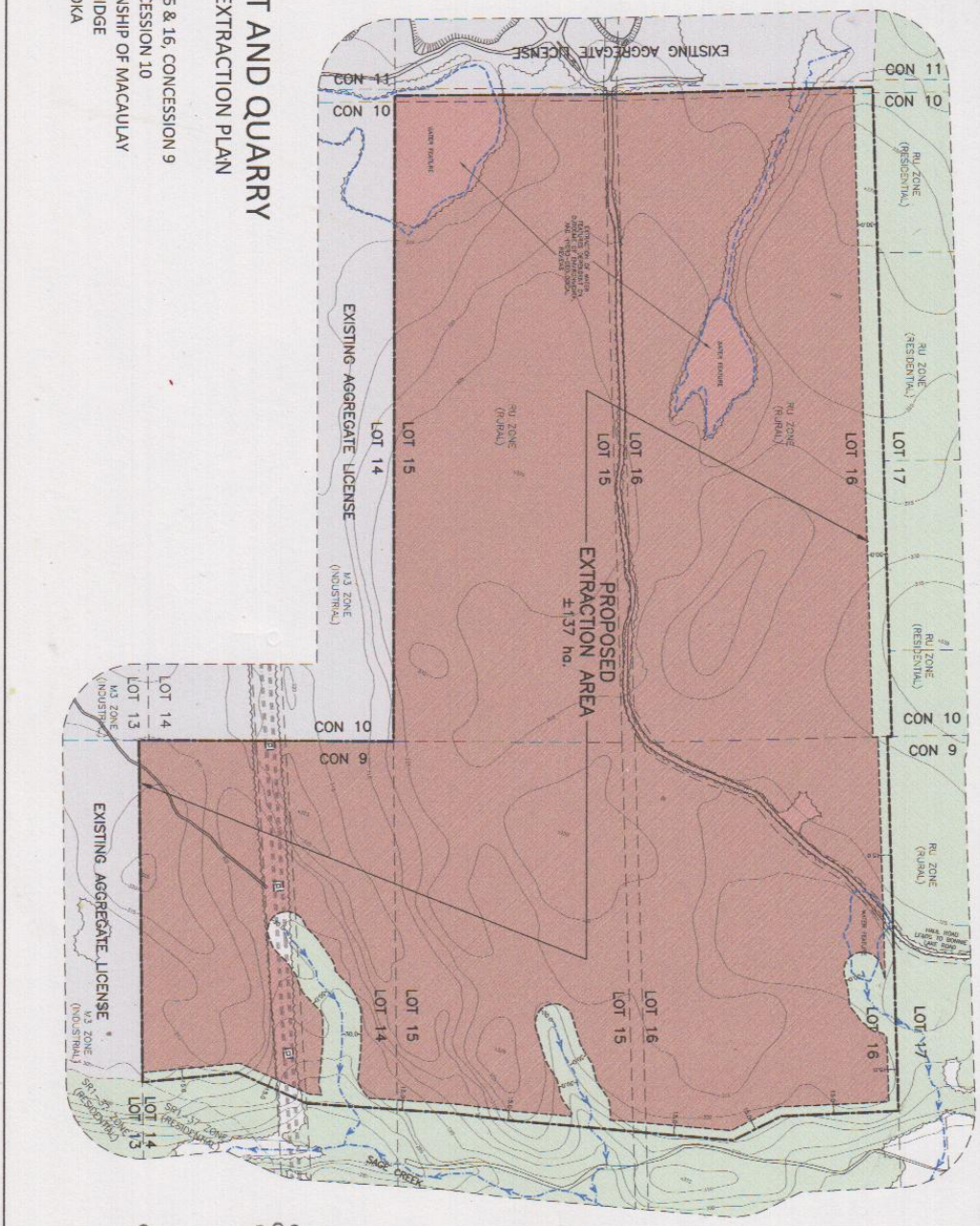


Figure 2: Childs Pit and Quarry extraction plan

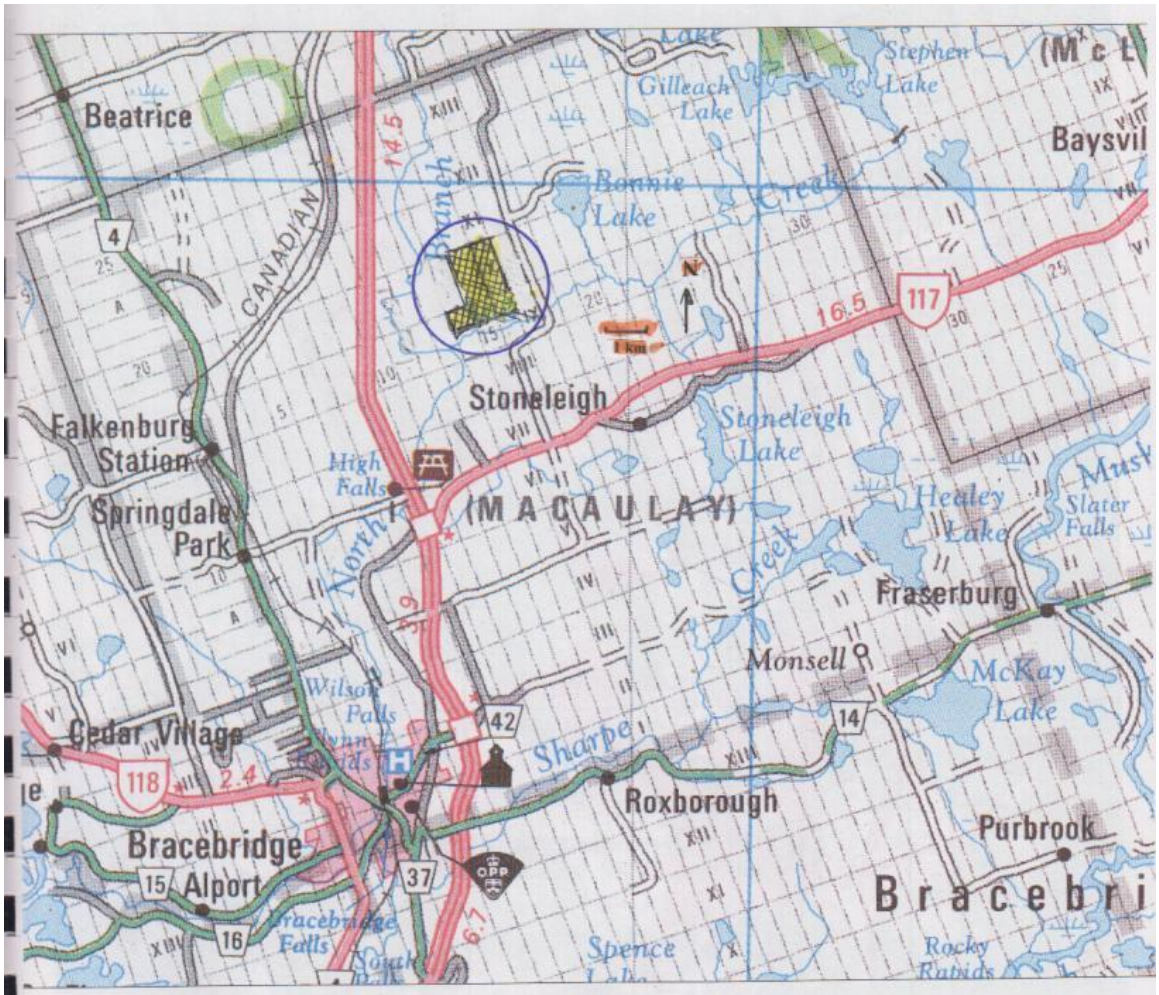


Figure 3: Geographic location of Childs Pit/Quarry Expansion

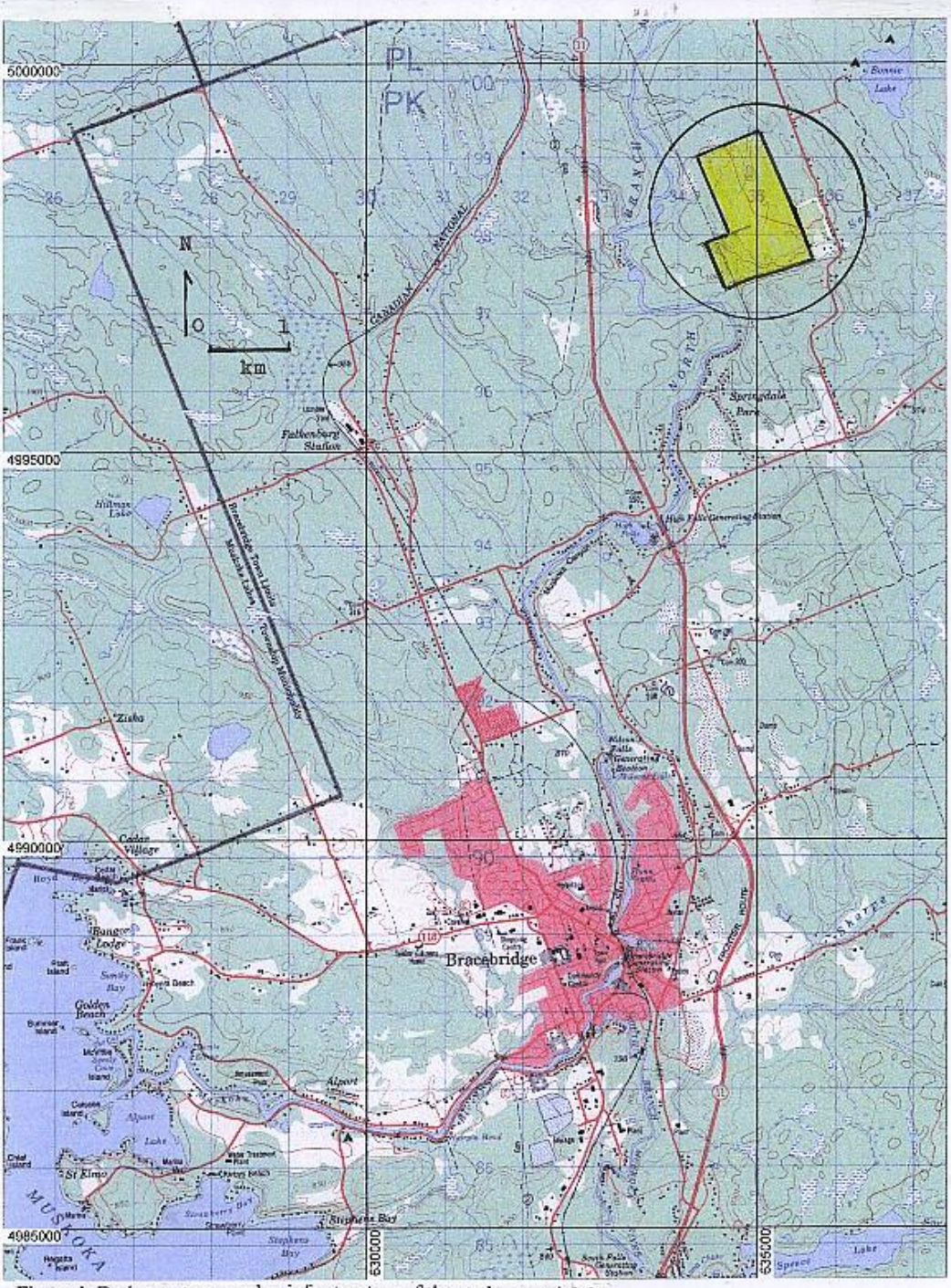
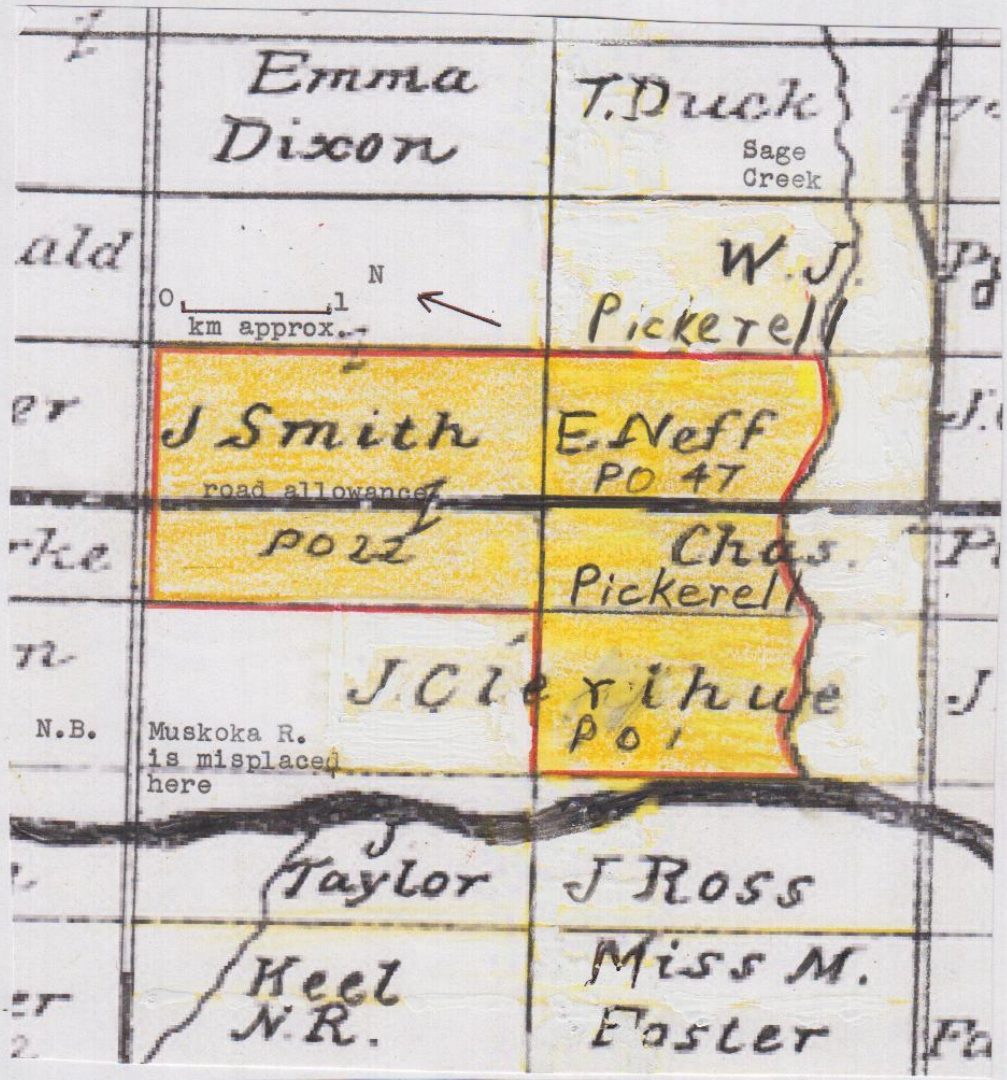


Figure 4: Drainage, topography, infrastructure of the study area vicinity



Belden H.
1880 *The Historical Atlas of Muskoka District* H. Belden & Co., Toronto.

Figure 5: Land tenure from the historical atlas

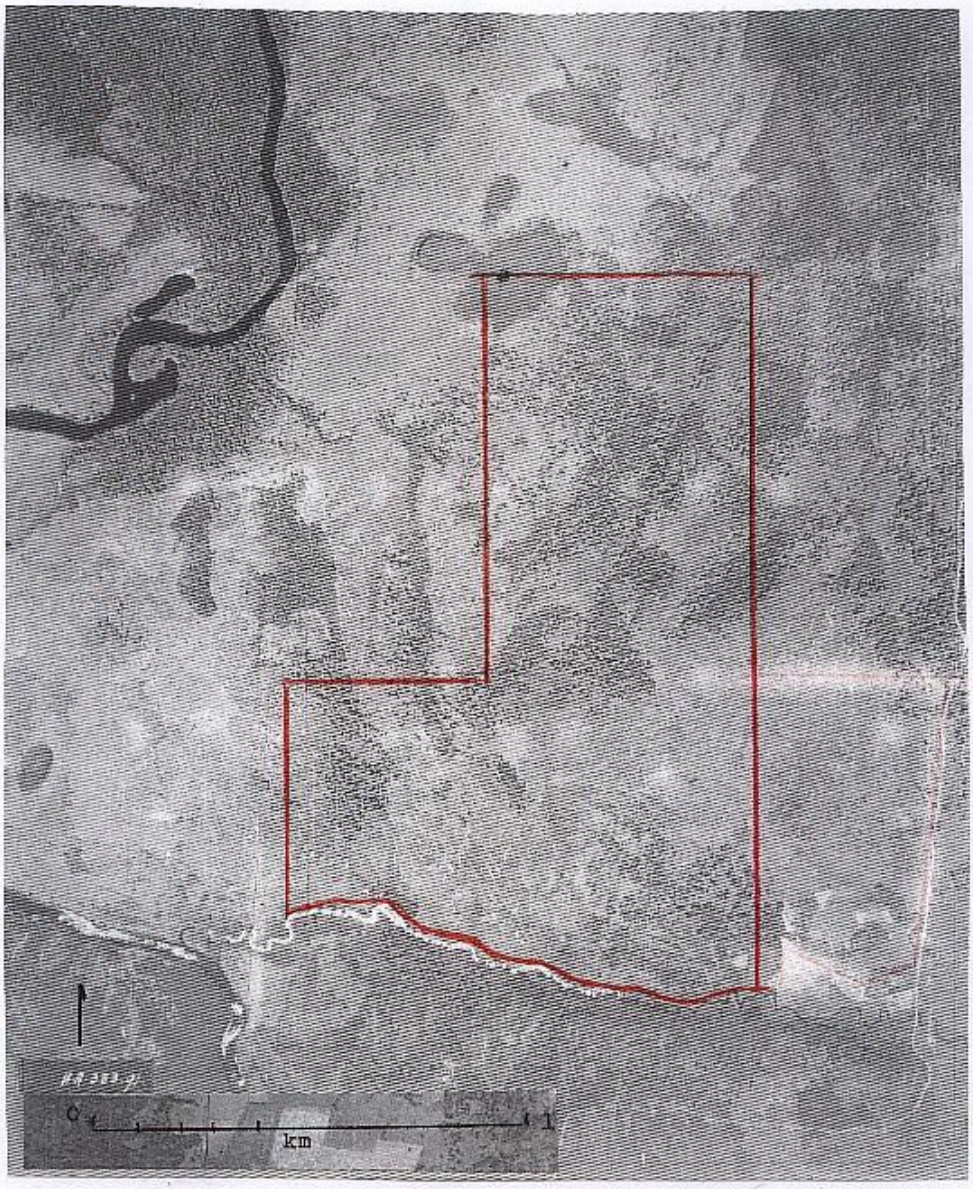


Figure 6: Historical aerial photograph HA333:90-93 taken in 1929

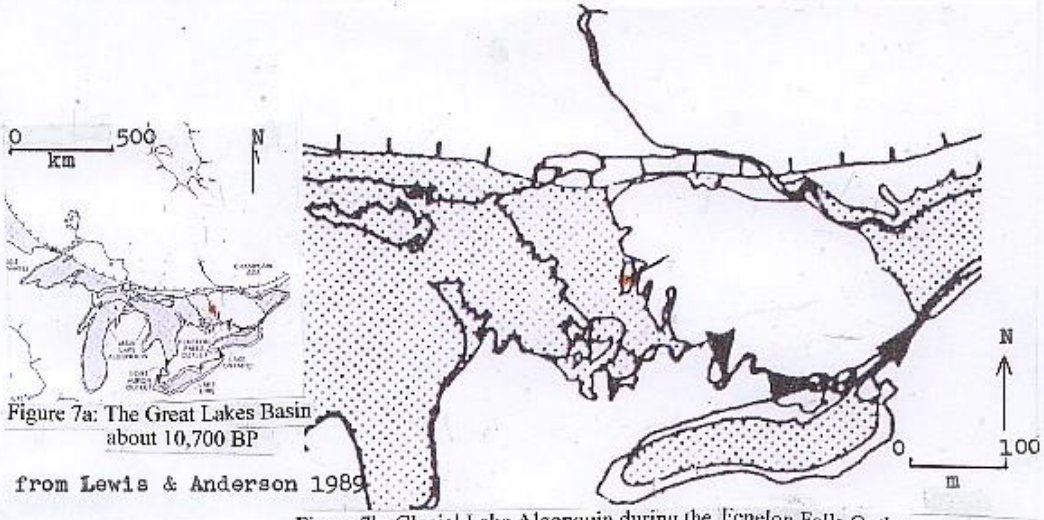


Figure 7a: The Great Lakes Basin about 10,700 BP

from Lewis & Anderson 1989

Figure 7b: Glacial Lake Algonquin during the Fenelon Falls Outlet

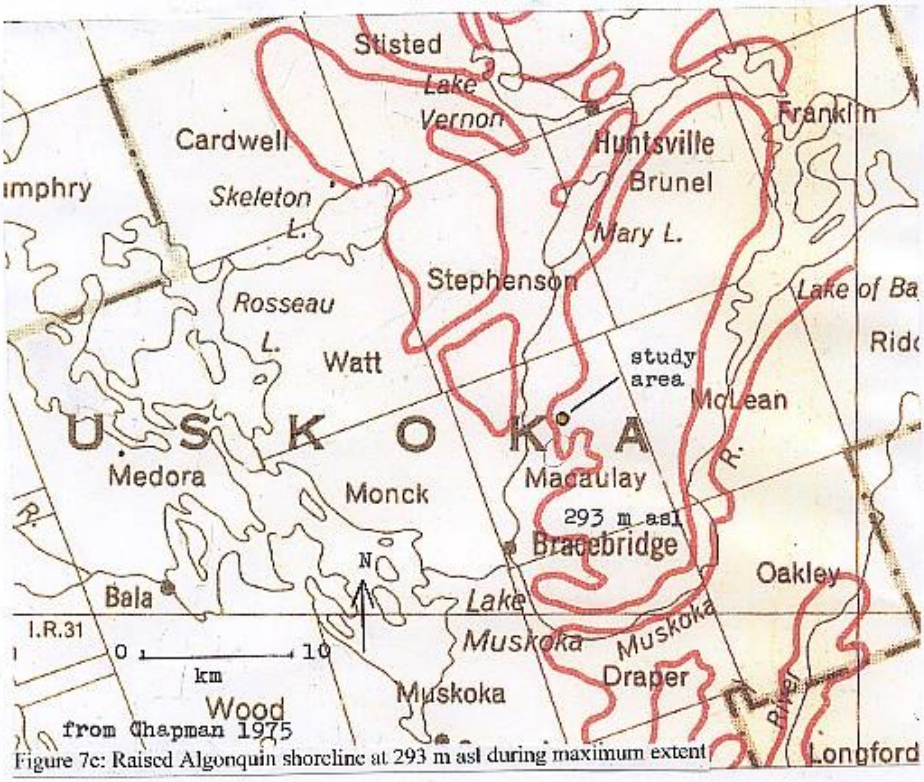


Figure 7c: Raised Algonquin shoreline at 293 m asl during maximum extent

Figure 7: Relation of the study area to Glacial Lake Algonquin

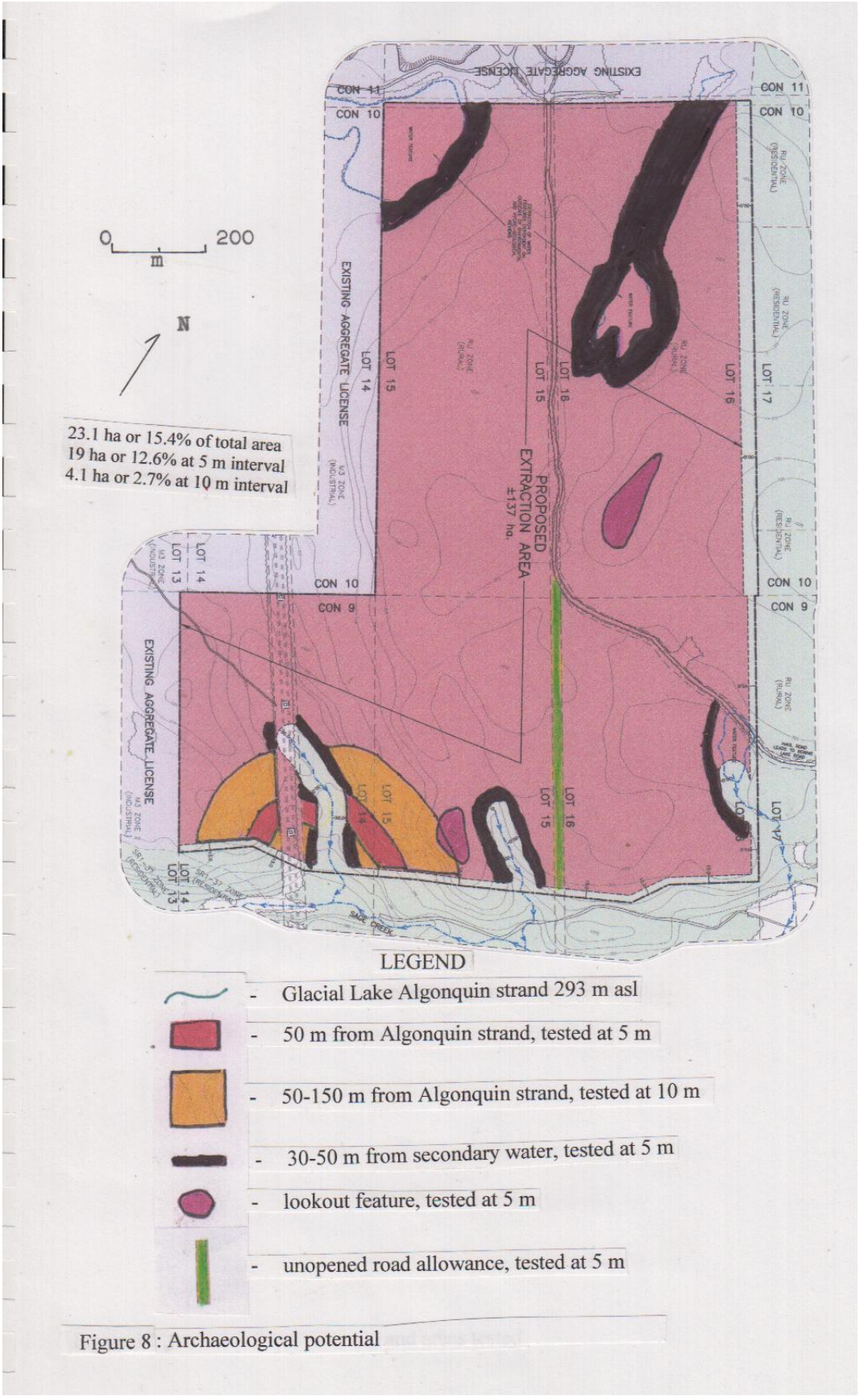


Figure 8 : Archaeological potential

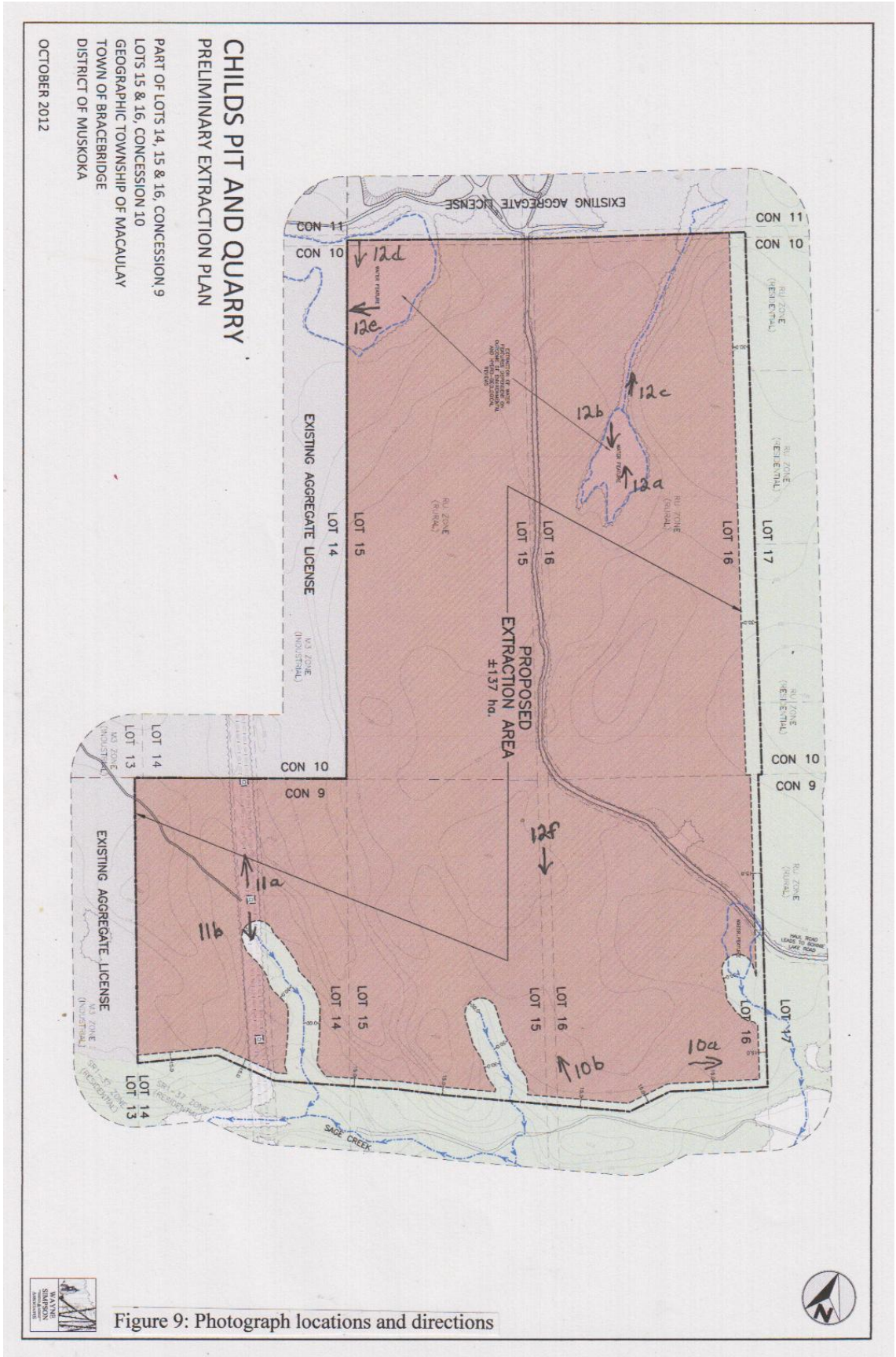


Figure 9: Photograph locations and directions

Figure 10a: L.17 C.9, view of buffer edge above W bank Sage Creek

Figure 10b: L16 C.9, escarpment W side Sage Creek

Figure 10: Photographs of Childs Pit/Quarry Expansion Area, April 2012

Figure 11a: L14 C9, Looking E up hydro corridor

Figure 11b: L14 C9, Looking W down hydro corridor

Figure 11: Photographs of Childs Pit/Quarry Expansion Area, April 2012

Photo 13. Wetland MAMM1-5 5 in north east portion of property (June 24, 2012).

Figure 12a: Looking N across wetland in the north-east

Photo 10. Wetland meadow community MAMM1-5 (June 24, 2012).

Figure 12b: Looking S across wetland in NE

Photo 11. Wetland MAMM1-5 in northeast portion of property (June 24, 2012).

Figure 12c: looking S at the banks of the intermittent stream in the NE

Photo 12. Fen FEOG1 (October 5, 2011).

Figure 12d: Looking S at the fen in the NW

Photo 14. Shrub Fen FESD1-4 (October 5, 2011).

Figure 12e: Looking W at shoreline of the fen.

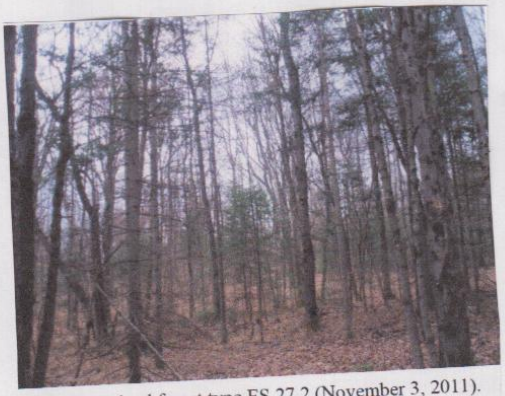


Photo 2. Upland forest type ES 27.2 (November 3, 2011).

Figure 12f: Looking at terrain typical of the

Figure 12: Photographs of natural features from the natural environment report By Riverstone Environmental Solutions Inc. (2014)