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Geological Mapping
and Mineralization
on the west central part of the
Mumford Claim
Cardiff Township, Ontario

Cell claims; 174595, 287243, 104803, 139407 and 307978.

By

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For

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March 30, 2021

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Introduction

For decades, recreational mineral collectors from around the world have been coming to south eastern Ontario to pursue their fascinating hobby by searching out mineral samples from the many available collecting sites for which the region is famous. For this reason, many consider the region, often referred to in general as the Bancroft area, the "Mineral Capital of Canada".

A wide variety of minerals are known from hundreds of different occurrences throughout the region. Sadly, over the years, many of these localities have been closed to mineral collectors due in part to park and cottage development and a host of other land access issues. It has been suggested that fewer mineral collectors are coming to the region now than in the past. If this is true it may be, in part, because there are fewer collecting sites available to the collector. The Municipality of Highlands East has acquired a number of mineral claims to explore the possibility of developing these claims as new recreational mineral collecting destinations, thereby providing incentive for mineral collectors to return and stay in the region. This strategy appears to be working.

One of the original claims held by the Municipality of Highlands East, known as either the Mumford claim or the Schickler Property, is the subject of this report. The original Mumford legacy claim has now been replaced by a contiguous group of 12 cell claims, all of which are located 5 km east of the town of Wilberforce. Superb mineral specimens of apatite, diopside, zircon, uraninite, amphibole, feldspar and titanite from localities in the Wilberforce area are well known among mineral collectors. Many well known mineral collecting sites are located on privately owned land within several kilometres of the Mumford claim. The Schickler Occurrence (Sabina 1986), which lies within the Mumford claim, was a poorly known mineral collecting site until recently. Because the Municipality of Highlands East recently provided to the public, information about the Schickler Occurrence and opened the site, recreational minerals collectors have started returning to the region as tourists. It has become a mineral destination.

It seems reasonable to postulate that additional mineral collecting sites might be found on the Mumford legacy claim. The goal of this study was to explore for and identify additional sites on the Mumford legacy claim that would be attractive to the recreational mineral collector. This was done by mapping geology and prospecting over the west central part the original claim. The author spent 2 person days on the claim in October and November, 2020 gathering data for this report.

Claim Information and History

The original Mumford claim was staked on June 3, 2011 and its original claim number was SO 1500016. The Mumford Claim originally covered 4 concession lots in Cardiff Township (Lots 9-11, Concession 22 and Lot 11, Concession 21). The original claim was mostly surrounded by privately owned land. Only a short section along the southern most boundary of the original Mumford Claim was bounded by crown land.

The original Mumford Claim (SO 1500016) was converted to 19 encumbered cell claims in April, 2018, when the Ministry of Development and Mines introduced its new online claim and mining lands management system, MLAS. The 19 claims that covered the "Legacy" Mumford Claim were;

154450, 248131, 335599, 154451, 221210, 287242, 127938, 174595, 287243, 228669, 104803, 139407, 307978, 172434, 139408, 248132, 191421, 191423 and 191422.

In May 2019 the following 7 claims located along the edges of the original legacy claim were dropped; 154450, 335599, 287242, 139408, 191421, 191423 and 191422.

Only a small portion of each of these claims was available for mineral exploration because most of the area of each claim was under private ownership.

The following 12 cell claims are currently owned by the Corporation of the Municipality of Highlands East and are the subject of this report;
248131, 154451, 221210, 127938, 174595, 287243, 228669, 104803, 139407, 307978, 172434 and 248132.

Location and Access

The original Mumford claim (SO 1500016) and the now current 12 cell claims cover most of the crown land on Lots 9-11, Concession 22 and Lot 11, Concession 21 in the township of Cardiff. These claims are located approximately 27 kilometres east from Haliburton and 25 km west from Bancroft, the two largest towns in the region (Figure 1).

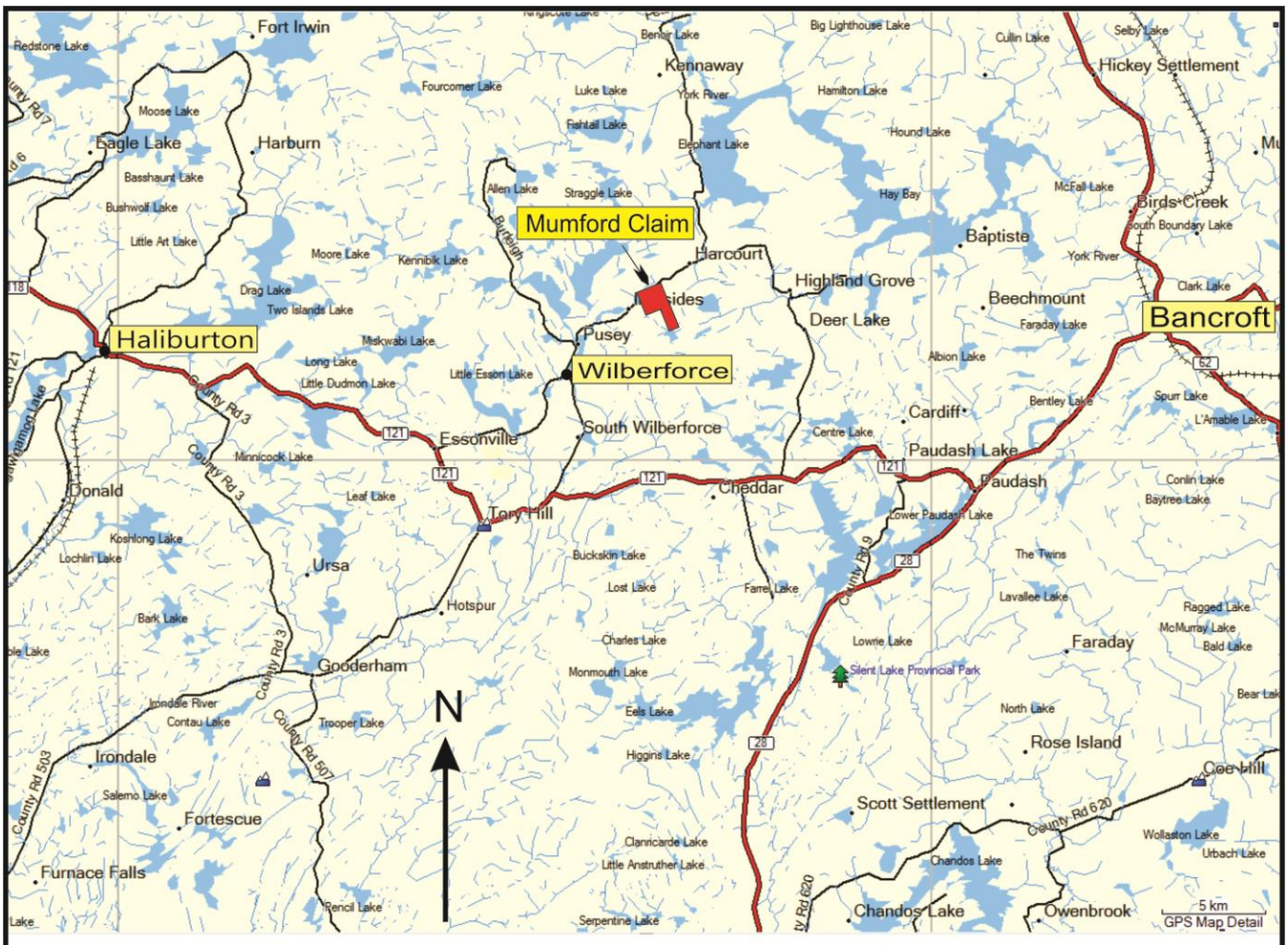

Figure 1: Mumford Claim Location Map. Scale (km) 0 5 10

The Mumford group of cell claims are approximately 5 kilometres northwest of Wilberforce and 3 kilometres southeast of Harcourt, the two easiest communities from which to access the claims (Figure 2). The claims are located on NTS map 31E/01. To access the claims from Wilberforce, travel along County Road 648 until Mumford road is reached (approximately 4.7 kilometres). Turn right onto Mumford Road and travel 1.0 kilometres. At this point, the western boundary of the Mumford group of claims is reached and Cope Lake Road branches off to the south.

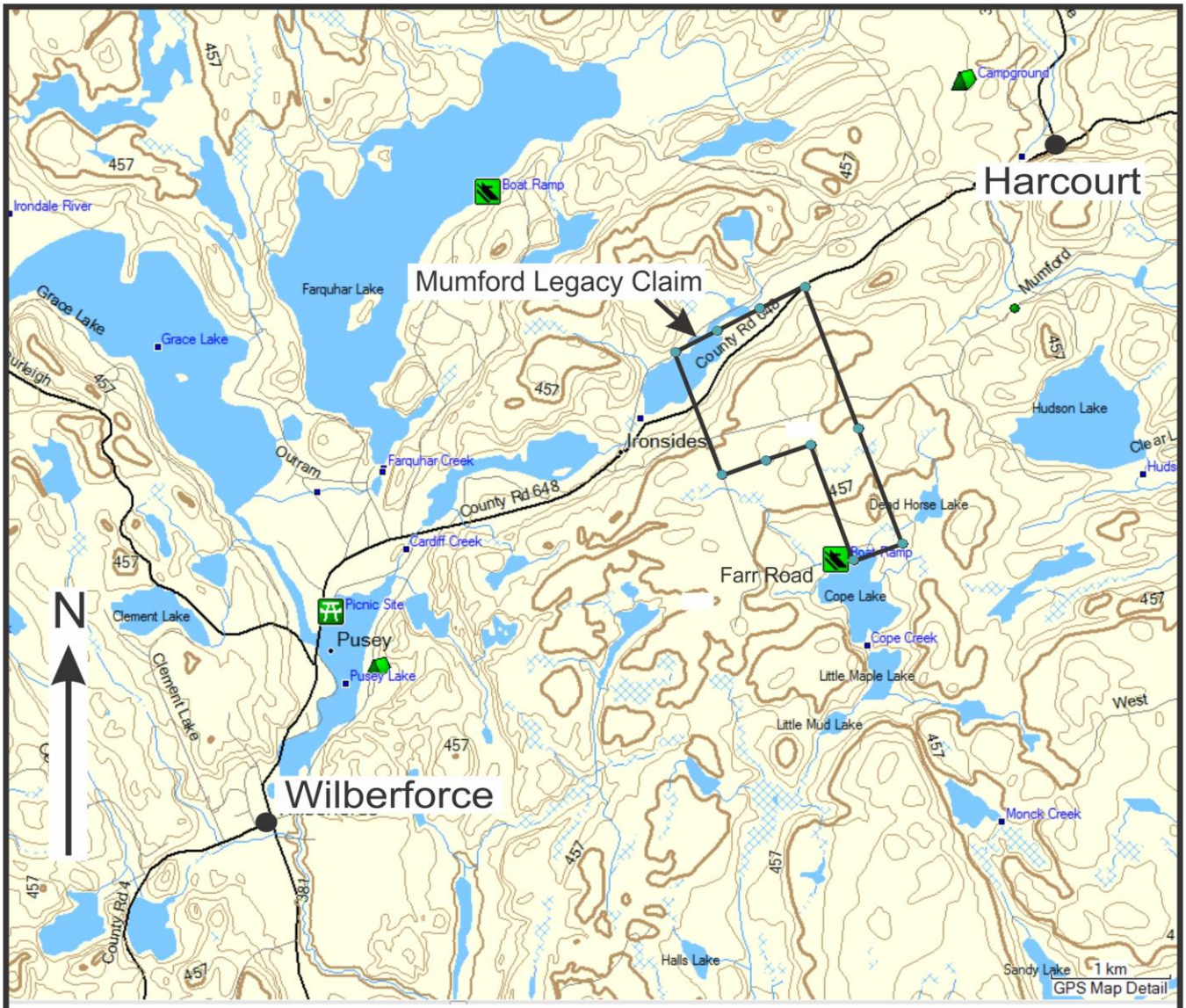

Figure 2: Detailed Location Map.
(Showing relationship to Wilberforce and Harcourt)

Although the Mumford group of claims are mostly surrounded by privately owned land, they are crossed by numerous roads and trails, making access very easy. Along the northern edge of the claims is paved County Road 648. The gravel covered Mumford Road traverses, in an east west direction, the central part of the claims. A narrow gravel road, called Manhire Road, leads to cottages on Cope Lake and provides access to the southern

part of the claims. Several trails, used by ATVs in the summer and snowmobiles in the winter, traverse the claims. People using these trails should be aware of the possibility of ATV traffic. Located near the centre of the claims is an active land fill site (garbage dump). Located on the north eastern corner of the claims is the abandoned Harcourt Graphite Mine.

Previous Work

The Mumford group of claims is underlain by rocks of the Grenville Province of the Canadian Shield. On a regional level Grenville Province rocks have been extensively studied and prospected for various ores over the last century. Authors, too numerous to mention, have studied and described these rocks.

A township wide geological report was published in 1959 by Hewitt that included a detailed geologic map covering both Cardiff and neighbouring Faraday Townships. Hewitt's study concentrated on the geology and economic mineral deposits of Cardiff and Faraday Townships and not on occurrences of crystals and minerals suitable for the recreational mineral collector. Hewitt (1959) briefly describes both the Schickler Occurrence and the National (Harcourt) Graphite Property and lists but does not describe a uranium occurrence (referred to as D. E. Denfield), all of which lie on the Mumford group of claims.

Satterly (1957) reports that *circa* 1954, during exploration for radioactive minerals, stripping and trenching was conducted over claims that included Lot 11, Concession 21 (what is now the southern part of the Mumford group of claims), and that in 1955, a short (43 feet) hole was drilled on the same lot.

A detailed report covering an area around Cope Lake by Ennis (1968) documents geologic and radiometric surveys over a number of claims including what is now the southern part of the Mumford group of claims. Ennis was searching for radioactive minerals and not potential mineral collecting sites.

Guides to mineral collecting sites in southern Ontario have been published by various authors. One of the many guides covering the area is by Ann Sabina (1986). Sabina (1986) describes mineral collecting sites throughout the Bancroft region, including those in the Wilberforce and Harcourt areas.

Two mineral collecting localities that Sabina (1986) describes lie within the boundaries of the Mumford group of claims, the Schickler fluorite occurrence and the Harcourt Graphite Mine. In addition, Sabina (1986) describes four collecting localities within a few kilometres of the claims. These are the Clark Mine, Dwyer fluorite Mine, Trip (Nu-Age) Mine and the Richardson (Fission) Mine.

Both Sabina (1986) and Hewitt (1959) describe the history of the now abandoned graphite mine located in the north eastern part of the Mumford group of claims. Sabina (1986) calls this site the "Harcourt Graphite Mine", whereas Hewitt (1959) calls this the "National Graphite Property".

Fieldwork and Terminology

For ease of reference, the 12 cell claims covering Lots 9-11, Concession 22 and Lot 11 Concession 21 in the township of Cardiff is being referred to in this report as the "Mumford group of claims" or simply the "Mumford claims". The author spent 2 days mapping and gathering data on a portion of the Mumford claims on the following dates; October 12 and November 6, 2020 (Figure 3). An additional 2 days were spent by the author preparing the geology map and writing this report.

Assumptions have been made and a number of terms used by the author in preparing this report. Some of these require clarification. The minerals found on the Mumford claims and those named in this report were identified using standard field identification practices (observations of lustre, hardness, cleavage, crystal form, etc). No analytical work was performed to verify these identifications. Amphiboles belong to a complex group of minerals whose individual mineral species are difficult, if not impossible, to identify without detailed

analytical work. Instead of going through the expense and time of having each sample analysed, the author has used the general terms "hornblende" for a black amphibole. Rocks were examined and identified visually.

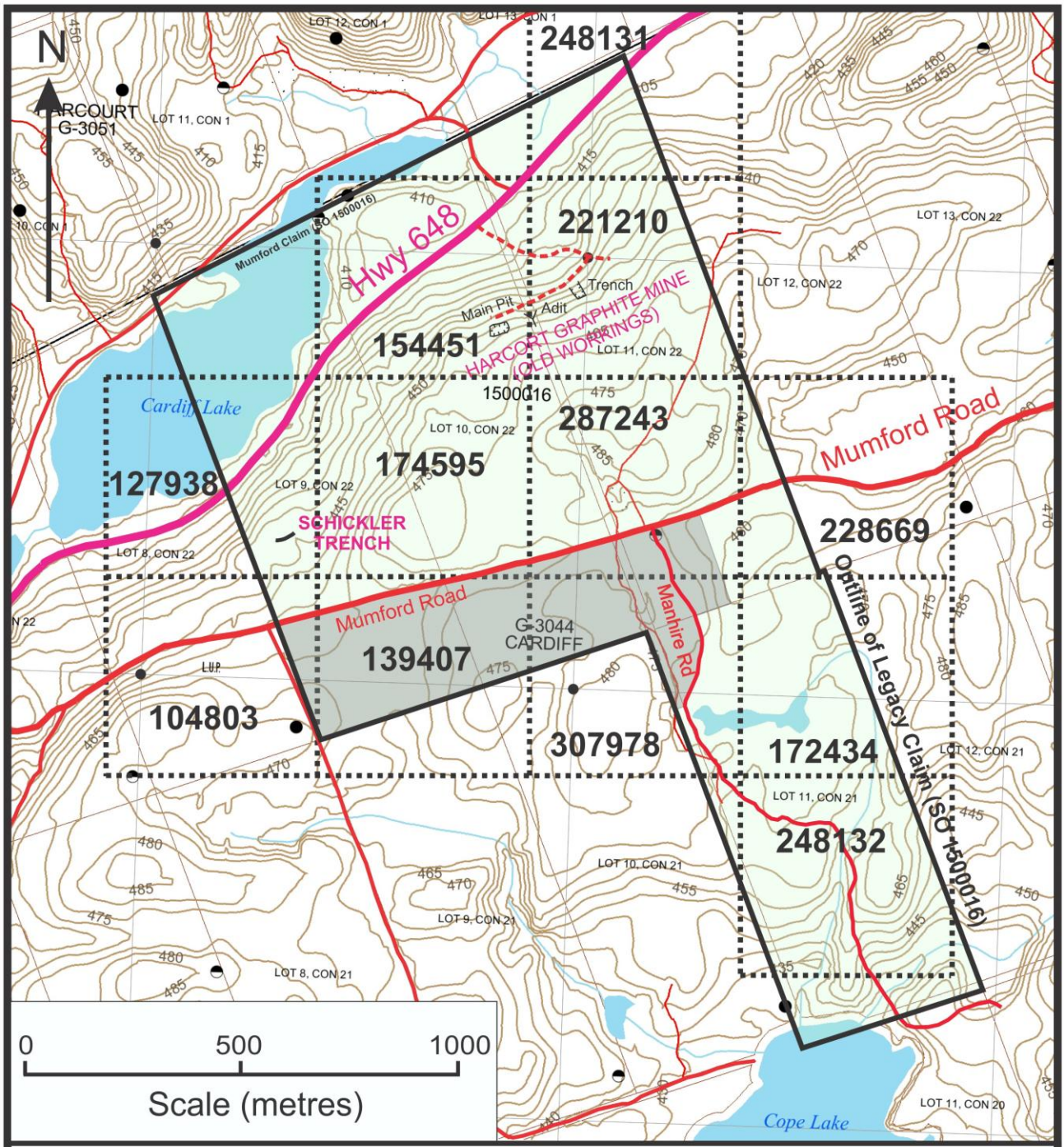

Figure 3; Map showing area which was examined in detail and described in this Report.

Area upon which work was performed.

Paved road

Gravel road

ATV trail

Property Geology

The Mumford claim is underlain by high-grade metamorphic rocks of the Grenville Province of the Canadian Shield. Rocks of the Grenville Province are well known and have been described by many authors. These rocks host virtually all the known mineral and crystal occurrences that attract mineral collectors to the Bancroft area.

A township wide geological report was published in 1959 by Hewitt that included a geology map covering both Cardiff and neighbouring Faraday Townships. Hewitt's geology map shows the Mumford claims being underlain by marble to the north and syenitic and granitic gneiss elsewhere. Included with these gneisses are pegmatite and sedimentary layers.

The author mapped local geology by noting outcrop locations with a hand held GPS device and examining rock types and structures. This was done concurrently with general prospecting for mineral and crystal occurrences of interest to recreational mineral collectors. Traverses were spaced 50 metres apart and ran roughly north-south. Areas between traverse lines were examined where needed. Over the past several years the author has been systematically mapping and prospecting different areas of the Mumford claims for assessment purposes. This report covers the last of these areas that needed to be mapped and completes the author's mapping and prospecting of the entire Mumford property. The area examined during this study is shown in Figure 3. Results are shown on the geology map of Figure 4.

The area prospected and mapped for this report covers the southern portions of Lots 9, 10 & 11, Concession 22 that are south of Mumford Road. The cell claims mapped are 174595 (extreme south east corner), 287242 (southern portion), 104803 (small portion on eastern edge), 137978 (northern portion) and 307978 (northern portion). Parts of this area are swampy with few outcrops. In the western portion of the mapped area, reforested conifers dominate and on the eastern portion, open hardwood forest dominates. Overall outcrop is sparse within the mapped area.

The only rock type observed in this map area was granitic gneiss (Figure 4). This unit is primarily composed of potassium feldspar with lesser amounts of hornblende, quartz, biotite and plagioclase. In some outcrops quartz was not readily visible indicating that this unit may, in part, be syenitic in overall composition. Its texture ranges from massive with a very weak foliation, to compositionally banded, where variable concentrations of hornblende define very weak banding. The attitude of the compositional banding was recorded in the only outcrop where it was obvious enough to be measured. In several outcrops irregular patches of course-grained hornblende up to 10 centimetres across were observed. These are marked with "hbl" on Figure 4. The only outcrop exposed along Mumford road has an area where fine-grained pink, peristeritic plagioclase occurs. A zone of potassium feldspar rich pegmatite occurs in an outcrop marked "Peg" on Figure 4. Here, the potassium feldspar crystal grains are up to 25 centimetres across.

Mineralization

No significant mineralization was observed within this map area. The pegmatitic zone and patches of course-grained hornblende mentioned above are not significant enough to be of interest to the recreational mineral collector.

Despite this lack of mineralization, the Ontario Mineral Deposits Inventory (MDI) lists one mineral occurrence within the mapped area that could be of interest to recreational mineral collectors. This occurrence was not physically located during this study but its location is marked on Figure 4 from information available on the MLAS website. The MDI # is MDI31E01SE00183. Its name is "North Cope - 1994" and it's an occurrence of biotite, calcite, feldspar, fluorite, hornblende and zircon. Under "Exploration and Mining History" it's listed as "mineral collecting site – 'reserves abundant', which suggests it would be of interest to recreational mineral collectors. Unfortunately there is little information available about this locality. If the MDI data base has misplaced the exact locality, then there is no way to verify its location.

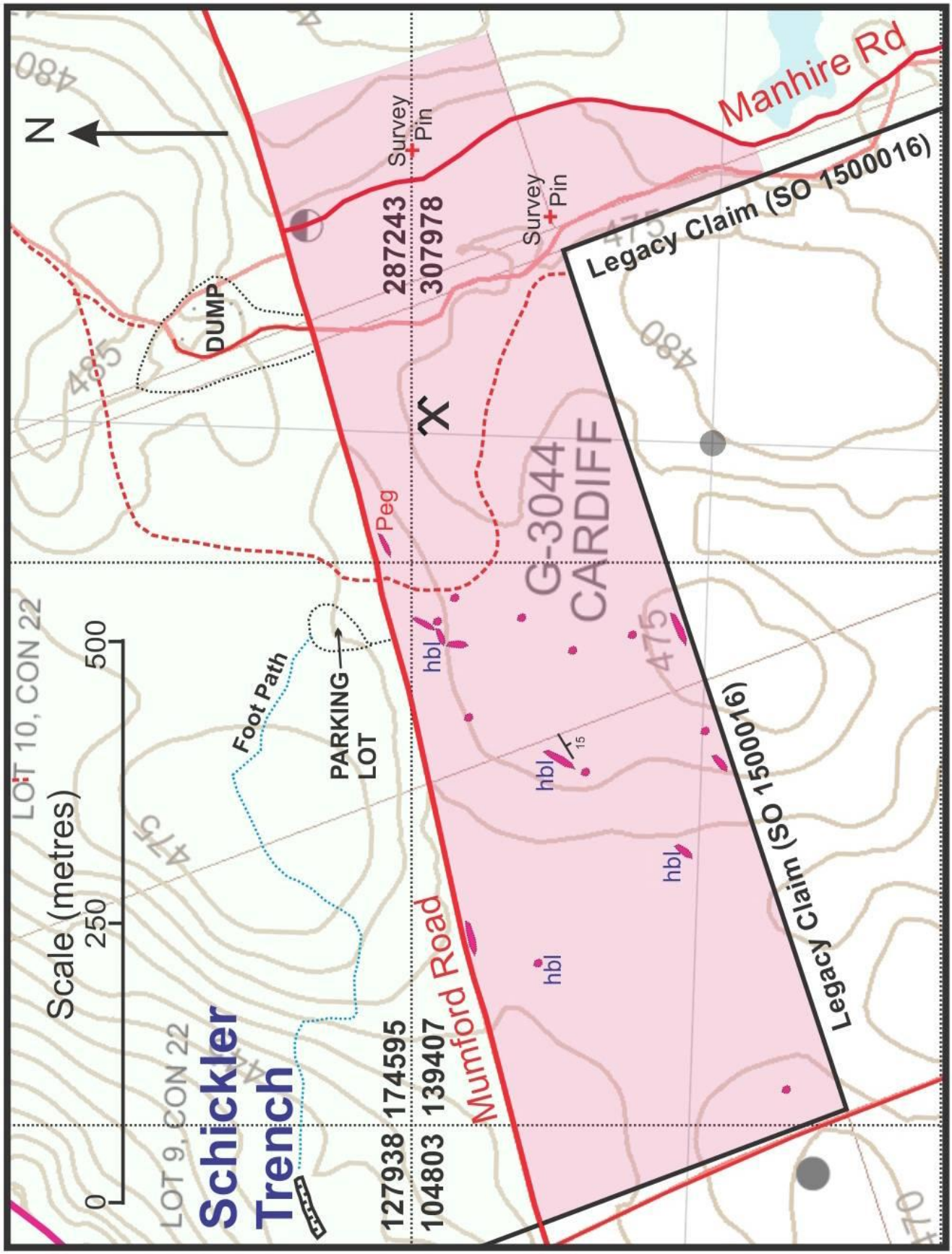

Figure 4; Geology and Mineralization on cell claims 174595, 287243, 104803, 139407 and 307978, Cardiff Twp.

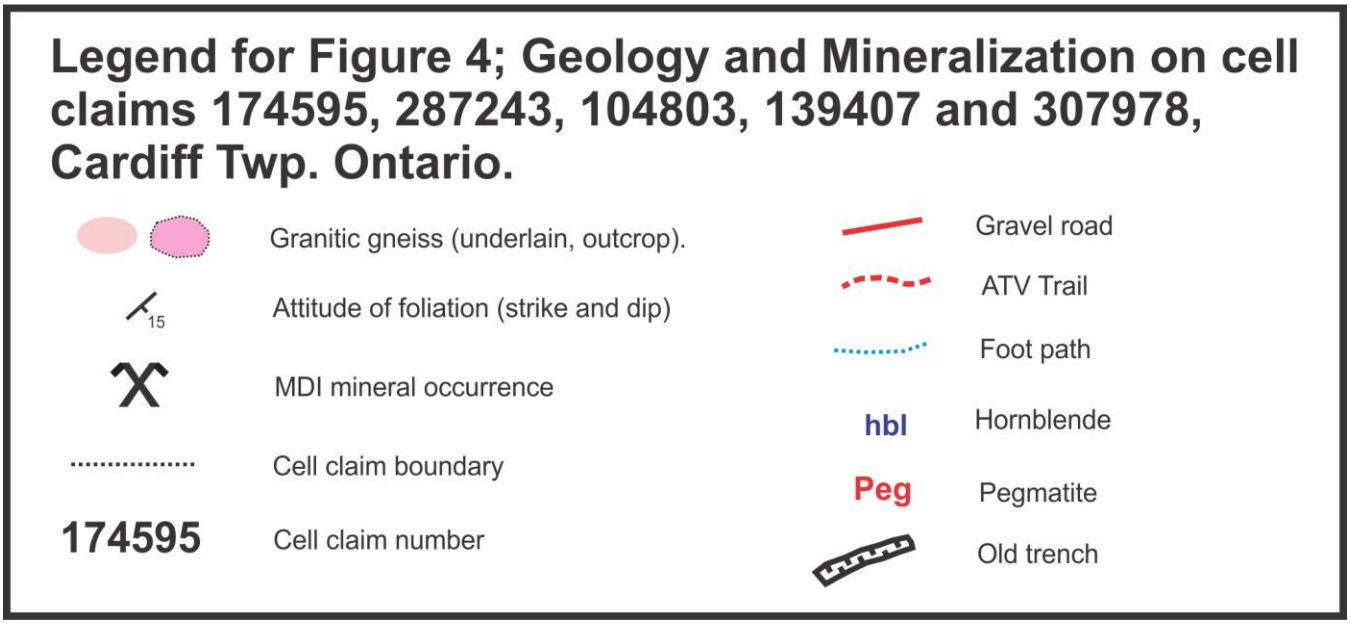

Figure 5; Legend for map on Figure 4.

In addition to mapping and prospecting, the author inspected the Schickler Trench to evaluate possible strategies to enhance the experience of mineral collectors who visit the site.

Summary and Recommendations

The south-central portion of the Mumford claim, south of the Mumford Road, was geologically mapped and prospected. No new sites with mineral collecting potential were identified. Despite this, the Ontario Mineral Deposits Inventory (MDI) lists one mineral occurrence which could be of interest to recreational mineral collectors within the mapped area. This site could not be located on the ground during mapping and prospecting activities.

For this area of the Mumford claim, the author recommends the following;

1/ Research as much as possible the MDI mineral occurrence that lies within the mapped area

Contact the Southern Ontario Resident Geologist to see if there is any additional information available to help relocate this site. This may involve a visit to their office and that visit will likely have to wait until the COVID-19 pandemic restrictions are relaxed.

For the Schickler Trench, the author recommends the following;

1/ Consider moving some of the debris around the trench to make it more attractive to collectors

Possibly use an excavator or backhoe to reposition some of the unconsolidated waste piles adjacent to the trench and to move some of the material currently within the trench. The end result being fresh material for the collectors to sift through and a partial filling of the trench to make it safer for visitors. There are many scenarios possible here but a carefully thought out plan should be devised before any equipment is brought to the site.

References

Ennis, G. F., 1968: *Ontario Assessment Report 31E01SE0060 63.2418*

Hewitt, D. F., 1959: Geology of Cardiff and Faraday Townships; *Ontario Department of Mines, Annual Report, V. 66, pt. 3, 1957.*

Satterly, J., 1957: Radioactive mineral occurrences in the Bancroft area, Ontario; *Ontario Department of Mines, Annual Report, v. 65, pt. 6.*

Sabina, Ann P., 1986: Rocks and Minerals for the Collector: Bancroft - Parry Sound Area and Southern Ontario; *Geological Survey of Canada Miscellaneous Report 39*, 182 p.

Figure 4; Geology and Mineralization on cell claims 174595, 287243, 104803, 139407 and 307978, Cardiff Twp.

Appendix 1;
Statement of Qualifications of the Author

I, Bradley S. Wilson of P.O. Box 352, Kingston, Ontario, K7L 4W2, do hereby state that I:

1/ graduated from Queen's University in 1982 with an Honours B.Sc. degree in Geology.
2/ graduated from Carleton University in 1987 with a M.Sc. degree in Geology.
3/ received a degree in gemmology in 1991 from the Canadian Gemmological Association (F.C.Gm.A).
4/ worked as an independent consultant on over 20 coloured gemstone projects since 1991.
5/ worked for mineral exploration companies since 1978 on many projects either as a consultant or as a seasonal employee.
6/ conducted gemstone exploration on my own behalf, nearly continuously, since 1982.
7/ have no interest, direct or indirect, in the Mumford claim.
8/ performed the work described in this report.

Bradley S. Wilson

March 30, 2021