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Manual-Stripping Report, Mumford Claim Cardiff Township, Ontario

SO 1500016 (Lots 9-11, Concession 22 and Lot 11, Concession 21)),

By

Bradley S Wilson
Kingston, Ontario

For

Municipality of Highlands East
P.O. Box 295
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June, 2017
Amended August 2017

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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 specimens 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.

The Mumford claim, located 5 km from the town of Wilberforce, is one of the claims held by the Municipality of Highlands East and is the subject of this report. 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. The Municipality of Highlands East has recently opened the Schickler Occurrence to recreational mineral collector by providing information to the general public and allowing access to this site. Recreational minerals collectors have started returning to the region as tourists. It has become a mineral destination.

Several occurrences with minerals of potential interest to recreational mineral collectors were identified during previous assessment work (Wilson, 2014). One of the recommendations suggested by Wilson (2014) was to consider the use of a backhoe to open one of these sites to mineral collectors. Prior to bringing in a backhoe he recommended this site be "cleaned off by hand and investigated further". The author, along with 2 assistants, spent 2 days in May, 2017 cleaning off and manually stripping outcrop to test the mineral potential at this site.

Claim Information

The Mumford claim was staked on June 3, 2011 and its claim number is SO 1500016. It is currently owned by the Corporation of the Municipality of Highlands East. The Mumford claim covers four concession lots in Cardiff Township, consists of eight claim units and carries a $3,200 annual exploration work commitment. Currently $1,663 of work is required to keep the claim in good standing until June 3, 2018.

Location and Access

The Mumford claim measures approximately 1.2 by 2.3 kilometres in size and occupies Lots 9-11, Concession 22 and Lot 11, Concession 21 in the township of Cardiff. It is located approximately 27 kilometres east from Haliburton and 25 km west from Bancroft, the two largest towns in the region (Figure 1).

The Mumford claim is approximately 5 kilometres northwest of Wilberforce and 3 kilometres southeast of Harcourt, the two easiest communities from which to access the claim (Figure 2). The claim is located on NTS map 31E/01. To access the claim 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 Mumford claim is reached and Cope Lake Road branches off to the south.

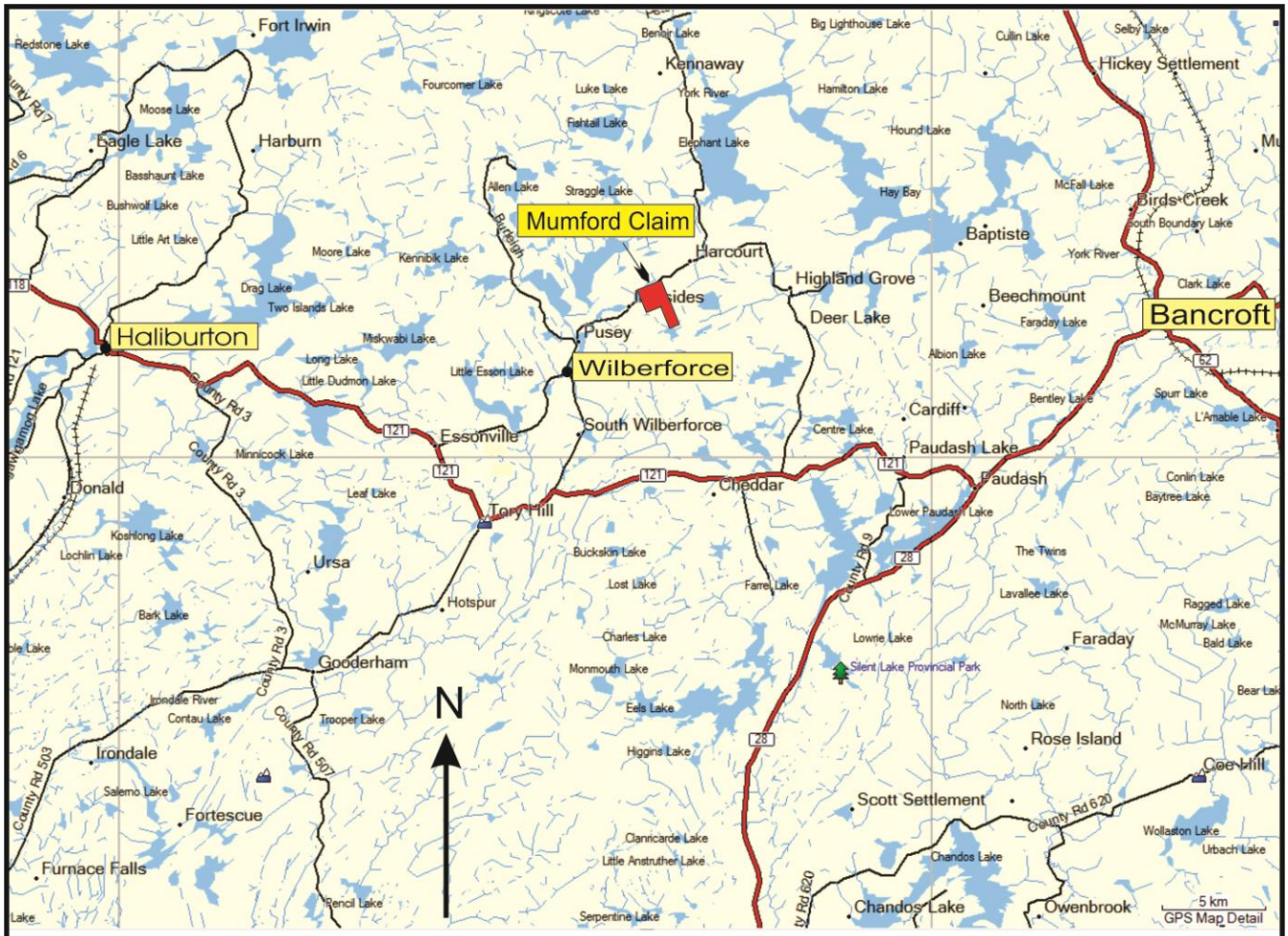

Figure 1: Mumford Claim Location Map.

Scale (km)
0 5 10

Although the Mumford claim is surrounded by privately owned land, it is crossed by numerous roads and trails, making access very easy. Along the northern edge of the claim is paved County Road 648. The gravel covered Mumford Road traverses, in an east west direction, the central part of the claim. A narrow gravel road, called Manhire Road, leads to cottages on Cope Lake and provides access to the southern part of the claim. Several trails, used by ATVs in the summer and snowmobiles in the winter, traverse the claim and mineral collectors using these trails should be aware of the possibility of ATV traffic. Located near the centre of the claim is an active land fill site (garbage dump). Located on the north eastern corner of the claim is the abandoned Harcourt Graphite Mine.

Previous Work

The Mumford claim 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.

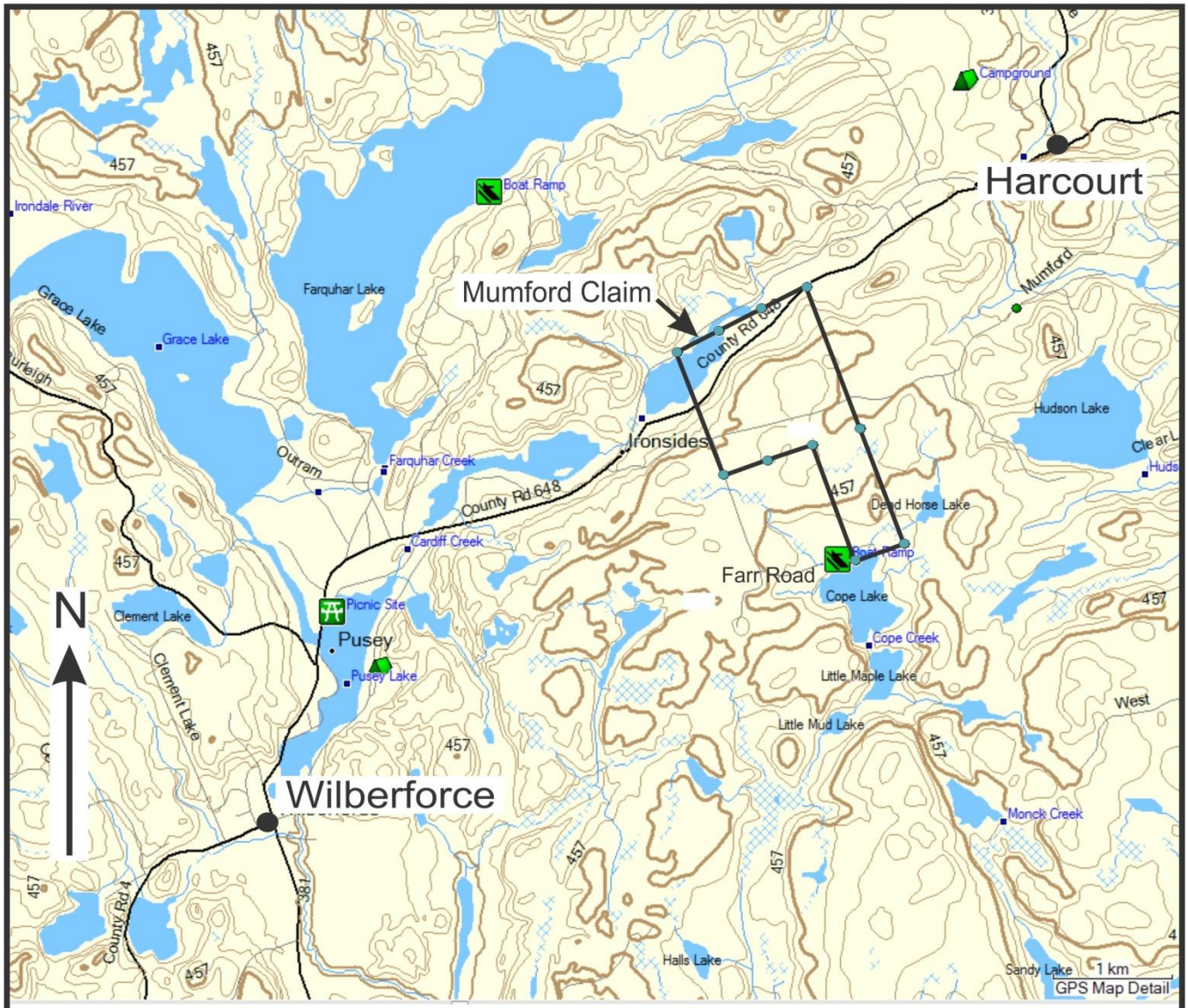

Figure 2: Detailed Location Map.

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 (D. E. Denfield), all of which lie on the Mumford claim.

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 claim), 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 claim. 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 more recent guides covering this area is by 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 claim, the Schickler fluorite occurrence and the Harcourt Graphite Mine. In addition, Sabina (1986) describes four collecting localities within a few kilometres of the claim. 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 on the north eastern part of the Mumford claim. Sabina (1986) calls this site the "Harcourt Graphite Mine", whereas Hewitt (1959) calls this the "National Graphite Property". In recent assessment reports the old mine site has been referred to as the Harcourt Graphite Mine.

In 2011, exploration for mineral, gem and crystal occurrences was initiated on the Mumford Claim by the Ontario's Highlands Tourism Organization. This initiative was continued by the Municipality of Highlands East a few years later. To date, a number of mineral and crystal occurrences have been identified, part of the claim been covered by a radiometric survey and part of the claim has been geologically mapped and prospected (Wilson 2012, 2014, 2016).

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 recreational 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 claim being underlain by marble to the north and syenitic and granitic gneiss elsewhere. Included with these gneisses are pegmatite and sedimentary layers.

Fieldwork Dates and Terminology

For ease of reference, the mineral claim covering Lots 9-11, Concession 22 and Lot 11 Concession 21 in the township of Cardiff (SO 1500016) is being referred to in this report as the "Mumford claim". The author, along with two assistants, Bob Beckett and Michael Bainbridge, spent 2 days manually stripping outcrop on the Mumford claim on the following dates; May 3 & 4, 2017. An additional day was spent by the author preparing 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 claim 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. Additionally, feldspars are a group of minerals that differ in chemistry, crystal class and symmetry that require analytical work to differentiate. 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 and the term “feldspar” for an unidentified or undifferentiated member of the feldspar group.

Fieldwork

Several occurrences with minerals of potential interest to recreational mineral collectors were identified during previous assessment work (Wilson, 2014). One of the recommendations suggested by Wilson (2014) was to consider the use of a backhoe to open one of these sites to mineral collectors. Prior to bring in a backhoe he recommended this site be “cleaned off by hand and investigated further”. The author, along with 2 assistants, Bob Beckett and Michael Bainbridge, spent 2 days in May, 2017 cleaning off and manually stripping outcrop to test the mineral potential at one site.

The site chosen for manual stripping is located along the top of a NNE trending ridge with a cliff-like outcrop at its crest that stretches from “Site 2” to beyond “Site 7” as described in Wilson (2014) and shown in Figure 3. The outcrop near “Site 2” is very steep and loose so a location closer to “Site 7” was chosen for trenching. At this spot the outcrop was reasonably steep but not dangerous and about 5 metres high (UTM – 17 T 722438 4994681, NAD 83).

Exposed in the outcrop is a vertical vein-like structure mostly covered and filled with vegetation and soil. Occurring along the edge of the structure were poorly exposed, broken feldspar crystals to approximately 10 centimetres. As vegetation and soil were removed the nature of this structure was revealed. This structure is mostly an open fissure 10-40 centimetres wide lined with euhedral feldspar crystals 8 to more than 30 centimetres across (Figures 4, 5 &6). In one place massive, course-grained, white calcite bridged the gap between the walls of the fissure (barely visible in Figure 5). This fissure was probably a calcite-filled vein with euhedral feldspar crystals attached to the walls on either side of the vein. The open fissure exposed today is probably a result of surface weathering where some of the calcite from the vein dissolved, leaving behind an open fissure lined with non-soluble feldspar crystals. Soil and vegetation were removed from around the fissure, both uphill and downhill along the fissure. Downhill, the fissure closed and became unrecognizable as a vein or any kind of structure about 1.5 metres above the bottom of the outcrop. Uphill, the open fissure continued to the top of the outcrop and beyond the lip of the slope for about ½ metre, which was the extent of our stripping. The open fissure continues beyond the area we stripped (See sketch map in Figure 8 for details).

At the Schickler Trench and at Wilson’s (2014) “Site 2”, minerals, such as apatite, scapolite, fluorite and hornblende occur in similar vein-like structures. In order to have a better understanding of the type of mineralization and the variety of minerals that might occur at this site, an attempt was made to remove some of the vein wall in order to better expose the fissure. Part of one side of the fissure was removed to expose a small section of the vein (Figure 7). Results were inconclusive. Several samples with euhedral feldspar crystals attached were collected. So far only euhedral feldspar crystals and massive calcite have been identified in this trench. Additional time is needed to expose enough of the fissure to determine if euhedral mineral species other than feldspar occur here.

Summary and Results

Over course of two days a three-person team manually stripped an area of outcrop and exposed an open fissure over a distance of 3.5 to 4 metres. So far only euhedral feldspar crystals up to 30 centimetres and massive calcite have been identified in the exposure. While large feldspar crystals are certainly of interest to mineral collectors, there may be other minerals present in this fissure. Similar structures nearby (eg Schickler Occurrence) contain a variety of collector minerals, so it seems reasonable to expect that a similar variety of minerals might also occur at this site. Additional time will be required to completely expose this fissure and allow for a better assessment of the variety of minerals of interest to the recreational mineral collector.

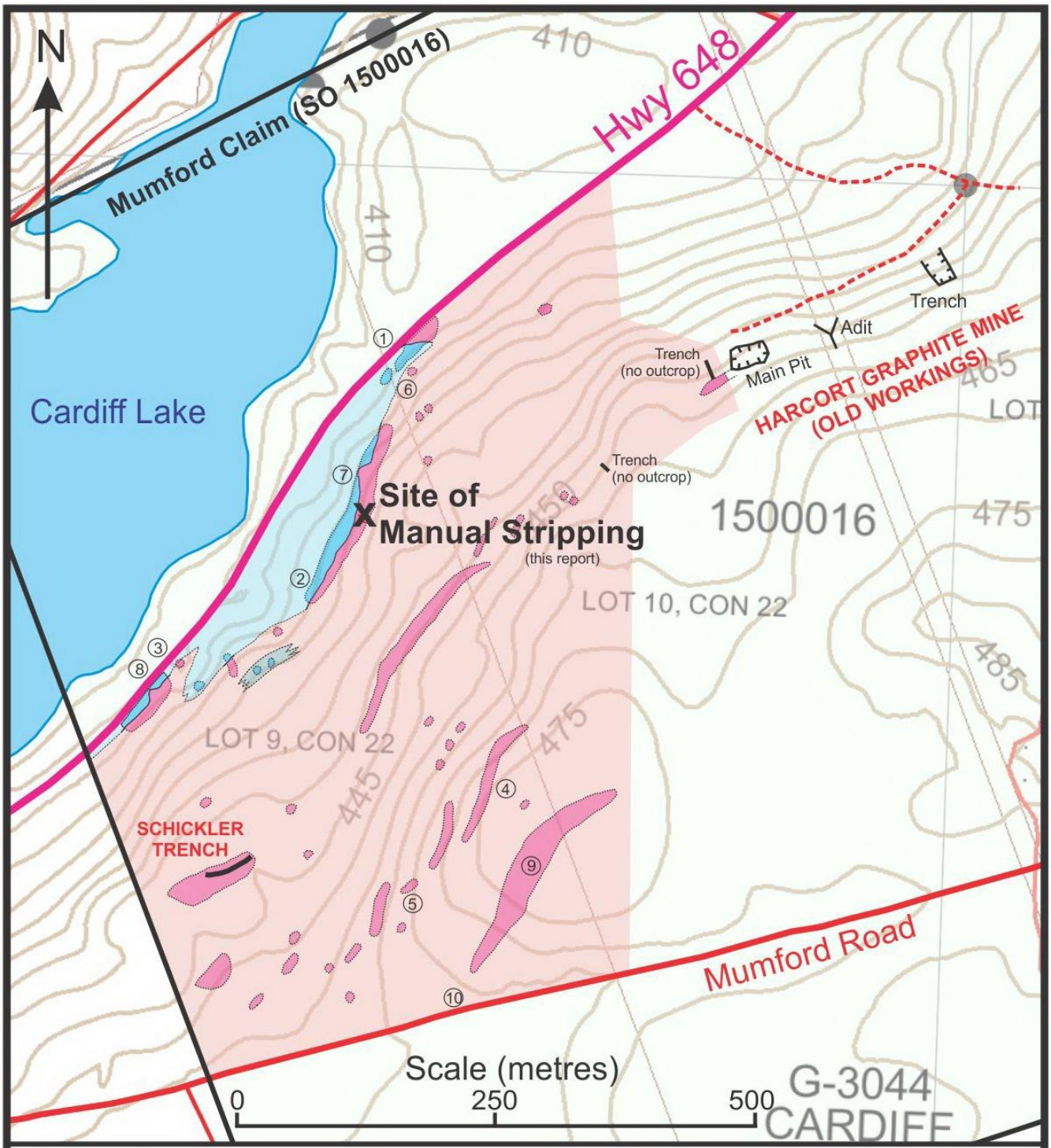

Figure 3; Stripping Location Map on Mumford Claim (1500016), Cardiff Twp. (Modified from Wilson 2014)

Mixed, granite gneiss, foliated grey gneiss and pegmatite (underlain, outcrop).

Marble (underlain, outcrop).

⑤ Mineral occurrence of interest.

X Trench (this report)

Paved road

Gravel road

4 wheel drive/ATV trail

Figure 4; Photo showing fissure early on day one.

Figure 5; Photo of fissure with feldspar crystals exposed.

Figure 6; Photo showing close up large feldspar crystal exposed in the stripped fissure. Two dollar coin for scale.

Figure 7; Photo showing fissure after some wall rock was removed.

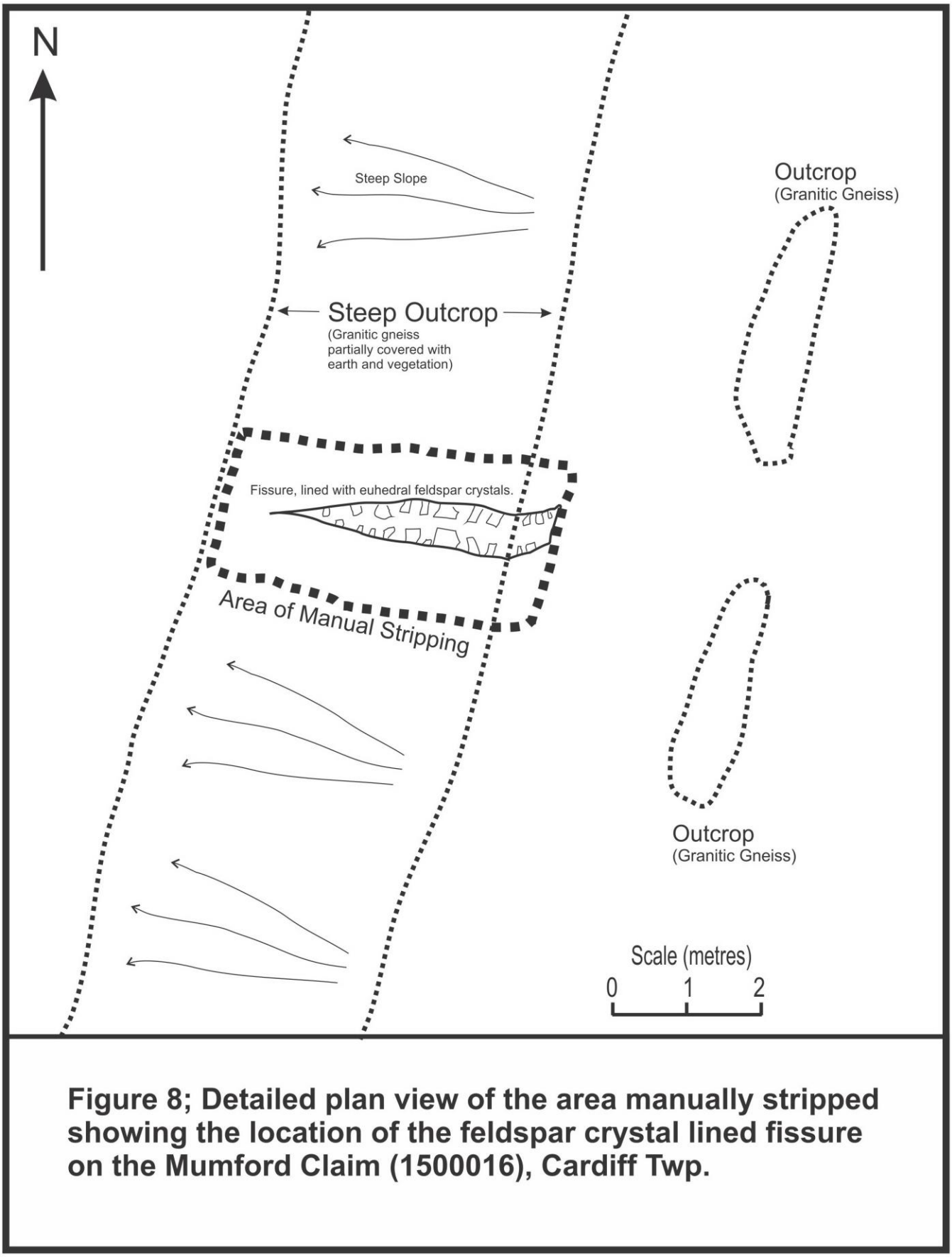

Figure 8; Detailed plan view of the area manually stripped showing the location of the feldspar crystal lined fissure on the Mumford Claim (1500016), Cardiff Twp.

Recommendations

The amount of follow up work on this claim is going to depend on budget and the degree of commitment to develop this claim for mineral collectors. Recommendations from other recent assessment reports are still valid and should be reviewed if budgets allow. Based only on the manual stripping described in this report the author recommends the following;

1/ Continue manual stripping at this site.

Expand the length and width of the present stripping, attempting to expose enough of the fissure to determine if more than just feldspar crystals occur here. Prior to bringing in heavy equipment (eg backhoe), attempt to expose the fissure by hand, farther up the hill. Positive results would make it easier to justify the use of heavy equipment.

2/ Explore the potential of "Site 2".

"Site 2" has the potential to be a significant mineral collecting site. As it sits right now the site is difficult to collect at due to the steepness of the cliff-like outcrop hosting the mineralization. It would be awkward, generally unsuitable and potentially dangerous for the average recreational mineral collector to visit this site. Only the most experienced and cautious collectors should be allowed to collect here at the moment. With a limited budget, this site could be cleaned off by hand and investigated further to see if there is enough mineral potential to warrant further expenditures. If there was a budget for it, this site could potentially be developed for a wider collector audience by stripping off the overburden above the mineralized zone with a backhoe, thereby removing the danger of loose rocks on the steep outcrop and expose a larger area of mineralization for collectors. The author recommends the outcrop be cleaned off by hand and thoroughly investigated prior to bringing in a backhoe.

3/ Consider using a backhoe or excavator to better expose and open up to collectors the present site of manual stripping and "Site 2".

Should the results of recommendations 1 and/or 2 above be positive and budgets allow, the next step to opening these sites to recreational mineral collectors would be to use heavy equipment to strip off overburden.

References

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Wilson, B. S., 2014: Geological Mapping, Radiometric Survey and Mineralization on Part of the Mumford Claim, Cardiff Township, Ontario. Assessment Report

Wilson, B. S., 2016: Geological Mapping and Mineralization on the Eastern Part of the Mumford Claim, Cardiff Township, Ontario. Assessment Report

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 during parts of 23 of the last 37 years 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 (SO 1500016).
8/ performed the work described in this report.

Bradley S. Wilson

June 1, 2017
Amended August 3, 2017