



Report prepared by Independent Archeologist Ryan Primrose of Woodland Heritage Northeast based on review of CNC and WSP- Updated Stage 1 Archeology Report – Crawford Mining Project (September 2024)

Prepared for: Mattagami, Matachewan and Flying Post First Nations

Feb 8, 2025

Requested changes:

(1) In the WSP report, the following recommendation has been made regarding future Stage 2 survey work (emphasis added).

1) Approximately 416 ha (2.5%) of the study area is identified to have archaeological potential but is a wooded environment where ploughing is not possible or viable (Appendix A: Figure 10). If the Project will impact any areas identified to have archaeological potential, Stage 2 archaeological assessment should include, in addition to standard visual inspection, **examining the stream banks in the modelled areas from watercraft to refine the areas of archaeological potential that require Stage 2 test pit survey.** The Stage 2 test pit survey should then be conducted through hand digging shovel test pits at distances between 0 m and 50 m from the modern primary water sources at 5-m grid intervals, or at 10-m intervals on the features of archaeological potential (i.e., the esker and sandy area), per Section 2.1.5 Standard 1 of the Standards and Guidelines for Consultant Archaeologists (MCM 2011). Per Section 2.1.2 of the Standards and Guidelines for Consultant Archaeologists (MCM 2011), the test pit survey must be conducted to within 1 m of built structures or until the test pits reveal evidence of recent ground disturbance, and all test pits must be a minimum of 30- centimetres (cm) diameter and dug to a minimum of 5 cm into subsoil. All excavated soil or sediments must be screened through 6-millimetre (mm) mesh screens to recover artifacts. The excavated test pits should be examined for stratigraphy, cultural features, or evidence of fill, then backfilled to level grade unless directed otherwise by the proponent. If archaeological resources are found, the test pit survey must continue on the established grid to determine if there are other archaeological resources in sufficient quantities to recommend Stage 3 archaeological assessment; if there are insufficient archaeological resources to recommend Stage 3 archaeological assessment, it is required that intensified test-pit survey and test-unit excavations be conducted at the initial find location following Option A or B under Standard 2, Section 2.1.3 of the Standards and Guidelines for Consultant Archaeologists (MCM 2011).

This should read, “to identify areas of archaeological potential not shown on the archaeological potential model due to the resolution of the data sets used.”

Essentially, the intent of the suggestion made by Wabun was to assume (by default) that there would be areas of archaeological potential not detectable through the modelling efforts along those streams which can pass a canoe, and then depending on the ground

conditions encountered in person, those areas of assumed archaeological potential could be refined to eliminate saturated lands, or other physiographic conditions preclusive to past human settlement. It was not intended to further refine the modelled areas alone. In the north there are often discrete pockets of potential, or areas the remotely sensed data used by the FRI or the provincial wetlands layer did not correctly describe. Archaeological sites have been located in otherwise saturated areas where these discrete areas of potential exist.

The section of the recommendation to be revised to reflect the intent of the earlier communication, and to acknowledge that areas of archaeological potential may elude modelling efforts.

(2) With regard to the mapped beach segment from the North Timmins Region Surficial Geology Map P.3564. WSP States on Page 8 of the September version of the report that:

A small section of beach ridge formed by glacial Lake Barlow-Ojibway survives in the southeast portion of the study area (OGS 2005) (Appendix A: Figure 6)

Further on Page 14, WSP describes their approach to investigating other features associated with the margin of the post-glacial lake:

Analysis of available LiDAR (Appendix A: Figure 6) combined with results from WSP's geotechnical investigations (Steven Hales, personal communication 2023) indicate that the beach ridges mapped by the OGS (2005) in the southeast portion of the study area are isolated survivals of glacial Lake Barlow-Ojibway.

The appropriate way to model for post-glacial shorelines and other marginal features is to use the LiDAR bare earth elevations, a reference surface which is used to subtract the uplift effects of isostasy in the direction of maximal uplift from the current land surface. Geotechnical investigations may encounter beach sediments on the surface, but investigations into the deeper sedimentary strata is not a replacement for modelling efforts using high resolution bare earth surfaces.

The surficial geologists, using stereoscopic air photo analysis only detect the most obvious of shorelines. Work undertaken in the Agassiz basin, the post-Minong phases of the Superior basin, and modelling of Lake Ojibway shores to the east of the current study area have clearly demonstrated that many other shoreline features are located beyond those mapped by the surficial geologists. This has been proven archaeologically where sites have been located along a previously unmapped Tintah shoreline which was reconstructed by way of LiDAR modelling.

Should you wish, consultants working with Wabun can model these shorelines for your use in the Stage 1 report.

Suggested general revisions:

It is recommended that 2.1.9 be removed from the recommendations for two reasons. There is only a very small area of bedrock located within the overall study area, and the depth of till over the bedrock is unknown. The remainder of the property is either sediments, or peatlands over sediments, both of which will have deep soils. The second reason is that despite the recommendation being present in the Standards and Guidelines, it is not a suitable approach for detecting archaeological deposits in the north. This latter statement is based on the experience of archaeologists who began working in the 1970s and is also based on the experience of the author who has 27 years experience working in the north.

It is also recommended that 1.3.4 be removed from the report as this area, with a provincial highway bisecting the study area is not remote. This has been confirmed with MCM.

Further, it remains recommended that additional discussion of soils which are not permanently saturated be described as they are present in the study area. Finally, the claim that *Populus tremuloides* as unlike other *Populus* species, *tremuloides* is not well adapted to the wettest of sites, and is not an indicator for saturated conditions the way Larch, and black spruce, particularly low black spruce is.