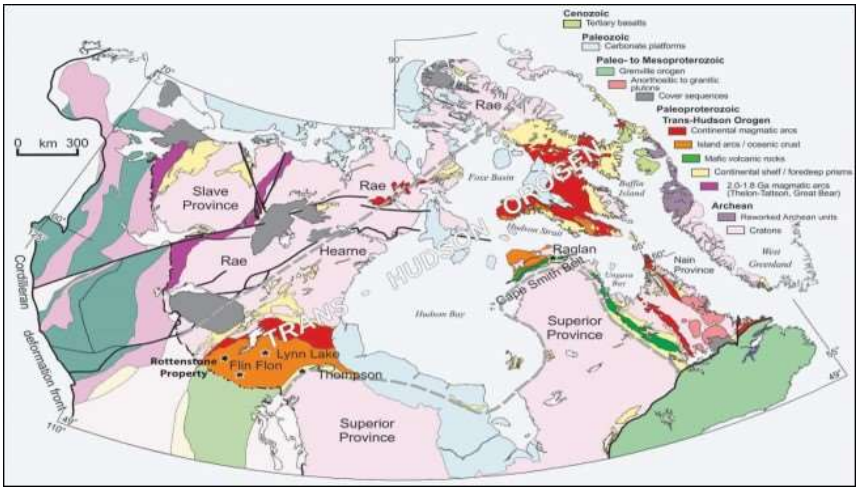
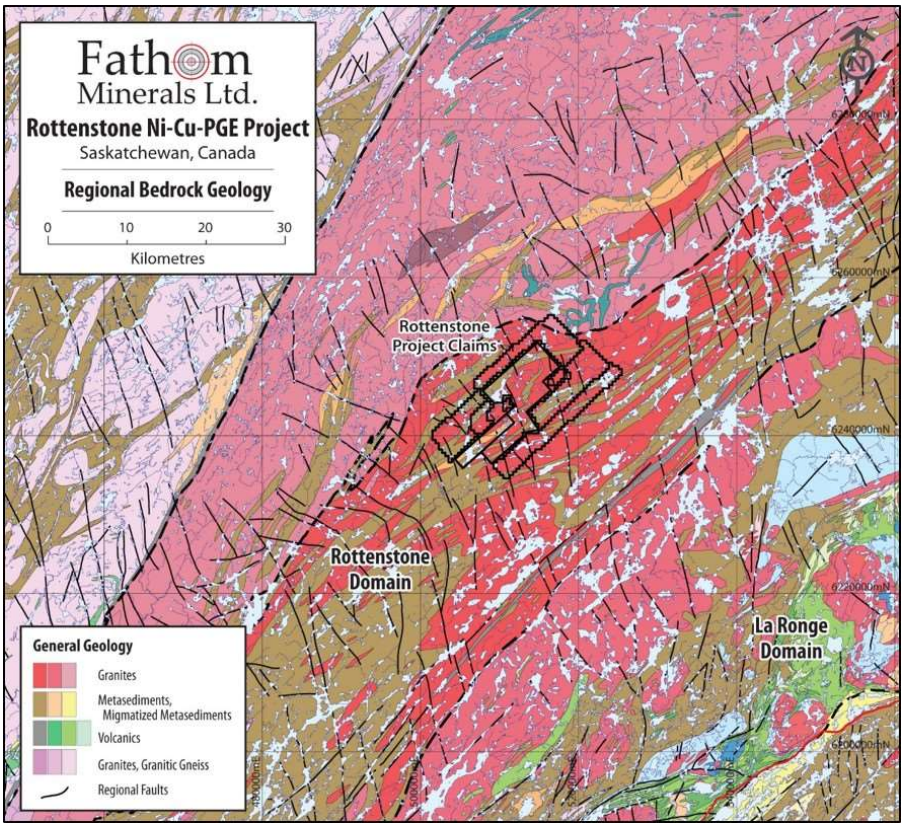
Geology

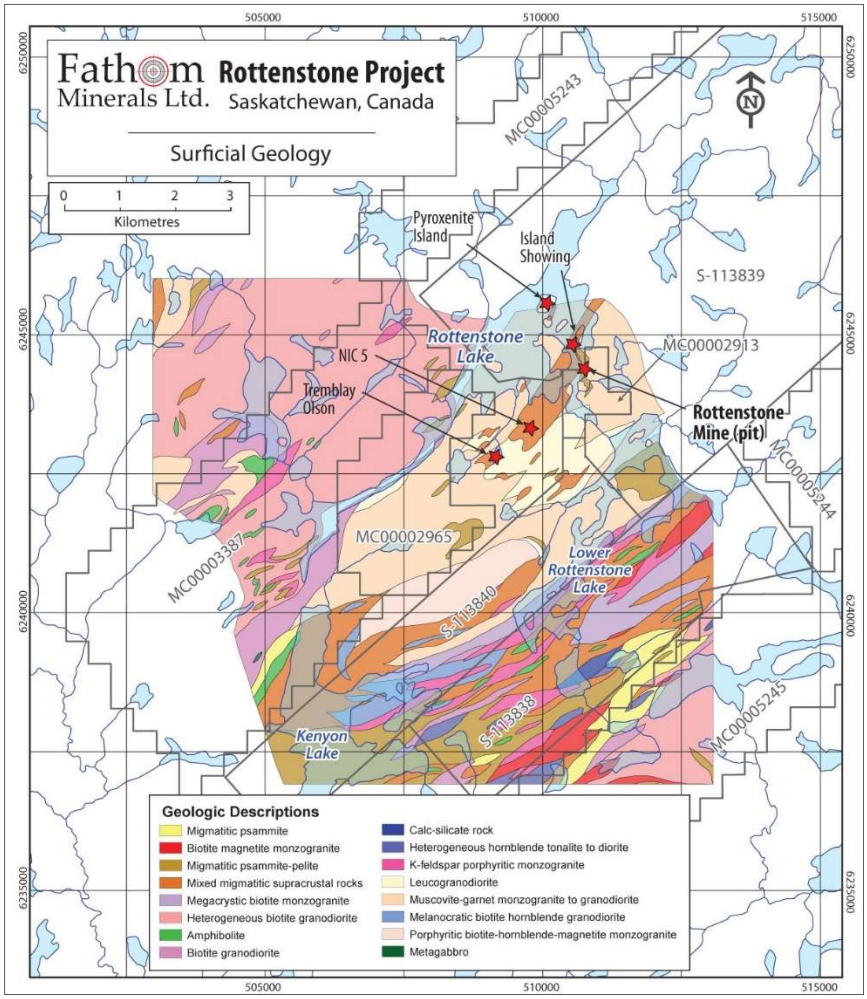
The Rottenstone property lies within the Rottenstone Domain of the Proterozoic Trans-Hudson orogenic belt. The Trans-Hudson Orogen is considered a major orogenic belt that stretches from the USA through Canada and extends to Greenland and defines the boundary (interpreted zone of accretion) between the Hearne and Superior cratons (provinces) (Corrigan et. al, 2007). The Rottenstone Domain is described as a broad belt of early to late syntectonic, northeast trending arcuate tonalite to granite intrusive rocks with associated injection migmatites. Within the Rottenstone Domain, occurs the Wathaman batholith (1855±6 Ma); an early Proterozoic intrusive of significant proportion (up to 900km in strike) consisting of magnetite rich granite-granodiorite. The metamorphic grade of the Rottenstone Domain is mid-upper amphibolite.





The Rottenstone property bedrock geology is dominated by northeast striking, northwest dipping meta-tonalite-trondhjemite-pelitic migmatite complex of Paleoproterozoic age. The local geology / stratigraphy as defined by available drill logs, property scale mapping and most recent 2003-2005 government of Saskatchewan mapping at the Property, is complex. MacLachlan (2003, 2005) divided the immediate Rottenstone property area into 2-phase granitoids and supracrustal rocks. The granitoids are mapped as pre strong foliation and post strong foliation. Pre strong foliation granitoids comprise of granodiorite to monzogranite with minor diorite, tonalite and quartz monzonite. Post strong foliation granitoids consist of white to pink tonalite to monzogranite that contain abundant metasedimentary xenoliths and schlieren. The supracrustal rocks; the oldest rocks occurring on the Rottenstone property, include pelite, psammite, migmatitic psammitic to pelitic metasedimentary rocks, along with a variety of supracrustal rocks

comprised of layered, calc-silicate, melanocratic, biotite-hornblende-plagioclase rich metasedimentary – metavolcanic rocks, along with amphibolite.



The ultramafic intrusions; host to the Rottenstone deposit, the Tremblay-Olson showing, and other known ultramafic occurrences occurring on the Rottenstone property occur within the metasedimentary supracrustal rocks. At present, there is not an exact age date available for the ultramafic intrusions; however, the intrusions are recognized to have intruded into migmatized metasediments and granitic rocks that exhibit ages 1814 – 1833 ±2-5 Ma. This range in age, and specifically for intruding mafic – ultramafic rocks is consistent with the Proterozoic age of the Raglan and Thompson Nickel Belts. The Rottenstone deposit occurs within a harzburgite-orthopyroxenite sill-like body. The Tremblay-Olson showing occurring approximately 2.0 kilometers southwest of Rottenstone deposit occurs within a pyroxenite.

Structurally, the history of the Rottenstone Domain and locally the Rottenstone property is complex, and the particulars of the structural events have been masked by the formation of the migmatite complex. MacLachlan (2003, 2005) discusses various fold types with northeast-striking axial planes. Also, it is very obvious from Landsat images and from available regional geophysical data (MAG) the property area is cut by several northwest – southeast structural lineaments suggestive of deep-rooted multi-phase faults and shears. A very significant fault (Fraser Fault) striking northeast and dipping 15° to the northwest was recognized by Uravan drilling in the Rottenstone deposit area 1999 – 2003. The Rottenstone deposit sits in the immediate hanging wall of the fault. The fault could be the conduit for the ultramafic host; or, possibly truncates the deposit suggesting there should be more Rottenstone-type mineralization in the footwall of the fault. The fault has been interpreted to be a reverse fault; hence, the continuation of Rottenstone, if it is in the footwall, should be at depth.

References:

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