

GEM-Energy Yukon and Liard Basins Project: Application of a New Surficial Geology GIS to Drift Resources and Geohazards Assessments of the Maxhamish Lake Map Area (NTS 0940), Northeastern British Columbia

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Sustainable economic investment in exploration and development of energy and mineral resources in northeastern British Columbia requires quality infrastructure development (e.g., roads, well pads, pipelines, campsites) to ensure access to the land base and reliable silica sand and sources to facilitate hydro-fracturing in gas wells. To help address these needs, the Geological Survey of Canada (GSC) and British Columbia Ministry of Energy are currently compiling regional-scale information on surficial deposits and landform processes in the Maxhamish Lake map area (NTS 0940) as a component of the Geo-Mapping for Energy and Minerals (GEM-Energy) Program Yukon and Liard Basins Project. Our innovative research and outreach builds on the knowledge of other regional studies and surficial mapping projects in northeastern British Columbia. The terrain model presented conforms to the science language for the data management component of the GSC GEM geological map flow process. Remote predictive terrain classification and digital mapping combined with benchmarking field-based studies have led to a better understanding of the regional distribution of surficial deposits, permafrost, landslides and other geomorphic processes. Our work is also improving our knowledge of the limits of glaciation, the range of subglacial processes, the patterns of ice flow, and the history of ice retreat and glacial lake formation during a dynamic period of climate change and geomorphic adjustment. This new geoscience information is critical for a preliminary evaluation of the potential for granular aggregate, possible groundwater and frac sand sources, and a baseline assessment of geohazards in the map area.