

**DATE** May 25, 2011**PROJECT No.** 09-1416-0004/3000**TO** Mr. Derek Holmes  
BURNCO Rock Products Ltd.**CC** Mr. Mark Johannes, Ph.D.**FROM** Mr. Fred Shrimmer, P.Geo., LG/LEG (WA)**EMAIL** Fred\_Shrimmer@golder.com**RATIONALE FOR 2011 GEOPHYSICAL SURVEY OF FAN-DELTA,  
MCNAB VALLEY AGGREGATE PROJECT**

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This memorandum outlines the rationale and benefits of undertaking the geophysical survey investigation work that Golder recommends at the McNab Valley Aggregate Project site on Howe Sound.

Currently, Golder has data in hand from our own drilling program (summer 2010) as well as some additional drilling data from earlier investigations by others. Neither set of data has provided a clear perspective of the subsurface, in terms of:

- total thickness of sediment deposits that form the fan-delta;
- the nature of the McNab main channel subsurface;
- the depth of bedrock below the surface;
- the shape of the bedrock surface contours beneath the fan-delta; and
- the relationship between tidewater and the existing groundwater regime.

As a result, we have been unable to answer queries on these topics when asked by regulators and others scrutinizing the proposed McNab Valley Aggregate Project. We have provide speculative, "best guess" responses. Since none of the drillholes that were put down in the main portion of the resource were terminated in bedrock, we have not been able to adequately define the bottom of the structure of the fan-delta.

The reasons the drillholes were terminated prior to reaching bedrock were due primarily to hydraulic conditions in the sediments that resulted in sand and water blowing back up the drillstem. Under these circumstances, the holes had to be discontinued.



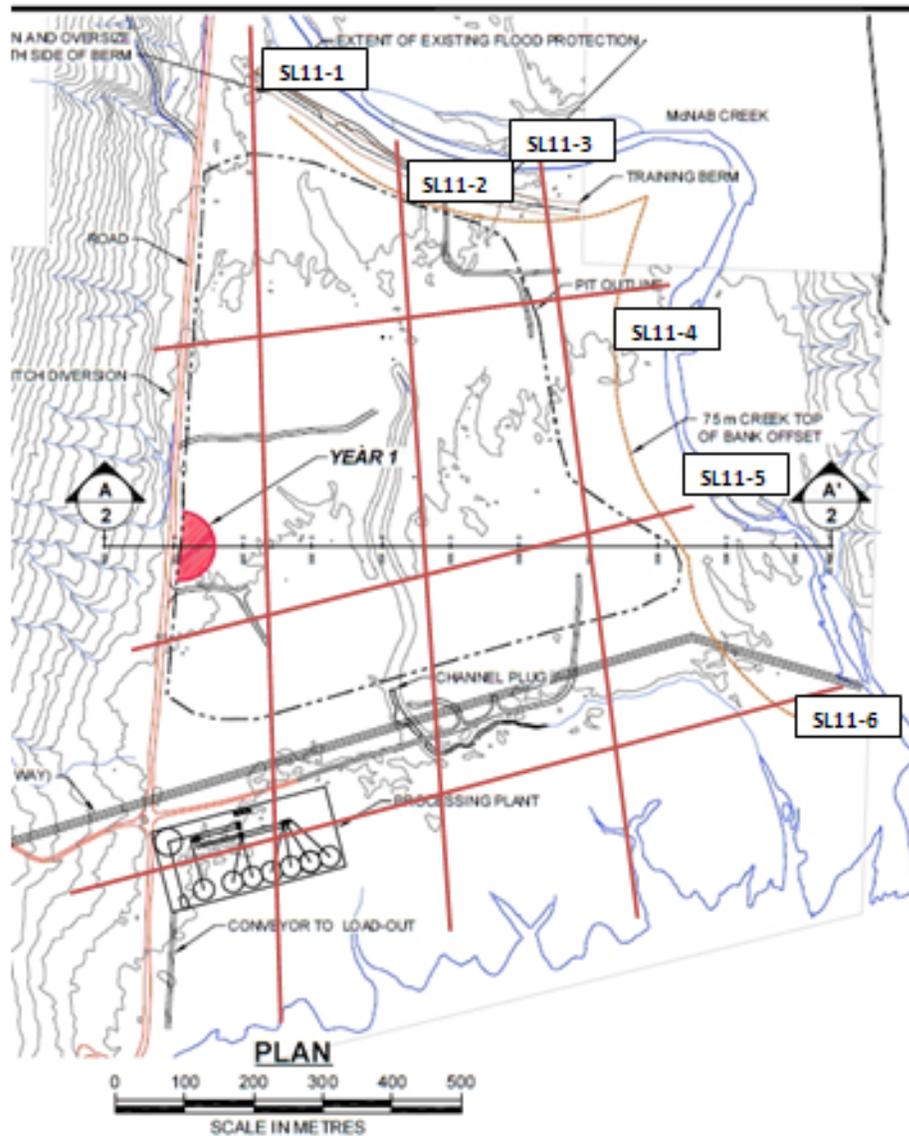
Since drilling was unable to define the bottom profile, the extent and the nature of the bedrock surface, we have proposed to conduct a geophysical survey -- specifically a Seismic Refraction survey -- to assist in providing/developing this information. This is the same type of geophysical survey that was used in 2009 to define conditions on the western slopes of the property towards the north end of the property.

What we envision that the geophysics will enable and assist us with includes the following:

- Delineation of resource geometry and distribution of sediments that comprise the economic deposit (horizontal and vertical). This will also assist in more concisely defining the resource itself.
- Definition of the depth to and extent of bedrock. It is our expectation that this will or hopefully can assist us – the geologists, the engineering team, the hydrogeologists, the hydrologists and the fluvial geomorphologists -- in developing a clearer understanding of how the McNab channel is controlled. This in turn would enable us to more confidently address issues concerning channel stability, ingress of water, seismic sensitivity, and others raised by DFO, Environment, Mines, and others.
- Definition of shoreline – aggregate distribution into Howe Sound. What is the nature of the sediments that comprise the foreshore and the aggrading portion of the fan-delta?
- Side slopes and characteristics of bedrock, geology, surficial materials, etc. This data feeds into pit design modelling, Mine plan engineering, and hydrogeological characteristics of the deposit.
- Better definition of hydrogeology, hydrology and modeled project results based on geophysical survey results.
- Improved understanding of terrain stability related to pit development.
- Improve understanding of surface water distribution based on geology and surficial materials in order to plan fisheries habitat compensation.
- Improved mine design for better definition of project-related impacts on environmental resources.

In order to facilitate these objectives, we have proposed to undertake two sets of approximately parallel seismic lines. One set would consist of three North-South lines and the other or three East-West lines. This is depicted as follows:

## Proposed 2011 Seismic Refraction Survey lines



The expectation is that in conducting this geophysical program, it would be possible to develop a suitable bedrock surface / deposit bottom profile. This would then be directly relevant to the objective of defining the project geology, and the overall resource geometry and gross volume.

In addition, it would be possible to model the southern portion of the fan-delta and tie into the previous waterborne geophysics data. This in turn would enable us to develop more coherent insights into the questions surrounding transmissivity of saltwater in the estuarine region and would assist in addressing saltwater-freshwater exchange potential.



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