

## CONCLUSIONS AND RECOMMENDATIONS FOR EXPLORATION AND FUTURE STUDY

### Conclusions

Figure 72 is an idealized stratigraphic section which illustrates the following generalized stratigraphic relationships:

1) pre-Reid glacial till (diamiction) rests on bedrock, and it in turn may or may not be overlain unconformably by glaciofluvial gravels;

2) alluvial fans of Reid to McConnell age may unconformably overlie the pre-Reid glacial till, or may lie directly upon bedrock; these complexes are in turn often unconformably overlain by colluvium;

3) McConnell to Holocene-age gulch gravels may unconformably overlie both alluvial fans and pre-Reid glacial deposits, or may rest directly upon bedrock, and are themselves often overlain by colluvium; and

4) capping the entire sequence are various Holocene-age buried organic horizons, silt/clay and at least two separate tephras.

### Favorable Stratigraphic Settings for Gold

Favorable stratigraphic settings as noted in Figure 72 are as follows:

- 1) at the glacial till (diamiction)/bedrock contact; 2) within the glacial till (diamiction) itself and in intraglacial gravels within the till;
- 3) at the alluvial fan gravel/glacial till unconformity;
- 4) scattered within alluvial fan complexes, most favorably at the apex of the fan, and
- 5) at the gulch gravel/alluvial fan or bedrock unconformity.

During McConnell glaciation, ice did not advance close to Nansen and Victoria creeks, however some aggradation probably occurred in Nansen and Victoria creeks, resulting in the formation of some alluvial fans. Glacially-derived deposits of loess blanketed the area and filled hollows in tributary valleys.

In the period from the end of McConnell glaciation to the present, streams have generally degraded, leaving low relief terraces adjacent to present stream courses and further dissecting older alluvial terraces where they are proximal to present streams. Colluvial processes remained active on tributary valley slopes.

### Placer Gold

Limited bulk sampling and placer mining shows that glaciogenic diamiction on Klaza River, Nansen Creek and Back Creek contains significant accumulations of placer gold, primarily at the diamiction/bedrock contact. Gold is also concentrated at the gravel/diamiction and gravel/bedrock interface, primarily in Facies 9 (disorganized gravel) and Facies 10 (massive to crudely stratified gravel). The primary mechanism of concentration in these Facies 9 and 10 is likely to be selective entrainment of lighter mineral grains during major flood events, which results in an accumulation of heavy minerals (Slingerland, 1984). Continued reworking of gravels resulted in increased concentrations of heavy minerals at bedrock and other impermeable surfaces such as the clay-rich diamiction (Cheney and Patton, 1967).

Placer gold concentration in the diamiction is likely due to glacial erosion and incorporation of a mantle of extensively eroded bedrock material. This material consisted of pre-existing alluvium and supergene-enriched residual placers.

Previous workers (Cairnes, 1915a; Bostock, 1936a; 1966) suggested that significant placer gold concentrations occur only in alluvium that lies either upon bedrock or glacial till and no gold is present either in or below the till on bedrock. New data from this study suggests that significant amounts of placer gold also occur within the diamiction, principally at the diamiction/bedrock contact.