

## The debris barrier – silently protecting Whistler Village

Just north of Whistler Village lies a massive project that most residents and visitors will never see as it silently protects the resort from disaster. It's a new state-of-the-art debris barrier, designed to protect Whistler Village and surrounding areas in the event of a flood.

The debris barrier is a large steel grill (approximately eight metres tall and 12 metres wide that spans Fitzsimmons Creek, 400 metres downstream from the Whistler Blackcomb snowmaking pond. It is anchored with concrete and reinforced earth abutments on either side of the creek.

In the event of a flood, the barrier will prevent debris, including large quantities of sediment, rocks, and logs from blocking Fitzsimmons Creek and potentially causing damage to infrastructure and private property adjacent to the creek.

"It is the first large scale debris flood mitigation structure project in B.C.," said Mike Currie, president of Kerr Wood Leidal Associates. "All of the flood mitigation structures along the Sea-to-Sky highway are for mitigating debris flows. A debris flood is a hybrid between a flood and a debris flow."

Fitzsimmons Creek bisects Whistler and Blackcomb Mountains and runs past into Green Lake. The debris barrier prevents damage from the Fitzsimmons Slip, located two kilometers above Whistler Village and is a glacial drift that is moving gradually down slope into Fitzsimmons Creek. While the landslide itself poses little direct threat to life or property, the risk lies in its potential to block the creek, which is where the debris barrier comes in.

The debris barrier is an important project. Whistler is currently protected by a diking system designed to protect the village from a 1:200 year flood event. At normal water levels, the debris barrier will not obstruct the flow of water through Fitzsimmons Creek. It will, however, provide an added level of flood protection to the municipality.

A team of UBC engineering researchers have been involved with the debris barrier project. They conducted hydrogeologic modeling to determine deposition profiles for debris and used powerful debris flood simulation software to demonstrate the potential impact of a 1:500 year debris flood on Fitzsimmons Creek.

Their first model showed the outcome of a major debris flood with Whistler's current level of flood protection. In this model, flooding exceeds the capacity of the current diking system and extends beyond the day skier parking lots into Whistler Village and residential areas.

With the debris barrier in place, the engineering researchers conducted a second test and determined that the impact of a 1:500 year flood would be considerably less. This project provides Whistler with an innovative long-term solution to a potentially devastating debris flood hazard.

The debris barrier is part of the RMOW's 2008 Five-Year Financial Plan and pay-parking revenues over the next 20 years will cover the cost of its construction as well as provide significant funding (approximately \$500,000 per year) for transit programs.

In exchange for Whistler's building and funding a flood mitigation system for the slip hazard, the Province granted ownership of the day skier parking lots to the resort municipality as a Crown grant

Pay parking revenues will be implemented in day skier parking lots 1 to 3 in the summer of 2010.