



Glacier Skywalk Geotechnical Investigation and Design

Geographical location

Jasper National Park, along Icefields Highway, approximately 60 km south of Jasper Alberta.

When it began or was completed

Investigation and design began in 2011 and construction was completed in 2013.

Why a Canadian geotechnical achievement?

The Glacier Skywalk integrates a glass floor 'skywalk experience' with National Park wilderness experience, while protecting the stunning ecological environment. The unique structure is built into the limestone bedrock using weathering steel, glass and wood to mirror the natural environment.

The cantilevered, asymmetric structure has significant shear, compression and tension foundation loads which, combined with the desire to integrate the structure into the natural bedrock, presented significant geotechnical foundation support and slope stabilization challenges.

Integrating the structure into the natural slope resulted in high foundation loads close to the slope crest where zones of highly weathered limestone rock exist. Steel micropiles, tension anchors and rock bolts up to 15 m long were designed to resist foundation loads and to address slope stability. Cased micropiles were required to provide lateral support through the highly fractured zone at the north footing. Horizontal rock bolts were also installed to stabilize the highly fractured zone below the footing. The rock bolts needed to be carefully oriented to avoid geometric conflicts with the micropiles and tension anchors – a challenge when drilling with equipment hanging over the slope suspended from ropes.

Glacier skywalk is owned and operated by Brewster Travel Canada.

Submitted by

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Photographs



North footing during construction showing micropiles and extensive rock anchors.



Aerial view during construction showing large footings and steep rock slope.



Completed structure with glass floor.