

# Infrastructure and Permafrost Thaw

Conducting a risk assessment to understand how thawing permafrost will impact key buildings in Ross River, Yukon

## CONTEXT

Northern Canada is at the forefront of climate change impacts, especially in the discontinuous permafrost zone. Permafrost thaw may affect the stability of existing and proposed community infrastructure. By identifying the risks and developing adaptation and management plans, northern communities will be more prepared for a changing permafrost landscape.



Photo: archbould.com

## OBJECTIVE

To conduct a risk assessment of public buildings and develop customized best management practices for operating and maintaining buildings on permafrost. The project will focus on infrastructure of critical importance for Ross River, Yukon, such as the school, community and recreation centre, and daycare facility.

## APPROACH

For the risk assessment, researchers identify critical infrastructure affected by permafrost degradation, and use geophysical surveys and the analysis of permafrost core samples to characterize and assess the permafrost that surrounds sensitive buildings. These results are then integrated to determine permafrost distribution and characteristics, and assess thaw sensitivity and potential impacts on infrastructure.

## EXPECTED RESULTS

This project will support Property Management Division's maintenance and construction staff by improving our collective understanding of permafrost under key building stock. Best management practices developed through this project will inform ongoing maintenance and monitoring operations, and will help ensure the integrity of local infrastructure. Results will also be valuable for other northern communities experiencing changing permafrost regimes.

## Significance

*Risk assessments can help northern communities develop best practices for maintaining buildings on degrading permafrost*

## Partners

- Property Management Division, Highways and Public Works, Government of Yukon
- Natural Resources Canada
- Northern Climate ExChange, Yukon Research Centre

## FOR MORE INFO

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