

Matthew Hamp
Director of Engineering and Sustainability
City of Iqaluit
P.O. Box 460
Iqaluit NU X0A 0H0

October 22, 2018

Project #
60571501

Dear Mr. Hamp:

**Subject: West 40 Landfill Drainage Management Review 2011
Supplemental Information to 2011 Report in Reference to Permafrost Regime of Site**

In response to the request from the AANDC dated July 10, 2015 to the Nunavut Water Board to update the West 40 Landfill Drainage Review, 2011, AECOM has prepared this supplemental document to address the comments in Section 4.1 West 40 Landfill Leachate and Runoff, concerning the permafrost regime beneath the landfill.

A report by Hardy BBT Limited, dated May 1991 was prepared to address the West 40 site development and included 20 boreholes drilled on the site. A complete copy of the report is attached as a reference document, including the borehole logs.

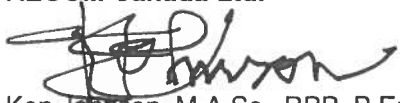
The Hardy BBT Limited report was the basis for the design of the landfill site, including the reliance of permafrost as a low permeability barrier to control the subsurface runoff. The recommendations in the report included (Section 7.4) "perimeter berms constructed ... on the west site of the southern portion of the site, and the southern boundary of the site from the southwest corner to the rock outcrop in the east." These berms were constructed in 1994, and have been maintained with the operation of the landfill since that time.

The report noted that "ponded water can increase the depth of thaw which would decrease the berm's effectiveness in blocking active layer seepage. Snow melt and rainwater should be collected at some low point, a minimum of 10 m from the eventual toe of the containment berm." Based upon this information, the extent of the permafrost thaw would be 10 metres from the edge of the ponded water.

The attached figure shows the 10 metre setback from the ponded water and the anticipated extent of the permafrost thaw based upon the information in the Hardy BBT Limited report. The extent of the anticipated thaw of the permafrost is within the boundary of the landfill site.

If any further clarification is required concerning this information, please contact the undersigned.

Sincerely,
AECOM Canada Ltd.


Ken Johnson, M.A.Sc., RPP, P.Eng.
Senior Planner and Engineer



OCT 22 2018

KJ:blb

Attachment: Environmental and Geotechnical Investigation, Proposed Solid Waste Site, Iqaluit, NWT, prepared May, 1991 for UMA Engineering Limited by Hardy BBT Limited, Yellowknife, NWT