

October 6, 2016

Lekan Mitchell, E.I.T.
Engineer in Training, Transportation Engineering
Highways and Public Works

BY Email (no original to follow)

RE: UAV Survey, Dempster Highway

This report covers a UAV survey of km's 102-128 Dempster Highway.

This project was for envisioned to be completed in 2-3 days using our fixed wing UAV. High winds and snow conditions required we re-fly several sections for improved quality of photos. As a result the project was completed in 4 days. Unseasonably cold conditions (-20 every day, as cold as -25) was an additional challenge that did not impact quality although it slowed progress somewhat. October 17 was flown with our quad copter UAV due to cold (-25) that made operating our fixed wing UAV problematic. This section is 14-18 in our returns. All other sections were flown with our fixed wing UAV.

Data was required 50 meters on either side of highway CL. We have trimmed to elevation information to 60 meters either side of CL as the quality of elevations degrade as they get further from the UAV targets. We have not trimmed the orthophotos as they may be of use at full width.

Data was collected October 14-17, 2016. We have attached a validation report for this project.

The validation report compares GNSS measured spot elevations to elevations derived from the surface mesh. The surface mesh is created using the bare earth point cloud.

I, Paul Burbidge, Canada Lands Surveyor, hereby certify that, to the best of my knowledge as far as can be practically ascertained, the surveys carried out in the execution of these works have been carried out in accordance with the Contract Documents and Good Survey Practice.

Yours truly,



CHALLENGER GEOMATICS LTD.

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Branch Manager,

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