NOTICE OF UNIVERSITY ORAL

GEODESY AND GEOMATICS ENGINEERING

Master of Science in Engineering

Jason Bond

March 30, 2004
@ 12:30 pm
Room E11 - Head Hall

Board of Examiners:	**Co-Supervisors:**	**Dr. Adam Chrzanowski, GGE**
		Dr. James Secord, GGE
	Examining Board:	**Dr. Peter Dare, GGE**
		Dr. Arun Valsangkar, Civil Eng.
	Chair:	**Dr. David Coleman, GGE**

AN INVESTIGATION ON THE USE OF GPS FOR DEFORMATION MONITORING IN OPEN PIT MINES

ABSTRACT

In order to implement GPS for deformation monitoring purposes, sub-centimetre displacements must be able to be detected in all three direction components. These results must be attained with such frequency as to provide sufficient warning of impending danger. In applications such as open pit mining where unfavourable conditions exist for GPS, this requirement is particularly challenging to meet.

This research determines what accuracy can be expected in an unfavourable GPS environment. GPS data which has been collected in a large open pit mine is analyzed using optimal software settings determined from a near ideal scenario.

It is shown that GPS can be used to augment the current robotic total station deformation monitoring system used at this mine site to obtain sub-centimetre accuracy displacement values at 95%. The potential for improving these results through processing strategies and new technology is also investigated.