



# TAC Tunnelling Association of Canada

## ACT Association Canadienne Des Tunnels

**Date:** October 5, 2005  
**Project:** Richmond • Airport • Vancouver LRT  
**Location:** Vancouver, British Columbia, Canada  
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### Announcement:

LOVAT has been selected by the SNC LAVALIN - Società di Esecuzione Lavori Idraulici (SELI) SpA JV to supply a soft-rock Earth Pressure Balance Tunnel Boring Machine. The EPB-TBM will be used to bore 2.1-kilometre "twin" tunnels, from to False Creek South Station to beyond Robson Station. The tunnel will be lined with pre-fabricated concrete segments.

The geology along the alignment will consist of sandstone (containing volcanic dykes) and glacial till (which contains very large granitic boulders).

LOVAT will design, custom manufacture, and test a new 6.0 metre-diameter TBM for delivery to site by March 15th, 2006. The TBM will be designed for conditions of up to 4 bar EPB pressure and an advance rate of 15 cm/min.



The tunnels will form part of a connection between Vancouver International Airport and Richmond City Centre with downtown Vancouver. The tunnels will pass beneath False Creek where a 4-metre tidal range will cause twice daily fluctuations in EPB pressures of up to 0.5 bar. After passing False Creek, the tunnels will thread their way under and between high rise condominiums and office towers, negotiating multiple 200 metre-radius curves to avoid building foundations.

The Cuttinghead of the TBM will be of Open-Type, with 17" disc cutters powered by a 1,200 kW VFD drive. To cope with the varied geotechnical conditions, a ground conditioning system comprising of foam and polymer will be used. Additionally, a bentonite ground-loss replacement system will be used for fine control of EPB pressure.

