

**Blasting For A Lokotrack System**  
**Ting Kau Highway Cut**  
**Route 3 Country Park Section**  
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Abstract

Cautious, productive blasting is employed in the adaptation of a mobile crushing system extending into a highway through cut.

In Hong Kong's final chapter of infrastructure development in preparation for handover of sovereignty, the vital link to the new governing country, The People's Republic of China, is now being completed. The Ting Kau approach and Tai Lam tunnel involves the removal of 6 million cubic meters of rock by drill and blast means. For the main-cut excavation (because of removal logistics) a unique adaptation of a Lokotrack crushing and conveyor transfer system is being used. The characteristic narrow working area associated with through cuts, positioning of equipment, and production demand place many limiting factors on blasting. Add to this the strict criteria set by the local regulatory body, the Hong Kong Mines Division, and nearby vibration limiting structures (13mm/sec), has led to highly cautious, fine-tuned blasting.

Discussed in the paper are the design factors considered in adapting a mobile crushing/conveyor system to a highway through cut; the approach to this adaption: mining plan, equipment selection, and blast scheduling; the principles for blasting for a mobile crushing/shovel system: limited mobility of equipment for blast clearance, subdrill/excavation depth, fragmentation, muckpile profile, and diggability; technical aspects of blast design: hole size, burden stiffness and pattern ratios, delay sequencing, explosives selection, and powder factor; and environmental factors.

Conclusively, it is demonstrated how medium range blasting parameters have been adapted to cautious blasting in the presence of equipment and in meeting production demands. Comparisons of explosive mediums and powder factors in both performance and economics are made. The effect of geological influence and varying weather and ground water conditions on these comparisons are clarified, as are fixed costs and their influence on blasting design.