VHM Limited

Goschen Rare Earths and Mineral Sands Project

GEOTECHNICAL IMPACT ASSESSMENT STUDY

What the impact assessment study found

Potential impact scenarios:

- Slope collapse or slide of above ground stockpiles
- Slope collapse or slide of below ground pit slopes and impacting stability of ground
- Earthquake liquefying material
- Deformation or heave of material
- Dispersive/sodic soil may contribute to erosion and distribution of material leading to impact on ground stability and uncontrolled movement of material.

Mitigation, monitoring and contingency measures

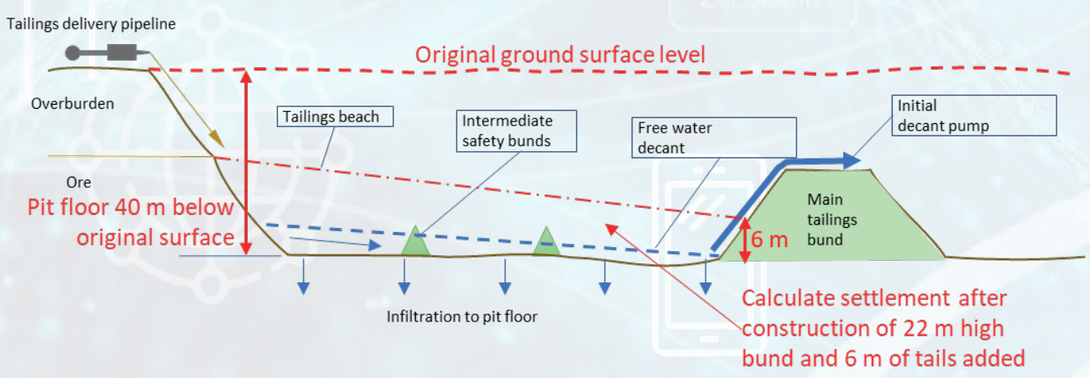
The mine operation will initially construct infrastructure and above ground stockpiles for topsoil, overburden, and extracted ore material. When mine pit space becomes available, ore processing will commence so that generated tailing slurry can then be placed in the mine void.

Rehabilitation and remediation will begin as soon as feasible during operations, with overburden returned into the mine void to cover tailings with subsequent topsoil redistribution.

- Comprehensive geotechnical design methodology and review
- Pit slopes and stockpile locations to be separated by suitable buffer distance
- Ensure mine pit floor is above groundwater table
- Apply earthquake loading in slope/batter design where design life is greater than 2 years
- Implement a Ground Water Monitoring Plan (GWMP) and a Surface Water Monitoring Plan (SWMP)
- Place mining infrastructure at sufficient distances from the project boundaries to avoid the risk of ground movement impacts outside the mine boundary
  - Pit wall slope design and crest distance separation buffers established so that slope failures will not have impacts outside the mine boundary
  - Stockpile, process plant and sedimentation pond slope design and toe distance separation buffers established to avoid slope failure impacts outside the mine boundary
- In-pit void tailings storage to avoid the risk of a tailing breach exiting the mine boundary with suitable bunds to separate returned tailings from open pit working
- The pit floor and base of mining operations to terminate above the groundwater table to avoid the risk of liquefaction, and in the event of a low probability earthquake occurring, any tailing breach is contained subsurface
- Rehabilitation to be incorporated in the ongoing mine operation to minimise open exposures, and return affected mine areas to a safe, stable, and sustainable landform capable of supporting land uses currently operating on land adjacent to the mine site.

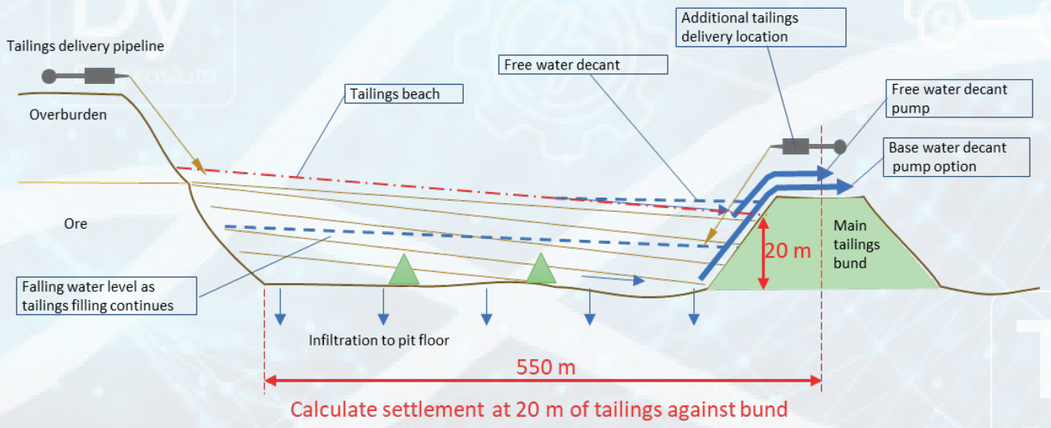
Rehabilitation construction staging

Stage 1



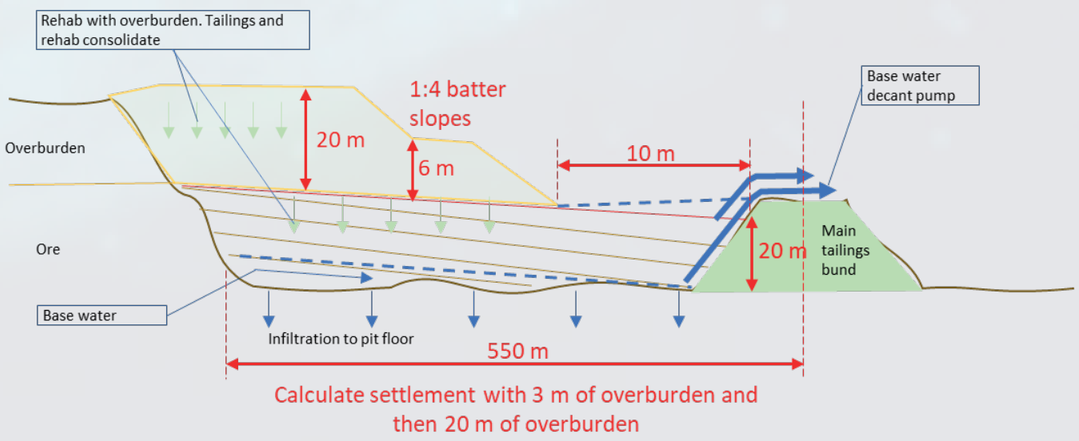
Above: Start of tailings deposition, when they are fully saturated, after bund construction.

Stage 2



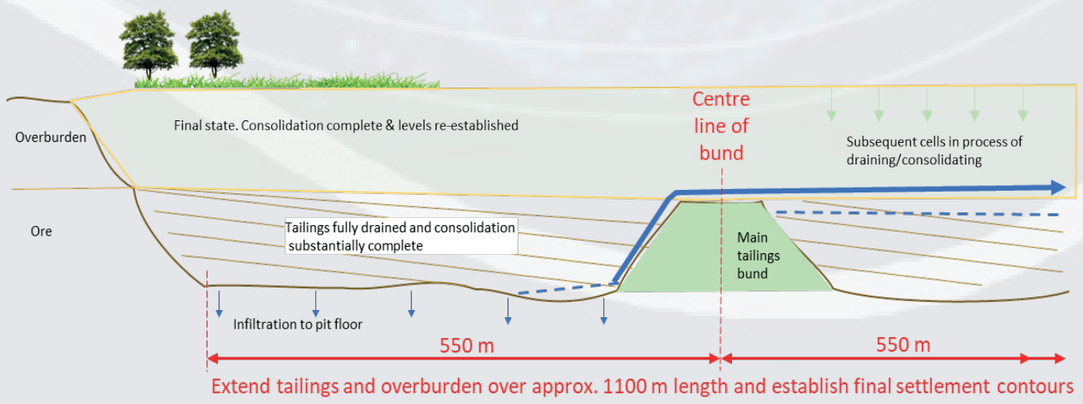
Above: Partially saturated tailings deposition reaching its full capacity in a cell.

Stage 3



Above: Start of cell rehabilitation with the initial level of overburden above the original ground level to allow for consolidation as settlement of the tailings increases under their own weight.

Stage 4



Above: Rehabilitation of two cells complete.