Identifying Significant Hazards

Regulation 56 Safety, Health and Welfare at Work (Quarries) Regulation 2025

Information Sheet

February 2025

Regulation 56 of the Safety, Health and Welfare at Work (Quarries) Regulations 2025 requires the Operator to have a suitable appraisal of all proposed and existing excavations, tips and lagoons undertaken by a competent person. The frequency of appraisals should be identified in the Operating procedures for the Quarry. The appraisal should identify any significant hazards or potential significant hazards and determine if they can or cannot be rectified immediately in a safe manner

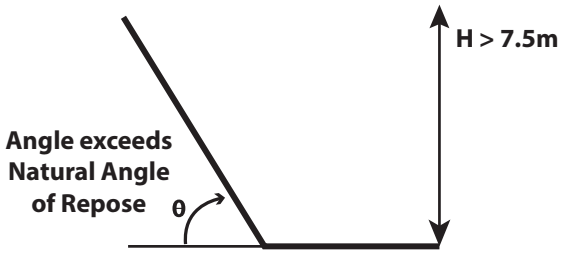
Any hazard or potential hazard should be considered significant or potentially significant if such a failure would directly or indirectly, be liable to endanger premises, roadways or other places where people are likely to be found offsite; or likely to cause serious or fatal injuries to persons on or in the quarry.

If the competent person is unable to determine if a hazard or potential hazard is significant or potentially significant they should seek the advice of a geotechnical specialist.

The following diagrams provide guidance to scenarios where a hazard should be considered significant or potentially significant

Working faces of unconsolidated material like sand and gravel or other weak materials such as clay where the vertical face height (H) is in excess of 7.5 metres and the overall face angle is steeper than a suitable angle to ensure safety then this should be considered to be or potentially be a significant hazard.
The natural angle of repose considered by extractive industry best practice as a suitable angle to ensure safety in unconsolidated material can be depending on factors such as grain size, shape, moisture content and particle composition be as low as $\Theta = 27^{0}$ or 1 in 2.

Weak Rock/Sand and Gravel/Clay/Engineering Soil

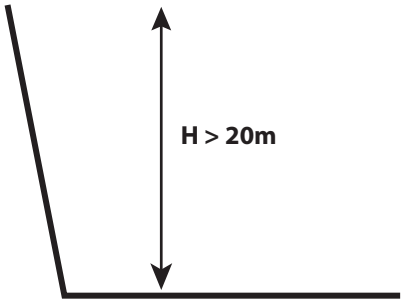


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Where the face height of an excavation in a particular area of a quarry is worked or is planned to be worked exceeds 20 metres then this is a significant hazard and the Operator must ensure that a geotechnical assessment is carried out.

There are no mitigating factors, a geotechnical assessment is mandatory and is carried out under Regulation 57 of the Safety Health & Welfare at Work (Quarries) Regulations 2025

Moderately weak or stronger rocks

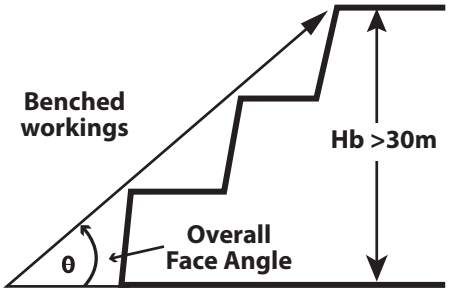


Where multiple benches have been worked or are being worked and the bench widths or the overall face angle may be inadequate to ensure quarry stability then this should be considered a significant or potentially significant hazard.

The extractive industry best practice is an overall face angle of $\Theta = 45^0$ or 1 in 1 though this depends upon local conditions.

Based on extractive industry best practice the quarry face may also potentially be considered a significant hazard if the overall bench height (Hb) is greater than 30m.

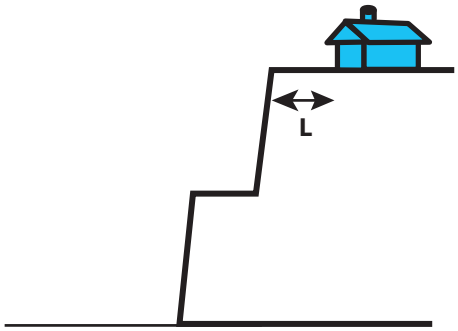
Multiple Quarry Benches



If there is a structure, or tip close to the quarry face edge it should be considered that this is a significant or potentially significant hazard irrespective of any excavation face height, depth or angle. Other factors should also be considered, for example, the geology, location or proximity of a tip, location or proximity of infrastructure or private lands.

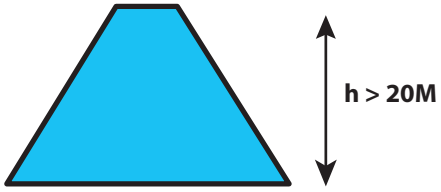
Although no minimum distance of encroachment of a quarry face to a structure, or tip is specified in the regulations any distance (L) less than 30 metres should be considered a significant or potentially significant hazard based on extractive industry best practice.

Structure, or Tip near face edge



Tips

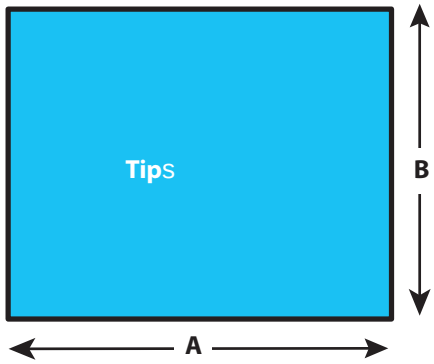
An appraisal of a tip should indicate that the tip should be considered a significant or potentially significant hazard if it has a vertical height in excess of 20 metres.



Tips

An appraisal of a tip should indicate that the tip should be considered a significant or potentially significant hazard if the area of the land covered by the tip exceeds 10,000 square metres.

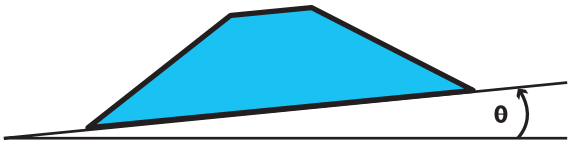
The calculation of the area of the tip will be dependent upon the shape of the tip. For illustrative purposes a simple rectangle has been used.



A x B > 10000 M²

Tips/Stockpiles on Gradients

An appraisal of a tip should indicate that the tip should be considered a significant or potentially significant hazard if the average gradient of the land covered by covered by the tip exceeds 1 in 12 (8.3%) (Θ = 4.73 deg)

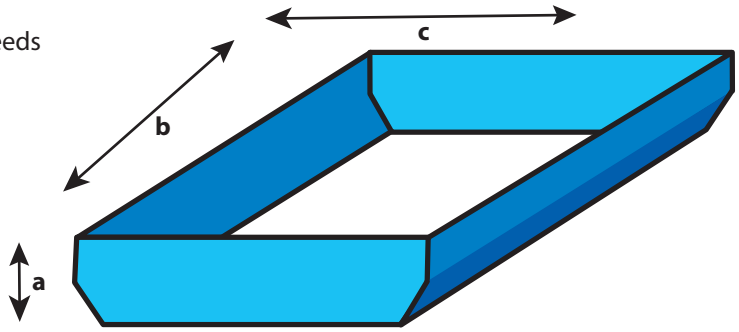


X > 1 in 12 or 8.3%

Pond Lagoons

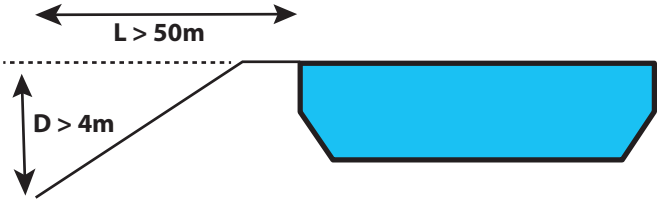
An appraisal of a lagoon should indicate that the lagoon should be considered a significant or potentially significant hazard if the volume of liquid contained exceeds 10,000 cubic metres.

As an example a lagoon 2.5 metres deep with a width of 50 metres and a length of 80 metres when full would contain 10,000 cubic metres of liquid.



Volume = a x b x c

An appraisal of a lagoon should indicate that it should be considered a significant or potentially significant hazard if the level of the land within 50 metres of the edge of the pond or lagoon (L) is 4 metres below (D) the land at the edge of the pond or lagoon.



Further information

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