

Practical 7

- 7.1 A basalt rock mass has the following properties: Point load strength of 3MPa, RQD of 85, widely spaced joints, discontinuous rough and undulating joints, with clay-filled and open joints with slow water seepage from the open joints. Classify this rock mass by using both the Q and RMR Systems and indicate support if a tunnel has to be driven through this rock mass at 10m below surface.

Which if the two classification systems give, according to you, the best support estimation and why.

- 7.2 Calculate whether failure will take place in the sidewalls of a circular tunnel with a diameter of 4m. The rock mass has the following properties:

Rock is quartzite with a UCS of 185 MPa.

Lab tests indicate a m_i value of 12,7

RQD of the rock mass is 75%.

Joint spacing is between 30 – 50 cm with a soft infill of 1 mm.

Joints are slightly rough and the rock mass is dry.

The rock mass is confined by a vertical stress of 62 MPa and horizontal stress of 31 MPa.