A field, laboratory and numerical modelling methodology was developed to investigate the influence of tectonic structure on rock mass quality and implications for rock slope stability. The fundamental components of this methodology include a full description of the rock mass (GSI, number of joint sets, block size and shape, weathering) and discontinuities (orientation, surface roughness, spacing, persistence, infill, seepage) in all accessible sections of the landslide, laboratory work (point load testing and thin section descriptions), and numerical modelling (limit equilibrium, finite difference and distinct element). Detailed fieldwork performed at the Aishihik River landslide, Hope Slide, and East Gate Landslide showed that pre-existing tectonic structures can significantly reduce the rock mass quality and facilitate the development of release surfaces. Numerical models of conceptual and natural slopes have shown that different representation of faults and related damage zone has a significant influence on the shape, volume, and failure mechanism of a landslide.