Chapter 6
Structure

The geological structure of the district is complex, and the volcanic rocks have been severely disrupted by igneous intrusions and subsequent faulting. Tsing Yi lies close to the intersection of three regional fault sets that are thought to have been active in the mid-Tertiary (Lai, 1977). The main faults in the district are shown in Figure 9. Some of these faults also form photolineaments

Faults

The area is cross-cut by three sets of faults: one trending NW, one trending E, and one trending N. The north-trending set has offset the earlier NW-trending faults. A prominent north-trending fault through the district is delineated by a 5m-thick quartz vein which is encountered in boreholes and is exposed on the north-facing slopes. The other faults are characterised mainly by thin (<50 mm) shear zones within the bedrock. The shear zones may contain highly-brecciated material comprising clay-size particles up to gravel-size rock fragments. Movement of solutions along these fault planes may have enhanced weathering and promoted the development of the soft to firm silty-clay gouge material. Lineaments determined from aerial photographic interpretation are generally subparallel to the main fault trends. Field relationships indicate that some shearing has also occurred subparallel to dyke margins. Recrystallised mylonite (pseudotachylite) is sometimes observed along dyke-volcanic contacts, indicating fault movement (Plate 13). The sense of movement of the fault sets is difficult to judge, although the north-trending set appears to be mainly dextral strike-slip (Figure 9).

Faults in offshore areas are inferred from borehole data, geophysics and regional geology considerations. Boreholes drilled as part of the Ting Kau Bridge site investigation have revealed a broad (100 m) zone of microfractured porphyritic dacite (Shing Mun Formation) in the western part of the Tsing Yi Channel. This fault zone is tentatively named the Tsing Yi Channel Fault and may correspond to southwestern

Plate 13 - Pseudotachylite Exposed at the Margin of a Mafic Dyke at Sai Tso Wan (2789 2237)

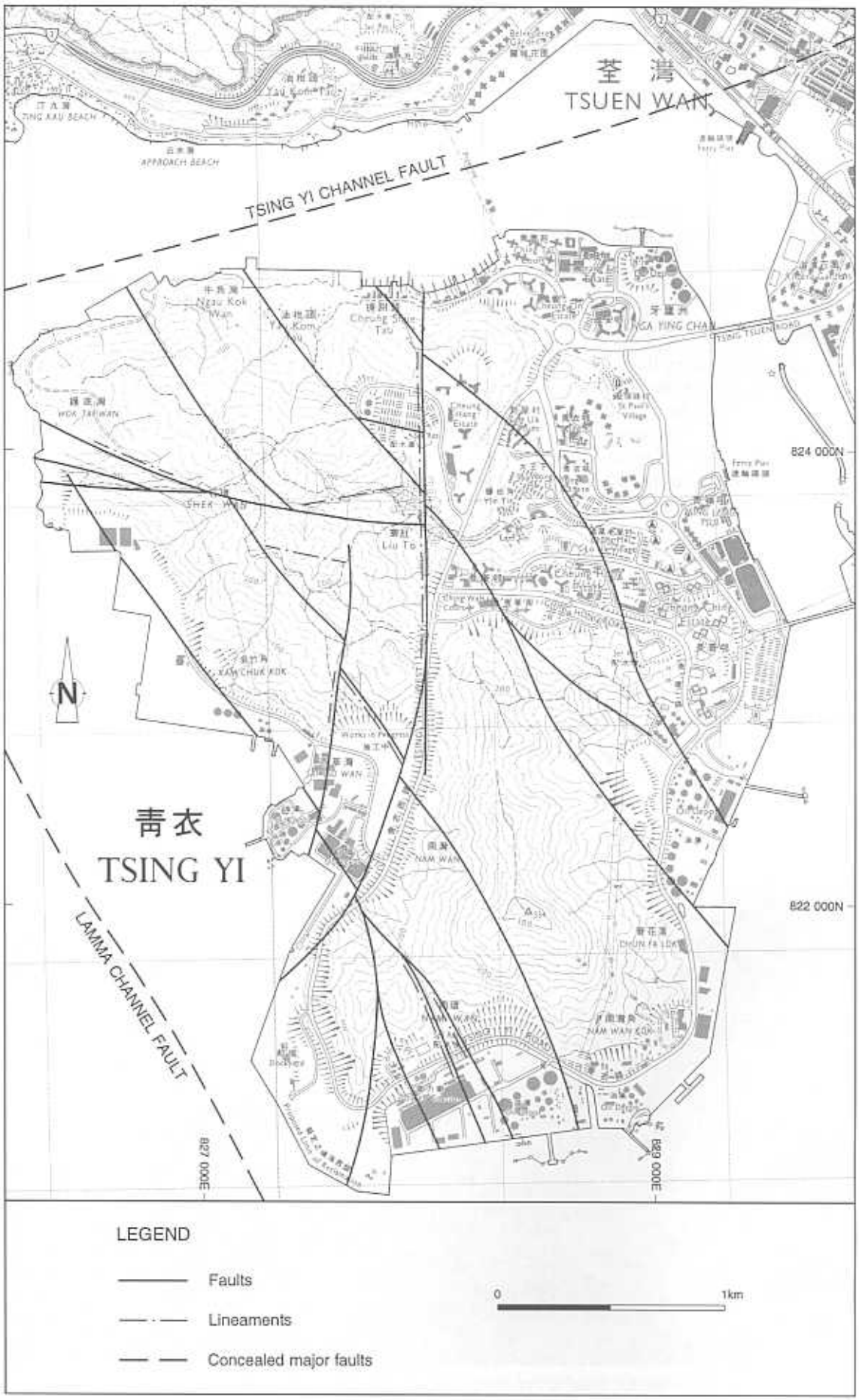

Figure 9 - Principal Structural Features of Tsing Yi

extension of the Tsuen Wan - Chinese University fault shown on the 1:20 000 published geological map. In the Ma Wan Channel, west of Tsing Yi, a major NW-trending fault is inferred from geophysical data (E.G.S., 1993). This fault is an extension of the Lamma Channel Fault to the southeast.

Joints

Joint orientations are plotted on an equal area projection in Figure 10. The data indicate the development of at least three subvertical sets of joints and a low-angle set dipping west at about 30°. The joint sets are equally developed in all major rock types. The dominant joint set has an orientation of 70/235 (dip/dip direction). Jointing is generally closely to medium spaced in welded tuff and granitoid rocks, whereas it becomes very closely to closely spaced in mafic dykes. Within granitoid rocks, joints are frequently iron stained or coated with kaolin, whereas in welded tuff, joint faces are commonly chloritised.

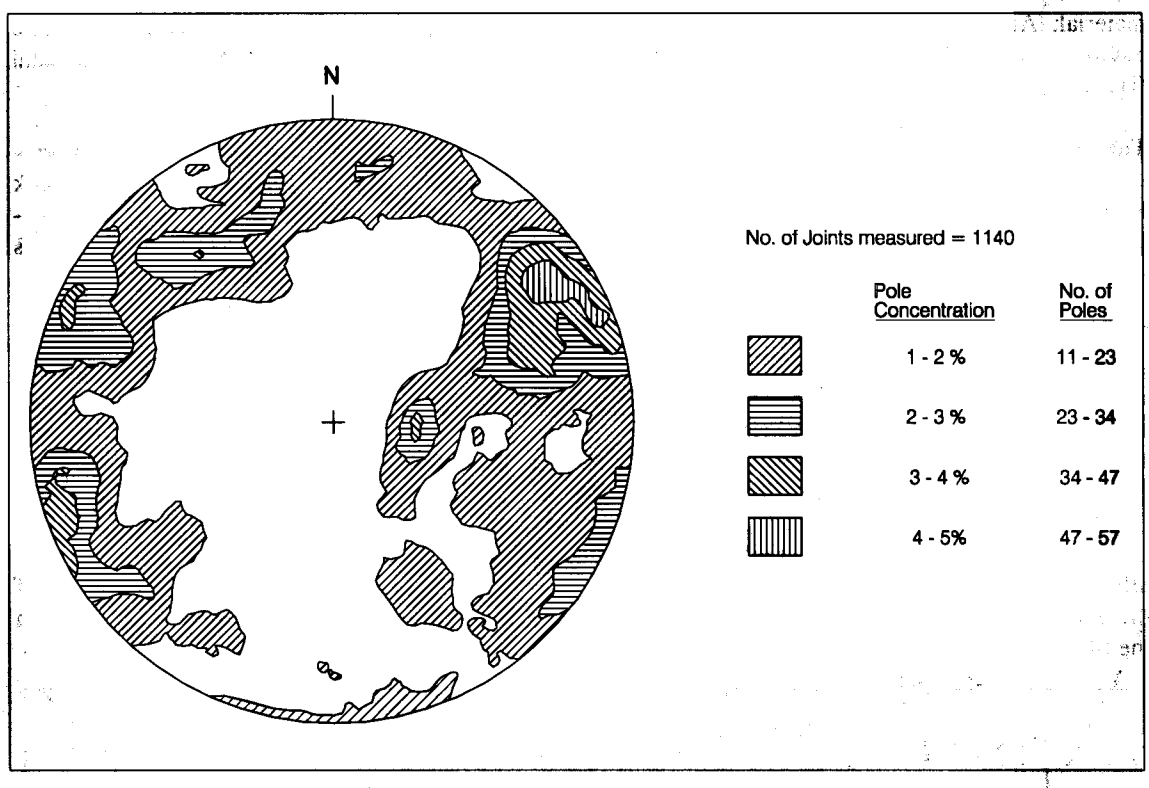

Figure 10 - Contoured Pole Plot of Joints Measured for All Major Rock Types on Tsing Yi