Chapter 2
Outline of Geology

The district is situated on the southeastern side of Tolo Harbour near the mouth of the Sha Tin Valley. The Sha Tin Valley forms part of the strongly NE-oriented structural trend which dominates the geology in northern parts of the Territory. A summary of the stratigraphy of the district is given in Table 2.

Basement rocks consist of Late Palaeozoic and Mesozoic sedimentary rocks represented by the Bluff Head Formation, the Ma On Shan Formation, and the Tolo Channel Formation (Figure 5). These comprise quartz sandstone, carbonate, and siltstone sequences respectively and are overlain unconformably by Upper Jurassic rocks of the Repulse Bay Volcanic Group. The sedimentary and volcanic rocks are intruded by granites of Late Jurassic age comprising medium-grained and porphyritic fine-grained lithologies. Thermal metamorphism of the sedimentary and volcanic rocks is greatest adjacent to igneous intrusive contacts. Metasomatism of the carbonate rocks at the contact with granite has resulted in formation of a Fe-rich skarn deposit.

The district is cut by the Lai Chi Kok - Tolo Channel Fault Zone which comprises a number of NE-trending strike-slip faults oriented subparallel to the dominant structural grain of the region. A subordinate set of NW-trending cross-faults controls the orientation of the drainage from areas of high relief in the south.

A thin and impersistent cover of superficial deposits is present on the upland areas (Figure 6), but in the low-lying coastal and offshore areas these deposits are extensive and in places exceed 60 m in thickness. They are largely Pleistocene in age but are overlain by marine sediments of Holocene age.

Completely decomposed weathered rock forms a mantle many metres thick. It is at a maximum within fault zones in which thicknesses of over 100 m occur.

Table 2 - Summary of the Onshore Solid and Superficial Stratigraphy of the District

Stratigraphic Divisions		Lithostratigraphy and Genetic Classification		Principal Materials	Map Sym
Superficial Deposits					
QUATERNARY	Holocene	Fill		Natural earth and waste	
		Beach sand		Sand; some gravel and mud	
	Holocene and Pleistocene	Alluvium Colluvium Slope debris		Clay, silt, sand, gravel,cobbles and boulders	
Volcanic and Sedimentary Rocks					
MESOZOIC	Upper Jurassic	Repulse Bay Volcanic Group	Clear Water Bay Formation	Trachydacite and rhyolite lava; fine ash vitric tuff	JCB
			Lai Chi Chong Formation	Crystal tuff, tuffite, rhyolite lava, volcanic breccia	JLC
	Lower Jurassic		Tolo Channel Formation	Mudstone and siltstone	JTC
PALAEOZOIC	Permian		Tolo Harbour Formation	Mudstone, siltstone, sandstone	PTH
	Carbon-iferous		Ma On Shan Formation	Marble and siltstone	CMO
	Devonian		Bluff Head Formation	Sandstone and siltstone	DBH
Major Intrusive Rocks					
MESOZOIC	Jurassic-Cretaceous	Fine-grained and medium-grained granite			gf,gm
Minor Intrusive Rocks					
MESOZOIC	Jurassic-Cretaceous	Quartzphyric rhyolite			rq

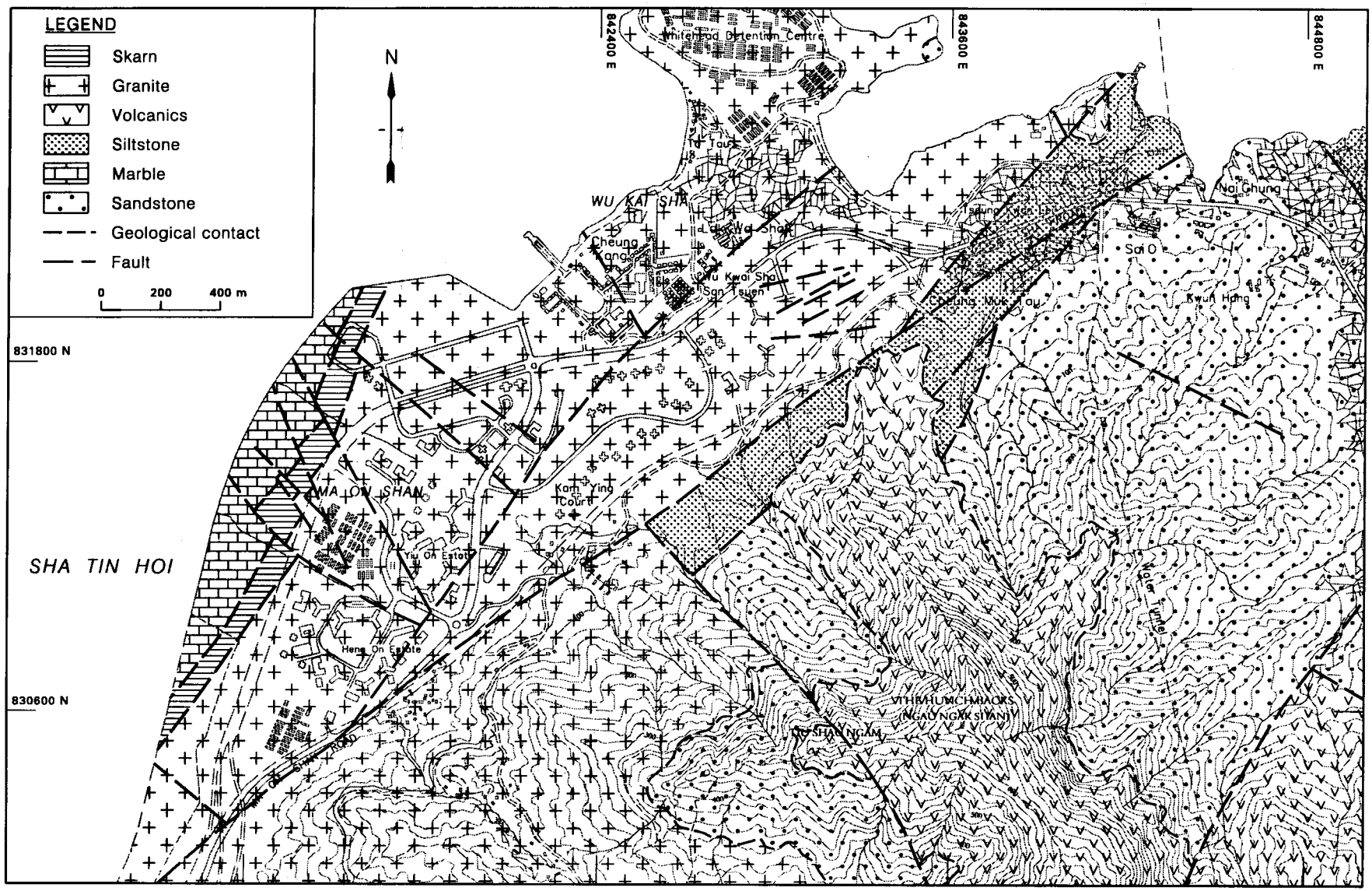

Figure 5 - Simplified Onshore Solid Geology of the District

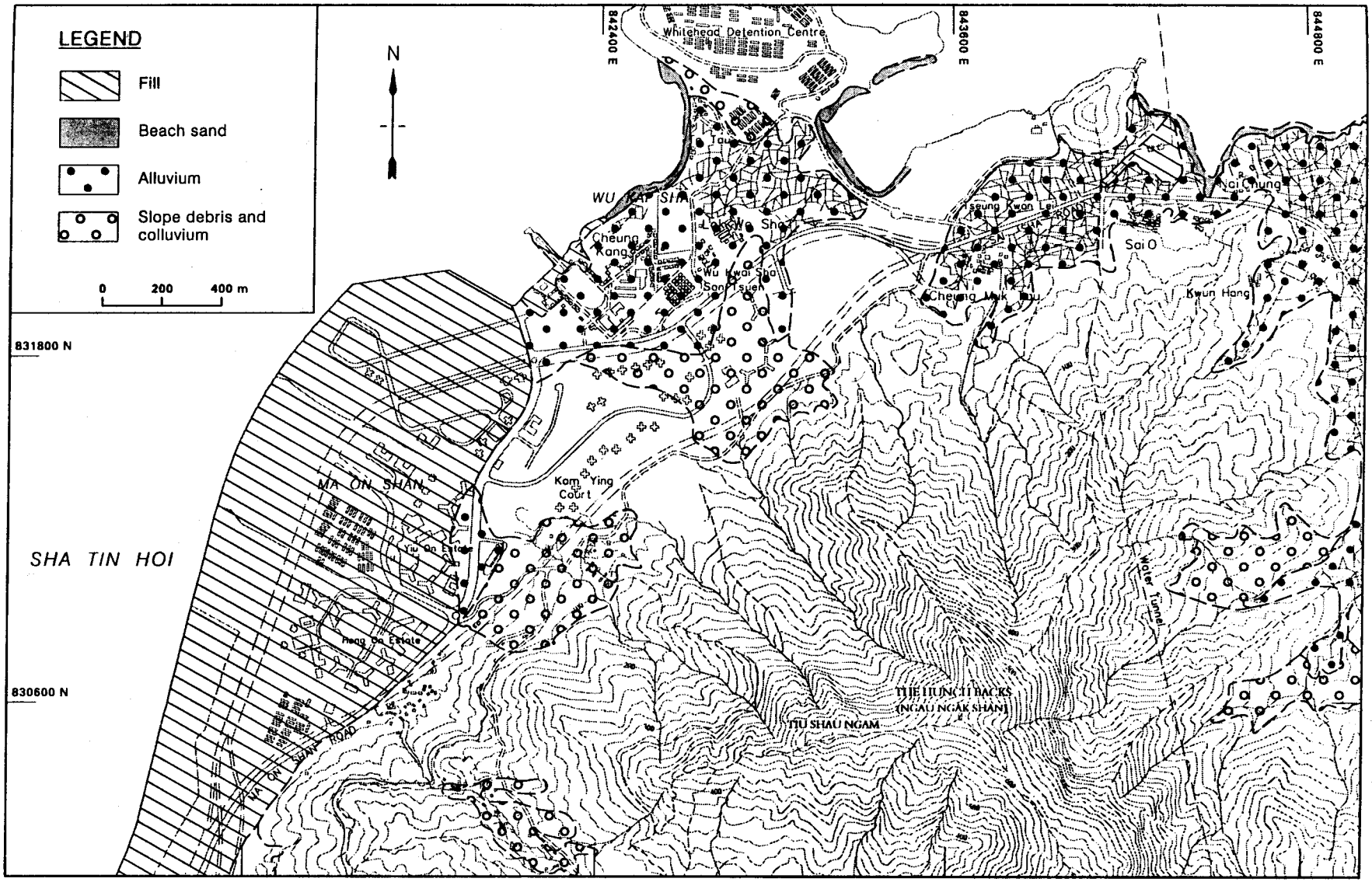

Figure 6 - Simplified Onshore Superficial Geology of the District