

TR12-45-47

10. FINE SAND FROM BOYER

by V. M. Threader

Fine sand from Boyer is utilised as a moulding sand by Northern Platers and Brass Founders Pty Ltd. The above company has requested advice in locating similar material in the Launceston area.

The deposit occurs on a river terrace adjacent to the railway line two miles from the Boyer siding and less than fifty yards from the Derwent River. A sizing analysis indicates that it is a super-fine sand-silt and contains less than 10% of particles greater than 100 mesh B.S.S. Mr Everard, Petrologist, examined the material microscopically and recorded that it contains predominantly quartz, pyroxene and plagioclase feldspar and minor amounts of magnetite and zircon. He deduced a mixed origin with a probable high dolerite content.

Sand deposits are plentiful in the Tertiary sediments of the Launceston basin but samples taken from Swan Bay, Riverside, and Evandale all contained over 70% of particles in the + 100 B.S.S. range (fine medium and coarse sand). These sands, moreover, are almost wholly quartzitic and are therefore totally different from the Boyer material.

The material which most closely resembles the Boyer deposit is a silt of Recent origin obtained from the alluvium of the North Esk River in the vicinity of Hobler's Bridge. This is a silt-clay mixture of quartz, feldspar, decomposed ferromagnesian minerals (pyroxene) and magnetite. It is understood that there is a small amount of organic matter also present but as the sample was taken from near the surface, a cleaner material could probably be obtained at depth.

Sizing analyses carried out by the Department and the reports of Petrologist Mr G. B. Everard on the Boyer and Hobler's Bridge silts and the Tertiary sands from Swan Bay and Riverside follow:

SILT FROM BOYER

The sample is a medium to fine grained brownish yellow sand. Most of the dry sample is a free running sand but there are many small lumps due to a minimum of binding material. Most of the lumps when crushed are indistinguishable from the rest of the sand, but some crush to a reddish brown material due to the admixture of hydrated iron oxide.

Under the microscope the grain size averages about 0.10 mm. The grains are mainly angular but some are sub-rounded. They consist of quartz 45%, pyroxene 27%, plagioclase 25%, magnetite 2% and zircon 1%.

There is also a minor amount of mainly illitic clay material, and hydrated iron oxide, with which the larger grains are partly coated.

The sand is therefore of mixed origin and contains a fairly recent strong dolerite component.

SIZING ANALYSIS

<i>Fraction</i>	<i>Per cent weight</i>
+ 52 B.S.S.	0.03
+ 85	1.50
+100	6.76
+150	19.23
+200	19.78
+300	16.80
-300+20 μ	27.23
- 20 μ	8.67

SILT FROM HOBLER'S BRIDGE, LAUNCESTON

	%
Serpentinous and clayey material stained with iron oxide	40
Quartz	25
Feldspar	20
Magnetic material	15
Traces of pyroxene, etc.	

The general appearance of the detritus especially the fresh lathlike feldspar crystals, sometimes partly enclosed by serpentinous material and the occasional grains of pyroxene, strongly suggests a doleritic origin.

SIZING ANALYSIS

<i>Fraction</i>	<i>Per cent weight</i>
+200 mesh B.S.S.	41.7
-200 mesh	1.9
+ 20 μ	25.5
- 20 μ	30.9
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	100.0

SANDS FROM SWAN BAY AND RIVERSIDE—LAUNCESTON

1. Floor of Liebmans Gravel Pit, Swan Bay, East Tamar

The sample is an orange-brown medium to fine sand containing a few grains of white quartz and irregular flakes of limonite up to 4 mm across.

The bulk of the sample consists of angular to sub-angular grains of quartz averaging .26 mm across, and stained with brownish limonite. There are rare grains of fresh feldspar and possibly a trace of clay minerals, but the fine consists mainly of limonite.

2. Sand Pit Two Miles North of Riverside Shopping Centre, West Tamar Highway

The sample is a pale yellow-brown fine sand, with a few larger limonitic fragments. It consists of angular to sub-angular grains of quartz stained by limonite and clay. The grains average .19 mm across.

SIZING ANALYSIS

Fraction	Per cent weight	
	(1)	(2)
+ 10	1.8	8.3
+ 52	4.6	3.5
+ 85	59.7	23.9
+ 100	9.4	12.3
+ 150	8.5	23.2
+ 200	2.9	13.3
+ 300	1.8	3.8
- 300 + 20	2.9	3.8
- 20 (clay)	8.4	7.9