Proposed geological and geophysical investigation of the St Helens sand bar.

P.C. Stevenson
D.E. Leaman

The Department of Mines has been requested to advise on various means of removing the bar across the mouth of Georges Bay, St Helens and several methods have been proposed by W. Tindal, engineer of the Department of Mines.

This report arises from that request since any consideration of the removal of the bar must be based on an accurate knowledge of the nature of the bar and its underlying geology. This becomes vital if any model tests or similar techniques are contemplated.

The St Helens area is underlain by several related granite bodies which together form the St Helens Pluton.

These granites have a partial cover of Tertiary rocks which are seen outcropping as white or grey clay at the base and white gravel and sand above. These rocks are covered in turn by aeolian sand sheets and stable or active sand dunes (see map by Groves, 1974).

Some granite is exposed but is largely masked by the younger rocks and by the water. The cause of the silting of the entrance to Georges Bay is obscure and until the basic geological setting is clearer it will remain so.

It is therefore suggested that geological mapping on a scale of 1:5000 using enlarged aerial photos (Project F205 is suitable and recent) be carried out as a preliminary to geophysical work. The mapping would take about one week and could be followed immediately by the geophysical survey.

The geophysical survey would provide information in depth on the geology on land, tidal and water areas. The method used would depend on the geological findings but seismic refraction would be the method of first choice. The charges used would not exceed 9 kg of gelignite and there would be no risk comparable to that attending large charges.

Both the geological mapping and the geophysical work on land and tidal areas would be carried out by the Department of Mines and might be expected to take about ten days. Any work in permanent water would require the loan of equipment from H.E.C. or B.M.R.

REFERENCE

GROVES, D.I. 1974. Geology, Blue Tier Batholith. Map 1:126 720. *Department of Mines Tasmania.*

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