



Foundation investigation, Units 4–7 Wilmslow Avenue, New Town

by R. C. DONALDSON

Following an initial enquiry on 21 July 1988 regarding foundation conditions at Wilmslow Avenue, New Town, the Department undertook an investigation of foundation conditions.

Preliminary trenching carried out by Johnstone, McGee and Gandy revealed a 5 m(+) profile of clay materials across the site. These materials were reportedly considered unsuitable for conventional foundations. Advice was sought from the Department of Mines on the nature of materials likely to be encountered to a depth of about 10 metres.

The investigation involved a single seismic refraction spread supplemented by a five hole auger drilling programme to confirm the geophysical results.

A 12-channel seismograph was used; 3.0 m geophone spacings were employed and the spread was fired from both ends. The results, summarised below, indicate that there is approximately 11.5–12.5 m of relatively unconsolidated material overlying a competent bedrock.

The five hole auger programme was aimed at establishing the accuracy of the seismic interpretation and also give factual information on the materials present. The rig only had sufficient augers to drill to

10.4 m, approximately the maximum required depth from which information was needed. Although detailed engineering logs were not taken, the profiles in holes 1 to 4 were all remarkably similar; 2–3 m of black organic silty clay overlying yellow brown and grey clayey sand/sandy clay to 10.4 metres. All materials noted appeared to be in the soft to firm consistency range (50–100 kPa).

Bedrock (V_3 layer) was not encountered in any of the holes which confirms the results of the seismic survey.

Hole 5 was drilled adjacent to an existing unit (No. 3) to ascertain whether the foundation conditions at this site were different from those on the site under investigation. The black alluvial silty clay present in holes 1 to 4 was absent. A very stiff yellow-brown clay about 2 m thick overlay clayey sand as encountered in holes 1 to 4. It would appear the alluvial deposits (black silty clay) associated with the Maypole Rivulet do not extend far beyond the site on which the proposed units (4–7) are to be built.

In conclusion, the investigation has shown that the site is underlain by an estimated 11.5–12.5 m of essentially unconsolidated materials overlying bedrock.

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	Velocity (m/s)	Depth (m)	Thickness (m)	Geological Interpretation
V_1	315–450	1.8–3.1	1.8–3.1	Unconsolidated black silty clay
V_2	750–890	11.5–12.5	9.4–9.7	Semi-consolidated clayey-sand/sandy clay
V_3	3000–4000	–	–	Bedrock – S.W. high strength, massive-tightly jointed.

