

1977/32. Seismic survey on Bridgewater Causeway.

D.E. Leaman

A single refraction seismic spread was fired south of the causeway-viaduct junction [EN184674] in mid-river at Bridgewater. The spread covered about 180 m of the central portion of the crossing in an attempt to estimate the thickness of silt and nature of bedrock.

Due to the poor energy transmission characteristics of the fill composing the causeway and the surrounding silts, the results were far from ideal; the following velocities have been noted. Direct interpretations are also included.

	Velocity (m/s)	Thickness	Interpretation
South shotpoint	750	~ 4.5 m	Fill
	1300	~29.5 m	Silt and water
	1800	~29 m	
	3500	>160 m	Weathered bedrock?
	5500		Fresh bedrock
North shotpoint	900	~25 m	Fill and silt
	2000	~12.5 m	
	3000	~29 m	Weathered bedrock?
	3900		Bedrock

Velocities less than 1500 m/s represent various conditions or combinations of silt and/or fill. Intermediate velocities in the 1800-2000 m/s range may represent Tertiary sediments or very weathered rock, probably basalt. The higher velocities represent bedrock which may be either basalt or dolerite on the basis of the velocity values. The interface between fill/silt (<1500 m/s) and basalt/sediment (~2000 m/s) dips south indicating that the thickest deposits lie near or south of the south end of the spread. The other interface parallels this situation with an overall dip of about 10° to the south.

The survey indicates a silt thickness of 25-29 m with a basalt-dolerite bedrock.

[14 July 1977]