

DORSET LOCAL GEOLOGICAL SITES SURVEY

Site number G SY98/12

Site name Shipstal Point, Arne

Summary description

Tertiary, Eocene, Poole Formation and Pleistocene

The cliff, approximately 300m in length slopes from 10m high in the south to 1m in the north. The top layer is a thin black band of peaty soil, supporting heathland plants. The uppermost sand and pebbles (Pleistocene, Terrace gravel) were deposited during the last ice age. Below this are some 9m of Poole Formation showing current bedded fine to coarse quartz sands with occasional lenses of white clay, deposited by a river flowing from west to east about 45 million years ago. The sands have been identified as underlying the Broadstone Clay. At the southern end of the cliff is a saucer-shaped feature made up of relatively large pebbles. Here a more recent fast-flowing stream has cut across the Poole Formation sands sometime in the past 1 million years. As the cliff is made up of soft sand, it is prone to slumping and easily eroded, and this last feature may be difficult to see.

Site description

Tertiary, Eocene, Poole Formation and Pleistocene River Terrace deposits.

The cliff, approximately 300 metres in length, varies in height from 10 metres in the south to 1 metre in the north. Because it is predominantly unconsolidated sand, it is prone to slumping and is easily eroded. It has been formed by weathering and erosion by the water of Poole Harbour. The top layer is a thin black band of peaty soil, supporting heathland plants. The uppermost sand and pebbles were deposited under sub-arctic conditions during the last ice age.

Below this are some 9 metres of Poole Formation showing current bedded fine to coarse quartz sands with occasional lenses of white clays, deposited by a river flowing from west to east about 45 – 50 million years ago. At that time the Poole basin was an estuary near the mouth of this river. The sands, which have been identified as underlying the Broadstone Clay, were deposited in areas of fast flowing water that washed away the finer material, during periods of low sea level. The clays were deposited when sea level was higher, and the finest material collected in the deeper pools.

At the southern end of the cliff there is a saucer shaped feature which is made up of relatively large pebbles. Here a more recent, fast flowing stream ran perpendicular to the cliff face. The Tertiary Poole Formation beds have been cut into by this river channel, which is part of the 4th River Terrace deposit of the Piddle-Frome river system, formed during the last 1 million years.

NOTE: Arne SSSI overlaps Shipstal Point RIGS, but does not describe this particular exposure.