

LIMERICK - COUNTY GEOLOGICAL SITE REPORT

NAME OF SITE	Mantle Hill (Deel River Section)
Other names used for site	Deel River; Ballynash Castle; Deel River Askeaton
IGH THEME	IGH8 Lower Carboniferous
TOWNLAND(S)	Ballynash
NEAREST TOWN/VILLAGE	Askeaton
SIX INCH MAP NUMBER	11
ITM CO-ORDINATES	533000E 653125N
1:50,000 O.S. SHEET NUMBER 64	GS1 BEDROCK 1:100,000 SHEET NO. 17
GIS CODE LK025	

Outline Site Description

Shoreline outcrops along low tidal mudflat estuarine shore at the mouth of the River Deel in the Shannon Estuary.

Geological System/Age and Primary Rock Type

Basal contact zone of Lower Carboniferous (Upper Tournaisian) Waulsortian carbonate mudbank and underlying Ballysteen Formation argillaceous limestones.

Main Geological or Geomorphological Interest

Detailed studies on the Waulsortian carbonate mud-bank complex in western Ireland have been carried out here. Bedrock comprises a transitional sequence of carbonate muds up to 3m thick, immediately underlying Waulsortian mudbank rocks. Waulsortian buildups (Waulsortian banks) formed by biogenic accretionary processes that produced submarine banks rich in lime muds which were probably largely of microbial origin. Waulsortian buildups were the dominant carbonate mudmound type in early Carboniferous times. Ireland hosts the greatest known development of these buildups, where the banks formed thicknesses of up to 1km thick and extended over an area of over 30 000km². Waulsortian carbonate mudbanks form a widespread complex of the Midlands succession of Carboniferous Limestone in Ireland, and the Mantlehill locality hosts one of the thickest (about 1000m thick) parts of the Waulsortian Complex. No biostratigraphic information is available from Mantlehill. However, data from the Pallaskenry borehole (8km to the east) provides a late Courceyan (359-346 million years ago) age for the base of the base of the Waulsortian Complex in northwest Limerick. The limestone is karstified in places, with karren and kamenitza (solution pits) visible on the supra-tidal bedrock exposures.

Site Importance – County Geological Site; recommended for Geological NHA

A very important County Geological Site as it supports our understanding of how Waulsortian banks formed and how the Irish Waulsortian Complex developed during Lower Carboniferous times, around 350 million years ago. The site is regarded as being of international importance by specialists in this Carboniferous geological story and it deserves to be recognised and protected as a geological NHA.

Management/promotion issues

Good exposures are accessible along this low-lying shoreline section on the eastern bank of the estuarine mouth of the Deel River. Exposures are comparable to sections on the shore of the Rineanna Point, Shannon Estuary County Geological Site (CE033) location on the opposite side of the Shannon Estuary in Co. Clare. Limerick. The name 'Waulsortian', as applied to carbonate rocks is derived from rocks of similar lithology and age found in Belgium. The site is very important in helping to understand how Waulsortian banks formed and how the Irish Waulsortian Complex developed, but is not deemed suitable for public promotion owing to access and as its significance is not visibly apparent.



Waulsortian mudbank rocks and limestone boulders along shore NW of Mantlehill House.



Crinoid fossils in Ballysteen Formation.



Karstified limestone at the quay west of Mantlehill House.



West dipping Ballysteen Formation rocks southwest of Mantlehill House (background).