

KERRY - COUNTY GEOLOGICAL SITE REPORT

NAME OF SITE	Kilfenora
Other names used for site	
IGH THEME	IGH12 Mesozoic and Cenozoic, IGH8 Lower Carboniferous
TOWNLAND(S)	Kilfenora
NEAREST TOWN/VILLAGE	Fenit
SIX INCH MAP NUMBER	28
ITM CO-ORDINATES	474875E 615430N (chalk portion of section)
1:50,000 O.S. SHEET NUMBER	71
GSI BEDROCK 1:100,000 SHEET NO.	20
GIS CODE	KY054

Outline Site Description

This site comprises a short coastal section approximately 2 km to the east of Fenit.

Geological System/Age and Primary Rock Type

The eastern end of the site at Kilfenora comprises an exposure of chalk breccia, part of a Cretaceous outlier surrounded by older limestone and shale. The chalk breccia is considered to be of Late Cretaceous age (specifically Campanian, 83 – 72 million years old). The Lower Carboniferous (Mississippian, 359-323 million years old) Dirtoge Limestone Formation forms the bedrock at the western side of the site. To the north, the bedrock is mid-Carboniferous (Pennsylvanian or Namurian, 326-315 million years old) Clare Shale Formation.

Main Geological or Geomorphological Interest

The coastal section at Kilfenora exposes, in the east, a segment of weathered saprolite, which is a chemically weathered rock (chalk breccia), and, in the west, intensely folded striped limestones.

The chalk breccia comprises a dull-white coloured chalk containing angular fragments of dark shale, and lighter-coloured limestone and flint clasts, most of which are pebble to cobble size, but includes some boulders. The breccia clasts are derived from both Lower (Mississippian) and Upper (Pennsylvanian or Namurian) Carboniferous rocks. The chalk breccia itself is now a hard, white, compact limestone, which probably formed originally as soft lime-mud ooze on the seabed.

As yet no fossils have been recovered from the chalk at Kilfenora that could help date it. Based on dating of foraminifera fossils in nearby chalk at Ballydeenlea (see Ballydeenlea County Geological Site report), of which over twenty were identified, the chalk deposits are assigned a Campanian age. Global mean sea level is understood to have been high (highstand) during this time, such that most, if not all of Ireland was submerged.

At the end of the short headland at the western part of the site, the Kilfenora anticline is impressively exposed in three dimensions in the Lower Carboniferous limestone. *En echelon* calcite veins are exposed in the 'nose' of the fold, and complex and disharmonic deformation is displayed further west.

Site Importance – County Geological Site

This is an important site because it hosts one of two known occurrences of Cretaceous rocks in Ireland outside of County Antrim. The chalk breccia deposits provide evidence of the type of marine environment that existed in County Kerry, and perhaps much of Ireland, during Cretaceous Period between 83 and 72 million years ago. The easily observable structural elements in the adjacent limestone add interest and complexity to the site.

Management/promotion issues

The site is located at a public beach and is readily accessible, but caution is required as much of the exposure is inaccessible at high tide, and with the tide encroaching rapidly one can get stranded. Care should also be taken close to the cliffs as there may be occasional falls of rock or debris. The site merits promotion, preferably as part of a north Kerry coastal geoheritage trail, and is partially within Tralee Bay and Maharees Peninsula, West to Cloghane SAC and pNHA (site code 002070).



The Kilfenora section, viewed from the east. Fenit Harbour is in the distance.



The section hosting the chalk breccia at Kilfenora. Staff is 5 m high.



Detail of fragments of limestone and flint in the chalk breccia.



General view of the Kilfenora anticline, looking east.



Detail of vein arrays in the 'nose' of the anticline at Kilfenora.

