NORTH DONEGAL - COUNTY GEOLOGICAL SITE REPORT

NAME OF SITE	**Cairéal Dhún Lúiche**
Other names used for site	Dunlewy Quarry
IGH THEME	**IGH5 Precambrian; IGH11 Igneous Intrusions**
TOWNLAND(S)	**Dunlewy Near**
NEAREST TOWN/VILLAGE	**Dún Lúiche (Dunlewy)**
SIX INCH MAP NUMBER	**42**
ITM CO-ORDINATES	**593173E 919177N**
1:50,000 O.S. SHEET NUMBER 1	**GSI 1:100,000 Bedrock Sheet No. 1**
GIS Code ND031	

Outline Site Description
This site is a small marble quarry on the side of a low hill overlooking Dunlewy Lough, at the northwestern end of the Poisoned Glen.

Geological System/Age and Primary Rock Type
The quarry is cut into the Duntally Limestone, a horizon within the Creeslough Formation of the Dalradian Appin Group. The limestone has been metamorphosed to a white marble. Granite pegmatite dykes, contemporaneous with the nearby Donegal Granite (c. 400 Ma), form vertical sheets within the quarry, left behind after extraction of the marble they intruded.

Main Geological or Geomorphological Interest
The northwestern margin of the Main Donegal Granite lies just south of Dunlewy marble quarry. The pluton was intruded along an active sinistral ductile shear zone and both it and its country rocks have been strongly affected by deformation. Within the pluton the evidence for deformation includes lithological banding, mineral alignments, flattened xenoliths and folded and disrupted dykes. The country rocks are affected by an intense deformation involving cleavage formation and disruption of bedding. All of these features can be observed south of the quarry when traversing the country rock–granite contact along the Poisoned Glen.

The Dunlewy Marble quarry is principally of interest for the illustration of these deformation features that developed within the shear zone. The pegmatite sheets that remain after removal of the marble are folded and boudinaged (pulled apart along the direction of stretching) and provide a spectacular view, in three dimensions, of the effects of shearing on dykes along the margin of the granite pluton. Stretching lineations sub-parallel to minor fold axes in the metasediments in the wallrocks have led to formation of distinctive mullion structures.

Metasomatic alteration of the limestone as a result of pegmatite intrusion has led to the development in the quarry of skarns, calcium-rich silicate rocks, that host unusual or rare calcium-silicate minerals.

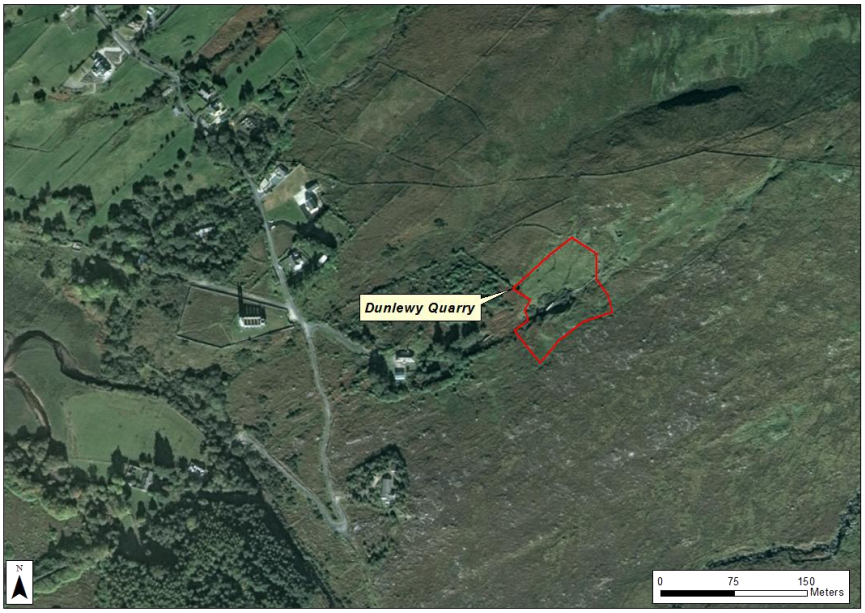
Site Importance – County Geological Site
The quarry provides a superb illustration of deformation caused by ductile shearing along the margin of the Main Donegal Granite. The marble quarried here was used to build the nearby Dunlewy Church.

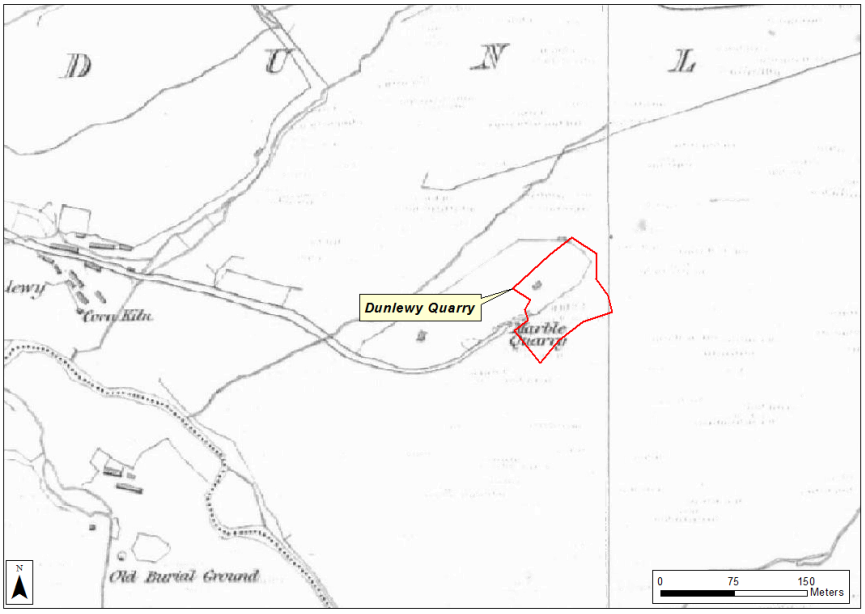
Management/promotion issues
The site is on private land, surrounded by a low stock fence. It is likely to be of interest primarily to professional geologists and students and does not require further promotion.

Dunlewy Marble quarry, mid-distance, with top of pegmatite dyke visible on left. Poisoned Glen visible behind. View to southeast.

Pegmatite dyke standing in centre of quarry, view to east.

Folded pegmatite dyke at eastern end of quarry.





Hennessy *et al.* 2019. Geological Survey Ireland.