

GALWAY - COUNTY GEOLOGICAL SITE REPORT

NAME OF SITE	Costelloe Road Cutting
Other names used for site	
IGH THEME	IGH11 Igneous intrusions
TOWNLAND(S)	Derrynea (Doire and Fhéich)
NEAREST TOWN/VILLAGE	Casla (Costelloe)
SIX INCH MAP NUMBER	91
ITM CO-ORDINATES	496900E 727380N
1:50,000 O.S. SHEET No. 45	GSI BEDROCK 1:100,000 SHEET NO. 10, 14

Outline Site Description

A rock-blasted, roadside section of granite outcrop on the R336, opposite Derrynea Quay.

Geological System/Age and Primary Rock Type

Magma mixing-mingling zone (MMZ) granodiorite containing many mafic microgranular enclaves. Part of the late-Caledonian Galway Batholith, radiometric dating has revealed that granite emplacement occurred over three major magmatic episodes at 410 Ma, 400 Ma and 380 Ma. The MMZ granodiorites occupy the Central Block of the batholith, and range from mafic granodiorite through quartz diorite to diorite.

Main Geological or Geomorphological Interest

This section of exposed granite exhibits a variety of observable features that are characteristic of the Magma Mixing and Mingling Zone of the Galway Batholith. Features include aplite, biotite layering, quartz pegmatite, K-feldspar pegmatite and large K-feldspars (orthoclase) measuring up to 6 cm in size. A prominent northeast striking 2 cm thick quartz vein contains abundant molybdenite and chalcopyrite (<3 mm grain size). The quartz vein can be traced along strike for ~5 m and cross-cuts the coarse grained (5–10 mm) MMZ granodiorite. Abundant chalcopyrite can be observed on joints and in quartz veins at the southern half of the section. Fluorite and calcite veins are also present in the section. Light-coloured (leucocratic) oligoclase-rich microgranular inclusions can be seen at the northern end of the section, in outcrops on the right side of the steep laneway. Radiometric dating of molybdenite (MoS₂) sourced from a vein at the site has yielded ages of 383 Ma for this granite body.

Site Importance – County Geological Site; may be recommended for geological NHA

This County Geological Site is significant in terms of the variety of features that are observable in outcrop. These features are characteristic of the Magma Mixing and Mingling Zone, a zone of granodiorite that stretches from Casla to An Spidéal. Clean, accessible outcrops provide excellent examples of both the mineral-bearing veins and the characteristic MMZ bedrock.

Management/promotion issues

This is an excellent field teaching and research site. Rock blasting has revealed fresh exposures that exhibit a variety of observable features. These features are of interest to geologists, mineralogists and gemmologists. The site should be kept clear of vegetation encroachment so as not to obscure the features. There is ample parking in the lay-by on the opposite, quay-side of the road. The road-cutting is immediately adjacent to the R336 Casla road so caution should be exercised when visiting the site.



Rock blasted section along east side of R336 road at Derrynea Quay. Casla village visible to the north.



K-feldspar pegmatite vein dipping southwards.



Road cutting viewed looking south. Derrynea Quay on right.



Large, 2cm K-feldspar (pink) in granodiorite.



Quartz pegmatite with chalcopyrite and molybdenite.

