MAYO - COUNTY GEOLOGICAL SITE REPORT

NAME OF SITE	**Cross Point (Mullet Peninsula)**
Other names used for site	Belderra Strand
IGH THEME	**IGH5 Precambrian**
TOWNLAND(S)	**Cross**
NEAREST TOWN/VILLAGE	**Belmullet**
SIX INCH MAP NUMBER	**16**
ITM CO-ORDINATES	**465245E 830920N**
1:50,000 O.S. SHEET NO. 22	**GSI BEDROCK 1:100,000 SHEET NO. 6**
GIS Code MO038	

Outline Site Description
Coastal rock exposures along a low-lying coastal section on the west coast of the Mullet peninsula.

Geological System/Age and Primary Rock Type
Two main rock types are present at Cross Point: Late Mesoproterozoic strongly foliated/lineated orthogneiss and Early Neoproterozoic pegmatite. U-Pb zircon dating of the gneiss and pegmatite has yielded ages of *c.* 1,287 and *c.* 984 million years respectively. Deformation of the gneisses is of Grenville (Precambrian) age (1,177 – 960 million years ago) or younger.

Main Geological or Geomorphological Interest
This is the best exposed locality for the Cross Point Gneiss, a series of tightly folded banded orthogneiss (originally igneous rock, later metamorphosed) and pegmatite rocks that occur in a 5km thick belt trending NW-SE across the Mullet Peninsula from Cross Point to Saleen Harbour, and on the mainland to the east, up to 9km inland in the region of Tristia (about 130m wide). The rocks are well exposed along the coast, but exposure is poor inland. Smaller sections of Cross Point Gneiss occur on the west side of Erris Head and near Gweesalia.

The Cross Point Gneiss is one of three subdivisions of the Annagh Gneiss Complex that occur on the Mullet peninsula and adjacent mainland to the east. Geochronology and geochemical modeling suggest that the Cross Point gneisses may have intruded (*c.* 1,287 million years ago), and be partly derived from, the older Mullet (e.g. Annagh Head) gneisses, with perhaps an additional mantle component. The gneisses are described as *Trondhjemitic* gneisses, a term used to describe light coloured igneous rocks. The felsic gneisses at Cross Point are interbanded with small scale foliated amphibolites. The main metamorphic fabric of the Cross Point Gneiss is Grenville in age (1,177 – 960 million years ago). The pegmatites demonstrate that the banding and earliest foliation of the gneisses predate pegmatite intrusion.

Site Importance – County Geological Site; recommended for Geological NHA
The site is of international importance as it is associated with the oldest groups of rocks on mainland Ireland. The site is presently located within the Mullet\Blacksod Bay Complex SAC (000470). The site is a certain candidate for geological NHA designation.

Management/promotion issues
No immediate threats to the integrity of the site are apparent. Much of the site is easily and safely (in calm weather) accessible from the adjoining beaches.

Shoreline exposures of gneiss at Belderra Strand.

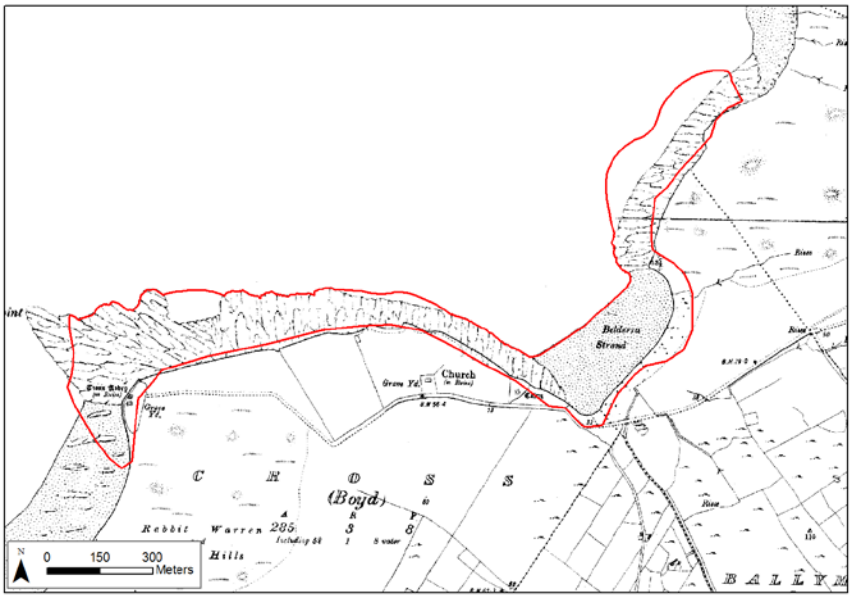
Light-coloured gneiss at Belderra Strand.

Folding in the gneiss at Belderra Strand.

Banded gneisses at Belderra Strand.

Wave polished gneiss at Belderra Strand.

Quartz vein in Cross Point gneiss.



Hennessy et al. 2014 (revised 2019). Geological Survey Ireland.