MAYO - COUNTY GEOLOGICAL SITE REPORT

NAME OF SITE	**Ross Strand and Spinc**
Other names used for site	Spink
IGH THEME	**IGH11 Igneous Intrusions**
TOWNLAND(S)	**Ross**
NEAREST TOWN/VILLAGE	**Killala**
SIX INCH MAP NUMBER	**15**
ITM CO-ORDINATES	**522270E 832800N (centre of features)**
1:50,000 O.S. SHEET NO. 24	**GSI BEDROCK 1:100,000 SHEET NO. 6**
GIS Code MO091	

Outline Site Description
The site comprises a coastal section on the western side of Killala Bay. Outcrops of igneous rocks can be seen to cut through older, near-horizontal sedimentary strata.

Geological System/Age and Primary Rock Type
The Killala (Ross) Gabbro and associated igneous dolerite dykes are dated to the Palaeocene epoch of the Palaeogene (Lower Tertiary) period. The gabbro and dykes cross cut older Carboniferous sandstone and limestone (Mullaghmore Sandstone Formation) strata.

Main Geological or Geomorphological Interest
A *c.* 500m wide (from north to south) body of dark crystalline igneous rock called gabbro can be seen at this coastal section, as well as a series of east-west trending dolerite dykes. The gabbro outcrops display fine examples of a coarse pegmatitic gabbro (with muscovite-bearing facies at the margins). The gabbro and the associated dykes intruded Carboniferous age rocks (Mullaghmore Sandstone Formation) *c.* 61-58 Ma during the Palaeogene period. The vertical dykes cut through the near horizontal layers of Carboniferous rock. The dykes also cut across the body of gabbro, which indicates that the gabbro was formed before the dykes were intruded. A swarm of E-W trending dolerite dykes cross Killala Bay, and are found on both the Mayo and Sligo sides of the bay. Radiometric dating ($^{40}Ar/^{39}Ar$) of the dykes has revealed an age of between 61 and 58 million years. These gabbro and dolerite rocks formed during an episode of crustal stretching (rifting) associated with the opening of the North Atlantic Ocean *c.* 60 million years ago. As the Earth's crust stretched, molten magma ascended through fractures, and formed the dykes and sills present at Ross Strand and Spinc.

Quaternary glacial deposits are exposed by wave erosion in the low cliffs to the very north of the coast guard station. These grey-coloured deposits are overlain by a 4-5m thick brown-coloured layer of cobble-rich mud and soil.

Site Importance – County Geological Site, recommended for Geological NHA
The igneous rocks at the site are the youngest rocks in County Mayo, and this region of western Ireland. This site is unique in Ireland in terms of the size and the types of igneous rocks. The features are important in terms of providing evidence on the opening of the North Atlantic Ocean. It is recommended that this site be designated a geological NHA, as it is of national and international importance.

Management/promotion issues
Ross Strand and Spinc is an outstanding scenic location on the west side of Killala Bay. Access to the site is easy along the foreshore, but consideration of tides is always required. Parking is available at Ross Strand car park.
Promotion of its importance could be in the form of a section in a book on the geological heritage of Mayo. The site is very important for outdoor geological and geographic field studies.

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

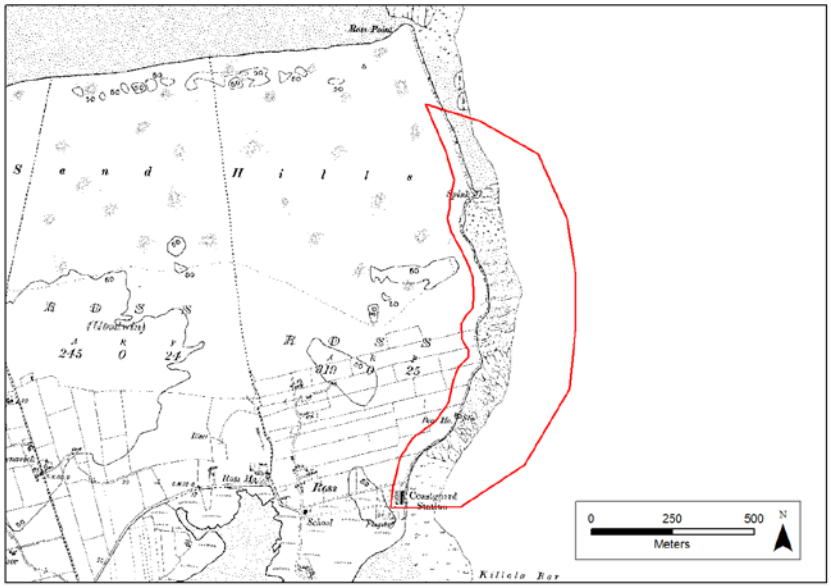
Outcrop of Killala Gabbro, looking south towards the old coast guard station.

Dolerite dyke just south of the ruined boathouse, and north of the coast guard station. Looking north.

Large feldspar and amphibole crystals in the pegmatite in gabbro.

Vertical dolerite dyke cutting through Carboniferous rocks.

Palaeomagnetic sampling drill hole in dolerite dyke.



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