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## **NWHG Ref. 062 — Elphin Megagrooves**

### **Location, grid reference and photograph**

The site is located about 1.4 km west-south-west of the A 835 at Elphin, on the west side of the valley, Grid Ref. [NC 200 105].

(Figure 51) Megagrooves near Elphin, carved out in a dip slope of quartzite. BGS Photo P571859 — K M Goodenough.

### **GCR site reference, block, volume and notified feature of SSSI??**

The site is not GCR-listed but lies within the Inverpolly SSSI, although not as a notified feature.

### **Description and geological significance**

A number of very conspicuous long parallel grooves, or gullies, cut into the surface of an area of Cambrian Quartzite exposure, have recently been interpreted as the result of a fast-moving ice-stream moving across the Quartzite surface from east to west. There is some debate regarding the precise mechanism of formation of these “megagrooves” but they were probably caused by sub-glacial meltwaters operating directionally at the ice-bedrock interface under very high confining pressures, facilitating an increase in the velocity of the glacial ice. Their discovery has provided an excellent opportunity for examining in detail the inter-relationship between glacial ice and the underlying bedrock and has thrown new light on our understanding of aspects of glaciation across the North West Highlands. The site is a very important one for

Quaternary geologists.

### **Accessibility**

The megagrooves can be best viewed from a large layby on the west side of the A 835 at Elphin ([NC 212 108]). The site is thus accessible to all abilities. Direct access, however, requires a 1 km walk over rough and boggy ground from the main Cul Mor walking track which can be accessed further to the south-west, just north of the entrance to Knockan Crag NNR.

### **Conservation**

Low conservation requirement due to scale and location of site.

### **Visibility and “clarity”**

The megagrooves are highly visible from the large layby at Elphin and the visual impact is both dramatic and inspiring to both general public and specialists alike.

### **Interpretation and interpretation potential**

There is an interpretation panel at the large layby at Elphin as part of the Rock Route which mentions and identifies the megagrooves. The megagrooves provide an excellent opportunity for geology students and researchers to examine important sub-glacial features and also for the lay-public to learn about the processes of glaciation and the influence on landscape development. The megagrooves site should certainly be included in a future Geopark guide and merit the creation of a guided walk.

## Key references

BRADWELL, T. 2005. Bedrock Megagrooves in Assynt, NW Scotland. *Geomorphology*, 65 195–204.

BRADWELL, T. 2010. Elphin Megagrooves. In Lukas, S. & Bradwell, T. (eds) *The Quaternary of Western Sutherland and adjacent areas: Field Guide*, Quaternary Research Association, London, 137–144.



*(Figure 51) Megagrooves near Elphin, carved out in a dipslope of quartzite. BGS Photo P571859 — K M Goodenough.*