

MEATH - COUNTY GEOLOGICAL SITE REPORT

NAME OF SITE	Rathkenny
Other names used for site	Rathkenny subaerial fan, Rathkenny sandur
IGH THEME:	IGH 7 (Quaternary)
TOWNLAND(S)	Rathkenny, Horistown, Tankardstown
NEAREST TOWN	Slane
SIX INCH MAP NUMBER	12
NATIONAL GRID REFERENCE	289388 278600 = N 289 786 (fan)
1:50,000 O.S. SHEET NUMBER	42 1/2 inch Sheet No. 13

Outline Site Description

Hummocky topography with gravel pit.

Geological System/Age and Primary Rock Type

Ice contact sub-aerial fan and glacial outwash deposits.

Main Geological or Geomorphological Interest

The site comprises a subaerial fan with a northwest ice contact face, deposited at the edge of a sandur feature that fills a deep glacial valley. This glacial feature is produced by the concentrated flow of meltwater from the edge of an ice sheet. The meltwater carries a variety of glacially derived material such as sand and gravel. As this water moves away from the glacier and into areas of relatively low gradient it slows and drops its material as a fan shaped deposit. The fan spreads out from its point of origin, away from the glacier. A disused sand and gravel pit (near where the ice front would have been) shows excellent cross sectional views of foreset sediments. The sandur itself extends out to the southeast from the fan, forming a feature almost 4 kilometres long and up to 800m wide. The sandur has a hummocky (bumpy) topography and is comprised of deep, well drained sands and gravels.

Site Importance

This is an excellent example of a subaerial fan deposited at an ice margin at the edge of a proglacial sandur feature and is recommended as a County Geological Site. It is one of the best examples countrywide of an exposed ice contact fan with associated foreset beds and collapse structures.

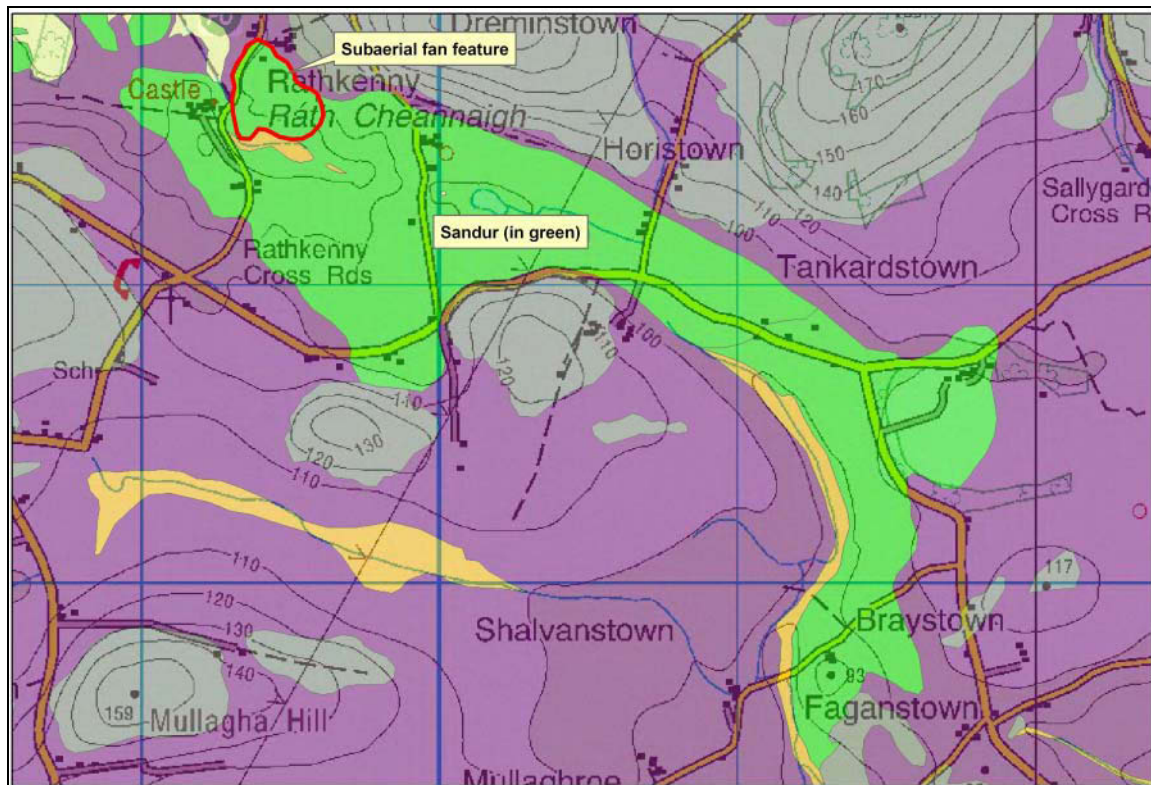
Management/promotion issues

This fine example of an exposed ice contact subaerial fan feature is particularly useful for teaching purposes, especially as the site is so close to an adjacent road. General promotion of the sand and gravel pit is not advised without first contacting the owners. Quarrying and infill form the major threat to the survival of this feature.



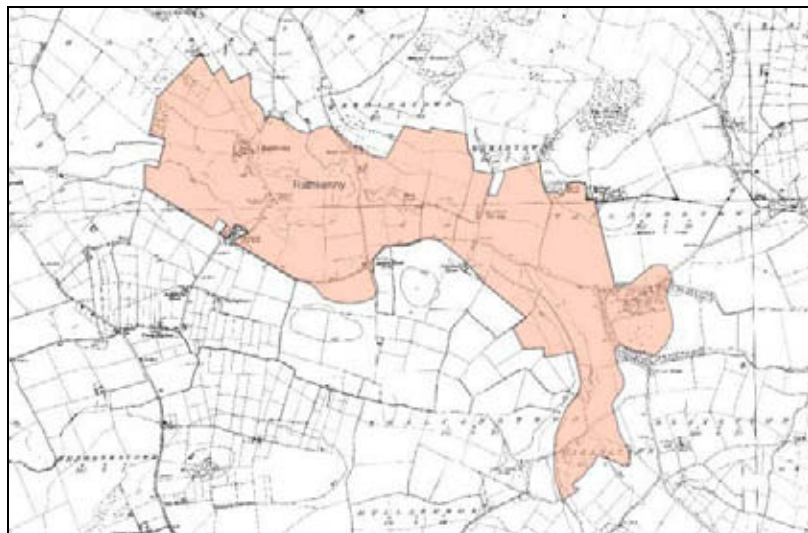
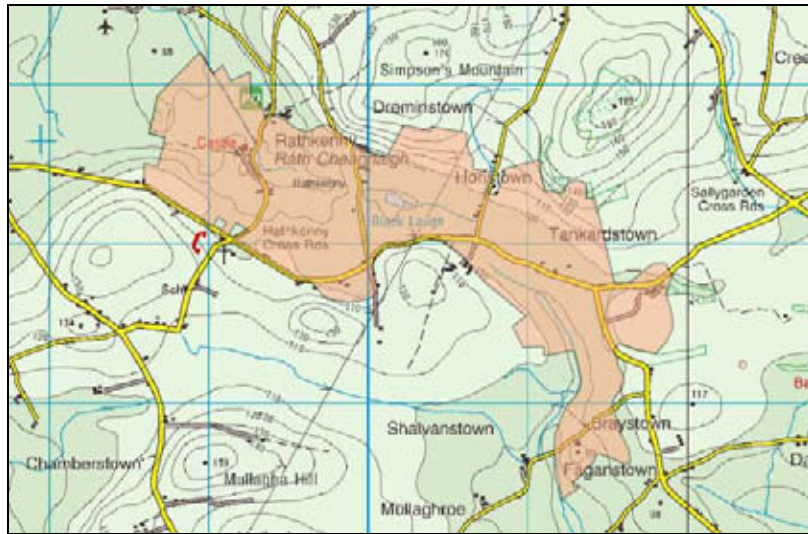
Left: Bedded layers of sand and gravel seen in the pit in the Rathkenny Fan. These layers represent different stages in meltwater flow.

Right: A boulder found within the same pit displaying striations (shown by white scrapes on the boulder surface) caused by glacial transportation and abrasion against other boulders at the base of the ice sheet.



Top: Subaerial fan and associated sandur at Rathkenny. The sandur (green, sands and gravels) fills a deep valley between ridges with rock outcrop on crests (grey) and a veneer of till derived from Lower Palaeozoic rocks (purple).
 Bottom: The morphology of the Rathkenny sandur, comprising flat-topped hillocks and hummocks.

Rathkenny



MEATH - COUNTY GEOLOGICAL SITE REPORT

NAME OF SITE	Rathmolyon Esker
Other names used for site	Rathmolyan Esker (NPWS)
IGH THEME:	IGH 7 (Quaternary)
TOWNLAND(S)	Tromman, Cherryvalley, Rathmolyon, Glebe
NEAREST TOWN	Trim
SIX INCH MAP NUMBER	42
NATIONAL GRID REFERENCE	280060 249470 = N 800 470
1:50,000 O.S. SHEET NUMBER	49 1/2 inch Sheet No. 13

Outline Site Description

Remnant face in former sand & gravel quarry.

Geological System/Age and Primary Rock Type

Quaternary deposits predominantly of clay, sand and gravel.

Main Geological or Geomorphological Interest

The full Rathmolyon Esker, comprising 8 short beads, extending almost 2 km in length, was deposited in a tunnel feeding into the Summerhill (Galtrim) Delta Moraine. The portion of the esker considered here comprises one segment of a complex beaded esker, oriented northwest to southeast and bisected by a cul-de-sac roadway. Only the SE portion of the esker has been designated as a pNHA (Rathmolyan Esker - 0557). This wooded tip of the esker extends onto adjacent land.

Site Importance

The Rathmolyon Esker was one of the type-sites for Francis Synge's theory of esker bead formation as fans. However, as most of the feature has been quarried out, leaving only the 3 faces topped by mature broadleaf woodland at the SE extreme, the status of the site has been downgraded from its original NHA recommendation under the IGH7 Quaternary Theme, to County Geological Site importance only. All eight segments are now deemed to be of CGS status only.

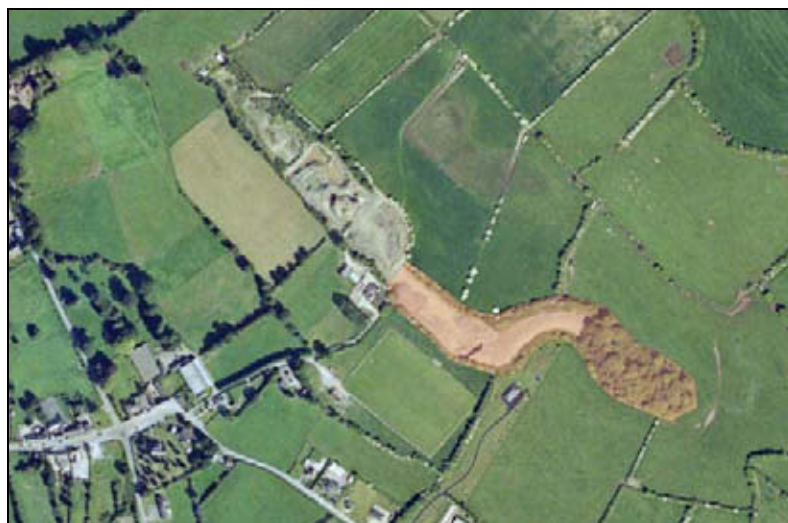
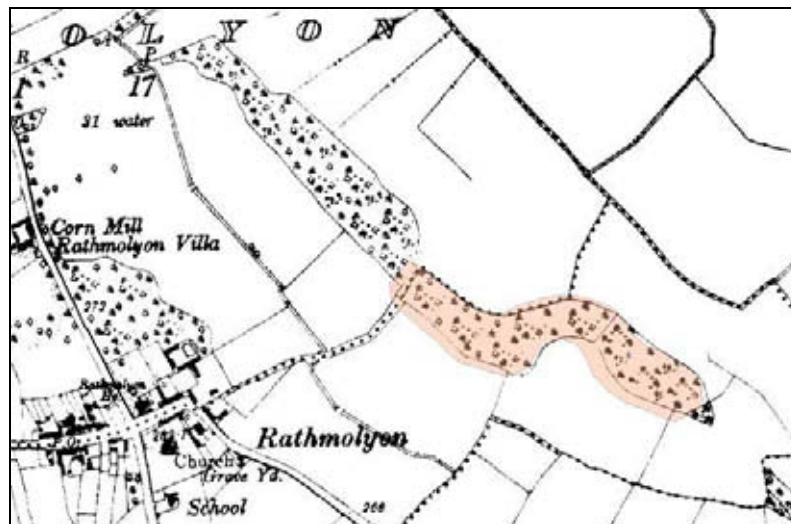
Management/promotion issues

Much of the major bead of the esker has been quarried away. The segments in Rathmolyon village are not currently under threat as houses have been built on them and these are well preserved. However, future quarrying on this feature should be prohibited. In the SE designated portion, three remaining faces along the final 80m of the pit provide a 3-dimensional section through the esker. Glynn Williams (WPE), on behalf of the quarry owner, has agreed with GSI (2009) a restoration and promotion plan to preserve the faces and help promote the esker locally. Only the part adjacent to the GAA pitch will be infilled with material. A nature walk from the gated access to the esker faces, fencing and bio/geodiversity signage, will be provided. A stereoscope and aerial photos of the site should also be considered for access by schools in Trim Library.



Left: One of the esker faces to be preserved at the SE extreme of the esker pit. (Photo: R. Meehan, February 2009).
Right: Full extent of the Rathmolyon Esker. (R. Meehan, 2007)

Rathmolyon Esker



MEATH - COUNTY GEOLOGICAL SITE REPORT

NAME OF SITE	Trim Esker
Other names used for site	
IGH THEME:	IGH 7 (Quaternary)
TOWNLAND(S)	Numerous
NEAREST TOWN	Trim
SIX INCH MAP NUMBER	36, 37, 43
NATIONAL GRID REFERENCE	285500 253100 = N 855 531
1:50,000 O.S. SHEET NUMBER	42 1/2 inch Sheet No.

Outline Site Description

A 6km long section of a predominantly wooded esker ridge.

Geological System/Age and Primary Rock Type

Quaternary sand and gravel deposits.

Main Geological or Geomorphological Interest

Stretching along a 6km stretch of third class road between Trim and Arodstown is the heavily wooded glacial feature known as the Trim Esker. This beaded esker was formed by a river flowing beneath an ice sheet, which covered this area during the last Ice Age. This sub-glacial river deposited sand and gravel. When the ice finally retreated the deposited material remained to form a long linear ridge, which stands out from the surrounding landscape.

Site Importance

This beaded esker is part of the Galtrim meltwater complex, and demonstrates the importance of Irish eskers in world geological literature. It was here that Francis Synge observed the unique occurrence of an esker crossing a moraine, although the site of this intersection has been destroyed by quarrying. The Trim Esker, though itself not unique, as a beaded, feeder system and as one of the most studied and discussed eskers historically in the country, deserves designation as a County Geological Site.

Management/promotion issues

The total length of this feature is around 14.5km and comprises several segments, but many have been destroyed by quarrying. Only one segment, extending over 6km, is therefore recommended for designation in this report. A number of extraction companies are currently exploiting parts of this esker but future quarrying should be prohibited. Occasional dumping was observed along the roadside and needs to be addressed.



Left: Looking southwards along the Trim Esker from its shoulder (R.Meehan 2007).

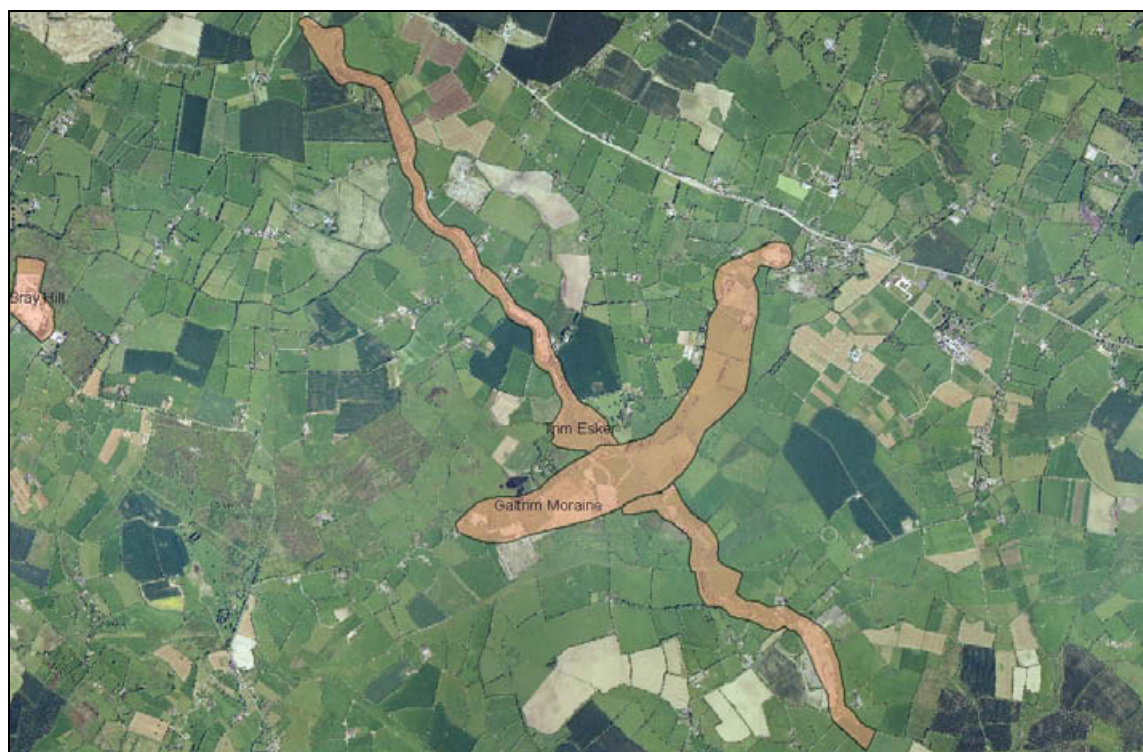
Right: A number of areas along this esker have been used for illegal dumping which can adversely affect the feature.



Above: In many places along this esker are exposed sections of glaciofluvial material (mainly sand, rounded gravel and rounded cobbles). These sections allow geologists to better understand the processes involved in the generation of features like eskers.

Below: Northern section of the Trim Esker oriented northwest-southeast direction. This linear feature is easily identified by its vegetation growth (mainly wooded) and by the road that runs parallel to it (Aerial photo, OSi 2000).

Trim Esker



MEATH - COUNTY GEOLOGICAL SITE REPORT

NAME OF SITE	Altmush Stream		
Other names used for site			
IGH THEME:	IGH 8, 9 (Lower Carboniferous, Upper Carboniferous)		
TOWNLAND(S)	Altmush		
NEAREST TOWN	Nobber		
SIX INCH MAP NUMBER	5		
NATIONAL GRID REFERENCE	278770 286830 = N 7877 8683		
1:50,000 O.S. SHEET NUMBER	35	1/2 inch Sheet No.	13

Outline Site Description

Natural rock outcrops along the banks of a stream over a distance of 1.5km.

Geological System/Age and Primary Rock Type

Lower Carboniferous (Viséan) to Upper Carboniferous (Namurian) limestone and shale of the Fingal Group and Ardagh Shale Formation respectively.

Main Geological or Geomorphological Interest

The small stream at Altmush has cut into the surrounding bedrock forming a steep sided channel and exposing long, continuous sections of dark grey limestone and black shale. The rocks here are generally thin to medium bedded and shallowly dipping at about 25°-30°. The limestone and shale, although mostly fresh, in places show several stages of mechanical weathering. Like most areas in County Meath the exposed rocks in this stream are heavily overlain by a blanket of glacial deposits.

Site Importance

Natural well exposed outcrops such as this stream section are rare especially where they provide a continuous section. They should be considered important on a county level as they can be used by earth scientists as teaching localities and for mapping purposes.

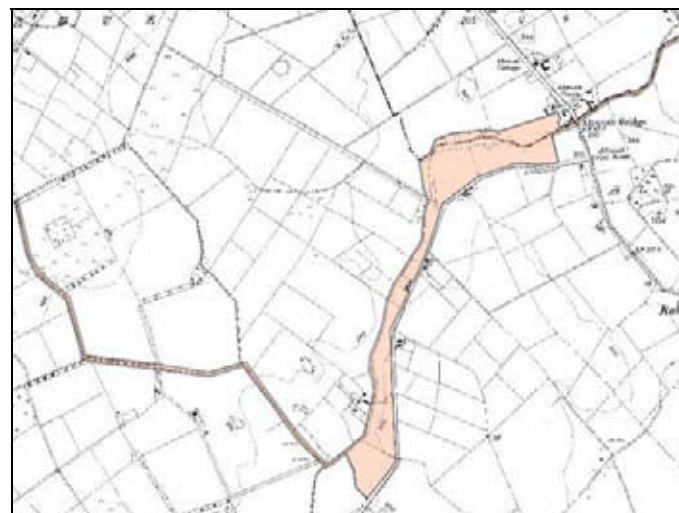
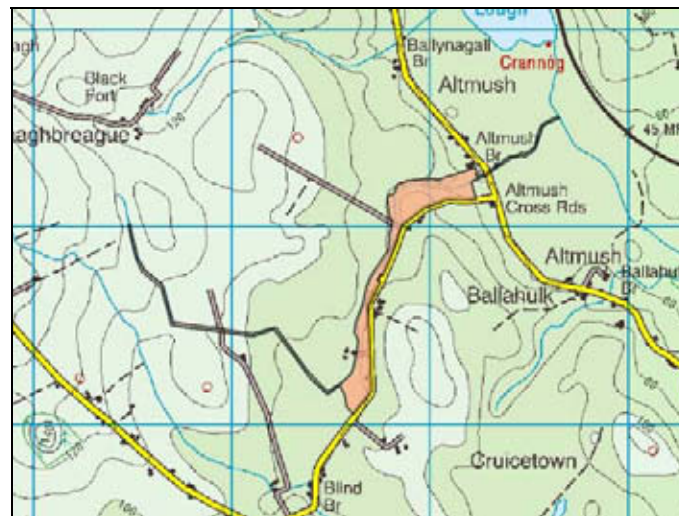
Management/promotion issues

Access to this site is difficult as it mostly lies along steep banks and is in many places highly vegetated. The land is used for agricultural purposes (mainly cattle grazing) and therefore this site is not suitable for general promotion but may be used for further scientific research, with landowner permission.



Left: Thin bedded shallowly dipping black shale of the Fingal Group found within the stream at Altmush.
Right: A good representative image of the valley in which this stream and its outcrops lie.

Altmush Stream



MEATH - COUNTY GEOLOGICAL SITE REPORT

NAME OF SITE	Bray Hill Quarry
Other names used for site	Roadstone – Trim Quarry
IGH THEME:	IGH 8 (Lower Carboniferous)
TOWNLAND(S)	Stokestown
NEAREST TOWN	Trim
SIX INCH MAP NUMBER	36
NATIONAL GRID REFERENCE	281500 253200 = N 815 532
1:50,000 O.S. SHEET NUMBER	42
	1/2 inch Sheet No. 13

Outline Site Description

A working quarry.

Geological System/Age and Primary Rock Type

Lower Carboniferous (Waulsortian) limestone and Tertiary dolerite sill.

Main Geological or Geomorphological Interest

This large working quarry, operated by Roadstone, is found about 4km south of Trim along the R158. It is composed mainly of massive Waulsortian limestone with occasional shale in the upper levels, possibly of the Lucan Formation. Throughout this quarry are a number of good fossiliferous areas, mostly showing of crinoids and occasional corals. At the base of the quarry is an excellent example of an exposed sill, composed of dolerite. This dark coloured igneous intrusive rock was formed when magma pushed its way through the surrounding limestone beds and cooled to form a sill. The magma that forms these sills never reached the surface and was only uncovered here through the quarrying operation.

Site Importance

This is an excellent example of an easily accessible Tertiary sill within Waulsortian limestone and is recommended as a County Geological Site. This is also a good location for observing and collecting fossils and is an excellent teaching locality.

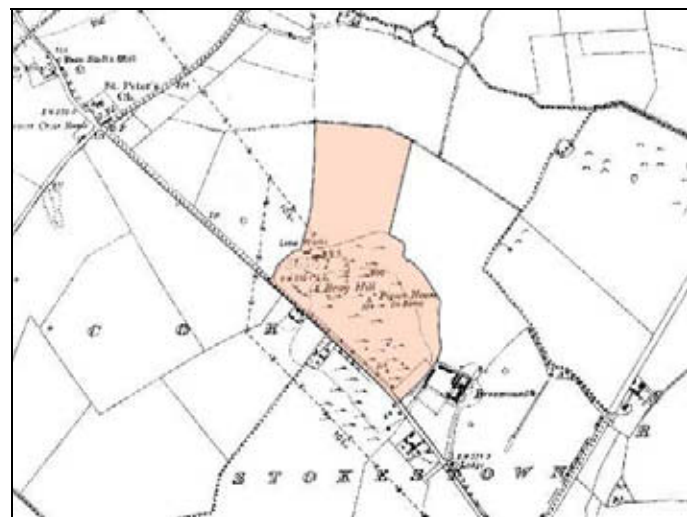
Management/promotion issues

As a large scale working quarry, operated by Roadstone, this is a potentially hazardous environment and is not suitable for general promotion without first contacting the owners.



Left: Gastropod fossil found within the Waulsortian Limestone at Bray Hill near where the sill is located.
Right: A number of crinoid stem fossils found in the Waulsortian Limestone in the upper areas of the quarry.
Middle: The Tertiary sill found within the lower levels of Trim Quarry. These sills are present along nearly all of the exposed faces at this level in the quarry pit. They are much darker than the surrounding light blue-grey limestone. The sills can be observed here running parallel to the beds of the surrounding limestone.

Bray Hill Quarry



MEATH - COUNTY GEOLOGICAL SITE REPORT

NAME OF SITE	Duleek Quarry
Other names used for site	Duleek Roadstone
IGH THEME:	IGH 8 (Lower Carboniferous)
TOWNLAND(S)	Longford
NEAREST TOWN	Duleek
SIX INCH MAP NUMBER	27
NATIONAL GRID REFERENCE	303514 269522 = O 035 695
1:50,000 O.S. SHEET NUMBER	43 1/2 inch Sheet No. 13

Outline Site Description

A working quarry.

Geological System/Age and Primary Rock Type

Lower Carboniferous (Viséan) limestone of the Clonlusk Formation.

Main Geological or Geomorphological Interest

This site is situated 1km north of Duleek. The near vertical walls of this quarry expose large fresh sections of pale, thick bedded limestone. This limestone is bound by organic material. In this case the organic material is made up of peloids (dark pellet shaped grains) which gives this formation a sparkling appearance. A select number of fossil localities are found within this site.

Site Importance

This is a perfect location to observe Lower Carboniferous limestone. It also showcases how economic aggregates are extracted from modern quarries and is recommended for County Geological Site status.

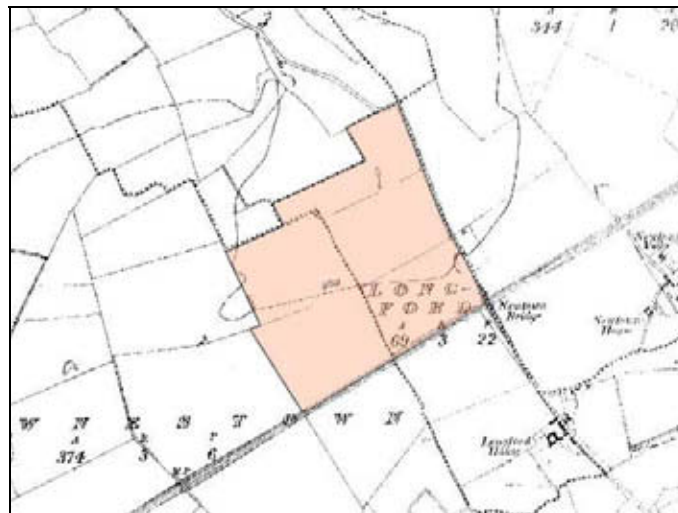
Management/promotion issues

Although this is a small, relatively quiet working quarry it is still a potential hazardous environment and would not be suitable for general promotion without appropriate access arrangements being made with Roadstone.



Left: High vertical rock faces that make up this quarry.
Right: Quarrying for aggregate in Duleek Quarry.

Duleek Quarry



MEATH - COUNTY GEOLOGICAL SITE REPORT

NAME OF SITE	Kilbride Quarry		
Other names used for site			
IGH THEME:	IGH 8 (Lower Carboniferous)		
TOWNLAND(S)	Kilbride		
NEAREST TOWN	Nobber		
SIX INCH MAP NUMBER	6		
NATIONAL GRID REFERENCE	284800 284770 = N 8480 8477		
1:50,000 O.S. SHEET NUMBER	35	1/2 inch Sheet No.	13

Outline Site Description

A disused quarry.

Geological System/Age and Primary Rock Type

Lower Carboniferous (Courcayan) limestone of the Cruicetown Group.

Main Geological or Geomorphological Interest

Found south of Nobber in the townland of Kilbride, this disused quarry displays exposed faces of medium bedded, crinoidal limestone and occasional ash beds. The remnants of this quarry lie within the north side of a farm yard and in a small outcrop in a field just east of the farmyard. Most of the quarry has been backfilled with the exception of these faces. The ash beds, which are found near the base of the quarry wall, are partially covered by silage.

Site Importance

This easily accessed site is a good fossil locality, which has been used in the past for scientific research. The partially covered ash beds can be used to date the surrounding Carboniferous rocks and it is therefore recommended that Kilbride Quarry becomes a County Geological Site.

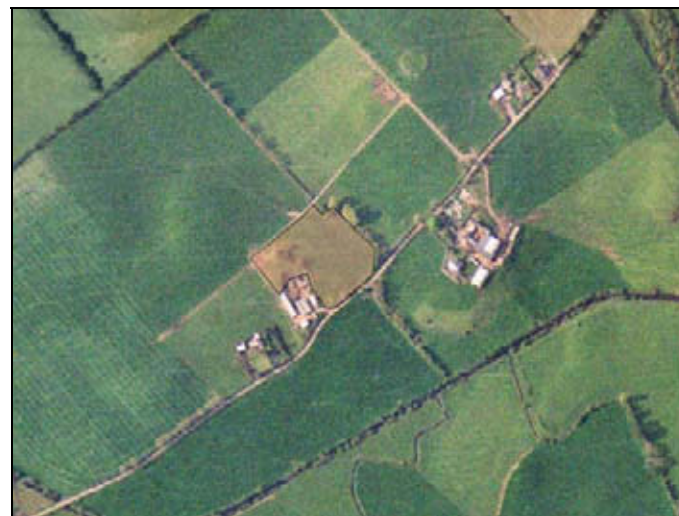
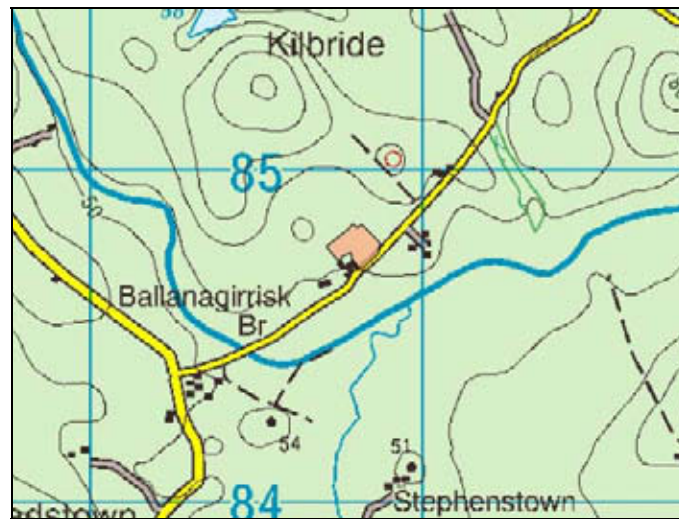
Management/promotion issues

This site may be used for further research in the future, with permission from the landowner but is not suitable for general promotion due to the nature of the land surrounding this site. The silage clamps are not permanent obstructions and do not pose a significant long term threat.



Above Left: Exposed quarry face within the farmyard. Silage observed at its base.
Above Right: Medium bedded limestone beds found in the field adjacent to the farmyard.
Below: Crinoid fossils found in the field adjacent to the farmyard.

Kilbride Quarry



MEATH - COUNTY GEOLOGICAL SITE REPORT

NAME OF SITE	Nobber
Other names used for site	
IGH THEME:	IGH 8 (Lower Carboniferous)
TOWNLAND(S)	Spiddal
NEAREST TOWN	Nobber
SIX INCH MAP NUMBER	5, 6
NATIONAL GRID REFERENCE	283000 285800 = N 830 858
1:50,000 O.S. SHEET NUMBER	35 1/2 inch Sheet No. 13

Outline Site Description

Natural rock outcrops along the banks of the River Dee over a distance of 360m.

Geological System/Age and Primary Rock Type

Lower Carboniferous (Viséan) limestone and shale of the Fingal Group.

Main Geological or Geomorphological Interest

A small section of the River Dee, just south of Nobber, displays excellent exposures of dark limestone and shale. These thin to medium bedded, steeply dipping (45°) rocks are exposed on both sides of the river bank and are best exposed adjacent to the Deegveo Bridge. Along this section, the River Dee has cut into glacial till and underlying bedrock forming a deeply incised, steep sided river valley. It is also noted that the channel was deepened through the Dee Drainage Scheme – the original cut was not so deep.

Site Importance

Natural well exposed outcrops such as this river section are rare and the site is recommended for County Geological Site designation. These rock outcrops could be used by earth scientists as teaching localities and for mapping purposes.

Management/promotion issues

This site lies on both the east and west side of the R162 and can be accessed at Deegveo Bridge. This site is on private agricultural land and is not suitable for general promotion without first contacting the landowner(s). A local angling club appears to have access rights to this site.



Left: Riverbank exposure of thin to medium bedded limestone and shale seen near Deegveo Bridge, just south of Nobber.
Right: A view of the deeply incised River Dee from Deegveo Bridge.

Nobber

