

UKGAP Theme 2: Influencing planning policy, legislation and development design

UKGAP Indicator 4: Geodiversity Gain at Development Sites and Restored Mineral Sites - The total number of sites where geodiversity has been recognised within the design

Relevance

This indicator should help in demonstrating the extent to which developers and mineral operators are contributing to on-the-ground action for geodiversity and may also help in identifying the recognition for geodiversity beyond designated sites.

Examples of how geodiversity may be considered within the final design or restoration scheme include, for example: retention of an exposed quarry face; a design that overtly references local geodiversity, either through the local rocks and fossils used, or referenced in street furniture design; or, interpretation describing the local geodiversity, which could make reference to the local landscape or mining heritage.

Data Sources

A limited number of local planning authorities within England were selected to include both a range of local authority types (county, unitary, metropolitan or London borough and national park) and settings (urban, rural, coastal and including a World Heritage Site and European Geopark). These local planning authorities were also selected as it was anticipated that examples of geodiversity gain could be identified to advocate good practice. Through the use of a short email survey and follow-up telephone conversations with local authority planning officers during February 2012, recent specific development schemes and restored mineral sites that gave consideration to geodiversity were discussed. Returns were received from:

- North Yorkshire County Council;
- Dorset County Council;
- Greater London and the London Boroughs of: Lambeth, Royal Greenwich,
- Dudley Metropolitan Borough Council.

In addition, a short email survey of all existing local geoconservation groups within England was completed in February 2012, primarily to collect data in relation to Indicators 14, 15 and 16. However the local groups were also asked to consider: how they may have increased the recognition given to geodiversity within restoration and design; and, to provide details of known recently restored mineral sites and recent development schemes where geodiversity was recognised. This email survey was sent to all groups affiliated to the Geology Trusts and all groups affiliated to GeoConservation UK, a total of 43 groups, of which 17 (40%) responded with information.

Background to the Data

It is currently difficult to gather statistics in relation to Indicator 4 as there is no central repository for the information. However, consideration of the way in which geodiversity is taken into account in both restored mineral sites and development schemes within a select number of local planning authority areas assists in identifying both good practice and potential issues.

Approaches taken by Developers, Mineral Operators and Local Planning Authorities within England

The feedback received from both the local authorities and local geoconservation groups gave clear indication that, to date, much of the gain for geodiversity has been at sites that have a national or local designation for geology (such as Sites of Special Scientific Interest and Local Geological Sites) and in addition are either active or restored mineral sites. Fewer examples of development schemes that included recognition for geodiversity were cited by either the local authorities or the local geoconservation groups.

Both Natural England and the local geoconservation groups (through partnership working, including input to Local Geodiversity Action Plans - LGAPs) have generally developed good relationships with mineral operators. However relationships with other major or locally prominent developers have perhaps more rarely been cultivated by the local geoconservation groups. In addition, the Aggregates Levy Sustainability Fund (ALSF), closed at the end of March 2011, provided a funding resource that local geoconservation groups were very successful at securing, weighting the focus of their work towards active and restored aggregates sites. These factors, together with the fact that the underlying geology is obviously exposed and visible at quarries, have probably influenced these as the places where geodiversity has been most considered.

Within development schemes and mineral restoration, wherever possible, geodiversity gain would be dealt with through early planning consultation and the use of planning conditions. However, if environmental enhancement or improvement cannot be achieved as part of a particular development, financial contributions can be sought from developers through the use of planning obligations (Section 106 legal agreements) so that a subsidy for environmental mitigation or enhancement may be created (offsetting the impact of development) and used for priority projects that otherwise would have no source of funding, including those relating to geodiversity. One such example of this approach is set out in Dudley Metropolitan Borough Council's *Planning Obligations Supplementary Planning Document* (September 2011).

Varied and innovative geodiversity initiatives have been completed within development schemes and restored mineral sites and some examples are given below.

Development Schemes

New development or repair of road cuttings provides an opportunity to create or maintain geological interest, demonstrated by recent repair of a road cutting, also designated a Regionally Important Geological Site, on the A58 near Halifax. The engineers devised a rockfall mitigation scheme with the dual purpose of protecting road users from potential hazards and, at the same time, preserving and improving the quality of the geological exposure – alternating layers of sandstone, mudstone and coal which had suffered relatively different levels of weathering.

New development of both buildings and gardens at schools can provide opportunities to include elements of local geodiversity within the design and also provide an ongoing educational resource. Chantry High School in Worcester has recently, with help from the Herefordshire and Worcestershire Earth Heritage Trust, created a rock garden, complete with local rocks and an interpretation panel. Budmouth College in Dorset has a new building ('the hub') which through the colours of the bricks used references the local cliffs at Burton Bradstock within the design.



'Trilobricks' within the Dudley Southern By-pass scheme and the man-made unconformity in bricks, Netherton © Graham Worton

The design of bridges, walls and street furniture can also capture elements of the local geodiversity. Dudley's southern by-pass includes a pattern of 'trilobricks' - a design created by a local artist to reference the trilobite fossils familiar to the area, locally known as the 'Dudley bug'. The design of a canal abutment support in Netherton, Dudley has used a pattern of bricks to create a 'man-made unconformity'.

During 2005 and 2006 the main beach and promenade of the historic seaside town of Lyme Regis in West Dorset were extensively renovated as part of a multi-million pound coastal protection scheme. As part of the renovation, new lamp-posts incorporating an ammonite design were erected, linking to the locally found fossils, an important part of the Jurassic Coast



Lamp-posts at Lyme Regis incorporate ammonites into their design.

It is also possible to create opportunities for ongoing environmental monitoring within building design as well as reference local or national geodiversity. The Linklater Pavilion, recently completed within 'The Railway Land', a local nature reserve in Lewes, Sussex is raised up, out of the flood plain and two of the lower walls are clad with a variety of rocks that tell the geological story of time. It is envisaged that school children may be able to monitor the weathering of the rocks and the different vegetation that may grow on the different rocks, as well as learning about geology.



The Linklater Pavilion in context, at the entrance to the reserve, before the paths have been completed; and at the opening event, where people were able to sponsor a rock, geologists were on hand to explain the different rock types. © Pat Rigg, Lewes Railway Land Trust

Lastly, development schemes can provide an opportunity for more in-depth knowledge of local geodiversity to be obtained, including the identification and logging of new geological features. Within London, for example, two large high profile development schemes: the Thames Tunnel Combined Sewer Outflow Scheme and the Northern Line Extension, both currently at the early proposal stage, will involve much geotechnical investigation. Lambeth Borough Council has requested that the borehole logs are made available as the areas to be excavated have not been recently developed at depth and provide an opportunity to investigate and confirm the local geology. A local coal seam: 'the stinking coal seam' was exposed, investigated and extracted as part of the land reclamation scheme for a new housing site at Dibdale Road in Dudley.

Restored Mineral Sites

There are many examples of geodiversity gain at restored minerals sites. In particular these include the creation of footpaths and access to safe and maintained geological sections, often together with the placement of interpretation panels. Some examples of this approach that were cited included: Johnsons' Wellfield Quarry in Huddersfield and Suttles Swanworth Quarry in Dorset, until recently operated by Tarmac.

Former mineral sites may also be restored to country parks, which may retain a geological exposure, such as Upton Country Park in Wakefield and Irchester Country Park in Northamptonshire. Development at former quarries may

sometimes include facilities for a geological warden, such as an application recently submitted for Wren's Nest National Nature Reserve, which incorporates a warden's base within the development.

Artwork may also be used to good advantage. One spectacular and high profile example is the Coldstones Cut Sculpture, created from the locally extracted limestone. This partnership project involved Hanson, Nidderdale Visual Arts, Nidderdale Plus and Harrogate Borough Council. From the viewing platforms provided by the Sculpture, it is possible to look down into Coldstones Quarry, one of England's highest quarries, and watch the quarrying operation as well as see the exposed geology and view the wider landscape. The artist, Andrew Sabin describes it such: *'This was what impressed me most when I first came to Coldstones; looking outwards, a fabulous landscape, once dressed by Nature, now dressed by Man and, looking inwards, the cloths stripped away and the hard reality, compacted towards the centre by the tyranny of gravity, revealed.'*

Assessment of Approaches within England

Development schemes and restoration of mineral sites include the conservation of features of geodiversity interest where these have formal designation. Planning conditions are used and Natural England and / or local geoconservation groups are usually involved in identifying and designing the restoration required.

However, it is clear that where there is local recognition for geodiversity within the local planning authority and where budgets are available for geodiversity enthusiasts and local artists to become involved in design and restoration, some interesting and exciting creations referencing and / or allowing study of the local geodiversity can be incorporated beyond designated sites.

The recent shift in national policy to give consideration to nature conservation (including geodiversity) within the wider environment is being reflected in local policy. The term 'geodiversity' is now used and LGAPs are sometimes referenced, together with the need to consider geological interests within the wider landscape and enhance or add to the geological resource. It is hoped that these new emphases will assist in encouraging new development to include recognition for geodiversity.

Future Recommendations

In the future, a count would need to be made annually of the number of development schemes and restored mineral sites for each local authority that included recognition for geodiversity within the final design. It might also be interesting to consider the number of early consultations with the local planning authority that included recommendation for geodiversity gain and the extent to which those recommendations were carried forward into the design and how that was achieved: through the use of planning conditions, planning obligations or through the use of enthusiasm, goodwill and / or available funding.

Now the UKGAP website is launched, it is hoped that local planning authorities, geodiversity partnerships and local geoconservation groups may be willing to share their contribution to the UKGAP in this way and data could be provided to make an assessment against this indicator.

Appendix: Questions Asked in Surveys

Questions asked in Survey to Local Planning Authorities

	2009	2010	2011
Please list development schemes that you are aware of, completed within each of the following years and where geodiversity has been recognised within the design.			
Please list restored mineral sites (or those undergoing restoration) that you are aware of, in which significant action relating to geodiversity was completed within each of the following years.			

As well as collect the data, we are interested in the background to the processes, for example:

Has funding or partnership working contributed to good practice in the restoration of sites? Please comment.	
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Questions asked in Survey to Local Geoconservation Groups

	2009	2010	2011
Please list development schemes that you are aware of, completed within each of the following years and where geodiversity has been recognised within the design.			
Please list restored mineral sites (or those undergoing restoration) that you are aware of, in which significant action relating to geodiversity was completed within each of the following years.			
Please comment on how your local group has contributed to the increased recognition of geodiversity within the design of development.			
Please comment on how your local group has contributed to the increased recognition of geodiversity within the restoration of minerals sites.			