

LINCOLNSHIRE BIODIVERSITY PARTNERSHIP

LOCAL GEOLOGICAL SITES

Guidelines for their Identification & Selection
in the Historic County of Lincolnshire
(Lincolnshire, North Lincolnshire
& North East Lincolnshire)

LOCAL GEOLOGICAL SITES PANEL
(A Sub-Group of Lincolnshire Biodiversity Partnership)

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In December 2008, the Local Geological Sites Panel Group met for the first time as a sub group of the Lincolnshire Geodiversity Group of the Lincolnshire Biodiversity Partnership. Members were:

- Lincolnshire Biodiversity Partnership (LBP) – Margaret Haggerty & Katie Milburn
- Lincolnshire Wolds Countryside Service (LWCS) – Helen Gamble (Chair)
- North East Lincolnshire Council (NELC) – Helen Jenkins
- North Lincolnshire Council (NLC) – Andrew Taylor
- Volunteer RIGS Officer (Present) – Tim Langdale-Smith
- Volunteer RIGS Officer (Previous) – John Aram

Jon Watson from Lincolnshire County Council (LCC) provided additional advice, support and attended further meetings. The group investigated Local Geological Sites systems employed in other counties, of which there are very few, and based these guidelines on *Local Wildlife Sites – Guidelines for their Identification & Selection in the Historic County of Lincolnshire (Lincolnshire, North Lincolnshire and North East Lincolnshire)*, 2nd Revision, Lincolnshire Biodiversity Partnership.

The group was further assisted in developing the criteria by field testing carried out by North East Lincolnshire Council.

Responses to draft documents were received from the following:

Keith Ambrose – British Geological Survey

David Pocklington – East Lindsey District Council

Tom Richards – Herefordshire and Worcestershire Earth Heritage Trust

Caroline Steel – Lincolnshire Wildlife Trust

Tim Kohler – Natural England

PART 1 - OVERVIEW

1. INTRODUCTION

- 1.1. This document describes the process for identifying and gaining recognition for sites of substantive geological and geomorphological value in the context of the historic county of Lincolnshire. The Guidelines cover the historic county (subsequently referred to as 'Lincolnshire'), in line with Lincolnshire Biodiversity Partnership, i.e. the administrative areas of Lincolnshire, North Lincolnshire and North East Lincolnshire. The selection process described will ensure recognition of sites: they may then be afforded protection through the planning system and be targeted with grants and other resources to assist their conservation.
- 1.2. This guidance is consistent with Local Sites – Guidance on their Identification, Selection and Management (Defra, 2006) and should be read in conjunction with that publication and Planning Policy Statement 9: Biodiversity and Geological Conservation (ODPM, 2005) and Planning for Biodiversity and Geological Conservation: A Guide to Good Practice (ODPM, 2006).
- 1.3. The Defra guidance recommends that Sites of Nature Conservation Importance (SNCIs) are considered alongside sites of value for geodiversity. Local Wildlife Sites are not covered in this document, but within a previous document *Local Wildlife Sites - Guidelines for their Identification & Selection in the Historic County of Lincolnshire*.
- 1.4. Most local authority development plans relating to Lincolnshire contain policies relating to Regionally Important Geological and Geomorphological Sites (RIGS): these sites were identified on the basis of local knowledge and were selected without consideration of any formal criteria. They have not been assessed against the criteria within this document. To avoid confusion, until sites have been assessed they should retain their RIGS designation. As recommended by Defra, sites meeting the selection criteria described in this document will be termed Local Geological Sites (LGSs). As agreed within the Lincolnshire Biodiversity Action Plan (2nd edition, 2006), local authorities should aim to review all RIGS by 2012. Information on sites selected as LGSs will form the baseline against which changes can be monitored.
- 1.5. These guidelines have been developed by a sub-group of the Lincolnshire Biodiversity Partnership and are published by this Partnership, in accordance with Defra and ODPM recommendations. The document is available on the Lincolnshire Biodiversity Partnership website (www.lincsbiodiversity.org.uk) where amendments agreed by the Partnership will be recorded. Part 1 of these guidelines contains information of general interest. Parts 2 and 3 are more technical and are of particular relevance to practitioners.

2. WHAT IS A LOCAL GEOLOGICAL SITE?

- 2.1. The Wildlife & Countryside Act 1981 led to a process of review and re-notification of the series of national designations known as Sites of Special Scientific Interest (SSSIs). Many of the SSSIs designated for their geological and geomorphological interest were largely those that had featured in the Geological Conservation Review (GCR), and a number of sites deemed to be below national or international importance were denotified. However, the Circular accompanying the Wildlife & Countryside Act also reinforced the importance of identifying features of regional and local importance and the role that local government and the voluntary sector could play in pursuing that. By 1990 and stimulated by the Nature Conservancy Council's publication *Earth Science Conservation in Great Britain – A Strategy* (1990) a series of Regionally Important Geological and Geomorphological Sites (RIGS) became established with the purpose of identifying regionally important locations for geology and geomorphology with a view that these would be incorporated into local authorities' development plans and their importance taken into account in allocating land uses and granting planning permissions. Lists of RIGS initially comprised the denotified former SSSIs but local criteria were developed to help expand these lists to be more representative of their areas.

In Lincolnshire, the Lincolnshire Wildlife Trust formed a RIGS Group whose remit covered the historic county and relied almost entirely on voluntary effort. A list of RIGS was produced which has had varying success in becoming incorporated into the various spatial planning systems in the historic county of Lincolnshire. The Government's publication of Planning Policy Statement 9 (PPS9) *Biodiversity and Geological Conservation* in August 2005 introduced the term *Local Site* and guidance was issued the year after on how to proceed at a local level in identifying and protecting Local Sites especially through the new Local Development Frameworks that planning authorities were now required to produce. As Local Sites for wildlife conservation have now been called Local Wildlife Sites (LWSs), the geological locations are being called Local Geological Sites (LGSs).

- 2.2. Lincolnshire Biodiversity Partnership will seek to identify every site which satisfies the selection guidelines presented in Parts 2 and 3 of this document. In contrast, through notification of the geological SSSI series, Natural England seeks to protect a representative suite (JNCC, 1988). It is not Natural England policy to notify all sites which meet SSSI criteria.
- 2.3. SSSI status provides protection for nationally important sites whose interest may be biological, geological, geomorphological or combinations of these. Where a SSSI contains geodiversity features of local significance that are not part of its national conservation objectives, they may be considered for LGS designation. Consideration should also be given to selecting sites receiving other protection, such as statutory Local Nature Reserves and nature reserves managed by voluntary bodies.
- 2.4. The aim for the network of Local Geological Sites in Lincolnshire is to:
- Provide a comprehensive rather than a representative suite of sites;
 - Include the full range of sites with geodiversity importance in Lincolnshire;
 - Reflect the geological control of the distribution of geomorphological features and stratigraphic sequences in Lincolnshire, particularly when this includes uncommon and valuable localities.

- Contribute to the quality of life and well-being of the community by reflecting the importance of geodiversity for natural and man-made landscapes, aesthetic and historical reasons, education and scientific purposes, and personal enjoyment.
- 2.5. LGS designation may complement existing mechanisms of protection afforded to landscapes, historical features, geological features, habitats and species. For example, an old quarry that contains the remains of lime pits once used for burning agricultural lime may now exist as a heritage feature. Information on species and habitats is available from the Lincolnshire Environmental Records Centre (LERC) and information on the historic environment is available from the Historic Environment Record at Lincolnshire County Council.

3. PURPOSE OF LOCAL GEOLOGICAL SITE SELECTION

- 3.1. The purpose of selection of Local Geological Sites (LGS) is to ensure that the geodiversity value of these sites is recognised so that informed decisions may be made on their future management.
- 3.2. The Defra guidance on Local Sites (Defra, 2006) describes the legislative and policy context for LGSs. Reference is made to Planning Policy Statement 9: Biodiversity and Geological Conservation; Planning Policy Guidance Note 17: Planning for Open Space, Sport and Recreation, with regard to rock areas (e.g., cliffs, quarries and pits); the relationship between local BAPs and Community Strategies; the Countryside and Rights of Way Act 2000 (Section 74) with regard to protected landscapes, geological and physiographical features; and the Biodiversity Strategy for England.
- 3.3. Planning Policy Statement 9: Biodiversity and Geological conservation (ODPM, 2005) states that 'local development frameworks should:
 - indicate the location of designated sites of importance for biodiversity and geodiversity, making clear distinctions between the hierarchy of international, national, regional and locally designated sites'. It also states 'Sites of regional and local biodiversity and geological interest, which include Regionally Important Geological Sites, Local Nature Reserves and Local Sites, have a fundamental role to play in meeting overall national biodiversity targets; contributing to the quality of life and the wellbeing of the community; and in supporting research and education. Criteria-based policies should be established in local development documents against which proposals for any development on, or affecting, such sites will be judged.'

In Planning Policy Statement 12: Local Spatial Planning (ODPM, 2008) 'areas of protection, such as nationally protected landscape and internationally, nationally and locally designated areas and sites' are cited for inclusion on adopted proposals maps.
- 3.4. The criteria listed in Part 3 of this document are rigorous and robust and their use to assess sites will give confidence that those meeting the criteria are of substantive geodiversity value.
- 3.5. LGS notification provides landowners/managers with information on the geodiversity value of their land to assist them in making choices on management. In prioritising allocation of grants, such as payments through the Environmental Stewardship Higher Level Scheme, agencies will be able to target grants towards LGS. Other bodies will be able to channel resources to provide advice and practical assistance with management. Practical links may be made with Community Strategies, such as local group help with conservation management of appropriate sites.
- 3.6. The condition of LGS provides a measure of Geodiversity Action Plan achievements at local, regional and national levels. The Lincolnshire GAP will identify the priorities for geodiversity conservation and enhancement within the county and sets targets for achievement, with reference to those targets in national and regional plans and strategies. The Lincolnshire Biodiversity Partnership has identified as a priority the need to acquire detailed information on sites of importance for their geodiversity. Local authorities are required to provide reports on local geodiversity to regional government offices through their Annual Monitoring Report, as part of the assessment of the effectiveness

of their planning policies. Local Development Framework Monitoring: A Good Practice Guide (ODPM, 2005) makes specific reference to monitoring areas designated for their local significance for geodiversity.

- 3.7. The New Performance Framework for Local Authorities and Local Authority Partnerships: Single Set of National Indicators published in October 2007 includes NI 197: Improved Local Biodiversity – proportion of Local Sites where positive conservation management has been or is being implemented. This requires up-to-date information on the management being carried out on Local Geological Sites (see Condition monitoring form - Annex 4).

4. IDENTIFICATION AND SELECTION OF LOCAL GEOLOGICAL SITES

- 4.1. The Defra guidance on Local Sites recommends that the Local Sites Partnership (in Lincolnshire, the Lincolnshire Biodiversity Partnership) should:
- Be responsible for site selection;
 - Possess adequate technical knowledge;
 - Develop and document site criteria;
 - Select sites against criteria;
 - Record reasons for selection of each site;
 - Allow site owners an opportunity to comment; and,
 - De-select sites which no longer qualify.
- 4.2. Sound geodiversity information is needed before a site can be assessed to determine whether or not it should be selected as a LGS. The majority of RIGS already included in Local Plan proposals maps and referred to in local planning policies are likely to meet one or more LGS criteria. Existing sites should therefore be the starting point for selection of LGSs, but others may be proposed by landowners, or geologists, or may come to light as a result of other surveys, published Environmental Statements, etc.
- 4.3. Unless sufficient up-to-date information is available, sites should be surveyed before attempting to apply LGS criteria. Site owners should, whenever possible, be contacted and asked for permission for access to survey and monitor sites. Surveys will be carried out by competent geologists who are able to record the information required to make an assessment, as described in Part 2 and Annex 2. Existing RIGS, information on which is held by LERC, should retain their status until they have been surveyed and assessed under the new selection guidelines.
- 4.4. The LGS Panel is a working group of Lincolnshire Biodiversity Partnership, with the delegated responsibility to assess candidate LGSs. Panel members, drawn from statutory and voluntary conservation organisations and local authorities, are appointed by the Partnership Steering Group: they must all have geodiversity expertise. The agreed quorum is four Panel members. Representatives from Local Authorities are invited to attend relevant meetings. It is expected that the site surveyors will also attend relevant meetings. The Lincolnshire Biodiversity Partnership (through its Steering Group) is the final arbiter for the evaluation and selection process.
- 4.5. The Panel will meet as necessary to examine survey reports, assess sites against the agreed selection guidelines and consider representations. The decision making process will be transparent and consistent: details are given in Section 11. The Panel may seek the views of geology experts or relevant organisations. Local authorities will be invited to nominate a representative to attend Panel meetings when sites in their authority area are being considered. The Panel will make one of the following recommendations for endorsement by the Partnership Steering Group:
- To select the site as a LGS, with a prescribed boundary; or
 - To not select the site as a LGS; or
 - To defer a decision in order to gain additional information (e.g. to commission a further survey due to poor site access).

- 4.6. Prior to formal endorsement, site owners/managers will be informed of the outcome of the Panel assessment and will be given the opportunity to make observations on factors relating directly to the application of site selection criteria, as recommended by Defra. At this stage site owners/managers will also be sent full details of the site survey, including site description and boundary map, and information on the geodiversity interest.

- 4.7. As recommended by Defra, sites formally selected by the Partnership Steering Group 'must be submitted to the local authority for inclusion within their Local Development Frameworks at the earliest opportunity' (Defra, 2006, paragraph 24). It will be the responsibility of the local authority to ensure that site owners/managers are informed of the outcome of this process.

5. MANAGEMENT, MONITORING AND REVIEW

- 5.1. Data relating to sites (whether selected as LGSs or not) will be held by LERC on behalf of the LBP Partnership, and will be managed according to its published policies and procedures in line with National Biodiversity Network guidelines.
- 5.2. Defra recommends that 'Local authorities should provide leadership in establishing and maintaining partnerships and systems to manage Local Sites.' It also recommends that 'locational details should be sent to relevant decision-makers with further information on the site's features and interest as appropriate' (Defra, 2006, paragraphs 16 and 71). Service Level Agreements with Lincolnshire Biodiversity Partnership may be the most effective means of achieving this.
- 5.3. LGSs should be re-surveyed on a five to ten year rolling cycle, and their status reviewed, as recommended by Defra. This monitoring cycle will be dependent on available resources but, if it exceeds ten years, the data would not be considered sound and up-to-date. National Indicator 197 requires information on management that is not more than five years old.
- 5.4. Monitoring of LGSs (or other sources of information) may reveal deterioration of designated sites. If this is the case, the assessment procedure outlined in Section 4 will be re-applied and consideration given to the potential for restoration of the site's features of interest. If restoration is not feasible, the LBP Steering Group may notify owners and other interested parties that formal de-selection will take place. The local authority should then remove reference to the site from its Local Development Framework at the earliest opportunity.
- 5.5. As recommended by Defra, Lincolnshire Biodiversity Partnership will review these guidelines from time to time. A complete review will consider if:
 - The system is operating in the most effective way;
 - The sites selected represent an adequate selection of sites of geodiversity interest in Lincolnshire;
 - There is sufficient information on the condition of LGSs; and,
 - Measures for LGS conservation and management are effective.

An interim review is recommended after a county-wide geodiversity audit has been completed. At this time, there would be an opportunity to re-consider threshold levels (see paragraph 10.3), and discuss possible expansion of the criteria to include additional geological and geomorphological features. If thresholds are changed, sites will not normally be reconsidered until they are resurveyed as part of the rolling resurvey cycle. Consideration could also be given to the addition of guidelines on management and resourcing of the LGS system, as recommended by Defra (Defra, 2006, Part 4).

PART 2 - THE SELECTION PROCESS

6. INTRODUCTION

- 6.1 Great Britain has a remarkable geological diversity, with a nearly continuous record of the Earth's history for more than 1,000 million years. The surface rocks of Lincolnshire contribute to this story for the Triassic, Jurassic, Cretaceous and Quaternary periods particularly, whilst the Carboniferous and older rocks buried beneath them now yield oil and natural gas. The development and use of these rocks and sediments have left a legacy of important exposures and rare localities that add details between the well-exposed rocks of the same ages on the Dorset and Yorkshire coasts. During the last one million years the county has been buried on at least one occasion beneath a massive ice-sheet that removed the previous products of weathering and erosion. The present-day landscape, coastline, courses of the rivers, soils and natural vegetation have all developed since then, whilst the climate has become warmer and sea level has risen as the ice-caps melted.

Natural England identifies 159 different National Character Areas in England, of which 10 occur in historic Lincolnshire. Each has a set of features that define the landscape, recorded in individual descriptions which explain what makes one area different from another and shows how that character has arisen and how it is changing, including the geology, geomorphological features, key deposits and potential threats to their geodiversity. The Lincolnshire Wolds Area of Outstanding Natural Beauty (AONB) was designated in 1973 in recognition of the landscape's high scenic value. In 1993, the Countryside Commission acknowledged the outstanding qualities of the Wolds's unique physiography in a Landscape Character Assessment. This geographically rare physiography stems from the extensive modification of the chalk upland by glaciation.

Near Scunthorpe, the landscape has been intensely modified by man in the extraction of iron-ore. Smaller quarries in different parts of the county record the search for limestone for building or agricultural lime; chalk for the chemical industries and cement manufacture, and pits for sand, gravel and clay for aggregate and construction materials. Nature has also modified the landscape, at the end of the last glacial period fine sands were blown eastwards from the Trent valley until they banked in drifts against the steeper scarps of the ironstone and limestone ridges that ran north-south across their path. The submerged forests along the coast and the Humber banks reflect the rise of sea-level during the last ten thousand years since the ice-caps started to melt; a trend now being accelerated by global warming.

Geomorphological processes of weathering, erosion and deposition continue to take place in relation to solid rocks and superficial deposits, their derived soils, but also in exposures and in buildings derived from these rocks. These provide, in some cases quite temporary, features of interest. This is particularly evident along the coast, where natural processes are being engineered against or, more harmoniously, by working with nature. With twice daily tides and a high tidal range, short term changes can be contrasted with the processes that can be inferred over long periods of geological time.

- 6.2 The designation of Sites of Special Scientific Interest (SSSI) for their national geological and geomorphological value and interest and the creation of nature reserves by the Lincolnshire Wildlife Trust and local authorities have helped to conserve many of the very best of these sites. The Geological Conservation Review (GCR) has also designated a number of sites within Lincolnshire as being of stratigraphic significance in the record of British geological history. Now that such sites are relatively well protected from damaging activities through improving legal safeguards and increasing public awareness and support, it is time to turn attention to other sites of more local significance.
- 6.3 Each local planning authority in Lincolnshire holds a list of selected sites of value for geodiversity, the majority of which are not protected by nature reserve or SSSI status. These are known as Regionally Importance Geological and Geomorphological Sites (RIGS). Established in 1990 by the Nature Conservancy Council (NCC), RIGS were selected and designated in Lincolnshire by the local RIGS group, part of the Lincolnshire Wildlife Trust, on the basis of local knowledge and geodiversity interest. Along with GCR sites, RIGS are currently the most important places for geology and geomorphology outside statutorily protected land such as SSSIs. RIGS do not have formal statutory protection in the same way as SSSIs, however, Lincolnshire Wildlife Trust notified the local planning authorities of RIGS which have been identified in their area and encouraged the local authority to protect RIGS through the planning process. For example, RIGS have been listed on local authorities' development plans.
- 6.4 In common with many counties, there has been no standardised approach to RIGS designation in Lincolnshire in the past. This is now being addressed by the introduction of rigorous criteria for selecting sites, which will be known as Local Geological Sites (LGSs) as recommended by Defra. In Lincolnshire, the Biodiversity Partnership aims to assess all existing RIGS and LGSs as a result of the review and survey work. Although these LGSs will not have the same statutory protection as SSSIs, their incorporation by local planning authorities into their Local Development Frameworks will provide a good measure of protection against adverse development.
- 6.5 LGSs will be selected by the LGS Panel, following the procedure presented in Section 11 of this document and using the criteria that form Part 3. For details of the LGS Panel, see Section 4.

7. DEVELOPMENT OF LGS SELECTION CRITERIA

7.1 In 2001, a standardised recording, assessing, designating and notification procedure was developed on behalf of UKRIGS with support from English Nature (now Natural England) and numerous RIGS member groups (Reynolds, 2001). The criteria and processes were developed with regard to existing and similar systems to ensure consistency in standards and transparency wherever possible. These selection criteria have been acknowledged by Natural England as the foundation on which to lay the important local aspects of substantive geodiversity value in the Lincolnshire context. LGSs are selected on a local basis using the four nationally agreed criteria (Defra, 2006, paragraph 52):

- Value of the site for educational purposes in life-long learning
- Value of the site for study by both professional and amateur Earth scientists
- Historic value of a site in terms of important advances in Earth science knowledge, events or human exploitation
- Aesthetic value of a site in the landscape, particularly in relation to promoting public awareness and appreciation of Earth sciences

Criteria are scored from 0 to 10. The range of scores to describe each criterion is:

0	useless/no good
1-2	very poor
3-4	poor
5-6	acceptable/useful
7-8	quite good
9-10	very good/excellent

7.2 Herefordshire and Worcestershire Earth Heritage Trust have produced guidance to monitor and record the condition of sites. These are being adopted nationally, and the Lincolnshire Biodiversity Partnership's Condition Monitoring Form and guidance notes are based on this format.

7.3 Surveys undertaken for North East and North Lincolnshire in 2008/09 were used to inform the production of the criteria.

7.4 The LGS Panel consulted widely in developing the criteria to gain a consensus on the definition of 'substantive' geodiversity value in the Lincolnshire context. This consultation was particularly important in setting thresholds.

8. KEY FEATURES OF THE SELECTION CRITERIA

The locally agreed selection criteria have been based on the nationally agreed site selection form (Annex 3) and should provide a contemporary 'snap shot' of the value of the site to potential users and a summary of the worthiness of the site for designation as a LGS.

The selection criteria has four themes:

Scientific

- Surface processes – weathering and erosion and deposition types
- Geomorphology – landforms and viewpoints
- Sedimentary rocks – bedding structures and lithological relationships
- Fossils – abundance, preservation, environmental and ecological associations
- Igneous rocks – textures, mineralogy and structures
- Metamorphic rocks – textures, mineralogy and structures
- Tectonic – folding structures, dips and geological faults
- Mineralisation – veins, ore-bodies, mineral types
- Stratigraphy – regional and local relationships, zonal fossils

Cultural

- Historical associations with individuals or events
- Earth science associations with key developments or sites
- Local folklore or events
- Aesthetic landscapes, natural and man-made
- Economic associations involving the development of Earth resources
- Past and present activities, processing and after-use of voids

Educational

- Potential illustration of Earth science processes and products
- Levels of presentation, from Primary School age to Secondary.
- Further and Higher Education projects and research
- Stimulation of variety of interests and levels for family and adult groups
- Geodiversity value, illustrating locally significant features and geological history
- Potential for connecting adjacent sites to form a geological trail
- Noticeboards and or site/trail guide leaflets.
- Past links to climate change

Access and Safety

- Road access and safety including potential parking areas
- Safety of site access; footpaths, slopes, wheelchair access
- Nature of exposure; quarry, cliff, river bank or bed
- Safety of exposure; height and stability of exposures, safe for children, deep water, working quarry or industrial site
- Protective clothing required; hard hats, high visibility jackets, safety boots, goggles
- Permission to visit; public access, private land, working quarry
- Condition of exposure; weathering, clear of vegetation, extent of good exposure
- Conflicting activities; land-fill site, game-bird rearing, firearms practice area, botanical SSSI, Nature Reserve
- Restricting conditions and activities; limited seasonal or time access, no hammering or collecting, nearby bird reserve

9. DATA REQUIREMENTS

- 9.1. Site data requirements are normally:
- Landowner details;
 - An identified boundary;
 - A written geological description of the site including:
 - Type
 - Size and dimensions
 - General description
 - Status e.g. type locality
 - Stratigraphy
 - Lithology
 - Petrology
 - Mineralogy
 - Palaeontology
 - Structures
 - Relationships
 - Geomorphology
 - Palaeoenvironment
 - Palaeoecology
 - Annotated photographic record;
 - Site condition monitoring assessment;
 - Any relevant observations about other non-geological interests and site features; and,
 - Information on public access, health and safety, visibility, clearly walked paths, etc.
- 9.2. Useful information about a site can be obtained remotely through aerial photography, but data gathered in the field is needed for an adequate evaluation. In addition, it is important to use data that is as up-to-date as possible, because key features and selection criteria may change over time.
- 9.3. Already documented data can be useful when assessing a site, but seldom will it be adequate in isolation. It is therefore usually necessary to make a site visit whether or not any other data exists.
- 9.4. The main objective of each field visit is for a competent geologist to carry out a survey using the field survey and condition monitoring forms that have been developed for use in the field (see Annex 2 and 4) and return completed forms to LERC. The forms incorporates a large number of tick boxes, designed to make recording as swift, comprehensive and consistent as possible. Annex 1 provides an outline of the survey procedure.
- 9.5. Surveys are undertaken by a competent geologist and are validated by the LGS Panel.
- 9.6. Surveyors should aim to record on a site-by-site basis, unless sub-division is appropriate. Sub-division may be desirable where the area is particularly large, or where it comprises more than one feature. Linear sites should be split into sections of approximately 1 km length for recording purposes.
- 9.7. Whatever recording unit boundaries are chosen, these must be clearly recorded, on a map or sketch. It is preferable to use boundaries that appear on base maps, such as fences, hedges and watercourses.

- 9.8 Time spent on site should be noted, as well as any constraints (for example torrential rain), to give some idea of the degree of thoroughness of each survey.
- 9.9 Any relevant information that can be obtained from the land manager should be recorded, such as past and present management, future intentions, and changes in vegetation structure.

10. SELECTION GUIDELINES RATIONALE

- 10.1 Natural England have recommended, via the regional geodiversity fora, the use of the UKRIGS guidelines in formulating local site selection guidelines.
- 10.2 The Herefordshire and Worcestershire Earth Heritage Trust guidance on condition monitoring, has been nationally recognised as the standard with which to independently, and with minimal subjectivity, monitor and record the condition of sites. This common standard of monitoring can be used to compare sites across the network.
- 10.3 A site must score 9-10 (i.e. very good or excellent) for a Scientific criterion for it to be considered for selection for this criterion alone. A site must score at least 7 (i.e. quite good or acceptable/useful) in two or more Scientific, Educational or Cultural criteria for it to be considered for selection under a combination of criteria. The Access and Safety criteria will be used as supporting information to support or reject site selection.
- 10.4 There is no minimum or maximum site size. Sites can vary from an individual boulder to an entire landscape formation.
- 10.5 At the start of surveying, no firm decisions should be made about the boundaries of the site unless there are distinct definitions. All areas of potential importance should be surveyed. The boundary should be defined after a survey of all potential areas.

It is acceptable to devise boundaries that ensure that all the areas of geological interest are included within the boundary, as well as considering factors such as land tenure and management practice. The 'boundary' should define and enclose the area of interest.

However, it is noted that drawing a boundary on a map defines a geological unit that may be a component of a wider geological system. Most sites consist of several related features and may include some areas which are of lesser value, but form an integral part of the unit. These are sometimes referred to as extensive sites.

Relationships with other sites should be considered. A significant number of RIGS are adjacent to other sites, such as SSSIs, and these may be considered together as a single geological unit. The relationship with other sites and the reasons for divisions should always be recorded.

11. DECISION MAKING

- 11.1 Once site data is available, the details will be presented to the LGS Panel for consideration. The Panel comprises personnel with geodiversity expertise appointed by the Lincolnshire Biodiversity Partnership Steering Group, which has stipulated a quorum of four members. The Panel's recommendations will be based on the guidelines laid out below to ensure consistency, through impartial use of professional judgement. An invitation for a representative to attend will be sent to each local authority covering the sites under consideration at Panel meetings.
- 11.2 The LGS Panel will normally meet two or three times per year. Additional meetings may be convened if there are matters to discuss urgently: alternatively, information may be circulated by electronic means and votes made remotely.
- 11.3 A list of candidate LGSs will be circulated by LERC to all LGS Panel members before each meeting. This list will include the following details for each site: local authority, site name, central grid reference (or extremity grid references in the case of linear sites), area, criteria scores and additional features present. A GIS layer showing the recommended site boundaries will also be available if requested.
- 11.4 Additional information will be provided at the meeting, including:
- Map showing boundary and proximity to other sites
 - Description
 - Annotated photographic record
 - Additional features on the site
 - Current site management
 - Supplementary information, including anecdotal information and species list(s)
- 11.5 During assessment, the scores that a site achieves under the Scientific, Educational and Cultural criteria will be noted. Sites that satisfy the criteria and scoring combinations shown in Part 3 will normally be recommended for selection, providing members have confidence in the site data, the proposed boundary and other relevant factors (such as access and safety).
- 11.6 The Panel will also consider relevant contextual information to assess the relative importance of a site. Considerations in relation to local geodiversity could include:
- Is it the only exposure of a particular horizon?
 - Is it the best example of a faulted junction?
 - Did a disused quarry produce most of the local building stone?
 - Is it the best fossil locality for a particular group?
 - How do the site's features compare with other sites locally, regionally, nationally and even internationally?
- Information relating to the history, industrial history, wildlife and archaeology of the site and, if appropriate, its use by the local community should also be collected.
- 11.7 The basis for individual site selection will be recorded, showing the features judged to be of substantive value and how they were assessed against the criteria.

- 11.8 Sites that fail to satisfy at least one criterion will not necessarily be rejected. There may be insufficient information available for an assessment to be made and the Panel may request further information, for instance specialist survey data or changes in the proposed boundary. Once these requests have been satisfied, the new site details can be re-submitted to the Panel for re-consideration.
- 11.9 By 2012, it is hoped that all sites previously designated as RIGS will have been assessed under the guidelines. Where it has not been possible to gain permission to re-survey a site which showed substantive geodiversity value at the time of the last survey, and where there is no evidence of loss of geodiversity interest, it will be retained/selected as a LGS. This includes RIGS where no recent survey has taken place. Such sites will be re-assessed by the Panel when up-to-date information is available.

Whilst the preferred approach is to gain landowners' permission to survey sites and to survey at agreed times, all sites of substantive geological or geomorphological importance need to be selected. On occasion, this will mean assessing sites where landowners are reluctant to take part in the process.

Where other approaches have been exhausted, Local Planning Authorities should use the powers they have to enter land for the purposes of preparing a Local Development Framework in order to survey sites. This must be carried out in accordance with Sections 324 & 325 of the Town and Country Planning Act 1990.

- 11.10 The Panel will only recommend that a site is rejected as a LGS if it considers that adequate recent survey has taken place and other relevant factors have been considered. The rationale will be recorded.
- 11.11 A site may be re-assessed after selection/non-selection if its condition changes.
- 11.12 Information on all recommendations made by the Panel, and the reasons for those recommendations, will be clearly documented and held by LERC. The basis for site selection will be transparent to anyone who wishes to understand the rationale behind the decision.
- 11.13 Site owners/managers will be informed of the outcome of the Panel assessment and will be given the opportunity to make observations on factors relating directly to the application of site selection criteria. The Lincolnshire Biodiversity Partnership Steering Group will consider the recommendations of the Panel and any other representation and be the final arbiter on LGS selection. Its decisions will be recorded and held by LERC.

PART 3 – THE SELECTION CRITERIA

12. SCIENTIFIC

There will be sites that show an exceptional example of a particular horizon, an unconformity or show exceptional preservation of fossils. These features will not always be notified as SSSIs and it is important to give a measure of protection to these local sites.

Criteria for scoring

Surface processes

- Weathering of rocks and soil formation
- Scree, landslips, mud-slides and debris flows
- Aeolian transport and deposition inland and on coasts
- River erosion and deposition, terraces, meanders and lakes
- Springs and wells
- Marine erosion and deposition, mud flats, marshes, beaches and dunes, sea-level changes

Geomorphology

- Scarps and dip-slopes
- Dry valleys
- Estuaries
- Coastlines

Sedimentary rocks

- Rock types exposed; solid or 'superficial deposits' (glacial and post glacial)
- Sedimentary structures; bedding and lamination
- Depositional structures, sole structures, ripples and mud-cracks
- Unconformities; non-sequences

Fossils

- Trace or body fossils
- Complete, disarticulated or fragmental
- Groupings and associations
- Environmental indications

Igneous rocks

No known surface rocks, except as glacially derived erratics or from glacial tills and rivers.

Metamorphic rocks

No known surface rocks, except as glacially derived erratics or from glacial tills and rivers

Tectonic structures

- Folding; anticlinal or synclinal, symmetrical or asymmetric
- Faulting; normal or reverse, slickensides orientation

Mineralisation

- Names of minerals present and associations
- Mode of deposition or formation; evaporite, veins, secondary mineralisation

Stratigraphy

- Stratigraphy of bed(s) present
- Non-sequences, angular unconformities
- Type site for lithology, fossils

A site will be considered for selection if it scores:

- **9 or 10 for at least one Scientific criterion**
- **7 or 8 for two or more Scientific criteria**
- **7 or 8 for one Scientific criterion plus 7 or more for at least one Educational or Cultural criterion**
- **At least 5 for three or more Scientific criteria**
- **At least 5 for one Scientific criterion plus 5 or more for at least two Educational or Cultural criterion**

13. CULTURAL

The cultural aspects of sites can be a factor in their designation, and their value should be recorded as part of the assessment.

Criteria for scoring

Historical associations

- Historical, archaeological and literary associations with nationally famous or locally significant people or events
- References in geological literature

History of Earth sciences

- Associations with famous Earth scientists and their work
- Type sites for fossils and rock sequences
- Major geological literature references

Local folklore or events

- Local folklore, religious connections or archaeological events or sites

Aesthetic landscapes

- Natural or man-made
- Viewpoints of landscape features
- Locally unifying materials in vernacular architecture

Economic geology

- Economic associations involving the development of Earth resources

Past and present activities

- Past and present economic activities including extraction and processing of stone, sand and gravel, evaporite minerals, iron ore, clays and peat

A site will be considered for selection if it scores:

- **7 or more for two or more Cultural criteria**
- **7 or more for one Cultural criterion plus 7 or more for at least one Scientific or Educational criterion**
- **At least 5 for three or more Cultural criteria**
- **At least 5 for one Cultural criterion plus 5 or more for at least two Scientific or Educational criterion**

14. EDUCATIONAL

This aspect will require input from qualified teachers, lecturers and field trip leaders to ensure that the correct level is assigned to a site. Most sites will have some educational value. Some may only be appropriate for specific student use while others will be excellent to give the public an understanding and awareness of geodiversity.

Criteria for scoring

Earth science processes and products

- Potential for illustration of processes and products

Levels of presentation

- From primary to secondary school age

Further and higher education

- Potential for projects and research

Stimulation of interest

- Potential for a variety of interests and levels for family and adult groups

Geodiversity value

- Illustrating locally significant features and geological history

Geological networks

- Potential for connecting adjacent sites to form a geological trail

Interpretation

- Noticeboards and/or site/trail leaflets

A site will be considered for selection if it scores:

- **7 or more for two or more Educational criteria**
- **7 or more for one Educational criterion plus 7 or more for at least one Scientific or Cultural criterion**
- **At least 5 for three or more Educational criteria**
- **At least 5 for one Educational criterion plus 5 or more for at least two Scientific or Cultural criterion**

15. ACCESS AND SAFETY

The access and safety aspects of a site can be a factor in designation and should be recorded when assessed as this information will be required by potential users, such as field leaders, teachers and researchers.

Criteria for scoring

Road access and safety, including parking
Safety of site access
Safety of exposure
Protective clothing required
Permission to visit
Condition of exposure

Descriptive criteria

Conflicting uses and activities
Restricting conditions
Nature of exposure
Multiple exposure/prospect for trail
Planned or potential to improve site access

Consideration may be given to not selecting a site if it scores 4 or less for two or more Access and Safety criteria. The descriptive criteria will be used to support or reject site selection.

PART 4 – CONDITION MONITORING

16. CONDITION MONITORING GUIDANCE NOTES

The Local Geological Sites condition monitoring form has been developed in partnership with the Malvern Hills AONB, Natural England, UKRIGS, the Geology Trusts and Herefordshire and Worcestershire Earth Heritage Trust.

The condition monitoring form is the method recognised by Natural England, UKRIGS and the Geology Trusts to assess the condition of a designated Local Geological Site (and previously RIGS).

Local Sites Partnerships will find the process a useful standard in reporting the conservation management of Geodiversity for the Improved Local Biodiversity Indicator - NI 197.

This form will be used as the national standard to independently, and with minimal subjectivity, monitor and record the condition of sites, in order to achieve a common standard of monitoring and to easily compare sites across the LGS network.

1. Site Information

This section is for entering basic information about the site and should be the same as that held for the LGS.

Site Name – This should be the exact same name as used to identify the site as a LGS.

Site Type – Each site should be assigned a site type based on the accepted Earth Science Conservation Classification, as shown below. Only the abbreviations should be used on the form.

Exposure or Extensive Sites		Integrity Sites	
Active quarries and pits	EA	Static (fossil) geomorphological	IS
Disused quarries and pits	ED	Active process geomorphological	IA
Coastal cliffs and foreshore	EC	Caves	IC
River and stream sections	EW	Karst	IK
Inland outcrops	EO		
Road, rail and canal cuttings	ER	Finite Sites	
Exposure underground mines and tunnels	EU	Finite mineral, fossil or other geological	FM
Extensive buried interest	EB	Mine dumps	FD
		Finite underground mines or tunnels	FU
		Finite buried interest	FB

Interest feature(s) – The reasons why the site was designated a LGS should be listed here. It should be a checklist of all the important features of the site so that the assessor is clear what feature(s) should be accessible, and therefore what needs to be assessed.

2. Primary factors

This section explores the factors that could have a direct affect on the geodiversity feature(s). The table is split into three feature types;

- Bedrock feature (solid rock exposures, structural features etc.)
- Superficial deposit feature (river terraces, mass movement deposits, peat deposits etc.)
- Geomorphology feature (active geomorphological processes)

The assessor should delineate on the form which features are present at the site by completing each question for each feature type with a Yes or No answer. If a feature is not present (as listed in the Interest Features section), then “not applicable” should be entered.

If any of the factors are having an adverse affect on the feature(s) of interest (this is where reference to the reason for LGS designation is critical) this should be recorded by placing a Y in the appropriate “Y/N” box. The comments box can then be filled in as the assessor sees fit.

3. Secondary factors

These are factors that do not directly affect the feature(s) but may need to be managed in order for the feature(s) to maintain a desirable condition for their designation.

Site Access – This deals with accessibility of a site, a factor that is not considered with regards to SSSIs, however geodiversity groups tend to consider this. Issues over site access may include safety, physical obstacles such as vegetation, landowner restrictions, or a protected species (e.g. peregrine falcon) restricting access at certain times of the year.

Furniture – Central to interpretation and/or safety at the site. Issues may include a damaged interpretation panel, a bund or fence being damaged leading to the site becoming unsafe.

Other features – There may be other features of interest at a site that should be considered and noted e.g. a rare species of plant, or a cave of archaeological interest.

4. Site Status

Primary factors - In order for monitoring to be a useful tool to focus management, the changing of, or status quo of, a LGS needs to be recorded. This section deals with the site status, in order for the geoconservation community to interpret it at different levels as they see fit.

At its most basic level, an assessment is given of whether a site is in a desirable condition for use of its feature(s). A site should be given a yes when it is clear that it is in a fit state for use of its features (i.e. for educational purposes via regular school visits). A site may also be in a desirable condition if it is designated for scientific reasons only, and the feature(s) can practically be re-exposed, even though they may be in a slightly worse overall condition than a site that is used for education. There is a degree of subjectivity here, but the assessor is given freedom to determine this. Therefore, at the most basic level LGS can be given the status of being in a desirable or undesirable condition.

Next is site management. Monitoring is undertaken with a view to both assessing the state of the LGS, but also what (if any) management may be undertaken. Suggested management should be entered into the appropriate box (depending on what initial condition status was given).

Finally the level of management (being undertaken, not going to be undertaken etc) should be filled in after consultation with the geodiversity group and/or landowner. This final stage is the most critical in determining a specific site status. The condition status of each site is as follows:

Site in desirable condition?	Management status	Condition status
Yes	Minimal management (monitoring only)	GOOD
Yes	Management required and is being undertaken	GOOD IMPROVING
Yes	Management required and is going to be undertaken	GOOD STEADY
Yes	Management required and is not going to be undertaken	GOOD DECLINING
Yes	Management required but is not possible	GOOD DECLINING
Uncertain/No	Management being undertaken	POOR IMPROVING
Uncertain/No	Management going to be undertaken	POOR STEADY
Uncertain/No	Management not going to be undertaken	POOR DECLINING
Uncertain/No	Management not possible	POOR DECLINING or LOST

Secondary factors – An assessment of whether any secondary factors are in need of management can be given in the appropriate box.

Photos – A key tool in comparing site condition at different moments in time are photos and photo mosaics. The first time a site is assessed, photos should be taken in a suitable place, of the features of interest and any other key factors. The exact location (8 figure grid reference), orientation and description as to where the assessor stood needs to be clearly outlined in order that for future monitoring, photos are taken from the same place to allow for comparison over time. Photographs should be resized before inserting into the form to ensure best quality and small document size. The originals should be provided separately.

ANNEX 1 – SURVEY METHODOLOGY

Data Recording

The recommended recording procedure can be considered in three stages:

Before Visiting

1. Identify the owner(s) and anyone else involved in management of the site (hereafter referred to as 'the owner').
2. Contact the owner, ideally by a letter covering relevant background information. Follow up by telephone or possibly a face-to-face meeting.
3. Request permission to visit.
4. If request is refused, do not visit the site (see section 11.9).
5. If request is accepted, agree a visit procedure with the owner.
6. Discuss any relevant management issues with the owner.
7. Record all the above details for future reference.
8. Look at available data about the site and use it as a basis for the forthcoming site visit.
9. Follow all reasonable requests of the owner, such as meeting beforehand.

On Site

10. Take to the site: field survey and condition monitoring forms, a copy of any previous boundary map and supporting text, if relevant; a copy of a base map (particularly for new sites); a copy of appropriate aerial photography (optional); appropriate safety clothing and survey equipment.
11. Assess approach to survey. Linear sites should be split into 1 km long sub-sites. Individual fields can also be sub-sites, although some may need to be further subdivided (see section 9.6).
12. In each site or sub-site, fill in one field survey form (see Annex 2) and one condition monitoring form (see Annex 4) as fully as possible. Key elements of the process are as follows:
 - **Give clear and detailed descriptions** - The key thing to remember when undertaking a survey of any sort is to give as much description as possible. One of the major flaws encountered in recording is lack of detail. Even if you have made an incorrect interpretation in the field, providing enough supporting evidence and documentation will allow other experts to make a correct interpretation. Take as much information back with you as possible so that a fair assessment can be made.
 - **Do not make assumptions** - Don't assume that everyone else has the same level of expertise and knowledge that you have. If you are not sure that you have identified something in the field correctly, don't hazard a guess on what it might be. Make a clear record of what you see, and indicate where you are unsure of a particular feature so that it can be investigated further. It is much more professional to admit where further research is needed than to make inaccurate interpretations that could affect the credibility of any LGS designation. It is essential that accurate and reliable information is recorded.

- **Plans, sections and sketches** - Record a geological face or feature in detail. Measurements are particularly important, especially when recording sections. It is not always practical to measure the whole site, but give accurate dimensions where possible.
- **Photographs** - Photographs can provide valuable information that would be difficult to record by other means. However, their value is limited unless they include a scale, are well labelled, annotated and referenced, including a compass orientation. Used in conjunction with other parts of the field survey and sketches they provide a visual record of the site and its condition at the time of the visit.
- **Samples and specimens** - Should only be taken from the site if they are required in the context of field recording of the site, i.e. for further laboratory study including identification and/or analysis. All activities on the site should conform to the Geologists' Association Code of Conduct and the Countryside Code. Key specimens should not be removed from the site and rock coring should only be carried out if it forms part of an academic scientific investigation and with the written approval of both the landowner and the LGS panel (see Annex 6).
- **Complete site assessment form** (see Annex 3).

After the Survey

13. Provide LERC with all relevant field data and other data collected, who will compile all assessments, descriptions and maps for sites and sub-sites for consideration by the LGS panel.
14. Ensure that every owner and occupier has the opportunity to receive copies of data concerning their land and to discuss management issues.

Publicly held recent data can be used for LGS assessment, even if it has been obtained for other purposes. Examples include data submitted as part of an Environmental Statement or a planning application, or data acquired by local authorities using their powers to enter land for the purpose of preparing a Local Development Framework.

ANNEX 2 – FIELD SURVEY FORM

**Lincolnshire Geodiversity Group
Local Geological Sites
Field Survey Form**

**LINCOLNSHIRE
BIODIVERSITY
PARTNERSHIP**



Site name		Grid reference	
Site sub-division		Date surveyed	
Surveyed by		Time on site	
Present site status		Constraints	
Site ownership and/or tenancy details			
Contact details for permission to visit			

Site description

Brief history and present status (including SSSI, LWS, etc)
General description of geology/geomorphology (boundary map, field sketches and photographs on separate sheets)
Likely conservation measures required

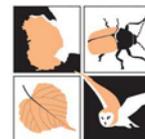
Literature references and other existing records

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ANNEX 3 – SITE ASSESSMENT FORM

**Lincolnshire Geodiversity Group
Local Geological Sites
Site Assessment Form**

**LINCOLNSHIRE
BIODIVERSITY
PARTNERSHIP**

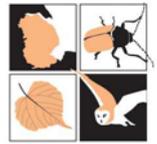


Scientific	Comments	Score (circle one)
Surface processes		0 1 2 3 4 5 6 7 8 9 10
Geomorphology		0 1 2 3 4 5 6 7 8 9 10
Sedimentary rocks		0 1 2 3 4 5 6 7 8 9 10
Fossils		0 1 2 3 4 5 6 7 8 9 10
Igneous rocks		0 1 2 3 4 5 6 7 8 9 10
Metamorphic rocks		0 1 2 3 4 5 6 7 8 9 10
Tectonic structures		0 1 2 3 4 5 6 7 8 9 10
Mineralisation		0 1 2 3 4 5 6 7 8 9 10
Stratigraphy		0 1 2 3 4 5 6 7 8 9 10
Cultural	Comments	Score (circle one)
Historical associations with individuals or events		0 1 2 3 4 5 6 7 8 9 10
Earth Science associations with key developments or sites		0 1 2 3 4 5 6 7 8 9 10
Local folklore or events		0 1 2 3 4 5 6 7 8 9 10
Aesthetic landscapes, natural or man-made		0 1 2 3 4 5 6 7 8 9 10
Economic associations involving the development of Earth resources		0 1 2 3 4 5 6 7 8 9 10
Past and present activities, processing and after-use of voids		0 1 2 3 4 5 6 7 8 9 10
Educational	Comments	Score (circle one)
Potential illustration of Earth science processes and products		0 1 2 3 4 5 6 7 8 9 10
Levels of presentation, from primary to secondary school age		0 1 2 3 4 5 6 7 8 9 10
Further and higher education projects and research		0 1 2 3 4 5 6 7 8 9 10
Stimulation of variety of interests and levels for family and adult groups		0 1 2 3 4 5 6 7 8 9 10
Geodiversity value, illustrating locally significant features and geological history		0 1 2 3 4 5 6 7 8 9 10
Potential for connecting adjacent sites to form a geological trail		0 1 2 3 4 5 6 7 8 9 10
Noticeboards and/or site/trail leaflets		0 1 2 3 4 5 6 7 8 9 10
Access and Safety	Comments	Score (circle one)
Road access and safety, including parking		0 1 2 3 4 5 6 7 8 9 10
Safety of site access		0 1 2 3 4 5 6 7 8 9 10
Nature of exposure		0 1 2 3 4 5 6 7 8 9 10
Safety of exposure		0 1 2 3 4 5 6 7 8 9 10
Protective clothing required		0 1 2 3 4 5 6 7 8 9 10
Permission to visit		0 1 2 3 4 5 6 7 8 9 10
Condition of exposure		0 1 2 3 4 5 6 7 8 9 10
Conflicting activities		0 1 2 3 4 5 6 7 8 9 10
Restricting conditions and activities		0 1 2 3 4 5 6 7 8 9 10

Scores: 0 Useless/no good 5-6 Acceptable/useful
 1-2 Very poor 7-8 Quite good
 3-4 Poor 9-10 Very good/excellent

**Lincolnshire Geodiversity Group
Local Geological Sites
Site Evaluation**

**LINCOLNSHIRE
BIODIVERSITY
PARTNERSHIP**



Single exposure / multiple exposure	
Site name	
Proposed LGS name (if different)	
Grid reference	
If applicable, part of multiple exposures forming proposed LGS	

Case for site designation

Please make a clear summary evaluation against each criterion, based on field record and assessment of value, indicating if not applicable. The decision on LGS status will be guided by these comments

Scientific
Cultural
Educational
Access and Safety
Other comments

Site evaluated by		Date	
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ANNEX 4 – CONDITION MONITORING FORM



1. Site Information			
Site Name			
Site Type		Grid Reference	
Date of Visit		Local Authority	
Surveyor		Landowner	
LGS designation	Scientific / Cultural / Educational		
Interest Feature(s):			
Previous management and dates (if any)			

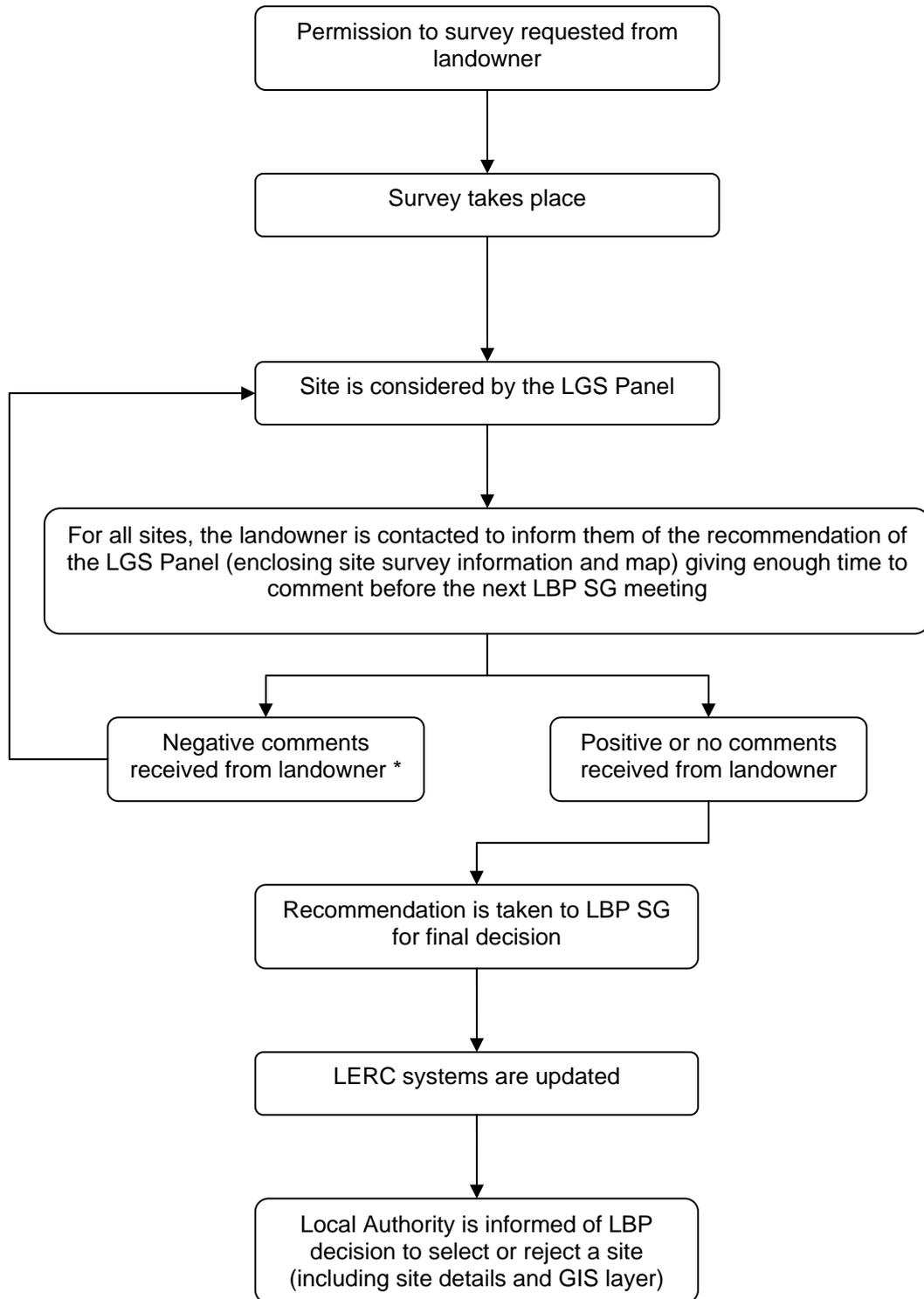
2. Primary Factors			
Bedrock feature	Is (are) the feature(s) exposed?		If No, can it (they) practically be re-exposed?
	Is (are) the feature(s) being affected by the following factors?		
	Factor	Y/N	Comments
	Vegetation		
	Scree/Mass Movement		
	Flooding		
	Dumping/Landfill		
	Quarrying/Engineering Works		
	Development (housing/industrial)		
Others (please define) -			
Superficial deposit feature	Is (are) the feature(s) exposed?		If No, can it (they) practically be re-exposed?
	Is (are) the feature(s) being affected by the following factors?		
	Vegetation (Trees or crop planting)		
	Agricultural practices (deep ploughing)		
	Quarrying/Engineering Works		
	Development (housing/industrial)		
Others (please define) -			
Geomorphology feature	Is (are) the geomorphological feature(s) being allowed to evolve naturally?		
	Is (are) the feature(s) being affected by the following factors?		
	Vegetation		
	Sea Defences		
	River Management		
	Ground Stabilisation (slopes/sand dunes)		
	Water level change		
	Development (housing/industrial)		
Others (please define) -			

3. Secondary Factors			
Factors that do not directly affect the feature(s) but may need to be managed in order for feature(s) to maintain a desirable condition			
	Factor	Y/N	Comments
Site access	Are any of the following causing difficulties in accessing the site?		
	Physical obstacles		
	Landowner permissions		
	Protected species/habitats		
	Other (please define)		
Furniture	Are any of the following in an undesirable condition?		
	Interpretation Boards		
	Benches/Fences/Gates		
	Earthworks		
	Other (please define)		
Other features	Are there any other features of interest that should be considered?		
	Biodiversity		
	Historic Environment		
	Other (please define)		

Site Status	
Overall, is the site in a desirable condition for use(s) of the feature(s) identified?	Yes / No / Uncertain
	Status:
If Yes - what management is required (if any) for the feature(s) to maintain a desirable condition?	
For the above, is the management: <i>Being undertaken / Going to be undertaken / Not going to be undertaken / Not possible</i>	
If Uncertain or No - what management is required for the feature(s) to reach and maintain a desirable condition?	
For the above, is the management: <i>Being undertaken / Going to be undertaken / Not going to be undertaken / Not possible</i>	
Are there any secondary factors that need further management?	Yes / No / Not applicable
Suggested management in order for the feature(s) to reach/maintain a desirable condition	

Photos – Eight figure grid references, landmark, direction of photo (bearing)

ANNEX 5 – FLOW CHART SHOWING SITE SELECTION PROCEDURE



* If landowner issues cannot be resolved by the LGS Panel, then the LBP Steering Group is the final arbiter.

ANNEX 6 – SPECIMEN LETTER REQUESTING PERMISSION TO SURVEY

Dear *Landowner's name*

Geological Surveys in *local authority area*

I work for *organisation name* and have been contracted by *local authority* (contact: *contact name* of the *department*) to carry out geological surveys. My reason for writing is to request permission to survey the geodiversity interest on land which I believe you own/manage.

The survey will concentrate on geological recording and general assessment of scientific, cultural, educational and access aspects, although note will also be taken of management and key features of the site. In most cases, the fieldwork is completed on a single visit.

The results of the survey, including site description, map, plans, sketches and photographs will be sent to you. This information will be managed by Lincolnshire Environmental Records Centre, on behalf of Lincolnshire Biodiversity Partnership. The information will be used by Lincolnshire Biodiversity Partnership, via its Local Geological Sites Panel, to assess if any part of the site merits selection as a Local Geological Site. If this is the case, you will be informed, and given the opportunity to make observations. The current guidelines for selection of Local Geological Sites can be viewed on the Partnership website (www.lincsbiodiversity.org.uk).

Two frequently asked questions about Local Geological Sites are: "Will I be forced to adopt particular management or use of my land?" and "Will the land be subject to greater public access?" In response, I can reassure you that you would still be free to manage the land as you wish, and there would be no change in rights-of-access. Instead, Local Geological Site selection provides recognition of the value of land for its geodiversity features, and of the positive management it has received. Furthermore, the data obtained is available for you to use when applying for relevant grants and perhaps planning applications. It would be highly desirable to be allowed to undertake monitoring visits every 5-10 years.

Local authority has asked me conduct this survey because recent changes in legislation emphasise the significance of Local Geological Sites within the planning system. Therefore, during consideration of any planning matter, the local authority will check to see if a Local Geological Site could be involved. If the answer is yes, the authority is obliged to consider carefully any potential impacts before making a decision. This does not mean that development cannot go ahead, but it does help to ensure that important geological interest is taken into account during decision-making, along with all other material considerations. Surveys of suitable sites would have to be carried out anyway, unless they had previously been identified as Local Geological Sites, and so this information can simplify and speed up the assessment process.

I hope the above adequately explains the background to my request, but if you have any queries please contact me, or *contact name* at *local authority* (direct telephone number: *00000 000000*). If you are happy for the survey to take place, I will fit in with any requirements you may have, such as letting you know when I arrive and depart, minimising disturbance to game, and taking precautions to avoid safety hazards. If it is feasible, I would like to carry out the surveys as soon as possible.

I look forward to hearing from you.

ANNEX 7 – SPECIMEN LETTERS INFORMING LANDOWNERS OF LGS PANEL RECOMMENDATIONS

RECOMMENDATION FOR SELECTION

Dear *Landowner's name*

Lincolnshire Local Geological Sites Review Site Name:

You may remember that *surveyor's name of organisation name* visited your site in *month year*, on behalf of *local authority*. Enclosed are site description, map, plans, sketches and photographs relating to that survey [if not previously sent].

One of the reasons for the visit was to identify potential Local Geological Sites (LGSs). These are areas which stand out as being of particular value for their geodiversity interest and this importance is recognised within the planning system. Guidelines for the selection of LGSs were developed by organisations represented on the Lincolnshire Biodiversity Partnership (LBP). These guidelines can be viewed on the website www.lincsbiodiversity.org.uk.

The LBP Local Geological Sites Panel has assessed the information on *site name* against the guidelines and has found that the area meets the following selection criteria:

add selection criteria

The criteria scores relate to information within the guidelines.
[*The area is also recognised as being of significant importance for ...*]

[At present *site name* is listed on the Local Authority Local Plan as a *Regionally Important Geological Site (RIGS)*). The LGS designation supersedes the *RIGS* designation for those sites which meet the selection criteria.]

The Local Geological Sites Panel will be recommending to the Lincolnshire Biodiversity Partnership that the area should be selected as a Local Geological Site.

This is a recognition of the value of your land for geodiversity. It will not affect how you choose to manage your land, and does not bestow any additional public right of access.

If agreed by the Lincolnshire Biodiversity Partnership Steering Group, this recommendation will be passed to the Local Authority to enable it to update its records, and to add the site to the list of Local Geological Sites included in the Local Development Framework.

Information on the site is held by the Lincolnshire Environmental Records Centre, an independent service of Lincolnshire Biodiversity Partnership. There are strict guidelines governing the storage, access to, and use of this information. You may request access to information on your land at any time.

The Lincolnshire Biodiversity Partnership Steering Group next meets on *date*. You are invited to make observations on factors relating directly to the application of the site selection criteria, which will be taken into consideration before the meeting. If your

observations provide relevant information that was not previously available to the LGS Panel, then the site will be referred back to the LGS Panel for further discussion.

On behalf of the Partnership, I would like to encourage you to continue to manage your site for the benefit, enhancement and understanding of geodiversity. A fact sheet accompanies this letter outlining possible sources of advice and funding to aid you in this respect.

Please be aware that the status of your site will be kept under review and may change in the future in the light of new information. You will be contacted again within the next 5-10 years to request access to resurvey your site.

RECOMMENDATION NOT TO SELECT

Dear **Landowner's name**

Lincolnshire Local Geological Sites Review Site Name:

You may remember that **surveyor's name of organisation name** visited your site in **month year**, on behalf of **local authority**. Enclosed are site description, map, plans, sketches and photographs relating to that survey [if not previously sent].

One of the reasons for the visit was to identify potential Local Geological Sites (LGSs) These are areas which stand out as being of particular value for their geodiversity interest and this importance is recognised within the planning system. Guidelines for the selection of LGSs were developed by organisations represented on the Lincolnshire Biodiversity Partnership (LBP). These guidelines can be viewed on the website www.lincsbiodiversity.org.uk.

The LBP Local Geological Sites Panel has assessed the information on **site name** against the guidelines and has found that the area does not meet the new selection criteria. This does not mean that the area has no value for geodiversity: it simply means that other **geodiversity type** in the county have been deemed to have more substantive nature conservation value.

[At present **site name** is listed on the Local Authority Local Plan as a *Regionally Important Geological Site (RIGS)*. The LGS designation supersedes the *RIGS* designation for those sites which meet the selection criteria.]

The Local Geological Sites Panel will be recommending to the Lincolnshire Biodiversity Partnership that the area should not be selected as a Local Geological Site [and should cease to be known as a RIGS].

[If agreed by the Lincolnshire Biodiversity Partnership Steering Group, this recommendation will be passed to the Local Authority to enable it to update its records. The site will not be included in the list of such sites in the Local Development Framework.]

Information on the site is held by the Lincolnshire Environmental Records Centre, an independent service of Lincolnshire Biodiversity Partnership. There are strict guidelines governing the storage, access to, and use of this information. You may request access to information on your land at any time.

The Lincolnshire Biodiversity Partnership Steering Group next meets on **date**. You are invited to make observations on factors relating directly to the application of the site selection criteria, which will be taken into consideration at the meeting.

On behalf of the Partnership, I would like to encourage you to continue to manage your site for the benefit, enhancement and understanding of geodiversity. A fact sheet accompanies this letter outlining possible sources of advice and funding to aid you in this respect.

Please be aware that the status of your site will be kept under review and may change in the future in the light of new information.

GLOSSARY

Biodiversity

The variety of life on Earth.

Biodiversity Action Plan (BAP)

National, local and sector-specific plans established under the UK Biodiversity Action Plan, with the intention of securing the conservation and sustainable use of biodiversity.

Geodiversity

The variety of rocks, minerals, fossils, soils and landscapes, together with the natural processes which form them.

Geodiversity Action Plan (GAP)

National, local and company-specific plans established under the UK Geodiversity Action Plan, with the intention of promoting and managing the sustainable use of geodiversity resources.

Geology

The scientific study of the Earth, its materials, structures, processes and history.

Geomorphology

The science concerned with understanding the form of the Earth's land surface and the processes by which it is shaped, both at the present day as well as in the past.

Lincolnshire Biodiversity Action Plan (Lincolnshire BAP)

The local BAP covering the historic county of Lincolnshire, i.e. the areas administered by Lincolnshire County Council, North Lincolnshire Council and North East Lincolnshire Council. The first edition was published in 2000 and the second, revised edition was published in 2006. This is available on the web site: www.lincsbiodiversity.org.uk.

Lincolnshire Biodiversity Partnership (LBP)

The Lincolnshire Biodiversity Partnership brings together local authorities, statutory agencies, voluntary and not-for-profit organisations with a responsibility for and interest in biodiversity in the historic county of Lincolnshire. It coordinates action, information and protection, and provides services for partner organisations. The Partnership is independent of any of its constituent organisations. Partners are listed on the website www.lincsbiodiversity.org.uk.

Lincolnshire Biodiversity Partnership Steering Group

Representatives of Lincolnshire Biodiversity Partnership organisations who meet to determine policy and action.

Lincolnshire Environmental Records Centre (LERC)

This centre collects, collates, manages and disseminates information relating to the wildlife, sites and habitats of Lincolnshire, under the auspices of the Lincolnshire Biodiversity Partnership.

Lincolnshire Geodiversity Action Plan (Lincolnshire GAP)

The local GAP that will cover the historic county of Lincolnshire, i.e. the areas administered by Lincolnshire County Council, North Lincolnshire Council and North East Lincolnshire Council. The Lincolnshire GAP is due to be drafted for consultation in 2010/11.

Lincolnshire Wildlife Trust (LWT)

The Lincolnshire nature conservation charity, previously known as Lincolnshire Trust for Nature Conservation and Lincolnshire & South Humberside Trust for Nature Conservation.

Local Development Framework (LDF)

Local Development Frameworks deliver the spatial planning strategy for the local planning authority's area. They are replacing statutory Local Plans.

Local Geological Site (LGS)

Local Geological Sites (LGSs), along with geological Sites of Special Scientific Interest (SSSIs) are the most important places for geodiversity and heritage in the county. They have substantive geoconservation value and their function is to protect and manage such interest and, where possible, provide educational opportunities.

Local Nature Reserve (LNR)

A statutory designation made by a Local Authority, in consultation with Natural England, to protect sites of special wildlife interest and enhance public enjoyment of wildlife. The Local Authority either has ownership or a legal interest in the land.

Local Site

Local Sites are sites of substantive nature conservation value. Local Sites encompass both biodiversity and geodiversity, with sites known as Local Wildlife Sites and Local Geological Sites respectively. Local Wildlife/Geological Sites are also possible where interests coincide. Although they do not have any statutory status, many are equal in quality to the representative sample of sites that make up statutory Sites of Special Scientific Interest (SSSIs).

Local Wildlife Site (LWS)

Local Wildlife Sites (LWSs), along with biological Sites of Special Scientific Interest (SSSIs), some of which are of international importance, are the most important places for wildlife in the county. They have substantive nature conservation value and their continued presence makes a significant contribution to maintenance of biodiversity. They may also have an important role in contributing to public enjoyment and understanding of nature.

Local Geological Sites Panel

The panel set up under the auspices of the Lincolnshire Biodiversity Partnership, with a membership drawn from statutory and voluntary nature conservation organisations and local authorities. Panel members are appointed by the LBP Steering Group: they all have geological expertise.

Local Wildlife Sites Panel

The panel set up under the auspices of the Lincolnshire Biodiversity Partnership, with a membership drawn from statutory and voluntary nature conservation organisations and local authorities. Panel members are appointed by the LBP Steering Group: they all have ecological expertise.

National Indicator 197 (NI197)

A National Indicator for the performance of Local Authorities. Improved Local Biodiversity – the number of Local sites where positive conservation management has been or is being implemented.

Planning Policy Statement (PPS)

A statement published by the Office of the Deputy Prime Minister (ODPM), replacing Planning Policy Guidance.

Regionally Important Geological and Geomorphological Sites (RIGS)

Established in 1990 by the Nature Conservancy Council (NCC), Regionally Important Geological and Geomorphological Sites (RIGS) are the most important non-statutory geoconservation sites. RIGS were designated based on local knowledge and so highlight local geological diversity and heritage. They are important as an educational, historical and recreational resource.

Site of Nature Conservation Importance (SNCI)

Site referred to in a Local Plan, selected as being of importance for nature conservation on the basis of local knowledge before development of the guidelines in this document (see also CNA, CWS, SINC, SLNCI and WS). The term SNCI has been used by the following local authorities:

- East Lindsey District Council
- Lincolnshire County Council
- North East Lincolnshire Council
- South Kesteven District Council
- West Lindsey District Council

Site of Special Scientific Interest (SSSI)

An area of land which in the opinion of Natural England is of special interest at a national level due to its flora, fauna or geological or physiographical features.

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