HER21/6016: Extending Professional Access to the Lincolnshire Historic Environment Record: Evaluation Report

Part 1: Introduction to and description of the project

1.1 Project Name
Extending Professional Access to the Lincolnshire Historic Environment Record.

1.2 Summary Description
This is a project developed by the Historic Environment Team (HET) at Lincolnshire County Council to provide wider access to, and enhanced content of, the HER for colleagues in the District Councils, with a particular focus on the requirements of Conservation Officers. This has been achieved by means of a bespoke website and through digitisation and incorporation into the digital HER of information only formerly available in hard copy from HER and District Council collections. The project was funded by Lincolnshire County Council and by English Heritage through an HER21 grant in 2010-2011.

1.3 Background
The Lincolnshire County Council HER consists of a computerised record that acts as an index to supporting hard copy and digital files, in various formats. It uses the exeGesIS software, Historic Buildings, Sites and Monuments Record (HBSMR) linked to a geographic information system, to manage its digital data. HBSMR is now used by the majority of HERs in England to manage their historic environment information. The HET has responsibility for maintaining and enhancing the Lincolnshire HER. The County Council's IT function is provided by Mouchel Business Services.

In Lincolnshire there are two tiers of local government, with a County Council and seven District Councils. Those Councils are:

- Boston Borough Council
- City of Lincoln Council
- East Lindsey District Council
- Lincolnshire County Council
- North Kesteven District Council
- South Holland District Council,
- South Kesteven District Council and
- West Lindsey District Council

A wide range of historic environment services across the County are delivered by a number of different organisations, primarily Lincolnshire County Council, the District Councils and the Heritage Trust of Lincolnshire.

The origins of this project lie in workshops, which were held in March 2009, to explore the idea of joint working in historic environment services across Lincolnshire. During the workshops there was much discussion over the

implications of Heritage Protection Reform (HPR). As a result of these workshops, councillors and senior managers from the local authorities directed that, whilst waiting for further details on the implementation of HPR (which was the situation at that time), the first step to be taken should be to investigate the possibility of making the digital HER more accessible to the District Councils, in particular to the Conservation Officers, who are all based in the District Councils. Before the start of this project, the Conservation Officers in the Districts did not have direct access to the HER other than through the Heritage Gateway, and this does not provide access to all the information that they require to be able to deliver their services as effectively as possible.

HET have been working in partnership with the District Councils' Conservation Officers for some time, and discussions are, and will continue to be, on-going about how the content of the HER could be enhanced in terms of the built historic environment. The HET wish to make the HER more useful tool in giving consistent and timely advice to those using their services. The publication of Planning Policy Statement 5 has strongly underlined the need to look into these issues.

The intended outcome for this project was to establish the most effective and efficient means of sharing HER data in Lincolnshire, and therefore achieving greater consistency and effectiveness in the protection and enhancement of Lincolnshire's rich historic environment so that it can be enjoyed by residents and visitors long into the future. This can be achieved by means of a suitable method of sharing the data held in the digital HER and enhancing the content of the HER by digitising information only formerly available in hard copy from HER and District Council collections.

An options appraisal investigating potential technical solutions for making the digital HER accessible to Conservation Officers was completed prior to the application for HER21 funding. It was funded through the County Council corporate IT budget. The options appraisal helped to identify that the solution which provides the best functionality and value for money would be the creation of a bespoke website.

The budgets and timetable for this project design were developed based on commissioning exeGesIS SDM Ltd to undertake the technical development on a single tender action. The Project Team sought and obtained approval for this single tender action from the appropriate County Council Executive Councillor, whose area of responsibility is economic development.

1.4   Research Aims and Objectives
The following aims and objectives, together with their accompanying method statements, are those which were set out in the Project Design.

1.4.1 Aims
There are three broad aims to the project, towards which HET have worked in partnership with District Council colleagues.

1. To implement, test and evaluate a technical solution (identified during the options appraisal) to make the digital HER accessible to Conservation Officers, and allow the structured sharing of information.

2. To digitise and make available information currently held only as hard copy either in the HER or in District Council files.

3. To disseminate the results of the project to other professionals in the heritage sector.

1.4.2 Objectives under Aim 1: Implement, test and evaluate a technical solution.

- To investigate how to provide a facility to allow structured feedback from Conservation Officers for the adding or editing of information held in the HER which will help to keep the HER as up to date and useable as possible for all professional users. This structured feedback uses selected fields to capture data to facilitate the incorporation of this data into the digital HER.

- To determine the level of access to give to information in the digital HER including the information held on the HER geographic information system.

- To assess the implemented solution in terms of: its value for money; effectiveness; lessons learned during implementation; links with other projects; and its potential application elsewhere, in particular for two-tier local authorities. A crucial element of the evaluation will be feedback from users.

1.4.3 Methodology for achieving Objectives under Aim 1

The detailed requirements stage included completing the Project Design to a satisfactory standard.

In order to ensure that the project succeeded and was as effective as possible the Project Team developed a Communication Plan. This detailed methods and timings of communication with partners, and requirements for collection of feedback. This helped to ensure the smooth running of the project and that all partners were as fully engaged and supported as possible, as this approach to sharing information is new, and will lead to changes in working practices for both the HER and Conservation Officers.

Liaison with Conservation Officers helped identify information that was included on the web-site.

ExeGesIS SDM Ltd, software development specialists with knowledge and experience of working with HERs, were commissioned to carry out the technical development of the technical solution. The options appraisal, carried out in April 2010 had identified the creation of a bespoke web-site as being

the best option in terms of functionality and cost-effectiveness. The HET obtained an exemption from tendering to allow the commissioning of exeGesIS without going through the full tendering process.

ExeGesIS were tasked with developing a detailed specification for the development of the web-site, working closely with the Project Team, and in consultation with District Council Conservation Officers.

The specification included agreed costs, timings and all testing and updating requirements to be carried out during development.

The web-site was tested and reviewed at key points in its development to ensure it had suitable functionality and levels of access. All the Conservation Officers were encouraged to test the web-site and provide structured feedback. It was also tested by the Project Team and by members of the HET archaeological development management team.

User testing was supported by the Project Team. In order to support users in getting the best from the web-site, training for Conservation Officers and any other users was available. It was also intended to offer face-to-face training workshops to all users. A Training Manual was produced by the Project Team for dissemination to all users. The details of the training scheme were detailed in the Communication Plan.

The detailed specification detailed the appearance and functionality of the web-site.

1.4.4 Outline website specification
Styling
The website uses Lincolnshire County Council corporate web styling. The involvement of the partner organisations is also recognised by the inclusion of logos on a specific page about the partners.

Technology platform
The website was written in ASP.Net using the HBSMR Gateway web service and the LibraryLink web service for data access. The website runs on IIS 7, on LCC web servers.

The website uses MapServer (an open source GIS engine) for publishing the HER map overlays (for monuments, events etc). The website uses the OpenLayers API for the mapping user interface.

Access
Access to the website is controlled by a login. Because the site is restricted to a small number of professional colleagues, there is no requirement for a mechanism to allow potential users to apply for an account on-line. Instead there is a simple mechanism for the HER staff to add/edit the user accounts. They can provide the username/passwords to their professional colleagues by telephone or e-mail. The English Heritage liaison was provided with access to the website to enable him to assess the completed product.

Interactive map

The default entry method to the website is via the interactive map. This presents the user with several layers of HER data, superimposed on suitable base mapping. It was intended to include aerial photography and terrain mapping but these layers were not included.

Map layers include:

- Monuments (which it was intended break down into sub-types, e.g. Archaeology, Buildings, Find Spots, etc)
- Events
- Consultations (again it was intended to break these down into sub-types, and perhaps by date as well)
- Designations (broken down into the various types, e.g. Scheduled Monuments, Parks and Gardens, etc)
- Base mapping and other supporting corporate layers, such as parish boundaries. It was also intended to include rights of way mapping. Base mapping is made available to the project as WMS (Web Mapping Services) from corporate GIS servers.

Map tools include:

- Zoom/pan
- Info (operating on the HER overlays, and showing a popup containing summary about the record(s))
- Previous/next extent
- Place name and postcode search
- Get grid reference for clicked location
- Go to grid reference
- Go to full extent
- Layer control (allowing each layer to be switched on/off)
- Show list of monuments (i.e. select and list all records in the current map extent)

Full record details

For some kinds of HER record it is possible to view full details from the map 'info' popup. This is available for Monuments, Events, Designations and Consultations.

On the full record details page, a selected set of fields from the HER is displayed, along with linked images and documents and some building reports (which can be opened and/or saved locally for reference by the user).

Summary record details

It was thought initially that some kinds of map records would not require full record details pages. For example, Conservation Area polygons typically had only a name. In the event, all the useful information was able to be shown in a popup in the map. It was intended to provide links to other websites providing

further information. For example, Listed Building records were intended to be linked to the LB Online system and Scheduled Monument polygons to be linked to the PDFs published through MAGIC. Links to the proposed English Heritage on-line Unified Designation System (UDS) will still be possible in the future but would have to be specifically added to the website.

Structured searching

There are simple and advanced search interfaces, which can be used to retrieve records on monuments/buildings by a variety of criteria, including:

- Period
- Keyword
- Parish
- Monument type
- Find type
- Grid reference (searched for through the mapping element of the site)
- Reference number

Results are be shown in a paged list. From the list it is possible to go to the full details page for each record, or to show the results set as a distribution map.

Thematic content

- It is possible to publish thematic supporting content in the website, for example: information on how to contact the HER
- guidance for how to process different kinds of casework
- information on how to use the website
- links to relevant organisations and websites
- information about research frameworks
- links to and summaries of relevant policies

HBSMR provides for this with the 'Themes' module, already in use in the Lincolnshire HER. This allows the HER staff to manage the website content interactively, i.e. using HBSMR as a 'content management system' for the website. This means that with careful design of the website architecture, the need for further expensive changes through time can be minimised.

The website can incorporate this information in a number of ways. Main menu items can link directly to single theme records, or lists of records by type. Individual records can contain links to other records with more information.

Feedback

Two main kinds of feedback are enabled in the website:

- Unstructured feedback on individual records. When a user is viewing any full record page, if they notice errors or feel they have information to add, they can enter feedback into a form. The form records what record they are commenting on, who they are, when the feedback was

recorded and free text content. It also allows files such as images and documents to be uploaded with the comments.

- Structured reporting of site visits. Remote users are able to record their site visits, undertaken during casework or monitoring. Generally these are linked directly to an existing HER record, but it is also possible to supply information on new historic assets in this way. The site visit entry form is more structured, aiming to collect the information required to create an HER Event record, and add to or create a monument record if necessary. However, it does not aim to cover all types of events like excavations – it is restricted in scope to site visits involving field observations and photographic surveys of sites. It was intended to include the recording of elements of the heritage at risk methodology or a general monitoring structure. It is possible to upload and describe images and documents with the records. These might include, for example, a map to help the HER staff record the spatial data that will need to be created with any new records in the HER.

Two possible means of transmission of feedback into the HER were evaluated in preparing the detailed specification. It was also intended to compare and evaluate these during testing.

The simpler mechanism was for the data entered to be sent to the HER by e-mail, including any linked documents and images. The HER staff would then accession the information into the HER in the usual way.

The more complex mechanism stores the submitted information in the website database and filestore, and provides a mechanism for HER staff to download the information into the HER. This has required adding data structure and functionality to the core HBSMR product, extending the HBSMR Gateway and LibraryLink web services, and establishing a workflow for how to review and accession this data. While clearly more sophisticated, it was hard to say whether the benefits of this approach would justify the extra costs and complexity; however, once developed, it had the potential to benefit all HERs.

Role of Mouchel Business Services
The County Council's IT function is managed by Mouchel Business Services. In order to allow much of the technical solution to proceed, they contributed to the project by:

- Assisting Third Party with installation and configuration of application (Tasks T214, T323 and Product P001)
- Carrying out System Testing (Task T214 and Product P001)
- Supporting User Testing (Tasks T322 and T325, Products P017 and 018)
- Creating Support Solution / Knowledge transfer and documentation to ISO9001-2008 standards (Tasks T214, T428 and T429 and Product P001)
- Transition to Support (T338)
- Project Management of Mouchel staff who contributed to this element of the project

1.4.5 Objective under Aim 2: Digitise and make available information currently held only as hard copy either in the HER or in District Council files.

- Evaluate the usefulness and appropriateness of the expanded content, by means of on-going discussions with Conservation Officers about the content of the digital HER, as they continue to use the HER over the lifetime of the project and beyond. The programme for content expansion was then adjusted accordingly.

1.4.6 Methodology for achieving Objective under Aim 2
The Project Team identified and quantified, in detail, collections to be digitised and devised a timetable through consultation with District Council staff. The method of this consultation was detailed in the Communication Plan. Initial indications suggested that there were between 400 and 2000 photographs that could be digitised in each district council. There are about 250 building reports in the HER that could be digitised.

A specification for digitisation was produced.

Copyright issues were investigated prior to digitisation.

Using a tender process, for which a brief was produced, the Project Team commissioned an external contractor to carry out the scanning of hard-copy collections, such as unpublished grey literature reports, 35mm slides and photographic prints. In order to ensure the high standard of the product those companies who tendered for the work were required to provide examples of their previous work in this area. A contract was developed and agreed between the County Council and the contractor.

Once the hard copy material had been digitised and provided to the Project Team, the Project Assistants catalogued the new digital material, and incorporated it into the digital HER. This created new HER records in HBSMR in some cases, where one did not exist already, so that images and documents could be attached and made easily available on the web-site. Records created are part of Lincolnshire HER. Lincolnshire HER is MIDAS Heritage compliant and all records created met the data standards of the HER.

The Project Team monitored the quality of enhanced HER content and invited feedback from Conservation Officers during the testing of the website.

The Project Team regularly reviewed progress on the enhancement of HER content with the Conservation Officers throughout the lifetime of the project and beyond.

1.4.7 Objective under Aim 3: Disseminate the results of the project to other professionals in the heritage sector.

- To identify effective methods of disseminating the results from the project.

1.4.8 Methodology for achieving Objective under Aim 3

The final report presents the results of the project. The dissemination of this report will be achieved by making the report available on the County Council website as well as through English Heritage. In addition, after the end of the project the results of the project will be presented through the HER forum, the HBSMR users group, the ALGAO-UK HER Committee, and the IHBC regional group with a particular focus on how the project methodologies might be adapted for other local authorities. In particular the presentations will examine any transferable solutions that might benefit other two-tier local authorities.

Part 2: Evaluation of the project

2.1   Analysis of achievement of the stated project Aims and Objectives

2.1.1   Aim 1 and associated objectives

Use of the website
The website is intended for use by Conservation Officers (or other nominated officers from the District Councils) and English Heritage officers who are involved in heritage protection in Lincolnshire. The website contains sensitive and personal information in the casework records, and therefore general access cannot be granted. However it may be possible to grant temporary access to individuals by contacting Lincolnshire HER staff.

Development of website
The company that was employed was exeGesIS SDM Ltd, as the company who have supplied the HET with database and associated software since 1998. They are also very experienced at developing the solution which was identified. As stated above, permission for a Single Tender Action was obtained prior to the start of the project using the Lincolnshire County Council processes.

The technical solution identified to make digital HER data more accessible to Conservation Officers was a bespoke website. This website has now been developed, and is available at http://her21.lincolnshire.gov.uk.

There was a substantial delay in the production of the specification. The software development and the transfer of data from County Council systems to the website was complex, and this complexity had not been appreciated by the Project Team or by Mouchel before the production of the specification. This meant that more time than was anticipated was required for the development, and that the project timetable had to be revised several times, with the agreement of the Steering Group. Further discussion of these issues can be found below in Section 2.4 and 2.8.

The date for delivery of the website for testing was originally set for 4th October 2010, but it became necessary to revise that date to the 14th January.

Testing
In the Project Design User Acceptance Testing (UAT) was allocated five weeks in all in two phases. However, due to the late delivery of the website there was not enough time left in the project timetable to allow for this.

The intention had been to use the County Council UAT team for testing, alongside the Project Team, Steering Group and Conservation Officers. However, due to the changing timetables, and the shortened time allowed for testing it was decided that testing by the County Council UAT team would no longer be possible.

Therefore testing began on 14th January by the Project Team, and feedback provided to exeGesIS. Usernames and passwords were provided to the Steering Group, Conservation Officers and County Council Historic Environment Officers by 20th January. A Training Manual was provided to provide help for users. Feedback has been received on this, and the Training Manual will be amended accordingly. The HER staff will continue to invite further feedback to make the Manual as useful as possible.

Testing was carried out and feedback received from Fiona Newton (IHBC), David McOmish (EH), Rob Lawton and Sarah Harrison (Conservation Officers, West Lindsey District Council), Robert Walker (Conservation Officer, East Lindsey District Council), Ian Wright (South Kesteven District Council), Louise Jennings and Jan Allen (Planning Archaeologists, Lincolnshire County Council). The website has also been extensively tested by the Project Team.

As a result of this feedback, technical faults have been corrected, the data which appear have been changed, and the default scales of the maps have been altered. Feedback was largely very positive, with users saying that the website is very intuitive and easy to use.

Testing was complete by 28th January, and exeGesIS tackled and resolved issues as they were informed of them.

Evaluation of website
This section is intended to evaluate the website against what was included in the Outline Web Specification in the Project Design, which can be found above in Section 1.4.4.

Styling
As stated in the Project Design, the website uses the Lincolnshire County Council web styling. Partner logos can be found on the 'partners' page.

Technology Platform
The site has been developed using the HBSMR Gateway web service and the LibraryLink web service for data access. Originally the site was to be hosted on Lincolnshire County Council servers. However, the decision was made by the Project Team with the agreement of the Steering Group that the site would be hosted by exeGesIS. This would mean lower development and support costs, and any updates to the site which are needed could be carried out far more conveniently.

An issue was raised that the website would not work with Internet Explorer version 6, and perhaps other internet browsers. Testing of the website by the Project Officer using IE6 was attempted, and indeed the functionality did not work properly. The Project Team have had no other reports from users of problems with internet browsers.

Access
Access to the website is controlled by Project Team, and accounts can be added, edited or deleted as required. Usernames and passwords have been

allocated to the Steering Group (including English Heritage), Conservation Officers and the Historic Environment Officers at Lincolnshire County Council. This mechanism works well and is easy to manage.

Once users have logged in they can then either choose to use the interactive map, or use the search facility by clicking on the appropriate tab.

Interactive map
This presents the user with several layers of HER data, superimposed on base mapping from Lincolnshire County Council servers. This is Streetview, Mastermap building polygons, Mastermap building text, 1:50000 raster maps, parishes and 1905 second edition OS County Series maps. Aerial photography, digital terrain modelling and Rights of Way layers were not included in the mapping, either because they were not available or because project resources would not allow. However, those that are available could be added at a later date as resources become available.

Using maps from County Council servers means that there will be no on-going costs for use of maps, other than that already incurred by the Authority. It also means that the mapping on the website will be as up to date as those used by the County Council.

HER mapping includes Monuments, Events, Consultations, and Designations. It was originally suggested that the map layers could be sub-divided. However, it was decided during development that only Designations would be sub-divided into types: Listed Buildings, Scheduled Monuments, Registered Parks and Gardens and Conservation Areas. It was felt that further sub-divisions were not necessary. After discussion with the Steering Group it was deemed necessary to amend the terminology which is used in HBSMR to make it more meaningful to Conservation Officers, and to avoid any confusion. Therefore, please note the term 'Monument' in this report refers to Sites and Historic Buildings; 'Event' refers to Fieldwork and site visits, and; 'Consultations' refers to Casework.

The Map tools identified in the Outline Web Specification have all been delivered. That is: zoom/pan, info tool (operating on the HER overlays, and showing a popup containing summary about the record/s, previous/next extent, placename and postcode search, get grid reference for clicked location, go to grid reference, go to full extent, layer control, show list of monuments.

Full record details
Full record details can be viewed from the map 'info' popup for Monuments, Events, Consultations and Designations (Designations is additional to that stated in the Project Design).

A selected set of fields is displayed, along with images and documents. The images that were scanned as part of this project can now be accessed by viewing the HER records.

It is also possible to access websites which are associated with HER records. Allowing access to documents was not possible as part of this project due to lack of resources. Where documents are not available a message is displayed inviting users to contact the relevant Historic Environment Team staff.

Summary record details
It was decided that these were not necessary, as it was possible in the end to display all the data. The link to LB online is available through the search page (see below). The link to Scheduled Monument information through MAGIC will soon become unnecessary, as the data contained there is to be added to HER records as part of on-going HER enhancement.

Structured searching
The structured searching was delivered largely as described in the Outline Web Specification. There is only one search interface, where users can search for period, keyword, parish, monument type, find type, and HER reference number. It was decided that grid reference was not needed, as it would be rarely used in the search interface, and furthermore it is available for use with the map interface.

Results are shown in a paged list. From the list it is possible to go to the full details page for each record, or to show the results set as a distribution map.

From here is also possible to access the Heritage Gateway website for national datasets and to the Cultural Collections website, where the user is able to search other Lincolnshire County Council heritage datasets. The Cultural Collections website is an interim solution whilst the 'Lincs to the Past' website is being developed. This is due to 'go live' on 4th April 2011, and when this happens the link will be amended.

Thematic content
It is possible for the HER to publish thematic content on the website. It is envisaged that the HER staff will create new Themes in due course to support use of the website.

Feedback
All feedback received via the website will be checked for accuracy by HER staff before the records are amended or added to the HER database. No website user will be able to edit the HER directly.

Unstructured feedback
This is available on Monument records. When a user is viewing any full record page, if they notice errors or feel they have information to add, they can enter feedback into a form. The form will record what record they are commenting on, who they are, when the feedback was recorded and free text content. It will also allow files such as images and documents to be uploaded with the comments. These records will be validated by HER staff before inclusion in the HER database.

Structured feedback

The more complex mechanism described in the Outline Website Specification has been achieved. It is possible to feedback information on both buildings and sites, and the site visits that have provided the information. This information is used to create buildings/archaeological (Monument) records, and site visit (Event) records.

The data requested on the form is Record Type (i.e. Building, Archaeological site, Findspot), Site name, Address, Town, Postcode, Summary, Site/Building type, Period, and date of site visit. It is possible to upload images and documents.

This is then stored in the website database and filestore, and a mechanism has been provided that allows HER staff to download the information into HBSMR and validate it before it is permanently included in the HBSMR database.

This feedback facility is accessed through a 'create record' button on the map page. The user can then click on the map to give a location, and a form appears requesting information. Some fields are mandatory to ensure that all the required fields in HBSMR are populated. This functionality is easy and quick to use, and is intuitive.

This method of feedback provides a far more efficient way of incorporating data into the HER database than the alternative, simpler, method. This was implemented before testing as something that was felt by all to be the most desirable solution, and it has turned out to be good value for money, and works well.

This does not affect the information which is asked of Conservation Officers when they complete the feedback forms, but it does help HER staff when incorporating the new data into the HER by automating the process as much as possible.

Monitoring of use of the website

Statistics on use of the site and feedback by District will be monitored by HER staff. This will help to identify issues, and then seek solutions to these issues or any other barriers that may become apparent. Issues can be discussed formally at the Lincolnshire Conservation Officers' Group meetings which happen quarterly, and informally by encouraging use of the site and seeking feedback from individual officers. The HER staff will endeavour to keep the website up-to-date, relevant and ensure that any errors reported by Conservation Officers are dealt with quickly. There will be on-going improvement to the Training Manual in response to feedback from Conservation Officers. This will help to maintain a sense of shared ownership with Conservation Officers and the HER staff.

It is felt that there may be two main barriers to use of the website. The first is that there may be some Conservation Officers who will struggle

technologically with using the website. Where this is identified as an issue, one-to-one training will be offered.

The second is that there may be time constraints for using the website. This has been mitigated by making as much useful data available as possible, making the site intuitive and easy to use, and providing the Training Manual.

Phone App
It has been decided that the HET will also work with exeGesIS over the next few weeks to develop a phone app to allow users to access the website on their smart phones. The feedback functionality will also be available which will allow users to update the HER whilst out on site.

This is an exciting development which will give much greater flexibility in the use of the website. Not all users will have access to a smart phone to be able to use this functionality, but is envisaged that they will become more widely used in the future. This is seen as a step towards making HER information even more widely accessible.

The development of the phone app is outside the scope of this project.

2.1.2 Aim 2 and associated objectives
A tender process was undertaken for the digitisation of the hard copy reports, photographic prints and slides. Three written tenders were received and assessed.

The successful company was Pearl Scan Solutions Ltd, and they were selected as they offered the best value for money.

A specification and contract were agreed with Pearl Scan. Material was provided by Lincolnshire County Council, East Lindsey District Council, South Kesteven District Council, West Lindsey District Council and City of Lincoln Council, and almost all of this material was scanned. The work was started as agreed, was finished one week after the date originally agreed and was £273 over-budget. This was due to two reasons: i) the slides came in varying sizes of mounting which made them difficult to scan and therefore took more time; and ii) the numbers of images was greater than was expected. The extra cost was paid from the contingency, and this was agreed with the Steering Group.

The following table shows the estimated numbers of reports and images which was included in the contract with Pearl Scan, alongside the numbers that were actually scanned.

Item	Estimated	Actual
Report	250	250
Prints	1550	2921
Slides	4100	4785

The quality of the digitisation is very good, and the investment in the scanning element has offered very good value for money.

The scanned material was delivered on hard drives, and has now been transferred onto County Council servers. Images and reports have now been attached to more than 500 records in HBSMR. Designation records for 163 Conservation Areas have been created and attached to the relevant Monument records. Twenty-seven Registered Park and Garden records have also been created.

As there were more images scanned as part of the project than originally intended not all of the images were catalogued within the project. The HER Assistants used all the allocated time for cataloguing and record creation and the additional work is on-going within normal HER resources.

2.1.3 Aim 3 and associated objectives

This aim and objective focuses on dissemination of the results of the project. The website and its functionality have already been demonstrated to the HBSMR Users Group meeting on 26th November 2010 in Oxford. Discussion and demonstration to the Lincolnshire Conservation Officers' Group has not yet taken place, as the December 2010 meeting was cancelled due to bad weather. It will be demonstrated to the next meeting on 25th March 2011. Future opportunities for face to face training for Conservation Officers will also be offered at this meeting, and levels of interest noted.

It will also be demonstrated to the IHBC regional group and the East Midlands ALGAO meetings, and discussed at the HER Forum and ALGAO-UK HER Committee with a focus on how the project methodologies might be adapted for other local authorities. In particular the presentations and discussions will examine any transferable solutions that might benefit other two-tier local authorities.

2.2 Evaluation of the Communication Plan

All the groups identified in the Communication Plan have been involved in the project. This is with the exception of East Sussex County Council. Due to the time constraints and delays experienced during the implementation of the project there has not been time to liaise with their staff.

Two of the district councils (South Holland District Council and Boston Borough Council) do not have Conservation Officers, and therefore contact with those authorities has been more limited. Communication by telephone and e-mail has proved to be satisfactory. Given the time pressures more face-to-face meetings would have been impractical.

The Steering Group meetings have been very effective. The size of the group was good, and the feedback and support received through them has been excellent.

For convenience it was agreed that Progress meetings and Steering Group meetings were combined.

Communication within the Project Team has proved to be very effective, with regular and frequent liaison and discussion.

There were some issues with communication with exeGesIS and Mouchel, which are discussed below in Section 2.4. The methods and timings identified in the Communication Plan were sufficient; rather it was the nature and depth of communication which was the issue.

2.3   Which project processes worked successfully and why?

The production and subsequent use of the table Stages, tasks and products for the Project Design has helped greatly with project management, especially with timescales and time management.

Communication has been successful in some areas.

The Steering Group has been very effective: members have been very supportive, have had good understanding of issues and have made timely and practical decisions all of which has helped the progress of the project through some difficult issues.

2.4   Which project processes encountered problems and why?

Communication was not of sufficient depth in some areas which caused problems. Although all the lines and timings of communications were identified in the Communication Plan, the communication between the Project Team, Mouchel and exeGesIS were not of sufficient depth to ensure that all tasks that were needed for the technical solution were properly identified, described and allocated. It was discovered that it was necessary to have details of these at a much earlier stage in the process to make sure that timetables and budgets set out in the Project Design were adhered to.

2.5   Did quality-assurance procedures work well?

The majority of quality assurance measures were embedded into the project tasks, so therefore they did work well. For example, the process of writing this evaluation report has allowed reflection on the successes and weaknesses of the project and the quality of the products which have been delivered.

2.6   Was the Project Team sufficiently skilled, trained and empowered?

Decision-making worked well, and did not hold up the project in any meaningful way. There was perhaps a lack of technical knowledge that would have been useful, however, this was a depth of knowledge it was not practical for the Project Team to acquire. This was expected from the technical contractors. It was more crucial for the Project Team to ensure that there was sufficient communication flows where needed to allow the project to run smoothly.

2.7   Were sufficient Risk strategies in place and managed?

Risks were identified in the Risk Log, although some were amended and others were added as the project progressed, as some of the issues which arose had not been identified as risks at the outset. New risks added were

R009 and R010, dealing with potential technological incompatibility. Counter measures included monitoring of the situation.

A risk was identified early on of Project Team staffing levels being insufficient to complete the project. Some HET staff time had to be re-allocated to the HER21 project due to staff shortages and the resolution of the technical issues which arose. This has increased the Lincolnshire County Council in-kind contribution, but has not affected the delivery of the project.

Risks R002 and R004 dealt with the risk that timescales will not be met and required functionality will not be delivered. The functionality promised in the Project Design has been delivered. Despite the delay to the production of the specification a good understanding developed between exeGesIS and the Project Team. Timescales have been an issue (see Section 2.4 and 2.8), and the identified countermeasures would not have prevented this.

Risk R003 which was identified around the digitisation did not prove to be an issue, as countermeasures were sufficient.

Feedback from users suggests that Risk R005 has not been an issue. Risk R006 has not arisen so far.

Issues did arise around those risks identified in R007 and R008 (see Sections 2.4 and 2.8). The countermeasures identified have helped to resolve the issues which arose.

2.8   Were allocated time and resources sufficient?

The timescales allowed for this project by EH were very tight. This was compounded by the substantial delay with the production of the technical specification.

This in turn caused issues in that the technical specifications were not sufficiently thought out in enough detail, although this is more attributable to some failures in communication between the Project Team and the two contractors involved in the development. This lack of technical detail meant that the budget required for Mouchel's involvement in the technical development was underestimated, and a further £10000 had to be found from Planning budgets to pay for the shortfall.

It is recommended that HER staff undertaking specific project work should keep a record of the time they spend on the project as this is important for calculating the final project costs. It may be that the amount of additional HER staff time used on a project like this, is considerably greater than the original prediction, as making predictions of this kind is very difficult.

There were more minor issues, like links to documents from casework records, and extra mapping layers that it would have been desirable to include, but could not due to a lack of resources. Including these will be re-considered as and when resources become available.

The following table contains information on the originally proposed budget together with the actual budget used to complete the project:

Item	Allocated to	Estimated Cost	Actual Cost	Funded by
Project Design				
Preparation of Project Design	Project Team	£2,650.00	£2,650.00	LCC - in kind
Contribution to Project Design	exeGesIS SDM Ltd	£500.00	£500.00	LCC - cash
Subtotal		**£3,150.00**	**£3,150.00**	
Project Execution				
Project Management	Project Executive: 8.5 days @ £336.75 per day*	£2,863.00	£2,863.00	LCC - in kind
	Project Manager: 34 days @ £264.53 per day* Additional 16 days used.	£8,994.00	£13,226.00	LCC - in kind
Project Delivery	Project Officer: 42 days @ £264.53 per day* Additional 18 days used.	£11,110.00	£13,226.00	LCC - in kind
	Project Assistants: 40 days @ £238.43 per day* Actual allocation. Project Assistants: 20 days @ £238.43 per day and Historic Environment Officer: 20 days @ £264.53 per day*	£9,537.00	£10,059.20	LCC - in kind
Licence for using the HBSMR Gateway Data and Image services for another client application	exeGesIS SDM Ltd	£300.00	£300.00	English Heritage
Annual Support and Maintenance for using the HBSMR Gateway Data and Image services for another client application	exeGesIS SDM Ltd	£300.00	£300.00	English Heritage
LibraryLink Web Service	exeGesIS SDM Ltd	£500.00	£500.00	English Heritage
Annual Support and Maintenance for LibraryLink Web Service	exeGesIS SDM Ltd	£250.00	£250.00	English Heritage

Development of detailed functional specification	exeGesIS SDM Ltd 4 days @ £495.00 per day	£1,980.00	£1,980.00	English Heritage
Website development	exeGesIS SDM Ltd 44 days @ £495.00 per day	£21,780.00	£21,780.00	English Heritage
Utility for fetching/reviewing feedback data into HBSMR, and automated processing into HBSMR	exeGesIS SDM Ltd 12 days @ £495.00 per day	£5,940.00	£5,940.00	English Heritage
Technical support and development time for custom website and utilities.	exeGesIS SDM Ltd 4 days @ £495.00 per day	£1,980.00	£1,980.00	English Heritage
Scanning and digitisation	External company to be appointed following competitive tender	£3,700.00	£3,973.00 (£273 paid from contingency)	English Heritage
Support for web-site development	Mouchel Business Services	£6,882.00	£16,882.00 (partly paid out of contingency)	LCC - cash
Contingency	This was all used and accounted for above	£4,000.00	£4,000.00	LCC - cash
Subtotal		**£80,116.00**	**£93,259.20**	
Total project cost		**£83,266.00**	**£96,409.20**	
Total requested from English Heritage		**£36,750.00**	**£36,750.00**	
Total contribution by LCC		**£46,516.00**	**£59,659.20**	

All on-going support and maintenance after the end of the project will be paid for by Lincolnshire County Council
* These costs include non-salary costs and overheads

2.9   Conclusion

This project is a useful demonstration of how HER data can be made available through a password controlled website to support heritage professionals in making decisions about the historic environment.

One great success of this project has been the opportunity for HER staff and Conservation Officers to far better understand and appreciate the others' work. As well the differences between objectives, common objectives have also been identified, the embodiment of which is in the website and its content. HER staff and the wider HET already actively engage with Conservation Officers. This is by means of attending the Lincolnshire Conservation Officers' Group, sharing information, both formally (for instance through Conservation Area Appraisals) and informally. In addition, outside the HER the HET engage in discussions on casework and wider projects. This project has, and will continue to, strengthen and enhance these relationships. It will speed up the process of building relationships that has been happening gradually over the last ten years or so.

The feedback facility from the website directly to HBSMR will allow Conservation Officers to add and edit that which is important and useful to them into the HER. This will considerably enhance the HER, and any extra time that this might add to the HER workload should be at least partly offset by the semi-automation of data upload into HBSMR.

Equally the time which is added to Conservation Officers' workload by using the feedback facility should, again, be at least partly offset by the ready availability of HER information and digital files and photographs, which should help to make dealing with casework more efficient and therefore speed up the process. It will also give a richer context for provision of HER information, whether that is for the planning process, or any other purpose.

The Training Manual is intended to help Conservation Officers with using the feedback facility by giving them a good understanding of what information the HER requires, and making it clear where this information is to be entered on the form. In turn, this will help HER staff when they are validating new records for HBSMR, as fewer changes to the data will be needed before the new records are incorporated into the database.

However, it is difficult to determine at this stage how workloads will be affected: this will become clearer as the site is used over the coming months and years, and is also likely to fluctuate over time.

Although it has been a fairly large capital investment in terms of time and money, this approach allows flexibility in terms of use of the website, and it is also a website that can continue to be used for some time to come. In other words it is an approach that is as future-proof as possible. Therefore, it will prove to be very good value for money. HER staff will continue to encourage Conservation Officers to use the website, with the aim of their using it as a matter of routine. Given more time and funding more details from HBSMR

would be included on the website (for example, more detailed information on casework).

The website has all the functionality that was set out in the Project Design, and is intuitive and easy to use. The Project Team's conversations with Conservation Officers have directed how the website was designed and what information and terminology was used. This will continue to be the case as Conservation Officers use the website more. Feedback from users of the site has been largely very positive, and all issues raised have been resolved.

It would have been useful to compare this project with other HER21 projects which had similar proposed outcomes, but different methods of achieving them. There are links to Heritage Gateway and the County Council's 'Lincs to the Past' website, which will give users a richer context for the information they accessing through the Lincolnshire HER21 website.

The digitisation of the hard copy material from the District Councils and the County Council was also successful, in that it was good value for money, and has enhanced the content of the HER with material that is of use to Conservation Officers. The HET looked on this as pilot for scanning further County Council material. The success of this part of the project has led to the scanning of all the HER hard copy grey literature reports and their cataloguing and storage by ADS.

An added bonus has been the opportunity to work with exeGesIS on the development of a phone app which, although outside the scope of this HER21 project, will allow even greater flexibility for use of the website.

The transferable solutions and ways heritage services in other local authorities might benefit from any project outcomes include the flexibility of the technology of the website, the development of the feedback facility and the phone app. These will prove particularly useful to two-tier authorities where the HER uses HBSMR. However, the principles could be applied to any authority where different and/or incompatible technological platforms are used, and where HER data is stored in digital databases.

There have been lessons learned by the Project Team during the implementation of this project. The fact that the website had to be developed by two external companies (Mouchel as the County Council's IT provider, and exeGesIS as the software specialists) led to some complications in communication, particularly as the Project Team were relying on the two companies to liaise. The Project Team have learned that early and in-depth communication over detailed technical issues is crucial if the project is to stay in time and on budget. The short deadlines on the project timetable which were dictated by English Heritage deadlines meant that lead-in time was minimal, and did not allow for discussion and development of ideas and resolving of issues early on in the process.

Overall the project has been delivered on time. However some of the tasks within the project have had to be rushed in order to ensure that the final

deadline was achieved. The project was not delivered within the budget originally identified, and went £13143 over-budget. This shortfall was met by Lincolnshire County Council.

All objectives identified in the Project Design have been achieved successfully, and all tasks completed. Ideally, however, there would have been more time for testing and feedback.

The use of the website by Conservation Officers will continue to be encouraged and monitored, and improvements made where necessary. It is this process which will determine whether the project is a long-term success.

In summary, then, the main achievements of this project are:

- An informative and easy to use website;

- Most efficient feedback mechanism possible;

- A transferable and flexible solution to sharing HER data;

- Scanning of additional material to that originally anticipated;

- Improved relationships with Conservation Officers;

- A springboard to development work on a phone app.