Contents

1. Project Name

HERALD: Historic Environment Research Archives, Links and Data.
Redevelopment of the OASIS form (Stage 2: Technical redevelopment of the form)
Project Number 5967

2. Background

2.1. ***History***

HERALD represents the next stage of the development of OASIS, which began as a collaborative venture between the Archaeology Data Service (ADS) and Historic England (HE) and other partners to provide information about archaeological events and access to unpublished archaeological fieldwork reports or 'grey literature', especially those produced as a result of planning/development control related fieldwork.

It has been recognised that OASIS is currently at a stage where it has outgrown the system on which it is hosted and there is a need to move it to a new platform and re-engineer the underpinning system architecture.
The preparations and market research required to ensure that there was an identifiable need for the redevelopment and re-envisioning of OASIS began in 2012 with the commissioning of the *Review of the development and implementation of OASIS in England* (Pye Tait Consulting, 2012) and has continued with the production of *Heritage Information Access Strategy: Business Process Mapping of Historic Environment Information* (Oakleigh Consulting Ltd, 2015), the Stage 1 HERALD Report (*HERALD: Historic Environment Research Archives, Links and Data: Final Report* (Gilham, J. and Hardman, C., 2015)), and latterly the *BIAB: hosting by the ADS and incorporation into the HERALD project: Stage 1 – strategic vision* report (Gilham, J. and Matthews, L., 2015).

The preparatory work laid down in the early reports has identified the need for OASIS redevelopment – the HERALD project - and the latter documents have identified ways in which this redevelopment can be realised.

The Pye Tait review of the development and implementation of OASIS in England, included the preparation of an updated strategy consistent with Heritage Protection Reform (HPR), and identified the need for the future development of OASIS to be mindful of the context of changed planning procedures and the need to show public benefit alongside reduced resources within Local Authorities. It also emphasised the need to minimise double handling of information.

The Oakleigh Report (2015) set the redevelopment of OASIS in a wider context, by setting out a vision in which the redevelopment of OASIS is just one part of the need to address the full landscape of historic environment data and information and its handling within the sector. Oakleigh therefore forms a key guiding document for the Heritage Information Access Strategy (HIAS) (see below).

Lastly, the HERALD project has been influenced by factors in the wider HE information environment.
The decision by the CBA that the British and Irish Archaeological Bibliography (BIAB) was becoming increasingly out of place with their strategic vision and might therefore sit more comfortably with the ADS, has opened up a sea of opportunities for the HERALD project and HIAS, by bringing the system for recording and disseminating bibliographic or 'source' data under the same roof as the principal tool for the recording of events data. The incorporation of the revised strategic vision of BIAB (see Gilham, J. and Matthews, L., 2015) into the HERALD project therefore brings together two widely used and well known resources in British archaeology and affords an exciting opportunity to really change the creation, management and transfer and discovery of not only data, but also *knowledge* and *understanding*.
One opportunity already identified for just this sort of work is the embedding of Research Frameworks into event data gathering. It has been recognised that there is a need for more online reporting and collection of information to feed research agendas and compile resource assessments and including this in OASIS presents some exciting possibilities.

2.2. *Context – Heritage Information Access Strategy*

Since the Pye Tait survey, Historic England have identified the need for a cohesive and interactive strategy to look at all aspects of data flows and processes between Historic England and Local Authorities.

The HERALD project nests within a broader initiative intended to secure an improved and more cost-effective approach to the handling of digital historic environment data (Historic England, 2014), namely the Heritage Information Access Strategy.

The HERALD project will therefore be delivered within the broader framework of the Heritage Information Access Strategy. The strategy is being delivered via a number of synergistic work packages. Aspects of other work packages therefore depend on, or will need to be informed by, HERALD development and delivery. Equally, HERALD will be informed by other work packages.

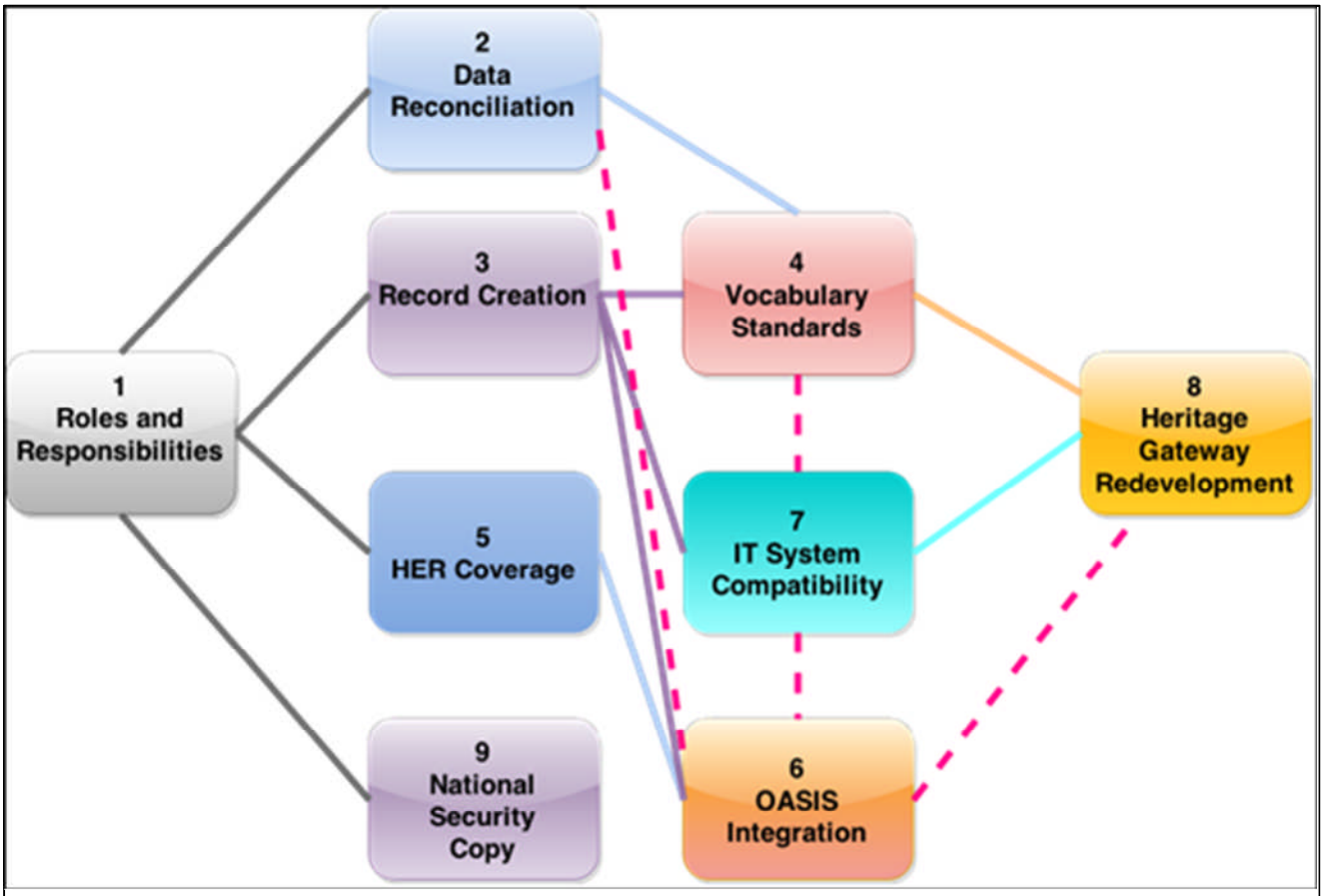


FIGURE 1: SUGGESTED WORK PACKAGE DEPENDENCIES WITH ADDITIONAL SYNERGIES WITH RESPECT TO HERALD. **SOURCE**: (OAKLEIGH CONSULTING LTD, 2015, PP. 38, FIGURE 4.)

3. Aims and Objectives

The Stage 2 HERALD project will build on the HERALD Stage 1 Project Outcomes in order to realise the Oakleigh Consulting 'to be' processes with respect to OASIS and the Pye Tait Consulting Report Objectives.

HERALD Stage 2 will therefore:

a) Crystallise the future vision for OASIS and how it is intended to integrate with and complement existing systems such as HERs, the Archaeology Data Service (ADS) and the Heritage Gateway;
b) Develop the brand and identity for the future of OASIS; (Pye Tait Consulting, 2012)

c) Work towards a more efficient and inclusive system that complements current information flows within HERs and seeks to prevent working practices that lead to data double-handling; (Pye Tait Consulting, 2012)
d) Implement mechanisms to engage societies, community groups, museums and academics with OASIS; (Pye Tait Consulting, 2012)
e) Broaden OASIS to encompass a wider range of event types and historic environment disciplines and asset types. (Pye Tait Consulting, 2012)
f) Build a new OASIS system that will integrate with HER workflows thereby removing barriers to participation (Oakleigh Consulting Ltd, 2015, p. vi point 6).
g) Build a new OASIS system that will extend use by researchers, local history groups and museums (Oakleigh Consulting Ltd, 2015, p. vi point 6).

In summary, the project will build the tool necessary to realise the Oakleigh 'to be' processes vision. It will do this by utilising the knowledge and understanding garnered by the Stage 1 HERALD project report findings and HIAS work package interactions.

4. Business Case

4.1. *Purpose – why now?*

The redevelopment of OASIS will be a key work package in the delivery of the Heritage Information Access Strategy. Delivery of the HIAS in turn feeds into Historic England's wider aspirations for the Historic Environment sector, outlined in the ***Historic England Corporate Plan 2015-2018*** and the ***Historic England Action Plan 2015-18***. Specifically, Corporate Plan Objective 2.6:

> ***"With our partners, improve access to information through local Historic Environment Records and explore ways of moving towards a single means of accessing historic environment information nationally."***
>
> (Historic England, 2015, p. 18)

The drivers for change laid out in the HIAS proposal document (Historic England, 2014) and latterly '*Heritage Information Access Strategy: Business Process Mapping of Historic Environment Information* ' (Oakleigh Consulting Ltd, 2015, pp. 39, Appendix 1), resonate with vision for the redevelopment of OASIS. In order to effect change, a number of long standing issues of complexity and duplication of effort in the management of, and access to, historic environment information need to be addressed. Principally, HERALD will address some of the issues identified in the Oakleigh report (Oakleigh Consulting Ltd, 2015), namely:

> ***"that there is currently a lack of clarity around process and data flows; the integration of OASIS into workflows, the purpose of systems and the lack of compatibility of IT systems and tools"***
>
> (Oakleigh Consulting Ltd, 2015, p. iv)

The embedding of OASIS into Local Government information management workflows will facilitate a seamless multi-directional flow of information and realise the goal of faster and better decision-making identified as one of Historic England's key objectives, for itself and others (Historic England, 2015, p. 18, objective 2.6.1).

It is becoming imperative in the context of reduced capacity and resources in both Local Government (ALGAO, IHBC, EH, 2015) and within National Heritage bodies (Oakleigh Consulting Ltd, 2015, p. i), that these goals are realised.

The purpose of the HERALD project is to effect this change, by addressing a number of long-standing issues of complexity and duplication of effort in the management of, and access to, historic environment information. Building on the results and recommendations of the Stage 1 HERALD Report (Gilham, J. and Hardman, C., 2015), the Stage 2 HERALD project will enable these long standing issues to be addressed.

4.1.1. Delivering Public Benefit within the context of NPPF.

A key aim for Local Government and Historic England is delivery of the National Planning Policy Framework (NPPF) and the realisation of public benefit. HERALD intends to deliver on the former aspiration by addressing the issues of complexity and duplication mentioned above. However, it also has a role to play in the delivering direct and indirect public benefit. NPPF clearly states that:

"141. Local planning authorities should make information about the significance of the historic environment gathered as part of plan-making or development management publicly accessible. They should also require developers to record and advance understanding of the significance of any heritage assets to be lost (wholly or in part) in a manner proportionate to their importance and the impact, and to make this evidence (and any archive generated) publicly accessible... Copies of evidence should be deposited with the relevant Historic Environment Record, and any archives with a local museum or other public depository"

As previously stated, OASIS will provide the principal mechanism for the transfer of the evidence cited to the relevant HER. However, it will also facilitate direct access to this information by the public (i.e. deliver public benefit) via the ADS Library and also ensure the appropriate archiving of digital material, thereby ensuring long-term curation and access.
A system that also encourages participation from community groups and individuals conducting research into the historic environment also engenders a clearer sense of ownership/identification with heritage assets through the recognition and dissemination of work.

4.2. *Deliverables*

The key deliverables for HERALD stage 2 have been identified as:

- Continuing and enhancing the OASIS facility for uploading unpublished fieldwork reports to the ADS Library (commonly referred to as the Grey Literature Library or, formally, the *Library of Unpublished Fieldwork Reports)*
- Continue to ensure that items in the library are freely accessible, searchable, linkable and archived in the long term.
- Establish a mechanism that will enable the routine collection of research-led output, i.e. enable information gathering from investigation to be question-led and feed directly back into research aims and objectives through the forging of links to Research Frameworks.
- Extend the ADS Library and integrate with BIAB
- Extend the existing OASIS functionally to provide event recording for the built historic environment, large area projects and other specialist users
- Extend the existing OASIS form to provide event recording for community groups
- Create a Museums view for OASIS to complete the circle of information handling from project inception to archive deposition (and beyond).
- The overall design of the system will be modular to allow the addition of other specialist OASIS PLUS modules as the funding and need arises.

It is acknowledged that building of a system is only part of the solution. Change management is a process of communication, (re)education and challenging perceptions and preconceptions as much as facilitation. It has been acknowledged that subsequent work will be required, once the system is built to ensure its success. This is Stage 3 of the HERALD project.

4.3. *Who benefits from this?*

4.3.1. Historic Environment Records

The HER receives free accessible storage for grey literature reports within an accredited discipline-specific digital archive. Because the HER has access to the OASIS system and can download all metadata including the OASIS id they are then able

to use this id to link between their HER data which may be available on line (some on Heritage Gateway) and the report housed within the ADS archive.
A cost-saving for both HERs and researchers can be realised with central online access to reports. Researchers, including commercial archaeologists, academics and community groups can incur considerable expense travelling in person to consult grey literature held in HERs where no provision is in place for the copying and dissemination of material. In addition, where provision for copying is in place, HERs can incur costs because of the need to photocopy/scan material and make it available. The use of a centralised repository for grey literature 'self-service' (which can be linked directly to HER databases when they record the DOI) can negate the need for travel and/or HER staff time spent at copying devices. In 2013 North Yorkshire HER was successful in presenting a business case to their host authority for funding the digitisation and deposition of unpublished reports in the *Library of Unpublished Fieldwork Reports* on the basis that staff time required for HER enquiries can be significantly reduced by linking HER database output to the *Library of Unpublished Fieldwork Reports*.

4.3.2. Commercial Units and Community Groups

These sectors, while different in many ways have similar requirements in terms of their project outputs. OASIS allows them to benefit from free, accessible storage for their grey literature reports which enables them to develop an online branded library of their own. In the current economic climate the provision of the ADS Library of Unpublished Fieldwork Reports (Grey Literature Library) also acts as a secure repository in the unfortunate event that the unit may go out of business or the community group disperse.

As mentioned in section 4.1.1, the efficient delivery of information and grey literature to HERs will enable commercial units operating within the planning system and local planning authorities to discharge their obligations under the NPPF. In addition, community groups operating outside the commercial arm of archaeology will find that their work is given increased exposure alongside that of contracting and academic archaeology. Inclusion in the HER via OASIS and the ADS Library will empower community groups and independent researchers by providing a mechanism to contribute their research for decision-making purposes (for example the planning process, local listing etc.).

4.3.3. Historic England

OASIS similarly provides access to the grey literature reports submitted via the system. Access to the system will allow for Historic England investigators to record their work and ensure it is passed to HERs in line with principle 1 of HIAS. Furthermore, Historic England[1] will be able to use the OASIS system to compile statistics on the state of the sector in terms of numbers of investigations by year, organisation and mechanism (planning or non-planning related etc.) but also detect trends and anomalies by geographic area / local authority (see section for more details).

4.3.4. Museums Community

In the light of limited resources available for digital archiving within museums the current OASIS system gives museums an opportunity to make collections more visible. It is also envisaged that OASIS will allow participating museums to track potential archive deposits and communicate with depositors. The system will also enable the tracking and quantification of archives where no collecting facility (museum, archives) has been identified.

4.3.5. Archaeology Data Service

The *Library of Unpublished Fieldwork Reports* has proved to be one of the most popular resources held by the ADS. We believe that this is because of a number of factors, including rich metadata which makes searching easy (The ADS has plans to enhance the search facility incorporating more of the metadata fields available for the OASIS database). In addition, the resource constantly grows so researchers benefit from returning to the collection. From the archiving perspective the fact that the files come with rich structured metadata makes ingest, accessioning and archiving the files much easier.

[1] Other level 5 users, Historic Environment Scotland and RCAHMW, will also have this available to them

4.3.6. Specialists

This is an area where OASIS does not yet offer an ideal solution (with the exception of the geophysical survey which was recorded in more detail in OASIS in 2004). A module to record more specific information about geophysical survey was included in OASIS in 2004 at the request of RCAHMS. This has meant that, with the inclusion of geophysical survey reports, we can start to build specialist resources (interfaces) from the same pool of (OASIS) data (e.g. the Historic England geophysical survey database which links to the appropriate grey literature where it is available). The BABAO group has expressed interest in developing an equivalent solution for their grey literature.

4.3.7. Period societies

Both the Society for Medieval Archaeology and Society for Post-Medieval Archaeology use OASIS to generate their annual round-ups of fieldwork. Commencing with reports from the 2007 fieldwork season, the databases link individual sites, through their OASIS identifiers, to the relevant records in the *Library of Unpublished Fieldwork Reports*, providing access to a wide range of data and grey literature. This service could be extended to other period societies.

4.3.8. British and Irish Archaeological Bibliography (BIAB)

The incorporation of BIAB into the HERALD project 'closes the loop' in terms of resource discovery and metadata service provision for archaeological events and associated literature. Re-envisioning BIAB will bring together the wealth of bibliographic discovery information collected by OASIS alongside the information on the latest research papers and monographs. Where resources are hosted by the ADS, (Library of Unpublished Fieldwork Reports, selected County and Period Themed Journals - for details see http://archaeologydataservice.ac.uk/archives/?category=journalsandseries) these will be made available as full texts, not just abstracts.

With less reliance on manual abstracting and harvesting of information, the risks of out-of-date information are considerably lessened and the efficiency of collection and dissemination increased significantly.

4.3.9. Research Frameworks

The bringing together of BIAB and OASIS provides an opportunity to support and enable Research Frameworks. Preliminary discussions have indicated that the inclusion of Research Framework fields in the OASIS system could be harvested and disseminated in a number of ways with direct benefit to the compilation of research framework resource assessments and reports.

4.3.10. Projects involving large-scale data collection

The expansion of a centrally held repository for grey literature has the potential to speed up the collation and collection of data for future academic-driven research projects. The *Rural Settlement of Roman Britain* project would have benefitted had the grey literature library been more comprehensive. Recent academic-driven research projects have started to collect and analyse large datasets (e.g. EnglaId, Atlas of Hillforts, Fields of Britannia) and it can only be expected that this trend will continue as technological advances allow larger and more complex data sets to be extracted and analysed from unpublished material.

5. Project Scope

The HERALD project Stage 2 covers the technical redevelopment of the OASIS form for historic environment event recording for England. This project is Stage 2 of a 3 stage project: the third stage of the project will cover testing, roll out, training and support and is not part of this project design.

6. Interfaces

The project will need to interface with a range of heritage bodies and professionals and in particular those bodies represented on the OASIS Management Board and Heritage Information Access Strategy Advisory Board. This interfacing will be done through regular updates to the OASIS and HIAS boards with information cascading down from there. The project forms part of the Heritage Information Access Strategy and will therefore interface with the other work packages

within the strategy via work package leader meetings. The project will also report to the Heritage Information Access Strategy Programme Board as part of the 'Collecting and Validating Data' work package.

There may be some further discussion on requirements of the OASIS PLUS modules during Stage 2 of the project but more extensive interfacing with users will be part of Stage 3 (testing, roll out, training and support).

7. Project Review

Project review is subject to approval from Historic England. Given the long running nature of the OASIS form redevelopment, a series of review points will be necessary. It is proposed to report progress to the HIAS Advisory Board and OASIS Management Board (every 6 months).

Review points:

1. BIAB search interface and data entry interface - Task 101 - Sept 2016.
2. Agreement of final functional specification - Task 139 - Jan 2017. This agreement will ensure the progress of the project according the time and budget – deviation from the agreed functional specification will require agreement from Historic England due to the increased costs and time associated with alterations to the planned system.
3. Main form created - Task 176 - Nov 2017.
4. OASIS PLUS modules created - Task 186 - March 2017.
5. First testing release (ALPHA) - Task 218 - June 2018.
6. Beta Release - Task 225 - Oct 2018. The beta release will run for a period of four months (Jun-Sept) to ensure appropriate alterations and updates can be made.

8. Project Team Structure & Communications

The role of Project Executive will be jointly undertaken by Prof Julian Richards, Director of the ADS, Louisa Matthews, Collections Development Manager at the ADS and Katie Green, Communications and Access Manager at the ADS.

The role of Project Manager and Lead Expert for the project, in this case described as Redevelopment Manager, undertaking day-to-day oversight of the project, consultation work and developing the project, will be Jo Gilham, Digital Archivist with the ADS. Jo Gilham was involved in the original development of the OASIS form and the Redevelopment Manager for Stage 1 of the HERALD and BIAB redevelopment projects. The Application Developers on the project will be drawn from the technical staff at the ADS. These include the Systems Manager/Application Developer - Paul Young who has recently re-joined the ADS after a period working elsewhere at the University of York and has experience of systems administration and development of large scale web applications, including the ADS collections management system. He will be focussing on the systems architecture and the front-end development of the new OASIS system. The other Application Developer role - that of back-end developer will be taken by Lei Xia who will be focussing on the database and NLP tool development. The Redevelopment Manager will also have a role in some of the front-end development and design tasks.

The project team (Project Executive, Redevelopment Manager and Application Developers) work closely on a day-to-day basis and any issues can be dealt with as they arise. The Project Executive is also responsible for task allocation within the wider ADS and will therefore be in a position to ensure the project gets relevant support in a timely fashion. In addition the whole project team will meet with the Project Executive on a monthly basis within the framework of the ADS monthly executive meeting, where updates on progress on the project will be given.

There would be wider communication with the OASIS Management Board, the HIAS Programme board and the HIAS Advisory Board through the ADS Director's and Collections Development Manager's attendance at regular meetings. There will also be a communication and quality assurance role for the HE Project Assurance Officer and through the boards mentioned above. These will occur at the review points of the project and through the project highlight reports as well as in a more Agile fashion when the need arises.

There will also be some pilot testing by a selection of users at each user level. This will be more to test basic functionality during the development and is before the full BETA testing that will happen at the end of this stage of the project. The main testing, roll out, training and support will one part of stage 3 of the project.

9. Methods Statement

9.1. *Overview of the new OASIS system*

OASIS is a system for historic environment event recording in Britain. The aim of OASIS is to facilitate the movement of information on heritage events between different heritage organisations. OASIS primarily covers the recording of events but it also collects reports (sources) which refer directly to those events. It does not collect monument descriptions but does list monuments and objects in relation to the main event recording.

9.1.1. OASIS LITE, OASIS STANDARD and OASIS PLUS

A fundamental change in the new OASIS system is the introduction of three tiers of recording instead of one. These are OASIS LITE, OASIS STANDARD and OASIS PLUS

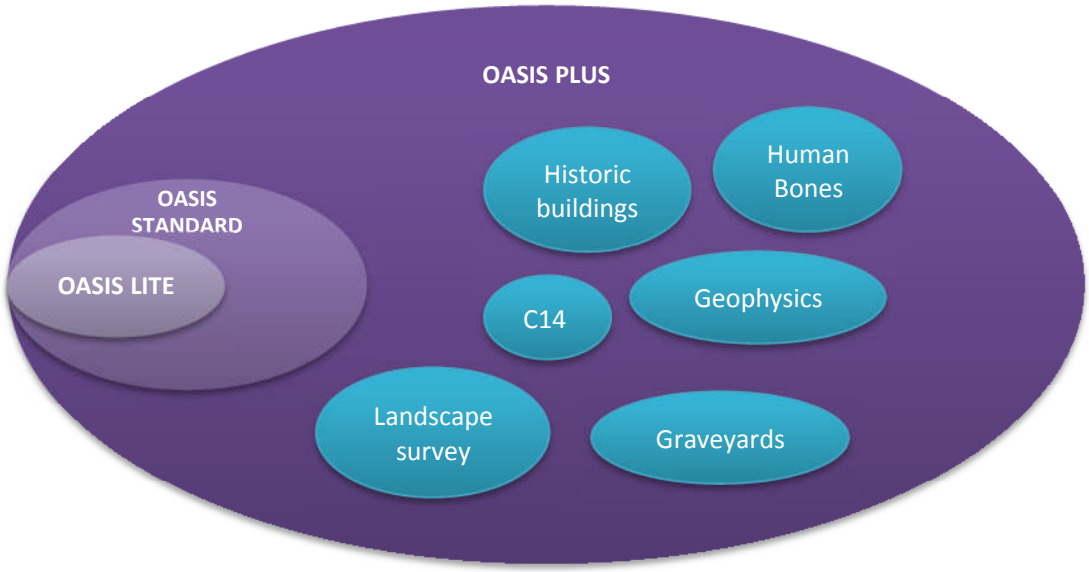


FIGURE 2: HOW OASIS LITE, STANDARD AND PLUS RELATE

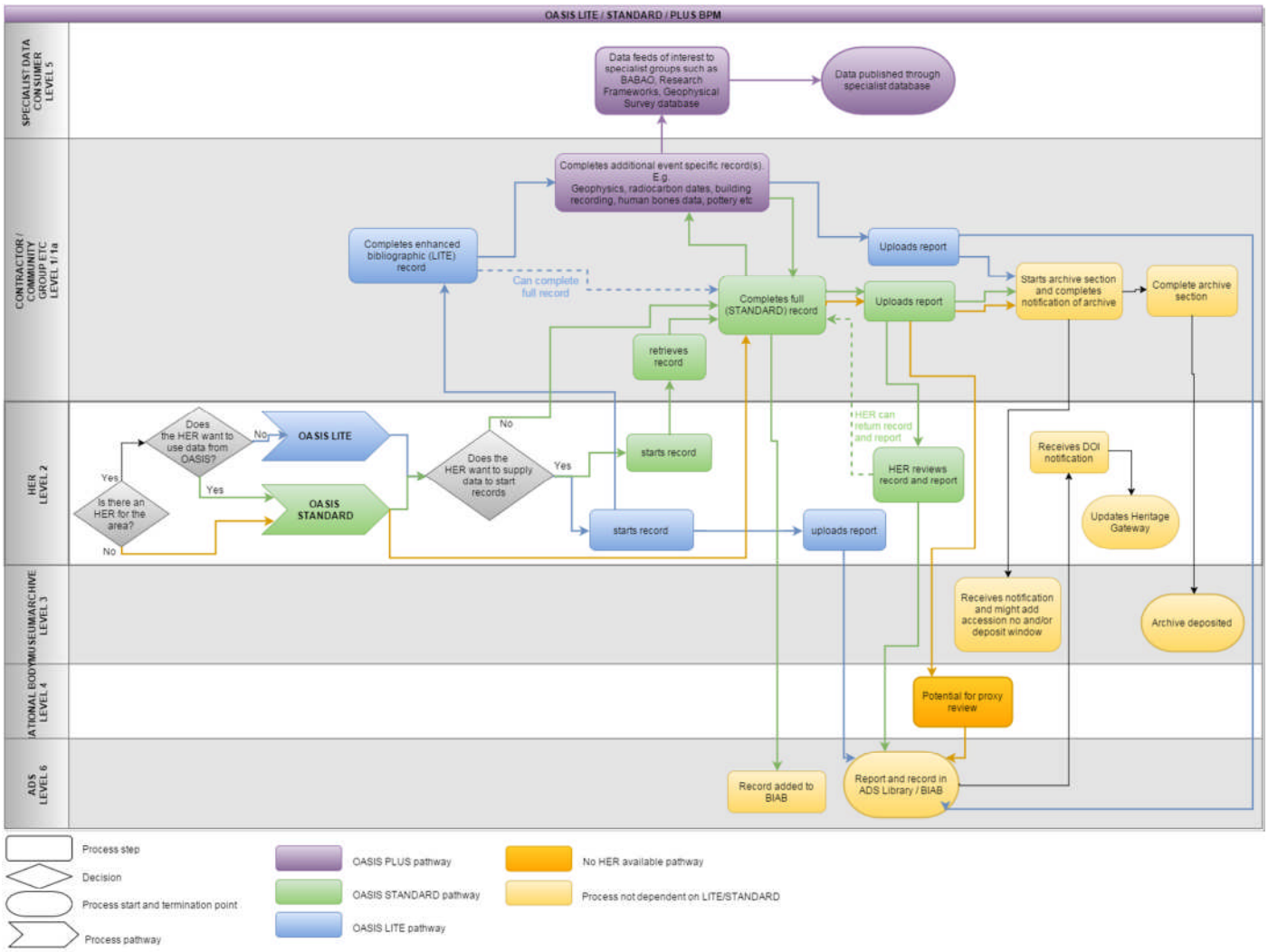


FIGURE 3: BUSINESS PROCESS MAP FOR OASIS LITE, STANDARD AND PLUS

9.1.1.1. OASIS LITE

OASIS LITE is a mechanism for uploading project reports to the ADS Library (incorporating BIAB and Grey Literature Library). OASIS LITE will collect an enhanced bibliographic record (see section 9.3.1 for details) which is used as discovery metadata for locating the report. OASIS LITE will only be available to level 1 and 1a users in certain circumstances (see below and section 9.4.2.6) and only applies to the areas of the form which are relevant to transfer to the HER (i.e. not the archive section which will be dependent on participation by the museum rather than the HER).

OASIS LITE will only be available when there is an HER for the area and that HER is collecting the full event record by other means (i.e. not via OASIS). All other modules which are relevant to that event/project will be collected even if the HER is not using OASIS. See sections 9.4.2.6 to 9.4.2.9 for more information on levels of participation.

Any reports that are released into the ADS Library through this mechanism will clearly state that they have not been checked or approved by the HER.

9.1.1.2. OASIS STANDARD

This is the current level of OASIS record available and will be used when the HER is participating in OASIS and using the data gathered to populate the HER or there is no HER collecting event information for an area. If no HER is collecting event data the form will have the functionality to allow proxy validation by a national body if required (see section 9.4.2.8).

9.1.1.3. OASIS PLUS

This is the extension of the facility to record additional data about an event. The current system has a module for collecting additional data for geophysical surveys and the new system would aim to extend this to include other event types as well.

The system will be developed to allow the addition of these OASIS PLUS modules after the initial system is completed. The OASIS PLUS modules currently suggested for the system are:

- Geophysical survey (to be funded as part of the Historic Environment Scotland bid)
- Historic building recording
- Landscape and large area survey / recording
- Radiocarbon date recording
- BABAO human bone recording
- Graveyard recording (to be covered by additional funding via University of York Digital Creativity Hub)
- Environmental recording

These modules are described in more detail in section 9.4.4 OASIS PLUS: Module interfaces (event specific pages)

9.1.2. The OASIS brand name

There has been mixed feedback on the name of OASIS, the Pye Tait Survey (Pye Tait Consulting, 2012) strongly recommended that the name OASIS should be retained after any redevelopment as this 'would necessitate more marketing, more explanation, and may risk losing any existing good feeling which OASIS carries' as well as requiring changes to all existing text used in Briefs, WSIs and other supporting documentation. However there are new user communities which feel that OASIS is a purely archaeological tool and not relevant to the wider historic environment community and so a change of branding for them might increase take up.

One example of this is the historic building recording community who will have their own tailored data entry module within OASIS for historic building recording events. This will be an OASIS PLUS module and as such it would be beneficial to give specific identity to these modules.

In order to retain consistency across the system as a whole whilst still differentiating between user groups and specific modules, we propose that each module be given a name consistent with this format:

OASIS+: MODULE

e.g. OASIS+:Geophysics, OASIS+:Buildings, OASIS+:Osteoarchaeology, OASIS+:C14, OASIS+:Graveyards etc.

9.2. *Types of user*

The new OASIS system will cater for six main types of user with the possibility of subtypes where appropriate. The current users proposed are as follows:

- **Level 1** - Archaeological contractors, building specialists, and other heritage professionals who undertake projects that should be reported to the local HER or might produce a report they wish to archive and make available online. This could also include users for large projects (e.g. HLF) who would upload data in bulk for addition to HERs.
- **Level 1a** - community groups, volunteers and other groups who do not associate themselves with commercial archaeology but undertake projects that should be reported to the local HER or might produce a report they wish to archive and make available online.
- **Level 2** - Historic Environment Records or similar organisations which are responsible for overseeing events undertaken in their area.

- **Level 3** - Archive, Museum or records offices which are responsible for holding archives from archaeological fieldwork and building surveys.
- **Level 4** - National bodies who have oversight of events undertaken in their country.
- **Level 5** - Organisations who will download specialised data from the system such as Discovery and Excavation in Scotland and specialist data providers such as Vernacular Architecture Group or community-based graveyard recording groups.
- **Level 6** - Archaeology Data Service - administrative user

9.3. ***The data OASIS collects***

OASIS should only collect information that will be passed on for use elsewhere. The following are the core fields that OASIS will collect. There is still some consultation needed to define the additional fields which will be collected by the OASIS PLUS modules. OASIS collects event data and source data relating directly to an event. It collects monument and object information in brief (types/period) and only directly in relation to the event.

Current OASIS field	Notes and possible changes	Mandatory / optional	MIDAS Heritage Mapping
OASIS unique id		Auto generated	Investigative Activity Information Group: Primary Reference Number
Project Details			
Project name		M	Investigative Activity Information Group: Activity Name
Short description of project		M	Investigative Activity Information Group: Description
Project dates		M	Date and Period Information Group: Start Date, End Date
Previous/future work		M	
Any associated project reference codes (e.g. HER No, Accession id etc.)	Brought into a section of its own so it is more obvious	M	Investigative Activity Information Group: External Information System Primary Reference Number
Event type	*Proposed new field (heritagedata.org)*	M	Investigative Activity Information Group: Activity Type
Type of project	*These fields will all be covered by Event type*	M	
Methods and techniques			
Investigation type			
Survey techniques			
Development type	Only relevant for some types of event	(M)	

Prompt		(M)	N/A
Position in the planning process	Only relevant for some types of event	(M)	N/A
Site status		O	Not recorded by Investigative Activity Information Group
Current land use		O	Not recorded by Investigative Activity Information Group
Monument type & period	From heritagedata.org linked data (country specific)	M	Monument Type, Date and Period Information Group: Start Date, End Date
Significant finds & period	From heritagedata.org linked data (country specific)	M	Artefact and Ecofact Information Group: Artefact/Ecofact Type, Date and Period Information Group: Start Date, End Date
Research Outcomes	*Proposed new field*	M	? Activity Objective
Environmental sampling	*Proposed new field Yes/No*	?	Artefact and Ecofact Information Group: Artefact/Ecofact Type, Date and Period Information Group: Start Date, End Date
Project Location	**Choice of how to enter this and other fields auto generated**		
Site location	Administrative areas plus MEDIN	M? Auto-generated from grid reference / map	Location (O)
Site name		M	-
Postcode			-
Study area	This may be superseded by the boundary being drawn on a map or uploaded	M	
National grid reference	Entered as grid reference, Lat/Long or by clicking on a map	M	Location Information group: Grid Reference (M)
Latitude Longitude Datum	If Lat/Long used	(M)	
Height OD		O	
HER (level 2)	Pick-list generated according to location	M	
National body	Auto generated according to location	M	

Project Creators			
Name of organisation	Auto generated from registered users	M	Activity Information Group: Compiler (organisation)
Project design originator		M	
Project director		M	
Project manager		M	
Sponsor or funding body		O	
Type of sponsor or funding body		O	
Project Archives			
Archive recipient	Selected via the SMA collecting areas database according to project location plus record offices potentially	M	External Information System
Archive id	Removed as a discrete field and entered as another associated identifier above		External Information System Primary Reference Number
Contents	To be confirmed	M	
Media available	To be confirmed		
Archive notes	Dialogue between interested parties		
Project Bibliography	**Five types of bibliography:** **1) Grey literature report** **2) An article in published serial** **3) An article/chapter in published monograph** **4) A published monograph** **5) A forthcoming report**		
Title		M All types	Archive and Bibliography Information Group: Information Source Title
Serial title		M 2	
Multi-article monograph title		M 3	
Author(s)/Editor(s)		M All types	
Serial/multi-article editor(s)		M 2,3	
Page numbers		M 2,3	
Other bibliographic details		O All types	
Edition		O 3,4	
Date		M All types	Archive and Bibliography

			Information Group: Date of Origination
Issuer or publisher	Auto generated from user details	M All types	
Place of issue or publication	Auto generated from user details	M All types	
ISBN		M 3,4	Archive and Bibliography Information Group: External Information System
ISSN		M 2	
Description		O All types	Archive and Bibliography Information Group: Description
URL		O All types	

9.3.1. OASIS LITE fields collected - enhanced bibliographic record

Current OASIS field	Notes and possible changes	Mandatory / optional	MIDAS Mapping
OASIS unique id		Auto generated	Investigative Activity Information Group: Primary Reference Number
Project Details			
Project name		M	Investigative Activity Information Group: Activity Name
Short description of project		M	Investigative Activity Information Group: Description
Project dates		M	Date and Period Information Group: Start Date, End Date
Any associated project reference codes (e.g. HER No, Accession id etc)	Brought into a section of its own so it is more obvious	M	Investigative Activity Information Group: External Information System Primary Reference Number
Event type	*Proposed new field (heritagedata.org)*	M	Investigative Activity Information Group: Activity Type
Monument type & period	From	M	Monument Type,

	heritagedata.org linked data (country specific)		Date and Period Information Group: Start Date, End Date
Significant finds & period	From heritagedata.org linked data (country specific)	M	Artefact and Ecofact Information Group: Artefact/Ecofact Type, Date and Period Information Group: Start Date, End Date
Research Outcomes	*Proposed new field - used to populate research frameworks and not dependent on HER participation*	M	? Activity Objective
Project Location	**Choice of how to enter this and other fields auto generated**		
Site location	Administrative areas	M Auto generated from grid reference / map	Location (O)
Site name		M	
National grid reference	Entered as grid reference, Lat Long or by clicking on a map	M	Location Information group: Grid Reference (M)
Lat Long Datum	If Lat Long used	(M)	
HER (level 2)	Pick-list generated according to location - the HER selected defines if a LITE record is required	M	
National body	Auto generated according to location	M	
Project Creators			
Name of organisation	Auto generated	M	Activity Information Group: Compiler (organisation)
Project Archives	**This section is controlled by Museum participation rather than HER participation**		
Archive recipient	Selected via the SMA collecting areas database according to project location plus record offices potentially	M	External Information System
Archive id	Removed as a		External Information

	discrete field and entered as another associated identifier above		System Primary Reference Number
Contents	To be confirmed	M	
Media available	To be confirmed		
Archive notes	Dialogue between interested parties		
Project Bibliography	**Only one type: Grey literature report**		
Title		M	Archive and Bibliography Information Group: Information Source Title
Author(s)/Editor(s)		M	
Other bibliographic details (e.g. Report no)		O	
Date	Auto generated from Project dates	M	Archive and Bibliography Information Group: Date of Origination
Issuer or publisher	Auto generated from user details	M	
Place of issue or publication	Auto generated from user details	M	
Description		O	Archive and Bibliography Information Group: Description
URL		O	

A full and up-to-date mapping to the MIDAS schema will be undertaken as Task 117 of the project however in light of the planned change to MIDAS Heritage this task may need to be delayed until later in the project.

9.4. *Functionality of the OASIS form*

9.4.1. General functionality

9.4.1.1. Session timeouts

Responding to feedback from users and the outputs of the HERALD survey, the new OASIS system needs to address the way that session timeouts are dealt with by the system. Currently the form entries are not stored until the user saves the form at the end of the data entry process. The aim will be to save form entries at least at the end of each section and if possible after each field is completed. This will ensure that data will not be lost if the user session does timeout whilst a user is away from the computer.

9.4.1.2. Records 'always open'

In the current system a record goes through a linear process from start to finish and at finish/sign off it can no longer be updated. In the new system there is a requirement for records to always be open. This will mean that they can be updated to add additional/specialist information even though the record had been downloaded by the HER or national heritage

organisation. It is envisaged that most records would still follow this linear process but in situations where further updates are needed they would be possible and the relevant bodies (HER/national heritage organisation) would be informed of any updates and act accordingly. The final version as reviewed by the HER / national heritage body would be marked as such in the system.

9.4.1.3. Versioning

The current OASIS system saves each version of an OASIS record and deletes all but the last version when the record is signed off. The new system will need to retain all versions due to the 'always open' nature (see 9.4.1.2) of a record. This will also address an issue with the current system which loses information on who entered the original record when the first versions are deleted. The final version as reviewed by the HER / national heritage body would be marked as such in the system.

9.4.1.4. Recent activity update

The current system sends out an email for each individual notification (e.g. new record created, report uploaded, record still awaiting validation etc.). The new system will collate these notifications and make them available as a recent activity update or summary which can be received by email or on login to the system. What appears on this summary will be customisable by the individual user.

9.4.1.5. Project summary

The project summary page will be the first page viewed for an existing project. It will include the following information about a project:

- The OASIS id, Project name and Location
- The completeness of each section of the form
- The status of the report - if it has been uploaded / preserved / transferred to ADS Library etc.
- The Fieldworker/Investigator (level 1/1a) for the project (with links to their profile page)
- The HER (level 2) for the project (with links to their profile page and level of participation in OASIS)
- The Museum (level 3) for the project (with links to their profile page and level of participation in OASIS and if they are accepting archives)
- The HER No
- The Museum Accession No
- The stage the project has reached in the project workflow

9.4.1.6. OASIS ids in the new system

There will be a change to the way OASIS ids are used in the new version of OASIS. The format of an OASIS id is **abcdef1-123456**, the first section refers to the organisation which starts the record and the second numeric part is a number to make it unique. Up until now only the organisation doing the work has been able to report on it in OASIS which means that the **abcdef1** part of an id also tells you who did the work. In the new version of OASIS an HER will be able to start a record and that will mean that their username will become part of the OASIS id rather than that of the organisation who did the project. This is not necessarily a problem but does need noting.

9.4.2. User management

9.4.2.1. Registration

The registration process for accessing the OASIS system will be similar to most online systems with a user entering their name and email address and choosing a password. They will then have the choice of entering the details of a new organisation or searching for an existing organisation and sending a request to be added to it. This request is then approved by an existing member of the organisation. The system will be created so that a user can start entering a record before this approval is granted but is unable to see other records and information belonging to the organisation.

9.4.2.2. ORCID link

During registration (and from the user profile page) the user will be able to register for an ORCID id (http://orcid.org). The level of integration with the ORCID system is yet to be fully investigated. In its most basic form it will be a link to the registration page and at best it will be an automated registration which will take the details from the OASIS registration form and send them to ORCID. Details of the new ORCID id would come back in response. The benefits of linking OASIS to

the ORCID system is that each user (a potential author of a report) will then have an identifier to distinguish them from others with similar names and this identifier will then be linked with their report in BIAB and other systems using data from OASIS. OASIS could also be used to populate the individual's profile on ORCID with details of their publications.

9.4.2.3. Users and organisations

Each person would have their own personal login that would be associated with one or more organisations. The person would either be an **'admin'** user or a **'standard'** user of an organisation.

A **standard user** can:

- See all records belonging to the organisation
- Receive notifications about records they have created/updated
- Claim a record started/entered by someone else and receive notifications on it
- Create new records
- Update any record for that organisation

An **admin user** can do all the above and:

- Receive notifications about all records within the organisation
- Create new users
- Add existing users to the organisation
- Approve requests to become associated with the organisation
- Give access to a hidden/embargoed record belonging to the organisation
- Remove users from the organisation
- Change the organisation details
- Delete records or mark them as duplicates

Organisations will be associated with levels:

- Level 1 - Data inputter (Contractor)
- Level 1a - Data inputter (Volunteer)
- Level 2 - Regional data consumer (HER)
- Level 3 - Archival body (Museum / Archive)
- Level 4 - National data consumer (National body)
- Level 5 - Specialist data consumer (e.g. BABAO or graveyard recording project)
- Level 6 - ADS / admin user

It would be possible for organisations to belong to more than one level.
Examples:

- In Cambridgeshire, the HER and archive repository are run from a single office, it would be possible to have a single organisation with both level 2 and level 3 privileges.
- In national parks it is common for the HER officer to also undertake fieldwork. They would need level 1 and level 2 access in the single organisation.

A user from a particular organisation could set their primary access level in their preferences, i.e. level 1, and then be able to change to level 2 during their session by selecting from a menu option (similar to how the country can be changed in the current OASIS system).

9.4.2.4. User profile pages

Each user within the system will have a profile page in which they can change their name, password and the organisation(s) they are affiliated with. They would also be able to customise the notifications they receive and potentially be able to control how some fields are pre-filled within the form and set their default user, if they belong to an organisation with multiple levels.

Each organisation will also have a profile page in which the name and address details will be editable. It will also be possible to manage the members of the organisation from this page, adding, approving and removing users. There will also be a link to the organisations public profile (wiki) page which will contain information relevant to the organisations role in OASIS.

- Level 1 and 1a users (Fieldworkers/Investigators) can have details of their organisation and the details of users they have.
- A level 2 organisation (HER) would have details of their participation levels (see next section) as well as information about the workflow in their area in order to help other users of the system. It will also let them set the areas of the country they are responsible for.
- Level 3 (Museum and Archive) users will have links to their collections policy and how they interact with OASIS and the other information currently available on the SMA Archaeological Collections Areas Database and Map (http://archaeologydataservice.ac.uk/archives/view/sma_map/) such as if they are accepting archives and if there is an archaeological curator. They would each be able to update this information but it will also be a role of the OASIS support team to remind people about keeping information current, or update this information in some cases.
- Level 4 (National Body) and 5 (Specialist Data Consumer) will have a page which allows them to say how they use the data they receive from OASIS and might have statistics of how many records they have downloaded etc.

9.4.2.5. Management reporting and statistics

Each user will have a section alongside their profile area which will give access to management reporting and statistics for their use of the system. The data available will be information on the number of forms and reports passing through the system that are relevant to the user, similar to the reporting and statistics available to users on the current OASIS Internal Pages and reported on at management board meetings. This will be displayed visually using graphs.

- Level 1 and 1a (Fieldworkers/Investigators) number of forms started and completed, number of reports uploaded, number of records and reports passed to BIAB and research frameworks. Possibly the number of OASIS records downloaded by other users although this detail could be misleading as information could be downloaded but never actually used.
- Level 2 (HERs) the number of forms started and completed in their area, the details of Level 1 and 1a users submitting forms in their area,
- Level 3 (Museum and Archive) the number of form archive sections started and completed in their area, the details of Level 1 and 1a users submitting forms in their area, the number of archives coming, the number said to have been sent and from whom, the number of archive queries they have received.
- Level 4 (National Bodies) The number of forms started and completed in their country by year, the reports uploaded, the contractors, the HERs and who is reviewing records and who isn't, who is using OASIS LITE/STANDARD, who is starting records in their areas. Statistics for records available to other bodies such as MEDIN
- Level 5 (Specialist Data Consumers) The search criteria for records they are interested in (e.g. BABAO - all records with reference to human bones), how many records there are (by time or area), how many they have downloaded, how many have reports.

This is not an exhaustive list and other reports can be included so long at the data collected supports them.

9.4.2.6. Levels of participation: level 2 (HERs)

There are two aspects to participation in OASIS by HERs:

1. That an OASIS record must be completed by a fieldworker/investigator/contractor is included in briefs issued by the Local Authority or included in a Written Scheme of Investigation (WSI)
2. That data from the OASIS form and reports uploaded to OASIS are accessed, used or downloaded by the HER in order to create or update an HER record.

Generally point 1 above is well represented across the English and Scottish HERs for below ground events , it is point 2 that is referred to by 'participation' in this project design. There is work currently being undertaken which will inform how this might work best for above ground events as well.

The current version of OASIS assumed that all HERs would participate in OASIS in the same way and was not built to accommodate the differences in structure and workflow reflected in the Local Authorities across the country. Although the new OASIS cannot accommodate the full range of workflows in Local Government, it is hoped that the following options will allow enough flexibility to allow all to participate at some level (or not actively if they opt for OASIS LITE) without leaving records/reports stuck in the system.
The profile page for an HER will provide various settings:

- What is the area covered by the HER?
- Is there an HER for the area? (If yes, the next question would be available)
- Is the HER collecting data via OASIS? (A 'No' for this option would trigger the collection of OASIS LITE records)
- Does the HER want to start records in their area
    - Do they want to enforce that only they can start records
- Do they want to make report upload mandatory in their area? (see below).

There is a request for HERs and other users to define what will be mandatory for completion in their area at a more granular level than simply OASIS LITE/STANDARD this will have to be investigated further i.e. being able to set if report upload is mandatory or not.

These options would also be available to the level 4 (national body) and level 6 (ADS/admin) users to allow these settings to be updated if the HER is not able to.

Some workflow issues appear to be caused by a lack of communication between HER/Local authority and the contractors working in their area. These workflow issues could be lessened if each HER set details of their level of participation and any particulars for working in their area on their HER profile page. This will be pursued in the creation of the system with some elements being completed by tick boxes or switches and others through free text boxes.

9.4.2.7. Levels of participation: level 3 (Museums/archives)

The archive section will collect details of the physical, paper and digital archive details including current and intended location. How much an archive can tailor what the form collects is still under discussion. However below are the elements that archives will probably be able to select from in their profile set up. These will change what users see when they are entering archive details in the OASIS form:

- Are they accepting archives?
- Are they accepting archive notification forms through OASIS?
- Are they accepting uploads of archive contents through OASIS?
- Do they use deposit windows?

9.4.2.8. Levels of participation: level 4 (national bodies)

They can set if they are marking records as validated/checked/reviewed before records can be used in other systems.

9.4.2.9. Levels of participation: level 5 (specialist data consumers)

They can preselect the areas/type of events and fields that they want to download.

9.4.2.10. Notifications

What notifications would be available for the different levels of user?

- Level 1 - contractor and level 1a - volunteer
    - Record updated by another user (all levels)
    - Record downloaded by another user

  - Record claimed by another level 1 user
  - Record level 2/3/4 changed user (i.e. change of HER or Museum)
  - Report uploaded to ADS Library and given DOI
  - Record awaiting completion (after period of time or initiated by HER)
  - Record awaiting report upload (after period of time or initiated by HER)
- Level 2 - HER
  - Record started by level 1/1a user
  - Record mandatory fields completed
  - Report uploaded by level 1/1a user
  - Report uploaded to ADS Library and given DOI
- Level 3 - Museum
  - Archive section updated
  - Archive note entered
  - Archive deposition date reached
- Level 4 - national heritage organisation
  - Report uploaded to ADS Library and given DOI
  - Record started (requested by Archaeology Scotland)
  - Record core fields completed (requested by Archaeology Scotland)
- Level5 – external data consumer
  - New data available according to preselected search criteria

A full list of notifications will be available in the finalised functional specification.

9.4.3. Form entry

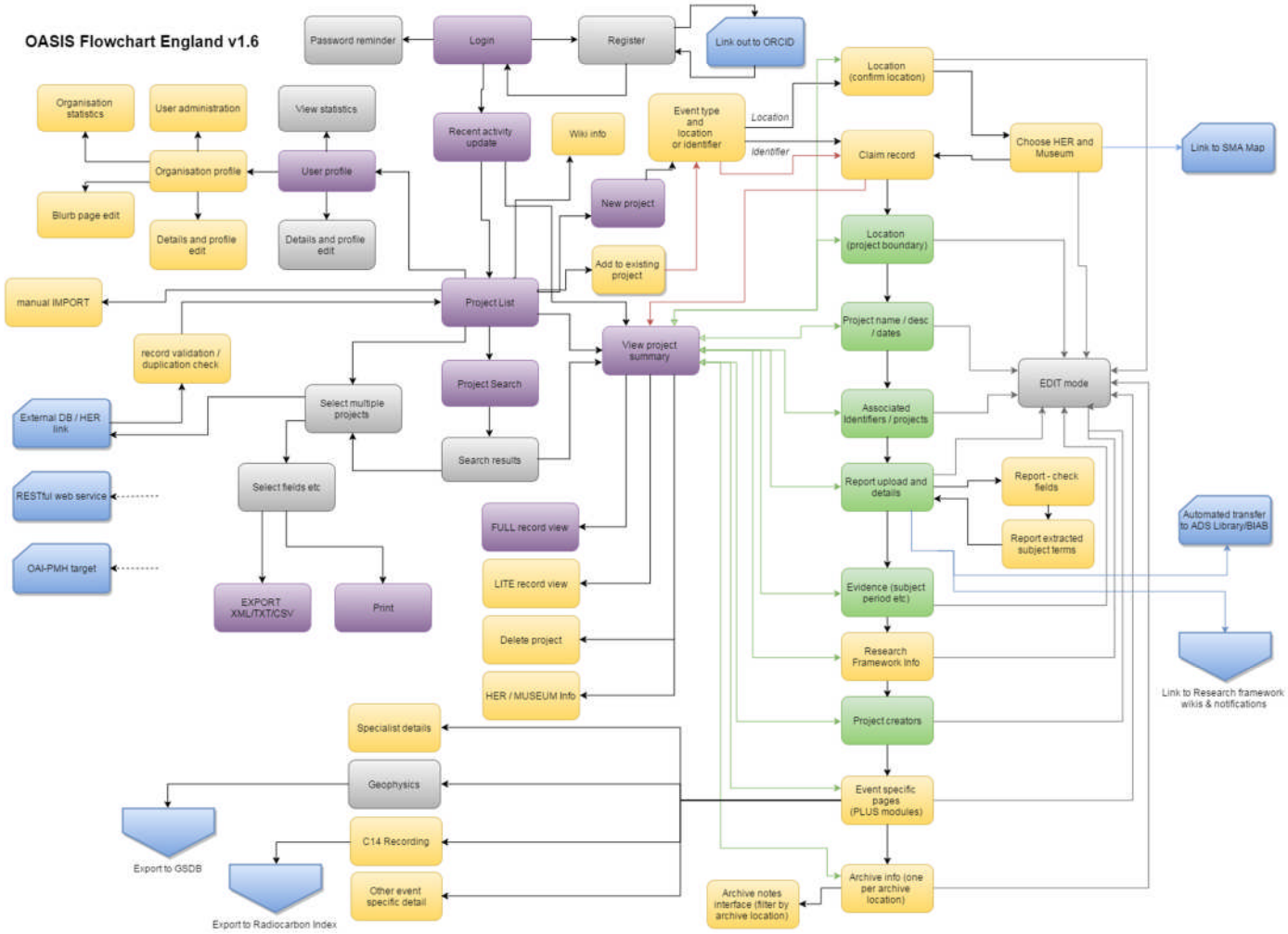


FIGURE 4: OASIS FLOWCHART ENGLAND V1.6

9.4.3.1. Who can start records

Level 1, 1a and level 2 users are able to start records. These can be started within the form or by importing an xml file or via the API (see sections 9.4.5.1 and 9.4.5.4). If a level 1/1a (Contractor/Volunteer) user starts a record it will take the normal flow through the system with them completing the bulk of the record and uploading a report and that information then being made available to the other user levels who are interested in the data.

If a level 2 (HER) user starts a record it may then need to be retrieved by the level 1/1a (Contractor/Volunteer) user who undertook the fieldwork/event. The model for doing this will be that the level 1/1a user will come to the form and either enter an identifier for the project (HER no or OASIS id) or some basic information to find the project (event type and location) and then they retrieve it from, at most, a short list of matching projects.

Projects started by an HER will have an OASIS id with the HER username at the start rather than the contractor's / fieldworker's / investigator's user name. It should also be possible to make it mandatory for records within an area to only be started by an HER if this is required.

9.4.3.2. Event types

The first data to be entered into the form for a new record is the Event type. This will be drawn from the FISH Event Types Thesaurus available from http://heritagedata.org as a Linked Data Vocabulary. The event type selected will act as a trigger to displaying the event specific modules which are being developed as part of OASIS PLUS e.g. Event type - building recording will send the user to the building recording specific pages.

9.4.3.3. Location & boundary definition

Defining the location of a project currently involves entering essentially the same information in a number of different ways: grid reference, administrative areas, postcode etc. The new system will allow the user to specify the location of their project in one of a number of ways which will then auto-generate the others. So the user would be able to click on a map to show the project location and it would generate the grid reference, administrative areas, postcode etc. for that point. If the user preferred to type in the grid reference it would then display the point on a map and allow the user to check that it is correct before then generating the other information.

There will be different ways of defining the area covered by a project depending on its type and size. Small scale projects will have a grid reference and a project boundary. Other larger landscape projects can be defined according to administrative boundaries at a district, county or country level. There will be the possibility of also specifying particular locations within the project area with additional grid reference points. It will also be possible to define multiple polygons if required. Maritime areas could be defined according to MEDIN areas.

The current system allows the upload of a GIS file with a polygon showing the boundary of the site. The new system will allow a user to either define the boundary of the project by drawing it on the map on screen or alternatively uploading a boundary GIS file. It is possible that the system may be able to import certain types of GIS file and display them on screen but this is dependent on development. Any boundaries defined on screen would be able to be downloaded by data consumers (levels 2-5) in a format which can be imported into most GIS packages (also subject to development).

The background mapping for the display of online maps: RCAHMS have been able to use their OSMA licenced map products under an end-user licence for the DES form and it should be possible through the University of York's EDINA membership to use the Digimap OpenStream service to provide OS mapping backgrounds for the whole of the UK (http://openstream.edina.ac.uk/registration/). This will enable users to mark points on the map or see their grid references displayed on the OS grid and not on and Latitude Longitude based system which can give inaccurate representations of points at the limits of the OS grid. There will still be the possibility of using Latitude and Longitude for entering points especially for maritime projects.

9.4.3.4. Identification of monuments via Heritage Gateway Web Mapping Services (WMS)[2]

OASIS is primarily an event recording system but in creating the record of an event, the existence of monuments relevant to the event is recorded. It may be possible, if the correct licence agreement is forthcoming, to use the Web Mapping Services (WMS) used by the Heritage Gateway map interface to enable OASIS users to select monuments which fall within the event boundary from a map and therefore automatically associate them with the new event. This will link the correct monument references with the event and help the data synchronisation with HER data.

9.4.3.5. HER and Museum selection

As has been mentioned above, level 2 (HERs) and 3 (Museums/Archives) users will be able define their coverage areas as part of their organisation user profile (see 9.4.2.4). When the level 1/1a user selects the location of their project they will narrow down the selection of the appropriate level 2 and 3 users to only those covering the district(s) for the project. The level 1/1a will then able to see the level of participation of the HER and Museum and select the appropriate one. This will also allow the system to record if there is no HER operating or Museum collecting archives for their project area.

It will be possible for multiple level 2 (HERs) or 3 (Museums) users to be selected for a single project. The current system being very linear creates multiple records for situations involving multiple HERs however the new system will simply allow access to the single record to multiple HERs and will use versioning and logging to keep track of updates.

[2] This element of the project is currently contingent on the outcomes of other aspects of work to be conducted while the project is underway. The time allocation for this task should therefore be considered to be as accurate as is possible at the time of writing, but subject to possible variation at a future date.

9.4.3.6. Automated report validation

The HERALD survey indicated that one of the most valued aspects of the OASIS system was the archiving and dissemination of reports through the Grey Literature Library (GLL). The volume of reports submitted has increased each year and in order to make reports available online more quickly, the bulk of this process should be automated. The flow diagram below shows the proposed process of archiving and dissemination for a report uploaded to OASIS.

When the file is uploaded it will undergo a number of checks. In the first instance there will be a readability check to see that the file is not corrupt. The contents will then be checked to see that it matches the report details entered in the form. Then it will be processed to extract subject terms from the report to reduce the data entry burden on the user. These extracted terms will then be reviewed by the user and any irrelevant ones omitted. If enough of the rest of the OASIS form has been completed, the bibliographic record to describe the report will be entered into the ADS Library. A DOI will be minted for the report and passed back to the user. The report itself will also be made available in the ADS Library if it passes three other checks:

- The file type submitted is suitable for automated archiving
- The HER has reviewed the report (or is not holding reports for review)
- There is no embargo period set on the report

If one or more of these criteria has not been satisfied, then the report will be held until it is. If an HER is unable to sign off the report within a time period (e.g. a month) then the report will automatically be made available with a note saying it has not been reviewed by the HER. There will always be reports that will not be suitable for automated archiving due to file type or content so some reports will have delayed upload for this reason.

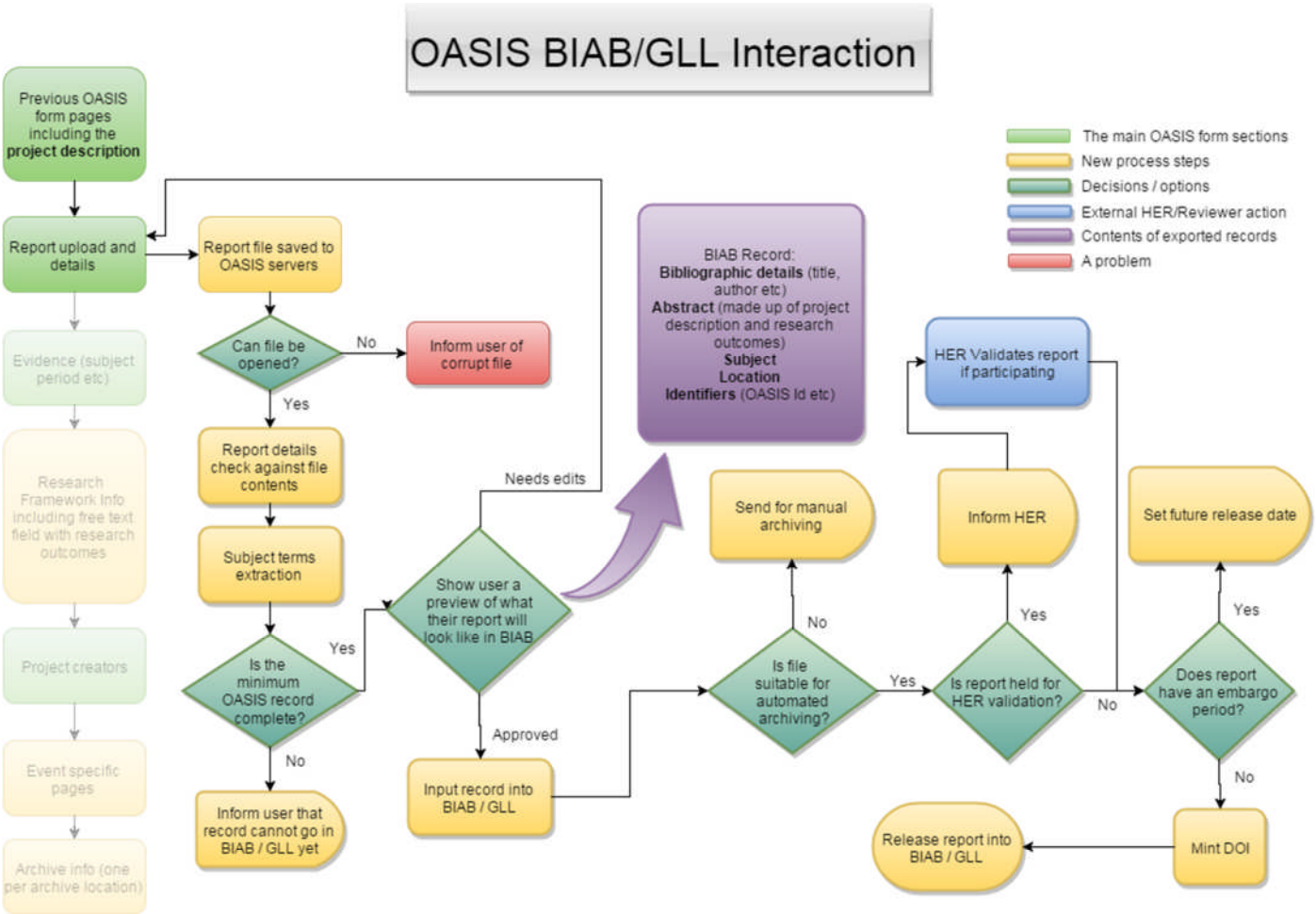


FIGURE 5: PROPOSED PROCESS FOR AUTOMATED ARCHIVING OF REPORTS

9.4.3.7. Report checking and subject/period term extraction tool

One issue with processing reports automatically is allowing the wrong report to be attached to a record and that report to go all the way through to the ADS Library. This is currently checked as part of the validation process. In order to make the validation process less onerous/necessary there are some automated checks that can be performed on report files. The information entered on the OASIS form for the report title, authors, grid reference, dates will be looked for in the report file and where it is not located it will request that the user double check that the correct file has been uploaded. This check is necessary as the technology will not be foolproof.

A second process will then be performed using Natural Language Processing (NLP) and pattern matching to identify terms from the linked data vocabularies available from heritagedata.org such as the FISH Thesaurus of Monument Types and Archaeological Objects Thesaurus. These will then be displayed to the user who can select to use them in the OASIS record or not as required. It is hoped that this will have three benefits - to speed up the entry of subject and period terms for a record, increase the comprehensiveness of subject terms and also encourage the use of the vocabularies rather than free text.

9.4.3.8. Research framework section[3]

The new research framework section of the OASIS form will allow the user to enter the research outcomes of the project and it will use other information on the form to preselect which research frameworks are relevant for the project i.e. a project in Northamptonshire would be added to the East Midlands Research Framework.

If the brief or WSI for the project had specified a particular research framework section to be addressed by the project, then this section of the form would allow the entry of that information as well. In time it may be possible to do this from a pick list of sections in published research frameworks.

9.4.3.9. Archive interface[4]

The current OASIS form allows the contractors to enter the location, accession numbers and contents of the archive but many contractors do not fill this section in. One reason for this is that the information is not passed on directly to museums and archives. The HERALD survey and a workshop with museum curators in October 2015 gave very positive feedback to museum involvement in OASIS but the response group was not large.

The new system will change the way the data is collected to make it easier to enter and will allow museums to participate and receive notifications from the OASIS system to say when archive information has been entered. The exact format of how this will be collected has yet to be decided but will be done in consultation with the Society for Museum Archaeologists (SMA). One of the main items to be decided here is whether to record the bulk of the archive information as part of a web form or to allow contractors to upload information using the museums' archive notification forms. The archive section will store the current location of archive elements and the intended future location if that is different. The new form will also allow contractors, HERs and Museums to enter notes on the process of the archive preparation and deposition which would be available to all parties who will access the record.

The design of the new OASIS form will incorporate elements of the form used for data collection for Discovery and Excavation in Scotland (DES) and the final configuration of this section of the new form will be decided during this phase of the project.

[3] The complexity of this section will depend upon the complexity of the data to be gathered, this is yet to be determined. The allocation of time for this work is therefore as accurate as possible at the time of writing but could be subject to change as it depends on the outcomes of discussions outside the immediate influence of the project. -

[4] This element of the project is currently contingent on the outcomes of other aspects of work to be conducted while the project is underway. The time allocation for this task should therefore be considered to be as accurate as is possible at the time of writing, but subject to possible variation at a future date.

9.4.3.10. SMA map Integration

The SMA archaeological collection areas database is currently available as part of an ADS archive (http://archaeologydataservice.ac.uk/archives/view/sma_map/) and supplies information on which Museums collect archives for different areas around the country. It also contains contact information and whether the museum is accepting archives and also if there is an archaeological curator there. This database receives periodic updates via the SMA. Incorporating this information in the OASIS system would allow the appropriate museum for archiving a project to be assigned according to the project location and linking it to the museum profile pages would allow users easy access to the collections policy of the museum and information on their participation level in OASIS. It would also provide a means for the museums/OASIS support to keep the data updated via the OASIS profile interface rather than waiting for a bulk upload by ADS staff. The information, kept up-to-date through the museum/archive profile page in the OASIS interface, would then be fed back to the public facing interface in the archive. This resource will need to be supplemented by additional data on other archives accepting historic environment deposits such as record offices.

9.4.4. OASIS PLUS: Module interfaces (event specific pages)

9.4.4.1. Geophysics (part of the Historic Environment Scotland bid)

The inclusion of the geophysics module will continue in the new version of the OASIS system and Historic Environment Scotland have indicated they are prepared to fund the redevelopment of the Geophysics module. . The data from this section will also go into the Geophysical Survey Database (http://archaeologydataservice.ac.uk/archives/view/ehgsdb_eh_2011/). The intention is to use more controlled vocabularies in this section of the form to attempt to create more uniform records.

9.4.4.2. Historic building recording

There will be a module which covers historic building recording. It will contain the normal OASIS fields which are relevant to the recording of this type of event with controlled lists which are also event specific. There is the possibility for it to also collect other data specific to historic building recording and this is the subject of a consultation with Historic England, Institute of Historic Buildings Conservation, Vernacular Architecture Group, Architectural History Group and Society for the Protection of Ancient Buildings. Additional fields will be subject to where the data collected would then be used.

Additional fields should include building materials and significant architectural components (using the relevant thesauri from heritagedata.org). In the absence of further input from the built environment sector, it is proposed to base the possible entries on an excerpt of the Event Type Thesaurus (http://thesaurus.historicengland.org.uk/thesaurus.asp?thes_no=566&thes_name=FISH%20Event%20Types%20Thesaurus) using only building related terms.

9.4.4.3. Landscape and large area survey / recording[5]

As part of the HIAS work package a number of individuals who conduct large-scale or landscape-scale, recording projects for Historic England were contacted. The intention was to ascertain whether the event recording proposed for OASIS STANDARD would cover these types of investigative activities. The responses to the questions posed were limited in number and there is still some confusion over the exact purpose of OASIS and what it will do. In the first instance it will be necessary to continue to communicate intentions via the HIAS work package and this has accordingly been factored into the project design (see 9.8).

Overall the indications are that a separate module for recording large or landscape-scale investigations will not be necessary since most of the terminologies are either supported (e.g. the Thesaurus of Event Types contains 'Aerial Reconnaissance', Remote sensing and so on), or fields required overlap with other sorts of investigations.

[5] This element of the project is currently contingent on the outcomes of other aspects of work to be conducted while the project is underway. The time allocation for this task should therefore be considered to be as accurate as is possible at the time of writing, but subject to possible variation at a future date.

The principal issue to be addressed is that of granularity – where a larger event overlaps or informs other types of recording activity. For example where landscape survey includes a thematic survey of particular aspects with that landscape and how these may be 'nested' or linked together to ensure cohesiveness and a clear narrative.

This is also a consideration for large infrastructure projects with multiple investigations and phases of the same investigation ongoing over a period of time. For example, HS2 will require the linking of multiple parent-child and interrelated relationships.

9.4.4.4. Radiocarbon date recording

This module will not be built as part of Stage 2 of the project as comments from the scientific dating community have highlighted issues with the data structure of the Archaeological Site Index to *Radiocarbon Dates from Great Britain and Ireland* which will require work before it can be used to collect Radiocarbon data in the future. Therefore stage 2 of the project will include a consultation of the scientific dating community on the changes needed before the new OASIS PLUS module can be built.

Additionally Historic Environment Scotland have a C14 Administration module which will be further integrated into OASIS and this project will include dialogue between interested parties in England and Scotland to ensure the existing module is improved and strengthened rather than being reinvented.

9.4.4.5. BABAO or Osteoarchaeology module

The BABAO or osteoarchaeology module would record information about any human remains found as part of an event and would be used to populate a Geophysical Survey style database for Osteoarchaeology.

The data to be collected is under discussion but current suggestions are:

- No. of articulated skeletons
- No. of disarticulated skeletons
- No. of cremations
- No. of adults
- No. of sub-adults
- No. of males
- No. of females
- No. of males/females (unidentifiable)
- Location of report for full results of analyses

9.4.4.6. Graveyard recording

This is under discussion with a number of stakeholders, including Historic England, Church Care, the Council for British Archaeology, and will be funded separately.

9.4.4.7. Environmental sampling recording

This module will not be built as part of Stage 2 of the project as further consultation with specialists is required before a detailed specification can be produced. Consultation will be carried out as part of this stage of the project and towards the end a progress meeting will be held to ascertain if an OASIS PLUS module should be produced in the future.

9.4.5. Integrations

9.4.5.1. Import

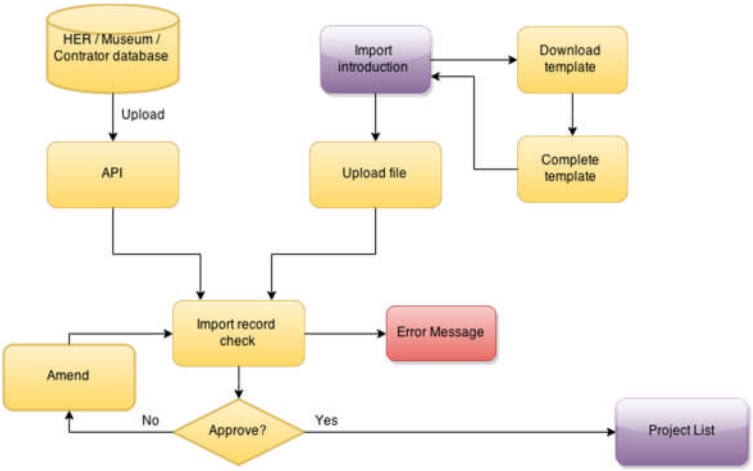


FIGURE 6: IMPORT PROCESS

The import will allow users (levels 1, 2 and 3) to import OASIS records or parts of OASIS records directly into the system. There will be two methods of importing records into OASIS:

1. Via an import page - a manual import OASIS XML upload (a template could be downloaded and populated). The import would then be checked and confirmed. This would be more appropriate for small-scale organisations which do not have a project management database or HER database without network access.
2. A more automated import via an API from an external system such as an HER database, museum collections management system or contractor's project management system. This would be appropriate for large-scale organisations that do many transfers to OASIS and have a networked project management system/HER.
3. Backlog Import. It could be possible to import OASIS LITE style metadata and upload a batch of reports for inclusion in the ADS Library if required.

9.4.5.2. Export

All levels of user would be able to download or export records, they could choose what format they would like the download to be in: csv, spreadsheet, PDF or OASIS / MIDAS XML (if the new schema is complete), and also if they would like to download the reports alongside the OASIS records. There will also be the possibility of a level 2+ user having a bespoke export set up which would be integrated with their in-house system. This functionality will be subject to further funding and is not included in this project design (see below).

9.4.5.3. Synchronisation Interface

As an extension to the API there will be a sub-project running alongside the main HERALD development to look into creating a system which will allow HERs to synchronise the data in the HER with the data in an OASIS record. The idea being that the HER would be able to see the HER record for a project alongside the OASIS record for a project and that the user would be able to choose the elements of each record that would be combined to create the definitive record. This synchronised record would then be transferred to the HER and with HER agreement to OASIS. In OASIS it would form the most recent version of the OASIS record (keeping previous versions as well). The HER could have the ability to preselect the fields they would take from each record type to speed up transfer time.

The development of this pilot synchronisation tool will require the cooperation of two HERs (we will approach HBSMR users, HEROS users and users of bespoke systems for expressions of interest) in order to create a tool that will fulfil the needs of the HER users. The HERs would need funding to develop the necessary enhancements to their current system. It is envisaged that the development work to create this synchronisation interface will have to be undertaken by a third party as it will need to be located on the HERs servers in order to access the HER data.

This synchronisation tool will allow OASIS to fulfil its primary objective of increasing the efficiency of data supply to HERs.

9.4.5.4. OASIS REST API for import/export and synchronisation

The OASIS REST API will be a means of interacting with OASIS programmatically from other external systems. Essentially it will let records be directly uploaded to OASIS and downloaded from OASIS from external systems such as those held by level 1, 2 and 3 users (contractors, HERs and Museums). Level 4 and 5 users will be able to download records using the API as well.

The ADS will publish the REST API so that users can interact with the RESTful web service (section 9.4.5.6). The methods available will allow users to add, modify and delete objects or just search for objects. It will allow access to all the fields in OASIS which are part of the OASIS XML schema. Each interaction with the API to change a record will be documented and downloads of records will be logged to provide statistics/reporting on the use of OASIS data.

9.4.5.5. OAI-PMH Target

An OAI-PMH target exists for the current OASIS system and allows access for some users to the data in OASIS (records which are signed off and complete). i.e. The MEDIN portal harvests maritime records from the system. This will be recreated for the new system and will incorporate any additional fields within the system.

9.4.5.6. RESTful Web service

A RESTful web service exists for the current OASIS system and allows systems such as ADS-easy, Discovery and Excavation in Scotland and the Scottish C14 administration system to access OASIS records in order to aid the data entry of project metadata in these external systems. This will be recreated for the new system and will incorporate any additional fields within the system. This web service interacts with the REST API (section 9.4.5.4) to give access to the OASIS data programmatically.

9.4.5.7. OASIS XML

The current OASIS XML schema (version 1.2) will be updated to incorporate new fields in OASIS - such as the change from project type to event type and inclusion of the DOI. This will be OASIS XML version 2 and will be used by the RESTful web service. There is some discussion to be had about OASIS PLUS modules and the inclusion of these extra fields in the new OASIS XML schema.

9.4.5.8. ADS Library (BIAB/GLL) export link

On completion of the report upload and automated checking (see section 9.4.3.7) the user will be shown a preview of the record which will be made available to the public via the ADS Library, see Figure 7. This will give the user (usually level 1/1a) the opportunity to see what will be used to reference their report and correct any errors.

If there is no report uploaded, OASIS will prompt the user to enter the details of the project report and the DOI if it is available online elsewhere. The user will see a preview of the report details before they are transferred to the ADS Library. The date of transfer would be recorded in the OASIS record.

FIGURE 7: REPORT INFORMATION TRANSFERRED TO ADS LIBRARY

9.4.5.9. Automated digital preservation of report

Automating the process of preservation for reports uploaded to the OASIS system will increase the speed at which these reports will be available through the ADS Library. The current OASIS system requires the manual archiving of reports and although some of the transfer process is automated it still has to be done in batches by a digital archivist. It will be possible in the new system to automate preservation for a large percentage of reports. Not all will be able to be automated due to the range of file types uploaded and the complexity of some files. These are the processes which will be automated:

- Transfer of the report file from OASIS system to ADS servers
- Creation of file level metadata
- Documentation of received file in ADS Collections Management System (CMS)
- Conversion of the file to PDF/A (from PDF or DOCX file)

- Validation of PDF/A file to ensure it conforms to preservation standards
- Documentation of preservation process in ADS CMS
- Copy of file to preservation server area
- Copy of file to dissemination server area
- Minting of DOI for report
- Addition of DOI to ADS Library (the main ADS Library record will have been entered on completion of OASIS record).

Reports which are not embargoed or awaiting review by HER and are uploaded to OASIS as suitable file types should be available via the ADS Library shortly after upload. The date of transfer would be recorded in the OASIS record.

9.4.5.10. Research framework export/link[6]

Where the research framework section of the OASIS form has included reference to particular sections of a specific research framework it would transfer the details of that project to the project team responsible for that research framework. Where the research framework is online as a wiki it would be possible to push this information to a 'recent additions' page on the wiki. Where it is not online the details can be emailed to the project team. The date of transfer would be recorded in the OASIS record. The full functionality of this export/link will be dependent on the platform used for the research framework.

9.4.5.11. Geophysical survey database export/link

The current OASIS system has a semi-automated transfer of records to the Geophysical Survey Database (http://archaeologydataservice.ac.uk/archives/view/ehgsdb_eh_2011/). This is done in batches which usually coincide with the transfer of reports to the Library of Unpublished Fieldwork Reports. In the new system the record would be transferred to the Geophysical Survey Database on completion of sufficient data in the OASIS record. The date of transfer would be recorded in the OASIS record.

9.4.5.12. Link to ADS Easy for archiving

The system would allow the level 1/1a users to link from a completed OASIS record to the ADS Easy system in order to submit their project's digital files for preservation. This link would use the information already entered in the OASIS system to populate the project metadata for the archive. This would be similar to the functionality currently available for the OASIS Images archiving agreement and that functionality would be expanded in the new system.

9.5. *Scenarios*

These scenarios are not exclusive; one finding of the HERALD survey was that the current OASIS system does not the have the flexibility of workflows that are required by the different local authorities and fieldworker/investigators. The scenarios below cover the most common workflows represented in the HERALD survey but others could also fit within the redeveloped OASIS system.

9.5.1. Scenario 1 – Contractor starts a record

An employee, Joe Bloggs from An Example Archaeological Unit registers for OASIS. He enters his details and the details of his company and then goes on to start an event record for an evaluation. At the start of that event record he enters the project event type and location and selects the appropriate HER from a short list and the Museum that will take the small archive from the evaluation. He is able to check on how the local HER and Museum use OASIS from details on the form. He finds that the local HER likes fieldworker/investigators to get an HER number and start an OASIS record as soon as they start a project and then return to it later to fill in the rest after the fieldwork is completed.

The evaluation is finished and Joe's colleague (Jon Digger) needs to complete the event record on OASIS. He also registers as a user in OASIS with his own details and selects An Example as his organisation. Joe is notified of this and approves Jon's

[6] The complexity of this function will depend upon the complexity of the data to be gathered, this is yet to be determined. The allocation of time for this work is therefore as accurate as possible at the time of writing but could be subject to change as it depends on the outcomes of discussions outside the immediate influence of the project.

membership with his organisation in OASIS. Jon then logs in and sees all An Examples' projects. Jon goes on to complete the OASIS record and upload the evaluation report. He is notified to say that Anne Hero at the local HER has opted to hold reports for approval before they can go online in the ADS Library (BIAB/GLL) but that a record for the report is now online and will have a Digital Object Identifier (DOI) added when the report is added.

Jon has also entered details of the archive on the archive section of OASIS and is able to upload a museum's archive notification form that he downloaded from the museum's information page on the OASIS wiki. He also enters the expected deposition date and a note to the museum about the archive contents as well.

Jon and Joe receive weekly updates on their projects in OASIS, in that they learn that the report has been reviewed by the HER and is now available in the ADS Library (BIAB/GLL) and that there is a message waiting for them from Anne Curator about their archive deposition request. They click on a link and view and answer the message.

The archive deposition date arrives and the archive is deposited at the Museum. Anne Curator approves the deposition and Anne Hero at the HER and planning department are notified.

The national heritage organisation[7] could be notified at various points in the process as they require, but the most likely points would be when the core fields of the record are complete and the report is uploaded. There will be other update points available such as when a record is created, when a previously completed record is updated such as by the addition of a specialist report.

9.5.2. Scenario 2 – The HER starts a record for a contractor

THIS SITUATION IS SIMILAR TO THE ONE ABOVE IN THAT THE HER LIKE TO KNOW ABOUT FIELDWORK OR PROJECTS THAT ARE TAKING PLACE IN THEIR AREA BEFORE THEY START.

Anne Hero of Blankshire HER has been notified of an excavation in her area and has created a skeleton HER record for it consisting of the project title, the event type, the location and the organisation undertaking the work. This is automatically given a number in the HER. When Anne has finished she presses a button in the HER called 'Transfer to OASIS' which does just that. It creates a record in OASIS with the details from the HER and then produces an OASIS id which is passed back to the HER.

Next the fieldworker/investigator who has done the excavation, Joe Bloggs (for it is he) logs in to OASIS. He enters the event type and location of the excavation as if starting a new project in OASIS. He is told that the HER in this area starts the OASIS records and is shown a map of projects in the area which have yet to be retrieved by an organisation. He finds his project, selects it and goes on to complete the rest of the record and uploads the report.

The HER is notified (by a daily or weekly notification email) and can then download the rest of the OASIS record directly into the skeleton HER record created earlier (via the synchronisation tool) and check through the report. Once the report has been reviewed (validated) the HER ticks a box (either in the HER or in OASIS) and the report is released into the ADS Library (BIAB/GLL).

The rest of the museum and national heritage organisation interaction is the same as Scenario 1 (Section 9.5.1).

9.5.3. Scenario 3: OASIS LITE

THE TWO EXAMPLES ABOVE DEMONSTRATE WHAT IS PROVISIONALLY CALLED OASIS STANDARD WHERE THE HER IS PARTICIPATING IN OASIS AND WANTS TO HOLD REPORTS FOR REVIEW BEFORE THEY ARE AVAILABLE TO THE PUBLIC. THEY ARE ALSO BOTH EXAMPLES OF WHERE THE HER EXPECTS AN OASIS RECORD TO BE CREATED AT THE START OF THE PROJECT. THIS IS NOT THE CASE IN MANY AREAS AND CREATES ONE OF THE MOST COMMON WORKFLOW ISSUES. THIS

[7] National heritage organisation refers to the organisation who would issue the final sign off of a record within the OASIS system. At present these organisations are Historic England, RCAHMS, and RCAHMW but in future could include other organisations as appropriate.

DUPLICATION OF EFFORT HAPPENS AS THE RECORD HAS BEEN CREATED SEPARATELY IN TWO PLACES; THE HER AND OASIS.

Archaeologist Joe Bloggs is doing another small excavation in a county nearby. He logs on to OASIS and looks up the HER for this new area. It turns out that the HER doesn't participate in OASIS but does recommend that fieldworker/investigators complete the OASIS form. Joe is used to using OASIS and likes his reports to go online in the ADS Library (BIAB/GLL) so he fills in a record and uploads the report. As he uploaded the report as a PDF it was able to be archived and included in the ADS Library (BIAB/GLL) automatically and appears online with its DOI the same day. There is a note on the record saying that the report has not been reviewed by the HER.

The museum for this area is participating and Joe notifies the museum via the OASIS archive section as usual, using the archive notes section to answer queries on the archive deposition.

The national heritage organisation also accesses the information in the normal way.

9.5.4. Scenario 4: HER holding reports for review

REGARDLESS OF THE LEVEL OF RECORD THE HER REQUIRES IN OASIS: LITE OR STANDARD, THEY ARE ABLE TO CHOOSE TO HOLD REPORTS FOR REVIEW OR NOT. IT IS A WIDELY ACKNOWLEDGED ISSUE WITH THE CURRENT OASIS SYSTEM THAT REPORTS CAN BE HELD INDEFINITELY WHEN AN HER DOES NOT VALIDATE THE RECORDS AND ALLOW THE REPORTS TO GO ONLINE.

Anne Hero at Blankshire HER would like to be able to check all the reports that are going through OASIS but she also receives a hard copy version from the planning department when they sign off a project. She works from the hard copy version as it is easier for her and she knows it is the approved version of the report (sometimes draft versions are submitted to OASIS). She finds that her workload doesn't always let her check and sign off reports in good time and so after a month of waiting the reports go online automatically so that contractors do not become disenfranchised with the system. There is a note on the record saying that the report has not been reviewed by the HER.

Anne Hero finds that she has a backlog of data to record in her HER and although she had been creating records in the HER and only using the LITE version of OASIS. She would like to switch to OASIS STANDARD for a while so that she can work on her backlog. That way she can download and import the OASIS records and import the full records into her HER. She gets in touch with the OASIS helpdesk to ask how hard this importing would be for her type of HER.

9.5.5. Scenario 5: Museum not accepting archives / not participating

THE SURVEY RESULTS AND WORKSHOP INDICATE THAT MUSEUMS ARE KEEN TO PARTICIPATE IN OASIS. HOWEVER, ONLY A SMALL NUMBER OF MUSEUMS ANSWERED THE SURVEY OR PARTICIPATED IN THE WORKSHOP AND NOT ALL MUSEUMS WILL NEED TO USE OASIS (AS SOME HAVE GOOD DEPOSITION COMMUNICATION SYSTEMS IN PLACE ALREADY), SOME MUSEUMS ARE NOT ACCEPTING ARCHIVES AND OTHERS DO NOT HAVE THE RESOURCE TO PARTICIPATE. SO OASIS WILL HAVE A MECHANISM TO ACCOMMODATE THESE SITUATIONS. THE OASIS SYSTEM WILL USE THE CURRENT DATA FROM THE SMA COLLECTIONS AREAS DATABASE AND MAP TO SHOW WHICH MUSEUMS ARE COLLECTING ARCHIVES AND WHICH ARE NOT.

So, Jon Digger logs on to enter a record into OASIS, he enters the location of the project and is shown the HER and Museums which cover the location. The Museums page will let him select a Museum and it will highlight the status of each Museum (whether it is collecting or not and if it is participating in OASIS).

When Jon gets to the archive details page of OASIS he will not be able to fill in an expected deposition date or request an accession number (these will have been greyed out for the non-collecting museum) but he will be able to enter the current location of the archive and brief information on the contents and volume. This data can then be collated and reported to interested parties.

If the Museum is not participating, the Museum details pages will hold information on the Museums preferred contact details. These can be taken from the SMA database if not supplied by the museum itself.

9.5.6. Scenario 6: Specialists uploading reports and OASIS PLUS

POST-EXCAVATION SPECIALISTS HAVE EXPRESSED AN INTEREST IN BEING ABLE TO UPLOAD THEIR REPORTS TO OASIS AND THEREFORE INTO THE ADS LIBRARY (BIAB/GLL). IN ORDER FOR THIS TO WORK WELL, THEY NEED TO BE ABLE TO LINK THEIR REPORT TO THE PROJECT IN OASIS WHICH IT RELATES TO.

An Osteoarchaeologist Keith Bones has completed a report on some human remains from one of Joe Bloggs' excavations. He would like to upload the report to OASIS and registers as a new user with his own organisation of Bones by Bones. He then selects the option to find an existing project and he hasn't got the OASIS id to hand (the easiest way of finding a record) but does know the location and puts that in. He identifies the project and uploads the report, saying that it is a osteoarchaeology report. He is then asked to fill in a little extra osteoarchaeology-specific metadata as part of an OASIS PLUS module which goes on to populate the BABAO database.

The contractor, HER and national heritage organisation are notified if they have chosen to be and the report is then uploaded to the ADS Library (BIAB/GLL) and automatically archived and uploaded if the format of the report allows.

9.5.7. Scenario 7: Research frameworks

ADDITIONAL FIELDS HAVE BEEN ADDED TO THE OASIS FORM FOR THE NEW SYSTEM BUT THE EXTRA INFORMATION MUST BE PASSED ON AND USED BY OTHER SYSTEMS AS OASIS IS NOT A DATA REPOSITORY IN ITSELF. THE NEW DATA TO BE COLLECTED TO INFORM RESEARCH FRAMEWORKS IS A GOOD EXAMPLE OF THIS.

Joe Bloggs is filling in a record for an excavation and he reaches the research outcomes section. The brief/WSI for the project mentioned particular research framework questions that may be answered. Joe is shown the questions which are relevant to his project, answers them and enters a short paragraph on the research outcomes of the project. He then goes on to complete the rest of the OASIS record as normal.

The research outcomes for the project are then sent to the appropriate research framework group via the research framework wiki. Periodically those outcomes can be collated and used to update the content of the frameworks.

9.6. *BIAB - British and Irish Archaeological Bibliography*

Following the BIAB Stage 1: Strategic vision project (Gilham, J. and Matthews, L., 2015) BIAB will be transferred to the ADS and redeveloped with the *Library of Unpublished Fieldwork Reports* (Grey Literature Library - GLL) and other bibliographic resources and publications archived at the ADS to form the new ADS Library. This library has the working title of ADS Library, incorporating BIAB and GLL.

9.6.1. The new database structure

The current database will be digitally preserved and then the data from it will be copied into a new database schema which incorporates the data from BIAB and the GLL. This new schema will combine the structure from the two systems making the GLL records more bibliographically flexible and adding the possibility of collecting locational information for BIAB records. The records from the current databases will undergo enhancement as they are transferred to the new system to map subject and period terms to heritagedata.org vocabularies and have locational data extracted from current abstracts where available. There is an additional project hoping to be funded next year to enhance Scottish records by concording data between BIAB and CANMORE. It is possible that tools from that project could be used in the future to do a similar exercise in England.

9.6.2. Search Interface

The main way into the ADS Library will be a search interface that will allow users to search for records according to title, author, date and publisher/organisation. It will also allow users to search on subject and period terms and location although it is to be noted that this information will not be available for all records within the database. Users will be able to register and login via the current myADS interface and save their searches within the ADS Library and download citation information and DOI links to the actual publications where available.

Users who log in will also be able to enhance the dataset for others and:

1. add comments to bibliographic records to enhance their usefulness
2. tag records to further classify records

9.6.3. How BIAB and the ADS Library would continue to be updated

The BIAB dataset will remain *live* and be updated from a number of sources as part of the ADS Library. There will be both automated and manual mechanisms for updating it and this will ensure that records are available from the main archaeological publishers for both monographs and journals but also that smaller journals and regional publications and newsletter will have a means for being included in the ADS Library as well.

9.6.3.1. Automated ingest of bibliographic records

The automated updates to the dataset would include:

1. Fieldwork reports from OASIS would be uploaded and made available via BIAB/ADS Library
2. New ADS archived journal articles would be made available via BIAB/ADS Library
3. New ADS archives with reports would also be made available via BIAB/ADS Library
4. Records and abstracts for journal articles would be supplied by some of the larger publishers
5. Records and abstracts for new publications from archaeological publishers such as BAR and Oxbow

Methods 4 and 5 above are dependent on the continued agreement of the publishers involved and the different levels of possible participation are variable with the specifics yet to be agreed.

This would mean that the BIAB dataset would remain a current up-to-date resource for finding the more mainstream archaeological publications. One major change to the data made available will be that it will not be possible to limit it to solely cover Great Britain and Ireland. The data supplied automatically by publishers does not consistently contain enough geographic information to ensure this.

9.6.3.2. Manual addition and updating of bibliographic records

The interface will be built to allow users to enhance the dataset as well as it being updated automatically by larger publishers. This will allow the addition of the smaller and regional publications which are valued by the current BIAB user community and not available through other sources. Access could be promoted for smaller publishers so that they could update their own publications through the ADS Library (BIAB/GLL).

In addition to a normal logged in user, a power user (probably a smaller publisher or approved volunteer) could:

1. Amend incorrect records
2. Add abstracts to records which do not have them
3. Add new records - allowing smaller journals and newsletters to be added to ADS Library (BIAB/GLL)

This option would allow for future specialist bibliographic projects to be realised through the BIAB system rather than creating separate offline resources for each project. This would also allow the system to accommodate paid freelance abstractors as in the current BIAB business model if funding was available. The use of paid abstractors would allow BIAB to continue to be populated consistently.

If required it would also be possible to allow the batch upload of records to BIAB from trusted sources from a text or XML file.

9.7. ***Where data from OASIS will be used***

Here is a list of types of organisation or specific databases which will be fed information by OASIS:

- HER databases in England and Scotland
- ADS Library (BIAB/GLL)

- Geophysical Survey database
- Archaeological Site Index to Radiocarbon Dates from Great Britain and Ireland (http://dx.doi.org/10.5284/1017767) (potentially).
- MEDIN portal (and data.gov)
- ADS Easy e-archiving system (including OASIS Images)
- Scottish C14 Administration system
- ADS ArchSearch
- Research Frameworks
- Research projects

There are additional destinations for OASIS data which have yet to be confirmed.

9.8. *Systems architecture*

The OASIS system will be run using the following software/frameworks:

- Linux operating system Ubuntu 14.04 or above
- Web server Apache 2
- Application servers Glassfish 4 / Tomcat 7 Java EE
- Database Oracle 11g
- Language Java EE 7
- Frameworks JSF 2.2 / PrimeFaces

The standards adhered to will be HTML 5, CSS 3, XML 1.0

Documentation will be produced for:

- Hardware Architecture
- Software Requirements & Design
- Entity Relationship Diagrams for OASIS and BIAB databases
- User Documentation (Part of Stage 3)
- Tutorials (Part of Stage 3)
- Reference Documentation (e.g. Glossary)

9.9. *Communication and promotion*

Throughout the project there will be continued and consistent communication with all user groups of OASIS and the HIAS Work Packages and ongoing promotion and education about the new system. This will be in the form of blog posts, conference papers and links with individual organisations at each user level to provide a basis for directed consultation of users' needs as they arise throughout development as well as for the first initial alpha testing. This should not be confused with the main testing, roll out, training and support which will be stage 3 of HERALD and will be the subject of a separate project design.

10. Stages, Products and Tasks

10.1. *Stages*

The larger project would be split into three stages;

Stage 1 (Consultation and redesign period) - completed
Stage 2 (Technical redevelopment of the form) - current stage
Stage 3 (Testing, roll out, training and support) - to be subject of a separate project design.

This project design (PD) concentrates on Stage 2 of this process (Technical redevelopment of the form). The Gantt chart in Appendix 3 outlines the stages, products and tasks involved in this project over a period of **32** months.

10.2. ***Products***

There will be two main products of this stage of the HERALD project:

1. Redeveloped BIAB and GLL system as ADS Library
    a. Search interface (H1)
    b. Data entry interface (H2)
2. Redeveloped OASIS system - BETA
    a. OASIS Form (H3)
    b. OASIS API for import, export and updating (H4)
    c. OASIS Reporting and Statistics (H5)

10.2.1. Product descriptions

Product Number	H1
Product Title	ADS Library - search interface
Purpose of the Product	A new library interface on the ADS website to the combined resources from BIAB, the Library of Unpublished Fieldwork Reports, and other journals and publications archived with the ADS
Composition	The search interface will be fully integrated within the ADS website and will sit alongside ARCHSearch and the ADS Archives. It will allow users to browse and search through the bibliographic resources available and link directly to documents where available. Registered users will be able to add comments to records in the Library but not edit content. For a full description of the functionality see section 9.6.
Derived From	BIAB: hosting by the ADS and incorporation into the HERALD project: Stage 1 - strategic vision Existing British and Irish Archaeological Bibliography system, the ADS *Library of Unpublished Fieldwork Reports*.
Format and presentation	A Java web application for the search interface. The final URL for the search interface will be along the lines of http://archaeologydataservice.ac.uk/library.
Allocated to	Project Team, specifically Application Developers: Lei Xia, Paul Young and Redevelopment Manager: Jo Gilham, with oversight from, Collections Development Manager: Louisa Matthews and ADS Director: Julian Richards
Quality criteria and method	Assessment of whether the ADS Library contains the elements listed in the project design document for Stage 2 of the HERALD project
Person / group responsible for quality assurance	Key Stakeholders (Publishers and current BIAB users), OASIS Management Board, HIAS Advisory Board
Person / group responsible for approval	HIAS Programme Board
Planned completion date / stage	Sept 2016

Product Number	H2
Product Title	ADS Library - data entry interface
Purpose of the Product	A new library interface on the ADS website to the combined resources from BIAB, the *Library of Unpublished Fieldwork Reports*, and other journals and publications archived with the ADS
Composition	The editing interface will allow authorised users to create and edit records within the ADS

	Library. For a full description of the functionality see section 9.6.
Derived From	BIAB: hosting by the ADS and incorporation into the HERALD project: Stage 1 - strategic vision Existing British and Irish Archaeological Bibliography system, the ADS Library of Unpublished Fieldwork Reports.
Format and presentation	A Java web application for the editing interface. This interface will not sit within the main ADS website. The URL for the editing interface is still to be determined and will be linked from the search interface.
Allocated to	Project Team, specifically Application Developers: Lei Xia, Paul Young and Redevelopment Manager: Jo Gilham, with oversight from, Collections Development Manager: Louisa Matthews and ADS Director: Julian Richards
Quality criteria and method	Assessment of whether the ADS Library contains the elements listed in the project design document for Stage 2 of the HERALD project
Person / group responsible for quality assurance	Key Stakeholders (Publishers and current BIAB users), OASIS Management Board, HIAS Advisory Board
Person / group responsible for approval	HIAS Programme Board
Planned completion date / stage	Sept 2016

Product Number	H3
Product Title	OASIS Form - BETA
Purpose of the Product	A redeveloped version of the OASIS form for reporting historic environment events
Composition	A web based form with three levels of reporting: LITE, STANDARD and PLUS. It will have functionality for 6 levels of user: Investigator, HER, Museum/Archive, National body, Specialist data consumer and administrator. It will take the events and reports provided by Investigators and make them available to the other users dependent on geographical or thematic areas. It will allow the import and export of data from the system by various formats.
Derived From	HERALD: Historic Environment Research Archives, Links and Data. Stage 1 OASIS version IV form and system.
Format and presentation	Java web application. The final URL will be at https://oasis.ac.uk/form however BETA release will be at another temporary location until the final switch over in Stage 3
Allocated to	Project Team, specifically Application Developers: Lei Xia, Paul Young and Redevelopment Manager: Jo Gilham, with oversight from, Collections Development Manager: Louisa Matthews and ADS Director: Julian Richards
Quality criteria and method	Assessment of whether the redeveloped OASIS form contains the elements listed in the Functional Specification document as agreed as Review point 2 of HERALD Stage 2
Person / group responsible for quality assurance	Key Stakeholders at each user level, OASIS Management Board, HIAS Advisory Board
Person / group responsible	HIAS Programme Board

for approval Planned completion date / stage	End of 2018

Product Number	H4
Product Title	OASIS API
Purpose of the Product	An Application Programming Interface (API) to the OASIS system which will allow the import and export and updating of OASIS records by other external systems.
Composition	A RESTful web service which would be accessed by users using REST API which will be published.
Derived From	OASIS Form BETA and HERALD: Historic Environment Research Archives, Links and Data. Stage 1
Format and presentation	A REST API providing/consuming either OASIS XML or JSON data
Allocated to	Project Team, specifically Application Developers: Lei Xia, Paul Young and Redevelopment Manager: Jo Gilham, with oversight from, Collections Development Manager: Louisa Matthews and ADS Director: Julian Richards
Quality criteria and method	Does the API allow users to import, export and update their OASIS records programmatically
Person / group responsible for quality assurance	Key Stakeholders (OASIS users of all levels), OASIS Management Board, HIAS Advisory Board
Person / group responsible for approval	HIAS Programme Board
Planned completion date / stage	End of 2018

Product Number	H5
Product Title	OASIS Management reporting and statistics
Purpose of the Product	A section within the OASIS form, behind a login, which will give management reports and statistics on the use of the form and the records within it to users according to their access level.
Composition	A suite of pages within the user area of the form giving reports on the forms completed or awaiting completion within the users' area. (see section 9.4.2.5 for more details)
Derived From	HERALD: Historic Environment Research Archives, Links and Data. Stage 1 OASIS version IV form and system.
Format and presentation	Web pages with charts and downloads within the OASIS system user area.
Allocated to	Project Team, specifically Application Developers: Lei Xia, Paul Young and Redevelopment Manager: Jo Gilham, with oversight from, Collections Development Manager: Louisa Matthews and ADS Director: Julian Richards
Quality criteria and method	Does the management reporting section provide the reports and statistics specified in HERALD Stage 2 Project Design.

Person / group responsible for quality assurance	Key Stakeholders (OASIS users of all levels), OASIS Management Board, HIAS Advisory Board
Person / group responsible for approval	HIAS Programme Board
Planned completion date / stage	End of 2018

10.3. ***Tasks***

ID	Task Name	Duration	Work (days)	Start	Finish	Resources
1	**HERALD Stage 2**	**666 days**	906	**04/04/2016**	**22/10/2018**	
2	**Administration**	**651 days**	44	**04/04/2016**	**01/10/2018**	
3	Administration	3 days	3	04/04/2016	06/04/2016	Administrator
4	Project oversight	3 days	5	04/04/2016	13/04/2016	Director
5	**Project management**	**631 days**	30	**02/05/2016**	**01/10/2018**	
6	**Monthly risk review management**	**631 days**	30	**02/05/2016**	**01/10/2018**	Redevelopment Manager
37	Highlight report 1	6 hours	1	03/10/2016	03/10/2016	Collections Development Manager, Redevelopment Manager
38	Highlight report 2	6 hours	1	03/05/2017	03/05/2017	Collections Development Manager, Redevelopment Manager
39	Highlight report 3	6 hours	1	17/01/2018	17/01/2018	Collections Development Manager, Redevelopment Manager
40	**BIAB redevelopment**	**131 days**	207	**04/04/2016**	**03/10/2016**	
41	**Data gathering - future**	**119 days**	41	**11/04/2016**	**22/09/2016**	
42	Administration	1 day	1	11/04/2016	11/04/2016	Administrator
43	Negotiate with BAR	8 days	3	26/04/2016	05/05/2016	Redevelopment Manager
44	Negotiate with Oxbow	8 days	3	06/05/2016	17/05/2016	Redevelopment Manager
45	**Negotiate delivery of RSSFTP with main journal publishers**	**50 days**	21	**17/05/2016**	**25/07/2016**	
46	Maney Online (Taylor and Francis)	50 days	3	17/05/2016	25/07/2016	Redevelopment Manager
47	Elsevier	50 days	3	17/05/2016	25/07/2016	Redevelopment Manager
48	Sage	50 days	3	17/05/2016	25/07/2016	Redevelopment Manager
49	Springer	50 days	3	17/05/2016	25/07/2016	Redevelopment Manager
50	Taylor and Francis	50 days	3	17/05/2016	25/07/2016	Redevelopment Manager
51	Wiley/Blackwell	50 days	3	17/05/2016	25/07/2016	Redevelopment Manager
52	Cambridge University Press	50 days	3	17/05/2016	25/07/2016	Redevelopment Manager
53	Investigate author identification control for each publisher	20 days	2	18/07/2016	12/08/2016	Redevelopment Manager
54	List of small publishers contact details (some from BIAB)	4 days	2	11/07/2016	14/07/2016	Redevelopment Manager

ID	Task Name	Duration	Work (days)	Start	Finish	Resources
55	Negotiating with small regional publishers	50 days	8	15/07/2016	22/09/2016	Redevelopment Manager
56	DOI question for archived journals per article	2 days	1	15/07/2016	18/07/2016	Redevelopment Manager
57	**Data conversion and processing**	**11 days**	10	**04/04/2016**	**18/04/2016**	
58	Getting data export from CBA	2 days	1	04/04/2016	05/04/2016	Redevelopment Manager
59	Converting data from current database format	3 days	3	06/04/2016	08/04/2016	Application Developer back-end
60	Processing data	3 days	3	11/04/2016	13/04/2016	Application Developer back-end
61	Resolving duplicate entries	3 days	3	14/04/2016	18/04/2016	Application Developer back-end
62	**Backend systems development**	**69 days**	40	**25/04/2016**	**28/07/2016**	
63	Implementing ADS common user database infrastructure	25 days	25	25/04/2016	27/05/2016	Application Developer back-end
64	Author and title duplication checking	5 days	5	30/05/2016	03/06/2016	Application Developer back-end
65	Processing data to create subject and location information	5 days	5	06/06/2016	10/06/2016	Application Developer back-end
66	BIAB restful web service	3 days	2	26/07/2016	28/07/2016	Application Developer back-end
67	Updating GLL upload scripts to populate ADS Library	4 days	2	27/05/2016	01/06/2016	Application Developer back-end
68	Documentation for new system	10 days	1	31/05/2016	13/06/2016	Application Developer back-end
69	**Archiving**	**4 days**	4	**06/04/2016**	**11/04/2016**	
70	Metadata for archive dataset	1 day	1	06/04/2016	06/04/2016	Digital Archivist
71	Archiving current dataset	3 days	3	07/04/2016	11/04/2016	Digital Archivist
72	**Database creation and population**	**10 days**	7	**05/04/2016**	**18/04/2016**	
73	Designing database	5 days	5	05/04/2016	11/04/2016	Redevelopment Manager
74	Creating database	2 days	1	14/04/2016	15/04/2016	Application Developer back-end
75	Applying appropriate controls and indexes	1 day	1	18/04/2016	18/04/2016	Application Developer back-end
76	**Database population**	**81 days**	17	**19/04/2016**	**09/08/2016**	
77	importing converted data from current BIAB database	3 days	3	19/04/2016	21/04/2016	Application Developer back-end
78	Importing data from CBA BIAB Endnote	3 days	3	22/04/2016	26/04/2016	Application Developer back-end
79	Importing data from GLL OASIS	3 days	3	27/04/2016	29/04/2016	Application Developer back-end
80	importing data from journal feeds RSS	8 days	8	29/07/2016	09/08/2016	Application Developer back-end
81	**Interface creation**	**85 days**	60	**12/04/2016**	**08/08/2016**	

ID	Task Name	Duration	Work (days)	Start	Finish	Resources
82	design look and feel	2 days	2	12/04/2016	13/04/2016	Redevelopment Manager, Application Developer front-end
83	Wireframing	2 days	2	14/04/2016	15/04/2016	Redevelopment Manager
84	User consultation	2 days	1	18/04/2016	19/04/2016	Redevelopment Manager, Communications and Access Manager
85	integration with redsquid	4 days	4	20/04/2016	25/04/2016	Application Developer front-end
86	integrating logins and tiers for editing records	2 days	2	30/05/2016	31/05/2016	Application Developer front-end
87	**Developing search interface**	**11 days**	10	**27/04/2016**	**11/05/2016**	
88	Clustering of results	4 days	3	27/04/2016	02/05/2016	Application Developer front-end
89	Integrating GLL report downloads	1 day	1	03/05/2016	03/05/2016	Application Developer front-end
90	Adding comment functionality for users	3 days	3	04/05/2016	06/05/2016	Application Developer front-end
91	BIAB user search exports in BB formats	3 days	3	09/05/2016	11/05/2016	Application Developer front-end
92	Developing data entry interface	25 days	25	12/05/2016	15/06/2016	Application Developer front-end
93	**Developing reporting interface**	**3 days**	2	**16/06/2016**	**20/06/2016**	
94	statistics for record edits and entry by user and region	3 days	2	16/06/2016	20/06/2016	Application Developer front-end
95	user tracking statistics set up	5 days	3	21/06/2016	27/06/2016	Application Developer front-end
96	User testing	30 days	5	28/06/2016	08/08/2016	Communications and Access Manager, Redevelopment Manager
97	Help system	60 days	4	12/05/2016	03/08/2016	Redevelopment Manager
98	**Beta release**	**30 days**	16	**09/08/2016**	**19/09/2016**	
99	Debugging	10 days	5	09/08/2016	22/08/2016	Application Developer back-end, Application Developer front-end
100	Review point 1	10 days	1	06/09/2016	19/09/2016	Redevelopment Manager, Collections Development Manager, Communications and Access Manager, Director
101	**Training**	**10 days**	10	**20/09/2016**	**03/10/2016**	
102	Training materials (video/manual/screencast) BIAB	5 days	5	20/09/2016	26/09/2016	Redevelopment Manager
103	Training publicity for small publishers	5 days	5	27/09/2016	03/10/2016	Redevelopment Manager
104	**Release**	**2 days**	2	**20/09/2016**	**21/09/2016**	
105	production release	2 days	2	20/09/2016	21/09/2016	Communications and Access Manager,

ID	Task Name	Duration	Work (days)	Start	Finish	Resources
						Redevelopment Manager, Application Developer front-end
106	**Project Planning**	**131 days**	61	**12/04/2016**	**11/10/2016**	
107	**Module content consultation finalisation**	**56 days**	26	**22/04/2016**	**08/07/2016**	
108	Historic building recording	6 days	3	22/04/2016	29/04/2016	Redevelopment Manager
109	Landscape and large area survey recording	10 days	5	09/05/2016	20/05/2016	Redevelopment Manager
110	Geophysical survey recording	5 days	3	23/05/2016	27/05/2016	Redevelopment Manager
111	Radiocarbon date recording	10 days	5	30/05/2016	10/06/2016	Redevelopment Manager
112	BABAO	10 days	5	13/06/2016	24/06/2016	Redevelopment Manager
113	Environmental sampling recording	10 days	5	27/06/2016	08/07/2016	Redevelopment Manager
114	Mapping of event types to fields within OASIS	2 days	1	14/09/2016	15/09/2016	Redevelopment Manager
115	Functional specification update	3 days	3	16/09/2016	20/09/2016	Redevelopment Manager
116	Alignment of OASIS fields with MIDAS	3 days	2	21/09/2016	23/09/2016	Redevelopment Manager
117	Technology selection and specification	2 days	2	26/09/2016	27/09/2016	Redevelopment Manager, Application Developer front-end
118	Identify and agree partners for synchronisation pilot	5 days	5	28/09/2016	04/10/2016	Collections Development Manager, Redevelopment Manager
119	Establish Heritage Gateway WMS permissions	2 days	2	05/10/2016	06/10/2016	Redevelopment Manager
120	Finalisation of archive pages	3 days	3	07/10/2016	11/10/2016	Redevelopment Manager
121	NLP and ontology linking research	10 days	10	20/06/2016	01/07/2016	Application Developer back-end
122	ORCID API and registration research	3 days	2	04/07/2016	06/07/2016	Application Developer front-end
123	Copyright usage statements	2 days	2	12/04/2016	13/04/2016	Collections Development Manager, Communications and Access Manager
124	OASIS Licensing discussions	30 days	3	11/07/2016	19/08/2016	Collections Development Manager, Redevelopment Manager
125	**Solution design**	**65 days**	47	**28/09/2016**	**27/12/2016**	
126	Sitemap finalisation	5 days	5	12/10/2016	18/10/2016	Redevelopment Manager
127	**User workflows**	**14 days**	14	**19/10/2016**	**07/11/2016**	
128	Level 1a - contractors specialists	2 days	2	19/10/2016	20/10/2016	Redevelopment Manager

ID	Task Name	Duration	Work (days)	Start	Finish	Resources
129	Level 1b - community groups	2 days	2	21/10/2016	24/10/2016	Redevelopment Manager
130	Level 2 - HERs	2 days	2	25/10/2016	26/10/2016	Redevelopment Manager
131	Level 3 - archives / museums or record offices	2 days	2	27/10/2016	28/10/2016	Redevelopment Manager
132	Level 4 - national bodies (HE HES)	2 days	2	31/10/2016	01/11/2016	Redevelopment Manager
133	Level 5 - other data consumers (DES VAG etc)	2 days	2	02/11/2016	03/11/2016	Redevelopment Manager
134	Level 6 - ADS (Admin users)	2 days	2	04/11/2016	07/11/2016	Redevelopment Manager
135	Wireframe creation	30 days	15	08/11/2016	19/12/2016	Redevelopment Manager
136	User consultation testing of flow/design	6 days	5	08/11/2016	15/11/2016	Redevelopment Manager, Communications and Access Manager
137	Finalised functional specification	5 days	5	07/12/2016	13/12/2016	Redevelopment Manager
138	Review point 2	10 days	1	14/12/2016	27/12/2016	Collections Development Manager, Communications and Access Manager, Director, Redevelopment Manager
139	Establish which browsers will be supported	3 days	2	28/09/2016	30/09/2016	Redevelopment Manager, Communications and Access Manager, Application Developer front-end
140	**Design**	**58 days**	38	**28/12/2016**	**17/03/2017**	
141	System look and feel	20 days	10	28/12/2016	24/01/2017	Redevelopment Manager
142	Data entry form design	30 days	20	25/01/2017	07/03/2017	Redevelopment Manager
143	Content page design template	5 days	5	08/03/2017	14/03/2017	Redevelopment Manager
144	Documentation	2 days	2	15/03/2017	16/03/2017	Redevelopment Manager
145	Update of specification	1 day	1	17/03/2017	17/03/2017	Redevelopment Manager
146	**Back-end development**	**199 days**	167	**14/12/2016**	**18/09/2017**	
147	**Database design and implementation**	**24 days**	15	**14/12/2016**	**16/01/2017**	
148	OASIS database	14 days	10	14/12/2016	02/01/2017	Redevelopment Manager
149	SMA archaeological collection areas database	5 days	5	10/01/2017	16/01/2017	Redevelopment Manager
150	Web application architecture and framework	20 days	20	17/01/2017	13/02/2017	Application Developer back-end
151	Create user editable wiki system	10 days	10	14/02/2017	27/02/2017	Application Developer back-end
152	Create user and role management	10 days	10	28/02/2017	13/03/2017	Application Developer back-end

ID	Task Name	Duration	Work (days)	Start	Finish	Resources
153	Create report auto validation tool	10 days	10	14/03/2017	27/03/2017	Application Developer back-end
154	Create subject/period/location extraction tool	10 days	10	28/03/2017	10/04/2017	Application Developer back-end
155	Create BIAB export/link	5 days	5	11/04/2017	17/04/2017	Application Developer back-end
156	Create link to ORCID	10 days	8	18/04/2017	01/05/2017	Application Developer back-end
157	Create automated archiving processes	20 days	20	02/05/2017	29/05/2017	Application Developer back-end
158	Create Geophysical survey database export/link	5 days	5	30/05/2017	05/06/2017	Application Developer back-end
159	Create Research Framework export/link	10 days	10	06/06/2017	19/06/2017	Application Developer back-end
160	Create import to OASIS	10 days	5	20/06/2017	03/07/2017	Application Developer back-end
161	Create export to OASIS	10 days	5	04/07/2017	17/07/2017	Application Developer back-end
162	Create OAI-PMH target	5 days	2	18/07/2017	24/07/2017	Application Developer back-end
163	Create RESTful web service	5 days	2	25/07/2017	31/07/2017	Application Developer back-end
164	Create OASIS API for synchronisation	25 days	25	01/08/2017	04/09/2017	Application Developer back-end
165	Documentation	10 days	5	05/09/2017	18/09/2017	Application Developer back-end
166	**Front-end development**	**262 days**	224	**14/03/2017**	**14/03/2018**	
167	Create registration section	10 days	8	14/03/2017	27/03/2017	Application Developer front-end
168	Create main section	30 days	30	28/03/2017	08/05/2017	Application Developer front-end
169	Create project summary management pages	20 days	15	09/05/2017	05/06/2017	Application Developer front-end
170	Create flexible project location tool	20 days	15	06/06/2017	03/07/2017	Application Developer front-end
171	Create archive interface	20 days	15	04/07/2017	31/07/2017	Application Developer front-end
172	Create user/organisation profile sections	10 days	8	01/08/2017	14/08/2017	Application Developer front-end
173	Create report archiving interface	12 days	10	15/08/2017	30/08/2017	Application Developer front-end
174	Create and populate SMA map integration	40 days	35	31/08/2017	25/10/2017	Application Developer front-end
175	Review Point 3	10 days	1	26/10/2017	08/11/2017	Collections Development Manager, Communications and Access Manager, Director, Redevelopment Manager
176	Create export interface	10 days	10	04/07/2017	17/07/2017	Application Developer front-end
177	Create import interface	10 days	10	18/07/2017	31/07/2017	Application Developer front-end
178	**Create module interfaces**	**80 days**	64	**09/11/2017**	**28/02/2018**	

ID	Task Name	Duration	Work (days)	Start	Finish	Resources
179	Historic building recording	20 days	20	09/11/2017	06/12/2017	Application Developer front-end
180	Landscape and large area survey recording	20 days	15	07/12/2017	03/01/2018	Application Developer front-end
181	Geophysical survey recording	20 days	15	04/01/2018	31/01/2018	Application Developer front-end
182	BABAO human bones recording module	20 days	10	01/02/2018	28/02/2018	Application Developer front-end
183	Radiocarbon date recording update	3 days	2	09/11/2017	13/11/2017	Redevelopment Manager
184	Environmental sampling recording update	3 days	2	14/11/2017	16/11/2017	Redevelopment Manager
185	Review Point 4	10 days	1	01/03/2018	14/03/2018	Collections Development Manager, Communications and Access Manager, Director, Redevelopment Manager
186	Documentation	2 days	2	26/10/2017	27/10/2017	Application Developer front-end
187	**Synchronisation pilot**	**40 days**	10	**05/09/2017**	**30/10/2017**	
188	Pilot 1 Scoping	40 days	5	05/09/2017	30/10/2017	Redevelopment Manager
189	Pilot 2 Scoping	40 days	5	05/09/2017	30/10/2017	Redevelopment Manager
190	**Content entry**	**50 days**	25	**26/10/2017**	**03/01/2018**	
191	Create help text	40 days	10	26/10/2017	20/12/2017	Redevelopment Manager
192	Create page content	40 days	10	26/10/2017	20/12/2017	Redevelopment Manager
193	Documentation	10 days	5	21/12/2017	03/01/2018	Redevelopment Manager
194	**Communication and promotion**	**540 days**	30	**20/04/2016**	**15/05/2018**	
195	**Blog posts on progress**	**524 days**	9	**12/05/2016**	**15/05/2018**	
205	conference presentation	1 day	1	20/04/2016	20/04/2016	Redevelopment Manager
206	Setting up pilot Level 1/1a users on the new system	30 days	4	21/12/2017	31/01/2018	Redevelopment Manager
207	Setting up HERs on the new system	30 days	4	21/12/2017	31/01/2018	Redevelopment Manager
208	Setting up Museums on the new system	30 days	4	21/12/2017	31/01/2018	Redevelopment Manager
209	Setting up national bodies on the new system	30 days	4	21/12/2017	31/01/2018	Redevelopment Manager
210	Setting up specialist data consumers the new system	30 days	4	21/12/2017	31/01/2018	Redevelopment Manager
211	**Testing**	**47 days**	28	**15/03/2018**	**18/05/2018**	
212	Copy edit content	3 days	3	15/03/2018	19/03/2018	Administrator
213	Test on supported browsers	3 days	3	20/03/2018	22/03/2018	Redevelopment Manager

ID	Task Name	Duration	Work (days)	Start	Finish	Resources
214	Debugging	30 days	10	23/03/2018	03/05/2018	Application Developer front-end, Application Developer back-end
215	Reporting	1 day	1	20/03/2018	20/03/2018	Redevelopment Manager
216	Review point 5	10 days	1	04/05/2018	17/05/2018	Collections Development Manager, Communications and Access Manager, Director, Redevelopment Manager
217	**BETA release**	**106 days**	20	**21/05/2018**	**15/10/2018**	
218	Start of HERALD Stage 3	1 day	0	21/05/2018	21/05/2018	
219	Collect feedback	90 days	3	21/05/2018	21/09/2018	Redevelopment Manager
220	Debugging	5 days	10	24/09/2018	28/09/2018	Application Developer back-end, Application Developer front-end
221	Act on feedback	5 days	5	24/09/2018	28/09/2018	Redevelopment Manager
222	Reporting	1 day	1	01/10/2018	01/10/2018	Redevelopment Manager
223	Review point 6	10 days	1	02/10/2018	15/10/2018	Collections Development Manager, Communications and Access Manager, Director, Redevelopment Manager
224	**Project closure**	**5 days**	5	**16/10/2018**	**22/10/2018**	
225	Reporting	5 days	5	16/10/2018	22/10/2018	Redevelopment Manager

11. Ownership

The Archaeology Data Service, hosted by the University of York will own the OASIS system on behalf of the historic environment community.

The project will review the licencing of data and reports in the new OASIS system. It is proposed that the metadata contained within the new OASIS system will be available under a CC 0 1.0 licence (https://creativecommons.org/publicdomain/zero/1.0/). Related data and reports uploaded to the OASIS system will be available under a CC BY 3.0 licence (https://creativecommons.org/licenses/by/3.0/). ADS will retain software and database rights for the system but funding partners are automatically granted a perpetual non-exclusive royalty-free licence to use and/or sub-licence the project archive and all other project materials for any purpose (whether or not the project is completed). There is still some work to be done on the copyright of some fields within the OASIS system (e.g. the Discovery and Excavation in Scotland description field) which may be stored under different terms. This proposal will be investigated as part of Task 125 of this project.

The BIAB database currently under the ownership of the CBA will be passed to ADS. ADS will archive the current data structure and import the data into a new system. It is proposed that data in the new system will be owned by ADS and made available under a CC 0 1.0 licence (https://creativecommons.org/publicdomain/zero/1.0/). There is still some work to be done on the copyright of some fields within BIAB (e.g. abstracts supplied by publishers) and these might need to have the ownership/copyright flagged. This will be investigated as part of Task group 45 and Task 55 of this project.

12. Risk Log

No	Risk	Probability (1-5)	Severity (1-5)	Score (P x S)	Action to Prevent / Manage risk	Risk Owner
1	Staff are unable to dedicate sufficient time to the project due to existing commitments	2	3	6	Effective planning and ongoing prioritisation via regular (weekly and monthly) meetings	**ADS**
2	Key staff members leave the ADS	3	4	12	A larger team is in place and others could step in if required	**ADS**
3	Timescales slip due to unforeseen challenges with technical systems	4	2	8	Allow sufficient time for development. Take an agile approach to changing goals	**ADS**
4	Timescales slip due to delay in responses from stakeholders during OASIS PLUS consultation phase	4	2	8	Create a flexible schedule to allow for delays	**ADS/HE**
5	Timescales slip due to other HIAS dependencies	4	4	16	Create a flexible schedule to allow for delays	**HE**
6	HER synchronisation pilot volunteers not forthcoming	3	5	15	Good publicity from early on in the project	**ADS/HE**
7	Users not agreeing with new copyright/licence statements	2	4	8	Work with Historic England to negotiate a solution	**ADS**
8	The pending consultation aspects result in requirements which are not budgeted for in the project design	4	4	16	Possibility of additional funding if requirements are judged to be necessary	**HE**
9	Pilot users do not engage fully with new system	3	2	6	Have additional pilot volunteers as a back up	**ADS/HE**

No	Risk	Probability (1-5)	Severity (1-5)	Score (P x S)	Action to Prevent / Manage risk	Risk Owner
10	Report checking and subject/period term extraction tool does not function as well as hoped	3	2	6	Communication with potential reviewers to inform them of the capabilities of the system	**ADS**
11	Research framework link is not possible due to system incompatibilities	3	5	15	Additional funding will be needed to allow for individual integrations between OASIS and research frameworks	**HE**
12	Lack of engagement from stakeholders means there is insufficient information for or delay in creating an OASIS API	3	4	12	HER/OASIS Synchronisation will be delayed	**ADS/HE**

13. Estimated Overall Budget

13.1. ***OASIS and BIAB redevelopment budget***

14. Bibliography

ALGAO, IHBC, EH. (2015). *A seventh report on Local Authority Staff Resources.* London: English Heritage.

DCLG. (2012). *National Planning Policy Framework.* London: Department for Communities and Local Government.

Gilham, J. and Hardman, C. (2015). *HERALD: Historic Environment Research Archives, Links and Data: Final Report 2015.* York: The Archaeology Data Service.

Gilham, J. and Matthews, L. (2015). *BIAB: hosting by the ADS and incorporation into the HERALD project: Stage 1 – strategic vision. NHPC project number 7176.* York: The Archaeology Data Service.

Historic England. (2014). *A Strategy for Heritage Information Access: A Proposal by English Heritage.* London: English Heritage.

Historic England. (2015). *Historic England Action Plan 2015-2018.* London: Historic England.

Oakleigh Consulting Ltd. (2015). *Heritage Information Access Strategy: Business Process Mapping of Historic Environment Information.* Manchester: Oakleigh Consulting Ltd.

Pye Tait Consulting. (2012). *Review of the development and implementation of OASIS in England.* Harrogate: Pye Tait Consulting.

15. Appendix 1: Glossary

Glossary

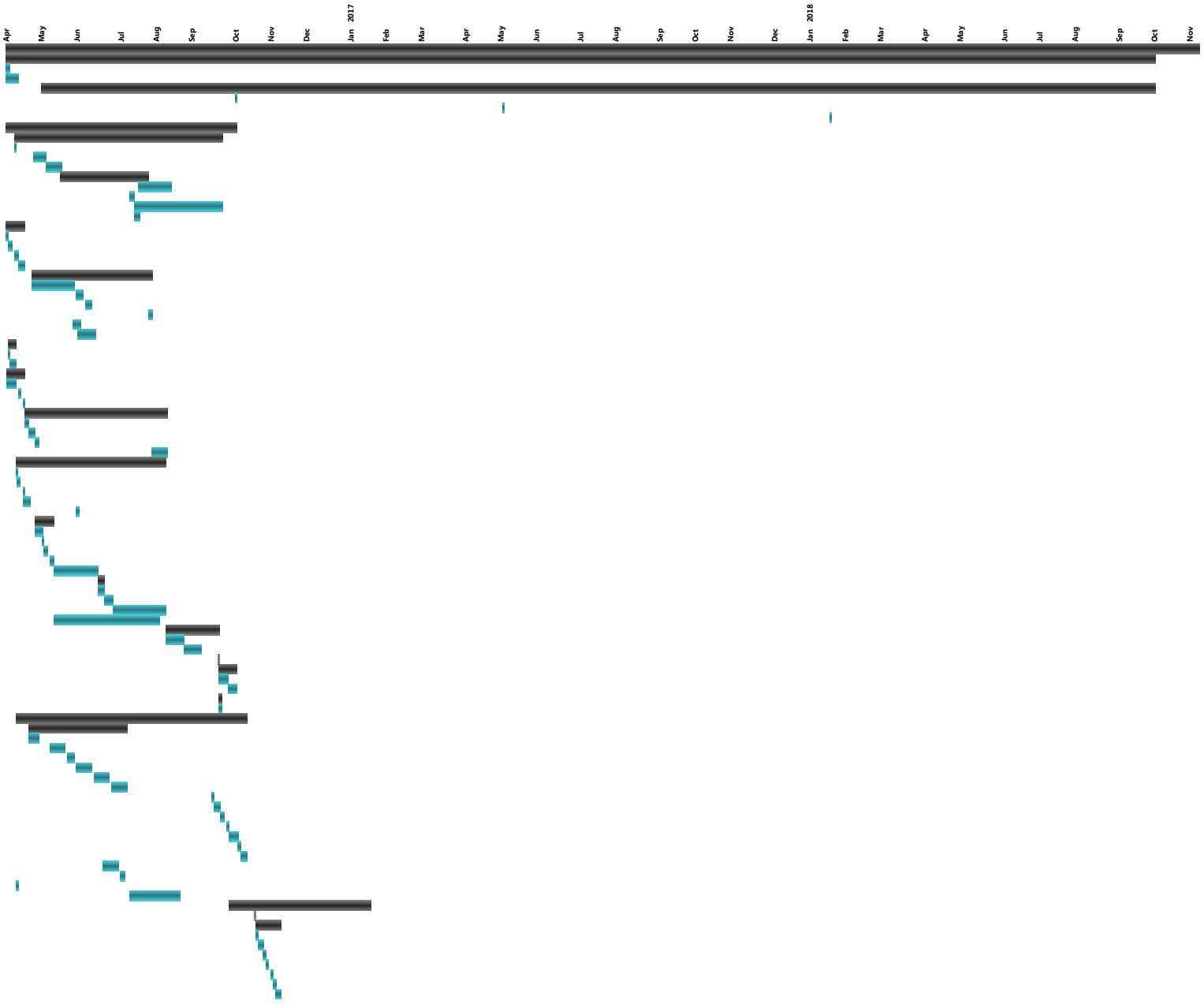
ADS	Archaeology Data Service
ADS Library	The new system which will contain BIAB, the Grey Literature Library, archived journal articles and archived reports
ALGAO	Association of Local Government Archaeologists
API	Application programming interface - allows external access to a system programmatically
BABAO	British Association for Biological Anthropology and Osteoarchaeology
BIAB	British and Irish Archaeological Bibliography
CBA	Council for British Archaeology
DES	Discovery and Excavation in Scotland - they have a similar data collection form that will be integrated into the Scottish version of the new OASIS form.
DOI	Digital Object Identifier - a permanent identifier for digital content available on the Internet
EDINA	EDINA delivers online services and tools to benefit students, teachers and researchers in UK Higher and Further Education and beyond. They will supply the Ordnance Survey base mapping for the OASIS location tools
FISH	Forum for Information Standards in Heritage
Grey Literature Library (GLL)	The library of unpublished fieldwork reports populated with reports from OASIS and archived reports: see *Library of Unpublished Fieldwork Reports* below.
HBSMR	Database product from exegesis SDM Ltd. used by majority of English HERs
HE	Historic England
HERALD	Historic Environment Research Archives, Links and Data
HER	Historic Environment Record
HEROS	Database product developed by Welsh Trusts and in use in a number of HERs in England and Wales
HES	Historic Environment Scotland. New organisation formed in 2015 by the merger of Historic Scotland and RCAHMS.
HIAS	Heritage Information Access Strategy
HPR	Heritage Protection Reform
IHBC	Institute of Historic Building Conservation

Linked Data Vocabulary	In this context a linked data vocabulary is a thesaurus of terms that can be interrogated and linked to dynamically via the Internet. For more information see: http://www.w3.org/TR/ld-glossary/
Library of Unpublished Fieldwork Reports	Current online resource for grey literature provided by the ADS see: http://archaeologydataservice.ac.uk/archives/view/greylit/
NPPF	National Planning Policy Framework see: https://www.gov.uk/government/publications/national-planning-policy-framework--2
myADS	A user registration section of the ADS website which allows users to save searches and preferences.
MEDIN	Marine Environment Data Information Network
MIDAS	MIDAS Heritage - the UK Historic Environment Data Standard is a British cultural heritage standard for recording information on buildings, archaeological sites, shipwrecks, parks and gardens, battlefields, areas of interest and artefacts.
NLP	Natural Language Processing
OAI-PMH	Open Archives Initiative - Protocol for Metadata Harvesting (https://www.openarchives.org/pmh/)
OASIS	Originally an acronym for Online AccesS to the Index of archaeological investigationS, however latterly the acronym has become a name in itself and the strap line will be removed in the new system.
OASIS id	A unique identifier given to every OASIS project.
OASIS LITE	A cut down version of the OASIS form for use where HERs are collecting the full OASIS data by other means (see section 9.1.1.1)
OASIS STANDARD	The full set of the core OASIS fields (see section 9.1.1.2)
OASIS PLUS	Additional sections of the OASIS form used to collect more specialist data such as geophysical survey or human bone information (see section 9.1.1.3)
OSMA	One Scotland Mapping Agreement
REST and RESTful	Representational State Transfer. A software architecture style used on the Internet to allow the communication between systems. See https://en.wikipedia.org/wiki/Representational_state_transfer for further information.
RCAHMS	Royal Commission of Ancient and Historic Monuments of Scotland (now merged with Historic Scotland to form Historic Environment Scotland).
RCAHMW	Royal Commission of Ancient and Historic Monuments of Wales
Review	The term used in the new OASIS system for the checking of an OASIS record and associated report
Sign off	The point at which a record in the current OASIS system has been validated by both HER and NMR and is decided to be complete
SMA	Society of Museum Archaeologists
VAG	Vernacular Architecture Group
Validate	The current term used in OASIS for the checking of an OASIS record and associated report
WMS	Web Mapping Service - is a standard protocol for serving (over the Internet) georeferenced map images which a map server generates using data from a GIS database. The Open Geospatial Consortium developed the specification and first published it in 1999.
WSI	Written Scheme of Investigation

16. Appendix 2: Health & Safety

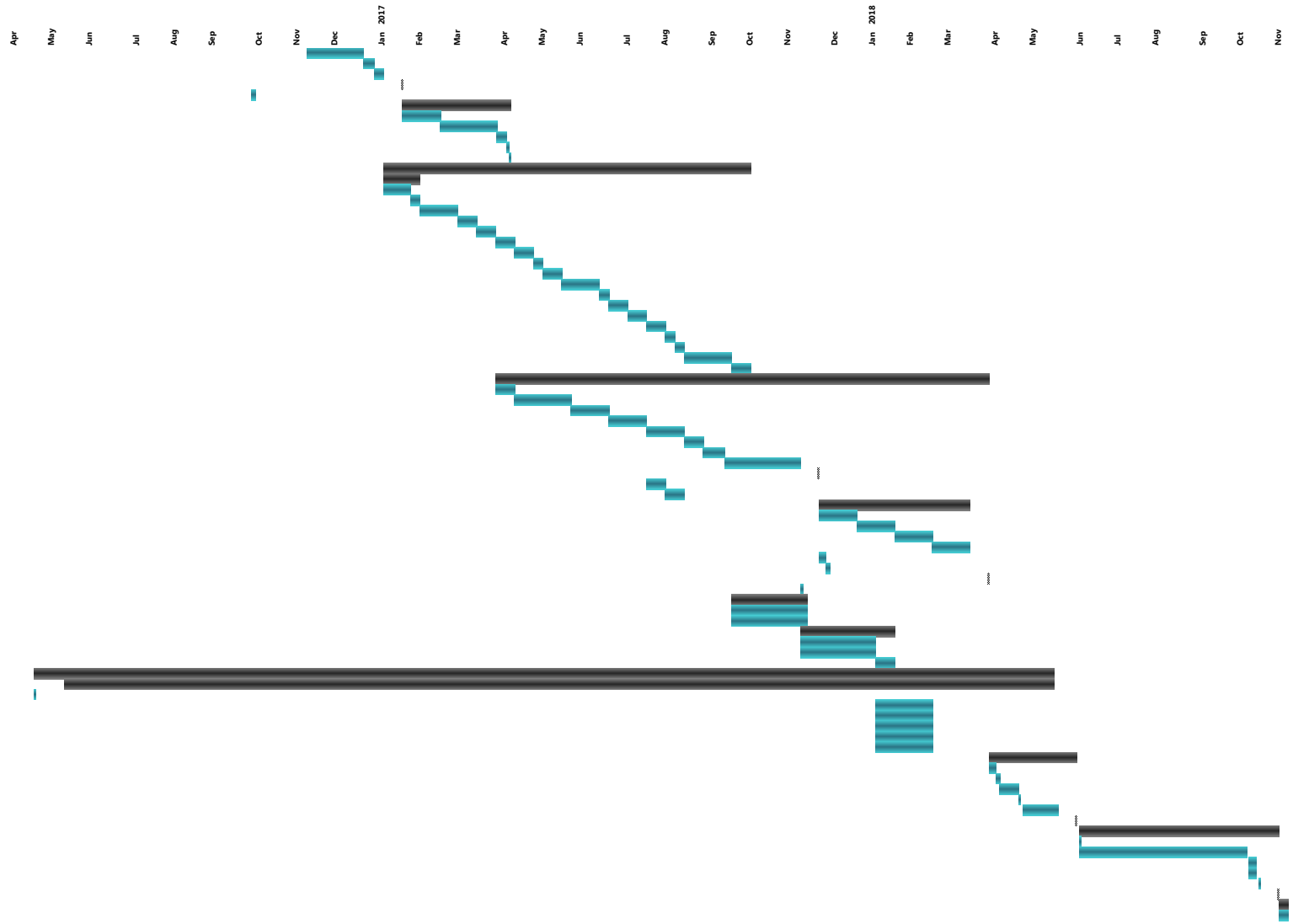
17. Appendix 3: Gantt charts for BIAB and OASIS redevelopment

Project Map



ID	Task Name
1	**HERALD Stage 2**
2	**Administration**
3	Administration
4	Project oversight attendance at AB meetings
5	**Project management**
37	Highlight report 1
38	Highlight report 2
39	Highlight report 3
40	**BIAB redevelopment**
41	**Data gathering - future**
42	Administration
43	Negotiate with BAR
44	Negotiate with Oxbow
45	**Negotiate delivery of RSSFTP with main journal publishers**
53	Investigate author identification control for each publisher
54	List of small publishers contact details (some from BIAB)
55	Negotiating with small regional publishers
56	DOI question for archived journals per article
57	**Data conversion and processing**
58	Getting data export from CBA
59	Converting data from current database format
60	Processing data
61	Resolving duplicate entries
62	**Backend systems development**
63	Implementing ADS common user database infrastructure
64	Author and title duplication checking
65	Processing data to create subject and location information
66	BIAB restful web service
67	Updating GLL upload scripts to populate ADS Library
68	Documentation for new system
69	**Archiving**
70	Metadata for archive dataset
71	Archiving current dataset
72	**Database creation and population**
73	Designing database
74	Creating database
75	Applying appropraite controls and indexes
76	**Database population**
77	importing converted data from current BIAB database
78	Importing data from CBA BIAB Endnote
79	Importing data from GLL OASIS
80	importing data from journal feeds RSS
81	**Interface creation**
82	design look and feel
83	Wireframing
84	User consultation
85	integration with redsquid
86	integrating logins and tiers for editing records
87	**Developing search interface**
88	Clustering of results
89	Integrating GLL report downloads
90	Adding comment functionality for users
91	BIAB user search exports in BB formats
92	Developing data entry interface
93	**Developing reporting interface**
94	statistics for record edits and entry by user and region
95	user tracking statistics set up
96	User testing
97	Help system
98	**Beta release**
99	debugging
100	Contingency time
101	Review point 1
102	**training**
103	Training materials (videomanualscreencast)
104	Training publicity for small publishers
105	**Release**
106	production release
107	**Project Planning**
108	**Module content consultation finalisation**
109	Historic building recording
110	Landscape and large area survey recording
111	Geophysical survey recording
112	Radiocarbon date recording
113	BABAO
114	Environmental sampling recording
115	Mapping of event types to fields within OASIS
116	Functional specification update
117	Alignment of OASIS fields with MIDAS
118	Technology selection and specification
119	Identify and agree partners for syncronisation pilot
120	Establish Heritage Gateway WMS permissions
121	Finalisation of archive pages
122	NLP and ontology linking research
123	ORCID API and registration research
124	Copyright usage statements
125	OASIS Licensing discussions
126	**Solution design**
127	Sitemap finalisation
128	**User workflows**
129	Level 1a - contractors specialists
130	Level 1b - community groups
131	Level 2 - HERs
132	Level 3 - archives musuems or record offices
133	Level 4 - national bodies (HE HES)
134	Level 5 - other data consumers (DES VAG etc)
135	Level 6 - ADS (Admin users)

Project Map



ID	Task Name
136	Wireframe creation
137	User consultation testing of flowdesign
138	Finalised functional specification
139	Review point 2
140	Establish which browsers will be supported
141	**Design**
142	System look and feel
143	Data entry form design
144	Content page design template
145	Documentation
146	Update of specification
147	**Back-end development**
148	**Database design and implementation**
149	OASIS database
150	SMA archaeological collection areas database
151	Web application architecture and framework
152	Create user editable wiki system
153	Create user and role management
154	Create report auto validation tool
155	Create subjectperiodlocation extraction tool
156	Create BIAB exportlink
157	Create link to ORCID
158	Create automated archiving processes
159	Create Geophysical survey database exportlink
160	Create Research Framework exportlink
161	Create import to OASIS
162	Create export to OASIS
163	Create OAI-PMH target
164	Create RESTful web service
165	Create OASIS API for syncronisation
166	Documentation
167	**Front-end development**
168	Create registration section
169	Create main section
170	Create project summary management pages
171	Create flexible project location tool
172	Create archive interface
173	Create userorganisation profile sections
174	Create report archiving interface
175	Create and populate SMA map integration
176	Review Point 3
177	Create export interface
178	Create import interface
179	**Create module interfaces**
180	Historic building recording
181	Landscape and large area survey recording
182	Geophysical survey recording
183	BABAO human bones recording module
184	Radiocarbon date recording update
185	Environmental sampling recording update
186	Review Point 4
187	Documentation
188	**Synchronisation pilot**
189	Pilot 1 Scoping
190	Pilot 2 Scoping
191	**Content entry**
192	Create help text
193	Create page content
194	Documentation
195	**Communication and promotion**
196	**Blog posts on progress**
206	conference presentation
207	Setting up pilot Level 11a users on the new system
208	Setting up HERs on the new system
209	Setting up Museums on the new system
210	Setting up national bodies on the new system
211	Setting up specialist data consumers the new system
212	**Testing**
213	Copy edit content
214	Test on supported browsers
215	Bug fixing
216	Reporting
217	Contingency time
218	Review point 5
219	**BETA release**
220	Start of HERALD Stage 3
221	Collect feedback
222	Bug fixing
223	Act on feedback
224	Reporting
225	Review point 6
226	**Project closure**
227	Reporting

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