

Project Design

[HE000001 Yorkshire Wolds Reconnaissance Project]

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By signing this document, I acknowledge the information within constitutes a suitable project design plan for the proposed work and give consent for the programme/project to enter the delivery phase.	
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Signature of Project Executive or Senior Responsible Officer:	Matthew Oakey
Date approved:	01/04/2024

Yorkshire Wolds Reconnaissance Project

Project number:	HE000001 (Hypothetical)
Project completion date:	31/10/2025

1. Summary

This project sets out to conduct an aerial survey of the Yorkshire Wolds, creating an up-to-date collection of photographs that will be useful for a range of purposes and teams within Historic England. Not only will the photographs provide the materials for new research projects and condition monitoring they will also be made available to the public via the Aerial Photo Explorer (APEX) online application (Historic England, n.d.). Through conducting aerial surveys using both vertical and oblique photography of a nominated area within the Yorkshire Wolds National Character Area, this project will contribute towards a better understanding of the archaeology in the Yorkshire Wolds and aid in the management of scheduled monuments to improve their long-term protection. Specialist aerial reconnaissance of the Yorkshire Wolds could also lead to the discovery of new sites.

The Yorkshire Wolds is a landscape rich with historical heritage, encompassing an extensive array of archaeological features surviving as earthworks, stonework, cropmarks and soilmarks. The area is subject to a high proportion of arable farming with over 70% of the farmed area within the National Character area used for cereals and other arable crop production (NCA). The intensity of farming in the Yorkshire Wolds is having a long-term detrimental effect on both buried and extant archaeology through intensive ploughing activity, evidenced in the *Conservation of Scheduled Monuments In Cultivation* (COSMIC) research report (Oxford Archaeology, 2014). Monitoring the condition of every scheduled monument on the ground is time-consuming and something that this project hopes to streamline by providing photographic evidence of a large number of scheduled monuments, contributing to the corporate plan activity 3.1 (see 4. Strategic Fit for more details) (Historic England, 2023).

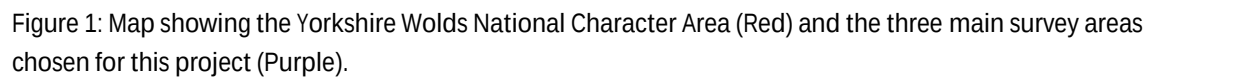
The information gathered from this project will be useful for further work and projects, including the selection of potential candidates for designation assessment. The reconnaissance element of the project will be delivered by a member of the Aerial Investigation and Mapping team in York, as it will be more efficient to conduct the surveys from the airfield in Sherburn-In-Elmet where the York

reconnaissance staff leases their plane. This aircraft also has the capability to undertake basic vertical photography which will form an integral part of the reconnaissance stages of the project.

2. Background

The main driving factor of this project is the creation of a new National Landscape (previously called an Area of Outstanding Natural Beauty (AONB)) currently being planned in the Yorkshire Wolds Character area. This has promptly called for a new multidisciplinary project to be conducted by the Archaeological Investigation team within Historic England which is made up of different specialist departments including the Aerial Investigation team, Geophysical Survey team, Landscape Archaeology team and the Archaeological Excavation team. As a precursor to the multidisciplinary project, this reconnaissance project will be crucial in creating an up-to-date collection of photographs that will contribute to future research and form a baseline survey of the condition of at least 110 scheduled monuments that sit in the three defined areas chosen for this project (Figure 2). The areas selected for this project were decided through discussions with colleagues in the Aerial Investigation and Mapping team who have had meetings with the Yorkshire Wolds National Landscape project stakeholders. Although the final area for the National Landscape designation has not yet been confirmed, the reconnaissance project will focus on three areas (figure 1) where there is a high concentration of scheduled monuments. The project also has the potential for new archaeological discoveries. The presence of archaeological monuments and landscapes will be a contributing factor toward the definition of the National Landscape boundary.

Another driving factor of this project is the need for up-to-date oblique and vertical photographic coverage of the scheduled monuments in the Yorkshire Wolds. Many of the scheduled monuments in the Yorkshire Wolds are positioned within an arable landscape which means they are constantly subject to damage from ploughing, as highlighted in previous research (Oxford Archaeology, 2014). This project will provide evidence to help assess the condition of the scheduled monuments as well as obtain useful information about current land use within the Yorkshire Wolds; Understanding the current condition of the archaeology will help colleagues working in the Heritage At Risk programme at Historic England provide bespoke advice to land owners to conserve and protect sites that are being actively damaged. Many of the scheduled monuments in the project area were last surveyed from the air in 2012 and many have no modern aerial photographs detailed enough for condition monitoring.



3. Research Ethics and Integrity

Ethical approval should be sought at the Project Start-Up/Initiation phase as part of the Project Proposal.

Is ethical approval required? Click on the relevant box.

☐ Yes

Please append the Research Ethics Committee Letter of Approval to this PD

☒ No

I confirm that I have completed the process to determine that ethical approval is not required.

Please Note, this PD will not be approved until either Ethics Approval has been granted or you confirm that you have followed the process and have determined it is not required.

4. Strategic Fit

4.1. Alignment with HE Corporate Plan

Priority: 03 Planning, Listing, Conservation advice & Investment

Activity: 3.1 (*Protect and revitalise heritage assets for future generations through the provision of effective, consistent, constructive and timely Listing and Development Advice to key stakeholders including Government, local planning authorities and owners*).

The data collected from the research will be made available to both the public and colleagues at Historic England. Historic England colleagues responsible for maintaining the Heritage at Risk register will use the new photos to assess scheduled monument conditions and help them prioritise field visits. The Countryside Stewardship Heritage team will use the new photos to assess whether farmers are complying with grant conditions. New specialist photography will also be used as evidence for local authorities when carrying out development control tasks.

4.2. Alignment with Other Corporate Strategies

This project will align with the Yorkshire Wolds Research Framework (2022), specifically Theme 7: *Understanding and Managing the Heritage Resource*. Activity 7.3 specifically focuses on how historic features of the landscape can best be protected, with an aim to extend the designation of sites where appropriate. The photographic material collected from this project and interpreted by experts will discover new archaeological sites or add new information to known sites; new research will develop

into the designation of new heritage assets and/or community involvement in follow-up fieldwork. Detailed photography provides the evidence needed to build a case on a site-by-site basis, providing information about the condition of each site but also the current land use which may be affecting their integrity. Activity 7.3 also calls for the aerial mapping and analysis of the Wolds to be refreshed in a systematic way, which this project hopes to support in the form of a future multidisciplinary project targeting the Wolds, including an aerial investigation and mapping element. The photographs from this project will provide a baseline dataset for continued investigation to be conducted in a complementary project.

5. Aims

The main purpose of this project is to take up-to-date oblique and vertical photographs of the Yorkshire Wolds. This will provide the Aerial Investigation and Mapping team with the materials needed to conduct further research into the area and produce an Aerial Investigation and Mapping report. The photographs will also aid in understanding the current condition of the scheduled monuments within the area. The photographs will also be made public via the APEX online platform (Historic England, n.d.) to engage wider groups.

Aim 1: To aid in future research and the future management of scheduled monuments in the Yorkshire Wolds.

Aim 2: To add to the known information about the Yorkshire Wolds with the likelihood of discovering new sites.

Objective 1: To conduct aerial surveys in the proposed area for the new National Landscape on the Yorkshire Wolds using both Vertical and Oblique photography.

Objective 2: To create a baseline dataset of aerial photographs, orthophotos and digital surface models recording archaeological sites in the Yorkshire Wolds visible as earthworks, stonework, or buried remains revealed as cropmarks or soilmarks.

Objective 3: To process photographs to Historic England Archive standards and make this available to professionals and the public via the APEX online platform (Historic England, n.d.) and the Historic England Archive.

6. Budget

For the purposes of project management in Historic England, the operational budgets are merged with staff costs to create an hourly depending on the grade of staff and the department they work in. I have not been allowed to use the current hourly rates for this PD, but I have listed the amount of staff time and the additional travel and subsistence costs for this project.

Staff Resource	Band	Staff	Time
Project Executive	A	MO	0.5 days
Project Manager/Project Officer	L7	RA	34.25 days
Quality Assurance	B	DG	1.5 days
Project Officer	B	DK, DW	12 days
Total			42.25 days

Expense	Unit cost	Total
5 days car hire to travel to airfield for aerial survey	£70	£350
Fuel for hire car for 5 days of travel to the airfield for aerial survey	£15	£75
5 days of subsistence over five hours for one staff	£9	£45
TOTAL		£470

7. Roles and Responsibilities

Project Board – There is no project board as this project is being carried out by a small team of internal project experts.

Project Executive/Senior Responsible Officer – Matthew Oakey - Aerial Survey Principal

Project Manager – Robyn Andrews – Aerial Survey Investigator (Reconnaissance)

Project Delivery Team:

- Robyn Andrews - Aerial Survey Investigator (Reconnaissance) – Responsible for planning and conducting the aerial survey (flight director and photographer) and processing the data collected. Also responsible for depositing the data to the digital archive and writing up the final report and technical appendix.
- Damian Grady - Aerial Reconnaissance Manager – Responsible for providing quality assurance during the processing stage of the project as well as providing general project support and advice throughout.
- Dave Knight – Senior Aerial Survey Investigator – Responsible for producing the SFM models (Digital surface model and orthophotographs).
- Dave Went – Senior landscape Investigator – Responsible for obtaining ground control points, necessary to process the SFM data.

8. Scope

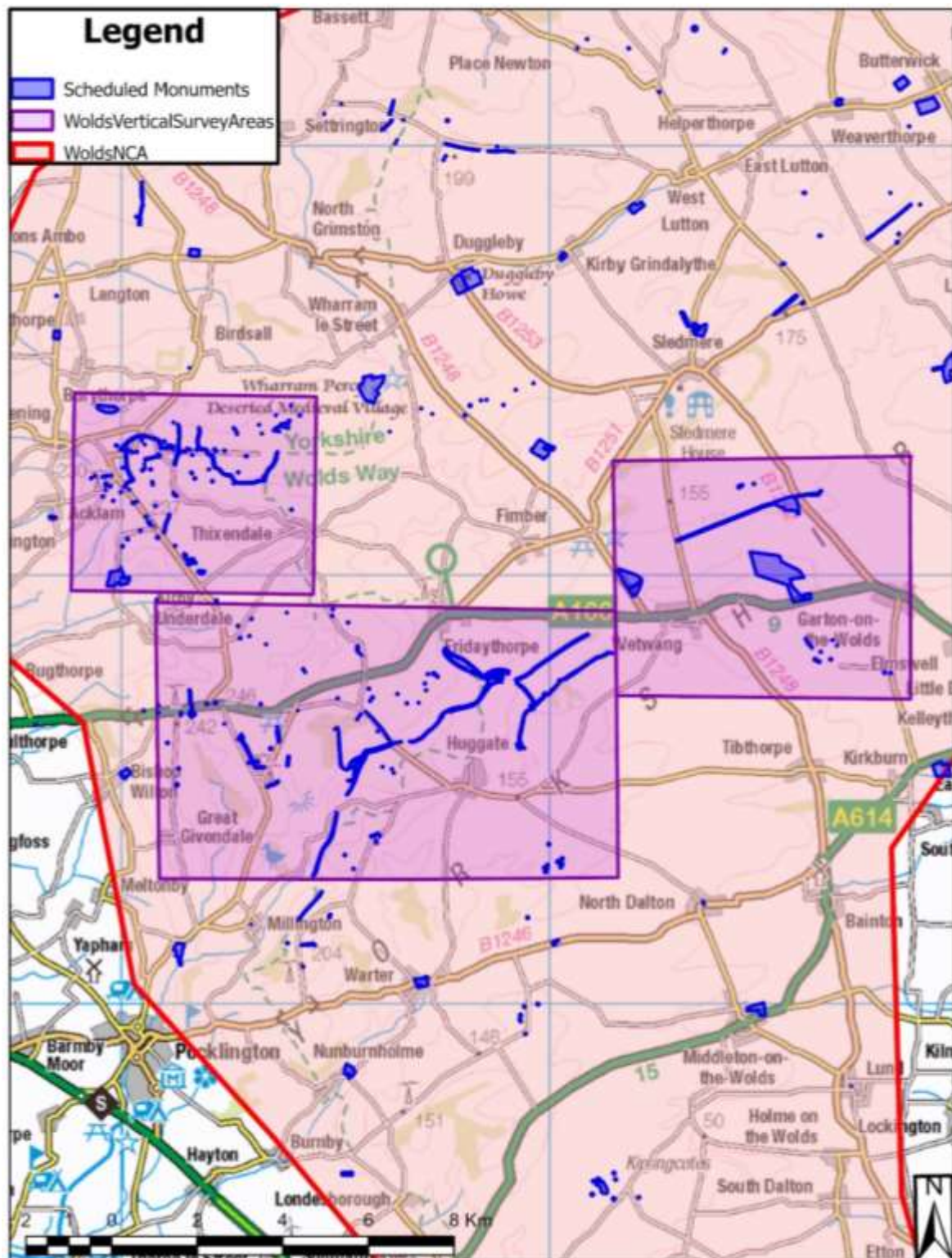


Figure 2: Map showing the concentration of scheduled monuments (Blue) within the three areas chosen for survey (Purple).

This project will conduct aerial surveys over the three areas shown in figures 1 and 2 over the course of the project duration. At least one vertical aerial survey in the winter flying season (30 August 24- 15 April 25) will be conducted and the other flights will aim to survey the other two areas in the summer months, either by vertical or oblique methods depending on the visibility of archaeology. The three areas were chosen for their high density of scheduled monuments, varying from below-ground archaeology visible as cropmarks or soil marks and earthworks in pasture. The vertical survey will be undertaken in the winter or early spring to record the effects of ploughing on archaeological sites, providing the optimum conditions for recording earthworks that would normally be masked by vegetation in the summer, and record any slight archaeological earthworks that are in cultivation. The ground sampling distance for the vertical survey will be 5-10 cm.

A second winter flight for oblique photography will record any scheduled monuments not recorded during the vertical survey or where more detailed imagery has been requested by stakeholders and team members. The ground sampling distance for the oblique photography will be 2-5 cm.

There will be at least two flights undertaken in both the summer of 2024 and 2025 to record cropmarks across the three areas but also over the whole survey area. Initially, oblique photographs will be taken. If there is an abundance of cropmarks (following a particularly hot and dry summer) there is the flexibility to switch to vertical photography.

On all flights, opportunities will be taken to photograph individual sites and general landscapes for publicity material.

This project will not provide an official assessment of the condition of scheduled monuments, this is mainly covered by other projects including condition monitoring and Heritage at Risk. Any scheduled monuments that are thought to be at immediate risk whilst conducting surveys will be photographed and recorded appropriately and colleagues working on Heritage at Risk will be notified.

This project will not implement any mapping stages as this will form an integral part of the future multidisciplinary project, the material collected in this project will contribute towards this and other future research.

9. Methods

Before the surveys of the Wolds can commence there will first be an analysis of the scheduled monuments in GIS, using different datasets to assess the best areas to focus and survey a high concentration of sites as well as being able to see which are on the Heritage at Risk register.

The planning stages include preparing the vertical flight lines in software called Flight Planner. Once the survey parameters are input such as the lens, height above the ground, overlap between each photo and each run, the software creates a track for the pilot to follow and records the trigger distance between each photo. The flight track is converted to GPX format and copied to a tablet with Sky Demon software for the pilot to follow. The trigger distance data and other parameters for the camera, such as limits on the angle of pitch and roll are added to the control box that automatically controls the camera when over the survey area. There will need to be four vertical flight plans for each individual area selected for vertical survey, this prepares for any wind direction on the selected day of the survey. The winter vertical survey will use a 35mm lens and if conducted in summer, a 28mm lens to cover a larger area. Once the technical side of the flights are planned, the best date for the surveys will be decided dependant on the weather conditions and pilot availability.

The surveys will be conducted in a leased Cessna 172 aircraft using three cameras, a Nikon D850 with a 35mm or 28mm lens for the vertical surveys and two Nikon D850s one with a 24-70mm lens and a 70-200mm lens, these will be used for the oblique photographs. All the photographs will be taken in RAW format as this is best for the post-processing stages and aligns with the Digital Image Capture and File Storage guidance produced by Historic England (Cole and backhouse, 2015). The flight traces for each survey conducted will be recorded on the aviation GPS unit, which is fit inside the plane, this will record the track points and trackline on each flight. A Zebra tablet PC with GISPro 3.2.2 which contains NMP mapping, Heritage List for England, data on Historic England photos taken in the last 10 years, soil map and OS mapping at four different scales will be used as the main reference for navigation for the surveyor. The GIS map on the tablet PC will also display the targets derived from the analysis of HAR data and other targets from the flight planning stage.

Decisions on when to fly in the winter will be determined by constant monitoring of the weather forecast. Ideally the vertical and oblique winter flights will take place in February or March to take advantage of the limited vegetation growth, identify active ploughing as farmers prepare spring crops and identify soilmarks and germination marks on chalk soils. In the summer as well as monitoring the weather, soil moisture deficit (SMD) data from the Met Office is monitored to identify when crops are

under stress and could have the potential for cropmark formation. Very low-resolution imagery from Sentinel 2 satellite is monitored to observe broad crop colour changes. While conducting survey tasks in adjacent areas opportunities to transit the area will be taken to monitor crop conditions. If conditions look promising for cropmark development, flights will take place initially targeting a number of known sites to sample whether conditions are suitable to cover the whole area. If the cropmarks are extensive, the survey will switch from oblique to vertical photography. This decision will be taken by the flight director. A minimum of two summer flights will be undertaken in each year if conditions allow, to coincide with the ripening of winter crops in late June and spring crops in late July. For every flight a report is kept to record the details about each flight, these are transferred to digital documents once back in the office.

Once each flight has been completed, the images will be downloaded in BreezeBrowser and immediately backed up onto the cloud server. Any unwanted images can then be deleted in BreezeBrowser, renumbered and basic metadata added. The photographs are processed to ensure they have the optimum exposure and colour balance. There is then a period of quality assurance before the RAW photos are exported as a set of TIFFS and reference JPEGs, which are then submitted to the archive. Once the photographs have been archived fully, they are then catalogued. Global Positioning System (GPS) data, recording the flight trace, is downloaded, backed up and converted into shape files in GIS, which along with flight reports are used by the Historic England Archive Cataloguing team to locate each image in AirPhotonet (the central GIS databases used to manage the 6 million aerial photos in the HE Archive). Once catalogued in AirPhotonet the digital photos are made available to the public via the Historic England Archive Enquiry and Research Services and the online application APEX (Historic England, n.d.).

10. Stakeholders and Interfaces

This project will benefit a range of Historic England stakeholders and interfaces as it will create a baseline dataset of photographs that can be used for a range of purposes. Groups include colleagues working on the Heritage at Risk programme, the Listing team, the Aerial Investigations and Mapping team who will be involved in the future multidisciplinary project targeting the Wolds and the Yorkshire Wolds Research Framework (2022).

It is anticipated that the photographs produced from this project will provide coverage of many scheduled monuments, many of which are on the Heritage at Risk register. The photographs will inform the Heritage at Risk team of the current condition of many scheduled monuments and may lead to their intervention to help protect sites from further risk. It could also have a positive impact by providing evidence that some scheduled monuments are no longer at risk and could therefore be taken off the register, as well as placing others onto the register to enhance their protection.

The project may also involve the Listing Group in the North East and Yorkshire region, as any new sites discovered will need to be added to the National Heritage List for England (NHLE) and other existing records may need amending.

One of the main purposes of the project is to support the future multidisciplinary project of the Yorkshire Wolds which will involve a range of specialist teams in the Archaeological Investigations team at Historic England. The photographs will be used mostly by the Aerial Investigation and Mapping team, supporting a mapping program to record the archaeology across the Yorkshire Wolds.

The project will also contribute to the Yorkshire Wolds Research Framework (2022), specifically *Theme 7: Understanding and Managing the Heritage Resource*. Activity 7.3 specifically focuses on how historic features of the landscape can best be protected, and for the aerial mapping and analysis of the Wolds to be refreshed in a systematic way, which this project hopes to support by providing photographic evidence for future research projects whether they are internal (Historic England) or from external companies or interest groups.

11. Communication

- To ensure clear communication throughout the project, the Project Manager (RA) will have regular meetings every month with the project executive (MO) to deliver a Red Amber Green (RAG) report on progress according to the timetable set out in the project design.
- There will also be regular monthly meetings between the team members carrying out the project, as many of the tasks require the previous task to be completed before the next can be started, so clear communication will be necessary to ensure smooth transfer between tasks. There will be a review point and meeting between the relevant team members once each task has been completed, so whoever is responsible for the next task can begin.
- The team will use project view to share files and update the timetable and task progress (i.e. started, in progress, or completed) as well as update the issue and risk logs, these will all be live documents so all team members can update progress and issues, if and when they occur, this will be monitored by the project manager.
- An End-of-Project report will include a review of methods/progress/results and provide recommendations to aid in planning future projects.
- The photographs will be made available to colleagues and the public through the Historic England Archive and the Aerial Photo Explorer online platform (Historic England, n.d.).
- Any major discoveries worthy of a press release and/or Twitter feed will be promoted via Corporate Communications.
- A technical appendix will be produced and published online, available to colleagues and the public to explain how the vertical aerial surveys were conducted. The technical appendix will help inform best practices and provide details of how the data was collected.

12. Monitoring and Reporting

Project management information will be recorded in the Historic England ProjectView (MS Project) and kept up to date by the project team via the corporate time recording system. This will be used by the Project manager for monitoring progress.

Highlight reports will be produced by the *Project Manager* using ProjectView at each review point and circulated to relevant internal and external stakeholders.

13. Constraints

Due to the nature of aerial survey reconnaissance a long timescale (one year) has been allocated to the project to allow for optimum weather and ground conditions for the survey stages of the project. The upcoming multidisciplinary project targeting the Yorkshire Wolds is also due to commence in the 2025 financial year, so it is planned that this project will be completed in time for the photographs to be used in the aerial investigation and mapping elements of that project.

14. Risks

The project risks are detailed in the Risk Log below. This is a starting point, a live risk log will be available to all team members in ProjectView which will be updated as and when risks are identified or dealt with.

Risk No	Description	Probability (1 to 5)	Impact (1 to 5)	Countermeasure	Time/cost	Owner
01	The weather could prohibit flying	3	4	Wait for a weather window/adjust the timetable.	A survey day missed	RA
02	Pilot unavailability	3	4	Constant liaison with the pool of pilots.	A survey day missed	RA
03	Aircraft unavailability	2	4	Keep to a strict maintenance schedule.	A flying day missed	RA
04	In-flight tech/equipment issues	2	4	Ensure equipment is checked thoroughly before conducting the survey. There are always two cameras available during flight as well as backup GPS and maps.	This could result in partial loss of data for individual flights	RA
05	Staff Illness	2	4	The duration of the project will be adjusted accordingly.	Unknown	ALL
06	IT issues (general)	2	2	Put in IMT request for help when an issue arises.	Unknown	ALL
07	Loss of data due to IT failure or corruption	2	4	Corporate IMT data security measures are in place. Data will be backed up at the earliest opportunity and regularly backed up if any changes are made, i.e. in the processing stages.	Unknown	

08	Mistakes with processing photographs and flight data	1	2	Deal with problems highlighted in QA feedback swiftly.	One day	RA/DG
09	Unavailability of members of the project team due to other commitments	4	4	Attempt to align timetable with other team's projects and commitments. Ensure clear communication of availability at all stages of the project.	Unknown	ALL
10	Poor ground condition for cropmark development	3	4	Delay in summer survey flights	Unknown	RA

Probability: 1 = Remote; 2 = Unlikely; 3 = Possible; 4 = Probable; 5 = Highly probable

Impact: 1 = Insignificant; 2 = Minor; 3 = Moderate; 4 = Major; 5 = Extreme/Catastrophic

15. Assumptions, Issues and Dependencies

Assumptions: It is assumed that sufficient staff resources will be available for the entirety of the project.

Issues: Issues will be logged by the Project Manager in a live document accessible to all team members on ProjectView.

Dependencies: The majority of the project is dependent on the survey stages of the project. If the weather is not good enough to conduct the surveys the deadline for completion of the entire project may need to be pushed back.

16. Change Request Process

Any changes to the project scope will be overseen by the project manager and administered using ProjectView. Approval for changes to scope will be agreed by the project Executive.

17. Products/Outputs

17.1 Product Table

No.	Product Description and Format	Purpose	Allocated to	QA	Communication/ dissemination plan	Stage/delivery date
1	Vertical aerial photographs (RAW, TIFF and JPEG)	Record Archaeological sites and their condition	RA	DG	Available in the Historic England Archive and online Aerial Photograph Explorer (APEX)	Summer photos ready by 30 Sept 2024 and 2025 Winter ones by 15 April 2025
2	Oblique aerial Photographs (RAW, TIFF, JPEG and shapefiles)	Record Archaeological sites and their condition	RA	DG	Available in the Historic England Archive and online Aerial Photograph Explorer (APEX)	Summer photos ready by 30 Sept 2024 and 2025 Winter ones by 15 April 2025
3	Flight data (GPS data, flight reports and vertical flight plan GPX files)	Record flight data to aid in the location of aerial photographs in the cataloguing process	RA	DG	Stored in the Historic England Archive.	1 week after flight
4	Orthophotographs	Create orthophoto for future mapping project	DK	MO	Stored in the Historic England Archive	1 month after photos processed
5	Digital surface model	Create a Digital Surface Model for future mapping project	DK	MO	Stored in the Historic England Archive	1 month after photos processed
6	End of project report	Provide a summary of the project	RA	DG		By 31 October 2025
7	Technical Appendix (report)	To provide a detailed report of the vertical survey processes	RA	DG		By 31 October 2025

17.2 Ownership and Copyright

Data for project use: Data used in the corporate GIS is licensed under Historic England agreements, including Ordnance Survey products.

Final Products: All products are Historic England copyright.

17.3 Product Storage/Archive

All data will be archived with the Historic England Archive in line with Historic England Archive Guidance (Cole and Backhouse, 2015).

18. Lessons Learned

Lessons learned will be tracked by the PM throughout the project and incorporated into the End of Project report. Lessons learned throughout the project lifecycle will be added to ProjectView.

19. Assessing Impact/ Outcomes

Improved information to inform understanding and care of scheduled and non-designated sites and landscapes within the project area. This will be assessed by the number of scheduled monuments where information can be added to the HE Heritage Asset Management system that underlies the Heritage at Risk methodology. The baseline dataset of photographs will also impact the future multidisciplinary project and contribute towards its success.

20. Project Task List

Stage/ Task No.	Task Name/Detail	Staff initials/ Specialism	Products	No. of days/ Work	Predecessors/ Dependencies
Project management tasks					
1	Project design	Project manager (RA)	Project design document	5 days	
1.1	Organise and attend monthly project team meetings	ALL team members, organised by project manager (RA)	Meeting notes uploaded to meeting log in ProjectView	1 day	
1.2	Produce monthly updates including RAG reports.	Project manager (RA)	RAG reports and monthly updates are uploaded to ProjectView	2 days	
1.3	Project management tasks	Project manager (RA)		5 days	
Review Point 1					
2	Target analysis and preparation in GIS	Robyn Andrews – Aerial Survey Investigator (Reconnaissance)	Shapefiles	0.5 day	
3	Create vertical flight plans for winter and potentially summer flights	Robyn Andrews – Aerial Survey Investigator (Reconnaissance)	Shapefiles of vertical flight plans (GPX)	2 day	2

4	Conduct two summer flights	Robyn Andrews - Aerial Survey Investigator (Reconnaissance)	Photographs (RAW), GPS flight traces and flight reports.	2 days	2 and 3
5	Process data from the summer flights	Robyn Andrews - Aerial Survey Investigator (Reconnaissance)	Photographs (TIFF & JPEG)	2 days	4
6	Quality assurance of reconnaissance recording	Damian Grady – National Aerial Reconnaissance Manager	Feedback	0.5 days	4 and 5
7	Submit photographs to the Archive	Robyn Andrews - Aerial Survey Investigator (Reconnaissance)		0.25 days	4,5 and 6
Review Point 2					
8	Obtain ground control points for SFM processing (if vertical flights are undertaken in summer)	Dave Went – Landscape Archaeology Principal		2 days	3,4 and 5
9	Process vertical photographs for orthophotograph and digital surface model (if vertical flights are undertaken in summer)	Dave Knight – Senior Archaeological Investigation		2 days	3,4,5 and 8
Review Point 3					
10	Conduct a winter flight with the vertical camera and possibly an extra flight using the oblique cameras	Robyn Andrews - Aerial Survey Investigator (Reconnaissance)	Photographs (RAW), GPS flight traces and flight reports.	2 days	2 and 3
11	Processing data from the winter flight	Robyn Andrews - Aerial Survey Investigator (Reconnaissance)	Photographs (TIFF & JPEG)	2 days	2,3 and 10
12	Quality assurance on reconnaissance processing	Damian Grady – National Aerial Reconnaissance Manager	Feedback	0.5 days	10 and 11
13	Submit photographs to the Archive	Robyn Andrews - Aerial Survey Investigator (Reconnaissance)		0.25 days	10,11 and 12
Review Point 4					

14	Obtain ground control points for SFM processing	Dave Went – Landscape Archaeology Principal		2 days	3, 10 and 11
15	Process vertical photographs for orthophotograph and digital surface model	Dave Knight – Senior Archaeological Investigation		2 days	10, 11 and 14
Review Point 5					
16	Conduct two summer flights	Robyn Andrews - Aerial Survey Investigator (Reconnaissance)	Photographs (RAW), GPS flight traces and flight reports.	2 days	2 and 3
17	Process data from the summer flights	Robyn Andrews - Aerial Survey Investigator (Reconnaissance)	Photographs (TIFF & JPEG)	2 days	16
18	Quality assurance on reconnaissance recording	Damian Grady – National Aerial Reconnaissance Manager	Feedback	0.5 days	16 and 17
19	Submit photographs to the Archive	Robyn Andrews - Aerial Survey Investigator (Reconnaissance)		0.25 days	16,17 and 18
Review Point 6					
20	Obtain ground control points for SFM processing (if vertical flights are undertaken in summer)	Dave Went – Landscape Archaeology Principal		2 days	3, 16 and 17
21	Process vertical photographs for the orthophotograph and digital surface model (if vertical flights are undertaken in summer)	Dave Knight – Senior Archaeological Investigation		2 days	16,17 and 20
Review Point 7					
22	Technical Appendix	Robyn Andrews - Aerial Survey Investigator (Reconnaissance)	word document	3 days	
23	End of Project report	Robyn Andrews - Aerial Survey Investigator (Reconnaissance)	word document	3 days	All tasks
Total staff days				47.75	

21. Timetable / Schedule

Overall Timetable:			
Start Date:	01/04/2024	Finish Date:	31/10/2025
Milestones:			
1.	Complete planning stages for summer and winter flights		
2.	Complete two summer flights by 30 August 2024		
3.	Complete processing of the summer flights and submit to the archive by 30 September 2024		
4.	Complete a winter vertical survey by 15 April 2025		
5.	Complete processing of the winter survey and submit to the archive by 15 May 2025		
6.	Complete two summer surveys by 30 August 2025		
7.	Complete processing of the summer surveys and submit to the archive by 30 September 2025		
8.	Complete the final report and close the project by 31 October 2025		

TIME RECORDING TASK	PD TASK NOS	START	END	DAYS	STAFF
Project Management Tasks	1, 1.1, 1.2 and 1.3	01-APR-2024	10-OCT-2025	13	Robyn Andrews
Stage 1					
Target analysis and preparation in GIS and vertical flight plans	2 and 3	01-APR-2024	15-APR-2024	2.5	Robyn Andrews
Complete and process two summer flights and submit to the archive	4, 5, 6 and 7	15-APR-2024	30-SEP-2024	4.75	Robyn Andrews Damian Grady (QA)
Stage 2					
Prepare and create an orthophotograph and digital surface model if a vertical survey was conducted in the summer months	8 and 9	Can be started once the flights have been conducted and images processed	30-OCT-2024	4	Dave Knight Dave Went
Stage 3					
Complete and process the winter flights and submit to the archive	10, 11, 12 and 13	30-AUG-2024	15-APR-2025	4.75	Robyn Andrews Damian Grady (QA)
Stage 4					
Prepare and create an orthophotograph and digital surface model of the winter vertical survey	14 and 15	Can be started once the flights have been conducted and images processed	15-MAR-2025	4	Dave Knight Dave Went
Stage 5					
Complete and process two summer flights and submit to the archive	16, 17, 18 and 19	15-APR-2025	30-SEP-2025	4.75	Robyn Andrews Damian Grady (QA)

Stage 6					
Prepare and create an orthophotograph and digital surface model if a vertical survey was conducted in the summer months	20 and 21	Can be started once the flights have been conducted and images processed	30-OCT-2025	4	Dave Knight Dave Went
Stage 7					
End of project report and technical appendix	22 and 23		31-OCT-2025	6	Robyn Andrews
AIM Project Closed			31-OCT-2025		

22. Health and Safety

Historic England operates to COMMISSION REGULATION (EU) No 965/2012 ((UK) Part-NCO) as retained (and amended in UK domestic law) under the European Union (Withdrawal) Act 2018, for non-commercial flights in other-than complex motor-powered aircraft. All Historic England pilots have Commercial pilot licenses.

Historic England aircraft are maintained by CAA-approved maintenance organisations.

All reconnaissance duties are risk-assessed every six months. The current risk assessment is accessible via the HSSD Health and Safety Plan SharePoint pages (*unable to share externally, confidential document*).

All desk-based work will be subject to Historic England office H&S policy.

23. References

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