

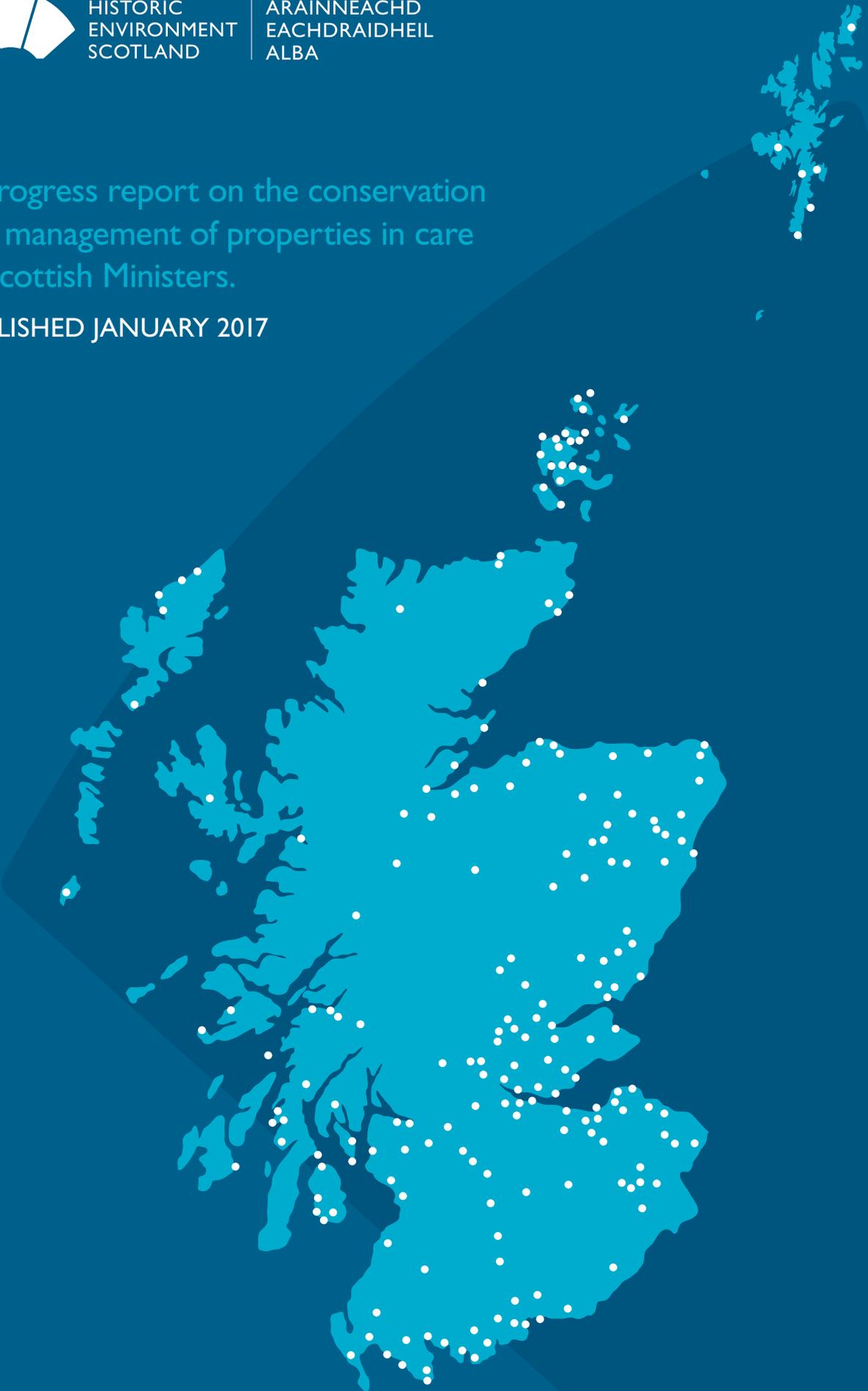


HISTORIC  
ENVIRONMENT  
SCOTLAND

ÀRAINNEACHD  
EACHDRAIDHEIL  
ALBA

A progress report on the conservation  
and management of properties in care  
of Scottish Ministers.

PUBLISHED JANUARY 2017



# INTRODUCTION

**Historic Environment Scotland (HES) was established by the Historic Environment Scotland Act 2014. From 1 October 2015 HES assumed the responsibility of managing the properties in care of Scottish Ministers and their associated collections under formal Schemes of Delegation.**

The purpose of this report is to provide an update on progress one year on, in relation to the properties in care, with a particular focus on conservation. This transparency and broad accountability is in keeping with the key principles of the 2014 legislation and demonstrates HES's commitment as a public body and a recognised Scottish charity.

Since 2014 there has been an unprecedented amount of analysis and research to assess the condition of properties in care, better understand the context and challenges, and to develop a new methodology for monitoring and reporting on condition. The assessment of the condition of the properties in care of Scottish Ministers and associated collections was a key piece of work in preparing for HES to take on the conservation and management of these assets. The core part of this publicly managed collection has been in state care for some 700 years and has not previously been subject to such rigorous analysis.

In October 2015 we published a baseline condition of properties in care, along with a range of principles and standards setting out our approach going forward. In the past year we have continued to enhance our understanding of the assets in our care, as well as take significant steps forward in developing assessment and reporting tools, unique systems which reflect the particular needs of the properties. Our Resource Needs Assessment set out to consider the broader requirements of the estate and to inform our thinking on what we need to do to ensure we maintain high standards and operate efficiently.

Our ongoing objective is to ensure that these national assets are passed to future generations of Scots and international visitors to enjoy, and continue to contribute to the socio-economic and cultural wellbeing of communities.

A priority for HES is the development of a comprehensive Investment Plan. The conservation element is a key part, but the investment plan will also address other HES responsibilities, including the needs of visitors<sup>1</sup> and the conservation and management of the archives which we inherited from the Royal Commission on the Ancient and Historical Monuments of Scotland (RCAHMS). This Investment Plan is planned for completion in spring 2017.

<sup>1</sup> See section 2 of SoD for properties

Keills Chapel, Argyll



## BACKGROUND

The Scheme of Delegation for the properties in care (and the separate Scheme of Delegation for the associated collections) of Scottish Ministers was developed under Part 1, Section 3 of the Historic Environment Scotland Act 2014. It provides for Scottish Ministers delegating the exercise of any of their functions in relation to properties in care and the associated collections.

A property in care (PIC) is defined as any heritable property which is of historical, archaeological, architectural or cultural significance or interest; which is owned or occupied by, under the guardianship of, or otherwise under the management and control of the Scottish Ministers; and which is included by Ministers in the list of properties in care compiled and maintained under Section 4 of the 2014 Act. There are currently 336 such properties.

Ministers' responsibilities are presently delegated to Historic Environment Scotland and the Scheme of Delegation for the properties, published in October 2015, delegates the general functions of managing the properties in care including, "ensuring their conservation, articulating and safeguarding their cultural significance, providing public access for current and future generations, and managing the associated commercial operations".<sup>2</sup>

The Schemes of Delegation are designed to provide assurance to Ministers and the public that the approach to caring for these national assets adheres to established principles and standards. These Schemes are published on the HES website. In addition a range of other documents relating to the methodology of assessing condition and providing a baseline of condition were published in October 2015.

As part of the Scheme of Delegation outcomes, HES is required to provide an Asset Management Plan for the properties in care, with a supporting investment plan. This will form part of the comprehensive investment plan for the organisation referred to above.

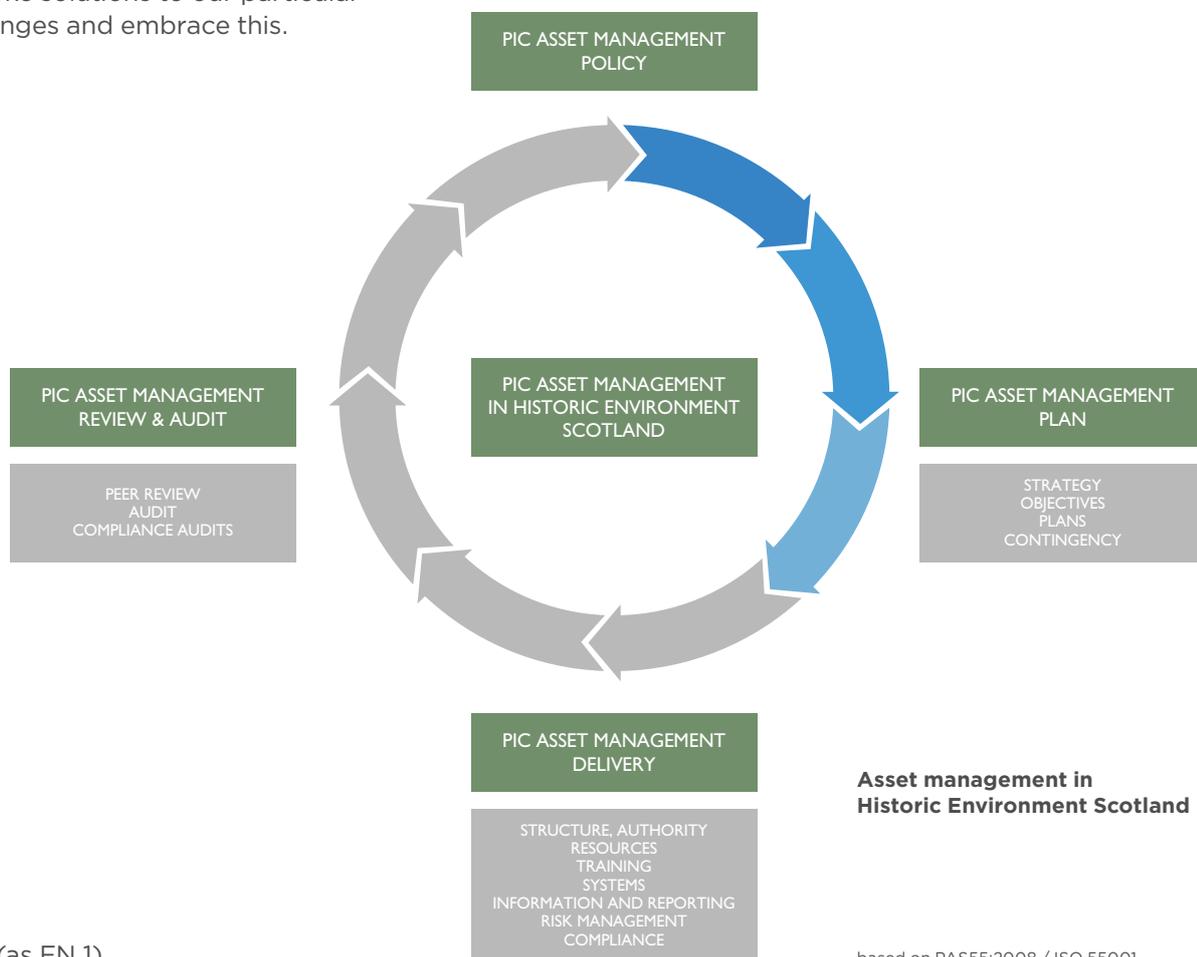


**Bridge of Oich,  
near Fort Augustus**

# DEVELOPMENT OF AN ASSET MANAGEMENT POLICY

The properties in care of Scottish Ministers represent some 6000 years of Scottish history and include a number of iconic sites of international significance. They are often challenging to care for and the impacts of a changing climate pose increasing risks. Whilst we employ some accepted asset management principles in delivering our objectives, there are key differences in the outcomes we expect and therefore our approach requires tailoring to the assets we care for. We accept that this requires bespoke solutions to our particular challenges and embrace this.

The framework for asset management in Historic Environment Scotland is illustrated in the diagram below.



<sup>2</sup> See (as FN 1)

based on PAS55:2008 / ISO 55001

## PIC ASSET MANAGEMENT DELIVERY

A key focus in fulfilling the Scheme of Delegation requirements and delivering an Asset Management Plan has been to develop the necessary tools for management and delivery. This has been a priority in year one of HES and has included a number of activities that are elaborated on in the following pages.

1. Condition survey updates and development of Monument Condition Indicator (MCI) data.
2. Development of a new digital field survey tool – the PIC Asset Management tool.
3. Development of a climate change assessment methodology under the 2009 Climate Change Act.
4. Review of compliance related to the properties in care.
5. The development of a resource prioritisation matrix for properties in care.
6. Publication of Conservation Standards for properties in care.
7. Assessment of future conservation investment and resource requirements.



Glasgow Cathedral

# I. CONDITION SURVEY UPDATES AND DEVELOPMENT OF MONUMENT CONDITION INDICATOR (MCI) DATA

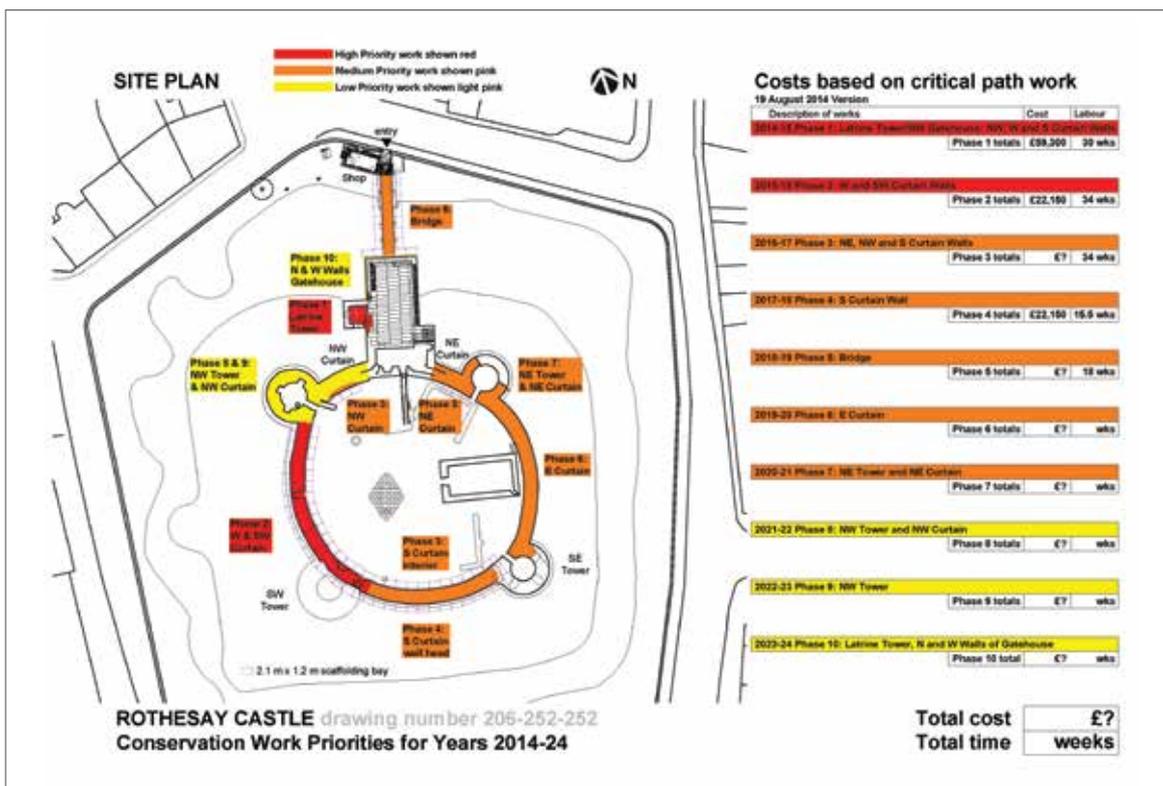
We have established a Monument Condition Indicator for each of the properties. This attributes a numerical value to the levels of urgency and risk attached to each building element of work within the existing Condition Survey for each monument. This is more robust than a simple 'number of repairs' measure which does not convey the scale of repairs required or the consequence if the repairs are not carried out. It also attributes some weighting to the impact of no action on cultural significance that a straightforward 'cost of works' methodology takes no cognisance of. In effect, the system attributes a weighting

factor to the conservation requirement to take account of the fact that not all elements listed in the Condition Surveys have the same urgency or consequence if they are not completed.

We have completed digitisation of all historic condition survey data. This forms the baseline for all future work. We have also set desirable MCIs for a range of 'typical' and 'atypical' PICs. This has allowed us to establish a range of optimal indicators for all properties.

Based on this, for each property in care, we have assessed the investment requirements to move the current MCI to the desirable MCI. When aggregated, this provides a national picture.

We have taken forward the development of nationally consistent programming and resource allocation tools. For example, ROY diagrams (example below) will be generated as an output by the Properties Asset Management System in the longer term to articulate our conservation strategy for each PIC within the asset management plan.



Example ROY Diagram for Rothesay Castle, Isle of Bute

## 2. DEVELOPMENT OF A NEW DIGITAL FIELD SURVEY TOOL – THE PIC ASSET MANAGEMENT TOOL

Previously, analogue condition assessments for each historic site across the HES estate have been undertaken for many years by conservation architects with an analogue output. The aim of the condition assessment was to inform and prioritise the conservation work at individual historic sites and across the entire HES estate. The output format was typically a Microsoft Word document.

This method of data capture and delivery made any subsequent interrogation of the data captured for individual or multiple sites extremely difficult and time consuming, both in terms of condition or conservation work done and by whom or when. We identified the need for a system that can store and present conservation and maintenance information for historic sites and provide a live snapshot of condition

at any given time. Ideally, the same system could be used to make the process of recording data more efficient and more consistent, and plan effective programmes of maintenance and repair. We also require a system that can enable more efficient reporting and more dynamic requests for information and analysis. HES has considerable digital 3d expertise and has been leading exponents of BIM for heritage assets which was seen as providing a long term opportunity and benefit.

Property asset management systems with monitoring schemes and planning tools have been in existence for decades. However, these systems are most suitable for the management of non-historic assets and are generally based on 'obsolescence' (i.e. repairs and replacement based on fashion and usefulness rather

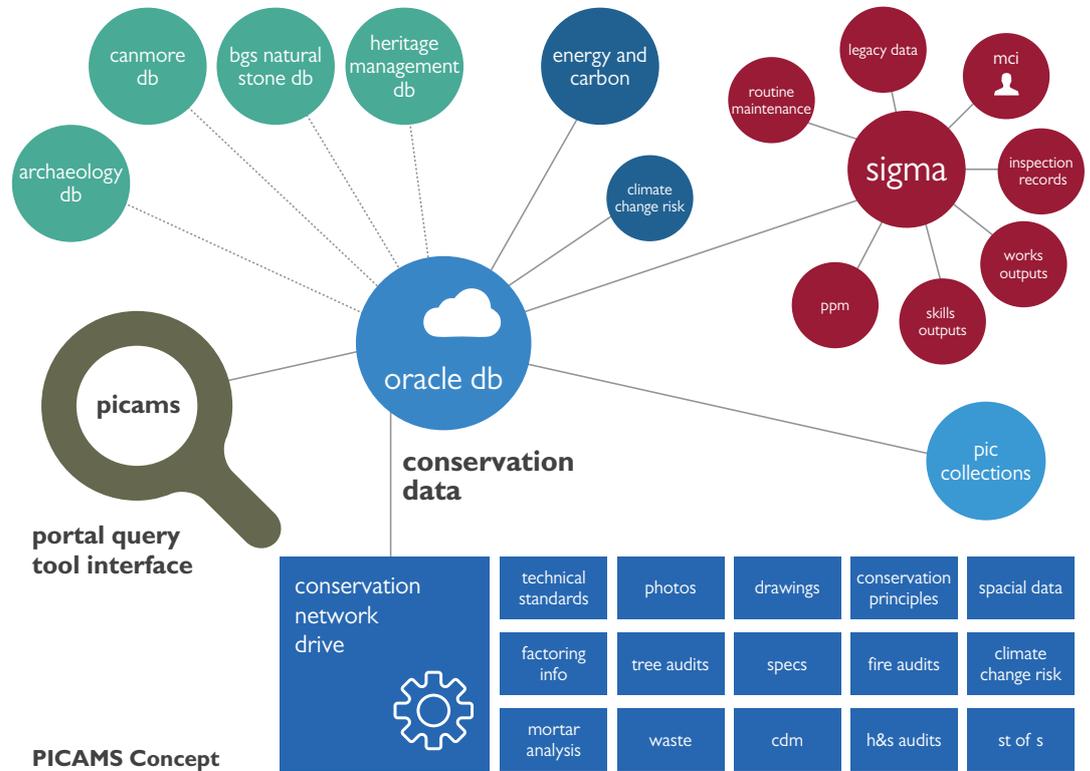
than perpetuity). Some heritage asset management systems do exist but these tend to be focused on object based collections or adaptations of systems designed for modern buildings.

HES have a long-standing research relationship with British Geological Survey (BGS) and we have delivered a research project to develop an integrated digital site assessment system that provides a refined survey process for stone-built (and other) historic sites. Based on the BGS System for Integrated Geoscience Mapping (BGS SIGMA)—an integrated workflow underpinned by a geo-spatial platform for data capture and interpretation—the system is built on top of GIS software, and is underpinned by a relational database. The system is capable of generating indicators of urgency and risk for conservation and maintenance issues across the HES estate and is currently assisting with the preparation of a methodology for monitoring and reporting the condition of the estate to Scottish Ministers. This is a considerable advance for HES and potentially for the broader sector — our longer term vision is for a fully integrated 3d asset management system specifically designed for heritage assets.



**Field testing new HES SIGMA survey tool**

**Outline of PICAMS:  
Properties In Care  
Asset Management  
System**



A prototype field-based site assessment system has been developed and field tested, currently referred to as 'HES SIGMA'. The system allows for field recording of information, condition reporting, and maintenance action outputs. We are currently carrying out the first phase of these digital condition data surveys on site at PICs and developing the reporting tools and outputs.

The fully relational capability of HES SIGMA, with data fields and predetermined dictionaries, allows subsets of the data to be queried and analysed. The results can be presented in either statistical or map form in GIS, thereby providing a powerful and versatile planning tool.

This approach provides the flexibility required for surveying historic sites and enables delivery of live condition survey information, which enables high quality reporting as required under the Scheme of Delegation. HES will use this newly developed survey methodology to ensure a consistency of approach and provide a means to store and present conservation information for historic sites included in the HES estate. The system will allow HES to plan effective programmes of maintenance and repair works, and to monitor the condition of the estate over an extended period of time. It forms the foundation of a broader asset management system known as PICAMS (Properties in care asset management system).

### 3. DEVELOPMENT OF A CLIMATE CHANGE ASSESSMENT METHODOLOGY UNDER THE 2009 CLIMATE CHANGE ACT

Scotland's climate is changing. The last century has been characterised by overall warming with altered precipitation patterns leading to wetter winters, drier summers and increased frequency of extreme and unpredictable weather including heavy rain and storm events. Since the 1960s average precipitation has increased by over 20%, and in northern Scotland winter precipitation has increased by over 70%. Sea level rise around the Scottish coast has accelerated in the last 2 decades and now exceeds 3-4 mm/yr. around most of Scotland.

These changes are predicted to continue and intensify through the present century, accelerating damaging impacts on Scotland's environment and infrastructure, with significant consequences for economy and society.



Average annual change observed in Scotland since 1961 (Scotland's Climate Trends Handbook, Sniffer 2014).

**Hermitage Castle**



The exposure of monuments to everyday natural and anthropogenic influences (weather, pollution, visitor ‘wear and tear’ etc.) results in a gradual and continual decline in their physical state. Climate change is acting as a multiplier to the natural incremental deterioration of traditionally built structures due to changes in several aspects of weather.

These altered precipitation patterns and increased frequency of extreme and unpredictable weather events impose additional stresses on buildings that could not have been foreseen during the construction or subsequent consolidation of historic monuments. As a result, both original and previously modified architectural detailing can sometimes struggle to deal with the demands of today’s climate. Additionally, increasing temperatures mean that issues related to biological growth on masonry are much more significant than previously; the 10 warmest years on record have been since 1998.

Our research shows that the changing climate is leading to changes in the way building fabric weathers, with decay of stone seeing a progression from moderate chemical weathering to strong chemical weathering necessitating an increased frequency of intervention and shorter time gaps between repairs. The changes to our weather patterns observed over previous decades are set to continue and accelerate, and related issues such as rising sea level will have a more significant impact on parts of the estate.

HES is required as part of the Scottish Government’s Climate Change Action Plan to undertake a range of actions related to research and dissemination of information in relation to the adaptation of the historic environment to the physical impacts of climate change. This includes the development of a methodology for assessing climate change risk to heritage sites, including a climate change risk register for the HES estate.

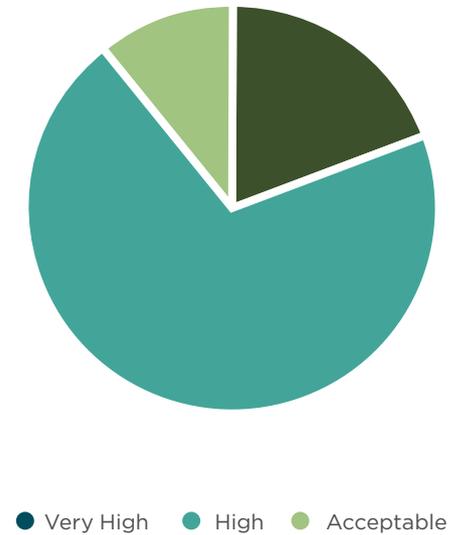
We are currently undertaking an environmental assessment of sites using a number of environmental criteria such as flooding (fluvial, coastal, pluvial, groundwater), coastal erosion and landslide/ slope instability with datasets from SEPA and BGS. We are part of a working group of other public bodies (e.g. NHS, Scottish Water, Local Authorities) coordinated by Adaptation Scotland.

A first pass of the data has assessed 352 sites\* for 6 environmental hazards, in order to gauge impact to the physical fabric of properties and sites. Impact scoring ranges from 1 to 5 (with 1 = negligible impact /site remains in optimal condition, to 5 = irrecoverable loss of historic fabric). The assessment is linked to the PIC Monument Category (i.e. roofed monument, unroofed monument, field monument etc.).

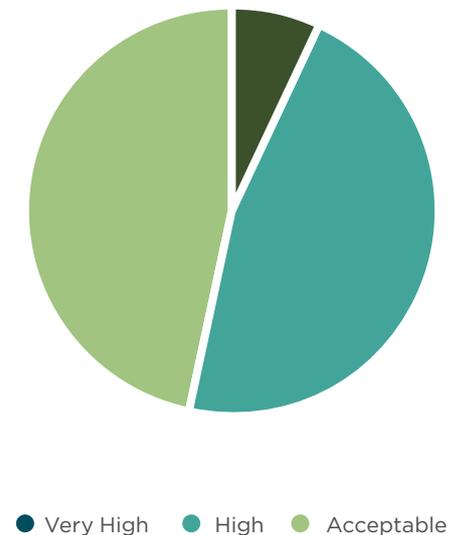
Initial results from the desk-top environmental risk assessment show that of the 352 sites, 89% are exposed to environmental factors in a way that is considered unacceptable i.e. damaging to the site or monument fabric (Inherent Risk: very high or high – see chart). Taking into account our site operations and maintenance regime (presence of site staff, conservation teams etc.) the number of sites classified as ‘at risk’ is reduced to 53% (see chart of Residual Risk). Of these 28 sites are classified as very high and 160 sites as high.

The high and very high risk categories indicate unacceptable risk that requires actions in order to control or reduce exposure to hazards. We define risk as exposure to a range of environmental threats / hazards which have the potential to cause damage to the asset and its cultural significance. These sites on the Residual list are currently undergoing a priority assessment to identify mitigation requirements. In some cases work has recently been carried out or is currently underway to reduce the residual risk e.g. rock containment at Edinburgh Castle; coastal protection works at Blackness Castle.

**Inherent Risk**



**Residual Risk**



\*Climate change risk assessment data reflects complex sites where more than one asset has been assessed or assets are geographically split.



The above Hazard map for coastal erosion at Blackness Castle shows high levels of risk (orange) in the southern part of the site. Recent work by the HES Conservation team has included repairs to the sea wall in this area, reducing the risk to acceptable levels (below).

**Hazard map for coastal erosion at Blackness Castle**

The environmental/climate change risk assessment is an ongoing project working in partnership with other organisations. Further refinement of the results, currently underway, is intended to help inform investment requirements for the HES estate, in particular identifying sites for priority action. This new and ambitious area of work will contribute towards corporate risk management in terms of wider operational factors such as visitor access to sites and public events at our properties.



**Sea wall repairs at Blackness Castle**

## 4. REVIEW OF COMPLIANCE RELATED TO THE PROPERTIES IN CARE

A key area of focus since the creation of HES has been a detailed review of compliance in relation to properties in care. An assessment in June 2016 provided an overview of operational, legislative and regulatory compliance. This work identified thirteen areas that require attention.

Area of exposure / high risk	Relevant Guidance
1. Facilities Management & PPM Contract	Facilities Management
2. Landlord surveys of properties	Occupiers Liability (Scotland) Act 1960 and H&S at Work Act 1974
3. High level masonry inspection programme	
4. Fire Safety Management Audits	Fire Safety (Scotland) Regs 2006
5. M&E installations	Services Infrastructure
6. Visitor safety management	Occupiers Liability (Scotland) Act 1960 and H&S at Work Act 1974
7. Rock geotechnical surveys and rock scaling	
8. Security installations and CCTV	Security and Counter terrorism
9. Depot facilities maintenance and investment	Workplace (H,S & W Regs 1992)
10. Waste management and collection infrastructure	Waste (Scotland) Regulations 2014
11. Carbon reduction targets	Climate Change (Scotland) Act 2010
12. Climate Change resilience and adaption mitigation	
13. Water discharge at specific sites	Waste Water SEPA Regulations

In year additional resource allocation is currently being made to deal with some of these issues or will have non-cash resource deployed to ensure an improving situation going forward. An additional staff resource is being deployed shortly to improve the estate based compliance position.

## 5. THE DEVELOPMENT OF A RESOURCE PRIORITISATION MATRIX FOR PROPERTIES IN CARE

The prioritisation of resource allocation is complex given the wide range of variables and demands within our estate. We have identified the need to develop a multi criteria assessment tool that allows us to generate prioritised demands based on single issues or a combined approach. This will allow us, for example, to allocate resource by condition, external factors or financial contribution to HES.

This all-inclusive approach considers a range of different indicators of monument status and performance that influence the decision making process. Indicators cover a range of considerations and relate to the vulnerability, need, wider benefits and impacts of the monument. They include monument condition, infrastructure requirements, economic potential, climate change vulnerability, heritage value, H&S risk, reputational sensitivity, social opportunity and inclusion. Each of the indicators have been given a rating (low to high on a scale of 1 to 5), with built in weighting factors for data used to build up the particular indicator. Behind the matrix sits a wealth of raw data, some areas of which are more developed than others.

By batching the monuments, depending on the dominant sets of indicators to be used for assessing particular requirements, we can use the matrix as a comparator tool to consider prioritisation of investment across the PICs.

The conservation priorities highlighted by the tool can then be considered with other Corporate priorities in HES, including visitor facing needs and opportunity; mechanical and engineering and infrastructure requirements; and Collections priorities to inform the HES Investment Plan.

It is intended that the multi criteria assessment tool will be a live tool that will develop through time to help inform our decision making process and demonstrate how our Asset Management Plan and associated Strategic Investment Plan support and deliver Scottish Government priorities, the Historic Environment Scotland Act 2014, The Scheme of Delegation and the HES Corporate Plan. The development of this approach is ongoing at present.

## 6. PUBLICATION OF CONSERVATION STANDARDS FOR PROPERTIES IN CARE

The Conservation Standards set out desired outcomes for the standard of conservation and maintenance works on the properties in the care of Scottish Ministers undertaken by Historic Environment Scotland. The Standards are key to the delivery of our obligations under the Scheme of Delegation for conservation and management of the properties and the associated collections.

Sitting alongside our Conservation Principles and Technical Specifications they form the backbone of how we deliver our core conservation purpose across the properties for which we have responsibility. They are intended to capture and reflect good practice and will drive the delivery of nationally consistent standards across our operations. They will also be one of the key measures we use to review our performance.

It is understood and accepted that all sites are different, and there is rarely a single or 'correct' solution for a particular situation in conservation. These standards, rather than being prescriptive, set out a range of technically acceptable options for consideration and application for specific situations.

The standards promote the importance of traditional Scottish materials and their appropriate use in traditional construction. The perpetuation and development of the skills and training required to deliver these conservation standards is critical to our operations. In delivering our work we are therefore able to add additional benefits and shall continue to endeavour to maximise such opportunities.

The Standards will evolve to incorporate our ever increasing understanding of materials and their performance, informed through our technical research work. The nature of the interventions required to mitigate against the impacts of Climate Change will be one of the main areas we will continue to lead on and develop as we strive to future-proof these precious and vulnerable assets for the people of Scotland.

## 7. ASSESSMENT OF FUTURE CONSERVATION INVESTMENT AND RESOURCE REQUIREMENTS

Ongoing programmes of conservation and maintenance continue to be delivered across the country. In financial year 2016-17 sixty projects are currently live delivering conservation projects at properties in care, over and above ongoing minor maintenance works. Additional funding is being deployed to support priority works as part of the Scottish Government Economic Stimulus funding.

However, there has not previously been a national level analysis of condition and investment requirements for the properties in care of Scottish Ministers. The management of many of these properties as state assets extends back to the 14th Century. The delivery of such an assessment has been a significant undertaking but extremely worthwhile in understanding the true nature of our challenge and how we might prioritise our resources going forward.

We undertook a Resource Needs Assessment in order to baseline our current resources in terms of finance, people, skills and expertise and infrastructure, and to identify strengths and weaknesses in our delivery model and resources to fulfil our obligations longer term. It is also intended to inform our thinking around routes to delivering our obligations, and ensuring we have the appropriate resources and skills available.



This Assessment has identified a number of different options all requiring additional resource allocation to a greater or lesser extent. Three levels of property condition have been considered in this assessment: annual resources required to maintain existing condition; investment required to improve condition to a satisfactory level; and annual resources required to maintain the improved condition.

Property condition is never stable and is constantly dynamic depending on the specific construction and environmental factors affecting the asset. Our work indicates that £65m investment over the next ten years would deliver a satisfactory condition for the assets in our care with an additional £2.1m per year required thereafter to sustain this condition.

The Resource Needs Assessment also provides a range of information to inform the delivery of conservation and maintenance work in Historic Environment Scotland. We are presently evaluating this report as part of the development of a formal Asset Management Plan.

Our research highlights a range of issues in relation to deployment of resources, perpetuating the skills and expertise that is required and location of our teams relative to the future work demands. It has highlighted particular issues in relation to facilities management and compliance, which we have moved to tackle promptly. Infrastructure requirements (non-historic fabric) have been flagged and needs are currently being assessed as part of the HES Investment Plan. It has been a very useful exercise in considering what skills and expertise gaps we have at present and what might be required in the future.

## CONCLUSION AND NEXT STEPS

Significant progress has been made in fully understanding the challenges faced in caring for the properties in care of Scottish Ministers. Like many other bodies there will be resource challenges going forward but for the first time in the history of state care of these assets, a robust assessment of that challenge has been made, a dynamic condition monitoring tool has been developed and the foundation of a high quality asset management system put in place. The Resource Needs Assessment provides valuable baseline data in identifying resource gaps and issues which need to be considered in more detail. Many items identified are already being progressed. Prompt resource deployment to tackle compliance issues is being made at present and we will continue to focus on that area in the short to medium term.

Next steps will be to:

- Continue to assess the conservation requirements of the properties by delivering a rolling programme of survey and reporting work using our new HES Sigma system.
- Consider the findings of the Resource Needs Assessment.
- Respond to issues relating to compliance as a priority.
- Deliver a formal Asset Management Plan for HES.
- Deliver the HES Investment Plan in the spring of 2017.
- Establish an external Peer Review Group by early 2017.
- Complete the HES Access Policy by October 2017.
- Continue to develop the Properties in Care Asset Management System - PICAMS.
- Development of Conservation Technical Specifications in line with the Scheme of Delegation.

**Elgin Conservation Centre — one of two masonry training centres we operate to train our apprentices and those from the broader sector.**



## Appendix A

### KEY PROJECTS AND TERMINOLOGY

**Schemes of Delegation (SOD):**

The delegation to HES from Scottish Ministers which enables the management of Scottish Minister's properties in care and associated collections. A range of policies and guidance support the SODs and may be found on our website.

**Resource Needs Assessment**

(RNA): A Gap Analysis undertaken in 2016 to evaluate the resources required to conserve and manage the properties in care.

**HES Investment Plan:**

The over-arching investment plan for Historic Environment Scotland currently in development, of which conservation is a component.

**Monument Condition Indicator (MCI):**

The measure attributed to provide a guide to the condition of a particular property including an element of risk.



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