Historic England

Strategically Assessing the Historic Landscape's Sensitivity and Capacity in Relation to Change: a discussion document to inform preparation of advice

Peter Herring

Discovery, Innovation and Science in the Historic Environment

Research Report Series no. 91/2022

Research Report Series 91-2022

Strategically Assessing the Historic Landscape's Sensitivity and Capacity in Relation to Change: A discussion document to inform preparation of advice

Peter Herring

ISSN 2059-4453 (Online)

SUMMARY

Historic England (HE) commissioned this review of approaches to modelling the sensitivity to or capacity for change of the historic landscape and seascape.

The project aims to help HE develop advice for a reasonable and deliverable scenario-led approach that would support the historic environment sector when becoming more involved with government, agencies, developers, landscape and seascape managers, planners and wider society when negotiating proposed or expected change, including very early in the consideration of change. Such involvement may be upstream from master planning and design within formal development planning, or it may be a means of getting to grips with strategic opportunities and threats for historic landscape.

It may include scoping locations and forms of major industry, infrastructure (transport, power generation and transmission) and house-building initiatives, developing responses to the predictable effects of climate change, proactively designing forms of environmental growth like woodland creation and biodiversity enrichment, and guiding initiatives to support sustainable land use and sea use, including agriculture and fishing. To do that, it would consider the patterns, fabric and character of extensive areas, such as hinterlands of cities or whole counties or groups of counties, or large areas of the sea.

HE was particularly interested in approaches that utilised historic landscape characterisation (HLC) and historic seascape characterisation (HSC), the products of two England-wide programmes that it had supported and overseen. These had been designed to help the historic environment sector, its partners and wider society understand and care for all of our historic landscape and seascape, as required by commitments taken on by the UK government as a signatory and ratifier of the European Landscape Convention. Developing and applying assessments of sensitivity and capacity in relation to particular forms of change would be an important means of achieving the expected public benefit of these programmes.

The review complements HE's other ongoing initiatives that are examining approaches to assessing the sensitivity of known and unknown (but potentially predictable) archaeological remains.

The examination of aims, methods and principles, and the issues encountered and benefits perceived in the numerous previous exercises in sensitivity and capacity assessment that were examined and reviewed, enabled improved understanding of the meaning and relevance of key concepts like change, effects and impacts, vulnerability, sensitivity, capacity, and the relationships between them. This exercise was also informed by comparison of historic environment sector approaches to sensitivity and capacity with those developed in the allied but separate discipline of landscape character assessment.

This review culminated in the presenting and advocating of a scenario-led approach that has sensitivity and capacity assessment progressing through four main stages:

1 **Critical consideration of the change scenario**: its range of predictable effects and impacts, positive as well as negative.

2 **Assessment of the vulnerabilities and potentialities** of the HLC/HSC Type in relation to the scenario and its impacts and effects, to develop an understanding or measure of **sensitivity** to the change scenario.

3 **Assessment of the significance of that sensitivity** to society by consideration of the heritage values of the Type and its attributes, again in relation to the effects of the change scenario. This will develop an understanding of the **capacity** of the historic landscape character type or place to accommodate the change.

4 **Draw together these three assessments** of impact, vulnerability and significance and **present sensitivity and capacity** in the forms of maps and associated commentary, including recommendations.

This document includes as Section 10 a structured set of questions to present the project's findings and a recommended approach. The questions formed the basis of a Historic England workshop in October 2021 and were both open and rhetorical in order to invite further comment either at the workshop or in writing. The comments received have enabled this discussion document to be refined and adjusted to ensure that the advice which Historic England produces is as effective and as wide-reaching as it can be.

Note that the first three stages of the proposed method are also broadly followed by the 'three separate analytical stages' in 'evaluating the consequences of change' recommended in the recent Institute of Environmental Management and Assessment (IEMA) publication *Principles of Cultural Heritage Impact Assessment*, prepared in 2021 in association with the Chartered Institute for Archaeologists and the Institute of Historic Building Conservation.

Those three stages involve 'understanding change (a factual statement of how a proposal would change a cultural heritage asset or its setting, including how it is experienced); assessing impact (a scaled measure of the degree to which any change would impact on cultural significance); and weighting the effect (the measure that brings together the magnitude of the impact and the cultural heritage asset's importance)' (IEMA 2021, 6 and 10-11).

These stages succeed those through which an asset (which can include historic landscape or historic seascape) is understood: describing what it is and what is known about it, ascribing cultural significance to it and attributing importance to it, using a scale, high to low (IEMA 2021, 6 and 7-9).

The IEMA guidance was published after this discussion document was prepared; its principles and advice will require further consideration before any advice note on using historic characterisation in assessing sensitivity and capacity is prepared.

CONTRIBUTORS

Research was undertaken by the author as Historic England project number 8366, with HE guidance provided by Jonathan Last and David McOmish. It was also influenced by a workshop (reported on within the report) that was attended by Duncan McCallum, Vince Holyoak, Hannah Fluck, Deborah Mays, Chris Pater, Emily La Trobe-Bateman, Bill Klemperer, David McOmish, Jonathan Last, Sandy Kidd, Natalie Gates, Charina Jones, Dave Went, Sarah Newsome, Luke Wormald and Paul Jeffery, all of Historic England. In addition, Steven Orr of LUC (undertaking the sensitivity work on the Oxford-Cambridge Development Arc) and erstwhile members of Historic England's Characterisation Team Dave Hooley, Jeremy Lake and Roger M Thomas accepted invitations to bring their experience to the workshop. Many also provided written feedback on a draft of this report.

ACKNOWLEDGEMENTS

The author of this document commenced work on sensitivity assessment when an English Heritage Characterisation Inspector in 2007. He has benefitted from numerous conversations on the subject with former colleagues throughout Historic England and numerous historic environment and landscape colleagues in other agencies, academia, local authorities and organisations throughout the British Isles.

Discussions with English Heritage and then Historic England included those with Characterisation team colleagues, especially Graham Fairclough, Dave Hooley, Dave Went, Jeremy Lake, Roger M Thomas, John Schofield and David Stocker. More recent they have included David McOmish, Hannah Fluck, Chris Pater, Emily La Trobe-Bateman, Jenifer White, Jen Heathcote, Vince Holyoak, Steve Trow, Jonathan Last and Sandy Kidd.

The author also benefitted from discussions with, among many others, Carys Swanwick (University of Sheffield), Kate Ahern, Melissa Conway and Steven Orr (all of LUC), Alison Farmer of Alison Farmer Associates, Christine Tudor of Natural England, Jonathan Porter of Countryscape, Andrew Croft of Chris Blandford Associates, David Green and Sandy Kidd (when at Buckinghamshire County Council), Ben Wallace of Warwickshire County Council, Andy Wigley of Shropshire County Council, Richard Clarke and John Robertson of Leicestershire County Council, Bryn Tapper and Dan Ratcliffe of Cornwall Council, Abigail Tompkins of Oxfordshire County Council, Duncan Coe (when at West Berkshire Council), George Lambrick (when of Oxford Archaeology), Rachel Penny (Natural England) and Lynn Dyson Bruce.

ARCHIVE LOCATION

This report and its appendices comprise the total product of the project.

DATE OF RESEARCH

2021-2022

Cover photo by the author: looking west over the Severn valley from Stoke Hill in Gloucestershire

CONTENTS

LIST OF FIGURES

LIST OF TABLES

vulnerability, with totalised sensitivity scores along base (from Tapper et al 2010, table 1).

Table 5 Weighting ranges for contributors to a HLC Type's significance (from Tompkins 2017, table 5).

Table 6 Oxfordshire HLC Types attributed to the five grades of capacity for woodland planting (Tompkins 2017, table 8).

ABBREVIATIONS

ALGAO	Association of Local Government Archaeological Officers
AONB	Area of Outstanding Natural Beauty
CC	County Council
CPRE	Charity formerly known as the Campaign to Protect Rural England
EH	English Heritage
EIA	Environmental Impact Assessment
ELC	European Landscape Convention
EUS	Extensive Urban Survey
GDP	Gross Domestic Product
GIS	Geographical Information System
GLVIA3	Guidance on Landscape and Visual Impact Assessment, 3rd edition
HAA	Historic Area Assessment
HC	Historic Characterisation
HEAP	Historic Environment Action Plan
HEC	Historic Environment Characterisation
HER	Historic Environment Record
HLA	Historic Land-use Assessment
HLC	Historic Landscape Characterisation
HMT	Her Majesty's Treasury
HSC	Historic Seascape Characterisation
ICOMOS	International Council on Monuments and Sites
LCA	Landscape Character Assessment
LSA	Landscape Sensitivity Assessment
LDU	Landscape Description Unit
MHCLG	Ministry of Housing, Communities and Local Government (renamed in September 2021 as Department for Levelling Up, Housing and Communities)
NDP	Neighbourhood Development Plan
NE	Natural England
NHLC	National Historic Landscape Characterisation
NPPF	National Planning Policy Framework
OAN	Oxford Archaeology North
OED	Oxford English Dictionary
PPG	Planning Policy Guidance
PVF	Public Value Framework
RICHES	Renewal, Innovation & Change: Heritage and European Society
SM	Scheduled Monument

SMR	Sites and Monuments Record (fore-runner of HER)
SSSI	Site of Special Scientific Interest
UAD	Urban Archaeological Database
UNESCO	United Nations Educational, Scientific and Cultural Organisation
WHS	World Heritage Site

1 INTRODUCTION

This discussion document has been prepared for Historic England to inform consideration of appropriate ways of involving the whole of the historic landscape*[1], and seascape*, in decision-making about major or wide-reaching change*.

Such change may be addressed by the historic environment sector* through strategic planning processes, or when joining with other agencies and actors responding to pressures on our environment (like climate change and biodiversity crises), or supporting national and local government when tackling urgent needs for increased housing, improved infrastructure, sustainable* transport, energy generation and distribution, sustainable agriculture and mineral extraction, or when seizing opportunities to improve wellbeing for individuals, communities and society.

It is anticipated that this document will in due course contribute to the development of advice on assessing sensitivity*, capacity* and opportunity* in relation to various forms of change. That advice will help developers, agencies, planners and communities make decisions about broad strategic changes that minimise damage, reduce risks, and improve the design* of location, scale and form of change. The public benefit of any area-based approach to strategic planning will be substantially increased if society can be confident that the decisions which will affect places are based on our improved understanding of England's historic landscape, townscape* and seascape.

Related Historic England initiatives that will also provide insights and complementary approaches include the HE Archaeological Investigation Team's Archaeological Sensitivity project and support for sensitivity and capacity modelling in relation to extensive development in the Oxford-Cambridge Development Arc, Thanet and elsewhere.

A note on terms

The method has assessment of the sensitivity (or vulnerability) of a place or type to the effects of a particular form of change as its first analytical stage. Then the capacity of a place or type to accommodate that change is considered, encouraging wider engagement by the historic environment sector in discussions and decision-making about all forms of change, in line with Historic England's Future Strategy.

For further examination of the terms sensitivity and capacity see Questions 2.1 and 2.2 in section 10, as well as the Glossary of terms and concepts (Appendix 3). It has already been noted that other terms can be used, some overlapping the meanings of sensitivity (vulnerability, risk, hazard, harm, etc) and capacity (capability, opportunity, potential, adaptive capacity, susceptibility, etc).

[1] First uses of terms in the Glossary (Appendix 3) are marked with an asterisk.

This document follows the European Landscape Convention (ELC) in defining landscape as 'An area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors' (Council of Europe 2000, Article 1). The scope of the ELC includes 'marine areas' (*ibid*, Article 2), and that draws in seascape, so the method introduced in this discussion document should be taken to include historic seascape and Historic Seascape Characterisation (HSC) as well as landscape and Historic Landscape Characterisation (HLC).

The UK Government accepts that seascape is subsumed by the ELC's understanding of 'landscape' but adopts a qualified definition of seascape as 'landscapes with views of the coast or seas, and coasts and the adjacent marine environment with cultural, historical and archaeological links with each other' (UK Marine Policy Statement, Section 2.6.5.1).

2 BACKGROUND

2.1 The benefits to society and the environment of early involvement of historic landscape in considerations of change

Sustainable management of land, sea and townscape, environmental growth, and good planning, such as that defined and required by the National Planning Policy Framework (NPPF) and the UK Marine Policy Statement, recognise the importance to the economy, society and the environment, of designing change that will maintain, reinforce and draw upon the cultural and heritage capital* bound up in the valued historic character* and significance* of places* and landscape*.

It also underscores the need for change, including new development*, to make a positive contribution to local distinctiveness* and through that increase senses of personal and communal identity, sense of place, and wellbeing, and thus deliver substantial public benefit.

2.2 Beyond tactical; engaging strategically with change

Such management, environmental growth and planning requires rapid and reasonable assessments* of the opportunities and risks that derive from various forms of change to landscape and places, rural, urban and marine, and from the combined or cumulative impact and benefits of several of these.

Such engagement may be either general or strategic (Development Planning when dealing with the planning process) or particular or tactical (Development Management).

The historic environment sector, led by Historic England, deploys well-established appraisal and assessment processes when engaged in Development Management. It considers the character, significance and needs of individual heritage assets*, places or Conservation Areas* and their settings* in relation to the impacts* of particular proposed changes. These are guided by the Town and Country Planning Act 1947 and its successors and refinements, including the National Planning Policy Framework (NPPF) (MHCLG 2021). The emphasis, inevitably given limited resources, has been on managing change to heritage assets and historic* places that have some significance when assessed by heritage experts.

However, the European Landscape Convention requires its ratifying governments, such as the UK, to also manage the everyday and degraded landscape (Council of Europe 2000, European Landscape Convention, Article 2). Tackling the climate change emergency and biodiversity crises can also be fruitfully informed by our understanding of alternative approaches to change, including those that draw from past experience and those that recognise that the design of the future of places can be more actively linked to and inspired by inherited patterns and attributes.

This more inclusive and holistic approach to our landscape heritage and thereby to the whole historic environment, and to the diverse communities and individuals who enjoy and value it, and gain substantial wellbeing from it, is reflected by

Historic England's Corporate Plan, its *Places Strategy*, *Research Agenda* and other means by which it directs its and its partners' activities and resources.

The approach recommended in this discussion document addresses the needs of society, including Historic England, in relation to the more strategic guiding of change in extensive and diverse areas beyond the small number of 'priority places' that Historic England is able to identify and put resource into.

It also attempts to help land and marine managers and developers understand and manage risk, recognising that it is particularly difficult for smaller-scale developers to hazard time and resources in engaging in development when uncertain of gaining permission and unsure of the expense that might result from dealing with unanticipated heritage assets.

As our understanding* of the fabric*, character and significance of England's historic landscape and historic environment* has increased considerably in recent decades, Historic England and wider society will expect that understanding to be more fully involved and deployed in upstream strategic planning at the national, regional, city and local planning authority levels. This would be especially the case if planning processes do shift towards more area-based approaches, as proposed in the Government's Planning White Paper that promises for villages, towns and cities 'ongoing renewal and regeneration without losing their human scale, inheritance and sense of place' (https://www.gov.uk/government/consultations/planning-for-the-future/planning-for-the-future).

There is then a need for and a commitment to an efficient and reasonable approach to involving the interests of the historic environment, including the communities who value it, at the broad strategic level when considering energy, infrastructure and settlement development, responses to the effects* of climate change, and when designing various forms of environmental growth. This would involve assessment of threats and opportunities across whole counties, cities and local planning authority areas, or the English inshore and offshore regions, including, when appropriate, across the whole country.

2.3 Working with the whole historic environment

Most of the heritage sector's approaches and tools are dependent on selection, whether of the most valued, significant or important places, or the most contentious current issues. They revolve around expert investigation to improve understanding of the heritage resource's development, consequent character and significance, then expert assessment of importance leading to degrees of protection or investment of resources of time and money into design of sustainable action.

They are less well adapted to supporting decision-makers who are working a step or two back in the development of change: at the initial stages of determining basic needs and at the national or large regional scale* when considering broad locations for areas of change, or directions of lines of change.

2.4 Historic Characterisation as a tool to support strategic planning and to frame assessments of sensitivity and capacity

Historic Characterisation* – a group of methods including Historic Landscape Characterisation*, Historic Seascape Characterisation*, urban characterisation, and assessment frameworks* of types of heritage asset – has been developed since the early 1990s by Historic England, usually in association with local authorities, as an approach and a suite of tools that would enable the historic environment to be placed beside the natural environment as a provider of social and economic benefits in local, regional and national debates on sustainable development. Extensive historic characterisations have been made of counties, cities, towns and seascape.

These were intended to be used, amongst other applications, as the spatial frameworks for analyses of the vulnerability*, sensitivity* and capacity* of the historic landscape as it is affected by different forms of change. And to be the driver and framework for environmental growth and other forms of sustainable management, such as those set out in Historic Environment Action Plans* (Clark et al 2004). Historic England have therefore invested in a tool and an approach, built upon a foundation of inclusive and realistic principles, that can be applied to help improve engagement of heritage practitioners and the wider heritage sector in strategic planning and strategic land and sea management.

Preparation of this discussion document has involved gathering, reviewing and assessing numerous previous exercises in using historic characterisation in such ways, identifying key benefits and issues and drawing out broad principles as it does so.

It has identified common principles that can underpin a preferred or proposed approach, but notes that capacity or sensitivity modelling needs itself to be sensitive to the requirements made of it, and the varying circumstances it seeks to address, the needs of multifarious audiences or groups of stakeholders*, and the ever-growing and ever-changing potentials in a fluid technological milieu of GIS and complex multi-variate databases.

So, the proposed approach will be clear and simple, and will revolve around following a basic method for undertaking assessments of sensitivity to or capacity for certain forms of change, and assessments of potential and opportunities. The approach will be as straightforward as possible and where appropriate it will draw on tried and tested procedures and principles from impact assessment and related practice.

3 UNDERSTANDING AND RESPONDING TO CHANGE

3.1 Recognising the varying effects of different forms of anticipated change

The suggested approach depends in part on recognition that the effects on places of the various changes that flow from residential, industrial, recreational, infrastructural and other forms of developments will all be different from each other, and different again from the wide range of land use* changes, and from the various responses to climate change and biodiversity crises, responses like retrofitting drainage, installing flood defences, afforestation and environmental growth.

Examples of the variety and scale of anticipated or planned changes that will require strategic consideration are the following:

- The building of an estimated annual requirement of up to 345,000 new houses in England (Bramley 2019).
- Transformation in the extents of intensively and extensively farmed land* in post-Common Agricultural Policy farming in England.
- Considerable expansion of offshore wind energy infrastructure and associated onshore electricity cable connections with new Convertor Stations and expansion of existing National Grid sub-station infrastructure (DBEIS 2020).
- Continued extension of onshore renewable energy (including wind and solar).
- Planting of woodlands sufficient to increase woodland cover in England to 12% by 2060, involving planting 180,000 hectares by the end of 2042 (HM Government 2018).
- The increased use of offsetting as a means of achieving biodiversity net gain in developments (Cornwall Council 2020) and the opportunities that provides for the historic landscape to be involved in the design of sustainable change.
- Continued development of high volume and high-speed transportation systems (road, rail, air, space, telecommunications, etc).

3.2 Examining and responding to change in our historic landscape

Archaeologists and historic environmentalists have developed finely tuned abilities to recognise, evaluate and celebrate the legibility of historical meaning in things, places and patterns. As workers within the material world and within a culture of conservationism, the heritage sector cares about curation through the processes of change to the fabric, patterns and character in which that meaning resides. We can also explore approaches to management of sustainable change and curation of the variety of historical meaning within the historic environment in its widest and most fluid form: in the historic landscape.

The many qualities of historic landscape have come into closer focus as a result of numerous and various studies of aspects of it over the last quarter century, from prospection, recording, analytical survey and experiential approaches to interpretation and broader engagement with communities of interest and place. Through these we have been garnering, enjoying and appreciating numerous alternative senses of place. We also recognise that the British historic landscape is transitory, ever-changing. And that our appreciation of landscape and the ways we value* it as experts or as people with other interests in it are therefore also continually evolving, changing.

Landscape therefore resists being fixed; it is never finished and when analysed we discover it has no 'original' form. It has always been changing and we realise that there is no certainly 'authentic' or 'traditional' landscape. By the European Landscape Convention definition (privileging perception*) it is dynamic, and it will or must evolve, physically and perceptually.

3.3 Developing confidence in dealing with change

As change is thus a characteristic of landscape as much as an impact on it, protection against it, and restoration of altered landscape to previous, natural or supposedly authentic, traditional or historical states can be problematic.

The historic environment sector has for some time been adapting its approaches to accommodate this more comprehensive and nuanced, and less defensive, view of change. This includes more deliberately and thoughtfully attempting to guide and manage change, taking into account the interests of all those with a stake in it. We do this by recognising that a major aim is to pass on that 'legibility' of the past and landscape's time-depth, to allow our successors to build narratives, sense of place and identity from the landscape they inherit from us. That may be complemented where appropriate by developing a form of conservationist management of landscape that reinforces the successes of the designation and protection of valued components.

- The workshop noted that experience with the Oxford-Cambridge Arc has re-emphasised the way that partners in other agencies and authorities still regard the historic environment and historic landscape as one that is largely defined by its designations. If a park is not Registered or a building or monument not Listed or Scheduled, then for some it effectively does not exist. Even the concept of Setting of a designated asset, covered by the NPPF, and the subject of detailed HE guidance, and one way of approaching the wider historic landscape, may not register in the way that it should.
    - There is still work to be done on persuading partners that the historic landscape is as universal as geology, natural environment and landscape, and that the characterisations of historic landscape and seascape provide users with an equivalent of landscape character assessments and geology, soils or national vegetation classification mappings. All are strengthened by being used in conjunction with each other.

3.4 The benefits of modelling sensitivity and capacity

The value of developing effective and acceptable ways of modelling or assessing a landscape's sensitivity or capacity in relation to change, or its potential to benefit from it, is therefore considerable. It can be used within processes of decision making or management planning, where the sensitivity, capacity and opportunity modelling can be used in one or more stages of a dialogue that aims to secure the best outcome from various forms of proposed, planned or expected change. It may not necessarily provide neat and conclusive answers, but it should help people better consider the consequences of change, or of resisting change where that will clearly be unacceptably damaging and using understanding of potential when adjusting the trajectory and design of change.

4 NEED FOR PUBLISHED ADVICE

4.1 Assessing the effects of change

Sensitivity and capacity assessment of landscape using Historic Landscape Characterisation (HLC) and Historic Seascape Characterisation* (HSC) would be aimed at all those considering the effects and impact of various forms of change, including those involved in:

- strategic planning
- policy development
- consideration of specific large-scale development proposals
- targeting environmental programmes and projects
- guiding various forms of positive management of the landscape.

HLC and HSC and their enabler, GIS, provide a framework for developing such approaches. HSC is already set up to operate at the national scale, but HLC is currently most often used at the regional and sub-regional ('county') scales although it is increasingly possible to deploy it nationally, with obvious benefits for historic environment input into various forms of planning strategy, for agri-environment scheme targeting, and for improved partnership working. A national HLC (NHLC) has been developed in conjunction with Natural England and ALGAO (Exegesis and Locus 2017) and nationwide or large regional (multi-county) exercises in sensitivity and capacity modelling may be one of the most important uses of the NHLC.

One of the outcomes of the NHLC work was appreciation that the variability between county HLCs was capable of resolution and should not be regarded as a barrier to their use together in modelling exercises.

The detail and flexibility of both HLC and GIS should also ensure that our sensitivity work is itself as sensitive and nuanced as it can reasonably be.

4.2 Moving towards a framework for sensitivity and capacity advice

As noted, a number of assessments of sensitivity, capacity and opportunity using historic characterisations have been undertaken in the last twenty years. English Heritage was developing guidance drawing together lessons learnt from these when its Characterisation Team was dispersed in a restructure of its Strategy Department in 2010.

Members of the Assessment Team and Historic Environment Intelligence teams picked up this unfinished guidance in the mid-2010s and in 2017 lodged 'Using Historic Landscape Characterisation (HLC) to assess sensitivity to change' on the 'In the Pipeline' list of proposed Historic England guidance and advice. A draft of such guidance was prepared (Herring and McOmish 2017) though progress was held up again by redeployments and departures from Historic England of key individuals.

Early in 2021 Historic England (HE) commissioned this discussion document to review approaches to sensitivity and capacity developed by the historic environment, landscape and natural environment sectors. Its aim is to inform how HE and others, including developers, planners and communities of interest, can understand and respond to the opportunities and threats associated with different forms of large-scale change.

5 AIMS AND OBJECTIVES OF THIS STUDY

5.1 An aim to care for the whole historic landscape

The review's principal aim is to provide material and develop methods that will enable Historic England and the wider historic environment sector and their partners to contribute fully to achieving improved design of the location and form of change throughout England's historic landscape and seascape.

5.2 How we may achieve that aim

In addition to that all-encompassing aim or enveloped within it are the following more precisely defined further aims:

- To improve application of our understanding of the historic landscape and seascape and their vulnerability in relation to the known effects of particular forms of change (development, land or sea use, climate change, neglect, etc) and so assess their capacity for them and their sensitivity to them.
- To enable the heritage sector (Historic England, local planning authorities, agencies and trusts) to engage more thoroughly in strategic planning at national, regional and planning authority levels, and to be involved further upstream in large-scale developments than at either master-planning or detailed planning stages.
    - For example, better enable the heritage sector to be involved in Sustainability Appraisal in plan formulation, and in the Strategic Environmental Assessment conducted by government departments for defined plans and programmes, such as any expansion of renewable power infrastructure.
- To support efforts to increase the public benefit of historic environment activities by addressing and minimising the predictable negative effects of change, and by better seizing opportunities to achieve its positive effects, employing the positive and dynamic principles of constructive conservation and environmental growth.
- To demonstrate the effectiveness (or otherwise) of previous approaches to sensitivity modelling.

5.3 The Public Value of sensitivity and capacity assessment

Sensitivity and capacity assessment and opportunity modelling represent significant strategic planning-related applications of the historic characterisations (of landscape, seascape and townscape) that English Heritage and Historic England have invested considerable public resource in from 1994 to the present.

5.4 Supporting delivery of effective development planning

They will also support the historic environment sector as it helps guide selection of areas for development and other forms of change that may be identified through the

refreshed approach to Plan making in the UK Government's Planning White Paper 2020 and improve the design of new development so that we Build Better and Build Beautiful.

They would also contribute to the historic environment sector's support for the UK's ambition to 'Build Back Greener' by greatly extending its renewable energy industry (both terrestrial and marine). And they would provide appropriate historic environment support for extending environmental growth initiatives.

5.5 Helping Historic England meet its objectives and deliver committed activities

- This review and discussion document, and the advice that is expected to be developed from it, would contribute to Historic England meeting the following Objectives set out in the 2022–23 iteration of their Corporate Plan:
    - 'Save historic places and enable them to thrive for future generations'
    - 'Ensure our advice and evidence results in well-informed decisions that serve people and places well'
    - 'Work with people to build the skills, knowledge, confidence and motivation to fight for, and look after, their historic environment'.
- And they will help Historic England achieve these Tier 2 Activities as set out in the Corporate Plan:
    - 2.2 'Understand the vulnerabilities, hazards and risks of harm* to the historic environment and identify appropriate mitigations, including those associated with climate change'
    - 2.3 'Develop sector capacity and capability* to enable a greater diversity of people and organisations to make the most of the historic environment'
    - 3.5 'Provide advice to government on policy development and effectiveness'
    - 4.3 'Provide advice to planners and developers on sustainable change'.
- In terms of alignment with Historic England's 2016 Research Strategy and 2017 Research Agenda, the review and any subsequent advice will contribute to the following Objectives:
    - #value, in particular in emphasising the roles of character and distinctiveness in the ways communities value the historic environment;
    - #understand, notably understanding significance and the ways that is affected by the differing impacts of various forms of change;
    - #adapt, especially improving understanding of risks, change and opportunities;

    - #conserve, especially landscape, both the nationally important and the more locally valued;
    - #skill, developing the methods and tools for supporting good decisions;
    - #innovate, especially by emphasising the human environment's contribution to more general environmental growth.

- They will help Historic England deliver against the stated outcomes of its Public Value Framework (PVF):
    - Assured Alignment. Addresses Historic England's published objectives (above); interfaces with Historic England and other public bodies' strategies and processes are multiple (below).
    - Appropriate Resourcing. Relatively low cost in relation to expected range of application and scale of benefits for public value.
    - Public Support. Sensitivity assessment normally includes application of the *Conservation Principles**, including the Historical and Communal Heritage Values that draw on how the wider public appreciate aspects of the historic environment.
    - Capacity Development. The review is aimed at improving decision-making and as noted is seen as a stage in a process that will lead to advice.
- It will support regional and more local Heritage Strategies and Historic Environment Strategies, like those developed by or for Local Planning Authorities, most of which will recommend involving the use of our understanding of the historic environment earlier in the assessment and design of change.

6 STAKEHOLDERS AND INTERFACES

6.1 Audience and stakeholders

- Historic England, especially its strategic planners, place-making, and regeneration advisers, including within the Regions, Policy & Evidence, Public Engagement and Business Improvement Groups.
- Local Planning Authority historic environment planning advisers, and their representative body the Association of Local Government Archaeological Officers (ALGAO). Also the Marine Management Organisation for seascape (deploying advice from specialists in Natural England and Historic England).
- Historic Environment Records, as commissioners and curators of HLCs and experimenters in developing sensitivity and capacity models.
- Partners in the natural environment and landscape sectors, including Defra, Ministry for Levelling Up, Housing and Communities (MLUHC), Natural England, Environment Agency, Local Planning Authority planning, environment and communities departments, CPRE, National Trust, etc, who develop equivalent means of assessing effects of change on other aspects of landscape and environment.
    - Historic England and the Environment Agency have also supported exploration of the use of Historic Landscape Characterisation when identifying opportunities for various forms of environmental growth and natural flood defence (Herring et al 2022).
- Representatives of the wider community, in all its diversity, both of identity and ethnicity and also of interest in and commitment to places, and their past and future.

6.2 Interfaces

- All engagements with strategic planning, both terrestrial and marine, including advice provided by Historic England, local authority historic environment services, agencies, developers, infrastructure providers, land managers, affected communities.
- The body of existing historic characterisations, including Historic Landscape Characterisation (HLC), the National HLC developed by Natural England and Historic England, Metropolitan HLCs, Extensive Urban Surveys, Historic Seascape Characterisation, characterisations of asset types, such as through Assessment Frameworks (as prepared for farmsteads and nonconformist chapels).
- Historic England's Places Strategy, including by providing cues for extending it into rural and marine places, the latter via HE's Marine Planning Unit, beyond the urban cores to which it is currently most closely

aligned. But sensitivity, capacity and opportunity modelling will also provide a valuable tool for urban and peri-urban place-makers.

- The Archaeological Investigation Team's Archaeological Sensitivity project (Fig. 1) and sensitivity and capacity modelling in relation to extensive development in the Oxford-Cambridge Development Arc, Thanet and elsewhere, being overseen by Historic England's National Specialist Services teams. This approach complements that of assessment of sensitivity of the whole historic landscape and seascape where the emphasis is placed more on vulnerability/ opportunity and significance (or values) enveloped in understanding the likely effects of planned or expected change.

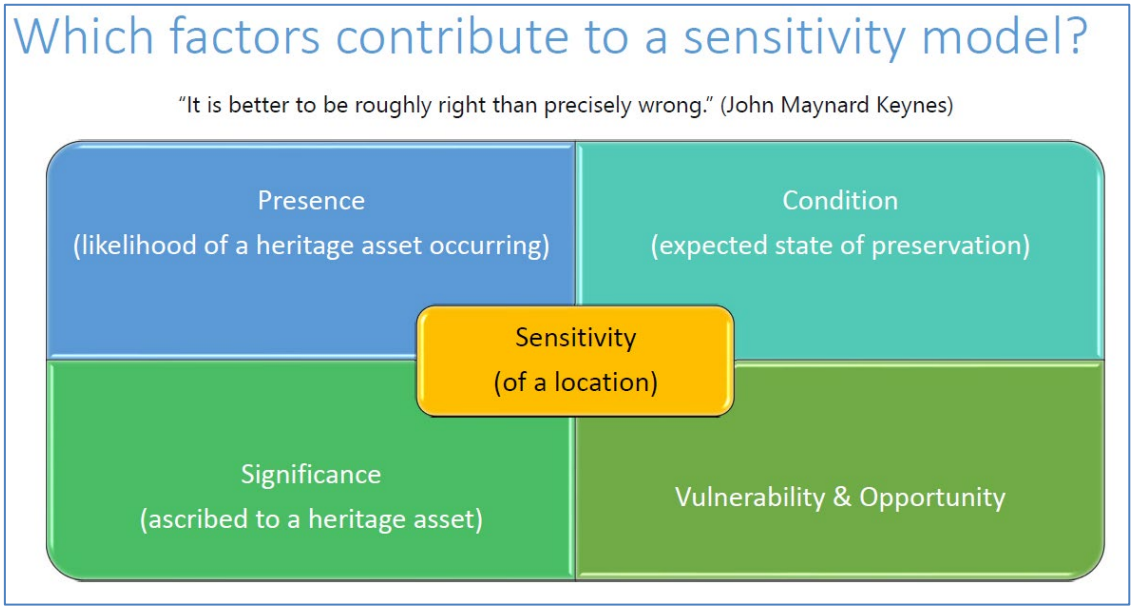

Figure 1 The essence of Historic England's Archaeological Sensitivity project is encapsulated in the four principal contributions to the sensitivity to change of particular heritage assets, where presence and condition are significant factors (from presentation prepared by Sandy Kidd; reproduced courtesy of Historic England).

7 METHOD AND OUTPUTS

7.1 Method

- A review was undertaken of previous exercises in modelling capacity, sensitivity, and opportunity using Historic Landscape Characterisation and allied material (this included reconsideration of previous Historic England drafts of sensitivity guidance, principally Herring and McOmish 2017).
- See Appendix 1 for summaries of these previous exercises.
- A review was also made of guidance, advice and practice in the modelling of sensitivity and capacity by UK bodies responsible for managing or advising on change to the natural environment and the wider landscape, particularly by way of recent gatherings together of guidance on assessing landscape sensitivity prepared by Natural England (2019) and NatureScot (2020). For seascape see the Marine Management Organisation's version of the approach (MMO 2019).

7.2 Outputs and outcomes

- This Discussion Document draws on the review of related work by summarising current thinking on improving decision-making by using the several forms of Historic Characterisation, and especially Historic Landscape Characterisation (HLC) and Historic Seascape Characterisation (HSC), to model capacity, sensitivity, and opportunity.
    - As well as highlighting potential benefits, this also includes identifying potential problems, limitations and constraints caused by the nature of Historic Characterisation and its method and principles.
    - It includes prompts to encourage debate on current and proposed procedures (and policies).
- A draft of this Discussion Document was used to frame an agenda for and delivery of a workshop (online via MS Teams, on 7th October 2021) that furthered discussion across a range of potential practitioners or users within Historic England (HE) and established preferred approaches and solutions. See acknowledgements for a list of contributors to the workshop, some of whom also provided written commentary.
- That workshop was structured by way of a series of questions, embedded in this Discussion Document (Section 10), that formed the basis and set the direction of structured conversation. The workshop was recorded so that responses to the questions could guide extensive adjustments to this Discussion Document and its recommendations (summarised in Appendix 2).
- It is expected that this revised Discussion Document would then form the basis from which HE can draft advice that would be more widely consulted upon within Historic England and beyond.

8 SUITABILITY OF HLC AND HSC FOR SENSITIVITY AND CAPACITY MODELLING

8.1 Alignment of Historic Characterisation principles with the needs of sensitivity assessment

The following guiding principles have shaped the creation and application of historic characterisation. They were explored in English Heritage's approaches to historic landscape in the early 1990s (reviewed in Fairclough et al 1999), consolidated in the first county-wide HLC in Cornwall (Herring 1998), and listed in *Using HLC* (Clark et al 2004) and have been followed in all historic characterisations, including metropolitan HLCs and Historic Seascape Characterisations.

Each is of direct relevance when the historic environment sector and its partners consider using the comprehensive characterisations of areas in HLC and HSC when engaging in the guiding of change anywhere in England, on land (rural and urban) and at sea, and especially when assessing capacity, sensitivity and opportunity.

- Present not past: it is the present-day landscape that is the main object of study for historic characterisations.
    - While the fabric and character of the present-day landscape were obviously formed in the past, and our judgements concerning significance are coloured by views and opinions about aspects of that past, it is the present-day landscape, not a previous landscape, whether post-War, Victorian, medieval or prehistoric, that we manage now and plan a future for. And the present landscape is the only one we perceive and know in its entirety.
- Landscape as history not geography: it regards the most important characteristic of landscape as being its time-depth, the evidence of previous episodes of change; change and earlier landscapes that exist in the present landscape.
    - The crucial point here is that change is as much a characteristic or quality of landscape as it is something external that happens to it. Capacity for certain types of change or vulnerability to them are variable between historic landscape types because of the character and significance of previous and ongoing change.
- All aspects of the landscape, no matter how modern, are treated as part of landscape character, not just 'special' areas.
    - The heritage sector has developed processes that emphasise and hinge on significance, importance and specialness, usually as judged by heritage experts. Other parallel sectors also identify the significant, but complement that by characterising the whole of an area according to identification and interpretation of the variability in its character as expressed through its fabric or other qualities: geology, soils, ecology, landscape character, etc.

- Historic characterisation therefore sets out to provide society with an equivalent comprehensive mapping and interpretation for the historic landscape. So, it includes the whole of the historic landscape, the locally distinctive and the commonplace as well as the nationally important and special. It also deals even-handedly at the point of characterisation with the whole of the historical dimension of today's rural and urban landscape, and seascape. 'It is comprehensive, not selective (leaving no 'grey areas')', and 'through identifying and analysing time-depth, it expresses the dynamic nature of towns and countryside' (Clark et al 2004, 6).
- While it is even-handed, it recognises that its process and the landscape itself are not 'value-neutral'. There is diversity in the ways that individuals and groups characterise and ascribe value to places and to landscape character types, so Historic Characterisation does not include the ascription by heritage experts of a fixed scoring of value. And it creates mapping and associated text that are open not closed, a framework setting out current understanding, but inviting input from others.
- It is expected that there will be at least two stages to the characterisation process: 'a first in which the landscape or townscape is identified, mapped, described and interpreted – i.e. 'this is what we have'– and a second in which judgements, whether about value or practical priorities, are applied to this initial assessment and objectives are agreed – i.e. 'this is what we wish to do with it'. This second stage lends itself directly to a variety of land management and conservation applications' (Clark et al 2004, 6).
- This approach makes HLC and the other forms of historic characterisation well-suited for the strategic assessment of sensitivity and capacity, and opportunity for change.

- Landscape as well as sites: HLC and HSC-based research and understanding are principally concerned with areas, not point data.
  - Most historic environment engagement with guiding the design of change focusses on 'heritage assets': discrete sites, monuments or structures, or closely delineated protected areas like Conservation Areas, World Heritage Sites*, Archaeological Notification Areas, etc.
  - Historic characterisation enables the whole of our historic landscape, which is continuous and unbroken, though variable in character, to be considered when advising on and making decisions regarding change.
  - The comprehensive approach also enables the work on individual heritage assets to be contextualised, and not only by facilitating assessment of their 'settings', an approach that has great value, but which still emphasises and privileges the needs of the heritage asset rather than those of its place and the landscape beyond. Characterisation allows all parts to be valued and cared for.

- In our **human landscape, biodiversity is a cultural phenomenon.** Semi-natural and living features (woodland, land cover, hedges etc) are as much a part of historic landscape character as archaeological features.
    - Recognising this allows the historic environment sector to work more closely with those representing and operating with the interests of the natural environment. We can manage those large areas of the historic environment, terrestrial and marine, whose main character is in the form of semi-natural vegetation communities (like grasslands, woodland, rough ground, sediments, dunes, kelp-fields, etc) more effectively if we can draw on expertise in the ecological and earth sciences sectors. In turn, those sectors can better understand trajectories of human-influenced change affecting natural communities by taking on board the understanding of past and ongoing transformations that we bring them.
    - In terms of capacity, sensitivity and opportunity modelling, this also allows more useful modelling of cumulative vulnerabilities to the effects of certain forms of change.
- Characterisation of landscape is a matter of **interpretation as well as record, perception as well as facts;** understand 'landscape' as, in part, **an idea and set of meanings**, not only or purely as an objective thing.
    - This draws upon the approach to landscape developed in the European Landscape Convention (ratified by the UK in 2007). There landscape is defined with perception at its heart: 'an area perceived by people whose character is the result of the action and interaction of natural and/or human factors' (Council of Europe 2000, Article 1).
    - Other definitions of landscape also draw on the way that it is in large part a construction we make in our heads when we see, hear, smell and think about a place or area and recognise that it is in myriad ways constantly changing. 'Landscape as the world we live in, a constantly emergent perceptual and material milieu' (Wylie 2007, 2).
    - Ways of perceiving landscape vary between people, and they also change within a single person as relationships with place develop or deteriorate. They alter as we sense aspects of it, as we think about it and develop and draw on associations and memories, respond to the positive and negative meanings and establish and adjust the ways we value it.
    - This is important for reinforcing again that there is great variability in the ways landscape and place are appreciated and valued. A method of assessment and evaluation, such as in the modelling of sensitivity, has to account for and allow for such diversity.
    - The historic environment sector does also address the physicality of place and landscape, and there is often agreement over the nature and history of the attributes of place that people are responding to when they develop and recognise their perceptions of it.

- People's views: it is important to consider collective, public and personal perceptions of landscape alongside more expert views.
    - This flows directly from the previous principle. The values of the heritage sector and the society it serves have been codified in numerous ways, perhaps most comprehensively recently through the four Heritage Values (Aesthetic, Communal, Evidential and Historical) presented and discussed in *Conservation Principles* (English Heritage 2008a).
    - We need to be aware that others in our diverse society who care for place may develop and use other schemes of valuing, and we must respect that and develop methods of assessment and evaluation that can reasonably accommodate these. For example, the four Heritage Values can be construed and applied in ways that are open and inclusive rather than overly expert and thus narrow and exclusive.
- Landscape is and always has been dynamic: aim to manage change, not only preserve.
    - As noted, the historic environment sector has gradually adjusted its response to change, from being defensive to being engaged, from principally taking protectionist approaches to increasing involvement in all stages of decision-making, from strategic to tactical, identification of preferred locations or routes and input to the design of forms, scale and detail.
    - This recognises that most of our valued heritage is the outcome of evolution rather than set-piece designs that have remained unaltered from their inception.
    - Having recognition of this as a key principle of historic characterisation better enables the historic environment sector to engage with all other actors in the ongoing planning, design and management of the environment and landscape of Britain.
    - This also enables the sector to speak with greater authority and a stronger voice when arguing for the retention of character and fabric when this is accepted as valuable. Reasonable flexibility leads to conservation gains, especially through approaches like constructive conservation.
- The process of characterisation should be transparent, with clearly articulated records of data sources and methods used.
    - Characterisation is a process or method that involves subjective decision-making at numerous points. It is systematic but cannot be entirely objective. It is as comprehensive as possible, but resources of time and money are not available to enable it to study all aspects of a place to an ideal depth. It is indeed characterisation: relatively rapid assignment of places to a Historic Landscape Type, necessarily based on present understanding and the identification of selected historical

attributes regarded as indicators of principal historical processes. It is not a detailed examination, such as gained through the more thorough processes of Historic Area Assessment, but HAA is resource hungry and cannot be applied to whole regions in the ways that characterisation can.

  - However, characterisation draws its interpretations from the results of those detailed studies, like HAAs or landscape archaeology, that have elucidated understanding of the development of the area or region under consideration. It 'spreads' that understanding to other places that share similar historical attributes.

  - As present understanding and knowledge are not evenly spread everywhere. For users to have confidence in historic characterisation's outputs (maps, datasets and descriptive and interpretative texts), it sets out in its metadata the sources it uses (mainly area-wide systematic and consistent mappings). It also indicates levels of confidence in the interpretations that lead to classifications or characterisations. Interpretative assumptions and biases are made visible through the associated texts (see below).

- HLC and HSC maps and text should be easy to understand, **jargon-free** and **easily accessible** to users.

  - Most historic characterisations are undertaken within a GIS, with descriptive and interpretative data, the landscape's or seascape's attributes, contained within an attached database. This ensures that the material is ordered in a systematic way. But it does not need to be unnecessarily technical or obscure. Technological development has allowed a shift away from the numeric and alphabetic codes employed in early HLCs to proper English, and terms are selected to be as easily understood as possible.

  - GIS mapping linked to a queryable database containing attributes allows those modelling sensitivity to grade or score polygons* or place emphasis on those that are of particular interest by using simple queries. For example, if the HLC has recorded fields that have sinuous boundaries (which may be expected to be older and more biodiverse) then these can easily be highlighted by a query of the database.

  - Most historic characterisations have jargon-free descriptive and interpretative texts as well as the GIS mapping (with its metadata) and its associated database.

- HLC results should be **integrated** into other environmental and heritage management records (e.g. Historic Environment Records, HERs).

  - Most HLCs, urban characterisations* and assessment frameworks* (of heritage asset types) have been developed by local authority HERs with funding and advice from Historic England. Most are now available online as part of the relevant HER.

- The National HLC mapping is available online at the data.gov website.
- Historic Seascape Characterisations were undertaken with the support of Historic England. Its reports are available online through the Archaeological Data Service and the associated GISs can be obtained directly from Historic England's Listing Information Services. They include the gathering together of the results of the several regional HSC projects into a single National HSC.

8.2 Usefulness of Historic Characterisation typologies, mapping and text for sensitivity and capacity assessment

Typologies

Historic Characterisation deploys one of the archaeologist's oldest and most reliable tools: classification. The attributes of a Bronze Age spearhead (material, form, style, size, etc) allow it to be slotted into a specialist's scheme of types whose analysis leads to interpretations that allow its history, meanings and value to be more clearly seen and communicated. Likewise, the attributes of an historical place with relatively uniformly shared characteristics, delineated on a GIS as a polygon, allow it to be ascribed to one of a suite of HLC or HSC types whose qualities, typical history and meanings can then be made available to users.

Attributes are normally recorded after an area's immediately obvious broad character has been acknowledged (Enclosure, Settlement, Ornamental landscape, Industrial, etc) and they can then be tailored to that Broad Type. So, attributes recorded for Enclosure (which for most counties in England is the most extensive Broad Type) include the following, drawn from the Oxfordshire HLC (Tompkins 2017):

- Size (Small, Medium and Large, with typical hectarages for each)
- Enclosure Type (including Parliamentary Enclosure, Enclosed Strips, Enclosed Furlong, Cleared Woodland, Enclosure of Parkland, etc)
- Perimeter Morphology (Curvilinear, Sinuous, Rectilinear, Irregular, Mixed, etc)
- Internal Morphology (Curvilinear, Sinuous, Rectilinear, Irregular, Mixed, etc)
- Boundary Loss (No loss, Minimal Loss (less than 40%), Major Loss, Minimal Gain, Major Gain)
- Ridge and Furrow (Reversed-S shaped, Straight, Dog-leg, Absent).

Characterisation's method is desk-based, using maps and aerial photographs (current and historical) as primary sources for mapping and identifying attributes, and the gathering together of archaeological, historical and landscape history research to ascribe meaning to each Type or SubType.

Typologies are as hierarchical as is useful and as the sources allow and usually include Broad Types and narrower Types and subtypes. So, Oxfordshire has Enclosure as a Broad Type, and thirteen Narrow Types (including Open Fields, Ancient Enclosures, Crofts, Squatter Enclosure, Assarted Enclosure, Planned Enclosure, Prairie/Amalgamated Enclosure, and Paddocks). These are usually grouped visually on the GIS and on maps prepared from it through the use of distinctive colours.

The research-based understanding of each Type allows associated texts to suggest what other attributes (archaeological remains, types of structures, etc) may be anticipated to exist.

Polygons are mapped across the whole of an area, usually a county for HLC or management area for HSC. To retain a granularity suitable for county-wide or area-wide analysis, minimum polygon sizes are usually 2 hectares in rural areas and 1 hectare in settlements and complex areas and within 250m-sided grid squares in the National HSC for areas below MLW; 50m grids have been used for more detailed HSC work (e.g. at Ramsgate, Weston-Super-Mare and the Hoo peninsula). The generalisation this requires is the essence of characterisation; it is the dominant landscape character that is recorded in each polygon.

For each polygon mapped in a GIS, there is a record in an attached database, which captures the various attributes and the Broad and Narrow HLC Types and Sub-Types that the polygon is assigned to. The link between GIS and database enables queries to be made on any combination of attributes to display myriad aspects of the landscape's history, and myriad queries concerning sensitivity and capacity in relation to change.

Typical HLC Types texts

The following are the subheadings for Types' descriptive and interpretative texts prepared for the Cornwall HLC, as revised in 2008. Each is intended to help users understand current knowledge and concerns or opportunities (from Cornwall Council 1994 and 2008) and most will be of direct relevance to those assessing capacity or sensitivity in relation to a particular form of change:

- Defining and distinguishing attributes
    - The qualities and character that enabled the characteriser to identify this Type and distinguish it from other similar ones in Cornwall.
- Principal historical processes
    - Brief review of current knowledge of the historical development of the Type in Cornwall. Emphasis is given to the processes that have produced surviving historical or semi-natural features.
- Typical historical and archaeological components
    - An elaboration of the Defining Attributes, but also allows distinctive landscape features, including typical building or monument types, a place in the characterisation.

- Principal locations (in the study area)
    - Brief summary of the Type's distribution, with historical comments.
- Variability (in the Type across the study area)
    - Recognition that there is usually local distinctiveness caused by use of local materials, customs, different local histories, etc.
- Past interactions with other HLC Types
    - Brief discussion of typical historical relationships of the Type with others, like upland/lowland interconnections, or urban and hinterlands.
- Evidential Value
    - Notes on evidential value concentrate on the potential of our understanding of the particular HLC Type to be improved by further archaeological and historical research.
- Historical Value
    - Notes on historical value concentrate on the extent that there is evidence for time-depth typically visible within the HLC Type under consideration.
- Communal Value
    - Notes on communal value concentrate on the range of perceptions that communities and individuals typically have of the HLC Type under consideration.
- Aesthetic Value
    - Notes on aesthetic value concentrate on the extent that historic character typically contributes to overall landscape character.
- Potential for amenity and education
    - The likely interest that communities, visitors and educators may draw from the history and character of the Type.
- Survival
    - Covers both the typical survival of archaeological and historical components within the Type and also the extent that the Type has diminished or grown in recent times (using map regression and other sources).
- Vulnerabilities
    - A statement on the degree of statutory or customary protection the Type typically receives.
- Forces for change
    - Brief discussion of the influences currently affecting the Type in the study area. These need not all be negative.

- Safeguarding the type
    - A few simple recommendations made in light of the foregoing subsections and with the intention of managing and conserving the Type, its components and its character.

Most more recent HLCs and the Historic England-supported Historic Seascape Characterisations have drawn from that suite of subsections. Some have added others or adapted the Cornish ones to more sensitively help users address questions surrounding change.

Most HLCs that have been created within a GIS also provide summary statistics for each Type, for example on numbers of polygons, percentage coverage of study area, etc. These are also usually accompanied by small-scale distribution maps of the Type in its study area.

Several HLCs undertook detailed analyses of their GIS and datasets. Those for Leicestershire are especially useful for emphasising spatial and temporal trends. The Cornwall HLC texts are also currently being updated and will include the following new subsections:

- Environmental Growth
    - Cornwall Council and the Local Nature Partnership have adopted an Environmental Growth Strategy. These texts will draw attention to the range of opportunities for historically appropriate environmental growth in the Type.
- Cornish and Local Cultural Distinctiveness
    - Cornwall Council and Historic England supported development of a process of assessing the distinctiveness of aspects of Cornwall's historic landscape. Texts will discuss how the Type relates to the two principal strands of distinctiveness:
        - The particular (or peculiar)
        - And the typical. The latter is organised by five themes:
            - economy
            - responses to local topography
            - and to the natural environment
            - the contribution of language
            - the identification of aspects reflecting Cornwall's spirit.

Most later HLCs abbreviated their Types texts compared with Cornwall's, so relatively few new subsections have been introduced. The following, however, are additions:

Buckinghamshire's HLC texts were adjusted in 2008; the following sub-headings being added, largely to help guide consideration of the effects of change:

- 'Factors influencing change'.
- 'Capacity to absorb change'; its fragility in relation to those change factors.

- ‘Biodiversity potential’; might now be termed environmental growth potential.
- ‘Quality of life potential’; recreation, aesthetics, etc.
- ‘Sensitivity rating’. Presented as inherent, but actually no doubt related to the principal ‘factors influencing change’.

Northumberland HLC’s 2008 Types texts include single word entries for the following:

- Trajectory of change
- Susceptibility, a measure of its robustness.

Essex HLC’s 2011 Types texts include:

- Degree of change
    - A figure calculated by comparing extents in the 1880s (OS 1:2500 First Series) and the present-day (2009)
- Factors influencing change
    - The drivers for loss or creation
- Capacity to absorb change
    - Low, medium or high, according to the likelihood and force of the factors influencing change.

Manchester Metropolitan HLC’s 2012 Types texts include:

- Below-ground archaeological potential
- Above-ground archaeological potential
- Historic Landscape interest
- Threats and opportunities.

Oxfordshire HLC’s 2017 Types texts include:

- Trajectory of change, accompanied by a graph showing increases and decreases in extent over time.
- Biodiversity potential. A score (high, medium or low) with brief explanation.

Historic Seascape Characterisation
The 2011 HSC of The Bristol Channel and Severn Estuary has the following sections for its Types texts; several are combinations of subsections used in terrestrial characterisations:

- Introduction: defining/distinguishing attributes and principal locations
- Historical processes: components, features and variability
- Values and perceptions
- Research, amenity and education
- Condition and forces for change
- Rarity and vulnerability
- Sources.

8.3 Modelling sensitivity and capacity using Historic Seascape Characterisation

Should this Discussion Document form the basis of Historic England advice, the range of situations in which HSC material is deployed when assessing sensitivity and capacity will need to be carefully set out. This will also involve reviewing and establishing how processes such as Environmental Impact Assessment (EIA) and the associated compilation of Environmental Statements are undertaken. One area of interest will be in establishing which themes within Environmental Statements should include assessments based on HLC and HSC. It is currently understood that assessments of HLC and HSC both fit best in the Cultural Heritage theme (as set out in GLVIA3, 76-77 and in IEMA 2021, 5), but care needs to be taken to ensure that there is no double-handling and double counting with elements of the landscape theme.

When considering 'fully marine areas the balance between the sensory and the cognitive in our historic seascape perceptions shifts strongly to the cognitive. We can and do map marine HSC for all areas and at all levels of the marine environment, but what we can directly sense is limited to activity whose features, past and present, break the surface. Those aspects, principally covering fishing, commercial shipping, navigation routes and navigation safety, energy generation, hydrocarbons extraction and recreational activity, are all eligible for inclusion under sensitivity assessment as being outlined in this paper. And as seascape entities combining the sensory and the cognitive, that coverage extends to their full extent down through the water column and into the sea floor' (Dave Hooley, pers comm).

Narratives arising from much past marine activity only inform our perceptions in a cognitive sense, that is by knowing, thinking and reasoning, not as visibly legible features of the sensed seascape. Material remains from much of that activity now only lie on, in or under the seafloor. For fully marine areas there is a need to consider whether change that affects only what we know but not what we can directly sense is still within the scope of seascape sensitivity and capacity assessment (Dave Hooley, pers comm).

Change that affects aspects that are not directly sensed, either before or after the change, may not be in scope in seascape sensitivity assessment, if that is based primarily on landscape and seascape as perception. It may be suggested then that such HSC character that arises solely from historic activity and materiality that is evident only beneath the sea surface may then be more appropriately covered by the more traditional conservation approaches to historic environment materiality than by historic seascape sensitivity assessment. That position might alter as GPS, increasingly extensive underwater surveys and underwater trails enable more of a sense of specific 'place' to underwater offshore areas (Dave Hooley, pers comm).
It may also be noted that the different approaches taken to those elements of historic seascape character that are perceived by sensory and cognitive means may also be applicable to aspects of terrestrial character. For example, those currently unknown below-ground archaeological remains that may be identified by remote or geophysical sensing or might be predicted through knowledge of historical processes are also perceived primarily cognitively rather than through sensory means and so may be regarded as akin to the parts of the marine historic

environment (in the water column and on, in or below the seabed) that are also perceived cognitively (Dave Hooley, pers comm).

Both HLC and HSC have, however, drawn the cognitive into their methods of creation (being derived from thinking about a range of evidence bases and schemes of interpretation) and application, being regarded, among many other things, as indicators of archaeological potential. Consequently, it may be expected that assessments of sensitivity and capacity can be reasonably and usefully undertaken using the HSC layers for the water column, sea floor and sub-seafloor, just as the varying potentials for below ground remains can be factored into sensitivity and capacity assessments using HLC.

The use of both HLC and HSC in sensitivity and capacity assessment is still in its infancy and it may be expected that exploration of the possibilities of applying it in the sub-sea-surface marine environment and in relation to as yet unknown below-ground archaeological remains will continue so long as the outputs and outcomes of such work are regarded as reasonable and useful to decision makers. Further consideration of these issues will inform any advice prepared by Historic England.

9 EXAMPLES OF MAPPED OUTPUTS OF SENSITIVITY AND CAPACITY ASSESSMENTS USING HLC

See Appendix 1 for more details.

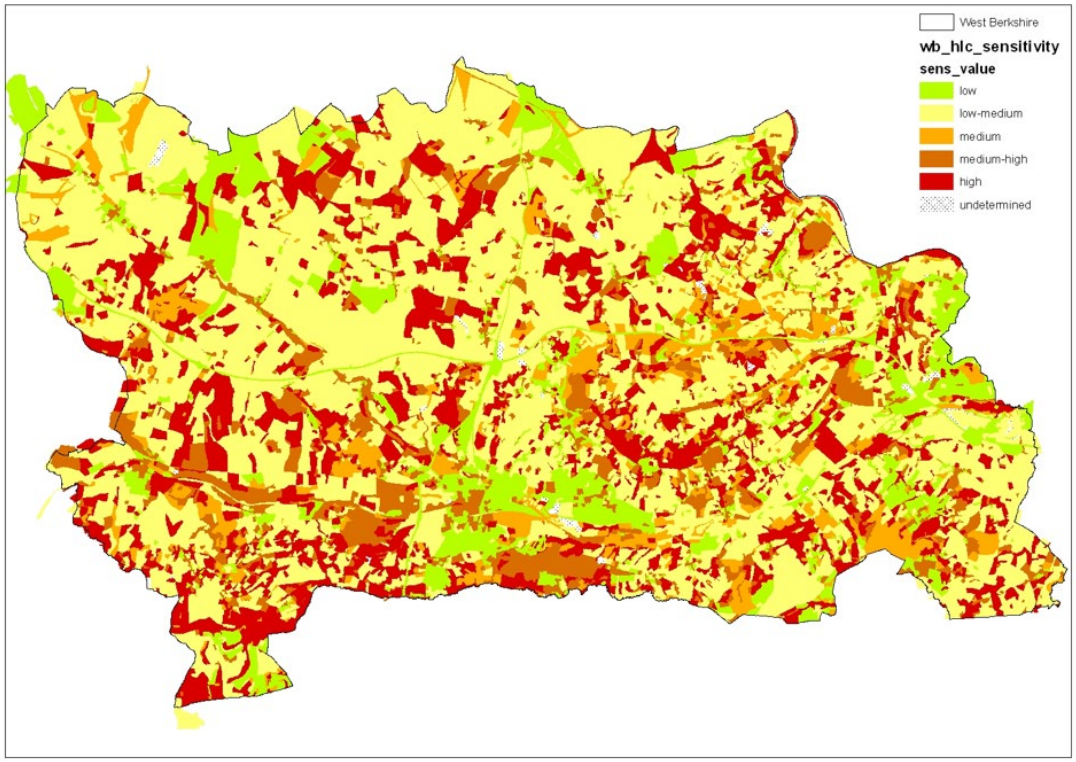

Figure 2 Assessment of the sensitivity of the historic landscape of West Berkshire to substantial change, here derived from multiplication of scores for Fragility and Significance, each based on professional judgement. Traffic light colouring has red for most sensitive to green for least (from Coe and Conway 2008; reproduced courtesy of West Berkshire Council).

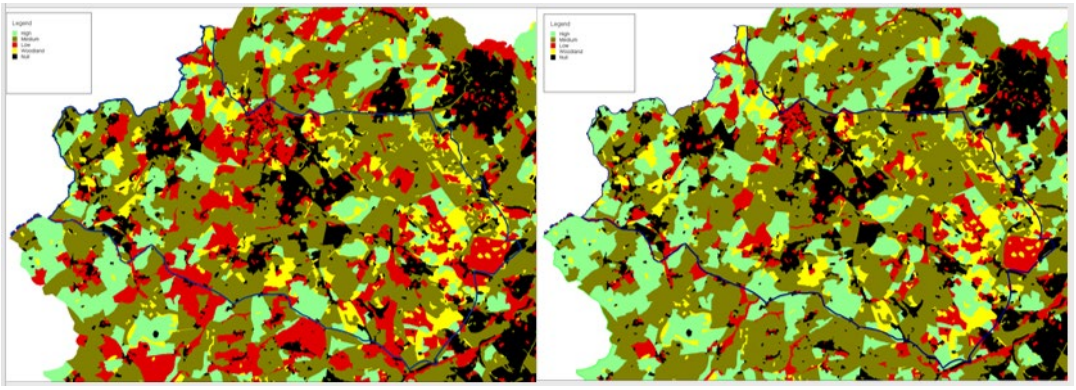

Figure 3 Capacity assessment of part of the National Forest showing how the landscape has different capacities to accommodate the effects of different types of afforestation: large-scale 'Changing landscape scheme' (left) and smaller-scale '500-2000 Trees and 'One Acre Wood' schemes (right) (from Clark and Robertson 2008; reproduced courtesy of Leicestershire County Council). Lime green = high capacity; khaki = medium; red = low; yellow = woodland and black = null.

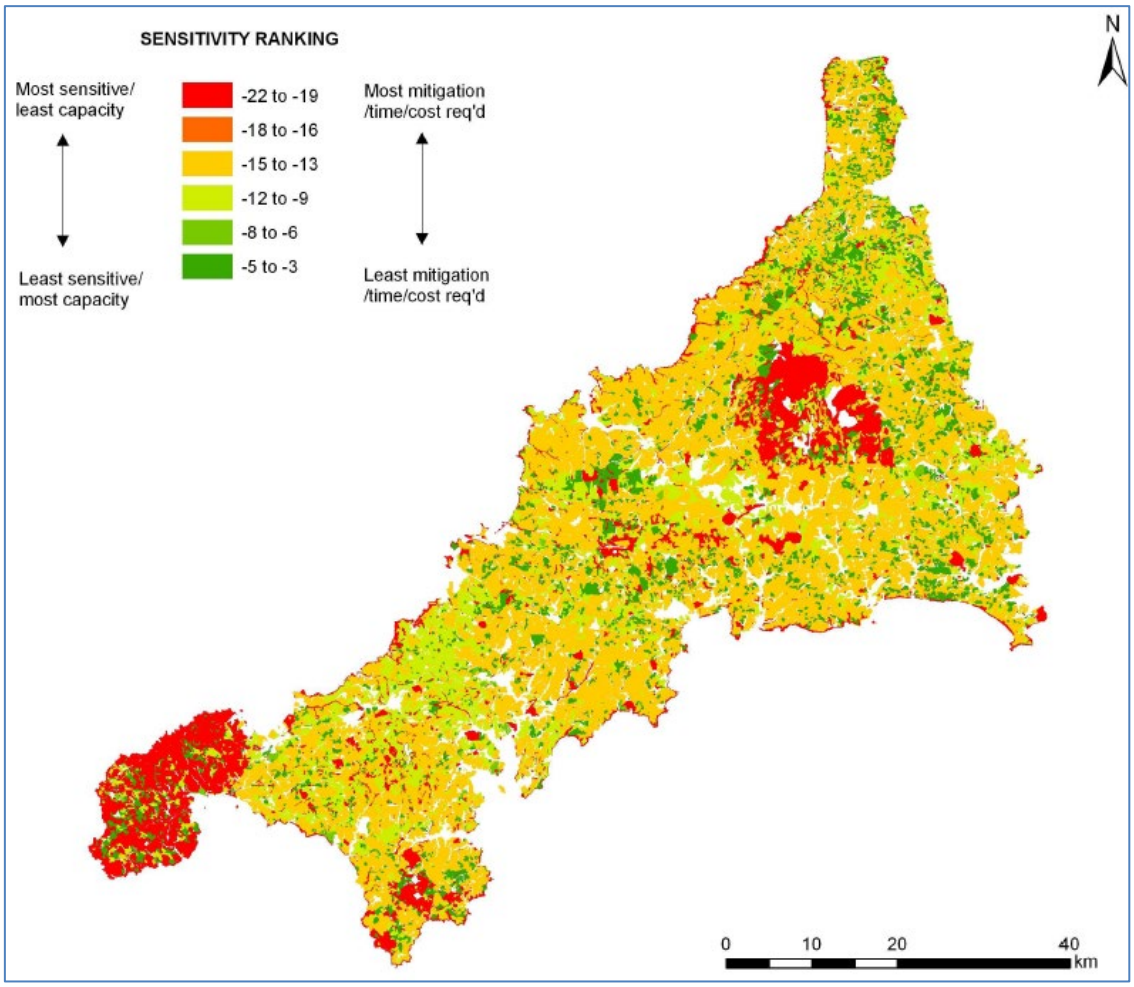

Figure 4 Sensitivity of Cornwall's historic landscape to solar farms in which panels are fixed to stanchions. The key also emphasises the benefits for renewable energy developers of avoiding the more sensitive areas (from Tapper et al 2010; reproduced courtesy of Cornwall and Scilly Historic Environment Record).

10 QUESTIONS DRAWN FROM THE REVIEW

This part of the Discussion Document is intended to frame and guide consideration of all aspects of modelling sensitivity, from establishing the need to developing principles and a staged approach to addressing practical issues. It does this through a series of questions derived from the review of exercises in use of historic characterisation in the modelling of sensitivity and capacity (see Appendix 1; where relevant, the principal studies are referenced). These also formed the basis of the HE workshop discussion on 7th October 2021, which in turn led to adjustments to the questions (see Appendix 2).

As the questions are mainly rhetorical, often asking for agreement to a statement or judgement, they can be regarded as setting out the basis for a proposed advice note. The questions are grouped into 11 bundles, as follows:

1 Defining the need

- Change
- Guiding change in the whole historic landscape and seascape
- Involvement in strategic planning
- Sensitivity assessment and design
- Historic landscape sensitivity alongside landscape and natural environment sensitivity

2 The relationship between Sensitivity and Capacity

3 Change scenarios*: effects and impacts

- Establishing whether sensitivity and capacity are inherent
- Modelling the effects and impacts of a change scenario
- Types of change scenario

4 Assessing vulnerability

5 Assessing significance and values

6 Developing methods or ground rules for sensitivity and capacity assessment

7 A four-staged approach

8 Using Historic Characterisation in sensitivity modelling

- The most appropriate tool for the job

9 Relationship with significance/importance led approaches to heritage management

10 Application and use

- Assessors and users

11 Questions on practicalities

- Historic Landscape Characterisation or Historic Environment Characterisation
- Granularity of workings and of the presentation of results or conclusions
- Issues around scoring
- Cumulative assessment
- Reporting
- Future monitoring of sensitivity and capacity assessments.

10.1 Defining the need

Change

'The whole English landscape, urban, peri-urban, rural and marine, is filled with the patterns of the past and is noisy with conflicting stories and opposed opinions. It challenges us to plan carefully for the future, recognising that change can be regarded as enhancing and positive as well as unsettling or damaging' (Herring and McOmish 2017).

Shortly before 2004 a Countryside Agency survey found that 91% of people wanted to 'keep the countryside exactly as it is today' (Swanwick 2004).

Now most would probably agree with Carys Swanwick (2004) that change is inevitable and that hard decisions need to be made if we are to accommodate what our society requires – social and economic security while tackling the climate crisis and ensuring the wellbeing of individuals and communities – 'while also retaining the aspects of the environment that we place such high value on'.

Q1.1 Has the heritage sector, including Historic England, also become less defensive or less protectionist when addressing change?

- The workshop discussed the range of forms of change to be considered in such work and agreed that they should be comprehensive; not just those planned as forms of development, but also those derived from or responding to climate change, adjustments to land use (including environmental growth initiatives) and the unintended consequences of trends.
- It was noted that the historic environment sector is often misunderstood as being primarily concerned about the needs of the most significant assets rather than the whole historic environment, resulting in missed opportunities to engage with partners, especially those in the natural environment sector (and those dealing with environmental change on a huge scale, like climate change and land use strategies) where our understanding of potentialities for habitats (woodlands, wetlands, rough lands, re-wildings etc) should be of great value (Hannah Fluck, pers comm).
- The application of sensitivity or capacity modelling to HLC and HSC would help all interested parties better understand an area's 'adaptive capacity', its ability to accommodate change, its resilience and its vulnerability.

- It does not matter if utilisation of HLC and HSC is regarded as a heritage interest or not so long as its ability to enable wider society to recognise and seize opportunities is embraced and used. With HLC and HSC and approaches like sensitivity and capacity modelling, the historic environment sector is probably better equipped than most others to feed into the design of Nature Recovery Networks and the like, and for planning at scale for our landscape and environment.
- Such modelling and such characterisation would be very helpful for Historic England and its historic environment partners when dealing with Defra, the Environment Agency and other bodies responsible for assessing and taking the big landscape and environment decisions that are rapidly coming (Hannah Fluck, pers comm).
- As noted in this document's introductory sections, such engagement has long been a driving aim of historic characterisation approaches, and is explored further under Q1.13, below.
- It was also noted that the parameters for statutory designation have limitations while local planning authorities and their historic environment advisers are time-pressed, under-resourced and in some ways ill-equipped, so an approach like that suggested here should be considered.
- It was emphasised that the tone and stance adopted when using HLC and HSC and sensitivity and capacity assessment will always work better and be more readily accepted by our partners if it is positive, rather than as a purely defensive, protectionist approach, guarding the historic landscape and historic environment rather than drawing inspiration from it and reinforcing valued patterns within it as we help society meet its urgent 21st century environmental needs.
- The term 'sensitivity' may itself suggest the concern is principally to avoid change and the harm that comes with it, rather than to use the historic environment and landscape to guide the location, form and design of positive change: enabling and supporting change; emphasising the positive and the potential. The language employed will therefore need careful consideration, especially when dealing with capacity, potential and opportunity too (Hannah Fluck, pers comm).
    - There has been Opportunity mapping, for example for woodlands, as in the West Midlands Woodland Opportunity Mapping that drew on HLC around 15 years ago.
    - Historic landscape-led opportunities are also being sought in the approach devised for Archaeological Sensitivity in the Oxford-Cambridge Arc work (involving Historic England and LUC).
    - HLC and HSC and historic characterisation designed and intended to be inclusive.
    - The use of HLC and HSC in modelling opportunity (or capability) can also be applied to the increasing use of offsetting other environmental

impacts of development. Characterisation and the understanding of existing and former landscape arrangements can help guide re-wilding and other environmental growth so that it reinforces the existing valued patterns or recreates recently lost landscape rather than remodels it anew.

  - They also help decision-makers appreciate the narrative in our historic landscape, so that environmental growth, nature recovery and biodiversity net gain can all draw on the understanding and stories embedded in HLC (and HSC). This is especially the case for Enclosed Land, where community engagement with those narratives can be a strong driver and support for well-designed initiatives but where there is often a poor understanding of enclosed land's historical and natural environmental potential within the National Ecosystem Assessment, but applies to unenclosed land too (Jeremy Lake and Charina Jones, pers comms).
  - Natural England's ongoing work on natural capital accounting and ecosystem assessment have gradually moved towards the position English Heritage were suggesting a decade ago, that the cultural and natural are intertwined.
  - Positivity is also gaining ground in the construction industry. The Construction Industry Research and Information Association has recently issued guidelines that emphasise 'The benefits that Archaeology can bring to a development when managed effectively including the benefits of integrating archaeology into schemes or projects, thus changing the way that it is viewed and valued' (CIRIA 2021).
  - While there was support in the workshop for taking a more positive approach, it was also noted that within development management there is still a reluctance on the part of consultants to identify and push the positive benefits of a development they have been commissioned to assess. There is still a harm-based approach in the sector, engendered by PPG16.
  - Additionally, it was noted that biodiversity net gain, generally seen as a positive, can be used to secure approval for changes that may be detrimental to the historic environment. There is therefore a need to recognise that the perceived interests of the historic and natural dimensions of the environment may not always fully align and may sometimes be in direct opposition to each other (Dave Hooley, pers comm).

- Given the support from the workshop for positive, opportunity-led approaches or applications, to complement the more protectionist ones that have been undertaken thus far, it was felt that there would be value in essaying a number of pilots based on opportunity modelling, looking at an area and considering positive possibilities.

Q1.2 Do we agree that the prospect of damaging change or loss stimulates closer consideration of character and distinctiveness, and then protection, maintenance, adaptation and transformation? Does this also help us establish what is acceptable or desirable change and how we manage that in order to minimise damage and maximise environmental and public benefit?

Guiding change in the whole historic landscape and seascape

Q1.3 Do we agree with these two statements?

- Everywhere in England has historic landscape character in that all parts have been affected by the activities of people and/or are valued via the perceptions of people.
- All parts can be appropriately managed, though not all parts will be equally sensitive to all forms of change (it is that variability that requires development of a method of assessment of sensitivity and capacity).

Q1.4 Can we agree that the historic landscape is an important contributor to sense of place, identity and quality of life and through those to individual and community wellbeing (Went and Dyson Bruce 2003)?

Q1.5 And can we in England agree to these five 'landscape principles', adapted slightly from those proposed by Scottish Natural Heritage and Historic Environment Scotland (NatureScot 2020), which reflect the aims of the European Landscape Convention?

a. **All landscape** – the whole landscape is important because everyone has a right to live in and enjoy the benefits of vibrant surroundings.
b. **Shared landscape** – landscape is a common asset and everyone has rights and responsibilities for looking after it.
c. **Your landscape** – People and communities should always be involved in decisions that shape their landscape.
d. **Understanding landscape** – Decisions need to be based on understanding and awareness of both the cultural and natural dimensions of our landscape.
e. **Dynamic landscape** – Landscape will continue to change but change needs to be informed and managed to ensure it remains resilient.

Q1.6 Should we then employ sensitivity and capacity modelling to help draw inspiration from the historic landscape and environment when designing change that enhances, regenerates and creates in ways that contribute positively to local historic character and to identity and sense of place (Went and Dyson Bruce 2003; Clark et al 2004)?

- This would extend the constructive conservation* approach currently largely confined to particular places to the whole historic landscape, and seascape.

Q1.7 Do the historic environment sector in general and Historic England in particular have roles in encouraging, influencing and advising the ways

communities and individuals become involved in caring and campaigning for the most sustainable and respectful future of all parts of the historic landscape (Clark et al 2004)?

- As early as 1994 authorities were required to develop policies that 'take account of the historical dimension of the landscape as a whole rather than concentrate on selected areas. Adequate understanding is an essential preliminary and authorities should assess the wider historic landscape at an early stage in development plan* preparation' (PPG15).
- The NPPF requires that when setting out a positive strategy for the conservation and enjoyment of the historic environment it should take account of 'the desirability of new development making a positive contribution to local character and distinctiveness, and opportunities to draw on the contribution made by the historic environment to the character of a place' (MHCLG 2021, para 190c,d).
- Historic England will have an ongoing role in reference to section 54 of the Marine and Coastal Act 2009 (as amended) which imposes a duty to keep certain matters under review within marine plans such as 'the physical, environmental, social, cultural and economic characteristics of the authority's region and of the living resources which the region supports'. Section 54(4) defines 'cultural characteristics' to include a reference to characteristics which are of a historical or archaeological nature (Chris Pater, pers comm).
- Historic England and the heritage sector will expect to be involved in the changes to the planning system proposed in the government's White Paper.

Involvement in strategic planning

Q1.8 Should Historic England and the heritage sector develop tools that allow engagement at all stages of development planning, from high-level upstream strategic planning through to the detailed development management that currently absorbs much of their resource (Went and Dyson Bruce 2003; Croft 2004; Tapper et al 2010)?

- The workshop agreed that the historic landscape is often considered late in the process of planning, resulting in valid concerns being addressed in a challenging way in an unnecessary catch-up situation. Deploying a method such as that suggested here would lead to collaboration and problem-tackling long before firefighting outcomes that may have been predicted if such modelling of sensitivity and risks had been pursued.
- From a marine development consenting perspective, Historic England is involved throughout the pre-application, examination or other formal statutory consultation process and then post-consent delivery. In this regard, HE has a very important role to play regarding non-designated heritage assets and historic places as might be encountered given the absence of any local authority archaeological advice beyond terrestrial planning jurisdiction (Chris Pater, pers comm) and also has a responsibility for ensuring the

principles and obligations of the European Landscape Convention are observed across marine areas (Dave Hooley, pers comm).

- Also note the applicability of the *Principles of Cultural Heritage Impact Assessment in the UK* published in July 2021 by the Institute of Environmental Management and Assessment and endorsed by IHBC and CIfA (Chris Pater, pers comm). In this, the cultural heritage is considered to include 'townscapes, landscapes, seascapes… whether… visible, buried or submerged' (IEMA 2021, 5).

Q1.9 Can the use of Historic Landscape Characterisation (HLC) and Historic Seascape Characterisation (HSC) in modelling sensitivity and capacity provide an effective means of so engaging, in conjunction with other approaches to sensitivity modelling and the conservation of heritage assets?

Q1.10 Can we agree that a principal aim of sensitivity and capacity assessment is to enable decision makers to have a clear and early idea of the form, scale and significance of risks and opportunities with respect to the historic landscape attendant on any proposed or expected change (Went and Dyson Bruce in 2003), in addition to the many other risks and opportunities that affect or benefit developers or other instigators or managers of change?

- For this to be successful the assessment needs to be of a high quality and the data on which it is based need to be clear to ensure that decision-makers have confidence in it (Emily La Trobe-Bateman, pers comm).
- It should be expected that it will be in the interest of the developer or proposer of change to ensure that all data and all methods are sound and therefore that it should be for them to prepare the material so that it is of the highest standard and to ensure the process employed is as thorough and careful as required. For this reason, it should be the developer or proposer of change that resources the assessment of capacity or sensitivity (Emily La Trobe-Bateman, pers comm). This may also require government funding for any historic characterisation upgrades required to inform major government-prompted infrastructure initiatives (Dave Hooley, pers comm).
- It may be expected that there will be thorough and wide-ranging reviews of the strengths, weaknesses and potential of HLC, HSC and EUS, and other forms of historic characterisation, to ensure that the best use is being made of comprehensive, country-wide material that has been developed at significant expense. A review of *Using HLC* is 'In the Pipeline' of Historic England guidance / advice.

Q1.11 Would such an approach help minimise conflict and cost further downstream in development planning for all parties (developers and planners)?

- Solar farm sensitivity assessment in Cornwall aimed to provide 'greater clarity to the industry on where schemes are more likely to be acceptable' in order to minimise costs of further archaeological interventions (Tapper et al 2010).

Q1.12 Can we expect sensitivity and capacity assessment of historic landscape and seascape to be able to inform location, form and scale of change (Kidd and Green 2004; Croft 2004; Carver et al 2007)?

Q1.13 What are the main types of change that sensitivity and capacity modelling can be applied to?

- Targeting or prioritisation of government-supported land use change (e.g. woodland and forest creation; agri-environmental scheme targeting).
    - This will increasingly also include environmental growth in the form of carbon offsetting: planting to enable Biodiversity Net Gain to be secured for planned development (Hannah Fluck, pers comm).
    - Again, this is a positive application of the approach; guiding the location and form of change that makes a positive contribution to our landscape and society.
- Large-scale transport infrastructure (roads, railways, air, marine) including distribution hubs.
    - Some of this will be covered by the National Policy Statements under the National Infrastructure Planning System.
- Urban growth areas, including brownfield infill and settlement expansions.
- Renewable energy (wind, solar).
    - Some of this will be covered by the National Policy Statements under the National Infrastructure Planning System.
- Structural responses to climate change.
- Neglect, loss, longevity and continuance of existing land uses (assessing how sustainable they may be).
- Development of Historic Environment Action Plans (HEAPs) which may include semi-natural environmental growth initiatives.

Q1.14 Which types of strategies, plans and policies can we expect assessments of sensitivity and capacity to contribute to?

- Strategic landscape planning policy
- Modelling areas that may be suitable for inclusion in Local Plans* and Neighbourhood Development Plans*
- Strategic landscape management* policy
- Strategic environmental (biodiversity, natural capital*, ecosystem services*) policy
- Strategic Environmental Assessment*

- Environmental Impact Assessments*
- Environmental Statements*
- Sustainability Appraisals
- Landscape Management Plans
- Nature recovery plans and networks, including Local Nature Recovery and Landscape Recovery Strategies in the forthcoming Environmental Land Management schemes (for which there is not yet a methodology for including heritage) (Vince Holyoak and Charina Jones, pers comms)
- Opportunity mapping, such as for woodland, and other land use change (Hannah Fluck; Vince Holyoak and Jeremy Lake, pers comms)
- Historic Environment Action Plans.

Sensitivity assessment and design

Q1.15 Should we expect strategic, high-level assessment of sensitivity and capacity to be able to feed into the development of design codes and other devices that ensure that future development is as 'beautiful' as the Planning White Paper proposes?

Q1.16 Would use of sensitivity and capacity assessment best fit with masterplanning and parameter planning rather than more detailed stages of design (Croft 2004)?

- The more detailed work would normally be undertaken when using finer grained characterisations, such as the deepenings undertaken in urban landscape, rather than the 'county' level HLC.
    - Note that it was suggested that some deepening or preparing of the HLC or HSC dataset can be expected to be normally required when undertaking all sensitivity and capacity assessment, to ensure that it was as fit for its immediate purpose as possible (Emily La Trobe-Bateman, pers comm).

Historic landscape sensitivity alongside landscape and natural environment sensitivity

Q1.17 Can tools like HLC, HSC, EUS etc enable the historic environment sector to work alongside landscape and natural environment sectors when they deploy Landscape Character Assessment*, Seascape Character Assessment, Landscape and Visual Impact Assessment* and ecosystem and natural capital analyses?

Should these be complementary and thus each be aware of other approaches to landscape and environment and other ways of working when assessing the effects of change on their areas of interest, including when modelling sensitivity and capacity?

Can historic landscape sensitivity assessment contribute to green infrastructure design (Kidd and Green 2004)?

- NatureScot (2020) suggested that 'the scope for landscapes to accommodate new land uses and development without reducing some of the ecosystem services we benefit from varies from place to place. Locating the right development in the right place helps to minimise adverse landscape and visual effects and maximise these benefits.'
- Note that the Natural England Approach to Seascape Character Assessment (2012) and their Approach to Landscape Character Assessment (2014) require consultation of HLC and HSC in the assessment process.

Q1.18 Can we agree that it is clearer to keep preparation of assessments for each form of landscape (historical, visual/aesthetic) and environment (natural, historical) separate and then compare and if appropriate integrate their outputs rather than attempting to meld the material into one overall characterisation first and then assess the effects of change on that?

- The neutralising effect of melding disparate qualities would substantially diminish the usefulness of the meld-first approach.
- Note that HLC and Landscape Character Assessment can work well with each other because the scale and typical units of analysis and presentation (Type and Area respectively) do not compete but instead complement each other (Wigley 2007).

Q1.19 Can we also agree that comparison and utilisation of the outputs from each separate sensitivity assessment would be made simpler if each followed a broadly similar approach, best summarised by NatureScot's simple diagram (NatureScot 2020, fig 1, reproduced as Fig. 5)?

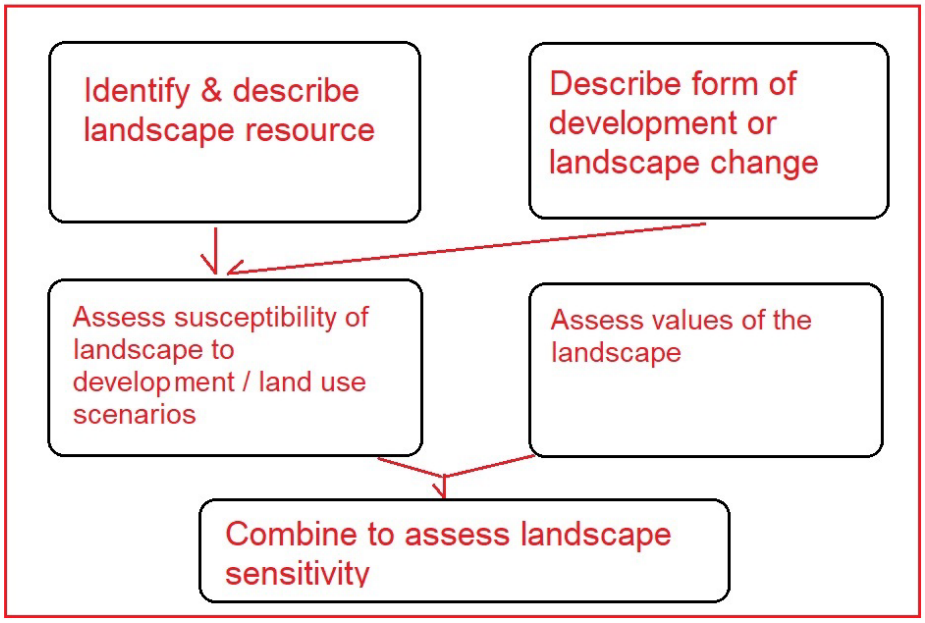

Figure 5 Flowchart – process of Landscape Sensitivity Assessment (after NatureScot 2020, fig 1)

- This requires broad agreement on the application of heritage values (centre right box in Fig. 5).

10.2 The relationship between Sensitivity and Capacity

Q2.1 Can we agree definitions of each so that we can model them in consistent ways? Numerous definitions have been suggested (see Glossary for others), but the following are clear and inclusive:

- Sensitivity: 'sensitivity is a measure of the ability of a landscape to accommodate change arising from specified development types or land management scenarios without undue negative effects on landscapes and their value' (NatureScot 2020).
    - The workshop confirmed that this includes seascape alongside landscape, as the ELC requires.
    - It agreed that sensitivity is specific to a particular form of change, is not general and is not the same for all types of change.
    - It noted that there is urgency as the speed of some forms of change requires us to climb a steep learning curve when addressing concerns that we are only just beginning to recognise and understand, including those associated with climate change.
    - It was noted that the term 'undue negative effects' in the NatureScot definition introduced both subjectivity and a form of exclusivity, or partiality: who determines what is negative or undue? And it also placed emphasis on negative effects when we are increasingly interested in considering change that has what may generally be regarded as positive effects.
    - Also, regarding the negative effects, it was asked whether these are conceived of only in relation to 'heritage elements' or instead to all aspects of the historic landscape or environment? In reply it was noted that the method is intended to be comprehensive, addressing all aspects of the historic landscape and seascape, patterns, uses, semi-natural communities, etc, the 'historic human dimension of our landscape', as well as heritage assets.
    - The definition therefore requires adjustment. An alternative is suggested here:
        - **'sensitivity reflects the vulnerability, robustness and potentiality of the historic landscape and seascape in relation to the effects of a specified form of change'**
    - It concentrates on qualities, of both the form of change and of the historic landscape type or place.
    - It would then employ HLC and HSC as frameworks of our current understanding of such broadly defined historic landscape and seascape.

- Capacity: 'The amount of change of a particular type that can be accommodated without having unacceptable adverse effects on the character of the landscape, or the way that it is perceived, and without compromising the values attached to it' (Swanwick 2004).
    - Capacity therefore concentrates on quantity and limits, as well as on value.

Q2.2 What is the relationship between them?

- Carys Swanwick (2004) noted that Sensitivity and Capacity had been used interchangeably when they were not the same thing and, in some circumstances, such as in scorings or gradings, are opposites, in the sense that areas with low sensitivity may have high capacity.
    - However, 'a finding of 'high' sensitivity does not necessarily mean that there is no ability to accommodate development and 'low' sensitivity does not necessarily mean that there is definitely scope for particular development' (NatureScot 2020).
- Most assessments of sensitivity to a particular form of change can be expected to also include assessments of capacity (Swanwick 2004).

Q2.3 There are other important concepts. Sensitivity modelling will involve consideration of the **effects** and **impacts** of a change, then **vulnerability** to those or **capability** in relation to them. It will also draw on **significance** and **value**. Each of these will be explored more fully when setting out a proposed approach, below (10.7). Can consideration of other related concepts or qualities make sensitivity assessment more usefully nuanced?

- **'Robustness*, fragility** and **resilience** are close in meaning to vulnerability and capability, and reflect how a place may recover from change to an acceptable degree, whether physically or within peoples' perception' (Herring and McOmish 2017).
- **'Opportunity** and **potential** reflect a place's openness to change and enhancement and **acceptability** indicates the tolerance of change by communities of place or interest' (Herring and McOmish 2017).
    - Opportunity modelling demonstrates that the historic environment sector is able to support society as it makes important decisions regarding change, including those related to responding to climate change and to supporting environmental growth (Hannah Fluck, pers comm).
    - It would also enable the historic landscape to be keyed into parallel initiatives like local nature strategies, allowing natural environmentalists to recognise the potential for habitats in certain places (Sandy Kidd, pers comm).

- Acceptability on the other hand may be more problematic, given the fluidity of what individuals and communities regard as acceptable (Dave Hooley, pers comm).

- Susceptibility* is defined by Natural England as 'the degree to which a defined landscape and its associated visual qualities and attributes might respond to the specific development type / development scenario or other change without undue negative effects on landscape character and the visual resource' (Natural England 2019).
    - For Natural England, landscape sensitivity is a combination of landscape's susceptibility to a specific change and the 'values related to that landscape' (Natural England 2019).
    - Natural England's understanding of 'susceptibility' may be regarded as a synonym for capability or vulnerability.

10.3 Change scenarios: effects and impacts

Establishing whether sensitivity and capacity are inherent

Q3.1 Can we agree that neither sensitivity nor capacity is inherent, that is fixed, regardless of the form of change being considered (Swanwick 2004; Croft 2004)?

- 'Some change affects [a place's] character only slightly, some greatly and some only has a significant effect cumulatively; some change has positive or enhancing effects as well as negative ones' (Herring and McOmish 2017).
- 'To assume that a place, or a type of place, or a type of landscape, is equally sensitive to any type of change can rarely usefully inform complex, multi-factor design and planning decisions' (Herring and McOmish 2017).
- 'Use of HLC [and HSC] in sensitivity modelling therefore encourages reasonable responses to scenarios in all parts of the historic landscape, not just those traditionally deemed the most significant and not just those that historic environment experts favour' (Herring and McOmish 2017).
- 'While some places may be assessed as highly sensitive to many change scenarios – the upland landscapes of Dartmoor or the Cheviots for example, or historic cityscapes such as Lincoln or York – there is still considerable variability in their sensitivities, and in their potential to also benefit from change' (Herring and McOmish 2017).
- The concept of sensitivity being employed in Historic England's Archaeological Investigation Team's Archaeological Sensitivity project combines four factors (presence, condition, significance and vulnerability & opportunity) (Sandy Kidd and Jonathan Last, pers comms). The first two (presence and condition) may often be relatively fixed but the others are fluid, reflecting the change being considered, and all of them may be more or less relevant in each change scenario.

- The concept of inherent sensitivity is not valid, 'as context and the nature of the impending change is crucial to understanding both the sensitivity of a landscape or asset etc, and inseparable from questions of capacity' (Dave Went, pers comm).

Q3.2 Can we therefore agree that the differing effects or impacts of each form of change mean that the receptor* (whether HLC or HSC Type, heritage asset, place or area) has different forms and levels of sensitivity and capacity in relation to each form of change (Croft 2004; Brown et al 2006)?

- Such scenario-led sensitivity assessment is akin to Environmental Impact Assessment (EIA) except that it addresses generic change rather than the details of a specific project.
    - Undertaking sensitivity assessment would not affect the need to undertake EIA and prepare Environmental Statements for specific projects.
    - The workshop noted how historic landscape can become lost in a welter of specialist issues in some EIAs, when it could instead be used as a key filter if sensitivity or capacity assessment were used.
    - Care needs to be taken to avoid double handling and counting between the cultural heritage and landscape themes in Environmental Statements. The GLVIA 3 accepts that landscape assessment can share baseline information, such as HLC, but the appraisal of HLC (and by implication also HSC) should fall within the cultural heritage theme (GLVIA 3, 77). Further clarity is provided by the IEMA *Principles of Cultural Heritage Impact Assessment*, which notes that cultural heritage includes historic landscapes, seascapes and townscapes, whether visible, buried or submerged (IEMA 2021, 5).

There is a separate need to work through how HLC and HSC, and the perception-based European Landscape Convention, are utilised in EIA.

Modelling the effects and impacts of a change scenario

Q3.4 Should we therefore begin assessments of sensitivity by carefully thinking through the exact form of and nature of the change scenario and identify those elements likely to affect the historic landscape, and then the aspects of the place or HLC or HSC Type that are likely to be affected by the change (Swanwick 2004)?

- We can differentiate between welcome and unwelcome changes or impacts, and thus the landscape's vulnerabilities and capabilities (Carver et al 2007).

Q3.5 What sorts of impact affect historic landscape character or other aspects of the wide historic environment? They may be exemplified by considering those of a common change scenario, the erection of wind turbines:

- Introduction of large eye-catching features.
- Distraction of attention from other aspects of the historic environment.

- Ground preparations can disturb archaeological remains and built structures
- Some impact on semi-natural features.
- Reduction in tranquillity and erosion of sense of place.
- Introduction of new meanings, including action to counter climate change (Herring 2008).

And another: installing arrays of PV inverters in a solar farm.

- Large-scale physical impacts if anchor bases used; substantially less impact if pilings for stanchions used.
- Impacts on landscape coherence and legibility.
- Potential for improving semi-natural communities if land use beneath installations was less intensive, e.g. sheep grazing (Tapper et al 2010).

A third: agricultural change.

- Deep ploughing
- Shallow tillage
- Changes in pasture regimes
- Changes in uses of rough ground (Natural England 2008).

And a fourth: woodland creation.

- Site preparation
- Root action
- Hydrological change
- Forestry operations
- Windthrow
- Preservation and restoration (Tompkins 2017).

Q3.6 Can we also design assessments that recognise the differing impacts of variability within broad scenarios (Carver et al 2007; Tapper et al 2010; Tompkins 2017)?

- Such as:
    - Differing height and density of new build (Tompkins 2017)
    - Spacing, height, etc of wind turbines (Tapper et al 2010)
    - Means of installing solar panels (Tapper et al 2010)
    - Scale and nature of new woodlands (Clark and Robertson 2008).
- If impact is defined as 'scale of change' we can delineate general ranges in that scale, from none or negligible to major (Carver et al 2007).

Q3.7 Should we also take account of time-scales, given that some changes may be time-limited and to some degree reversible?

Types of change scenario

Q3.8 Would it make addressing sensitivity and capacity assessment more manageable if the numerous change scenarios were grouped into a small number of

broad types of scenario and the principal effects and impacts of each were set out? The following attempt at doing this is taken from Herring and McOmish 2017.

- Major development (settlement, industry (including extractive), infrastructure, etc). Effects often permanent and irreversible (or perceived as such). Usually considerable variability in scale, numbers of items, form and design, providing scope for sensitivity assessment to inform location and design of change. Scenarios in major developments are often interconnected and cumulative and can generate unplanned (or initially unconsidered) consequences. Will affect many qualities of historic landscape and seascape: legibility; semi-natural aspects; existing built environment; general landscape character; amenity, etc.
    - If we were to model effects and impacts by group, then all these forms of major development will need to be separated out as the effects of each are distinct (Dave Hooley, pers comm).
    - Major development would then include the following:
        - Large-scale new or extended settlement
        - Transport infrastructure, again broken into types – rail, road, airport, port, etc
        - Other forms of large-scale infrastructure (energy, telecommunications, etc)
        - Various forms of large-scale extractive industry, again subdivided by type
        - Large-scale processing and manufacturing industry.
- Minor development, including incremental change. Scale makes this scenario more adjustable: variability in historic landscape vulnerability can be used positively, to better guide location, scale and design of change.
- Natural processes and responses to them. Climate change may accelerate (or initiate) processes like erosion, deposition and vegetation change. While these are beyond planning their effects can still be modelled to contextualise consideration of responses to them (flood defences, fire breaks, dredging, etc) that can be likened, in terms of their effects, to major or minor development.
- Changes in agricultural land use and practices. Variety in agricultural change includes whether it represents intensification or extensification. Semi-natural components may be especially vulnerable, but so could historic landscape legibility and general landscape character (especially if boundary patterns are affected), and then amenity. Some effects can be reversible, but others may be permanent even if generally unintended. HLC-based sensitivity and capacity assessment can help guide the design and implementation of agri-environment schemes.
- Extensive plantings. Long-term (like woodland) or short-term (biomass), and impacts may include aesthetics: broadleaf or coniferous trees; local or alien species. Some effects, especially on historic landscape legibility and

character are variably transitory. Others, like the effects of root systems or mechanised planting and harvesting on buried remains, may be permanent.

- Tall structures. Pylons, wind turbines and other small-footprint rural structures. Can vary in scale (especially height), numbers and flexibility in their location and arrangement, enabling sensitivity studies to influence location and design. Physical impacts on known semi-natural features and below-ground remains may be avoided or minimised, but other significant vulnerabilities include effects on landscape character, and distraction from the appreciation and enjoyment of legible historic landscape.
- Proactive environmental management. Managed delivery of ecosystem and cultural services*, guided by Biodiversity or Historic Environment Action Plans and often supported by agri-environmental initiatives. Unplanned consequences can be substantial, especially if management or restoration are built on misperceptions (e.g. that rough ground is wilderness). Some effects can be reversible, but those affecting below ground remains can be more permanent. Many effects will be regarded as positive, but sensitivity assessment that raises awareness of past management practices in shaping biodiversity should help those designing such works to avoid unwanted (and preventable) outcomes. It should also support the sharing of objectives through partnership working.
- Continuance of established ways. Reviewing the sustainability of current ways of using places can assess observable ongoing effects. Will inform plans for changing established ways of managing places by identifying opportunities to reduce negative effects and enhance positive ones.
- Neglect. Unplanned and highly variable, but sensitivity to its effects can still be usefully assessed if there are opportunities for reversing the neglect.
- Loss. In extremis, the approach could also be applied to the most dramatic and conclusive form of change – complete loss, whether that is from erasure during development or from the violent or relentless effects of climate change, as being considered in the *Landscape Futures* project (Exeter University) (Hannah Fluck, pers comm).

It was re-emphasised that sensitivity and capacity modelling would, as suggested here, reach far beyond the formal development planning processes, to include climate change and consequent huge strategic planning for coastlines, flood management, etc, some of which are delivered through planning, but others through other mechanisms (Hannah Fluck, pers comm).

10.4 Assessing vulnerability and capability

Q4.1 Can we establish the main ways that historic landscape and seascape are vulnerable to the effects of change?

- Reduction or increase in legibility of the historic landscape. Appraise how the new cultural layer resulting from the change affects the readability of the landscape's stories. Changing elements or patterns in complex historic places

(palimpsests) may be regarded as part of their gradual evolution. Elsewhere, small changes can disarticulate coherent historic patterns, leading to loss of readability and meaning. Change can also remove elements that currently obscure or confuse (Went and Dyson-Bruce 2003).

    - Most HLCs record attributes* reflecting legibility, including form, date and complexity. Assessment should query and analyse the HLC and may if appropriate deepen or extend its characterisation of attributes to draw out that legibility (Herring and McOmish 2017).

- Reduction or improvement of the visibility or historic elements' **contribution to overall landscape character** (Fairclough and Herring 2007).
- **Damage to distinguishing components.**
    - Loss or disturbance of built environment
    - Damage to below-ground archaeological remains
    - Loss or disturbance of semi-natural components (Fairclough and Herring 2007)
        - Note that this group of vulnerabilities may be better dealt with through separate assessments of the sensitivity of archaeological remains (known and predictable), the built environment and underwater HSC materiality.
- **Reduction or increase in amenity** (Fairclough and Herring 2007).
- **Loss, disturbance or enhancement of ecological communities**, most of which are semi-natural and thus semi-cultural (Herring and McOmish 2017).

Q4.2 Can we quantify the vulnerability or capability of HLC Types* to these effects of a change scenario in a systematic way, whether by scoring or by grading?

Q4.3 Can we adjust the weight given to the different measures of vulnerability or capability to reflect the predictable form, force, likelihood and longevity of the effects of different change scenarios (Herring and McOmish 2017)?

- A clear methodological approach is required (Chris Pater, pers comm).

Q4.4 Will measures of vulnerability also be tempered by any statutory or other forms of protection, whether heritage-related or not (SSSI, AONB, National Park, etc) (Herring and McOmish 2017)?

- It is suggested that while this may be so, the presence or absence of any statutorily protected areas, should not be built into the sensitivity and capacity assessment process. The treatment of protected sites will guide decision makers regardless of even-handed modellings of sensitivity (Dave Hooley, pers comm).

10.5 Assessing significance and values

Q5.1 Do we agree that while judgements about vulnerability and capability are obviously dependent on the effects of a change scenario, the assessment of

significance is also to a degree dependent on them in that the qualities that contribute to a place's significance are also affected differently in different scenarios?

Q5.2 When considering the all-encompassing historic landscape and seascape, which 'has complex, swirling, historical meaning and value, varying according to who is relating to it, and when and why they are doing so' (Herring 1998), can we work from the definition of significance given below, drawn from *Conservation Principles* (English Heritage 2008a) rather than deploy more traditional assessment of significance and importance of heritage assets as used in the statutory designation schemes?

- 'The significance of a place embraces all the diverse cultural and natural heritage values that people associate with it, or which prompt them to respond to it. These values tend to grow in strength and complexity over time, as understanding deepens and people's perceptions of a place evolve.'

Q5.3 Then, can we develop schemes of valuing that draw on the range, fluidity and inclusiveness of the Heritage Values set out in Conservation Principles (EH 2008a), rather than the expert and more fixed heritage Interests* deployed in designation and formal planning, as set out in the NPPF (Herring and McOmish 2017; cf Croft 2004)?

- There was support in the workshop for the use of Conservation Principles' Heritage Values rather than the narrower NPPF Heritage Interests, especially 'from a practitioner perspective' (Steven Orr, pers comm).
- However, for formal advice on particular proposals as delivered through the formal planning system there is an obligation to use heritage interests.

Q5.4 Do we also agree that assessment needs to recognise that much of the value of a place or a type of historic landscape character derives from local context* and distinctiveness?

- A single universal scheme of valuing is therefore unlikely to be appropriate or successful (Carver et al 2007).
- Use of the Heritage Values, rather than the narrower Interests, has been incorporated into the method developed in a HE-supported pilot project developing ways of assessing cultural distinctiveness in Cornwall (Cornwall Council 2019).

Q5.5 Several schemes of assessing significance have been proposed. Can those modelling sensitivity and capacity draw as appropriate from the following variables/criteria? Some are taken from early sensitivity assessments and subsume the MPP criteria (diversity, survival, documentation, group value, potential, amenity and sensitivity to change), but these have been reworked in ways that are more relevant to assessing historic landscape, and seascape.

- Time depth*; summary of temporal diversity and the significance of main periods. Would include rarity and special interest (Went and Dyson-Bruce 2003; Carver et al 2007; Dobson 2008; Tompkins 2017).

- History and visibility of change; **a measure of landscape dynamism or stasis**, and radicalness of recent change and thus the simplicity or complexity of the type, including the degree to which it forms a palimpsest of layers of change (Went and Dyson-Bruce 2003; Carver et al 2007; Conway 2006).
- **Legibility**, or the way that previous layers can be appreciated or understood in the present-day landscape. Includes coherence of components of the historic landscape. Includes judgements on the survival of the HLC /HSC Type and the condition of its typical components (Went and Dyson-Bruce 2003; Carver et al 2007; Fairclough and Herring 2007).
    - May also include 'the extent to which significant attributes dominate or contribute to landscape' (Norfolk CC 2009).
- **Local character, distinctiveness and local perceptions and values**. How do local people and visitors appreciate the area or type of landscape (Went and Dyson-Bruce 2003; Carver et al 2007)?
    - May also be cast as 'representativeness / essence' (Norfolk 2009).
- What **cultural (including artistic or literary) associations** does the landscape area or type have (Carver et al 2007)?
- What **biodiversity potential** does the area or type have (Tompkins 2017)?
- What is the **research potential** of the area or type? Is it already well understood or is there potential to learn considerably more? Can include archaeological potential (Brown et al 2006; Carver et al 2007; Tompkins 2017).
    - Reference to Regional Research Frameworks may be useful here, though the degree to which they engage with the wider historic landscape, beyond the material culture that is the subject of archaeology, is variable, and their usefulness varies accordingly.
- What is the **amenity potential** (Fairclough and Herring 2007)?

As noted, several assessments of sensitivity and capacity undertaken after 2008 have rationalised their consideration of values to use of the four Heritage Values introduced in *Conservation Principles* (English Heritage 2008a). They encourage consideration of the range of peoples' perceptions of place and landscape, and therefore reach further into the concept of landscape as something perceived (by senses and by cognition).

- **Aesthetic Value**: 'Value deriving from the ways in which people draw sensory and intellectual stimulation from a place' (EH 2008, 72).
- **Community Value** 'Value deriving from the meanings of a place for the people who relate to it, or for whom it figures in their collective experience or memory' (EH 2008, 71).
- **Evidential Value** 'Value deriving from the potential of a place to yield evidence about past human activity' (EH 2008a, 71).

- Historical Value 'Value deriving from the ways in which past people, events and aspects of life can be connected through a place to the present' (EH 2008a, 72).

Historic Characterisations are normally created to be value-neutral but contain various attributes that can be ascribed values when required, following the HC principle that characterisation itself is done even-handedly and assessments of significance or value are undertaken at a second stage when a particular application (such as sensitivity or capacity assessment) requires it. This is a strength of the methods of both historic characterisation and sensitivity assessment (Clark et al 2004).

Care needs to be taken to ensure that criteria for scoring or grading significance do not echo aspects of the scores for vulnerability and capability; or if they do that any scoring or grading is undertaken fully aware of the possibility and risks of double-counting.

10.6 Developing methods or ground rules for sensitivity and capacity assessment

Q6.1 Do we agree with David Green's observation that 'Defining sensitivity is a subjective process; and therefore should not be overly dogmatic and mechanistic' (Green 2008)?

Q6.2 Should Historic England develop a preferred and fixed method of sensitivity and capacity modelling, or would it be more realistic for sensitivity assessments to be tailored to the particular requirements of each application?

- These will vary according to the magnitude and complexity of the change scenario.
- There will also be variability in the resources available for assessment, including the form of the HLC(s) that will be used; not all HLCs having the same data structure (Herring and McOmish 2017).
- The Workshop felt that a fairly fixed method is preferred, so that agencies, local authorities and policies can all confidently specify use of it (Dave Went, pers comm); see Q 7.1.
- Without methodological guidance and standards establishing an essential baseline for sensitivity assessments, 'they will not carry weight or authority in any (permitted or non-permitted) development context' (Emily La Trobe-Bateman, pers comm).
- Developing a national methodological approach is recommended. However, a degree of tailoring will be required for most applications; and exemplars of such adaptations for major zones might be useful: urban, rural, marine areas, etc (Chris Pater, pers comm).
- Trialling a range of applications would help refine the method (including data preparation). It was suggested that these include assessment of

opportunities to develop holistic environmental planning (increasing biodiversity, and nurturing natural/cultural capital) as well as responding to examples of major threats (Dave Went and Hannah Fluck, pers comms).

    - Providing users with an ability to respond to specific change scenarios 'should be integral to the design of methodological guidance and standards. Exemplars should include a wide range of permitted and non-permitted development at different scales, including examples from urban and rural contexts, linear forestry schemes, flood risk management and agri-environment schemes.' That would help others to carry out similar exercises for specific development proposals (Emily La Trobe-Bateman, pers comm).

- It is essential that the datasets that will be used in such assessments are fit for purpose, so that all are confident that results are of an appropriate quality and meaningful (Emily La Trobe-Bateman, pers comm).

Q6.3 Or is it better for it to lay down some ground rules based on shared principles, and allow methods to vary according to specific needs and available resource (including the variable contents of HLCs and HSCs), and thus also enable principles, ground rules and good practice to develop as changing needs and resources determine and as developing technologies allow (Swanwick 2004; NatScot 2020)?

Q6.4 Can we agree that whatever method or set of ground rules is recommended that care is taken to ensure the process is transparent, even-handed and involves logical justifications of procedures to ensure it produces material that all users can accept is robust and credible?

- This should extend to keeping all language clear and jargon-free as it will always be important that local and non-specialist communities understand and can contribute to the evaluations being made about places they know and care about (Herring and McOmish 2017).

Q6.5 Can we agree that the essential elements of sensitivity assessment can be boiled down to first gaining a full understanding of the anticipated **effects and impacts** of the change; then establishing the ways that the historic landscape (and seascape) is **vulnerable** to those (or might benefit from them); and then judging how **significant** that vulnerability is by gathering together all the values society applies to the historic landscape?

10.7 A four-staged approach

Q7.1 So, can ground rules (or a more fixed method) for sensitivity and capacity assessment be based on these four distinct stages of assessment and modelling (Herring 2008; Tapper et al 2010; Capita Symonds and OAN 2011; Herring and McOmish 2017; Tompkins 2017; Hooley 2017)?

1. **Critically consider the change scenario**; its range of predictable effects, positive benefits as well as negative effects (Croft 2004; Herring 2008).
2. **Assess the vulnerabilities and potentialities** of the HLC/HSC Type in relation to the scenario and its impacts and effects, to develop an understanding or measure of **sensitivity** to the change scenario (Herring 2008).
3. **Assess the significance of that sensitivity** to society by consideration of the heritage values of the Type and its attributes, again in relation to the effects of the change scenario. This will develop an understanding of the **capacity** of the type or place to accommodate the change (Herring 2008).
4. **Draw together these three assessments** of impact, vulnerability and significance and **present sensitivity and capacity** in the forms of maps and associated commentary, including recommendations.

- The workshop noted that parallel terms were employed in other related areas of assessment of change. For example, those addressing climate change risk assessment or work with change in the natural environment employ terms like: hazards, risks, harm, exposure (in relation to vulnerability), adaptive capacity, susceptibility to change (which it was suggested may be inherent – susceptible to all types of change), and opportunity as well as capability. Here the historic landscape and environment work as vehicles for more holistic discussion about place and change, for example including heritage within Environmental or Biodiversity Net Gain (Hannah Fluck, pers comm).
    - See Intergovernmental Panel on Climate Change (IPCC) report on cultural heritage and climate.
    - It was noted that the terms used in this discussion document were developed around ten years ago when the English Heritage Characterisation Team was still in place; a review of them would be appropriate now.
- There will be a need for careful definition of terms; for example to distinguish sensitivity from vulnerability and to avoid potentialities being unfeasibly open-ended (Chris Pater, pers comm).
- The use of 'associated commentary' alongside maps of sensitivity or capacity is regarded as crucial (Chris Pater, pers comm).
- The workshop also suggested that HLC and HSC datasets could be tagged with some of these terms if Types were subjected to a rigorous assessment of particular forms of change. The results would then become embedded in the metadata of the HLC or HSC (Emily La Trobe-Bateman, pers comm).
- 'Creation of new geospatial datasets should adhere to specific, clear standards. High-quality metadata should document this process in detail. All metadata should be embedded in the geospatial files' (Emily La Trobe-Bateman, pers comm). Doing this means that the several assessments of

capacity or sensitivity will produce metadata that can be made available to subsequent users, provided it is of relevance to their needs.

- Applications of HLC and HSC through processes like sensitivity and capacity modelling will then drive improvement of the characterisation, increase its authority and then increase its use.
- A third thread of the workshop discussion here revolved around the complexity of the effects of major changes, such as in the Oxford-Cambridge Arc, where it was felt to be too complex for a simple high-level approach to deal with.
    - It was suggested that this may best be tackled by breaking the development into major parts and assessing them in turn, overlaying the results with each other and also with the results of sensitivity assessments of the wider landscape and the natural environment.
- Regarding whether to develop ground rules or to be more directive, the workshop suggested that a greater degree of consistency is required, guided by a model approach, a form of national standard, or method, along the lines achieved by *Conservation Principles* in 2008. As applications of *Conservation Principles* have shown, this can still be employed flexibly as appropriate to many situations (Dave Went, pers comm). The four stages would form the basis of the approach.
- The scalability of this approach should be emphasised as it provided good opportunities to work at the very extensive scale required by environmental planning (climate change, land use regimes, etc) and so enabled the historic environment sector to engage with a wide range of partners. Need therefore to clearly identify the hooks into their interests (Hannah Fluck, pers comm).
- It was suggested that the four stages require to be separated out from each other a bit more clearly.
- Note that Natural England in their recently revised approach to landscape sensitivity assessment (LSA) have adopted a broadly similar 4-stage scenario-led approach (Natural England 2019):
    - Step 1. Define purpose and scope:
        - Includes identification of the broad change scenario (and refinements of that, such as different densities of housing, species of forestry, heights of turbines, etc).
        - Scale, granularity, and forms of outputs (GIS, explanatory text, etc).
        - How the outputs are expected to be used (planning decisions, management, etc), and by whom, and how they will access them.
    - Step 2. Gather information:
        - Describe development type and attributes of scenarios.
        - Confirm assessment criteria in relation to the effects of the scenarios.

        - Identify Indicators of Relative Susceptibility for each assessment criterion, to enable consideration of how landscape, visual and value-related criteria would be affected by the development type.
        - Select criteria for assessing value (NB footnote mentions use of *Conservation Principles* for cultural associations).
            - Draw from designations, character, sense of place, valued attributes, community values, recreational value, etc.
        - Gather the surveys and characterisations that will be used as evidence.
            - Landscape Character Assessments, Historic Area Assessments*, natural capital and ecosystem services surveys, and 'public participatory GIS tools'.

    - Step 3. Assessment of Landscape Sensitivity:
        - Use a numerical scale (minimum 5 points) when assessing the sensitivity of each assessment unit using the indicators of relative susceptibility.
        - Gather these together to establish and describe 'overall sensitivity of each assessment unit'.

    - Step 4. Reporting:
        - Should be clearly structured and in plain English.
        - Include a reasoned narrative, conclusions and recommendations.
        - Maps and GIS data with associated illustrated descriptive and explanatory text.
            - Note that 'colour-coded maps can be a blunt tool, the narrative is all important' – to point out variability in sensitivity for example.
            - Similarly, colour-coded tables can give a false impression of precision and objectivity.
        - Provide 'location, siting and design prompts to inform future decisions'.
        - Identify 'opportunities for mitigation and possible mitigation strategies'.
        - Set out 'any caveats regarding how the information provided should be used'.

10.8 Using Historic Characterisation in sensitivity modelling

The most appropriate tool for the job

Q8.1 As the whole of the landscape of England is historical, is the types-based Historic Characterisation's comprehensive, seamless, systematic and inclusive approach to representing current understanding of its historical narrative, attributes and character the most useful tool currently available (Herring 1998; Went and Dyson Bruce 2003; Carver et al 2007)?

- Historic Landscape Characterisation and Historic Seascape Characterisation (HLC and HSC) record, interpret and classify historical attributes, using them to assign places to one of a suite of HLC Types. HSC does this for each of the four main 'layers': sea surface, water body, seafloor and sub-seafloor.
- It thus provides a context for all the other site and area-based data within Historic Environment Records* (HERs) or from the aerial mapping and interpretation of archaeological remains.
- Most HLCs and HSC are held in a Geographical Information System (GIS) and have related databases that set out for each polygon* the historical and other descriptive attributes whose querying produces information that can be used in sensitivity modelling. Those attributes most likely to be affected by the changes being modelled can be given particular attention.
- Use of Types is the most efficient and even-handed way of characterising very large areas using standardised criteria. It also enables more systematic modelling (of sensitivity, capacity and other qualities) based on the Types themselves or the various recorded attributes that are used to define and populate them.
- Other possibilities include use of distributions of point data (HER, designations etc, though these are normally partial and uneven) or particular areas (with specific narratives, descriptions and interpretations*). Using each of these brings their own benefits, but each also has shortcomings, especially when considering a comprehensive, even-handed, systematic and regional or national approach.
- The several approaches do not need to be exclusive. Point data and areas can be deployed in ways that are complementary to types-based approaches to modelling.
- As mentioned in Q6.2, above, it is essential that the HLC and HSC data are fit for the purpose required of them. Any advice or guidance on their use, including for assessment of sensitivity and capacity needs to set out a quality threshold, including granularity, sources drawn upon, years since characterisation (as a guide to subsequent changes in landscape and in methods of characterisation) to guide the form of any review of the material to be undertaken ahead of any assessment (Emily La Trobe-Bateman, pers comm).
- Historic England may be expected to oversee a new review of both current user experiences and the desired outcomes of the applications of HLC and HSC. An updating of the 2004 guidance '*Using Historic Landscape Characterisation*' has been in the HE guidance/advice pipeline for a few years. This should be regarded as a priority for HE, alongside supporting the development of advice on sensitivity and capacity modelling using HLC and HSC (Emily La Trobe-Bateman, pers comm).

- Modelling capacity or sensitivity is just one way of approaching the design of change and other applications of HLC and HSC should also be developed that feed into and improve the ways that historic landscape is managed.
- It is also important to ensure that the HLC and HSC is made fit for its immediate purpose if it is considered to lack the necessary consistency or granularity, or the appropriate record of the metadata that supports the characterisation. Historic England and the wider historic environment sector, including Natural England, need to develop 'minimum standards' for HLC and HSC quality and metadata in order to establish and maintain confidence in the characterisations that those undertaking assessments are employing (Emily La Trobe-Bateman, pers comm).
    - The need for this was recognised in the development of the national HLC (Exegesis and Locus 2017, with support from Natural England), but there is as yet no guidance 'on metadata standards, mechanisms to share best practice across England or a vision for how spatial datasets should be documented as they are enhanced. There is also no detailed understanding of current user experiences, professional and non-professional, or desired outcomes. All these areas should sit alongside new guidance for sensitivity and capacity modelling' (Emily La Trobe-Bateman, pers comm).
- Previous exercises in 'deepening' HLCs as parts of the process of assessing the effects of change on the historic landscape provide may provide models for aspects of how this may be undertaken.
- It should be anticipated that the resources required for such deepenings and improvements in quality and metadata would be provided by the proposer of the change, the developer (Emily La Trobe-Bateman, pers comm). Where such change is at the scale of major infrastructural projects and programmes then the funder might be expected to be the government.

Q8.2 Do we also agree that the two stages embedded in the historic characterisation approach are especially useful when assessing sensitivity and capacity?

1. Identify, map, describe and interpret: create the characterisation, without values wired in.
2. Apply judgements about value or practical priorities as needs arise, and so feed more precisely into strategies and actions (Clark et al 2004; Herring 2008; Hooley 2020).

Q8.3 To what extent is the variability between HLCs a problem when applying sensitivity modelling to adjacent counties and areas (Clark et al 2004)?

- Historic England provided broad guidance to each HLC but encouraged each to explore and improve the basic method, making good use of rapidly developing digital technologies, and developing characterisations that most usefully reflected the history and character of their parts of England.

- This means that each HLC is a more reasonable representation of the place than any that was strictly guided by methods and typologies developed in another part of England. Imagine if the exploratory method and the historic landscape Types developed for Cornwall, a highly particular part of Britain, were rolled out elsewhere, like in Suffolk, Staffordshire or Northumberland.
- And that means that the material employed in assessing sensitivity and capacity is as locally nuanced as possible.
- The workshop reiterated the difficulties that the variability between HLCs throw up when more than one is being applied at any one time, as in the Oxford-Cambridge Arc. It is acknowledged that the issue of inconsistency between local authorities applies to HERs and other heritage material as well, but the inconsistency between HLCs can encourage some not to engage with it at all when working across county boundaries. The National HLC, however, demonstrated that difficulties resulting from differences between HLCs can be overcome when operating at the smaller scale required for regional and national characterisations.
- In correspondence, Emily La Trobe-Bateman also noted that sensitivity and capacity assessment might normally require the proposer of change to commission a review of the attributes in the database of the HLC or HSC. It may be expected that a degree of deepening of the characterisation would be required to ensure that this was as subtle as required and for schemes like the Oxford-Cambridge Arc would create material that was tailored to the needs of assessment of the effects of large-scale development.
    - Such deepenings of HLCs have been developed ahead of particular applications, such as several in Cornwall where the HLC was recast to make it work better for assessments of the potential for rough ground management in west Cornwall and on the northern Atlantic coast; for guiding land use change intended to secure higher water quality in the catchment of the Lynher River; for guiding use of the Anciently Enclosed Land type when responding to planning applications that involve breaking the ground where vulnerable archaeological remains may be anticipated; and in urban areas to guide regeneration opportunities (Herring 2011).
- Historic England were involved in deepening of both HLC and HSC in several places where they had a direct interest: the Hoo Peninsula in Kent, and the Weston-Super-Mare and Ramsgate Heritage Action Zones.

- The development of a combined HLC for the whole of England (NHLC, below Q8.5) demonstrated that the variability between HLCs was not a substantial issue when stepping back and looking at adjacent areas at a smaller, simplified scale. Concordances of Types and Historic England's

thesaurus for Historic Characterisation (Herring et al 2015) enabled combination that would provide material that can be assessed at regional and national levels.

Q8.4 Should sensitivity and capacity scoring schemes reflect local or regional variability in historic landscape character? Would we expect scoring to be the same in Kent, Cornwall and Cumbria given their very different histories and characters?

- In some circumstances, such as in types of change overseen by the Planning Inspectorate, we should expect the scoring schemes to be consistent throughout, to maintain appropriate methodological transparency. But, in other applications, such as those concerning locally distinctive land uses or semi-natural communities, then recognition of local distinctions could make the method appropriately flexible (Dave Hooley, pers comm).

Q8.5 Can the National HLC prepared for Natural England be employed in regional and national modellings (Exegesis and Locus 2015; Herring and McOmish 2017)?

- Such an application of the NHLC is practical and for work on the whole of England or large parts of it may be recommended, but for more local work, within a county or covering a small number of these then use of the base HLCs is expected, in part to also draw on the expertise in local landscape history and character of those who curate the HLCs as part of the HERs.
    - This point was reiterated in the workshop. The Oxford-Cambridge Arc work requires the fineness of grain obtained from county HLCs (Natalie Gates and Steven Orr, pers comms; note Emily La Trobe-Bateman's comment above, Q8.3).
    - The scalability of HLC and HSC is one of its strengths, and the NHLC is one dimension of this, at one end of the spectrum, just as fine-grained characterisations of towns or quarters of them, or parishes and estates operate at the other. The sensitivity assessment approach can be applied to all (and technically right through to the level of individual heritage assets).
        - Historic characterisation should be regarded as 'a single package, with different elements that are appropriate for different purposes: NHLC for large-scale strategic issues, HLC for somewhat more localised ones, Metro HLC and EUS for fine-grained urban planning' (Roger Thomas, pers comm).
        - The NHLC includes a 'so-called "intermediate" HLC data-set - all the county HLCs merged, but with polygons retained rather than in grid form [that] should be capable of further automated processing, for example to produce finer-grained grid coverage for selected areas' (Roger Thomas, pers comm).
    - It should also be noted that scalability is an issue for other environmental specialisms and HLC and HSC may have a role to play in assisting them in understanding their material.

- It should also be borne in mind why Natural England (rather than Historic England) led on the development of the National HLC – to support their national-level work on targeting and prioritising initiatives (like agri-environment schemes) in the whole of England's landscape and natural environment (Dave Hooley, pers comm).
- Natural England also recognised the value of having National HLC as a layer on the Defra family of GIS mappings to 'underline the point about landscape not being entirely natural, but a cultural construct, with nature and culture indivisible, as per the European Landscape Convention; so it has an important influence on policy' (Vince Holyoak, pers comm).

Q8.6 Can we be certain that an approach developed and tested with terrestrial HLC will also be appropriate and successful when applied to the sea through HSC?

- Note that HSC developed its principles and basic method by adopting and adapting those of HLC. The three major differences (below) should not make the method of assessment of sensitivity and capacity using HSC problematic.
  - The mapping and other spatial sources that are employed by HSC are resolved into grid-based polygons rather than free-drawn polygons (partly to create distance from original copyrighted sources), but these are then treated as polygons as in HLC.
  - HSC is not single-layered as HLC is (which deals with the surface of the land), but instead has four layers (sea surface, water column, seafloor and sub-seafloor). While each layer can be assessed separately, it is expected that the chief outputs from such assessment will relate to activities whose expressions break the surface of the sea. However, sensitivity and capacity assessment does have relevance to the water column, seafloor and sub-seafloor (Dave Hooley, pers comm).
    - We will need to think through how the sensitivity and capacity approach treats environment and landscape respectively in the column, seafloor and sub-seafloor, particularly for any adjustments needed for places where our seascape perceptions are largely cognitive (dependent on thinking and reasoning) rather than partly sensory (Dave Hooley, pers comm).
      - Cognitive-only perception also applies to buried archaeology on land (Sandy Kidd, pers comm).
      - Most historic characterisation is founded on cognition through the ways it employs interpretation of sources.
    - These issues regard both underwater seascape materiality and underground archaeological remains that are largely cognitively perceived but not directly sensed. They may well be significant, but what is their relationship to landscape sensitivity/capacity assessment?

        - The issue devolves to two separate broad considerations: how submerged layers' material aspects of the historic environment are affected by the proposed change, and the extent to which any such effects alter the cognitively derived character in our landscape/seascape perception.
        - The issue is fundamentally about how submerged marine seascape character poses different expressions to seascape sensitivity assessment from those found on the sea surface, inter tidal and land seascape areas. The principles remain the same, but the expressions are different.
        - It is important to establish a robust approach for these contexts because of the extensive investments being made by the Crown Estate and the Department for Business Enterprise and Industrial Strategy especially for offshore wind throughout the English marine planning areas, as well as the reconfiguration of the National Grid system, though wind power would be included as any other scenario that breaks the sea surface and so be included in the sensitivity and capacity assessment approach as it is developed on land (Chris Pater and Dave Hooley, pers comms).
        - The National Grid ESO ring-main, however, would affect the seabed and thus be a scenario whose examination relies entirely on cognitive perceptions as expressed in the HSC.
    - HSC relies on proxy data (such as solid geology, sediments, etc) more than HLC typically does, but this should not affect the modelling of effects and vulnerability to those.

Q8.7 Can we agree that there are problems with approaches that rely on point data, whether designated assets or HER entries?

- The issues revolve around the unevenness or partiality of the data, the associated dependence on predictive modelling to fill in gaps, and the reliance on professional judgment to develop scores for sensitivity, to bring all material into an equivalent of designation data (Went and Dyson-Bruce 2003; Capita Symonds and OAN 2012).

10.9 Relationship with significance/importance led approaches to heritage management

Q9.1 Given the importance of Historic England's statutory role in relation to Listing-led protection and planning processes, and how that drives use of its limited resources, how would it justify use of Historic Characterisation in sensitivity and capacity assessment to support the communities and individuals who value historic landscape and places that will rarely meet the criteria for formal designation?

- It supports adherence to the European Landscape Convention, to which the UK government is a signatory, and which expects all places to be addressed

in protection and management measures. This includes 'natural, rural, urban and peri-urban areas. It includes land, inland water and marine areas. It concerns landscapes that might be considered outstanding as well as everyday or degraded landscapes' (Council of Europe 2000, Article 2).

- It enables the move away from approaches that leave areas between significant heritage assets effectively blank, or white on the map, and thus appear to be places where any kind of change may be deemed acceptable (Went and Dyson Bruce 2003; Clark et al 2004).
- Natural England (NE), when establishing heritage targets for their Higher Level Stewardship scheme in 2008, were constrained by HLC not then being universal in England to using only designations (SMs, World Heritage Sites*, Registered Parks and Gardens* and Registered Battlefields*).
    - NE felt that emphasising designations ran counter 'to the philosophy of sustainability underlying characterisation'.
    - They would have preferred to use HLC to enable consideration of all land, the 'commonplace, typical and modern as well as the locally distinctive, rare, special and historic'.
    - And to realise the opportunity that drawing from a broader understanding 'of different types of land use in the past may allow better managed landscape in the present' (Natural England 2008).
- The workshop discussed the overlap with HE's Archaeological Investigation Team's Archaeological Sensitivity project and its emphasis on the potential of an area to contain heritage assets. That has added Presence and Condition to the assessment of significance and vulnerability/opportunity when modelling sensitivity to change. The workshop considered whether a form of designation of particular portions of the landscape that have some significance (historic common, ancient woodland, good example of Parliamentary field system, etc) would have value for decision-makers. This would entail reviewing the decision taken by English Heritage in the early 1990s to move towards characterisation of the whole historic landscape rather than accompanying Wales in selecting more significant fragments and creating a Register of Landscapes of Historic Interest.
- It was noted that such an approach would run counter to the principles and obligations of the holistic and inclusive European Landscape Convention. It would also set heritage and the historic landscape apart from the natural environment interests that we would wish to engage with.
- It may be noted that the effort now being put into developing Local Heritage Lists, and the need for heritage to support digital-based planning, will require historic landscape to be represented in such data, whether that is via designation as such or through outputs of sensitivity assessment that can be applied in a practical way. The heritage sector should consider how best it will gain traction in decision-making in order to achieve its desired outcomes (Sandy Kidd, pers comm).

- This sits within a wider issue within the historic environment sector in relation to planning, management of the countryside etc; the need to get its material fully in order as planning becomes increasingly digitally based: the issues around archives, standards and guidance, designation and management, advisory service models, the ways it deals with the outputs of develop-funded investigations (the use and uses of 'grey literature') (Bill Klemperer, pers comm).
- There are 'hooks' in the NPPF to which HLC and HSC-based work can be attached: those that refer to the benefits of local character, including for wellbeing, and the need then to protect such character.
- The challenge is then in systematising and communicating the outcomes of sensitivity or capacity work that would enable it to have the consistency and authority required to give it weight when addressing the requirements of the NPPF (supporting conservation of character, local distinctiveness, etc) and when supporting integration of the historic landscape with the natural environment when addressing land use change and responding to climate change.
- Hence the need for rigorous adherence to good data standards, including for the metadata that assure users of the quality of the characterisation undertaken and the outputs it produced (GIS mapping and text), and the results of any analyses, assessments and modellings such as those for sensitivity, capacity and opportunity (Emily La Trobe-Bateman, pers comm).
- One approach would be to encourage the development of policy, for example in national and local planning, that draws on sensitivity and capacity modelling for certain types of change scenario and uses it in conjunction with landscape and natural environment assessment and management.
- It was also noted that HLC and HSC will not only be deployed by the heritage sector, but also by those many others who have responsibility for management of landscape and seascape. Terminologies and language need to be carefully composed to avoid creating unnecessary barriers to their use of the material.

10.10 Application and use

Q10.1 What are the limitations on the application of the results of sensitivity and capacity modelling in decision making?

- The use of HLC to model sensitivity and capacity is an early stage in engaging with proposed change. It will help decision makers make broad initial decisions regarding whether to proceed and if so at what location and scale and in what general form. It should lead to structured negotiation between interested parties aimed at obtaining the best outcomes, usually via the most thoughtful decisions.

    - The example of the Oxfordshire HLC's assessment of the capacity of the county to accommodate woodland planting was given. After an initial assessment was prepared some of the location and design parameters were adjusted, to reduce negative impacts of woodland. Not surprisingly, when the assessment was re-done there was greater capacity to accommodate such woodland in some areas of Oxfordshire (Tompkins 2017).

- It may also help set the parameters of master planning and design.
- In doing so it plays a crucial role in identifying broad issues and opportunities very early in the design of change, saving investment of time and resources in schemes that would run into time-consuming and expensive difficulties and that would disturb sensitive landscape if begun without undertaking this screening.
- But it is not intended to replace the need for more precise and nuanced advice (on historic landscape, archaeology, built environment etc) at later stages in the process of change, whether that is as part of formal planning, land management decisions, or responding to environmental change (Essex CC 2007).
    - Sensitivity and capacity modelling may, however, help in the scoping of such detailed work. In some cases, a second stage of more detailed, finer-grained sensitivity assessment may also be useful in refining results.
    - Once a method of sensitivity and capacity assessment is established then its application to the effects on landscape context of a specific development proposal might become a development control requirement.

Assessors and users

Q10.2 Do we agree that sensitivity assessments are most likely to be undertaken by experts: archaeologists, planners or landscape architects, while developers, strategic planners, authorities, agencies and advisers responding to particular proposals, are likely to be amongst those making most use of the results of them (Herring and McOmish 2017)?

- The workshop noted how this tool provides a powerful means to develop relationships with actors and agencies involved in whole new areas of shared interest, especially that which surrounds climate change and environmental growth, nature strategies etc (see Q7.1).
- There is a need to ensure that the development and presentation of the method provides sufficient easily recognisable hooks to facilitate such engagement.
- Making the work about opportunity and capability as well as constraint and protection will be important here (Hannah Fluck and Jeremy Lake, pers comms).

- One of the ways it can work is through the way that HLC and HSC operate at a scale that is familiar to partners.
- We should also consider how the skills necessary to undertake and use assessments, and for landscape and environment thinking in heritage more generally, can be nurtured.
- Opportunities should be taken to seek out views and values from the communities likely to be affected by a form of change.
- It is considered that the best way to empower individuals and communities is to:
    - Improve data discovery through improved information provision.
    - Make heritage information easy to access and easy to understand by focussing on the user experience.
    - Improve publicity on how to access heritage information (Emily La Trobe-Bateman, pers comm).
- Planning and landscape management create particular demands and opportunities and engagement tools need to respond to these; they may not be the same in urban, rural and marine landscapes.

Q10.3 Might we also expect those opposed to particular strategies or developments to also find the method helpful when gathering and presenting their thoughts?

- Shared principles of sensitivity applied to landscape change might then offer a common and less confrontational language and forum for debating whether, where and how a proposed change should happen (Herring and McOmish 2017).

Q10.4 Should sensitivity and capacity assessment also involve local people when evaluating the historic landscape (Went and Dyson Bruce 2003; Herring and McOmish 2017)?

- This would ensure the approach delivers the public participation required by the European Landscape Convention.
- Need to accommodate numerous communities, including those who have developed interest, associations and senses of attachment (Swanwick 2004).
- When 'making judgements about capacity there can be considerable benefit in involving a wide range of stakeholders in the discussions since there is likely to be a strong political dimension to such judgements' (Swanwick 2004).

10.11 Questions on practicalities

Historic Landscape Characterisation or Historic Environment Characterisation

Historic Environment Characterisation is an approach currently largely confined to the home counties, east of England and the Midlands (e.g. Kidd and Green 2004;

Brown et al 2006; Wigley 2008). Three strands of the historic environment (landscape, built environment and archaeology) were assessed in ways that attempted to integrate them to create holistic characterisations, usually plotted as HEC Areas or more finely defined areas called HEC Zones. Some established buffers around point data to better enable their integration with area data (Croft 2004; Coe and Conway 2008; Wigley 2008).

Q11.1 Should a preferred approach enable complementary but separate modelling of the sensitivity or capacity of several principal aspects of the historic environment, typically a) built environment, b) below-ground archaeology and c) historic landscape?

- This would avoid the problems encountered in some of the east of England HEC projects.
    - Understanding and recording of the three aspects were variably systematic (built environment understanding often confined to historical urban cores and designated structures; archaeological records dependent on uneven fieldwork; historic landscape more systematic but often rapid and high-level).
    - The assessment of each produces different spatial patterns of sensitivity, but when these were combined to present conclusions, there was often a neutralising effect when high sensitivity (or low capacity) for one or two aspects were counterbalanced by lower sensitivity (higher capacity) for the others, resulting in large areas being regarded as of 'medium' sensitivity. This reflects the way that 'different types of assets respond to different types of change in different ways' (Croft 2004). The effect is to obscure sensitivity, not highlight it.
- The published Highways England guidance on using HLC in the design of road schemes also suggested that the historic landscape was kept separate from the assessment of archaeology and buildings because the latter concern material remains while historic landscape includes both 'components and feelings', and other forms of perception, following the European Landscape Convention definition of landscape (Carver et al 2007).

Granularity of workings and of the presentation of results or conclusions

Q11.2 Should sensitivity modelling be undertaken at the level of HLC / HSC Types? Or can it sometimes more appropriately draw on the more detailed attributes recorded in attached databases, as sometimes done in landscape sensitivity assessment based on Landscape Character Assessment (Swanwick 2004; Clark et al 2004)?

- Natural England in 2008 suggested that when assessing sensitivity to various forms of agricultural change (deep ploughing, shallow tillage, changes in intensity of use of pasture and rough ground) that attributes typically recorded in HLC databases could be assessed (e.g. Morphology, Form, Coherence, Condition, Survival, Period, Boundary loss/gain, Enclosure process).

- But care must be taken when going down the scale of HLC/HSC sub-types and HLC/HSC attributes to ensure that overly reductionist and mechanistic approaches are avoided (Fairclough and Herring 2007; Chris Pater, pers comm). Attributes have, however, been assessed when refining sensitivity assessments, as in that which examined the various National Forest woodland planting schemes (Clark and Robertson 2008).
- It should be expected that HLC and HSC datasets will be supplemented by the derived datasets from sensitivity and capacity assessments. If so, care should be taken to ensure that their scope and limitations are made clear, including in metadata, to avoid the risk of them being regarded as another set of baseline data, and thus a short step from being perceived as a form of 'inherent sensitivity' mapping, contrary to a key principle of sensitivity and capacity assessment (Emily La Trobe-Bateman and Dave Hooley pers comms).

Q11.3 Is it preferable to develop sensitivity and capacity workings using finer grained types and assessment and then present the results by grouping types with similar sensitivity and simplifying mappings (e.g. by homogenising Types into HLC Areas or Historic Environment Character Areas*, HECAs) to make it less complex for users and decision makers (Went and Dyson Bruce 2003)?

- A problem with this is that combination of varied assessments, whether or not they are represented in a scoring scheme tends towards their neutralisation (Wallace 2006). Merging high and low sensitivities creates large tracts of medium sensitivity; so West Berkshire retained Types for presentation as well as analysis (Conway 2006).
- Need to use a level of detail or granularity that best represents understanding of sensitivity or capacity; so again, stick to Types (Wallace 2006; Carver et al 2007; Fairclough and Herring 2007).
- The workshop contrasted the effectiveness of using HECAs when assessing a relatively small extent of land (the hinterland of Aylesbury was the example discussed) where the HECAs could be regarded as meaningful land units of historic land management (the fields that went with the settlements for instance) and that had identities and names recognisable to the local communities and where grading of the sensitivity of the dozen or so areas was helpful in the decision making process (Green 2008) with the much larger areas covered by other early pilot exercises (e.g. Thames Gateway) where the melding of the three datasets was extremely difficult, 'homogenising the meaning out of the thing' (Dave Went, pers comm). So, for small areas, the use of HECAs, especially when presenting complex results based on Types, can be useful in communicating broad trends.
- Again, care needs to be taken to set out the scope and parameters of each sensitivity assessment exercise so that the type or area-based mapping developed for it cannot be regarded as a form of inherent sensitivity mapping.

Issues around scoring

Q11.4 Do we agree that relying entirely on scoring risks processes being overly mechanistic and suggest an objectivity that is difficult to justify when using characterisation? Does relying on such schemes make the outputs more vulnerable to challenge?

Q11.5 If so, can we also recognise that scoring and grading do have value in helping assessors and users marshal and refine judgements?

- When scoring assumptions and processes are set out and provide those creating and using the assessment with an opportunity to judge a range of criteria in a consistent and comparable way.
- Results, however, should not be used uncritically and rarely without further evaluation.
- They are most usefully seen as an intelligible framework within which professional judgements can be exercised more rigorously, one early phase in a process of thinking through all aspects of a change scenario.
- Given ever-changing and complex contexts for decision-making, a narrative approach may be the best to adopt for communications (even when scoring or grading is used to gather together information and thinking) (Chris Pater, pers comm).

Q11.6 Can the differing effects of change scenarios be accommodated by adjusting the weightings of any grading or scoring for those aspects of vulnerability and significance that are differently affected by them?

- When modelling sensitivity to woodland planting in Oxfordshire, a further step was introduced 'to this stage, to explore ways in which simple adaptations to the design of a new woodland proposal might mitigate the impact on historic landscape character, thus increasing the capacity of an HLC Type'. These included the following:
    - No site levelling
    - Selection of shallower rooting species
    - Bespoke planting plan (in respect of on-site features)
    - Preservation of historically important ecosystems
    - Restoration of (former) woodland (Tompkins 2017).

Q11.7 If a scoring or grading scheme was used, should positive scores or grades be given to vulnerabilities and negative scores or grades to capabilities so that these can counteract each other (Herring 2008; Tapper et al 2010; Tompkins 2017)? Or would it be clearer if they were scored or graded separately (Herring and McOmish 2017)?

- Scoring or grading them separately enables useful discussion of each.
- It also requires assessors to think hard and constructively about the opportunities and benefits of change; representing another step in a recent

culture change for those whose profession has largely involved protection against the negative effects of change.

Q11.8 Is there a risk of double-counting when designations are privileged in any historic landscape sensitivity scoring schemes (e.g. Croft 2004) when they will also be called upon in other assessments of the historic environment?

- It would therefore be better not to include designation as a criterion in assessments.

Q11.9 Are there preferred forms of calculation when using scoring schemes? Here are some examples.

- Simple additions of scores, including negative scores (to reflect benefits of change to the historic landscape, and opportunities that flow from it) (Fairclough and Herring 2007).
    - Given the comments under 11.7, above, this option should be withdrawn.
- Differentials made clearer by multiplication of scores for vulnerabilities and significances (as in West Berkshire where three grades for significance were multiplied by three for fragility, giving six possible totals: 1, 2, 3, 4, 6 and 9) (Coe and Conway 2008).
- Ranges of total scores varied from 3 (1,2,3 or Low, Medium and High) to 5, or 6 (as above, and Herring 2008).

Cumulative assessment

Relatively little work has been done on modelling cumulative changes. Attempts have been made in the field of landscape sensitivity assessment where staged combinations of individual assessments was suggested by Carys Swanwick (2004):

- Sensitivity of ecological components + Sensitivity of cultural components = Landscape character sensitivity
- General visibility (related to landform* and land cover*) + Level and significance of interested populations = Visual sensitivity
- Landscape character sensitivity + Visual sensitivity = Overall landscape sensitivity
- Presence of designations + Overall assessment of value against criteria = Landscape value
- Overall landscape sensitivity + Landscape value = Landscape capacity.

Q11.10 Would a similar approach be useful in relation to historic landscape?

- Or is it more helpful for users to not attempt to develop cumulative sensitivity models, but instead prepare as many discrete models as is required, for ecology, visual, landscape and historical, with the latter divided into the three pillars of the Historic Environment Character Assessments

undertaken in the east of England in the early 2000s (i.e. archaeology, built environment and historic landscape)?

Q11.11 How useful is the method developed by Leicestershire CC when they considered the effects of different woodland planting schemes in the National Forest? They drew from the approach suggested in the Landscape Character Assessment Topic Paper 6 but adapted it for use in assessing historic landscape (Clark and Robertson 2008).

- First they combined the assessments of HLC sensitivity (based on land cover, land form, enclosure patterns and fragility) and Visual sensitivity (simple assessment of visual impact of the proposed change) to arrive at Combined Historic Landscape Character Sensitivity (CHLCS).
- Then they combined CHLCS with Historic Landscape Value to arrive at the landscape's Capacity to accommodate the form of change under review.

Reporting

Q11.12 Can we agree with two principles developed for Natural England's approach to landscape sensitivity assessment (Natural England 2019)?

- Be as straightforward as possible: 'clear, concise, proportionate, and transparent… [and] for the sake of consistency, use appropriate definitions associated with good practice.'
- Recognise that sensitivity assessment is flexible and can be accommodated to different situations by varying scales and units (types, areas, etc) as appropriate and adapting to the resource available and to current knowledge of the scenario and characterisation of the area. But it should still be underpinned by a consistent approach, here the four-stage scenario-based method.

Q11.13 Can we agree that the analyses that underpin sensitivity and capacity assessment are best performed in GIS? And that the results are also best presented visually by mappings generated within GIS?

- Carys Swanwick set out the main advantages of using GIS to manipulate and present information in 2004:
    - 'Consistency of approach, in that appropriate matrices or algorithms can be defined once and then applied consistently throughout a study;
    - Transparency, in that it is easy to interrogate the base datasets used and also to visualise and communicate intermediate stages of the process if required;
    - Efficiency and effectiveness in the handling of data, allowing explorations of the information and alternative approaches to combining it which would simply not be achievable in a manual paper based exercise.'

- It is suggested that the conditions in which sensitivity modelling can be undertaken have improved since the early 2000s when it was first attempted, including 'improved landscape datasets, and the GIS power to assimilate them' (Dave Went, pers comm).
- The workshop noted that the heritage sector has relatively poor geo-spatial data standards and guidance, as well as a skills and training gap that needs assessing and then addressing. Improving the rigour and presentation of our data will have the double benefit of improving the material and also the clarity of our thought processes (Emily La Trobe-Bateman, pers comm).
- It has also been noted that ongoing improvements to Environmental Impact Assessment (EIA) is involving placing material online; HLC and HSC data must be in a format that enables them to be made available in such a way (Chris Pater, pers comm).

Q11.14 Should sensitivity results be presented solely as traffic-light maps (red for high, green for low sensitivity or vice versa for capacity)?

- We do need outputs that are readily understandable, visually as well as conceptually (Dobson 2008).

Q11.15 Or should such mappings, whether or not they are based on scorings or gradings, always be qualified by narrative text that draws attention to nuances in vulnerabilities and significances and potential ambiguities, as recommended in Natural England 2019?

- The mapping of any grading or scoring may therefore be presented as the 'workings' from which the narrative conclusions are drawn.
- It should not be an either/or question or situation. More nuanced interpretation will be facilitated by higher quality attribute data for geospatial information, whether scored/graded or not (Emily La Trobe-Bateman, pers comm).
- Because of the nature of landscape (perception) and the assumptions and simplifications embedded in HLC and HSC an accompanying narrative is not only essential but the most important part of the presentation of results (Chris Pater, pers comm).

Future monitoring of sensitivity and capacity assessments

Q11.16 Do we agree that it would be valuable to periodically review how use of HLC and HSC in sensitivity and capacity assessments has succeeded in reliably modelling scenario effects, and vulnerabilities and significances in relation to these?

- It has been suggested, in the workshop and in additional comments, that pilot projects be undertaken to demonstrate and test the approach being proposed here.

Q11.18 Would it help the sector and wider society understand the urgency of managing change in the wider historic landscape if other counties undertook an

audit of the typical changeability of Historic Landscape (or Seascape) Character Types similar to that prepared by Buckinghamshire CC?

- That grouped HLC Types into four categories: Increasing (including many of the more modern Types), Stable, Declining slowly and Declining rapidly (Green 2008).

Q11.19 Can we agree that all approaches to assessment of sensitivity and capacity rest upon a foundation of ever improving understanding of the development of England's landscape and seascape? And that the needs of such assessments should feed into the forms of historic landscape research agendas, and any historic landscape chapters in Regional Research Strategies?

APPENDIX 1: SUMMARY OF LITERATURE REVIEW

This review of case studies examines a range of approaches to assessing sensitivity and capacity using historic characterisation, principally Historic Landscape Characterisation (HLC), concentrating on innovations in methods and principles, and effectiveness.

The review also covers Landscape Character Assessment where similar reviews of approaches fed into guidance prepared by Carys Swanwick (2004), Natural England (2019) and NatureScot (2020), each of which is summarised here. For each case study, the project's objectives and its main contributions to the development of methodologies and also principles (of modelling and application) are considered. This exercise is the basis for the questions posed in Section 10.

Note that material is included in this appendix for illustration purposes only; it should not be regarded as data that can be used in decision-making and formal planning processes. Those interested in the material should contact its current curators, usually the relevant Historic Environment Service or agency.

Cornwall's Historic Landscape: presenting a method of historic landscape character assessment, 1998 *Pete Herring, Cornwall Archaeological Unit*

London-Stansted-Cambridge Corridor Growth Area, 2003 *Dave Went (English Heritage) and Lynn Dyson-Bruce (Essex CC)*

Milton Keynes Urban Expansion, 2004 *Sandy Kidd and David Green for English Heritage, Buckinghamshire County Council and Milton Keynes Council*

Thames Gateway: characterising the historic environment, 2004 *Andrew Croft, Chris Blandford Associates*

Rochford, Essex, 2006 *Nigel Brown, Vanessa Clarke and Richard Havis, Essex County Council for Rochford District Council*

Using Historic Landscape Characterisation, 2004 *Jo Clark, John Darlington and Graham Fairclough, English Heritage and Lancashire County Council*

Using HLC to Map Landscape Sensitivity: West Berkshire, Western Corridor strategy, 2006 *Melissa Conway, West Berkshire Unitary Authority*

Woodlands Opportunity Mapping, Warwickshire: cultural heritage classification, 2006 *Ben Wallace, Warwickshire County Council*

Shropshire: employing HLC with LCA when assessing significance in landscape, 2007 *Andy Wigley (SCC); details drawn from correspondence between Andy and Graham Fairclough of English Heritage*

Essex Thames Gateway Historic Environment Characterisation, 2007 *Essex County Council and Wessex Archaeology*

Assessing the Effect of Road Schemes on Historic Landscape Character, 2007 *Jay Carver et al, Halcrow for Highways Agency and English Heritage*

Reviewing Historic Environment Character and Sensitivity, May 2007 *Correspondence between Graham Fairclough and Peter Herring, English Heritage Characterisation Team*

Shrewsbury New Growth Point: historic environment assessment, 2008 *Andy Wigley, Shropshire County Council*

Integrating HLC with LCA in Buckinghamshire, 2008 *David Green, Buckinghamshire County Council*

Sensitivity, Zoning, Action: West Berkshire experience, 2008 *Duncan Coe, WB Council and Melissa Conway, Wessex Archaeology*

Leicestershire HLC and Woodland Capacity Mapping in the National Forest *Richard Clark and John Robertson, Leicestershire CC*

Action Research and Collaborative Strategic Thinking in Urban Planning, Sheffield, 2008 *Stephen Dobson, University of Sheffield*

The Historic Landscape: sensitivity and capacity, 2008 *Pete Herring, English Heritage Characterisation Inspector*

Natural England Targeting of Higher Level Scheme Areas, 2008 *Natural England Spring 2008 discussion document*

Historic Characterisation and Sensitivity Assessment, Greater Norfolk Growth Points, 2009 *Heritage & Landscape Team and Norfolk Landscape Archaeology, at Norfolk County Council, for the Greater Norwich Development Partnership (GNDP). Norfolk County Council*

HLC and Sensitivity Mapping for Photo-Voltaic (Solar Farm) Installations in Cornwall, 2010 *Bryn Tapper, Dan Ratcliffe, Pete Herring, Historic Environment (Advice and Information), Cornwall Council, and English Heritage*

Managing Landscape Change in North Yorkshire for NYCC, 2012 *Capita Symonds and Oxford Archaeology North*

Using Historic Landscape Characterisation when Understanding and Assessing Sensitivity to Change, 2017 *Peter Herring and David McOmish, Historic England*

Seascape Character and Visual Assessment: incorporating Historic Seascape Assessment 2017 *Comments from Dave Hooley, lead for Historic Seascape Characterisation in Historic England*

Capacity for Change: new woodland in Oxfordshire *Abigail Tompkins, Oxfordshire County Council*

HSC and Seascape Sensitivity Assessment: some notes, 2020 *Dave Hooley, Historic England*

LCA Topic Paper 6: Techniques and Criteria for Judging Capacity and Sensitivity, 2004 *Carys Swanwick for Scottish Natural Heritage and The Countryside Agency*

An Approach to Landscape Sensitivity Assessment – to inform spatial planning and land management, 2019 *Christine Tudor, Natural England, drawing on the collected wisdom of a working group, all Chartered Members of the Landscape Institute (CMLI).*

Draft Landscape Sensitivity Assessment Guidance, 2020 *NatureScot*

Cornwall's Historic Landscape: presenting a method of historic landscape character assessment, 1998

Peter Herring, Cornwall Archaeological Unit

Report on the first HLC, undertaken in Cornwall in 1994 for English Heritage, Cornwall County Council and the Cornwall AONBs to inform a Landscape Character Assessment.

Sets out the drivers, core method, aims and principles of historic characterisation as they were over 25 years ago. Most remain relevant to assessment of sensitivity and capacity, and they form a base reference for the following case studies.

The project 'addressed the perceived need to safeguard the historic landscape not [just] by designating and protecting…, but instead [or also], by stimulating dialogues between present and past communities, raising society's understanding and awareness of the richness, complexity and value of the whole.'

'Nowhere has escaped change instigated by people. Everywhere has complex, swirling, historical meaning and value, varying according to who is relating to it, and when and why they are doing so.'

The historic landscape is 'vulnerable, capable of being changed, its meanings altered, diluted and erased. In a post-industrial and post-modern age, we are aware of our place in history and we are able to not only use the historic landscape to help study the development of economy, society, culture and perceptions, but also to attempt to guide change so that features and landscapes handed down to us do not have their meanings unnecessarily damaged'.

'Characterisation… analyses the history of the present landscape so that the principles of sustainable development can be applied to the historic environment in which present and future changes will occur'.

Through HLC, 'the historic environment can be more easily and authoritatively placed beside the "natural" environment in the increasingly important global and local debates on sustainable development'.

The method was developed, and mapping and interpretation undertaken, under the influence of several guiding principles.

'1. The method was to be simple and straightforward, capable of being applied consistently over the whole county and capable of being repeated, its results verified.'

'2. The work was to characterise the present-day historic landscape, capturing the historic depth (or time-depth) and historic character in our landscape, the historic landscape we are striving to sustain. By doing this the product would be most useful not only to our colleagues, the landscape assessors, who were also dealing with the present-day landscape, but also to most other likely users. Characterisation of the

landscape before us now would also be more complete and coherent than that of any defined period in the past when sources of information would be more partial.'

'3. As far as possible in an exercise involving making many decisions, the method was to be objective, with areas of subjectivity made transparent, so that users would more readily accept the product, own it and use it.'

'4. No character types were to be regarded as more or less important, or valuable than others. This last principle is based on the [presumption] that all parts of the historic landscape have value, and that all parts can be managed appropriately.'

'Non-use of the SMR [now HER]... avoided using point data in an area characterisation, and also avoided... the characterisation becoming a self-fulfilling backdrop to the SMR. Many potential uses of the characterisation are strengthened by its being both independent of the SMR but also capable of informing its interpretation.'

In essence, areas of land that share historically derived attributes were placed within the most appropriate of 21 Historic Landscape Character Types.

Enclosed Land, divided into Prehistoric Enclosures, Medieval Enclosures, Post-medieval Enclosures, Modern Enclosures, Medieval Enclosures Extensively Altered in the 18th and 19th Centuries, and Medieval Enclosures Extensively Altered in the 20th Century.
Rough Ground, divided into Upland Rough Ground, Coastal Rough Ground, and Dunes.
Navigable Rivers and Creeks
Steep-Sided Valleys (as typical locations of Ancient Woodland)
Predominantly Industrial, divided into Active Industrial, and Relict Industrial
Settlement, divided into Historical (pre-1906) Settlement, and Modern Settlement
Ornamental
Recreational
Military
Military Airfields
Plantation
Scrub Woodland
Reservoirs
Inter-tidal Zone

Understanding of those Types was presented via descriptive, interpretative and advisory text (see section 8.3).

Applications of the Cornwall HLC in its first four years were noted in the 1998 report:

- Supporting landscape character assessment (LCA), in helping identify areas of distinct character.
- Use in Environmental Assessments.

- Emphasising landscape change and continuity.
- **Highlighting 'vulnerabilities** of the landscape components and [providing] valuable information on the rates of change, [and] identifying landscapes of historic continuity and coherence'.
- **Impact assessment**. 'Likely impact on historic landscape character is also considered by development control officers. For example, when dealing with Woodland Grant schemes, officers not only evaluate the likely impact on the below-ground remains which may be predicted in a particular historic landscape character zone, but they also consider how a new wood will affect the character of the zone.'
- Engagement of local communities in the identification of and caring for historical landscape character.

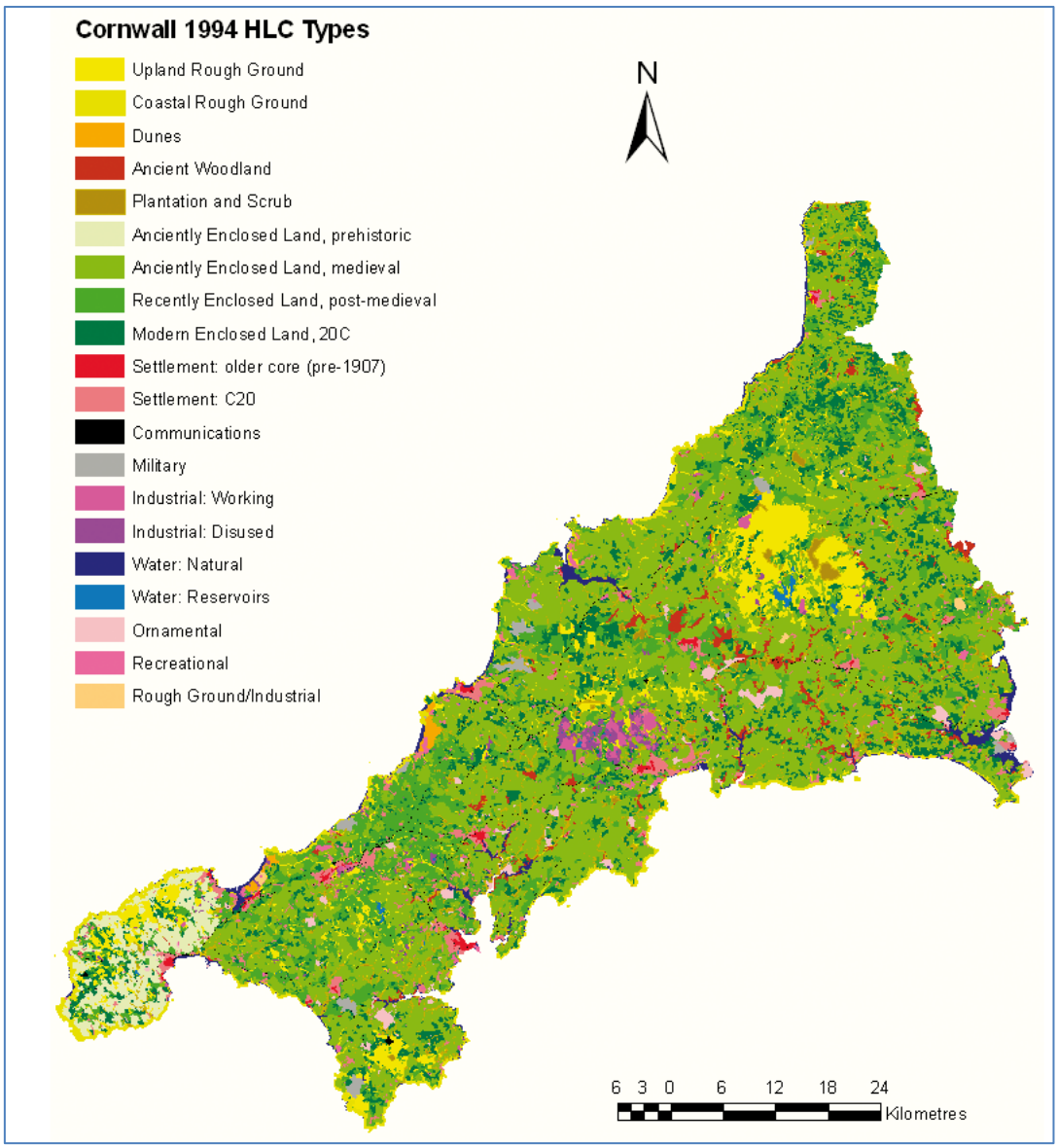

Figure 6 The 1994 Historic Landscape Characterisation of Cornwall (reproduced courtesy of Cornwall and Scilly Historic Environment Record).

London-Stansted-Cambridge Corridor Growth Area, 2003

Dave Went (English Heritage) and Lynn Dyson-Bruce (Essex County Council)

In 2003 the UK Government published *Sustainable Communities: Building for the Future* (ODPM 2003) in which four areas in south-east England were identified as holding 'the key to sustaining economic growth and meeting social requirements' over the following thirty years. Assessment of the risks to the historic landscape of the London-Stansted-Cambridge (LSC) corridor project was undertaken at the same time as studies of Milton Keynes and the Thames Gateway (below).

English Heritage supported and advised all three, encouraging exchanges of ideas.

The project set out to develop an approach that would form 'the basis for a modern set of assessment and evaluation methods capable of responding to development and planning proposals affecting the historic environment within the context of evolving notions of, among other things, sustainability, characterisation, social inclusion and participation.'

The LSC project aimed to identify risks and opportunities in relation to all aspects of the area's historic environment while assessing its capacity to withstand change without significant alteration of character. It therefore considered both capacity and sensitivity. While it did not identify and respond to particular forms of change (or scenarios), and instead appeared to deal with unspecified change, those changes expected in a growth area – residential, industrial and infrastructural development – were no doubt in the assessors' minds.

It established principles that elaborate on HLC's established principles and continue to guide creation and use of historic landscape sensitivity and capacity studies.

- Recognise that all places have historic character.
- Recognise that landscape and place are dynamic entities where change is the norm, sometimes radical, sometimes subtle, but ever-present.
    - Sensitivity assessment would guide management of change, alongside selectively protecting heritage of the highest importance.
    - Ensure the design of change maintains, enhances and creates culturally rich urban and rural landscape.
    - Encourage development that enhances or regenerates historic aspects or creates new aspects that contribute positively to local identity and sense of place.
- Regard the historic environment as an important contributor to quality of life, shaping and defining who we are, a source for education, employment and enjoyment as well as understanding.
- Involve local people in understanding and evaluating their historic environment; help them engage with development-related decision-making.

- Consider the historic environment at all stages in the development process, from high level strategic planning to detailed development management.
    - Reduce danger of conflicts and costs emerging unforeseen at later stages of development planning.
    - Increase likelihood that new development reinforces historic character, enhances quality of life and produces successful and attractive places to live and work.
    - Help answer the 'where', 'what' and 'how' questions: if it is agreed that a form of development is required, then where, in what form, and how will it be designed to be sustainable?
- Ensure new development contributes to an area's character and draws intelligent inspiration from it.
- Help fit new development into the grain and character of historic towns and landscapes.
- Move away from approaches that leave areas between special historic sites effectively blank, where any kind of change may be acceptable. All landscape has historical meaning and thus some significance.
    - Conventional approaches to change that simply aim to avoid the special historic assets are inadequate for achieving the goal of keeping the best from the past and also creating the best of the new.
    - Move away from basing understanding of the historic environment on distributions of protected or recorded assets, which tend anyway to be either incomplete or partial.
    - Look at the whole map, to place sites in context and to understand how background patterns and their attributes contribute to the character and significance of the whole area.

A successful method of sensitivity assessment would be inclusive and holistic, not dependent on judgements of significance, as significance alone is insufficient to inform intelligent decision making. Need to also consider character, vulnerability and sensitivity of places in order to establish their capacity to absorb change.

HLC Types were scored using the following four variables:

- age, rarity or 'special interest'
- history of change (static or dynamic)
- completeness or articulation (legibility)
- dominance of factors contributing to local character.

High scores (to 7) were given to intact landscapes where single elements survived intact while 'palimpsest landscapes (those which exhibit both present and former historic landscape character) may develop higher scores, to a maximum of 10.'

Scores were gathered into four bands whose capacity for change was tabulated.

Outputs, though derived from complex assessment of quite intricate HLC data, were simplified into broad-brush mapping accompanied by easily understood narrative- based text, enabling decision-makers to obtain an overview of character and history (see Fig. 7).

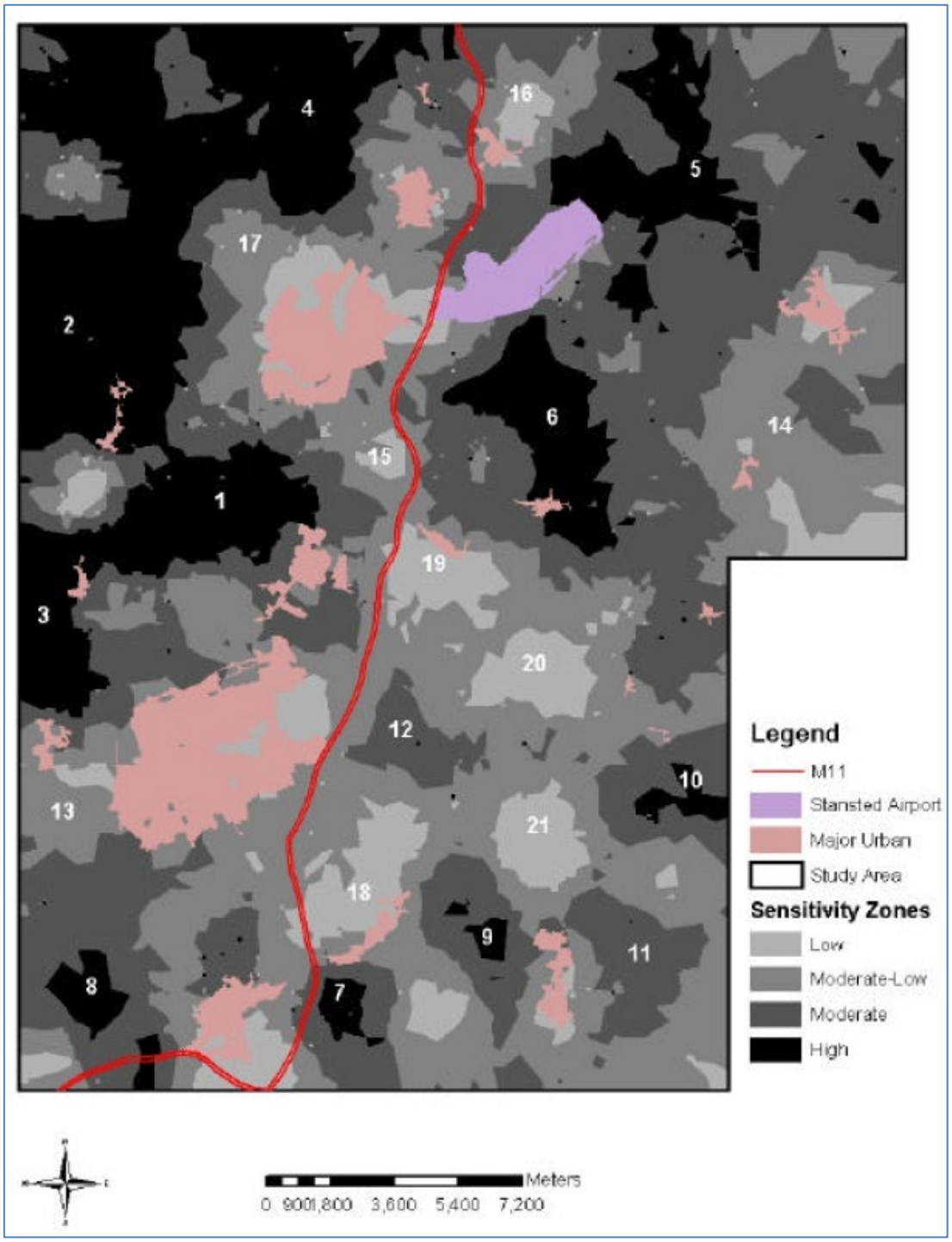

Figure 7 Historic Landscape Characterisation Sensitivity Zones in the London – Stansted – Cambridge Growth Area (from Went and Dyson-Bruce 2003, fig 10 reproduced courtesy of Historic England)

While HLC is created value-neutral as a generalised overview of historic character, it 'can easily form the foundation of value-led models reflecting the sensitivity of the overall historic environment'. It can be used alongside Historic Environment Record (HER) data (sites, buildings, etc) to develop a holistic approach.

[Several of the following case studies (Milton Keynes; Thames Estuary; Rochford; West Berkshire) attempted to develop such a holistic approach.]

Milton Keynes Urban Expansion, 2004

Sandy Kidd and David Green for English Heritage, Buckinghamshire County Council and Milton Keynes Council

The Government recommended construction of 14,600 new homes as 'sustainable urban extensions' into countryside surrounding Milton Keynes.

One of the first attempts to assess HLC alongside HER and designation data (including buildings and natural environment). See below (Aylesbury) for more detail of the method employed. Outputs were broad-brush, based on simplified areas, and conclusions were generalised, based on broad vulnerability.

Responded to quite specific impacts that could be predicted from what was then known of planning proposals.

'Imaginative design can make the historic environment part of the future as well as the past.' 'The assessment… made positive recommendations where development could assist in the restoration and enhancement of the historic environment through the creation of… "green infrastructure" – encompassing both the historic and natural environments.'

Thames Gateway: characterising the historic environment, 2004
Andrew Croft, Chris Blandford Associates

This 'rapid strategic characterisation of the historic environment' was commissioned (by English Heritage and Kent and Essex CCs) for an area running from Southwark to Southend and Faversham, the Thames Gateway. It aimed to develop a broad overview of the area and 'develop a model for assessing its sensitivity'. It intended to thereby supply a historic environment context that could contribute to:

- 'realising opportunities for using the historic environment as the cultural heart / root of new and existing communities;
- masterplanning and creating a vision for the future of the Thames Gateway;
- identifying historic environment issues early in the development process;
- identifying suitable locations for different types of development;
- developing strategic concepts for the layout and form of urban extensions and new settlements; and
- encouraging high quality design for existing communities and landscapes.'

Sensitivity studies were the 'first stage in a longer-term three stage approach', providing 'a strategic high-level overview of historic environment character and sensitivity to assist with determining the location and broad scale of development and change, and provide a broad framework within which more detailed studies can be undertaken.'

It noted that sensitivity and capacity assessment 'is not suitable for use on its own in site specific decision making.' More detailed analyses of particular areas and proposed developments are required. When working at a strategic level, however, it 'supplies vital contextual and supporting information, creating the broad framework for decisions.'

Rejects the concept of 'inherent sensitivity' to all types of change.

'What is the relative sensitivity of the known archaeological resource to new woodland planting? Or, what is the sensitivity of the built heritage resource to large-scale demolition and change?... Different types of assets and different aspects of those assets are more sensitive to different types of change.'

A first stage in the method was identifying the nature of the change that the assessment responds to.

Extended the integrated historic environment characterisation approach to include archaeology and built environment, but doubts can be raised about the value of doing so (see below). 'Buffers' around HER and built environment points helped make these more integrable with the HLC.

Employed 'professional judgement' to assign numerical values to 'the relative sensitivity of different types of historic assets in relation to major physical change such as substantial housing development and new urban expansions, major new

industrial and commercial complexes, and large-scale transport infrastructure projects.'

Scores for built environment were based on designations and for Urban Character Areas on 'intrinsic integrity, fabric and historic significance'.

Scores for archaeological sensitivity drew on SMR; selected HLC Types and British Geological Survey data (to predict where potential below-ground archaeology may lie); Scheduled Monuments; Geological SSSI data (for Pleistocene deposits).

Scores for the historic landscape drew on HLC Types, Ancient Woodland data and Registered Parks and Gardens.

Historic landscape scorings were weighted against HLC Types; no HLC Type scores more than 6 but all ancient woodland and Registered Parks and Gardens, all already benefitting from designation, score 14 or 16. Therefore no HLC Type could score higher than the lowest two grades in a five grade scheme.

Sensitivity Score	Definition
Extremely Sensitive (24+)	Areas unable to accommodate major physical change without likelihood of damage to highly significant combinations of historic landscape resources including Registered Historic Parks and Gardens and areas of Ancient Woodland.
Highly Sensitive (10-23)	Major physical change likely to have large adverse impact on significant historic landscape resources and compromise their integrity, importance and fabric.
Moderately Sensitive (8-9)	Major physical change likely to compromise integrity and fabric of assets that contribute significantly to the overall character and historic landscape structure.
Sensitive (5-7)	Major physical change liable to alter fabric, form and nature of the historic landscape of these areas. Assets in these areas not necessarily of high significance although their loss would degrade the overall character of the historic landscape.
Little Known Sensitivity (1-4)	Major physical change will alter character and fabric of these areas, but is unlikely to fundamentally degrade the nature of the historic landscape (NB due to HLC classifying large areas of south Essex as Prairie Fields sensitivity in these areas is under-estimated).
No data	Sensitivity not assessed due to a lack of data.

Table 1 Explanations of five grades of scoring the sensitivity of historic landscape to 'major physical change' (from Croft 2004)

‘Cumulated’ sensitivity values for all assets using GIS. Used filters to adjust cumulative sensitivity values (e.g. in response to past extraction histories). Mapped results at ‘an appropriate scale’.

Sensitivity scoring was biased towards traditional approaches to heritage significance. Heavily weighted towards existing designations; as noted, all HLC Types in the lowest two grades of five and thus unlikely to influence decision making.

This and unevenness of the HER and built environment material resulted in uncertainty over the value of the approach. In retrospect, a more confident approach to the use of HLC may have addressed the issues left by the large areas with ‘no data’ in the archaeological and built environment models. An assessment of the ways in which each HLC Type is sensitive to the impacts of issues being assessed may also have been helpful.

Rochford, Essex, 2006
Nigel Brown, Vanessa Clarke and Richard Havis, Essex County Council for Rochford District Council

Rochford DC required a tool for incorporating the whole historic environment when creating its Local Development Framework.

The Essex HLC was used alongside Archaeological Character and Historic Urban Character to develop a series of Historic Environment Character Areas (HECAs) that reveal 'the diversity, character and sensitivity of the historic environment within Rochford District'.

Each HECA was scored (1 = lowest, 3 = highest value) for the following seven aspects of the historic environment, derived from the English Heritage Monument Protection Programme's scoring scheme: diversity, survival, documentation, group value, potential, amenity and sensitivity to change.

The last, sensitivity to change, was scored in relation to 'large-scale development, specifically housing expansion'. Scoring indicated the vulnerability of historic environment assets within the area to this type of change.

- 1 = The historic environment could accommodate medium to large scale development, however specific historic environment assets may suffer adverse effects.
- 2 = Medium to large scale development likely to have considerable impact on the historic environment character of the zone.
- 3 = The historic environment is highly sensitive to medium to large scale development.'

It would be possible to consider sensitivity to other types of change e.g. flood risk management.

Made a distinction between the meanings of 'impact' and 'effect', the first quite negative, the second rather more nuanced.

Using Historic Landscape Characterisation, 2004

Jo Clark, John Darlington and Graham Fairclough, English Heritage and Lancashire County Council

A review of applications of HLC thus far, and further ones anticipated.

HLC helped make 'the leap from the confines of selected special areas or sites, to the bigger picture of the historic environment as a whole, whether nationally or at the scale of a complete county or a town… part of a general move towards more integrated and holistic modes of management and understanding.'

Characterisation partly 'a reaction to a changed perception of the traditional designation system… effective for fifty years in the case of buildings and one hundred years for monuments, but… ineffectual for the wide historic landscape.' Drawing 'red lines' around parts of the historic landscape risked devaluing the areas outside the line.

'The landscape is characterised and enriched by centuries of change and modification. If we celebrate the result of past changes, we must logically accept further change, especially as so many aspects of HLC depend on living, shifting, ever-changing semi-natural patterns. It is not simply that it is impossible to fossilise the landscape – more than that, it is undesirable. A red line marking a designation in the landscape cannot, for example, mean no further change of any sort; this would be an unnecessary and unattainable goal.'

A landscape that changes 'continues to be cultural, as well as being a dynamic inheritance for our successors. The question, therefore, is one of what scale and type of change is most appropriate. Methods of deciding this are needed that are based on understanding time-depth in the landscape and on appreciating an area's sensitivity, vulnerability and capacity for change in the context of specific proposals.' HLC provides a broader understanding to allow practical applications to be achieved.

HLC shifted the objectives of heritage managers from protecting separate sites to managing change in all places. From its very beginning it was recognised that HLC method had to meet a wide range of uses and be flexible enough to meet many different demands.

Variety in HLCs

The HLC programme co-ordinated by English Heritage always emphasised diversity of method and flexibility. This was partly a consequence of differing capacities, data sources and requirements of host organisations: all needed to better understand the historic environment, but some required planning outputs and others had regeneration objectives. Variety in HLCs also reflected the programme's experimental nature, and the desire to test, extend and develop new methodologies. Therefore, there is no single, national approach to HLC surveys, but instead a core of concepts and methods used 'by all practitioners, and a suite of ancillary or peripheral methods which reflect the range of differing interests.'

Guiding Principles for HLC (building on those established in Cornwall, above)

- Present-day landscape is the main object of study.
- Landscape as history not geography: 'the most important characteristic of landscape is its time-depth; change and earlier landscapes exist in the present landscape'.
- Landscape not sites: area not point data.
- 'All aspects of the landscape, no matter how modern, are treated as part of landscape character, not just "special" areas'.
- Semi-natural and living features (woodland, land cover, hedges etc) as well as archaeological features; biodiversity is a cultural phenomenon.
- Characterisation is a matter of interpretation not record, perception not facts; 'landscape' as an idea, not purely an objective thing.
- Consider collective and public perceptions of landscape alongside more expert views.
- Landscape has always been dynamic: manage change.
- Characterisation should be transparent. Clearly articulate data sources and methods. HLC maps and text should be jargon free and easily accessible.
- Results should be integrated into other environmental and heritage management records (e.g. SMRs or HERs).

Approach and broad method

HLC studies characterise the distinctive historic dimension of today's urban and rural environment within a given area. Process begins with systematic identification and description of historic attributes of the contemporary landscape, using common sources. Particular patterns and groupings of landscape attributes can be shown to be determined by their similar land use history.' Attributes include aspects of the natural and built environment shaped by past human activity – distributions of woodland and other semi-natural habitats, form of fields and boundaries, lines of roads, streets and pathways, disposition of buildings in towns, villages and countryside.

Examples of HLC Attributes: Current land use; Past land use; Field morphology (size, shape, group patterns); Boundary types; Distribution and types of other resources (e.g. woodland, water, minerals); Distribution and types of buildings; Placenames and earliest references; Settlement types and patterns; Communication types and patterns; Archaeological and historic sites recorded on the SMR.

Typical sources employed in characterisation: Modern OS mapping (usually GIS-based); Modern land use and thematic mapping (e.g. Phase 1 Habitat Survey); Geological, soil, hydrological and topographical mapping; Comprehensive historic mapping (e.g. OS First Edition); Selected historic mapping (e.g. Enclosure Awards, Estate Maps and Tithe Maps); Aerial photographs; Documentary sources (e.g. VCH, place name surveys); SMR data (especially designations); Other research.

Group attributes into Historic Landscape Character Types. HLC Types vary according to individual project objectives and the landscapes encountered. A common core of HLC Types (HLC Broad Types) will allow each to be joined at a

regional level. These broad types are usually subdivided; see Cornwall example, above.

'The method is flexible enough to allow still further and more detailed characterisation below the subtypes at a more localised scale (e.g. for towns, Conservation Areas or building complexes).'

'Use of GIS ensures that all HLC projects can produce additional characterisation above and beyond the definition of simple HLC Types. Aspects that can be characterised in more detail include time-depth and previous historic landscape character. The presence of medieval fields and settlement beneath parkland may be recorded, for instance, as may the extent of earlier woodland that had later been reduced through assarting and conversion to pasture. Such flexibility allows a wide variety of HLC analyses and map outputs, ranging from illustrations of boundary loss or change since the 19th century through to interpretative reconstructions of earlier land uses.'

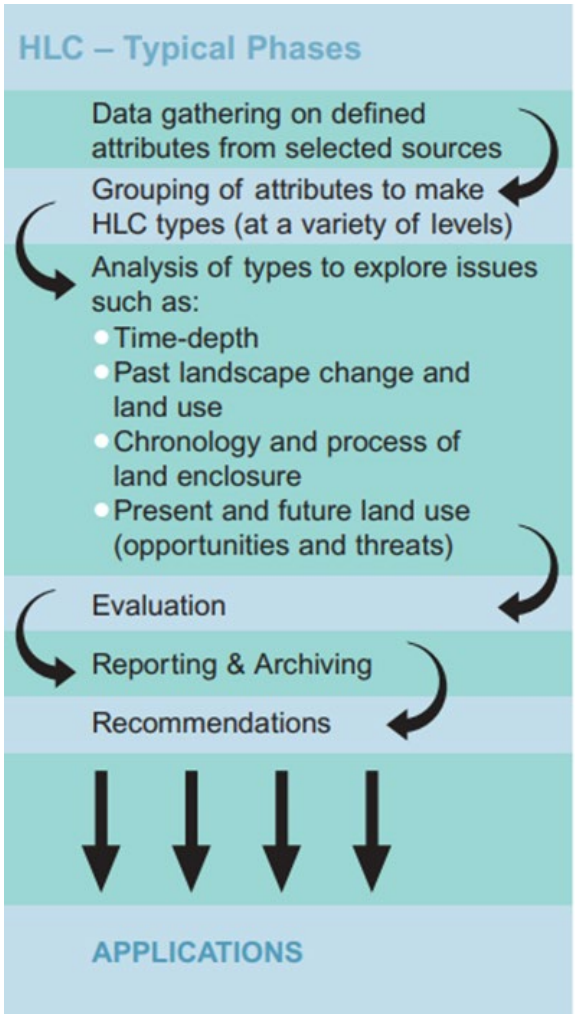

Figure 8 Flowchart outlining typical processes of historic landscape characterisation and its application (from Clark et al 2004, 7; reproduced courtesy of Historic England).

HLC outputs and applications

The main products are character mapping, normally in GIS format and a report which includes a description of each Character Type and its main features.

Landscape management

- Informing agri-environment schemes: HLC encouraged a shift from site specific to landscape perspective more complementary to whole farm management.'
- Identifying agri-environment scheme targets.
- Integrating historical with ecological and landscape initiatives to achieve sustainable futures.
- Informing woodland grant schemes. HLC helps indicate whether planting is typical for an area or not.
- Informing Historic Environment Action Plans (HEAPs) which develop strategies to appropriately manage cultural habitats. HEAPs include a stage that analyses processes of change and the forces driving them, assesses their positive and negative impacts, constraints and opportunities, and thus maps and describes the degree of sensitivity, vulnerability and risk.

Landscape strategies

- Contribute to the evidence base for Landscape Character Assessments, holistic approaches to understanding landscape; help guide identification of and strategies for LCA Types and Areas.

Spatial planning

- Enable Local Plans to include policies that rely on HLC's representation of the historic landscape.
- HLC informs management plans prepared for Areas of Outstanding Natural Beauty, National Parks and World Heritage Sites.
- HLC helps contextualise advice in the development control process.
- 'HLC is used to gauge the likely impact that development will have upon the landscape, by assessing whether proposals are in keeping with the historic character of the area and whether they have an impact on any of the key cultural attributes.'
- 'If HLC is consulted early enough it can be used to help design development programmes that are sensitive to the landscape and in keeping with their surroundings.'
- HLC informs impact assessment by playing 'a significant role in responding to known specific proposals'. It therefore 'takes its place in the EIA/Development Control process.' 'HLC should be used at both stages – at the strategic masterplan level and at the stage of evaluating detailed proposals.'

- HLC can underpin spatial planning. ‘HLC may be used to inform Regional Spatial Strategies, Planning Guidance, Economic Strategies and Sustainability Frameworks.’ ‘HLC could be included as an insert in Local Development Frameworks, thereby providing an invaluable overview of the historic landscape for reference alongside other data.’

Using HLC to Map Landscape Sensitivity: West Berkshire, Western Corridor strategy, 2006

Melissa Conway, West Berkshire Unitary Authority

This project built on a January 2005 sensitivity study of West Berks by homing in on the sensitivity of a portion of the area in relation to growth proposals.

New fields for significance, robustness/fragility and sensitivity in relation to urban growth were added to the HLC's database table.

Sensitivity assessment method involved first employing professional judgement when scoring **Significance**, 3 to 1 (high to low), taking account of the value of palimpsest landscape. Then **Fragility or Robustness**, regarded as reflecting the effort required to entirely destroy a Type, was assessed: 3 (v fragile) to 1 (not fragile).

Then the two scores were multiplied. Sensitivity results can only be 1 = Low; 2 = Low-medium; 4 = Medium; 6 = Medium-high; 9 = High.

Considered translating this to Character Areas through 'contribution' by identifying dominant sensitivity score by simplifying that to three grades: high, medium and low. As most fell into Medium, this was not as useful as required. So decided to stick with Types. **Demonstrated that oversimplification (into Areas and fewer grades) results in neutralisation of differences in scores** or blurs appreciation of sensitivity. To retain a grain that best represents sensitivity, **stick with HLC Types**.

Woodlands Opportunity Mapping, Warwickshire: cultural heritage classification, 2006

Ben Wallace, Warwickshire County Council

Opportunity mapping, a key output of the 2004 Regional Forestry Framework, aimed 'to help focus activity on areas of maximum public benefit in creating and managing woodlands', assist the Forestry Commission and other funding bodies, and assist landowners.

A Woodland Opportunity Map was prepared for the West Midlands region on the basis of combining mapping of landscape, heritage (based on HLC), biodiversity and access. But Warwickshire and Solihull lacked a HLC, a gap which this project addressed. Mapping was prepared by relating material drawn from historic maps, HER records, designated heritage assets, ridge and furrow mapping, ancient woods, flood zones and common land to Landscape Description Units (LDUs), the base mapping of the *Warwickshire Living Landscapes* assessment.

Opportunity was assessed using professional judgement to map three grades: Preferred (11% of the area), where heritage constraints on woodland creation were minimal; Sensitive (38%), where heritage constraints were significant, due to the character of the historic landscape or particular heritage sites; and Neutral (51%), usually either due to the large extent of the LDU polygon, or to diversity within it (note that LDUs vary from 1.5 ha to over 6650 hectares).

Neutral is often a compromise, balancing parts of a LDU polygon in which some parts are sensitive and others preferred.

Scale and grain of the mapping has to be carefully considered when undertaking such an exercise. Recommended using HLC polygons, once they were in place, to avoid neutralising through balancing positives and negatives; HLC polygons would have more consistent heritage attributes than LDUs do.

More generally, the Woodland Opportunity Mapping project indicates how sensitivity approaches can help identify opportunities as well as threats.

Shropshire: employing HLC with LCA when assessing significance in landscape, 2007

Andy Wigley (SCC); details drawn from correspondence between Andy and Graham Fairclough of English Heritage

Andy had been invited to prepare a contribution to a Natural England workshop on the relationship between Landscape Character Assessment (LCA) and HLC, and their use together in establishing landscape value and when influencing land management change.

Graham advised Andy to keep the scale issue in mind. The scales of LCA and HLC are complementary, as is their use of Areas (LCA) and Types (HLC). HLC might be more appropriate for agri-environmental schemes as it gets closer to the farm scale, while still providing generalising perspective. Graham noted that the European Landscape Convention advises that protectionist and preservationist approaches are not necessarily the best ones for landscape.

Andy agreed, noting how boundaries of Shropshire's Landscape Description Units (LDUs) had been adjusted by using the HLC. He had also used 'the HLC as a means of assigning a sensitivity weighting to the LDUs in relation to specific kinds of change / development, such as woodland planting or major infrastructure/industrial development.'

Demonstrated that LCA and HLC can be used together in a constructive and complementary way.

Essex Thames Gateway Historic Environment Characterisation, 2007
Essex County Council and Wessex Archaeology

This project's principal objectives were to provide the opportunity to safeguard and enhance the historic environment as an integrated part of development within the Thames Gateway; provide Guidance to Planners at the early stages of development proposals; and provide a means for local communities to engage with their historic environment.

Created finer-grained Historic Environment Character Zones (HECZs) rather than HEC Areas (HECAs). These are more detailed and 'more suitable for informing strategic planning, and master planning activity'.

Assessing the Effect of Road Schemes on Historic Landscape Character, 2007
Jay Carver et al, Halcrow for Highways Agency and English Heritage

The Highways Agency is committed to '**minimising the adverse impact of its network on the environment**'... 'by **mitigating the potentially adverse impact of roads, and taking opportunities to enhance the environment** where possible'.

This study drew on HLC approaches to change to develop guidance for designers of roads, as a supplement to Volume 11 of the *Design Manual for Roads and Bridges* (DMRB).

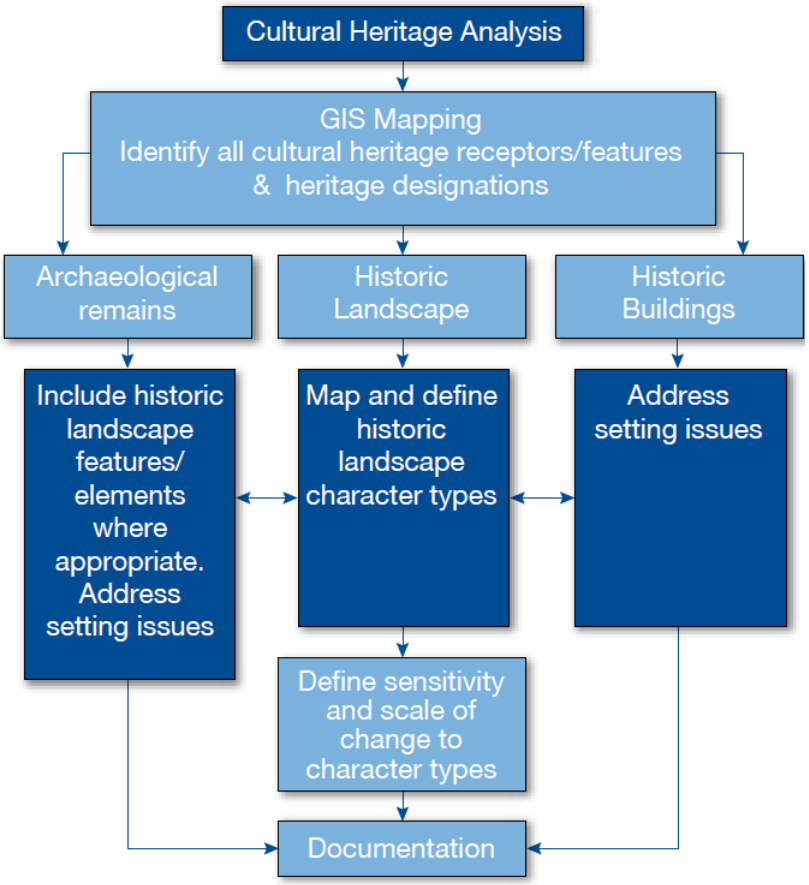

Figure 9 Interaction between historic landscape and other cultural heritage sub-topics in assessment of places affected by highways development (Carver et al 2007, fig 2.1; reproduced courtesy of Historic England).

The proposed approach considers change not just in relation to designated sites 'but in relation to the ubiquitous historic character of our towns and landscapes' and uses HLC to represent our current understanding of that.

Given the requirement for fine-grain advice, it uses HLC Types, not LCA Areas.

Gathers within GIS the several elements of the historic environment, separating HLC, archaeology and built environment, as in Thames Gateway work. However, it

regards each from a historic landscape perspective, either comprehensive via HLC or as 'setting' of archaeological sites and buildings.

It also keeps the three sub-topics separate because the concerns of historic landscape character stand apart from those of the other two sub-topics. Archaeological remains and historic buildings have material remains as their subjects. Historic landscape character is neither a larger group of material objects nor just a more extensive mapping of the context of those material remains but rather is a *'particular combination of components and feelings'*.

Sensitivity assessment is regarded as evaluation. It defines impact as 'scale of change' and sets out a simple 'matrix of effects'. The approach recognises that these can be positive as well as negative.

Impact can be assessed in terms of welcome or unwelcome changes to **the value of historic landscape character** units. Would they be valued differently as a result of these changes?

Given that historic landscape character is as much about local context or distinctiveness as about identifying specific rarity or special interest factors, it is not possible to develop a single valuation model. Six models illustrate the relativity.

Value/Sensitivity	No Change	Negligible	Minor	Moderate	Major
Very High	Neutral	Slight	Moderate/ Large	Large/ Very Large	Very Large
High	Neutral	Slight	Slight/ Moderate	Moderate/ Large	Large/ Very Large
Medium	Neutral	Neutral/ Slight	Slight	Moderate	Moderate/ Large
Low	Neutral	Neutral/ Slight	Neutral/ Slight	Slight	Slight/ Moderate
Negligible	Neutral	Neutral	Neutral/ Slight	Neutral/ Slight	Slight

Magnitude of Impact

Figure 10 Matrix of effects of elements of highways development (Carver et al 2007, fig 9.1; reproduced courtesy of Historic England)

1) Time–depth: Age, rarity or special interest. Summarise temporal diversity, identify main periods and establish why they are significant. Appreciate analysis of landscape stratigraphy, sequence and palimpsests summarised in HLC. Also identify factors like use, special interest or rarity.

2) History of change (understanding of fragility or robustness):

- Relatively static (little changed through more recent periods of time)
- Dynamic change (many alterations)

- Radical change (later changes have removed significant evidence of earlier stages in landscape development
- Subtle change (later changes are nested within earlier landscapes resulting in composite landscapes or palimpsests)

3) Legibility. The degree and manner in which previous/ historic layers of landscape can be perceived, appreciated and understood in the current landscape. Not the same as survival or preservation but related to them.

4) Local character, local distinctiveness and local perception. What makes a historic landscape different, distinctive and of particular value to local people or visitors.

5) Cultural association. Historical events, literature, art, or legends and the recognition of the role these associations play in defining a place's value.

6) Research potential. Landscapes that are well documented, or are typical examples of little understood historical processes or closely associated with archaeological remains or historic buildings. The potential for significant new information to emerge from a detailed historic landscape study is the key factor. Sets out a flow diagram of how HLC can be included in decision making and design and considers how to use the sensitivity assessment when influencing design, mitigation, conservation methods, etc.

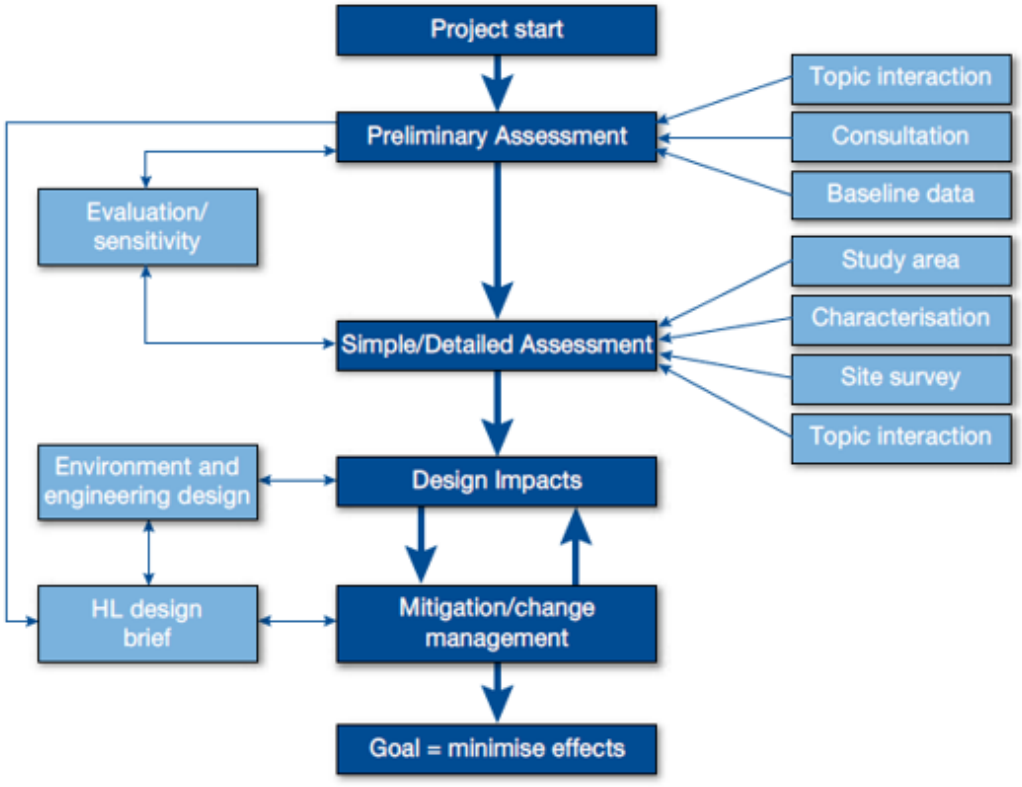

Figure 11 Summary of process for historic landscape assessment as part of highways development (Carver et al 2007, fig 1.3; reproduced courtesy of Historic England).

Reviewing Historic Environment Character and Sensitivity, May 2007
Correspondence between Graham Fairclough and Peter Herring, English Heritage Characterisation Team

Considered how to develop guidance on using HLC to assess sensitivity. Building on draft texts prepared by Dave Went summarising the HECA approach, and review of other approaches thus far. Gathered together observations on key method developments and principles.

Most regard **sensitivity as a combination of significance and vulnerability**. **Vulnerability** is generally regarded as **more dependent on the change scenario and its particular effects** (e.g. the different effects of woodland planting, erecting wind turbines, or creating a new motorway).

Can assess at least eight forms of **vulnerability**:

- Reduction in completeness
- Reduction in historic landscape coherence
- Reduction of historic landscape's contribution to landscape character
- Damage to components
- Damage to below-ground archaeological remains
- Loss or disturbance of built environment
- Loss or disturbance of historical natural components
- Reduction in amenity value.

Significance seems more fixed, because of the criteria we choose to define it by, but it **is also dependent on the effects of the change scenario**. Significance is divisible: different change scenarios affect different aspects of significance differently. Woodland planting affects significance embodied in 'archaeological potential' more comprehensively than wind turbines do, and both affect 'contribution to landscape character' differently.

Can assess HLC Types against at least 12 divisions of **significance**:

- Discernible time depth
- Rarity in the region
- Characteristic of the region
- Coherence of components
- Contribution to landscape character
- Archaeological potential
- Historical importance of semi-natural components
- Research potential
- Amenity potential
- Community values and perceptions
- Survival of the HLC type (against known former extents)
- Typical condition of its components.

Combine total scores to create a sensitivity score. Then rank and group scores to make sensitivity easier to display and plot the grades on GIS. [Note that later developments of this approach have addressed double-counting in vulnerability and significance variables.

It may also be useful to simplify the numerous change scenarios that affect the historic environment by grouping on the basis of their main effects.

Add narrative and simplify presentation or mapping as required, once the workings have been done at the finer grain.

Work with the finer grain of HLC Types, rather than simplifications. Use HLC types rather than areas, or types within areas, whether HLC Areas or LCA Areas, or areas created by others, for strategies, etc.

Graham Fairclough agreed with sensitivity being a combination of significance and vulnerability, but suggested that vulnerability should be considered first.

He also wondered how far down the scale of Types, Subtypes, even attributes the approach could go. Can it become too fine grained; too reductionist and too mechanistic at the most detailed scales? Stick then to Types? Or select units on the basis of the predictable effects of the change scenario being considered?

Would any assessment or scoring schemes apply nationally, regionally or more locally? Would scores be the same in Cornwall as in Yorkshire, or Kent?

Shrewsbury New Growth Point: historic environment assessment, 2008

Andy Wigley, Shropshire County Council

(Presentation at English Heritage HLC Conference on Sensitivity, December 2008.)
Providing historic environment guidance on the sensitivity of the hinterland of Shrewsbury.

Three basic stages:

1 Understand evolution of the town edge landscape
2 Clarify the significance of the historic environment resource
3 Assess sensitivity and capacity of that to accommodate change.

LCA Areas (not finer-grained LDUs) were used as these were 'strategic scale'. HLC was used to illustrate time depth and HER material was simplified by broad period, designation status and form of evidence and then 'rasterised' to create density maps and make its outputs more compatible with LCA and HLC. Combined all three to create 44 Historic Environment Character Zones.

Then applied the seven MPP criteria used in Essex sensitivity work, each with a 1, 2 or 3 score.

Emphasised importance of understanding evolution of the area being considered.

Integrating HLC with LCA in Buckinghamshire, 2008

David Green, Buckinghamshire County Council
(Presentation at English Heritage HLC Conference on Sensitivity, December 2008.)

Developing tools to use when assessing effects of change, especially in relation to Growth Areas. Three approaches to sensitivity modelling were described.

1 **HLC Types text enhanced** to enable deployment in discussions of change. Sections on:

- **'Factors influencing change'**
- **'Capacity to absorb change'**; its fragility in relation to those change factors
- **'Biodiversity potential'**; might now be termed environmental growth potential
- **'Quality of life potential'**; recreation, aesthetics, etc
- **'Sensitivity rating'**; presented as inherent, but actually no doubt related to the principal 'factors influencing change'.

2 Creation of a **simple matrix** that indicates in very general terms the ways that **HLC Types in Buckinghamshire** were either relatively fixed or were increasing or reducing in extent as a result of change. Included scores for sensitivity, presumed to be in relation to the principal threat to landscape in Bucks, major new development.

The matrix has **Trajectory of Change** on one axis (4 categories: Increasing, Stable, Declining Slowly and Declining Rapidly) and **Sensitivity** (5 divisions: High, Med/High, Med, Low/Med, Low) on the other. Individual HLC Types were placed within cells in this matrix.

3 **Assessments of Growth Areas**, Aylesbury as an example.
Double matrix approach to scoring sensitivity (in relation to the major development expected in a growth area):

Applied that to HEC Zones (see above, Essex 2007). Includes impacts scoring for historic landscape, historic buildings, archaeological sites and settings, and can balance positive and negative and include neutral, but add them together (or subtract as necessary) to yield a cumulative score for each HECZ.

GIS plot to show sensitivity of the hinterland HECZ s around Aylesbury.

Expressed as thoughts during talk:

- **'Defining sensitivity is a subjective process'**
- Should HLC be integrated into LCAs? Or considered separately?
- Need to consider scale. At what scale do character areas cease to be effective for assessing and presenting sensitivity?

Sensitivity, Zoning, Action: West Berkshire experience, 2008

Duncan Coe, WB Council and Melissa Conway, Wessex Archaeology
(Presentation at English Heritage HLC Conference on Sensitivity, December 2008.)

Preparing material for use in a Strategic Environmental Assessment (SEA) of West Berks Planning Strategy and in Site Selection Sustainability Appraisal.

Based on Essex HECA / HECZ approach. HER data were expressed by density. Modelling of sensitivity as Berks before, product of multiplying 1-3 scores for Significance (MPP criteria) and Fragility, all assessed using professional judgement.

HECZ commentary included Historic Landscape Character, Historic Environment Character, and Historic Environment Potential. The last was a development of Historic Environment Action Plans (HEAPs), noting their evolution from Cornwall and Isle of Wight HEAPs. Examples of positive use of sensitivity and capacity work; not just reactive/protectionist.

Leicestershire HLC and Woodland Capacity Mapping in the National Forest, 2008

Richard Clark and John Robertson, Leicestershire CC
(Presentation at English Heritage HLC Conference on Sensitivity, December 2008.)

Used HLC and sensitivity to refine the existing Indicative Forestry Strategy for the National Forest, which was based on a tailor-made Landscape Character Assessment. Sensitivity then had been judged on ecological, geological and historic environment data. Not working as well as it might, with new woodland being planted on ridge and furrow and other sensitive historic landscape.

Used attributes in GIS database as well as HLC Types to develop capacity and sensitivity mapping. Distinguished sensitivity, regarded as inherent, following LCA Topic Paper 6 (see below), from capacity, 'the ability of a landscape to accommodate different amounts of change or development of a specific type'.

Woodland planting as a specific type of change and different plantation schemes produce different impacts. Different landscape types more or less able to accommodate these.

Historic Landscape Character Sensitivity	High	High	High	High
	Medium	Medium	Medium	High
	Low	Low	Medium	High
		Low	Medium	High
	Visual Sensitivity			

Combining HLC Sensitivity and Visual Sensitivity to give a Combined Historic Landscape Sensitivity

Combined Historic Landscape Character Sensitivity	High	Medium	Low	Low
	Medium	Medium	Medium	Low
	Low	High	Medium	Medium
		Low	Medium	High
	Historic Landscape Value			

Combined Historic Landscape Character Sensitivity with Historic Landscape Value to give Capacity

Figure 12 Sequential assessment of historic landscape character sensitivity, visual sensitivity and value for each HLC Type affected by a particular form of change (from Clark and Robertson 2008; reproduced courtesy of Leicestershire County Council).

Drew from LCA Topic Paper 6 and especially the 'cumulative assessment method'. Two stages:

- Combine HLC sensitivity and Visual sensitivity to produce 'Combined Historic Landscape Character Sensitivity'.

- Then combine the CHLCS with Historic Landscape Value to give Capacity.
- HLC sensitivity reflects 'land cover, landform, enclosure patterns and fragility'.
- Visual sensitivity – for each HLC Type consider 'What might the visual impact be for that particular kind of change?'
- Historic Landscape Value – 'will reflect aspects such as the cultural value and time depth.'
- Applied this approach to two different scales of National Forest schemes: Large plantations in the 'Changing Landscape' scheme; smaller-scale woods in the '500-2000 trees' scheme and the 'One Acre Wood' scheme. Identified specific impacts from different types of woodland-related change.

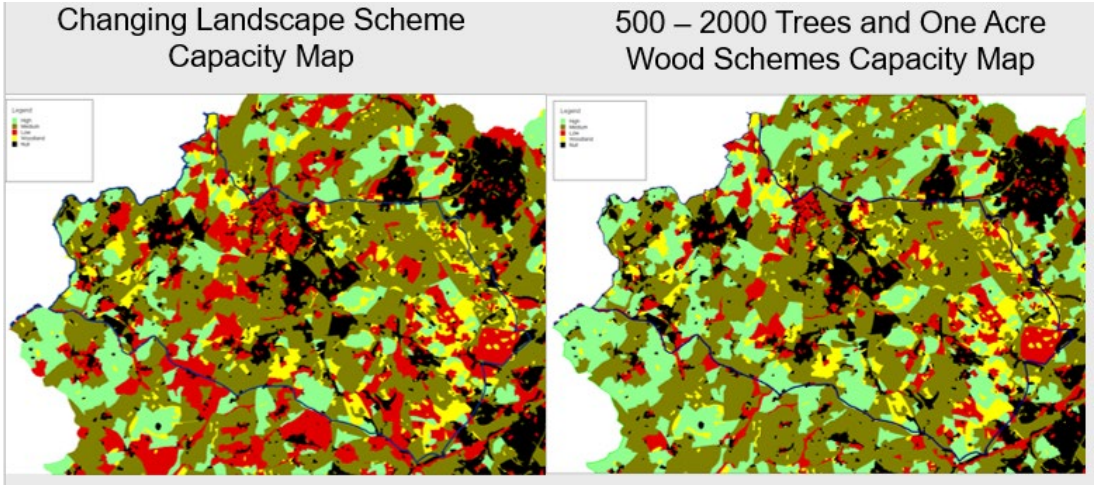

Figure 13 The National Forest in Leicestershire showing high (green), medium (khaki) and low (red) capacity for two planting schemes, large-scale woods on the left, smaller ones on the right (from Clark and Robertson 2008; reproduced courtesy of Leicestershire County Council).

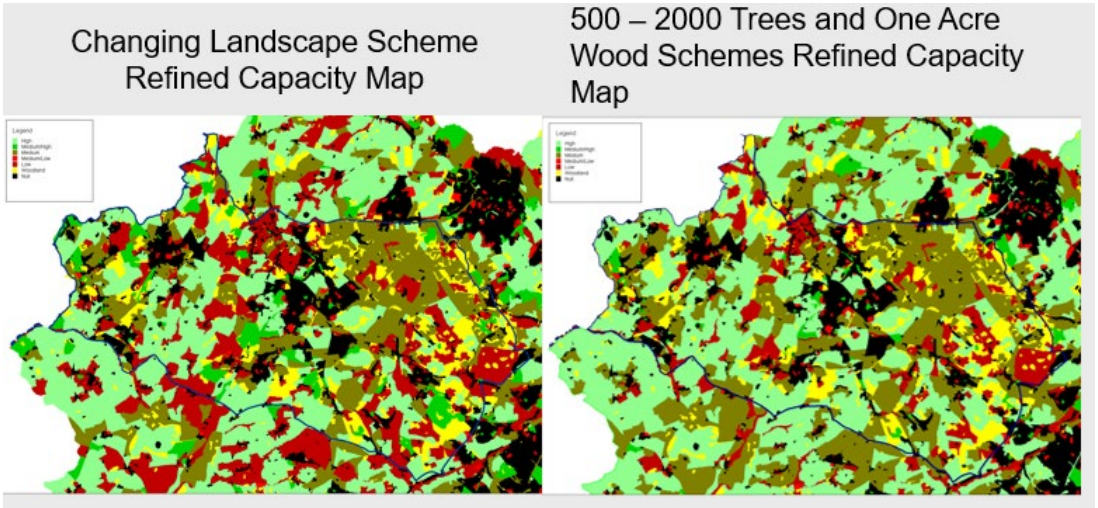

Figure 14 Refined version of Figure 13, with five rather than three subdivisions in matrix and map (from Clark and Robertson 2008; reproduced courtesy of Leicestershire County Council).

- Areas shown in red have a low capacity for plantation, brown is medium, and green is high. Existing woodland is shown in yellow and those areas not considered (urban, extractive industry, etc) are in black.
- Indicates greater areas sensitive to larger plantations.
- Then extended from three to five grades in each matrix to give greater refinement in modelling.
- Methodology 'can easily be adapted for other forms of development or landscape change.'

Sensitivity divided into Visual and HLC and the combined score is separated out from Value, which is brought in when considering Capacity.
Decided that a finer grained scale of grades (5-point rather than 3-point) was more useful for expressing sensitivity on GIS in a way that was useful for decision-makers.

Action Research and Collaborative Strategic Thinking in Urban Planning, Sheffield, 2008

Stephen Dobson, University of Sheffield
(Presentation at English Heritage HLC Conference on Sensitivity, December 2008.)

Evaluating HLC as a multi-stakeholder decision-making tool in planning in urban areas. Employed **Action research**: translating theory into practice and informing theory through practice. Iterative and reflexive. Knowledge drawn from active involvement, not just passive observation.

Exposes concerns and barriers, and so **helps make connections between groups**. Developed relationships between historic environment concerns and other disciplines and interests, including green infrastructure and healthy living initiatives.

Conclusions on exploring the urban historic landscape:

- **HLC highlights urban time depth and green and historic diversity**.
- Addition of '**Legibility'** leads to a model of urban sensitivity which values the readability of the past as much as intrinsically old land use.
- In an urban setting, **diversity can be as important as continuity**. Relates to acceptability of change.
- **Valuing locality.** Facilitating increased appreciation of local community and local environment **increases the appreciation of the sensitivity of sometimes undervalued local areas.** The ability of a place to impart knowledge can contribute to an assessment of its sensitivity.

In a Local Planning Authority meeting on design visions for a part of South Yorkshire he experienced barriers to using HLC. Its outputs, coded in GIS rather than simple coloured maps, were disregarded as too complex to use in a fast-moving meeting.

Need to have outputs that are readily understandable, visually as well as conceptually.

The legibility of the past changes, and thus **narratives are important in engaging communities with the historic landscape**.

The Historic Landscape: sensitivity and capacity, 2008

Pete Herring, English Heritage Characterisation Inspector
(Presentation at English Heritage HLC Conference on Sensitivity, December 2008.)

Update from English Heritage's Characterisation Team on trends and opportunities seen in developing work on sensitivity and capacity modelling. Draws together a suggested approach developed through reviewing previous work.

Sensitivity assessment draws especially on this principle of historic characterisation:
Two key stages in creation and application of historic characterisation:

1. **Identify, map, describe and interpret.**
2. **Apply judgements about value or practical priorities** and so **feed into strategies and actions.**

HLC, like all other structures of historic environment knowledge, understanding and perception, requires a degree of enhancement to make it as fit for a particular purpose as possible.

For the outputs to be treated or used with confidence by those to whom they are transmitted, the **HLC has to work effectively as a framework for understanding**, at the very least, the following three aspects of an area:

- **Historic development**, including recent trajectories of change.
- **Typical known or predictable visible components and qualities.**
- And **how these may best be curated** through a range of scenarios.

A four-stage approach:

1. **Critically consider the change scenario**; its range of **predictable impacts**, **positive benefits** as well as **negative effects.**
2. **Assess the vulnerabilities and potentialities** of the asset (historic landscape character type, but could also apply to a building, site or place) **in relation to the scenario and its impacts and effects**.
3. **Assess its significance** again **in relation to the scenario**.
4. **Draw together** these three assessments of impact, vulnerability and significance **to establish sensitivity and capacity.**

Piloted 4-stage method on four scenarios in the Lynher valley in SE Cornwall, in collaboration with Bryn Tapper of Cornwall and Scilly HER:

- Major physical development
- Minor incremental development
- Woodland planting
- Tall structures.

Stage 1 Consider the scenario's likely effects and impacts on historic landscape.

For example, for tall structures like wind turbines the following effects may be considered:

- Introduction of large eye-catching features
- Distraction of attention from other aspects of the historic environment
- Ground preparations disturb archaeological remains and built structures (NB usually possible to position features to minimise impact)
- Some impact on semi-natural features
- Reduction in tranquillity.

Establish weightings for each vulnerability and significance; i.e. set maximum scores (6 or less), and determine whether any factors should not be scored at all.

	Major physical change	Minor physical change	Woodland planting	Tall structures
Vulnerability				
Time depth	6	5	6	2
Landscape character	5	4	6	4
Below ground remains	5	5	4	1
Semi-natural	4	3	6	1
Landscape history	4	4	4	0
Built env't	4	4	0	0
Amenity	4	3	5	3
Significance				
Rarity	6	5	6	2
Distinctiveness	5	5	5	3
Survival	4	4	4	1
Coherence	4	4	4	2
Research	4	3	4	1
Total	55	49	54	20

Table 2 Weightings (as maximum possible scores) for forms of vulnerability and significance for four types of change scenario (from Herring 2008)

Stage 2 Using professional judgement, score each HLC Type for each aspect of vulnerability to the expected effects, keeping within the weighting scheme.

See Table 2 above for the seven aspects of vulnerability that were scored.

Stage 3 Using professional judgement, **score each HLC Type for each significance factor**, taking account of the effects of the scenario by keeping within the weighting scheme.

See Table 2 above for the five aspects of significance that were scored.

Thought is therefore given to each vulnerability and significance factor for each type, and the expression of each as a score is transparent and challengeable.

Stage 4 Total all vulnerabilities and significances for each type to arrive at scores for **sensitivity and capacity**.

Rank them by total score, or group them by grade. An intersextile range was used to grade sensitivity of HLC Types to the particular change scenario from 1, least sensitive to 6, the most.

Note how only three of the HLC Types illustrated here have the same sensitivity grade for each change scenario. The sensitivity of all the others varies as the impacts of the scenarios vary and affect vulnerabilities and significances differently.

Sensitive use of HLC suggests we make the best use of the most complete and subtle representation of HL Character: the HLC Types.

The **greatest emphasis was placed on thorough understanding of the impacts and effects of the change scenario**, rather than on established measures of significance (though significance was used as a third stage in the process).

	Incremental minor change		Major change		Tall structures		Woodland planting	
Weighting (max score)	49		55		20		56	
Ancient woodland (replanted)	16	2	22	2	5	1	15	1
Ancient woodland (semi-natural)	36	5	43	6	15	5	44	5
Beach	19	2	0		4	1	0	
Coastal Rough Ground (cliffs)	25	3	33	4	13	5	37	4
Coastal Rough Ground (rough ground)	37	5	42	6	16	6	46	6
Industrial (extractive metals)	33	5	36	5	10	3	40	5
Industrial (extractive stone/clay)	29	4	28	3	7	2	32	4
Industrial (processing)	23	3	25	3	6	2	25	3
Intertidal mudflats	29	4	35	4	4	1	2	
Medieval enclosures (barton farms)	30	4	38	5	11	4	39	5
Medieval enclosures (cropping units)	28	4	36	5	10	3	39	4
Medieval enclosures (strips)	33	5	39	5	13	5	39	5
Military (artillery)	25	3	31	4	9	3	30	3
Military (barracks)	22	3	23	2	5	1	21	2
Modern Enclosure	12	1	12	1	5	1	17	2
Orchards	33	5	39	5	13	5	43	5
Ornamental (park)	39	6	46	6	15	5	50	6
Ornamental (plantation)	27	4	37	5	14	5	27	3
Plantation	11	1	13	1	3	1	9	1
Post-medieval enclosures (altered medieval fields)	22	3	29	3	5	1	34	4
Post-medieval enclosures (extensions)	21	2	23	2	5	1	28	3
Post-medieval enclosures (pre C20 new farms)	21	2	24	3	5	1	27	3
Post-medieval enclosures (smallholdings)	30	4	34	4	10	3	36	4
Reservoirs	13	1	0		6	2	0	
Saltmarsh	29	4	32	4	5	1	0	
Settlement (post 1900 development)	16	2	18	2	4	1	0	
Settlement (pre 1900 town core)	37	5	43	6	13	5	0	
Settlement (Rural villages)	38	6	45	6	12	4	0	
Upland Rough Ground (divided pastures)	37	5	45	6	15	5	50	6
Upland Rough Ground (relict MD enclosures)	43	6	49	6	18	6	54	6
Upland Rough Ground (undivided)	37	5	44	6	17	6	50	6

Table 3 Sensitivity scores of Cornwall HLC Types for the four types of change scenario (first columns) and grouped within intersextile ranges (second coloured columns) (from Herring 2008).

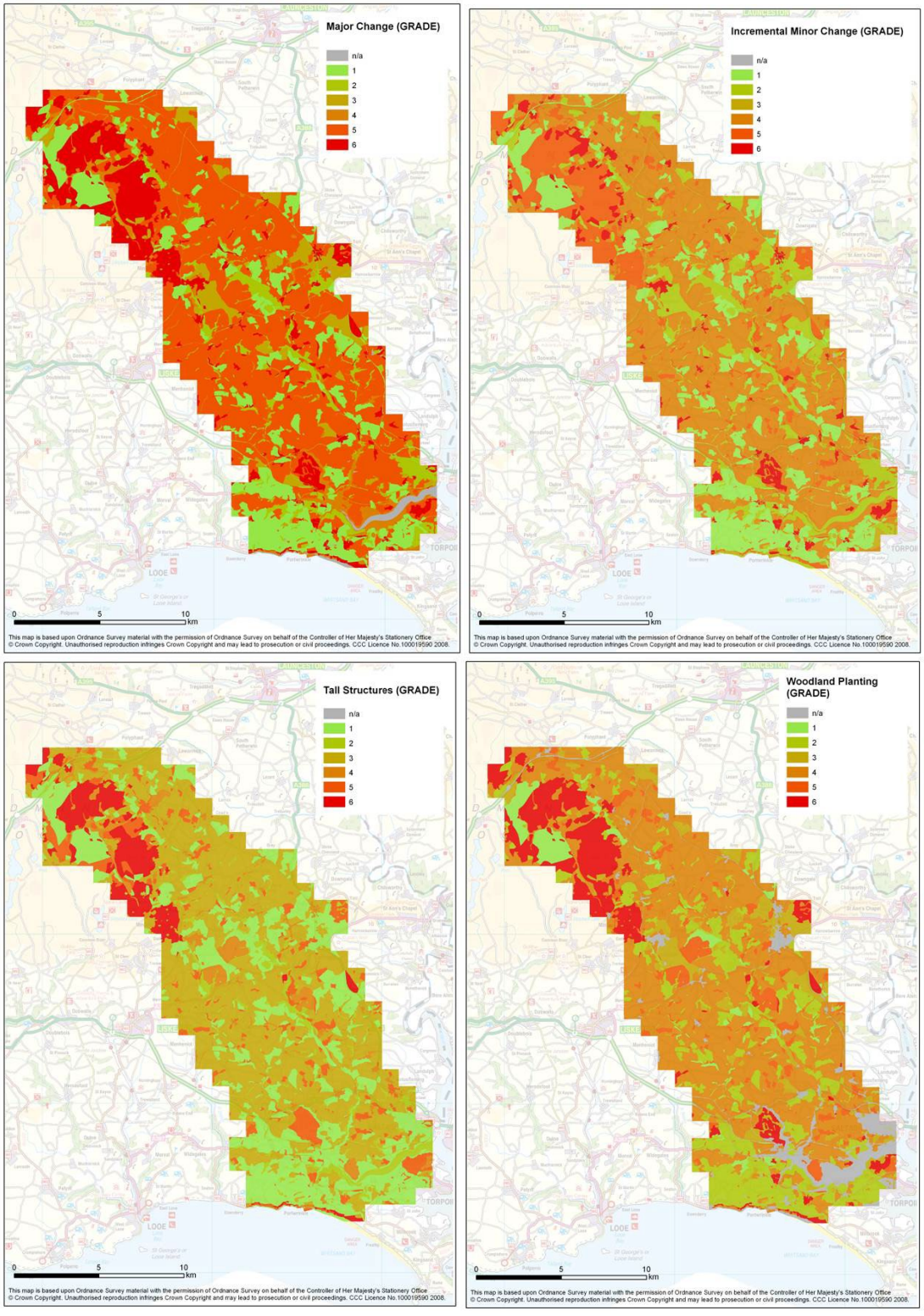

Figure 15 Traffic light displays for four change scenarios in the River Lynher watershed. Markedly different from each other. Each has anomalies that would require second phase of resolution, e.g. the green light for major development on parts of Bodmin Moor (from Herring 2008; reproduced courtesy of Cornwall and Scilly Historic Environment Record).

Natural England Targeting of Higher Level Scheme Areas, 2008

Natural England Spring 2008 discussion document

Identification of core target areas where there is overlap of two or more priority areas for these four aspects: Biodiversity, Landscape, Historic Environment, Resource Protection (precursor of Natural Capital and ecosystem services approach).

Historic environment was considered in this exercise purely through designations (SMs, WHS, RPGs and RBs). Would have liked to use HLC, but nationally that remained incomplete, and thus not useable. Set out the perceived benefits of HLC approach:

- HLC encompasses all land, 'commonplace, typical and modern as well as the locally distinctive, rare, special and historic.'
- Better understanding 'of different types of land use in the past may allow better managed landscape in the present.'
- Emphasis on designation and designation criteria runs counter 'to the philosophy of sustainability underlying characterisation.'

Draws on sight of English Heritage's developing guidance on using HLC to model Sensitivity (see above):

- Sensitivity as a combination of significance and vulnerability.
- Evaluations of both 'in relation to a particular issue'.
- Vulnerability varies more widely than significance.

Can use the attributes of HLC polygons to assess sensitivities, e.g. Morphology, Form (Coherence, condition and survival), Period, boundary loss/gain, enclosure process, and Broad and Narrow HLC Types.

Threats or change scenarios affecting farmed landscape include those associated with the creation or management of:

- Arable, deep ploughing
- Arable, shallow tillage
- Pasture
- Rough ground.

Historic Characterisation and Sensitivity Assessment, Greater Norfolk Growth Points, 2009

Heritage & Landscape Team and Norfolk Landscape Archaeology, at Norfolk County Council, for the Greater Norwich Development Partnership (GNDP). Norfolk County Council

Contributing to planning policies to support sustainable development within Norfolk's Growth Points. 'The purpose of this report is to assess the sensitivity of the wider, undesignated landscape of the GNGP area.'

Responds to Para 2.26 of *PPG15 Planning and the Historic Environment* (1994):

> In defining planning policies for the countryside, authorities should **take account of the historical dimension of the landscape as a whole rather than concentrate on selected areas**. Adequate understanding is an essential preliminary and authorities should assess the wider historic landscape at an early stage in development plan preparation.

Also cites *PPS1 Delivering Sustainable Development* (2005) and *East of England Plan* (2008).

Four study areas; each divided into HECZones (usual East of England sources for HLC, archaeology and built environment); then each assessed for sensitivity, using **Significance and Robustness** as defined by the 2006 Hampshire LCA approach (2006).

- **Significance**: **rarity**, e.g. designations (SSSIs, SAMs). Plus an understanding of how representativeness or essence is manifest in landscape character. Also the extent to which significant attributes dominate or contribute to landscape.
- **Robustness**: an inherent property based on understanding of vulnerability and fragility. Consider in the context of likely threats. Informed by judgements on whether the attribute is damageable, replicable, repairable or replaceable, and over what timescale it might recover.

In assessing the above two indicators a third is taken into account:

- **Condition**: How well the attribute has been preserved/ conserved. An indicator of the level and quality of management. And a judgement on the level of intactness. An understanding of condition will influence the judgements on significance and robustness.

Sensitivity = significance and robustness combined. Highest sensitivity is highest significance and lowest robustness.

'An area may be of high historical significance – for example, the core of a historic market town – but is likely to be protected and valued, so that robustness could also be high. If circumstances were to change, and protective legislation was overruled or an economic downturn meant that the condition of buildings deteriorated, then

assessment of robustness would change, and the overall sensitivity would increase. Robustness can also be altered by circumstance, such as the effects of proposed development. Sensitivity assessments are therefore not fixed but will vary depending on changing circumstances.'

HLC and Sensitivity Mapping for Photo-Voltaic (Solar Farm) Installations in Cornwall, 2010

Bryn Tapper, Dan Ratcliffe, Pete Herring, Historic Environment (Advice and Information), Cornwall Council, and English Heritage

Applications for solar farms in Cornwall are typically for 15 hectares. An established procedure ensures effects on landscape and the historic environment are managed. Accommodation of the historic environment can involve substantial cost (geophysical survey, excavation, watching briefs) and significant adjustments to scheme design.

This sensitivity exercise attempted to provide greater protection for the historic environment and landscape character while also providing greater clarity to the industry on where schemes are more likely to be acceptable. CC's HES team envisaged that HLC-based sensitivity maps would be used at three stages of the planning process.

- Provide planners, developers and supporting agencies with outline strategies for whole regions that will guide locations and designs of developments and other forms of change.
- Assist developers and planners early in the development process, when first deciding where to develop a proposal and how to design it. Reduce the likelihood of developers advancing too far (and investing too much) in the design of a development before encountering any historic environment issues.
- Later during the historic environment assessment stage for proposed sites. Aiding assessment of likely potential for there being significant below ground archaeological remains.

Results of actual assessments of solar farm application sites, including geophysical survey, watching briefs, can show how reliable the sensitivity modelling for each HLC Type has been and establish a level of confidence in the method. If the HLC type 'Farmland: Medieval Enclosures', routinely throws up archaeological or historic landscape issues, then solar farm developers may appreciate a steer away from this HLC Type.

Followed the developing English Heritage four-stage, scenario-led approach:

Stage 1. Scenario Assessment

Identify principal effects or impacts of installing arrays of PV inverters:

- Large-scale physical impacts if anchor bases used; substantially less impact if boreholes/piling for stanchions were used instead.
- Large-scale effects on landscape coherence and legibility (though many sites are selected to be relatively level and not as visible as on sloping ground).
- Some potential for improving semi-natural communities if land use beneath the installations was to become less intensive, e.g. through sheep grazing.

Stage 2: Assessment of Vulnerability and Capability

The ways that the historic environment (below-ground remains as well as landscape character) is vulnerable to or may benefit from the effects of the PV installation scenario were classified and weighted.

Stage 3: Assessment of Significance

Criteria representing significance were identified and weighted in relation to the predicted effects of the PV scenario, to effectively help judge the degree to which the Vulnerability matters when moving on to make decisions.

Stage 4: Conclusions and decision-making

Combining the Vulnerability/Capability scores with those for Significance produced a range of sensitivity scores for HLC Types (see Table 4) that were then input to the GIS against the 1994 HLC mapping and displayed using an Equal Interval sextile classification (see Fig. 16).

Significance (weighted ranges / least to most)	Rough Ground	AEL: Prehistoric Enclosures	AEL: Medieval enclosures	Post-Medieval Enclosures (Intakes)	Post-Medieval Enclosures (Re-organised AEL)	Modern Enclosures (Intakes)	Modern Enclosures (Amalgamations of AEL)	Industrial relict	Industrial active	Recreation	Military	Ornamental
Sig 1. Rarity in region/area, (0 to -2)	-2	-2	0	-1	0	-1	-1	-1	-1	-1	-2	-2
Sig 2. Characteristic of the region/area (0 to -2)	-2	-2	-2	-2	-2	0	0	-2	-1	-2	-1	-2
Sig 3. Amenity potential & community values (0 to -4)	-4	-2	-1	-2	-1	0	0	-4	-1	-4	-3	-4
Total significance score	**-8**	**-6**	**-3**	**-5**	**-3**	**-1**	**-1**	**-7**	**-3**	**-7**	**-6**	**-8**
Vulnerability (weighted ranges / least to most)												
Vul 1. Conservation of HE Physical Remains - stanchions (0 to -2)	-1	-2	-2	-1	-2	-1	-2	-2	0	-2	-2	-2
Vul 2. Conservation of HE Physical Remains - anchor bases (0 to -5)	-3	-5	-5	-3	-5	-1	-2	-3	0	-3	-3	-4
Vul 3. Conservation of HE Unknown Physical remains - stanchions (0 to -1)	0	-1	-1	0	-1	0	-1	-3	0	-1	-1	-1
Vul 4. Conservation of HE Unknown Physical remains - anchor bases (0 to -2)	-1	-2	-2	-1	-2	-1	-2	-2	0	-1	-1	-2
Vul 5. Contribution to Landscape coherence & legibility (0 to -5)	-5	-5	-4	-3	-3	-2	-1	-3	-1	-2	-3	-5
Vul 6. Contribution to Overall Landscape Character (visual) (0 to -5)	-5	-5	-4	-2	-1	-1	-1	-1	0	-3	-2	-3
Vul 7. Changes to Semi-natural Environment (+1 to -3)	-3	-1	-1	0	0	0	1	-2	1	-1	-2	-3
Total vulnerability score to stanchions	**-2**	**-14**	**-12**	**-6**	**-7**	**-4**	**-4**	**-11**	**0**	**-9**	**-10**	**-14**
Total vulnerability score to anchor bases	**-17**	**-18**	**-16**	**-9**	**-11**	**-5**	**-5**	**-11**	**0**	**-10**	**-11**	**-17**
Total sensitivity to pile-driven stanchions*	**-22**	**-20**	**-15**	**-11**	**-10**	**-5**	**-5**	**-18**	**-3**	**-16**	**-16**	**-22**
Total sensitivity to concrete-block anchor bases*	**-25**	**-24**	**-19**	**-14**	**-14**	**-6**	**-6**	**-18**	**-3**	**-17**	**-17**	**-25**

Table 4 Component scorings of sensitivity for a selection of Cornwall HLC Types (along top of table): first three forms of significance and then seven forms of vulnerability. Totalised sensitivity scores along base (from Tapper et al 2010, table 1; reproduced courtesy of Cornwall and Scilly Historic Environment Record).

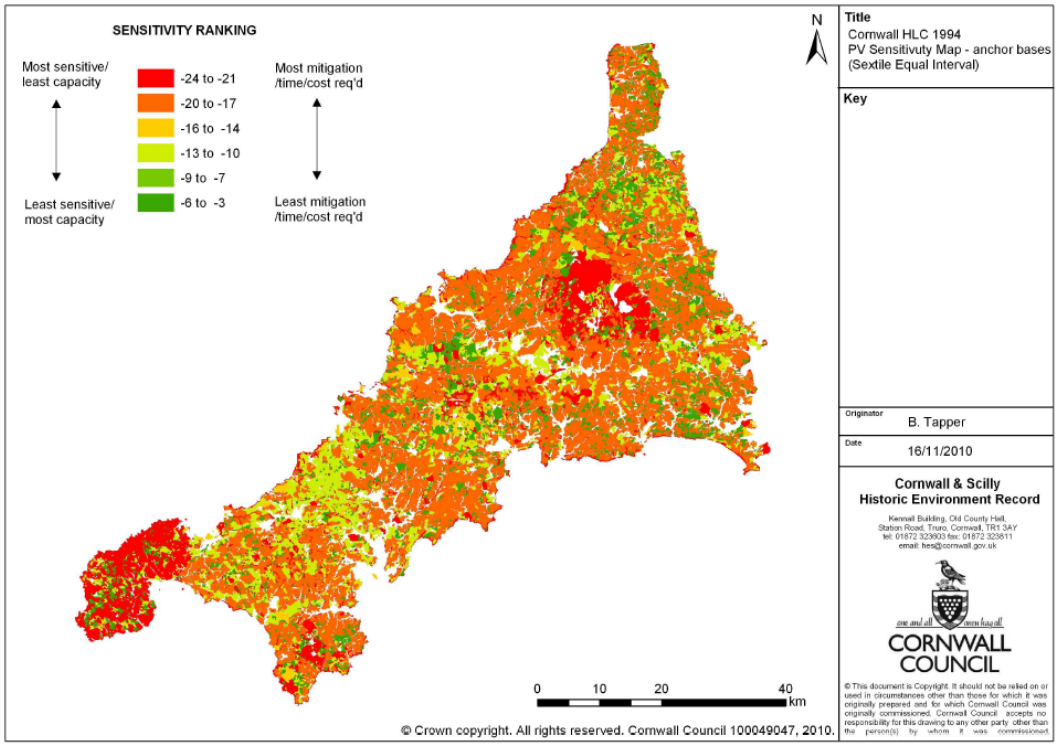

Figure 16 Overall sensitivity scores of Cornwall HLC Types for the scenario Solar panels using anchor bases (from Tapper et al 2010a, fig 3; reproduced courtesy of Cornwall Council).

A similar exercise was undertaken modelling sensitivity to wind farms, below.

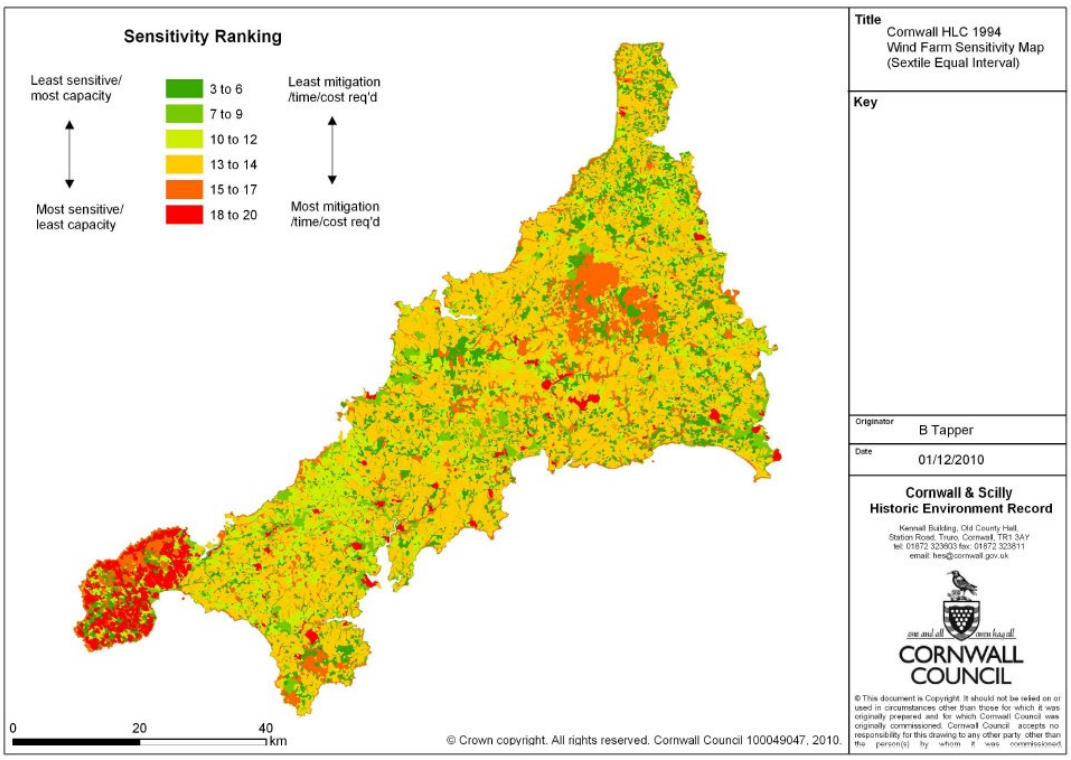

Figure 17 Overall sensitivity scores of Cornwall HLC Types for the scenario wind farm (from Tapper et al 2010b, fig 2; reproduced courtesy of Cornwall Council).

Managing Landscape Change in North Yorkshire for NYCC, 2012
Capita Symonds and Oxford Archaeology North

Assessing areas of potential mineral working in North Yorkshire for North Yorkshire County Council.

Sensitivity and capacity were assessed for each of landscape, biodiversity and the historic environment. The definitions of sensitivity and capacity that were being deployed depended on intrinsic vulnerability, 'irrespective of any mitigation measures that may be put in place through planning conditions to reduce or eliminate adverse impacts, or even to create positive long term environmental improvements through the eventual restoration and reclamation of surface mineral workings.'

Sensitivity 'the degree to which a particular key environmental characteristic of an [area] is vulnerable to harm and/or change with potentially adverse effects upon its character.' Capacity 'a consideration of the sensitivity information and judgement about the relative value of each key environmental characteristic, to guide minerals development to less sensitive or vulnerable areas. This judgement will be an interpretation of the significance of the key environmental characteristics; a subjective opinion, based upon professional, specialist synthesis and interpretation of relative importance.'

Set about devising a methodology where, 'emphasis will be placed on transparency and logical justification (in recognition of the fact that their use is required to underpin a 'robust and credible' evidence base for future policy development)'.
It would draw from lessons learnt in previous attempts to map environmental capacity in relation to mineral development, such as that used in Wales, which was met with widespread criticism from industry and other stakeholder groups because of its complexity and lack of transparency.

Critically reviewed three possible approaches to sensitivity modelling:

1. Quantitative. Scoring via intrinsic vulnerability of known environmental features, including ancient monuments, cropmarks, historic parks, SSSIs, etc. Traffic light mapping based on three or more grades.

> Exemplified by Chris Blandford Associates approach (Thames Gateway 2004 etc). Assessing historic landscape, archaeology and built environment separately. Employing professional judgement to ascribe scores for sensitivity to change. Dependent on quality of data. Problems: subjectivity of 'professional judgement'; dependence on the unknown (especially buried undiscovered archaeology); heavily dependent for significance scoring on designations, eg AONB for landscape.

2. Part quantitative, part qualitative, based on 'varying types of sensitivity exhibited by individual receptors (eg different types of heritage resource, different facets of landscape character or different habitats) to various types of impact.'

Recognises that different receptors have differing sensitivity to different effects of different change scenarios. Noted examples of West Berks and Hampshire in assessing condition, significance and robustness. Regarded as better than Option 1 because more robust / objective approach to data. But the problem is again the uneven-ness or lack of data to assess, and thus lack of certainty. May be achievable for small areas where info is more comprehensive, but not for large areas at a strategic level.

3. Purely qualitative, scenario-based approach. Generalised key characteristics of each area are considered in terms of their sensitivity to the specific range of impacts associated with mineral extraction.

Best approach. Scenario-led; like mineral extraction, reservoir construction, wind farms or built development. The four-stage method, as in the developing English Heritage approach. Cites the Cornwall Solar and Wind farm models. Resembles Environmental Impact Assessment (EIA), but more strategic; capable of application over larger areas (e.g., whole counties). Does have drawbacks, still relies on predictive modelling of potential archaeology, etc.

Using Historic Landscape Characterisation when Understanding and Assessing Sensitivity to Change, 2017

Peter Herring and David McOmish, Historic England

The last of a series of drafts of guidance to be issued by HE on use of HLC in modelling sensitivity and capacity in relation to change. It drew on the experiences of the numerous case studies outlined above and presented the staged scenario-based method introduced in Herring 2008 and exemplified in Tapper et al 2010.

It responded to this simple question: '**How can those who care for the fabric and character of Britain's historic landscape design or develop responses to change in particular places that balance social and economic development with maintaining cultural and ecological diversity and historic character?**'

'The prospect of change stimulates consideration of character, distinctiveness, loss, maintenance, protection, adaptation and transformation. The scale and trajectory of the proposed change may shake us, but contemplation of it initiates reflection on what is meant by acceptable or unacceptable change and how we manage it. It invites us to consider the following:

- What in a landscape's fabric, pattern and character helps shape people's perceptions of place, and in what ways is each aspect vulnerable to the change that is being considered?
- Which aspects, areas, or types of landscape are more highly valued and require special consideration when assessing sensitivity to the change?
- How can the character and quality of a place or landscape be enhanced, enjoyed and valued even more in the future, through thoughtful planning and the good design of change?
- How can it be ensured that the assessment of these matters is inclusive and reflects the knowledge, needs and interests of all parties?'

The proposed guidance set out how HLC may be analysed and used by those planning and guiding change, whether landowners, developers and planners or those individuals and communities with an interest in the effects of change.

Sensitivity assessment using HLC can inform Environmental Statements, Heritage and Environmental Assessments, Sustainability Appraisals, Management Plans, Historic Environment Action Plans and other strategic assessments of proposed or likely change. It aligns well with the landscape planning and management recommended in the European Landscape Convention (ELC).

A **staged approach** was recommended that complements approaches to heritage management based on assessment of intrinsic significance (often recognised via national or local designation) and it fits well with similar approaches used in impact assessment, including that which considers the landscape, as set out in guidelines on landscape and visual impact assessment (GLVIA3; Landscape Institute 2013).

Step 1 Consider the likely effects of the change scenario

'This first stage therefore involves developing a clear understanding of the certain and predictable effects of a particular type of change on the fabric and character of a place, asset or type.'

Some of the more common change scenarios that affect the British historic landscape:

Major development (settlement, industry, infrastructure, etc)

'Effects are often permanent and irreversible (or perceived as such), but there is usually considerable variability in scale, numbers of items and their form and design, providing scope for a sensitivity assessment to positively inform design of change, as well as its location. Scenarios in major developments are often interconnected and cumulative, and they will often generate unplanned (or initially unconsidered) consequences. Most of the variables by which vulnerability is judged will be affected by major development: legibility of the historic landscape; known and predictable below-ground archaeological remains; semi-natural aspects; existing built environment; general landscape character; amenity, etc.'

Minor development, including incremental change

'While often equal to major development in its permanence and irreversibility, its scale makes this scenario more adjustable so the variability in historic landscape vulnerability can be used positively, to better guide not just location, but also the scale and design of change.'

Natural processes and responses to them

'Climate change may be accelerating (or initiating) processes like physical erosion and deposition, and vegetation change. While the cause and scope of these are beyond planning their effects can still be modelled, in part to contextualise consideration of responses to them (flood defences, fire breaks, dredging, etc). These can be likened, in terms of their effects, to either major or minor development. Sensitivity assessment can help ensure that historic landscape issues are fully considered in the design of responses to environmental change. Note that Historic Seascape Characterisation databases should also be included in the modelling of sensitivity when dealing with coastal land and any marine or maritime component.'

Changes in agricultural land use and practices

'There is considerable variety in agricultural change, including whether it represents intensification or extensification. Semi-natural components may be especially vulnerable, but so could legibility of historic landscape and general landscape character (especially if boundary patterns are changed or obscured), and then amenity. Many effects can be transient and reversible, but some, like physical impacts on below-ground archaeological remains and palaeoecological material, are more permanent even though generally unintended. HLC-based sensitivity assessment can also help guide the design and implementation of agri-environment schemes.'

Extensive plantings
'These may be long-term (like woodland) or short-term (various forms of biomass), and some differences in impact may depend on aesthetic considerations: whether the planting is of broadleaf or coniferous trees, or willow or miscanthus, and thus of local or alien species. Some effects, especially on the legibility of the historic landscape and on the character of the landscape more generally, are also variably transitory. Others, like the effects of root systems or of mechanised planting and harvesting on buried remains, may be permanent.'

Tall structures
'Pylons, wind turbines and other small-footprint rural structures can be variable in scale (especially height), numbers and can be flexible in their precise location and arrangement, enabling sensitivity studies to feed constructively into consideration of location and design. Physical impacts on semi-natural features and below-ground remains may be minimised, but more significant vulnerabilities include effects on general landscape character, and distraction from the appreciation and enjoyment of legible historic landscape.'

Tall buildings
'Historic England has produced particular guidance on the related scenario of erecting tall buildings within the built environment.'

Proactive environmental management
'Managing delivery of ecosystem and cultural services, guided often by Biodiversity or Historic Environment Action Plans or similar and often supported by agri-environmental initiatives. Unplanned consequences can be substantial, especially if management or restoration are built on misperceptions (for example, that rough ground is simply wilderness). Like changes to agricultural practice, some of the effects can be transitory and reversible, but others, especially those affecting below ground remains, can be more permanent. Many effects will be regarded as positive, but HLC-based sensitivity assessment, which also raises awareness of past cultural management practices in shaping biodiversity prior to their abandonment should help those designing such works to avoid unwanted (and usually preventable) negative outcomes. It should also support the sharing of objectives through partnership working.'

Continuance of established ways
Reviews of the sustainability of current ways of using places can draw on assessment of their sensitivity to the observable effects of those uses. 'If plans are being considered for changing established ways of exploiting or managing places then it may be useful to assess a place's sensitivity to those, to help identify opportunities for reducing negative effects and enhancing positive ones.'

Neglect
'Unplanned and highly variable, but sensitivity to its effects can still be usefully assessed if there are opportunities for reversing the neglect.'

'Potential variability within a scenario, such as that regarding location, scale and design, should be fully modelled so that all options can be properly assessed. For

example, the different effects of coniferous, as opposed to broadleaf, woodland might be considered, or the sizes, number and blade speed of different types of wind turbines, or further, the form, number, scale and disposition of buildings. Doing so allows various change options within each scenario to be assessed.'

'Timescale is also relevant. Effects may be short or long-term, incremental (e.g. development infill within new ring-roads), and transient, temporary or permanent. All need to be considered in different ways. Some change scenarios, including those involving renewable energy, may have effects that are wholly or partially reversible in certain timescales, and that too can be factored into sensitivity assessments. Unintended consequences of apparently positive change should be taken into account as well (as in the case of some large-scale habitat restoration schemes that may negatively affect aspects of the historic environment).'

'To enable comparison of vulnerability and relevant significance (Steps 2 and 3, below) the various effects of change scenarios should be clearly set out and where reasonable should be quantified.'

Step 2 Assess vulnerability of a HLC type to the effects or impacts of the change scenario

'Those attributes of a place or type of place, such as an HLC Type, that will be vulnerable to the effects set out in Stage 1 can be assessed, clearly expressed and again where reasonable quantified.'

'At the same time, a place's potential to benefit from change, its **capability,** should also be assessed, expressed and where reasonable quantified. This will also allow modelling of how aspects and qualities of the historic environment can in turn contribute to the design of more appropriate or more sustainable change.'

'The current **condition** of the place, or its component parts, may be expected to influence consideration of both vulnerability/capability and significance/value (step 3, below).'

'Judgements about vulnerability and capability are made specifically in relation to the predictable effects of the scenario established in Step 1. The weight given to different measures of vulnerability or capability can be expected to vary according to the predictable form, force, likelihood and longevity of effects. The following are examples of variables that may be used to assess the vulnerability or capability of the historic landscape:

- 'Legibility of the historic landscape. The appraisal should consider how the new cultural or historical layer that would result from the change being assessed would affect the readability of the landscape's stories. It may make it easier to do so if it involved removal of elements that currently obscure or confuse. Changing elements or patterns in some complex historic places may be regarded as being part of a gradual evolution and, consequently, not particularly damaging. Elsewhere, small changes can lead to disarticulation of coherent historical patterns, leading to substantial loss of readability and

meaning. Most HLCs record attributes that reflect legibility of landscape form, date and complexity. An assessment should query and analyse the HLC, and may if appropriate deepen or extend its characterisation of attributes in order to draw out that legibility.'

- 'Ecology. Changes could involve loss, disturbance or enhancement of ecological communities, most of which will be semi-natural and thus semi-cultural.'
- 'Landscape character. Changes in the ways that people experience and appreciate how historic aspects contribute to the character of landscape.'
- 'Built structures and archaeological remains, whether upstanding or below-ground, known or predicted. Understanding the history of the HLC type, or the particular place, enables assessment of the likelihood of there being significant archaeological remains as yet undiscovered. Sensitivity assessment should then include consideration of the effects, negative and positive, physical and visual, absolute and partial, on such predicted remains. This should involve consultation of the Historic Environment Record and other sources of information.'
- 'Amenity. Reflect on how activities, enjoyment and appreciation might be either improved or compromised by the change being considered.'

'The results of assessing the vulnerability and capability of each of these and any other variables can be systematically represented by a form of grading or scoring. Variables may be weighted as appropriate, according to how greatly the scenario's effects can be expected to act upon them and some may be omitted altogether if unlikely to be affected at all. Such scoring may include a range that extends from negative (representing damaging impact) to positive (for beneficial outcomes). Alternatively, there might be two schemes of assessment: one considering the scenario's negative impacts; the other its positive opportunities.'

'Modelling of vulnerability and capability should recognise that a scenario's effects can be complicated by other consequent scenarios, such as when housing or commercial development fill in the land contained by a new by-pass. There should therefore be separate assessments of consequent and cumulative effects.'

Step 3 Assesses the significance or value of a place or type of place.

'Do the effects and potential outcomes of change, the vulnerabilities and capabilities, matter and if so, why, by how much and to whom?'

'Modern heritage practice emphasises the desirability of sustaining and enhancing the significance of heritage assets, including landscape and place, and putting them to viable uses consistent with their conservation. However, significance is a complex attribute. In its widest sense, "the significance of a place embraces all the diverse cultural and natural heritage values that people associate with it, or which prompt them to respond to it. These values tend to grow in strength and complexity over

time, as understanding deepens and people's perceptions of a place evolve" (English Heritage 2008a, 21).'

'Place has numerous and changing values that are time and context-dependent and vary according to the knowledge and perspective of those who are assessing it. Contemplation of change and loss may itself alter perceptions of significance, often encouraging people to think for the first time or think more deeply about how they value something that is threatened.'

'The comprehensive appraisal of a scenario means that developers, designers and decision-makers can recognise that significance need not always be a certain fixed quality. This chimes with the plural ways of valuing highlighted in *Conservation Principles* (English Heritage 2008a) and the emphasis placed on perception (inherently subjective and variable) by the European Landscape Convention. An HLC type or a place may be differently evaluated and have different scores for significance and value for different change scenarios.'

'To be acceptable to all those with an interest in a place, the consideration of a place's significance should use criteria or measures that are widely regarded as reasonable. The four heritage values set out in *Conservation Principles* are internationally accepted [being drawn from the Burra Charter; ICOMOS]: the "evidential, which is dependent upon the inherited fabric of the place, through historical and aesthetic, to communal values which derive from personal identification with a place" (English Heritage 2008a, 27). Other criteria that have been used when assessing the significance of historic landscape character types include the following, though it may be noted that each can be accommodated within one of the *Conservation Principles* heritage values.'

- 'National, regional or local **rarity** of the HLC Type
- Local or regional **distinctiveness** of the type
- Typical **condition** or **survival** (including **coherence**) of the type
- Typical **diversity** of the type, including the range of heritage assets that may be expected within it'.

'Care should be taken to ensure that inclusion of such additional criteria do not lead to a form of double-counting through overlapping with criteria employed to judge vulnerability and capability in Step 2.'

Practical considerations and applications

'This guidance does not offer a single template because **sensitivity assessments should be tailored to the particular requirements of each application**. They will vary according to the magnitude and complexity of the change scenario. There will also be variability in the resources available for assessment, including the form of the HLC(s) that will be used, not all HLCs having the same data structure.'

'A number of **allied concepts**, which may be assessed using broadly similar methods to those used when considering sensitivity, or as extensions of it, can reinforce the usefulness of HLC when guiding change.'

- *'Capacity* introduces consideration of thresholds, and a quantification of the extent to which a place can accommodate a particular kind of change.
- *Robustness*, *fragility* and *resilience* are close in meaning to *vulnerability* and *capability*, and reflect how a place may recover from change to an acceptable degree, whether physically or within peoples' perception.
- *Opportunity* and *potential* reflect a place's openness to change and enhancement and *acceptability* indicates the tolerance of change by communities of place or interest.'

'Good sensitivity assessment will be **transparent**, clearly elucidating each stage of the process, including critically reviewing sources, so that all users share confidence in outputs and conclusions. This should extend to keeping all language clear and jargon-free as it will always be important that local and non-specialist communities understand and can contribute to the evaluations being made about places they know and care about.'

'Sensitivity assessment will often be undertaken as part of an Impact Assessment, or in advance of one. It will often be helpful to use the concepts and language of impact assessment when presenting methods and results.'

'As sensitivity assessment is a flexible tool, each application can and should be **proportional** to the scale and impact of the change scenario and made **fit for purpose**. Sensitivity can be assessed and communicated in various ways. Most examples undertaken so far involve **grading or scoring** asset or historic landscape character types using variables reflecting vulnerability, capacity to absorb change, and significance (taking care not to double-score qualities under both vulnerability and significance) and then displaying cumulative grades or scores, usually via GIS. The subtlety and sensitivity of **GIS** can also be exploited to display grades or scores for individual variables to help guide the design of particular aspects of a scenario.'

'Scoring schemes help assessors marshal and refine judgements and represent them spatially, but can become mechanistic. It is recommended that assessors **treat scoring as a first step** – a scaffolding. When scoring assumptions and processes are set out, they provide those using the assessment with an opportunity to judge the assessment of a range of criteria in a consistent and comparable way. Results should therefore not be used uncritically and rarely without further evaluation. They are most usefully seen as an intelligible framework within which professional judgements can be exercised more rigorously, one early phase in a process of thinking through all aspects of a change scenario, an analysis that would lead to structured negotiation aimed at obtaining the best outcomes.'

'Sensitivity assessment should produce more thoughtful decisions about whether proposed change should proceed, but it should also inform and improve the design of agreed change, so that it complements or supports the historic environment. Developers, planners and others are thereby encouraged to consider and respond to the effects of change in places that might normally be overlooked, those regarded as ordinary, even 'degraded', in the terminology of the European Landscape

Convention. Change in such places can be as thoughtfully designed as in places whose value is already well established.'

'Sensitivity modelling may suggest that some areas or types of place that are conventionally and currently under-valued should be more thoroughly assessed. Critical consideration might also be given to whether downplaying an effect on one asset or area because it is not considered significant might increase the effect or pressure on interconnected or neighbouring assets or areas. Sensitivity appraisals could also be applied to assessing the effects of continuing to manage a place in an established way. This could stimulate carefully considered change to such practices should the assessment indicate that there are more appropriate or more sustainable alternatives.'

Assessors and users

'Sensitivity assessments are most likely to be undertaken by experts: archaeologists, planners or landscape architects, while strategic planners, authorities, agencies and advisers responding to particular proposals, are likely to be amongst those making most use of the results of them.'

'As developers are encouraged to prepare good evidence bases to contextualise their proposals, so they might increasingly be expected to prepare sensitivity assessments. All planners will find sensitivity assessment a useful tool and we might expect those opposed to particular strategies or developments to also find the method helpful when gathering and presenting their thoughts. Shared principles of sensitivity applied to landscape change might then offer a common and less confrontational language and forum for debating whether, where and how a proposed change should happen.'

'Community views should also be sought and acknowledged. The expert role could extend to canvassing these views and trying to establish a consensus about the appropriate weight given to each. The community will normally have formal opportunities, however, to comment on proposed change and the need to maintain consistency of approach when considering large and varied areas means that vulnerability and significance are normally assessed by specialists. There will often be opportunities within planning and other processes for dialogues between expert and local opinion.'

Seascape Character and Visual Assessment: incorporating Historic Seascape Assessment 2017

Comments from Dave Hooley, lead for Historic Seascape Characterisation in Historic England, on a consultation on offshore windfarm developments and environmental assessments (EAs), 13.9.2017

The Institute of Environmental Management and Assessment (IEMA) were attempting to deliver more proportionate Environmental Impact Assessment (EIA), to counteract 'obesity crisis'. EIA had become increasingly complex and while the quality of EIA practice might have improved the outcome was 'not universally positive'. IEMA therefore wish to '…stimulate collaborative actions to improve the situation here in the UK to deliver more proportionate, and therefore more valuable, EIA.'

A project on offshore windfarms, both the turbine array area and the coastal landfall, was to test a slimmer approach.

Dave Hooley's comments include several in which he emphasised that the material prepared for Historic Seascape Characterisation is suitable for sensitivity and capacity assessment using procedures similar to those being developed on land.

'Benefits from standardising conditions and mitigation measures are possible but require recognition that historic seascape and visual impacts from any development scenario will vary with the vulnerabilities and resilience of places to the effects of that scenario. That variation can be assessed and mapped, as it has been for potential onshore wind farm development in some areas and can inform the development of appropriate conditions and mitigation measures that respond to the anticipated vulnerabilities shown by the assessment.'

'Seascape character and visual impact, their vulnerabilities and assigned importance, will vary from place to place for any given scenario of development but application of a consistent principled approach and standardised sequence of assessment would improve focus on key issues and consistency in their treatment. That is the aim of Historic England's scenario-based approach to historic character's roles in assessing sensitivity to change. It provides a clear principled sequence of assessment which articulates the vulnerabilities and resilience of a place's landscape/seascape character to a given scenario (in this case, offshore wind farm development) and the extent to which heritage significance is assigned to that place.'

'Historic England is preparing for publication an Advice Note on a scenario-based approach to the roles of historic character in assessing sensitivity to change in landscape (which, following the ELC, subsumes 'seascape' in coastal and marine areas). That approach is highly relevant here in offering a consistently applicable, principle-driven sequence of assessment which articulates the vulnerabilities and resilience of a place's landscape/seascape character to a given scenario (in this case, offshore wind farm development), setting that alongside the heritage significance assigned to that place.'

Capacity for Change: new woodland in Oxfordshire, 2017
Dr Abigail Tompkins, Oxfordshire County Council

https://www2.oxfordshire.gov.uk/cms/sites/default/files/folders/documents/environmentandplanning/countryside/HLC/CapacityforNewWoodlandReport.pdf

One of two sensitivity models prepared for Oxon as part of the analysis and report on the county's HLC. It anticipates the likely development of a programme of woodland creation in the county as a response to climate change and biodiversity challenges.

The other capacity study was for urban development in the hinterlands of Oxfordshire's towns.

https://www2.oxfordshire.gov.uk/cms/sites/default/files/folders/documents/environmentandplanning/countryside/HLC/CapacityforUrbanDevelopmentReport.pdf

The approach follows closely the suggested four-stage method developed by EH/HE but subjects it to close scrutiny, applying greater detail to each stage and increasing the value of the whole approach, especially by considering how to extend it into areas that will contribute to the design of change.

1 Scenario
Breaks down into detailed areas: site preparation, root action, hydrological change, forestry operations, windthrow, preservation and restoration. And each of those is dissected. Leads to fine-grained understanding of the impacts of woodland creation.

2 Vulnerability, or Assessing potential impact on the historic landscape
Included weighting through three negative scores:

-0.5/-1 = little or no impact
-2 = probable high impact on character
-4 = probable high impact on 'historically important landscapes'.

'A further step was added to this stage to explore ways in which simple adaptations to the design of a new woodland proposal might **mitigate the impact on historic landscape character**, thus **increasing the capacity of an HLC Type**.'

Possible adaptations were:

- No site levelling
- Selection of shallower rooting species
- Bespoke planting plan (in respect of on-site features)
- Preservation of historic boundaries
- Restoration of historic boundaries
- Maintenance of existing landscape form
- Preservation of rights of way
- Preservation of historic structures
- Bank stabilisation

- Preservation of historically important ecosystems
- Restoration of (former) woodland
- Planting of large wooded tracts (akin to historic woodland).

Each suggested adaptation was afforded a value of one and added to the total impact value, creating an 'adjusted impact value'.

3 Significance

Each HLC Type was assessed and scored on the basis of significance values derived from two sources:

- The variables recorded in its database: occurrence (or rarity), trajectory of change, biodiversity potential and period of origin.
- The results of public surveys on historical, aesthetic and communal values of HLC Types was also used.

Weighting was used to develop significance scores as follows:

Significance	Criteria	Weighted Score
Occurrence	How rare or commonplace is an HLC type?	0 (Low) to 6 (High)
Trajectory of Change	Is an HLC Type decreasing or increasing?	1 to 7
Biodiversity Potential	What is an HLC type's potential for biodiversity?	1 to 5
Archaeological Potential	What is an HLC type's potential for preserved archaeological or historic building remains?	1 to 6
Period of Origin	What period does an HLC type tend to date to?	1 to 6
Historical Value	How well does an HLC type link people to the past?	1 to 6
Aesthetic Value	How attractive or inspiring is an HLC Type?	1 to 3
Communal Value	How important is an HLC Type to a community?	1 to 3

Table 5 Weighting ranges for contributors to a HLC Type's Significance (from Tompkins 2017, table 5; reproduced courtesy of Oxon County Council).

Note that these are fixed values or assessments of significance.

[A further adaptation (to weighting) may derive from considering which aspects of significance matter in this scenario.]

4 Capacity modelling

This was calculated by multiplying the negative score for vulnerability with the positive score for significance.

Additionally, because of the possibility of adapting to vulnerabilities, i.e. thinking the scenario and its effects through a bit more thoroughly, a second calculation was made based on adjusting the design of the scenario.

Scores were then grouped into five 'capacity categories', 1 = low (or high sensitivity), 5 = high (or low sensitivity).

Capacity Category	1 – Low	2	3	4	5 – High
HLC Types	Military – Castle	Rural – Country House	Recreation – Public Park	Rural – Caravan/Chalet/ Camping site	Communication – Main Road
	Military – Hillfort Open Field System	Rural – Hamlet Piecemeal Enclosure	Civil Provision – Educational Facility Urban – Town	Reorganised Enclosures Prairie / Amalgamated Enclosure	Industry –Energy Industry Industry –Extractive Works
	Communication – Ridgeway	Woodland – Woodland Pasture	Recreation – Golf Course	Orchard and Hort – Vineyard	Military – Communications
	Urban – Historic Urban Core Orn –Deer Park	Communication – Canals and Locks Orchard and Hort – Orchard	Urban – City Urban – Market	Woodland – Plantation Civic Amenities – Reservoir	Commercial- Road Side Service Centre Communication – Telecommunications
	Managed Archaeological Site	Rural – Village	Urban – Dwelling	Industry – Manufacturing	Recreation – Hunting Site
	Unenclosed – Rough Ground	Woodland – Secondary Woodland	Enclosure – Paddocks and Stables	Industry – Flooded Extractive pits	Civil Provision – Park and Ride
	Woodland – Ancient Woodland Orn-Parkland / Designed Landscape Closes Crofts (medieval & Post Medieval)	Planned Enclosure Rural –Farmstead Orchard and Hort – Allotment Industry –Mill / Mill Complex	Recreation –Sports Facilities Military – Shooting Range Rural – Dwelling Urban – Public House	Commercial – Fish Farm Urban – Hotel Civil Provision – Police station Urban – Caravan and Camp site/ chalet site	Commercial – Shopping Centre Communication – Major Road Junction Communication – Motorways Commercial –Retail park
	Civil Provision – Religious and Funerary	Recreation – Nature Reserve	Military base	Enclosure – Reclaimed land	Civic Amenities – Waste Disposal
	Assarted Enclosure	Water – Water Meadow	Communication – Airfield (Commercial)	Industry – Processing industry	Civil Provision – Immigration Detention Centre
	Water – River Ancient Enclosure	Communication – Rail transport sites Water – Watercress Beds	Orchard and Hort – Nursery/ Garden Centre Recreation – Racing Sports Sites	Civic Amenities – Sewerage Treatment Works Civil Provision – Prison	Commercial – Business Park Industry – Depot
	Orn –Ornamental water body	Water – Fresh Water Body	Civil Provision – Gov Office and Civic Centre	Civic Amenities – Utilities	Industry –Scrap Yard
	Ladder Field System Squatter Enclosure	Communication – Bike Path/ bridleway Orn –Domestic Garden	Military – Military Airfield Civil Provision – Health Care Facility	Military – Barracks Recreation – Other Leisure facilities	Industry –Timber Yard Industry –Industrial Estate
	Unenclosed – Green	Recreation – Country Park	Rural – Hotel	Recreation – Community Centre	

Table 8 HLC Types in each Capacity Category using the Capacity for New Woodland Value

Table 6 Oxon HLC Types attributed to the five grades of capacity for woodland planting (Tompkins 2017, table 8; reproduced courtesy of Oxon County Council)

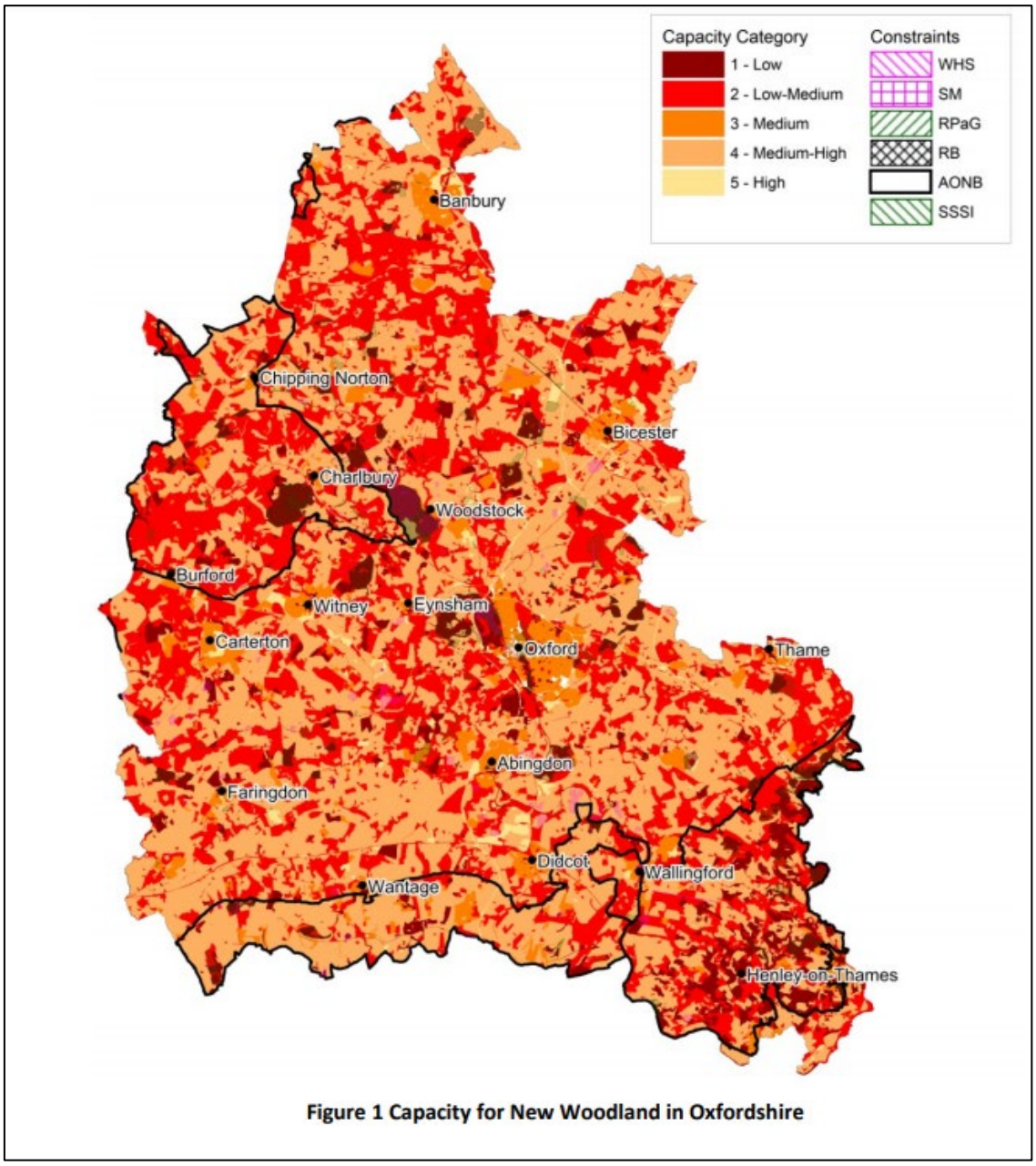

Figure 18 Map displaying the five grades of capacity for woodland planting in Oxon (from Tompkins 2017, fig 1; reproduced courtesy of Oxon County Council).

The several suggestions to mitigate or reduce negative impacts of woodland creation were then modelled and new scores developed for all HLC Types. The result was a more subtle mapping of capacity and sensitivity. This also led the author to consider further the various ways that Oxon's landscape might be enhanced by tree planting and woodland creation.

A good example of how sensitivity modelling requires hard thinking early in a process and subtlety in thinking all the way through. And the use of all the available data associated with scenarios, HLC data, and evaluations. Not less, not simplified during the process. And accepting that detail is required at all stages, though

simplification can be helpful once all workings are done, when presenting trends, etc. **Simplifying the data or resolution of mapping leads to uncertainties at all stages.**

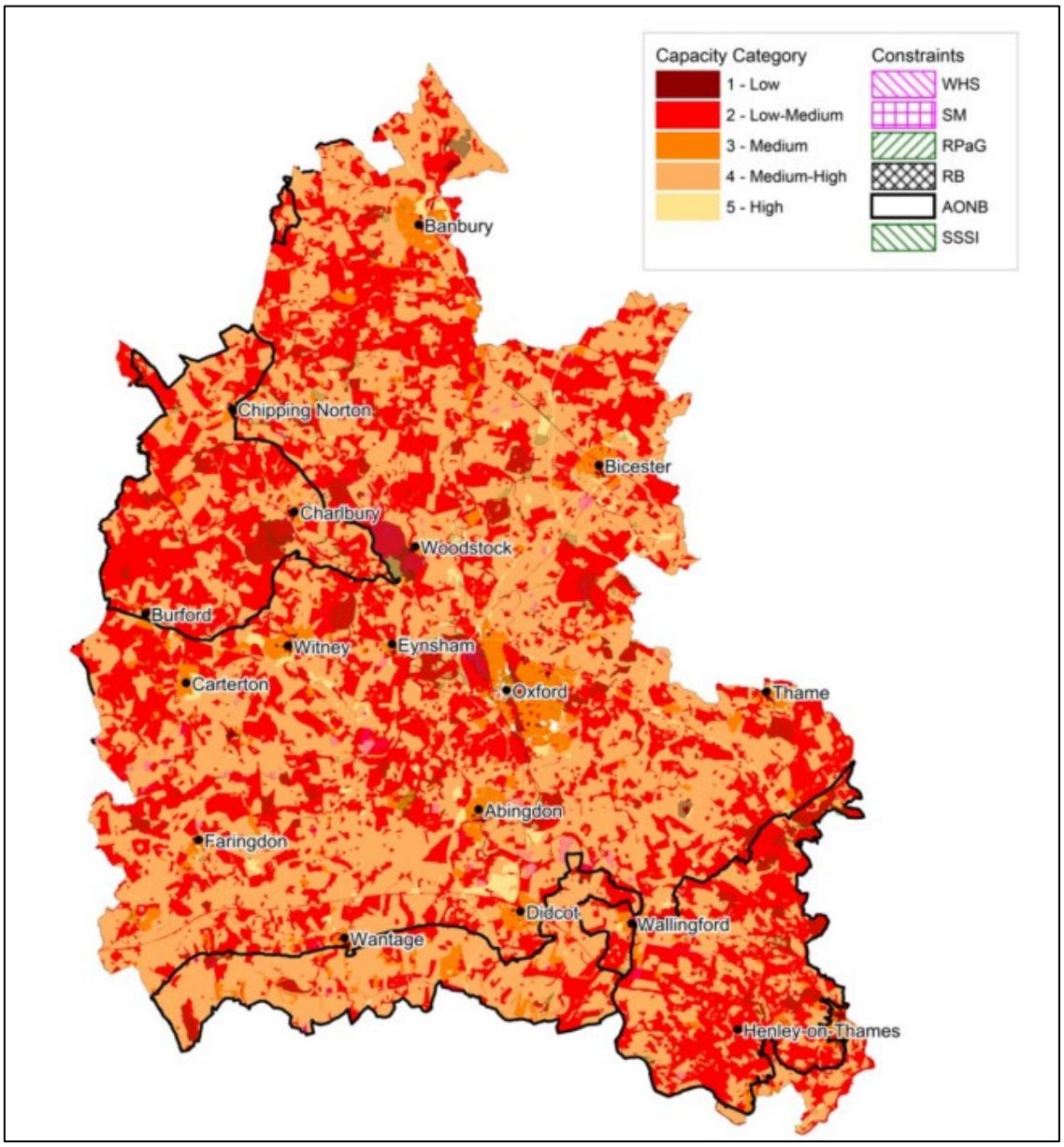

Figure 19 Map displaying the five grades of capacity for woodland planting in Oxon after adjustment of woodland design proposals intended to minimize negative impacts. Demonstrates the effect on capacity (or sensitivity) of improved design (from Tompkins 2017, fig 2; reproduced courtesy of Oxon County Council).

A fifth stage involved drawing attention to constraints mappings (designations etc) that would help decision-makers further. [This is a stage that could of course be added to all previous sensitivity models (and some of them incorporate designations into their significance scores).]

NB Richard Oram, Lead Archaeologist at Oxfordshire County Council, cautions in March 2022 that the sensitivity assessment for the impact on archaeological

remains was quite broad brushed and primarily based on the DC archaeologist's opinion of how certain types of development would impact on archaeological remains in general. As a result, there are many areas where the model shows a very low sensitivity to woodland planting on sites which are of high significance, as this was not taken into account.

HSC and Seascape Sensitivity Assessment: some notes, 2020

Dave Hooley, Historic England

[Ahead of his retirement from Historic England, Dave, lead on HSC for many years, provided colleagues with notes on important aspects of that work, including HSC's role in sensitivity assessment. The latter included a significant elaboration on the issues involved in assessment of the sub-sea-surface parts of seascape.]

'Seascape' is a subset of 'landscape', as defined and understood by the European Landscape Convention, where perceived areas include marine areas, inter-tidal areas and/or land areas whose landscape perceptions have a distinctively coastal, marine or maritime character' (Hooley forthcoming).

The UK Marine Policy Statement (MPS) (HM Government 2011) also regards seascape as a form of landscape: 'references to seascape should be taken as meaning landscapes with views of the coast or seas, and coasts and the adjacent marine environment with cultural, historical and archaeological links with each other' (MPS, para 2.6.5.1).

Notes that the MPS requires that 'the marine plan authority "should also take into account the historic character of the plan area, with particular attention paid to the landscapes (see MPS section 2.6.5) and groupings of assets that give it a distinctive identity" (2.6.6.6). HSC, and HLC for coastal land and estuaries, should have clear roles in informing on that, within and independently of LCA and SCA, once heritage values assessment has been undertaken on the baseline historic character data, following Conservation Principles guidance.'

Natural England produced *An Approach to Seascape Character Assessment* in 2012, but adjusted the ELC definition of landscape for use with seascape: 'An area of sea, coastline and land, as perceived by people, whose character results from the actions and interactions of land with sea, by natural and/or human factors'. The adjustments ran counter to the aim of the MPS as it 'omits the MPS references to cultural, historical and archaeological links between the coastal and marine environment' and emphasised the terrestrial and thus coastal aspects of the sea.

Nevertheless, the Marine Management Organisation (MMO) adopted NE's *Approach*, which had the advantage of drawing in HSC and HLC as a core source in Seascape Character Assessments (SCAs). A consequence of that is that HSC and HLC are identified as key core source data in SCA preparation, and that in turn has helped ensure that actual SCAs do indeed tend to include marine areas (to the midway points that delineate UK waters) as well as coastal areas.

But there is still a risk that applications of seascape sensitivity assessments that follow the guidance prepared by the MMO, which adopts the NE definition of seascape, may confine their studies to coastal areas.

Dave Hooley had been expecting to prepare an advice note on the application to historic seascape (and HSC as a vehicle for that) of the Historic England approach to modelling sensitivity and capacity using HLC.

He notes that the then developing HE guidance (essentially Herring and McOmish 2017) asks these four broad questions:

- What in a landscape's fabric, pattern and character helps shape people's perceptions of place, and in what ways is each aspect vulnerable to the change that is being considered?
- Which aspects, areas, or types of landscape are more highly valued and require special consideration when assessing sensitivity to the change?
- How can the character and quality of a place or landscape be enhanced, enjoyed and valued even more in the future, through thoughtful planning and the good design of change?
- How can it be ensured that the assessment of these matters is inclusive and reflects the knowledge, needs and interests of all parties?

'However for marine areas and increasingly as one moves below MLW, the balance between the sensory and the cognitive in our historic seascape perceptions moves strongly towards the cognitive, with the sensory playing less of a direct role. In that circumstance, while marine historic seascape perceptions bear on our cognitive understanding of past and present human actions from the sea surface down to below the sea floor, historic seascape effects from proposed developments will predominantly focus on how they affect our ability to perceive a marine area as 'a place' that carries those cognitive understandings, and how they affect the material aspects that inform and give evidence for those cognitive understandings. Those material aspects are largely, though not only, on and beneath the sea floor, and our increasing ability to build imagery relating to them also draws them more into the field of sensory inputs to our seascape perceptions.'

The review also considered seminal and recent contributions or refinements of sensitivity and capacity assessments undertaken by those working with landscape.

LCA Topic Paper 6: Techniques and Criteria for Judging Capacity and Sensitivity, 2004

Carys Swanwick for Scottish Natural Heritage and The Countryside Agency

[Topic Paper 6 was a milestone in the development of sensitivity assessment, invaluable when considering historic landscape as well as landscape more generally.]

A then recent Countryside Agency survey found that 91% of people 'want to keep the countryside exactly as it is today.' But change is inevitable, for a variety of reasons. Hard decisions are required that accommodate demands society makes 'while also retaining the aspects of the environment that we place such high value on'.

Landscape Character Assessment (LCA) is widely employed 'as a tool to help guide decisions about the allocation and management of land for different types of development'. Especially 'to contribute to sensitivity or capacity studies'. For housing, wind turbines, woodlands, etc.

The publication gathers together for the agencies leading on landscape in Scotland and England thoughts on assessing capacity and sensitivity of landscape in relation to change. Includes reviews of previous approaches and identifies good and more problematic practice in order to develop generalised (non-prescriptive) guidance.

It shows some of the approaches then being used. It does not present a preferred method, but sets out key principles, clarifies some issues and helps with definitions of key terms in order 'to encourage greater transparency in the thinking applied to these issues and to promote consistency and rigour in such work'.

Concepts of Sensitivity and Capacity

'Inevitably involves consideration of the sensitivity of different types and areas of landscape and of their capacity to accommodate change and development of particular types.' 'Making decisions based on sensitivity and capacity is a difficult and challenging area of work'.

'The terms themselves are difficult to define accurately in a way that would be widely accepted.' 'Landscape capacity refers to the degree to which a particular landscape character type or area is able to accommodate change without significant effects on its character, or overall change of landscape character type. Capacity is likely to vary according to the type and nature of change being proposed'

Notes that Landscape Character Assessment (LCA) and Landscape and Visual Impact Assessment (LVIA) are not the same thing. Broadly, LVIA concentrates on sensitivity and LCA on capacity.

Notes that sensitivity and capacity have been used interchangeably, and also as opposites (in the sense that low sensitivity = high capacity). But experience has shown that **sensitivity and capacity are not the same**, 'and are not necessarily directly related'.

Presents two recent definitions of landscape sensitivity.

Chris Bray. Worcestershire County Council. Unpublished paper on a County Wide Assessment of Landscape Sensitivity. 2003.

'**Landscape sensitivity**... **relates to the stability of character, the degree to which that character is robust enough to continue and to be able to recuperate from loss or damage**. A landscape with a character of high sensitivity is one that, **once lost, would be difficult to restore**; a character that, if valued, **must be afforded particular care and consideration in order for it to survive**.'

Based on the following assumptions:

- 'certain attributes may play a more significant role than others in defining the character of that landscape'
- 'certain attributes may be more vulnerable to change than others'
- 'the degree to which different attributes are replaceable, or may be restored, may vary'
- 'condition of the landscape - the degree to which the described character of a particular landscape type is actually present 'on the ground' - will vary within a given area of that landscape type'.

John Benson et al. University of Newcastle. Landscape Capacity Study for Wind Energy Development in the Western Isles. Report commissioned by Scottish Natural Heritage for the Western Isles Alternative Renewable Energy Project. 2003

'**Landscape sensitivity**... a property of a thing that can be described and assessed. Landscapes which are highly sensitive are at risk of having their key characteristics fundamentally altered by development, leading to a change to a different landscape character i.e. one with a different set of key characteristics. **Sensitivity is assessed by considering the physical characteristics and the perceptual characteristics of landscapes in the light of particular forms of development**.'

Is it realistic to consider inherent sensitivity? Or **is sensitivity always to be judged in relation 'to a specific external pressure**?' Suggests that both are valid. Can imagine a 'sensitive person' so can also imagine a 'sensitive landscape'.... [This concept has been gradually undermined in the subsequent 20 years.]

There is greater agreement regarding definition of **Capacity**. '...concerned with the amount of change or pressure that can be accommodated.' Reflective of '**the limits of acceptable change'** and therefore '**quantitative'**.

Notes that the use of existing designations to judge value is overly simplistic and may be a retrograde step.

Landscape **sensitivity to a specific type of change**. 'should be defined in terms of the interactions between the landscape itself, the way that it is perceived, and the particular nature of the type of change or development in question.'

Notes that 'a map showing an assessment of wind turbine capacity… would almost certainly be different from a map showing capacity for housing development or for new woodland and forestry planting.'

'Some capacity studies are very specific in their purpose, seeking for example to assess capacity to accommodate a 1000 home settlement at a particular density of development.'

[This requirement to consider the detail of the proposed change – volumes, numbers, scales, etc – prefigures a key element of the suggested Historic England approach, the emphasis on understanding the effects of change.]

Needs 'clear and consistent thought about three factors', each of which contains significant sub-factors:

- The 'individual elements that contribute to character, their significance and their vulnerability to change;
- overall quality and condition of the landscape in terms of its intactness, representation of typical character and condition or state of repair of individual elements contributing to character;
- the aesthetic aspects of landscape character.'
    - 'for example the scale, level of enclosure, diversity, colour, form, line, pattern and texture of the landscape. All of these aesthetic dimensions of landscape character may have significance for judgements about sensitivity.' *[These may be regarded as objectively measurable aesthetics.]*
    - 'the perceptual aspects of landscape character, which are much more subjective and where responses to them will be more personal and coloured by the experience and the preferences of the individual. These are also important dimensions of character and influence the ability of landscapes to accommodate change but they are best dealt with as part of the consideration of value to be incorporated in the final step of assessing capacity.'

'Different methods have been used to judge landscape character sensitivity in recent work. Each has its merits and… there is also much common ground between them, and they are not therefore alternatives but rather different explorations of a similar approach.'

[This open approach mirrors that taken by Historic England in relation to the uses of historic landscape characterisation.]

Babtie Group and Mark Diacono. Assessing Traffic Impacts on the Countryside. Unpublished Report to the Countryside Agency. 2003

Uses National Landscape Character Types and Landscape Description Units (LDUs). Also attribute maps that underpin these to **assess whether attributes would be adversely affected**. Cultural included as settlement pattern, land cover, origins (planned or organic).

Mapped using GIS and combined to create 'overall sensitivity matrix'.

'Successful in highlighting areas of concern that could then be examined in more detail if required'.

Worcestershire County Council. Unpublished paper on a County Wide Assessment of Landscape Sensitivity. 2003.

and Herefordshire Council. Landscape Character Assessment. Supplementary Planning Guidance. 2002.

To support Structure Plans.

Again, worked at Landscape Description Unit (LDU) level. And 'individual landscape indicators and attributes'. Like 'ground vegetation, land use, field boundaries, tree cover character, tree cover pattern, enclosure pattern, settlement pattern, spatial character and additional characteristic features, such as parkland or rivers.'

Combine the following, using deskwork and fieldwork, **3-point numerical scores**, sequentially as follows, **applied to landscape types**:

> **Vulnerability** 'measure of the **significance of the attributes that define character, in relation to the likelihood of their loss or demise**. This combines assessment of the significance of an attribute with assessment of its functionality and of the likelihood of future change based on apparent trends.'
>
> **Tolerance**, 'the **degree to which change is likely to cause irreparable damage** to the essential components that contribute to landscape character. It is a measure of the impacts on character of the loss of attributes, reflecting the timescale needed for their contribution to character to be restored.'
>
> **Resilience**, '**combines tolerance with vulnerability** to change. It is a measure of the endurance of landscape character, representing the likelihood of change in relation to the degree to which the landscape is able to tolerate that change.'

Sensitivity, 'relates to the resilience of a particular area of landscape to its condition.'

Visual sensitivity

Includes consideration of the following:

- Probability of change being highly visible
- Numbers of people who would see the change
- Capacity for mitigation that in itself does not cause adverse effects.

Visual sensitivity tends to be in regard to a particular form of change.

Staffordshire County Council 1999. Planning for Landscape Change. Supplementary Planning Guidance to the Stoke on Trent and Staffordshire Structure Plan. 1996-2011

Uses LDUs. Addresses the quality of landscape character, i.e. 'condition and expression of typical character in specific areas'. Considers three aspects of character:

- Visual – spatial distribution, pattern and condition of landscape elements. Presence of characteristic features for the landscape type, absence of incongruous features, and visual and functional condition.
- Cultural – determined by the history of human activity, reflected in settlement, land use, field enclosure, communications patterns. Clear and consistent patterns and extent to which time depth is demonstrated.
- Ecological – the pattern and survival of typical semi-natural veg and fauna. Presence, frequency, degree of fragmentation and patterns o semi-natural habitats.

There is a 'strong relationship between the quality and sensitivity of the landscape.' An effect of disturbance can be the removal of characteristic landscape features.

Landscape sensitivity to a specific type of change

Requires integrated thinking about:

- The exact form and nature of the change that is proposed to take place.
- The particular aspects of the landscape likely to be affected by the change, including aspects of both landscape character sensitivity and visual sensitivity.

Like an Environmental Impact Assessment (EIA), 'except that it is generic rather than a project-specific form of change'.

'The focus must be on identifying key aspects of the change that are likely to affect the landscape.'

Requires careful analysis of 'impacts upon particular aspects of landscape character including landform, land cover, enclosure and settlement pattern; and impacts on

aesthetic aspects such as the scale, pattern, movement and complexity of the landscape.'

And requires mapping of the following four considerations:

- impacts upon particular aspects of landscape character including landform, land cover, enclosure and settlement pattern;
- impacts on aesthetic aspects such as the scale, pattern, movement and complexity of the landscape;
- potential visibility of the development and the number of people of different types who are likely to see it;
- scope to modify visual impacts by various appropriate forms of mitigation measures.

'Studies specifically of sensitivity to a particular type of development, without proceeding to an assessment of capacity, are not likely to be common.'

Output is usually a map displaying landscape sensitivity to a specific type of change, three or five categories (very low, low, medium, high, very high).

Land Use Consultants. South West Renewable Energy Strategy: Using Landscape Sensitivity to set Draft Targets for Wind Energy. Unpublished report to the Government Office for the South West. 2003.

Wind turbines and biomass planting.

Consider landscape attributes likely to be sensitive to accommodating wind turbines: 'Scale and form of the landscape, landscape pattern, settlement pattern and transport network relate to the elements and attributes giving character to the landscape; skylines and inter-visibility relate to the visual sensitivity of the landscape; sense of enclosure, sense of tranquillity and remoteness relate to perceptual aspects and value; while sensitive/rare landscape features relates to aspects of landscape value.'

Differs from those considered when thinking of biomass crops: 'landscape pattern, land cover/land use, sense of enclosure and settlement pattern/transport network.' 'For example, landscapes judged to be of low sensitivity to wind turbines are "likely to have strong landform, a strong sense of enclosure that reduces visual sensitivity, to be already affected by man made features, to have reduced tranquillity, little inter-visibility with adjacent landscapes and a low density of sensitive landscape features. Similarly, for biomass crops, areas of high sensitivity are defined as those where monocultures of biomass crops would prejudice landscape pattern, where transport infra structure is dominated by narrow rural lanes (or is absent), and where buildings are uncharacteristic of the landscape (e.g. moorland).'

> 'There is no explicit scoring or use of matrices but rather a common sense approach to combining the nature of the landscape with the nature of the development to derive sensitivity classes.'

Judging Landscape Capacity

Turn a sensitivity study into an assessment of capacity. Requires assessment of 'the more subjective, experiential or perceptual aspects of the landscape and of the value attached to the landscape. There are, perhaps inevitably, some reservations amongst practitioners about the incorporation of value in work on landscape sensitivity and capacity because this is seen as the return to the now largely discredited thinking about landscape evaluation. It cannot be denied, however, that society does value certain landscapes for a variety of different reasons and this has, in some way, to be reflected in decision making about capacity to accept change.' Need to consider what matters and why. Best if done in an integrated way, alongside consideration of biodiversity, cultural, access, social, economic and environmental benefits.

Note numerous communities of interest. Perceptions, associations, interests.

Capacity: 'the amount of change of a particular type that can be accommodated without having unacceptable adverse effects on the character of the landscape, or the way that it is perceived, and without compromising the values attached to it.'

'Must clearly recognise that a valued landscape, whether nationally designated or not, does not automatically, and by definition, have high sensitivity.
Similarly, landscapes with high sensitivity do not automatically have no, or low capacity to accommodate change, and landscapes of low sensitivity do not automatically have high capacity to accept change.

'Capacity is all a question of the interaction between the sensitivity of the landscape, the type and amount of change, and the way that the landscape is valued.'
'It is entirely possible for a valued landscape to be relatively insensitive to the particular type of development in question because of both the characteristics of the landscape itself and the nature of the development. It may also be the case that the reasons why value is attached to the landscape are not compromised by the particular form of change.'

When 'making judgements about capacity there can be considerable benefit in involving a wide range of stakeholders in the discussions since there is likely to be a strong political dimension to such judgements. On the other hand clear and transparent arguments are vital if decisions are to be well founded and this is where well constructed professional judgements about both sensitivity and capacity are extremely important.'

Recording and presenting information

Sensitivity and capacity assessments can be at several levels of detail. Depend on time and resource available, and the complexity of the change.

Even when short and sharp, the thinking needs to be clearly expressed, understandable by non-experts.

In-house assessments by LPAs can draw on close knowledge of areas and types.

'The **temptation to suggest objectivity in such professional judgements, by resorting to quantitative methods of recording them is generally to be avoided**. Nevertheless dealing with such a wide range of factors, as outlined in the paragraphs above, does usually require some sort of codification of the judgements that are made at each stage as well as a way of combining layers of judgements together to arrive at a final conclusion.'

First step: decide on **factors or criteria** to be used.

Then: **record all judgements clearly**, whether based on desk or field study.

Different aspects **judged on simple three or five-point scales**. Accumulate a 'profile'

Are these judgements or scores? Does it matter which?

Cumulative assessment

Staged combinations of individual assessments.

[Could be extended to include historical, ecological, etc]

- Sensitivity of ecological components + Sensitivity of cultural components = Landscape character sensitivity
- General visibility (related to land form and land cover) + Level and significance of populations = Visual sensitivity
- Landscape character sensitivity + Visual sensitivity = Overall landscape sensitivity
- Presence of designations + Overall assessment of value against criteria = Landscape value
- Overall landscape sensitivity + Landscape value = Landscape capacity.

Scoring

Judgements may be turned into numerical scores for ease of manipulation.

'If overemphasised as an end in itself rather than as a means to an end, **numerical representation may run the risk of generating adverse reactions because it suggests something other than professional judgement and can suggest a spurious scientific rigour in the process**. It was, after all, the overly quantitative nature of landscape evaluation in the 1970s that led to a move away from that approach.'

Debates and questions

- Is it reasonable to make assessments of overall landscape sensitivity without considering sensitivity to a specific type of change? In what circumstances will this approach work?

- To what extent should considerations of 'value' be taken into account in landscape capacity studies? This paper argues that they should be, provided that these considerations are clearly thought through and appropriately incorporated in the judgements that are made. Simply relying on designations is to be avoided as this is an oversimplification of complex issues but the issue remains of whether there is agreement about the way that value can be defined.
- How can transparency about the approach to making judgements be achieved without the explanations becoming unnecessarily complex and inaccessible?
- To what extent is quantification of assessments of sensitivity or capacity either necessary or desirable? Both quantification and consideration of value suffer from the spectre of the 1970s approaches to landscape evaluation which hangs over them. This needs to be recognised when deciding on and presenting an appropriate approach, in order to avoid unnecessary arguments about its suitability.

An Approach to Landscape Sensitivity Assessment – to inform spatial planning and land management, 2019
Natural England, drawing on the collected wisdom of a working group, all Chartered Members of the Landscape Institute (CMLI); coordinated and written by Christine Tudor.

Intended to present 'a pragmatic approach' and to replace Topic Paper 6 (2004). Covers:

- Variations in approaches.
- Terminologies.
- Compatibility with GLVIA.

Aim is straightforward: to ensure that landscape sensitivity assessment assists in 'informing judgements and decisions concerning the planning and management of change'. To 'inform good practice, generate further continued discussion and encourage methods, techniques and skills relating to Landscape sensitivity assessment, and related topics to evolve.'

'Landscape sensitivity assessment is a process that assesses the resilience / robustness of landscape character and the visual resource – and what we value - to a defined change, or changes.'

'Landscape sensitivity assessment, underpinned by Landscape Character Assessment, can transparently inform strategic thinking concerning the location of new development, such as housing, renewable energy, overhead transmission lines, forestry, transport infrastructure, and recreational infrastructure, etc.'

[The equivalent aim is using sensitivity assessment alongside historic characterisation for the same end.]

While more strategic assessment than GLVIA, 'the basic process of sensitivity assessment is similar'.

Distinguishes between Landscape Sensitivity and Landscape Susceptibility.

Landscape Sensitivity '...a term applied to landscape character and the associated visual resource, combining judgements of their susceptibility to the specific development type / development scenario or other change being considered together with the value(s) related to that landscape and visual resource. Landscape sensitivity may be regarded as a measure of the resilience, or robustness, of a landscape to withstand specified change arising from development types or land management practices, without undue negative effects on the landscape and visual baseline and their value.'

Landscape Susceptibility 'Within the context of spatial planning and land management, landscape susceptibility is the degree to which a defined landscape and its associated visual qualities and attributes might respond to the specific

development type / development scenario or other change without undue negative effects on landscape character and the visual resource.'

'Importantly, a sensitivity study will identify areas of relative sensitivity to particular development scenarios, and inform place based objectives and guidance and possibly decisions concerning environmental capacity - perhaps by way of what some might call a Landscape Capacity Assessment'

'Landscape sensitivity assessment should enable associated decision making to be sequential, transparent and auditable. A systematic and consistent approach can lend weight to the outcomes of the assessment.'

'The Marine Management Organisation is preparing a similar seascape sensitivity assessment approach for marine plan areas.'

The European Landscape Convention aims to promote landscape protection, management, and planning. Landscape sensitivity assessment is a flexible approach that can assist these aims, by informing decisions on where new development, and / or changes in land management, might be most appropriately directed / located from a landscape point of view.

LSA = Landscape sensitivity assessment. Can inform strategies, plans and policies and 'can be carried out across a broad area, or focus on defined areas of land or a series of sites or corridors - for example when assessing routes for linear infrastructure such as roads or pipelines.' Purpose will shape LSA's design and scale.

Audiences are those who may commission, carry out, interrogate and utilise a LSA.

LSA is carried out by 'Landscape Architects, or suitably qualified landscape professionals. However, some aspects of a landscape sensitivity assessment may be undertaken by non-professionals such as community groups, or other organisations, who may carry out work in their local area to inform neighbourhood plans for example.'

Two Principles for LSA:

As straightforward as possible. 'clear, concise, proportionate, and transparent…for the sake of consistency, use appropriate definitions associated with good practice.'

A flexible approach that can accommodate different situations.

- Scales
- Units (types, areas, sites, etc)
- Adapt to resource available
- Adapt to knowledge of the scenario.

There may be a range of scenarios associated with one development type (for example for housing, or renewable energy).

A 4-step process

STEP 1 – Define the Purpose and Scope of the Landscape sensitivity assessment and Prepare the Brief.

STEP 2 - Gather Information to Inform the Landscape sensitivity assessment (desk study and field study).

STEP 3 – Assess Landscape Sensitivity of the Assessment Units (desk study and field study).

STEP 4 – Reporting.

Step 1 Define purpose and scope

Purpose

- Will the Landscape sensitivity assessment inform the location of: housing site allocations for a local plan / neighbourhood plan; renewable energy technologies (wind farms, solar farms, tidal barrages, etc); transport infrastructure; commercial forestry; tourism development at the coast; electricity transmission infrastructure; or mobile masts etc?
- Is it intended that the study will go on to inform place based land use or landscape planning, design, and / or land management objectives or guidance, for example?
- How will the results / outcomes be used and by whom?
- How will the outputs be accessed (for example hard copy, GIS data layers, and / or website)?

Scope

- Emphasis? Several types of development or one particular? Different scenarios (different densities, heights, species of forestry etc)
- Extent?
- Scale? – high-level broad-brush or more detailed? Will affect grain of CA, NCA or LCA?
- Detail required? Might require a more detailed LCA to be carried out.
- Desired project outputs? Explanatory and descriptive text; maps, GIS, etc

Project Brief

- Influenced by resource, timescales, extant LCAs etc

Step 2 Gather information for LSA

Three inter-related elements

A. Describe development type and the attributes of scenarios.

B. Confirm assessment units and establish landscape and visual baseline (NCA to LCA). May need to undertake new LCA if none is available. [No mention of Landscape Description Units, but presumably also these, where they have been mapped.]

- Notes that not all aspects will be affected by all development types. These will be the Assessment Criteria. These include natural, cultural, aesthetic, condition, visual, distinctiveness, rarity, sense of place.

Selection of criteria for assessing Value.

'Assignments of value will be completely independent of what is being assessed (unlike judgments concerning landscape and visual susceptibility).'

Can draw on designations, character, sense of place, valued attributes (including historical and cultural features and associations), community values, recreational value, 'Intrinsic value'. [There is a footnote reference to *Conservation Principles*, but does not mention heritage values as such.]

Can use LCAs, Historic Area Assessments and 'public participatory GIS tools'. And ecosystem services and natural capital.

C. Identify indicators of Susceptibility

- Identify indicators of relative susceptibility for each of the Assessment Criteria.
- Consider how the 'landscape, visual and value related criteria' would be affected by the development type.

Step 3 Assess Landscape Sensitivity of the assessment units

Depending upon the size of assessment units, may consist of two related stages.

A. Assess the sensitivity of the criteria associated with each assessment unit (2B) against the key attributes of the development scenario(s) (2A) with reference to the indicators of relative susceptibility identified at 2C. Suggest a minimum of five points on the scale.

B. Using information from 3A assess and describe 'overall sensitivity of each assessment unit'.

Assessment should be informed by fieldwork. Look for relationships between assessment units. 'It should be recognised that lines on maps are typically in reality zones of transition – they very rarely represent a sudden change in character for example.'

Step 4 Reporting

Clearly structured and written in plain English. Provide a clearly reasoned narrative, 'explain conclusions and recommendations, and indicate how the information should inform future decision making'. May include:

- Methodology, and outputs of Steps leading to findings and recommendations.
- Maps, GIS data, associated descriptive explanatory text and other illustrative material. 'Sometimes **colour coded maps can be a blunt tool, the narrative is all important**. Areas may have places of greater or lesser sensitivity within them, and so explanations are important – limitations need to be acknowledged.'
- 'Concise descriptive text which serves to reduce dependence on tables that are often colour coded, and sometimes give the wrong impression that sensitivity assessment may be very precise (this potential problem may increase if the colours are transferred to maps, but caveats can be added).'
- 'Location, siting and design prompts to inform future decisions.'
- 'Opportunities for mitigation and possible mitigation strategies.'
- 'Any caveats regarding how the information provided should be used.'

Applications of LSA

- Inform strategic landscape planning decisions, by contributing to the identification of opportunities and constraints / other considerations.
- Inform policy objectives, and guidance.
- Inform landscape management objectives.

Draft Landscape Sensitivity Assessment Guidance, 2020
NatureScot

Scottish equivalent of Natural England 2019. Supersedes Topic Paper 6 in Scotland.

'This guidance follows the same principles and method stages as Natural England's "*An Approach to Landscape Sensitivity Assessment*". Some naming is different: in this guidance the Stage 2 title is "establish assessment parameters" instead of "*gather the information to inform the sensitivity assessment*"; and in Stage 3 it uses the term 'levels of sensitivity' instead of Natural England's '*indicators of susceptibility'*.

'The definitions used in this guidance are also based on the Natural England *Approach* and have been developed in correspondence with Natural Resources Wales which is due to produce guidance on this topic shortly.'

[Thus England, Wales and Scotland will share an approach to Landscape Sensitivity Assessment.]

'Landscape Sensitivity Assessments are strategic appraisals of the relative sensitivity of landscapes to development or land use changes. They are an important tool to help guide development to the best locations.'

'The scope for landscapes to accommodate new land uses and development without reducing some of the ecosystem services we benefit from varies from place to place. Locating the right development in the right place helps to minimise adverse landscape and visual effects and maximising these benefits.'

'Sensitivity studies are never a substitute for a site- and proposal - specific Landscape and Visual Impact Assessment (LVIA). These studies can inform strategic site selection for development, helping to steer it towards better locations and informing LVIA, but they should not be used to determine planning applications.'

'It is important to note that the publication of *Guidelines for Landscape and Visual Impact Assessment* (GLVIA3) in 2013 introduced a new definition of sensitivity:

Sensitivity = susceptibility (to change) + value (of landscape / visual resource)

'In the past, many "capacity" studies often dealt with susceptibility rather than capacity. Capacity is determined by the need for a target amount of development while sensitivity is not. Most studies should therefore be correctly referred to as sensitivity studies, unless such targets have been set at an appropriate scale.'

Principles of landscape. SNH and Historic Environment Scotland (2019) summarise the ELC approach to landscape through five principles:

'a. All landscapes – Every landscape is important because everyone has a right to live in and enjoy the benefits of vibrant surroundings.

b. Shared landscapes – Scotland's landscapes are a common asset and everyone has rights and responsibilities for looking after them.

c. Your landscapes – People and communities should always be involved in decisions that shape their landscapes.

d. Understanding landscapes – Decisions need to be based on understanding and awareness of both the cultural and natural dimensions of our landscapes.

e. Dynamic landscapes – Landscapes will continue to change, but change needs to be informed and managed to ensure they remain resilient.'

LCA is the starting point for LSA.

LSAs are 'a strategic evidence base for planning and land management policy'.

'They should never be used in isolation to determine the acceptability of a proposed development in landscape terms. They can inform plans, policies, guidance and strategies at a range of scales. Their indication of relative sensitivity can inform the site selection process and subsequent LVIA for individual proposals.'

'Landscape Sensitivity Assessment is not used to assess the likely landscape and visual effects of individual development proposals, though it can provide useful context, background or baseline information. LVIA must be used for this.'

APPENDIX 2: SUMMARY OF WORKSHOP

Substantial additions to the discussion document stimulated by the comments received in writing and from the project workshop are as follows:

Comments on underlying principles:

- It was agreed that sensitivity and capacity are specific to a particular form of change, not general, and not the same for all types of change.
- The concept of inherent sensitivity cannot be valid, 'as context and the nature of the impending change is crucial to understanding both the sensitivity of a landscape or asset, etc, and inseparable from questions of capacity'.
- The term 'sensitivity' may itself suggest the concern is principally to avoid change and the harm that comes with it, rather than to use the historic environment and landscape to guide the location, form and design of positive change: enabling and supporting change; emphasising the positive and the potential. The language employed will therefore need careful consideration: emphasising capacity in conjunction with sensitivity; potential and opportunity too.
- The workshop noted that parallel terms were employed in other related areas of assessment of change. For example, those addressing climate change risk assessment or work with change in the natural environment employ terms like hazards, risks, harm, exposure (in relation to vulnerability), adaptive capacity, susceptibility to change (which it was suggested may be inherent - susceptible to all types of change), and opportunity as well as capability. Here the historic landscape and environment work as vehicles for more holistic discussion about place and change, for example including heritage within Environmental or Biodiversity Net Gain.
- There is a need to ensure that the method is capable of being used in a way that enables understanding of the historic landscape and environment to guide the design of beneficial change, as well as in reactive ways that protect significant and valued places from inappropriate change, by:
    - Modelling capacity, potential and opportunity, in addition to sensitivity, risk and vulnerability.
    - Ensuring that wherever possible the tone of advice is positive and inclusive, rather than defensive and protectionist.
- This will help the heritage sector achieve fuller engagement of the historic landscape and environment in initiatives addressing climate change, the biodiversity crises and improving senses of place, identity and wellbeing.
- It was also noted that HLC and HSC will not only be deployed by the heritage sector, but also by those many others who have responsibility for management of landscape and seascape. Terminologies and language need

to be carefully composed to avoid creating unnecessary barriers to the use of the material.

Comments on applications, additional to those set out in the original draft:

- The workshop re-emphasised that sensitivity and capacity modelling would, as suggested here, reach far beyond the formal development planning processes, to include climate change and consequent huge strategic planning for coastlines, flood management, etc, some of which are delivered through planning, but others through other mechanisms.
- Tackling the Climate Change Emergency and biodiversity crises can also be fruitfully informed by our understanding of alternative approaches to change, including those that draw from past experience and those that recognise that the design of the future of places can be more actively linked to and inspired by inherited patterns and attributes.
- It does not matter if utilisation of HLC and HSC is regarded as a heritage interest or not so long as its ability to enable wider society to recognise and seize opportunities is embraced and used. With HLC and HSC and approaches like sensitivity and capacity modelling the historic environment sector is probably better equipped than most others to feed into the design of Nature Recovery Networks and the like, and for planning at scale for our landscape and environment.
    - Note the need to take care not to include the same arguments under both of the two separate themes in Environmental Statements: Landscape and Cultural Heritage.
- Such modelling and such characterisation would be very helpful for Historic England and its historic environment partners when dealing with Defra, the Environment Agency and other bodies responsible for assessing and taking the big landscape and environment decisions that are rapidly coming.
- It will help decision-makers appreciate the narrative in our historic landscape, so that environmental growth, nature recovery and biodiversity net gain can all draw on the stories embedded in HLC (and HSC).
- The application of sensitivity or capacity modelling to HLC and HSC would help all interested parties better understand an area's 'adaptive capacity', its ability to accommodate change, its resilience and its vulnerability.
- Some partners in other agencies and authorities still regard the historic environment and historic landscape as one that is largely defined by its designations. If a park is not Registered or a building or monument not Listed or Scheduled then for some it effectively does not exist.
- There is still work to be done on persuading partners that the historic landscape is as universal as geology, natural environment and landscape, and that deployment of the characterisations of historic landscape and seascape in conjunction with landscape characterisations and geology, soils

or national vegetation classification mappings enhances understanding and decision making.

Comments on how such an approach complements others:

- This will become another strand in the efforts to challenge or supplement the harm-based approach to much historic environment decision making.
- It was also noted that the parameters for statutory designation have limitations while local planning authorities and their historic environment advisers are time-pressed, under-resourced and in some ways ill-equipped; so, an approach like that suggested here should be considered.
- The historic landscape is often considered late in the process of planning, resulting in valid concerns often being addressed in a challenging way in catch-up situations. Deploying a method such as that suggested here early in the design of change would lead to collaboration and problem-tackling long before firefighting is needed to deal with outcomes that may have been predicted if such modelling of sensitivity and risks had been pursued earlier.
- It was noted that the historic environment sector is often misunderstood as being primarily concerned about the needs of the most significant assets rather than the whole historic environment, resulting in missed opportunities to engage with partners, especially those in the natural environment sector (and those dealing with environmental change on a huge scale, like climate change and land use strategies) where our understanding of potentialities for habitats (woodlands, wetlands, rough lands, re-wildings etc) should be of great value.
- It was emphasised that the tone and approach to using HLC and HSC and sensitivity and capacity assessment will always work better and be more readily accepted and adopted by our partners if it is presented as positively as it can be, rather than being only defensive and protectionist, guarding the historic landscape and historic environment rather than drawing inspiration from it and reinforcing valued patterns within it as we help society meet its urgent 21st century environmental needs. Careful consideration will be needed to reach an appropriate balance.

Practical considerations

- The workshop discussed the complexity of the effects of major changes, such as in the Oxford-Cambridge Arc, where it was felt to be too complex for a simple high-level approach to deal with.
    - It was suggested that this may best be tackled by breaking the development into major parts and assessing them in turn, overlaying the results with each other and also with the results of sensitivity assessments of the wider landscape and the natural environment.
- Scoring or grading the variables being considered enables useful discussion of each.

    - It also requires assessors to think hard, systematically, and constructively about the opportunities and benefits of change; representing another step in a recent culture change for those whose profession has largely involved protection against the negative effects of change.

- Given ever-changing and complex contexts for decision-making, a narrative approach may be the best to adopt for communications of conclusions (even when scoring or grading is used to gather together information and thinking).

Design of advice

- Ensure advice (or guidance) is simple and widely understandable, and is clear, concise, and authoritative.
    - The workshop felt that a fairly fixed method is preferred, so that agencies, local authorities and policies can confidently specify use of it.
    - This would be a form of national standard, or method, along the lines achieved by *Conservation Principles* in 2008. As applications of *Conservation Principles* have shown, this can still be employed flexibly as appropriate to many situations.
    - Without standardised methodological advice establishing an essential baseline for sensitivity assessments, 'they will not carry weight or authority in any (permitted or non-permitted) development context'.
    - Developing a national methodological approach is recommended. However, a degree of tailoring will be required for most applications; and exemplars of such adaptations for major zones and types of change would be useful.
- Definitions of terms need to be made both authoritative and understandable, and compatible with similar terms used by other actors, like natural environmentalists, planners and land and marine managers.
- The four stages need to be separated out from each other a bit more clearly.
- The scalability of this approach should be emphasised as it provides good opportunities to work at the very extensive scale required by environmental planning (climate change, land use regimes, etc) and so enables the historic environment sector to engage with a wide range of partners. We need therefore to clearly identify the hooks into their interests.
- There was support in the workshop for the use of *Conservation Principles'* Heritage Values rather than the narrower NPPF Heritage Interests, especially 'from a practitioner perspective' (Steven Orr, pers comm).
- It was noted that methods developed for terrestrial landscape can, in principle, also be applied at sea via HSC, but that these are generally

confined to areas above Mean Low Water and to the sea surface. For the water column, seafloor and sub-sea-floor the predominance of cognitive forms of perception over the sensory requires differing considerations for judging sensitivity and capacity (see 8.4, below).

- Given the support from the workshop for a positive, opportunity-led approach, rather than a purely protectionist one, it was felt that there would be value in essaying a number of pilots based on opportunity modelling, looking at an area and considering positive possibilities. The various previous exercises have tended towards the protectionist because they were responding to large-scale threats of one kind or another.

The related need to ensure that Historic Characterisations are fit for purpose:

- Requiring the HLC or HSC to be fit for purpose involves reviewing its structure and metadata before undertaking any capacity or sensitivity exercise and by updating when appropriate and feasible.
- Previous exercises in 'deepening' HLCs as parts of the process of assessing the effects of change on the historic landscape may provide models for aspects of how this may be undertaken.
    - In Cornwall portions of the HLC have been recast to make it work better for assessments of the potential for rough ground management in west Cornwall and on the northern Atlantic coast; for guiding land use change intended to secure higher water quality in the catchment of the Lynher River; for guiding use of the Anciently Enclosed Land type when responding to planning applications that involve breaking the ground where vulnerable archaeological remains may be anticipated; and in urban areas to guide regeneration opportunities.
    - Historic England were involved in deepening HLC and HSC in several places where they had a direct interest: the Hoo Peninsula in Kent, and the Weston-Super-Mare and Ramsgate Heritage Action Zones.
- It should be anticipated that the resources required for such deepenings and improvements in quality and metadata would be provided by the proposer and funder of the change, the developer, including the government when it involves area-wide infrastructure projects.
    - It will be in the interest of the developer or proposer of change to ensure that all data and all methods are sound. Therefore, it should be for them to prepare the material so that it is of the highest standard and to ensure the process employed is as thorough and careful as required.
- Thorough and wide-ranging reviews of the strengths, weaknesses and potential of HLC, HSC and EUS, and other forms of historic characterisation would be timely, to ensure that the best use is being made of comprehensive, country-wide material that has been developed at significant expense. A

review of *Using HLC* is 'In the Pipeline' of Historic England guidance / advice.

- This will ensure that applications of HLC and HSC through processes like sensitivity and capacity modelling will drive improvement of the characterisation, increase its authority and then increase its use.
- The workshop reiterated the difficulties that the variability between HLCs throw up when more than one is being applied at any one time, as in the Oxford-Cambridge Arc. It is acknowledged that the issue of inconsistency between local authorities applies to HERs and other heritage material as well, but the inconsistency between HLCs can encourage some not to engage with it at all when working across counties. It was noted that the exercise undertaken to create a National HLC addressed this problem and developed a method (including using a concordance of HLC Types) that demonstrated that it is not an insuperable issue.

Undertaking such reviews of historic characterisation approaches here may be unnecessary, beyond pointing out relevant strengths and weaknesses. Otherwise, the clarity of the advice on sensitivity and capacity modelling may be lost amid qualifications regarding the source material.

APPENDIX 3: GLOSSARY

Definitions and discussions of terms

The historic environment sector in the UK has focussed most of its attention on the heritage asset, site and building, and on expert-led assessment of the asset's significance and importance. Strategic modelling of heritage sensitivities and capacities within the whole seamless historic landscape can require use of different concepts and terminologies. This glossary is organised thematically rather than alphabetically, so that there is a read-through in each of these subsections.

Where possible, definitions have been drawn verbatim from cited authorities. A consequence is that there are inconsistencies of style, and occasionally differences in emphasis. But these are useful for demonstrating the diversity and the contestation encountered when working in the holistic and inclusive ways required to bring heritage and the historic landscape and environment into strategic discussions about places and change.

FORMS

Heritage
Cultural heritage
Historic environment
Heritage asset
Tangible heritage
Intangible heritage
Natural heritage
Fabric
Character
Perception
Landscape
Land
Landform
Land use
Land cover
Townscape
Seascape
Place
Setting
Time depth
Historic Landscape Character Type
Historic Landscape Character Area
Landscape Character Type
Landscape Character Area
Landscape Description Unit
Natural Capital
Culture and Heritage Capital

PROPERTIES

Historic

Historical
Sensitivity
Capacity
Vulnerability
Robustness
Susceptibility
Capability
Opportunity
Sustainable
Significance
Value
Interest
Special qualities
Authenticity
Distinctiveness
Integrity
Context
Scale
Services
Ecosystem Services
Cultural services

CHANGE

Change
Change scenario
Development
Natural change
Impacts
Effects
Receptors
Stakeholders
Wellbeing
Welfare
Public welfare
Harm
Landscape management

TECHNIQUES, TOOLS & APPROACHES

Heritage sector
Historic England
Historic Environment Record (including Heritage Gateway) (HER)
Know Your Place
Characterisation
Historic landscape characterisation (HLC)
Historic seascape characterisation (HSC)
Urban characterisation
Assessment framework
Landscape Character Assessment (LCA)
Attribute

Polygon
Recording
Interpretation
Assessment
Understanding
Historic Area Assessment (HAA)
Heritage Impact Assessment (HIA)
Landscape and Visual Impact Assessment (LVIA)
Environmental Statement
Environmental Impact Assessment (EIA)
Strategic Environmental Assessment (SEA)
Conservation
Sustainable development
Conservation Principles
Constructive Conservation
Design
Designation
Conservation Area
Registered Parks and Gardens
Registered Battlefields
World Heritage Sites
Scheduled Monuments
Areas of Archaeological Importance
Setting
Landscape strategy
Landscape planning
Landscape policy
National Planning Policy Framework (NPPF)
National Policy Statement (NPS)
Development Plan
Local plan
Neighbourhood Development Plan (NDP)
Enabling development
Geographical Information System (GIS)

FORMS

Heritage

'All inherited resources which people value for reasons beyond mere utility' (English Heritage 2008a).

'Heritage is a broad concept and includes the natural as well as the cultural environment. It encompasses landscapes, historic places, sites and built environments, as well as biodiversity, collections, past and continuing cultural practices, knowledge and living experiences. It records and expresses the long processes of historic development, forming the essence of diverse national, regional, indigenous and local identities and is an integral part of modern life. It is a social dynamic reference point and positive instrument for growth and change. The particular heritage and collective memory of each locality or community is irreplaceable and an important foundation for development, both now and into the future' (ICOMOS 2002).

'Heritage is everywhere. It is in the buildings, structures and open spaces that surround us. It is in the ground beneath us and in the wide-open spaces of our countryside' (Historic England 2021 *Wellbeing and Heritage Strategy*).

Cultural heritage

'Cultural heritage can include buildings and structures, monuments, parks and gardens, battlefields, townscapes, landscapes, seascapes archaeological sites, myths, festivals and traditions, whether intangible, visible, buried or submerged' (IEMA 2021, 5).

'Cultural heritage is the legacy of physical artefacts and intangible attributes of a group or society that are inherited from past generations, maintained in the present and bestowed for the benefit of future generations' (UNESCO, cited in IEMA 2021, 5).

Historic Environment

'All aspects of the environment resulting from the interaction between people and places through time, including all surviving physical remains of past human activity, whether visible, buried or submerged, and landscaped and planted or managed flora' (MHCLG 2021, Glossary).

Heritage asset

'A building, monument, site, place, area or landscape identified as having a degree of significance meriting consideration in planning decisions, because of its heritage interest. It includes designated heritage assets and assets identified by the local planning authority (including local listing)' (MHCLG 2019, Glossary).

Tangible heritage

'"Tangible Cultural Heritage" refers to physical artefacts produced, maintained and transmitted intergenerationally in a society. It includes artistic creations, built heritage such as buildings and monuments, and other physical or tangible products

of human creativity that are invested with cultural significance in a society' (RICHES 2014).

Intangible heritage

'... includes traditions or living expressions inherited from our ancestors and passed on to our descendants, such as oral traditions, performing arts, social practices, rituals, festive events, knowledge and practices concerning nature and the universe, or the knowledge and skills to produce traditional crafts.'

'The "intangible cultural heritage" means the practices, representations, expressions, knowledge, skills – as well as the instruments, objects, artefacts and cultural spaces associated therewith – that communities, groups and, in some cases, individuals recognize as part of their cultural heritage. This intangible cultural heritage, transmitted from generation to generation, is constantly recreated by communities and groups in response to their environment, their interaction with nature and their history, and provides them with a sense of identity and continuity, thus promoting respect for cultural diversity and human creativity.'

'Although intangible cultural heritage often has tangible objects, artefacts or places associated with it, it is also something different from tangible heritage, as for example the "properties forming part of the cultural and natural heritage" that are listed on the World Heritage List. Because intangible heritage is constantly recreated, the concept of "authenticity" applied to World Heritage properties cannot be used for intangible cultural heritage. The strategies for safeguarding tangible heritage cannot be transferred mechanically to the effort to safeguard intangible cultural heritage, which often requires quite different approaches and methods. Nevertheless, there is the possibility of adopting integrated approaches to safeguarding the tangible and intangible heritage of communities and groups in ways that are "consistent and mutually beneficial and reinforcing", as the 2004 Yamato Declaration states' (UNESCO 2003).

Natural heritage

'Inherited habitats, species, ecosystems, geology and landforms, including those in and under water, to which people attach value' (English Heritage 2008a, 71).

'Natural heritage refers to natural features, geological and physiographical formations and delineated areas that constitute the habitat of threatened species of animals and plants and natural sites of value from the point of view of science, conservation or natural beauty' (UNESCO, Sustainable Development Goals).

Fabric

'The material substance of which places are formed, including geology, archaeological deposits, structures and buildings, and flora' (English Heritage 2008a, 71).

Character

'Landscape character. A distinct, recognisable and consistent pattern of elements in the landscape that makes one landscape different from another, rather than better or worse' (Natural England 2019, Glossary).

Perception
'Combines the sensory (that we receive through our senses) with the cognitive (our knowledge and understanding gained from many sources and experiences)' (GLVIA 3, 158).

Landscape
'An area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors' (Council of Europe 2000, European Landscape Convention).

'"Landscape", following the European Landscape Convention's definition (Council of Europe 2000, and see above), is an area in which people play two inter-related and inseparable formative roles, as creators (in combination with natural processes and affordances) – as settlers, workers, designers, etc – and as perceivers, recognising and considering an area's qualities and meanings. See Fairclough *et al* 2018 for discussion of the variety of meanings people ascribe to landscape and the variety of approaches to understanding and managing it' (Herring *et al* 2021).

'Landscape does not only refer to a complex phenomenon that can be described and analysed using objective scientific methods. It also refers to a subjective observation and experience and thus has a perceptive, aesthetical and artistic meaning as well' (Antrop 2000, para 23).

Landscape can be 'a way of seeing, thinking and acting' as well as a subject of study (Fairclough 2013).

For a thorough examination of definitions of landscape, and approaches to its study and understanding see John Wylie's Routledge volume *Landscape* (2007). Wylie includes the following definitions:

- 'Landscape is tension' (Wylie 2007, 1)
- Or '...the world we live in, a constantly emergent perceptual and material milieu' (ibid, 2)
- Or 'a set of visual strategies and devices for distancing and observing' (ibid, 2).

Land
'In our modern civilisation, land is property; in many cases even private property. The owner decides more or less freely its use and shaping. The value of the land, the ground price, is an important factor in that decision making. It reflects the (potential) productivity and usefulness of a piece of land, which also depends upon its geographical situation' (Antrop 2000, para 34).

Landform
'The shape and form of the land surface which has resulted from combinations of geology, geomorphology, slope, elevation and physical processes' (GLVIA 3, 157).

Land use
'What land is used for, based on broad categories of functional land cover such as urban and industrial use and the different types of agriculture and forestry' (GLVIA 3, 157).

Land cover
'The surface cover of the land, usually expressed in terms of vegetation cover or lack of it. Related to but not the same as land use' (GLVIA 3, 157).

Townscape
The character and composition of the built environment including the buildings, the relationships between them, the different types of urban open spaces, including greenspaces, and the relationship between buildings and open spaces (GLVIA 3, 158).

Seascape
'A subset of 'landscape', as defined and understood by the European Landscape Convention, where perceived areas include marine areas, inter-tidal areas and/or land areas whose landscape perceptions have a distinctively coastal, marine or maritime character' (Hooley forthcoming).

Place
'Any part of the historic environment, of any scale, that has a distinctive identity perceived by people' (English Heritage 2008a, 72).

'Heritage as Place: reclaiming a sense of place is seen as a potential solution to social isolation, sustainability and environmental degradation. There has been a wealth of research on 'sense of place' (see Heritage Counts for aspects of this) and specific studies that articulate the character of place to the feelings of its inhabitants (for example, 20 Years in 12 Places). Does the historic character of a place have the potential to support newfound expressions of community, and shape an existing sense of belonging into a shared experience?' (Reilly et al 2018).

Setting
'The surroundings in which a place is experienced, its local context, embracing present and past relationships to the adjacent landscape' (English Heritage 2008a, 72).

'The surroundings in which a heritage asset is experienced. Its extent is not fixed and may change as the asset and its surroundings evolve. Elements of a setting may make a positive or negative contribution to the significance of an asset, may affect the ability to appreciate that significance or may be neutral' (MHCLG 2021, Glossary).

'The setting of a heritage structure, site or area is defined as the immediate and extended environment that is part of, or contributes to, its significance and distinctive character. Beyond the physical and visual aspects, the setting includes interaction with the natural environment; past or present social or spiritual practices, customs, traditional knowledge, use or activities and other forms of

intangible cultural heritage aspects that created and form the space as well as the current and dynamic cultural, social and economic context' (ICOMOS 2005).

Time depth

'Historical layering - the idea of landscape as a 'palimpsest', a much written over manuscript' (GLVIA 3, 158).

Historic Landscape Character Type

'These characterise units of land-use by their form, function and period of origin' (Fairclough and Macinnes 2002, 3).

In a historic landscape characterisation, 'each polygon is assigned to a Broad Type, a high-level categorisation of the historic landscape and a narrower HLC Type, a subdivision of the Broad Type, and usually a sub-Type. HLC Types used across England have been gathered [by Historic England] into a Historic Characterisation Thesaurus and new HLCs typically draw their types from this. Broad Types are known in the thesaurus as Classes' (Historic England Historic Landscape Characterisation web-page).

'Perhaps the most significant difference in expression of HLC Types and HLC Areas (below) is that HLC Types are recurrent areas sharing similar form, function and period of origin, while HLC Areas are uniquely distinct areas in their combinations of HLC Types' (Dave Hooley, pers comm).

Historic Landscape Character Area

Some, but not all, historic landscape characterisation projects have divided their area into individual HLC Areas, usually named. Unlike Landscape Character Areas (qv), these usually contain a variety of types.

Historic Environment Character Area

Discrete areas, usually given individual names, delineated on the basis of a combination of historic landscape character (using HLC), archaeological character (using HERs) and urban or built environment character (usually using designations if no urban characterisation is available). A method that has been largely confined to the south-eastern quarter of England (e.g. Essex CC 2007).

Landscape Character Type

'These are distinct types of landscape that are relatively homogeneous in character. They are generic in nature in that they may occur in different areas in different parts of the country, but wherever they occur they share broadly similar combinations of geology, topography, drainage patterns, vegetation, and historical land use and settlement pattern, and perceptual and aesthetic attributes' (GLVIA 3, 157).

Landscape Character Area

'These are single unique areas which are the discrete geographical areas of a particular landscape type' (GLVIA 3, 157).

Landscape Description Unit

'...a representation of a Landscape [Character] Type in a specific location. These are the basic building blocks of the landscape and are defined by a combination of six key characteristics relating to geology, topography, soils, tree cover character, land use and historic settlement pattern' (Worcestershire County Council cited in Swanwick 2004). Note that not all parts of England have had LDUs identified.

Natural Capital

'The world's stocks of natural assets which include geology, soil, air, water and all living things. It is from this natural capital that humans derive a wide range of services, often called ecosystem services, which make human life possible' (World Forum on Natural Capital).

'The configuration of environmental resources and ecological processes that contribute to human welfare' (Fluck and Holyoak 2017).

Culture and Heritage Capital

'Historic places provide both a stock of heritage assets which can be preserved for future generations, and a flow of benefits to the people and places around them' (Simetrica-Jacobs 2021).

'At present there is no agreed method for valuing the flow of services that culture and heritage assets provide to the people and businesses that engage with them. This means these types of services are implicitly valued at zero, potentially leading to sub-optimal decisions around investments and maintenance.'

'DCMS, together with its arm's length bodies and stakeholders, will develop a formal approach for valuing culture and heritage called the culture and heritage capital approach, to address this gap in the evidence base' (Sagger et al 2021).
In cultural economics, cultural capital is defined as 'an asset which embodies, stores or gives rise to cultural value in addition to whatever economic value it may possess' (Sagger et al 2021).

'The principles of the culture and heritage capital approach are not just for policymakers and the public sector. Many businesses need to make decisions about their own culture and heritage assets or perhaps make decisions that affect culture and heritage capital in the local area. These relationships can be complex and not always obvious. A culture and heritage capital approach can help to analyse what is at stake and translate this into relevant information for decision making' (Sagger et al 2021).

PROPERTIES

Historic
Strictly ought to be confined to those events, places or structures that have some importance in history, but as judgements on importance differ it has been used in the heritage sector as a synonym for historical (below), for example in Historic Landscape Characterisation, Historic Environment Record, and Historic England.

Historical
Of, concerning or characteristic of history or past events; according to history; authentic.

Sensitivity
The definition settled on in this document: 'sensitivity reflects the vulnerability, robustness and potentiality of the historic landscape and seascape in relation to the effects of a specified form of change.'

'Sensitivity is a measure of the ability of a landscape to accommodate change arising from specified development types or land management scenarios without undue negative effects on landscapes and their value' (NatureScot 2020)

'A term applied to specific receptors, combining judgments of the susceptibility of the receptor to the specific type of change or development proposed and the value related to that receptor' (GLVIA 3, 158).

'Within the context of spatial planning and land management, landscape sensitivity is a term applied to landscape character and the associated visual resource, combining judgements of their susceptibility to the specific development type / development scenario or other change being considered together with the value(s) related to that landscape and visual resource. Landscape sensitivity may be regarded as a measure of the resilience, or robustness, of a landscape to withstand specified change arising from development types or land management practices, without undue negative effects on the landscape and visual baseline and their value' (Natural England 2019, 26).

Overall sensitivity, is a 'term applied when landscape sensitivity reporting is generalised across the assessment unit (even though it must be accepted that such sensitivity to particular developments is likely to vary within the assessment unit)' (Natural England 2019, 26).

'Landscape sensitivity is a measure of the ability of a landscape to accommodate change arising from specified development types or land management scenarios without undue negative effects on landscapes and their value. Sensitivity assessments or studies provide an indication of this in a manner which is robust, repeatable and capable of standing up to scrutiny. The findings are strategic and indicative in contrast to site- and project-specific Landscape and Visual Impact Assessment (LVIA)' (NatScot 2020, 3, 5).

Sensitivity can be assessed as a combination of vulnerability to the effects of a form of change combined with the receptor's significance or value. So, it has been defined as 'the degree to which a particular key environmental characteristic of an [area] is vulnerable to harm and/or change with potentially adverse effects upon its character' (Capita Symonds and OAN 2012).

Capacity

How much?

'Landscape capacity refers to the amount of specified development or change which a particular landscape and the associated visual resource is able to accommodate without undue negative effects on its character and qualities' (Natural England 2019, 25).

'The amount of change of a particular type that can be accommodated without having unacceptable adverse effects on the character of the landscape, or the way that it is perceived, and without compromising the values attached to it' (Swanwick 2004).

'There is a greater degree of agreement about definitions of capacity with broad acceptance that it is concerned with the amount of change or pressure that can be accommodated. There is therefore a quantitative dimension to it and it needs to reflect the idea of the limits to acceptable change. The main debate here is about whether aspects of landscape value should or should not be incorporated into considerations of capacity. In general there appears to be some acceptance that it should, although some argue that this is a retrograde step and could lead to an over reliance on existing designations, which is widely recognised as an overly simplistic approach. There is also some disagreement about where visual aspects should be considered, whether as a component of landscape sensitivity, or wholly as a contributor to landscape capacity, or both' (Countryside Agency and Scottish Natural Heritage 2002, 3).

In the particular application to historic landscape, capacity has been defined as 'a consideration of the sensitivity information and judgement about the relative value of each key environmental characteristic, to guide minerals development to less sensitive or vulnerable areas. This judgement will be an interpretation of the significance of the key environmental characteristics; a subjective opinion, based upon professional, specialist synthesis and interpretation of relative importance' (Capita Symonds and OAN 2012).

Vulnerability

The extent to which valued qualities of a place, or type of place, are placed at risk by the expected effects of a type of change.

Robustness

The degree to which an attribute is damageable, replicable, repairable or replaceable, and over what timescale it might recover (Hampshire LCA 2006).

NB Robustness can be increased and vulnerability decreased if a designated place receives protection through policy or legislation.

Susceptibility

'The ability of a defined landscape or visual receptor to accommodate the specific proposed development without undue negative consequences' (GLVIA 3, 158).

'Within the context of spatial planning and land management, landscape susceptibility is the degree to which a defined landscape and its associated visual qualities and attributes might respond to the specific development type / development scenario or other change without undue negative effects on landscape character and the visual resource' (Natural England 2019, 26 – actually derived from GLVIA 3).

Capability

The quality or state of being capable, or capable of being used or developed. Similar to susceptibility, but rather more positive.

Opportunity

A favourable combination of circumstances that make it possible and beneficial to do something.

Opportunity mapping has been mainly applied to the creation or extension of habitats, especially woodland. It appears to be used less often for forms of development, presumably because these are generally regarded as detrimental to the character and significance of the pre-existing place.

Sustainable

'Capable of meeting present needs without compromising ability to meet future needs' (EH 2008a, 72).

Significance

'The sum of the cultural and natural heritage values of a place, often set out in a statement of significance' (EH 2008a, 72).

'The value of a heritage asset to this and future generations because of its heritage interest. The interest may be archaeological, architectural, artistic or historic. Significance derives not only from a heritage asset's physical presence, but also from its setting. For World Heritage Sites, the cultural value described within each site's Statement of Outstanding Universal Value forms part of its significance' (MHCLG 2021, Glossary).

'Being able to properly assess the nature, extent and importance of the significance of a heritage asset, and the contribution of its setting, is very important to understanding the potential impact and acceptability of development proposals' (PPG Historic Environment, para 007).

'Understanding the significance of a heritage asset and its setting from an early stage in the design process can help to inform the development of proposals which

avoid or minimise harm. Analysis of relevant information can generate a clear understanding of the affected asset, the heritage interests represented in it, and their relative importance' (PPG Historic Environment, para 008).

Value

'An aspect of worth or importance, here attached by people to qualities of places' (EH 2008a, 72).

> Heritage Value: 'An aspect of the worth or importance attached by people to qualities of places, categorised as aesthetic, evidential, communal or historical value' (EH 2008a).
>
> Aesthetic Value: 'Value deriving from the ways in which people draw sensory and intellectual stimulation from a place' (EH 2008a, 72).
>
> Community Value 'Value deriving from the meanings of a place for the people who relate to it, or for whom it figures in their collective experience or memory' (EH 2008a, 71).
>
> Evidential Value 'Value deriving from the potential of a place to yield evidence about past human activity' (EH 2008a, 71).
>
> Historical Value 'Value deriving from the ways in which past people, events and aspects of life can be connected through a place to the present' (EH 2008a, 72).
>
> 'Direct use value refers to the benefits provided by an asset that are used directly by individuals for example, from visiting a gallery' (Sagger et al 2021).
>
> 'Indirect use value refers to the benefits derived from ecosystem services [which include cultural services] that are 'used indirectly by an economic agent' (Sagger et al 2021).
>
> 'Option value refers to the value placed by individuals on having the option to use a resource in the future' (Sagger et al 2021).
>
> 'Use value is the value derived from using or having the potential to use a resource. This is the net sum of direct use values, indirect use values and option values' (Sagger et al 2021).
>
> 'Landscape value is the relative value attached to different landscapes by society. They may be valued by a variety of stakeholders for a range of reasons such as recreation or historic interest' (NatScot 2020, 5).

Interest

'The National Planning Policy Framework definition further states that in the planning context heritage interest may be archaeological, architectural, artistic or historic' (PPG Historic Environment, para 006).

> Archaeological Interest 'There will be archaeological interest in a heritage asset if it holds, or potentially holds, evidence of past human activity worthy of expert investigation at some point' (MHCLG 2021, Glossary). [A narrower, asset rather than place-based form of Evidential Value.]

Architectural and Artistic Interest 'These are interests in the design and general aesthetics of a place. They can arise from conscious design or fortuitously from the way the heritage asset has evolved. More specifically, architectural interest is an interest in the art or science of the design, construction, craftsmanship and decoration of buildings and structures of all types. Artistic interest is an interest in other human creative skill, like sculpture' (PPG Historic Environment, para 006). [A narrower form of Aesthetic Value.]

Historic Interest 'To be of special historic interest a building must illustrate important aspects of the nation's social, economic, cultural, or military history and/or have close historical associations with nationally important people. There should normally be some quality of interest in the physical fabric of the building itself to justify the statutory protection afforded by listing' (DCMS 2010, 4). [A narrower form of Historical Value.]

Historic Interest 'An interest in past lives and events (including pre-historic). Heritage assets can illustrate or be associated with them. Heritage assets with historic interest not only provide a material record of our nation's history, but can also provide meaning for communities derived from their collective experience of a place and can symbolise wider values such as faith and cultural identity' (PPG Historic Environment, para 006)

Special qualities

'A term often used in relation to National Parks and Areas of Outstanding Natural Beauty taken to mean qualities relating to wildlife and cultural heritage, in addition to qualities relating to natural beauty. Usually defined in the management plan for the area' (Natural England 2019, 26).

Authenticity

'Knowledge and understanding... in relation to original and subsequent characteristics of the cultural heritage, and the basis for assessing all aspects of authenticity' (ICOMOS 1994 – The Nara Document on Authenticity).

Distinctiveness

'Key characteristics. Those combinations of elements which are particularly important to the current character of the landscape and help to give an area its particularly distinctive sense of place' (GLVIA 3, 156-157).

In a project studying distinctiveness in Cornwall, part funded by Historic England, two forms of distinctiveness were identified: those types or qualities that are Particular to an area, and those that are Typical of an area (Cornwall Council 2019).

Integrity

'Wholeness, honesty' (EH 2008a, 71).

Context

'Any relationship between a place and other places, relevant to the values of that place' (EH 2008a).

Scale
Aspects of historic landscape become more (or less) relevant at different scales of analysis. 'A landscape may appear to be heterogeneous at one scale but quite homogeneous at another scale' (Meentemeyer and Box 1987).

As landscape is a matter of perception, and operates at many levels (national, regional, county, local, inter-site, intra-site), there is no such thing as 'landscape-scale'. 'Instead, landscape helps to unlock scale, to link different scales of data, and to study activities that have taken place at a variety of scales. Scale is a major issue for landscape research, but landscape itself is not a scale' (Fairclough 2013).

Services
Systems providing public needs.

Ecosystem Services
'The benefits provided by ecosystems that contribute to making human life both possible and worth living. The Millennium Ecosystem Assessment grouped ecosystem services into four broad categories:

- Supporting services, such as nutrient cycling, oxygen production and soil formation. These underpin the provision of the other 'service' categories.

- Provisioning services, such as food, fibre, fuel and water.

- Regulating services, such as climate regulation, water purification and flood protection.

- Cultural services, such as education, recreation, and aesthetic value' (GLVIA 3, 155-156).

Cultural services
'Goods and services produced by culture and heritage assets provide benefits to people, for example improving wellbeing, and create spillovers to the wider population such as a more productive workforce' (Sagger et al 2021).

CHANGE

Change
'As the needs and the values change, landscape becomes a dynamic phenomenon that is in continuous transition' (Antrop 2000, para 28).

Change scenario
The form of change whose predictable effects are being assessed.

Development
The term Development is insufficiently precise for a change-scenario approach to sensitivity or capacity: 'the carrying out of building, engineering, mining or other operations in, on, over or under land, or the making of any material change in the use of any buildings or other land' (Section 55(1) Town and Country Planning Act 1990).

The established historic environment sector approaches to assessing, location, form and design of particular developments are followed further down the planning line from scenario and capacity assessment.

'Any proposal that results in a change to the landscape and/or visual environment' (GLVIA 3, 155).

Natural change
'Change which takes place in the historic environment without human intervention, which may require specific management responses (particularly maintenance or periodic renewal) in order to sustain the significance of a place' (EH 2008a, 71).

Impacts
The narrow range of effects that are primarily negative; the established pool of issues that heritage impact assessments address.

In Landscape and Visual Impact Assessment, the term 'impact' is confined to 'the action being taken' and 'effect' to 'the change resulting from that action' (GLVIA 3, 9).

Effects
The fuller range of negative and positive changes, temporary and more permanent, that can be expected to result from the change scenario.

It is recognised that effects can be positive and beneficial as well as negative or adverse, can be indirect as well as direct, and short-term as well as long-term. And they can be cumulative (GLVIA 3, 9).

'Direct effect. An effect that is directly attributable to the proposed development' (GLVIA 3, 155).

'Indirect effects. Effects that result indirectly from the proposed project, as a consequence of the direct effects, often occurring away from the site, or as a result of

a sequence of interrelationships or as a result of a complex pathway. They may be separated in distance or in time from the source of the effects' (GVLIA 3, 156).

Receptors

'Defined aspects of the landscape resource that have the potential to be affected by a proposal' (GLVIA 3, 157).

Stakeholders

'The whole constituency of individuals and groups who have an interest in a subject or place' (GLVIA 3, 158).

Wellbeing

'The state of being comfortable, healthy, or happy' (OED).

'Wellbeing is politically and conceptually linked with health inequality and social cohesion as a long-term government priority. This focus on wellbeing reflects a shift away from an exclusively economic valuation model based on Gross Domestic Product to one that shows that physical and mental wellbeing have a significant impact on life quality (Reilly et al 2018).

'The beneficial link between nature and wellbeing has been extensively researched and some findings can be usefully applied to the historic environment, however more research is needed to understand which historic characteristics of a place (building or landscape) best promote wellbeing' (Reilly et al 2018).

Welfare

The health, happiness, fortunes and comfort of a person or group.

Public welfare

'HMT's Green Book follows a welfare approach, which means the goal of public policy is to increase public welfare.'

'The Green Book provides theoretical foundations for particular instruments of public economics, including the concepts of market failure and Social Cost–Benefit Analysis (SCBA). This welfare approach should then value all benefits and costs, not just financial benefits such as jobs and other standard measures of economic output such as GDP. In fact, GDP is an incomplete measure of public welfare and value added as it does not take into account assets and services that do not have market prices. Therefore, undertaking SCBA ensures the benefits of interventions outweigh the costs and the preferred policy option will deliver value for money and maximise public welfare relative to other options' (Sagger et al 2021).

Examples of instances when SCBA would inform decisions include the following questions:

- 'Should we create a new asset, for example the building of a theatre?
- Should we change the way we maintain or conserve an asset?
- What interventions or policies should we use to protect culture and heritage assets and their services?' (Sagger et al 2021).

Harm

'Change for the worse, here primarily referring to the effect of inappropriate interventions on the heritage values of a place' (EH 2008a, 71).

Landscape management

'...action, from a perspective of sustainable development, to ensure the regular upkeep of a landscape, so as to guide and harmonise changes which are brought about by social, economic and environmental processes' (European Landscape Convention, Article 1).

Heritage sector
Those organisations and individuals employed or engaged in museums, historic buildings, archives, archaeology, education, events, and conservation.

Historic England
Officially the Historic Buildings and Monuments Commission for England, an executive non-departmental public body sponsored by the Department for Digital, Culture, Media and Sport. The public body that looks after *England's historic* environment. It champions *historic* places to help people understand, value and care for them.

Historic Environment Record (including Heritage Gateway)
Comprehensive and dynamic resource, regularly updated, relating to the archaeology and historic environment (including built) of a defined geographic area. Usually held in a database attached to a GIS. Contains details on sites, finds, buildings and historic landscape. Most are online and are also accessible via the Heritage Gateway website. Most Historic Landscape Characterisations are lodged in their area's HER.

Know Your Place
A web-based map site that enables members of the community to learn and share their images and knowledge of a place. Originated in Bristol; now extended to much of the south-west of England from Gloucestershire and Wiltshire to Devon (kypwest.org.uk).

Characterisation
To characterise is to describe by distinctive qualities.

Characterisation in relation to landscape is, 'The process of identifying areas of similar landscape character, classifying and mapping them and describing their character' (GLVIA 3, 155).

'"Characterisation" is the identification and interpretation of distinctive and critical aspects, in HLC usually by rapid assessment of attributes of patterns or complexes as portrayed in selected comprehensive sources, typically maps (current and historical) and aerial photos coupled with area-wide analyses of relevant features, like place-names' (Herring *et al* 2021).

Historic landscape characterisation
'Historic characterisation is the identification and interpretation of the historic dimension of the present day landscape or townscape within a given area. HLC [historic landscape characterisation] is the term used in England and Wales, HLA [historic land-use assessment] is the term used in Scotland' (GLVIA 3, 156).

'Historic landscape characterisation (HLC) can be used to help secure good quality, well designed and sustainable places. It is a method of identification and interpretation of the varying historic character within an area that looks beyond

individual heritage assets as it brigades understanding of the whole landscape and townscape into repeating HLC Types' (*Historic Landscape Characterisation*, Historic England website).

Most HLCs in England are created on a Geographical Information System (GIS) tied to a related database that includes records for a range of descriptive and interpretative attributes. Areas of land are ascribed to HLC Broad Types and (like enclosure, urban settlement, unimproved land, woodland, industrial and ornamental land) and analysis of attributes (date, morphology, pattern, etc) enables them to be allocated to more specific HLC Types. Use of comprehensive coverage of historical maps or aerial photos allows 'previous' types to be determined and added to the database. GIS queries of the database then enables numerous mappings to be created reflecting attributes in the present and at certain moments in the past, enabling the effects of past change to be displayed.

The creation and application of HLC has from its origins in Cornwall in 1993 been subject to a set of guiding principles, set out most recently on the Historic England HLC web-page and discussed above within the discussion document (https://historicengland.org.uk/research/methods/characterisation/historic-landscape-characterisation/).

HLC is most visually represented through the GIS-derived maps, but each also has text that help users understand the HLC Types, again discussed above within the discussion document.

Some HLC texts do include material on value, usually by examining the ways that values may affect decision-making in certain situations, and recognising the variability in the ways that individuals and communities value things, including historic landscape. Most draw on the comprehensive and inclusive approach to value represented by the four heritage values (aesthetic, communal, evidential and historical) set out in *Conservation Principles* (English Heritage 2008a). An example is the later revisions of the Cornwall HLC Types texts (https://archaeologydataservice.ac.uk/archiveDS/archiveDownload?t=arch-1641-1/dissemination/pdf/Cornwall_Historic_Landscape_Character_Types_texts.pdf).

Historic seascape characterisation

'Historic Seascape Characterisation (HSC) maps and describes those historic cultural influences which shape present seascape perceptions across all of England's marine areas and coastal land' (*Characterising Historic Seascape*, Historic England website)

'HSC provides an archaeological understanding of time depth in the present seascape. It draws on a breadth of sources to assess the dominant cultural processes that shape the present. Many sources are map-based with national coverage, others include documentary and artistic references' (Historic England website).

HSC extends to the coastal and marine zones the principles of Historic Landscape Characterisation (HLC) that are applied to England's land area.

Mapping of HSC recognises the multi-layered quality of the sea so normally has separate layers for the surface, the water column, the seafloor and the sub-seafloor. It also recognises that the land adjacent to the sea, while also subjected to HLC can be revisited in HSC to emphasise its maritime aspects.

Many of the sources employed in HSC are mappings and records of physical and semi-natural aspects from which the cultural meanings require abstraction. To gather such varied material together and to utilise mappings that are subject to copyright a gridding system has been adopted through which precise boundaries become fuzzy. Basic gridding at national scale has 250m boundaries so HSC mapping has an imprecision that emphasises that seascape is a form of landscape and thus a matter of perception as well as of fact.

Urban characterisation

Since the early 1990s, Historic England (and its predecessor English Heritage) has been supporting a wide range of survey work in historical towns, cities and suburbs. Three approaches involve historic characterisation.

> Extensive Urban Survey (EUS) 'county-by-county surveys of the smaller towns of England. Since about 2000, projects have included a strong characterisation element, drawing on the methodology of Historic Characterisation but adapting it to a level of detail suitable for urban areas.... each project results in improved coverage in the Historic Environment Record, and in an 'assessment report' which sets out a summary of the town's archaeology, historical development and historic environment. This includes the definition of character areas covering the whole town. These reports are available online through the Archaeology Data Service.'
>
> 'Metropolitan Historic Landscape Characterisation (HLC) 'The major conurbations of England (those formerly covered by 'metropolitan' county councils) have been covered by a form of Historic Landscape Characterisation. The methods is exactly the same as for rural landscapes, but the projects use character types which are appropriate to the urban character of the area, and are at a larger scale that reflects the complexity of urban development.... reports and data are available on-line through the Archaeology Data Service.'
>
> Urban Archaeological Databases 'a form of detailed Historic Environment Record coverage, carried out in about 30 selected historic towns and cities which have rich and complex below-ground archaeology. Most UADs now form part of the Historic Environment Record which covers the town or city in question. UADs provide a record (and maps) of all the individual pieces of archaeological work ('events') which have taken place, along with a summary of all the 'monuments' which have been identified in this work.'
>
> 'In some cases, such as Chester the UAD has been used to define archaeological character areas. For these, the general principles of historic characterisation are used, but applied to complex below-ground archaeological remains.'

'Most UADs can be searched through the Heritage Gateway' (Historic England website).

Assessment Framework

A means of providing a simple generalised process of assessing how best to care for a type of heritage asset, such as farmstead or nonconformist place of worship. They draw on the comprehensive and inclusive principles of historic characterisation and typically involve four stages of assessment. 1) summarise the site's history and character, 2) assess its significances, 3) consider the asset's needs and potential in relation to change, 4) consider siting and design issues. See https://historicengland.org.uk/images-books/publications/national-farmstead-assessment-framework/

Landscape Character Assessment

'The process of identifying and describing variation in the character of the landscape, and using this information to assist in managing change in the landscape. It seeks to identify and explain the unique combination of elements and features that make landscapes distinctive. The process results in the production of a Landscape Character Assessment' (GLVIA 3, 157).

Attribute

The basic data units recorded in historic characterisations; morphology, pattern, date, form, material, etc, usually recorded via drop-down menu according to the broad character type. So, different attributes are recorded for types like Industry, Farmland, Ornamental, etc. By being held within a database attached to GIS the attributes are able to queried in analyses and to present refined mappings emphasising certain aspects of historic character.

Polygon

'HLC's basic unit is the polygon, an area with relatively uniformly shared characteristics. Polygons are mapped across the whole of the county or area. To create units of a size appropriate for meeting a project's scope and of a granularity suitable for county-wide analysis, minimum polygon sizes are usually 2 hectares in rural areas and 1 hectare in settlements and complex areas. The generalisation this requires is the essence of characterisation; it is the dominant landscape character that is recorded in each polygon.'

'For each polygon, which is mapped in a GIS, there is a record in an attached database, which captures various attributes including the Broad and Narrow HLC Types and Sub-types that the polygon is assigned to. The link between GIS and database enables queries to be made on any combination of attributes to display myriad aspects of the landscape's history' (*Historic Landscape Characterisation*, Historic England website).

Akin to 'patch' in landscape ecology. 'Patches have intrinsic properties based upon the variables that were used to define and delineate them, but also spatial properties such as size and shape' (Antrop 2000, para 31).

Recording
'The capture of information which describes the physical configuration, condition and use of monuments, groups of buildings and sites, at points in time, and it is an essential part of the conservation process' (ICOMOS 1996).

Interpretation
Explaining the meaning of something, often in archaeology and historical landscape study by applying the conclusions drawn from study of a small part to other parts that share similar attributes. Classification and typology are basic tools used to bring order to disparate material and inductive and deductive reasoning help refine generalisations and explanations.

In heritage work the term is also applied to the communication of meanings or understanding to an audience: 'The full range of potential activities intended to heighten public awareness and enhance understanding of cultural heritage site. These can include print and electronic publications, public lectures, on-site and directly related off-site installations, educational programmes, community activities, and ongoing research, training, and evaluation of the interpretation process itself' (ICOMOS 2008).

Assessment
Judging or deciding the amount, value, quality or importance of something.

Understanding
Comprehension, especially of the general in relation to the particular.

Historic Area Assessment (HAA)
'A practical tool to help determine the character of an area, explain its significance and highlight issues that have the potential to change this character. Assessments have been undertaken in the anticipation of major redevelopment, in response to increasing development pressures and to encourage specific planning aims or underpin planning policy. But the method can be used for many purposes, including education and academic study, and its underlying principles can be extended to all parts of the historic environment' (Historic England 2017, para 1.2.1).

As presented by Historic England's introduction to them, HAAs are normally applied to the historic built environment. 'It will typically give insights into how and why a place has come to look the way it does; into the relationships of buildings to open spaces, street patterns and boundaries; views in and out of confined spaces; building scale, type, materials, current use, and other related factors. It should also illuminate an area's character, which can be derived from a subtle mixture of different elements, including characteristics that are shared with other places and aspects that are particular to that place' (Historic England 2017, para 1.2.2).

Heritage Impact Assessment (HIA)
A structured process to ensure that the significance of heritage assets is taken into account when developing or designing proposals for change. Typically, it 'outlines the historic or archaeological significance of a building or landscape within its wider

setting. It includes an outline of any proposed works, an assessment of their impact on the building or landscape and a mitigation strategy' (https://www.cornwall.gov.uk/environment/conservation-and-environment-protection/cornwall-archaeological-unit/heritage-statement-or-heritage-impact-assessment/). An output may be a Heritage Impact Statement.

Landscape and Visual Impact Assessment (LVIA)

'A tool used to identify and assess the likely significance of the effects of change resulting from development on both the landscape as an environmental resource in its own right and on people's views and visual amenity' (GLVIA 3, 157).

Environmental Statement

'A statement that includes the information that is reasonably required to assess the environmental effects of [a] development and which the applicant can, having regard in particular to current knowledge and methods of assessment, reasonably be required to compile, but that includes at least the information referred to in the EIA regulations' (GLVIA 3, 156).

Environmental Impact Assessment (EIA)

'In summary, EIA is a way of ensuring that significant environmental effects are taken into account in decision making' about a proposed development (GVLIA 3, 5).

It is 'the process of gathering environmental information; describing a development; identifying and describing the likely significant environmental effects of the project; defining ways of preventing/avoiding, reducing or offsetting or compensating for any adverse effects; consulting the general public and specific bodies with responsibilities for the environment; and presenting the results to the competent authority to inform the decision on whether the project should proceed' (GLVIA 3, 156).

The topics that require investigation in EIA include cultural heritage (including architectural and archaeological heritage) and landscape and their inter-relationships with other topics (like flora and fauna, soil, water, air, climate, noise, human beings and material assets) (GVLIA 3, 6).

There are five main stages to EIA:

1) Screening: determining whether a proposed project falls within the remit of the Town and Country Planning (Environmental Impact Assessment) Regulations 2017.

2) Scoping: determining (often with advice from the local planning authority) the extent of issues to be considered in the assessment and reported in the Environmental Statement.

3) Preparing an Environmental Statement that includes at least the information reasonably required to assess the likely significant environmental

effects of the development, as listed in the 2017 EIA Regulations 18(3) and 18(4).

4) Making a planning application (which includes publishing the Environmental Statement) and consultation.

5) Decision making, that takes into account the Environmental Statement.

Note that in EIA 'Landscape' is a separate topic from 'Cultural Heritage'.

Landscape in EIA is typically addressed through Landscape and Visual Impact Assessment (as set out in GLVIA 3). It is made clear that historic landscape and historic seascape, and the settings of Listed Buildings and Scheduled Monuments, are considered not as part of the landscape theme, but as part of Cultural Heritage (see GLVIA 3, fig 1.2, and 77). Recent guidance on addressing the Cultural Heritage theme reiterates this by noting that 'Cultural heritage can include buildings and structures, monuments, parks and gardens, battlefields, townscapes, landscapes, seascapes archaeological sites, myths, festivals and traditions, whether intangible, visible, buried or submerged' (IEMA 2021, 5).

'The real benefit of EIA... is not that it is a passive instrument simply informing decision-makers; rather it is a tool that leads to design changes to improve environmental outcomes to increase the likelihood of a positive decision. This contribution is intangible and overlooked by many' (Bond 2020).

Strategic Environmental Assessment (SEA)

'The process of considering the environmental effects of certain public plans, programmes or strategies at a strategic level' (GLVIA 3, 158). That is, going beyond the level of individual projects.

The European Strategic Environmental Assessment (SEA) Directive 2001/42/EC (European Commission 2001)

Conservation

'The process of maintaining and managing change to a heritage asset in a way that sustains and, where appropriate, enhances its significance' (MHCLG 2021, Glossary).

'Conservation is an active process of maintenance and managing change. It requires a flexible and thoughtful approach to get the best out of assets as diverse as listed buildings in everyday use and as yet undiscovered, undesignated buried remains of archaeological interest' (PPG Historic Environment 2019, para 2).

'All operations designed to understand a property, know its history and meaning, ensure its material safeguard and, if required, its restoration and enhancement' (ICOMOS 1994).

Sustainable development
'Development that meets the needs of the present without compromising the ability of future generations to meet their own needs' (United Nations 1987).

Conservation Principles
Influential publication (EH 2008a) setting out a logical approach to making decisions about all aspects of the historic environment. Introduces the system of four Heritage Values.

Constructive Conservation
'A positive and collaborative approach to conservation that focuses on actively managing change. The aim is to recognise and reinforce the historic significance of places, while accommodating the changes necessary to ensure their continued use and enjoyment' (English Heritage 2008b CC in practice).

Design
Conceive and plan out the location, form, scale and finish of a structure or place.

'Iterative design process. The process by which project design is amended and improved by successive stages of refinement which respond to growing understanding of environmental issues' (GLVIA 3, 156).

Designation
'The recognition of particular heritage value(s) of a significant place by giving it formal status under law or policy intended to sustain those values' (EH 2008a, 71).

Some designations protect individual heritage assets, especially Listed Buildings, Locally Listed Heritage Assets and Protected Wrecks but others, listed below, cover larger areas of land.

Conservation Area
An area 'of special architectural or historic interest, the character and appearance of which it is desirable to preserve or enhance' (https://historicengland.org.uk/advice/hpg/has/conservation-areas/).

'Designation of a conservation area gives broader protection than the listing of individual buildings. All the features, listed or otherwise, within the area, are recognised as part of its character. Conservation area designation is the means of recognising the importance of all these factors and of ensuring that planning decisions address the quality of the landscape in its broadest sense' (https://historicengland.org.uk/advice/hpg/has/conservation-areas/).

Registered Parks and Gardens
The Historic Buildings and Monuments Act 1953 authorises Historic England to compile a register of gardens that appear to be of 'special historic interest'. It was established in 1984 and has over 1600 sites, graded I, II* and II. Designation does not in itself provide protection but great weight is given to their conservation in the planning process as 'designated heritage assets' (https://historicengland.org.uk/advice/hpg/has/pgb/).

Registered Battlefields

These may also be designated by Historic England under the Historic Buildings and Monuments Act 1953. They too are 'designated heritage assets as defined by the National Planning Policy Framework so great weight is given to their conservation in the planning process (https://historicengland.org.uk/advice/hpg/has/pgb/).

World Heritage Sites

As a signatory of the World Heritage Convention the UK Government can nominate sites for inclusion on the list of World Heritage Sites. They then take responsibility to protect and conserve the sites and in the UK this is done via the compilation and regular review of management plans, the designation of heritage assets that contribute to its Outstanding Universal Value, the measure of its significance, an the great weight given to the World Heritage Site in the planning process. There are currently 18 'cultural' World Heritage Sites in England, most of them relatively small areas, but a few are more extensive (Cornwall and West Devon Mining Landscape, City of Bath, Derwent Valley Mills, Frontiers of the Roman Empire, Ironbridge Gorge, Stonehenge and Avebury, Studley Royal, The English Lake District).

Scheduled Monuments

Historic sites included in the Schedule of Monuments kept by the Secretary of State for Digital, Culture, Media and Sport, under the regime of the Ancient Monuments and Archaeological Areas Act 1979. Works that affect it require scheduled monument consent from the Secretary of State, a process overseen by Historic England.

Area of Archaeological Importance

The Secretary of State for Digital, Culture, Media and Sport 'may from time to time by order designate as an area of archaeological importance any area which appears to him to merit treatment as such for the purposes of this Act' (Section 33 of the Ancient Monuments and Archaeological Areas Act 1979). There are currently five such areas (the historic centres of Canterbury, Chester, Exeter, Hereford and York) and the designation is intended to especially protect buried archaeological remains.

Setting

As noted above, setting is defined as 'The surroundings in which a heritage asset [whether designated or not] is experienced. Its extent is not fixed and may change as the asset and its surroundings evolve. Elements of a setting may make a positive or negative contribution to the significance of an asset, may affect the ability to appreciate that significance or may be neutral' (MCHLG 2021, Glossary). It is not a designation as such, but the contribution it makes to the significance of the heritage asset is taken into account in decision making.

Landscape strategy

'The overall vision and objectives for what the landscape should be like in the future, and what is thought to be desirable for a particular landscape type or area as a whole, usually expressed in formally adopted plans and programmes or related documents' (GLVIA 3, 157).

Landscape planning
'...strong forward-looking action to enhance, restore or create landscapes' (Council of Europe 2000, Article 1).

Landscape policy
'An expression by the competent public authorities of general principles, strategies and guidelines that permit the taking of specific measures aimed at the protection, management and planning of landscapes' (Council of Europe 2000, Article 1).

National Planning Policy Framework (NPPF)
'The National Planning Policy Framework sets out the Government's planning policies for England and how these should be applied. It provides a framework within which locally-prepared plans for housing and other development can be produced' (MHCLG 2021, para 1).

National Policy Statement
'A policy statement relating to Nationally Significant Infrastructure Projects that has been designated as such by the relevant Secretary of State. There are a number of existing and proposed National Policy Statements relating to particular types of infrastructure project' (Section 5 Planning Act 2008).

The ten NPSs cover areas like forms of energy (fossil fuel, renewable, nuclear, etc), electricity networks, transport (including ports and airports), water and waste.

Development Plan
The development plan is:

(a) The regional [or spatial] strategy for the region in which the area is situated (if there is a regional strategy for that region); and

(b) the development plan documents (taken as a whole) which have been adopted or approved in relation to that area; and

(c) the neighbourhood development plans which have been made in relation to that area

(Section 38 Planning and Compulsory Purchase Act 2004).

Local plan
'A plan for the future development of a local area, drawn up by the local planning authority in consultation with the community. In law this is described as the development plan documents adopted under the Planning and Compulsory Purchase Act 2004. A local plan can consist of either strategic or non-strategic policies, or a combination of the two' (MHCLG 2021, Glossary).

Neighbourhood Development Plan
'A "neighbourhood development plan" is a plan which sets out policies (however expressed) in relation to the development and use of land in the whole or any part of

a particular neighbourhood area specified in the plan' (section 38A Planning and Compulsory Purchase Act 2004).

'A plan prepared by a parish council or neighbourhood forum for a designated neighbourhood area. In law this is described as a neighbourhood development plan in the Planning and Compulsory Purchase Act 2004' (MHCLG 2021, Glossary).

Enabling Development

'Development that would not be in compliance with local and/or national planning policies, and not normally be given planning permission, except for the fact that it would secure the future conservation of a heritage asset. Whilst only applicable in certain circumstances, enabling development can be a useful tool' (Historic England 2020, Summary, section 1).

Geographical Information System (GIS)

'Any system that captures, stores, analyses, manages, and presents all types of spatial and geographical data location. GIS merges cartography and database technology' (Historic England hpr-definitions).

'A system that captures, stores analyses, manages and presents data linked to location. It links spatial information to a digital database' (GLVIA 3, 156)

REFERENCES

Antrop, M 2000 'Geography and landscape science', *Belgeo* 1-4, 9-36

Bond, A 2020 'Fake newts! Should environmental impact assessment be under threat?' *Brexit and Environment*, 17th July 2020 https://www.brexitenvironment.co.uk/2020/07/17/fake-newts-should-environmental-impact-assessment-be-under-threat/

Bramley, G, 2019 *Housing Supply Requirements Across Great Britain for Low-Income Households and Homeless People: research for Crisis and the National Housing Federation; main technical report*, Heriot-Watt University

Brown, N, Clarke, V and Havis, R 2006 *Rochford District [Essex] Historic Environment Characterisation Project*, Rochford District Council

Capita Symonds and Oxford Archaeology North (OAN) 2011 *Managing Landscape Change in North Yorkshire for NYCC*, Capita Symonds and OAN

Carver, J, Mitchard, N, Fox, K and Inight, A 2007 *Assessing the Effect of Road Schemes on Historic Landscape Character,* Halcrow for Highways Agency

Clark, J, Darlington, J and Fairclough, G 2004. *Using Historic Landscape Characterisation*, English Heritage and Lancashire County Council

Clark, R, and Robertson, J 2008 *Leicestershire HLC and Woodland Capacity Mapping in the National Forest*, Leicestershire CC, presentation for English Heritage HLC Seminar

Coe, D and Conway, M 2008 *Sensitivity, Zoning, Action: West Berkshire experience*, West Berkshire CC, presentation for English Heritage HLC Seminar

Construction Industry Research and Information Association 2021 *Managing Archaeology in Construction* (RP1059)

Conway, M 2006 *Using HLC to Map Landscape Sensitivity, West Berkshire: Western Corridor Strategy*, West Berkshire CC

Cornwall County Council 1994 *Cornwall Landscape Character Assessment*

Cornwall Council 2019 *Distinctively Cornish: valuing what makes Cornwall Cornish*, Cornwall Council

Cornwall Council 2020 *Biodiversity Net Gain in Cornwall*

Council of Europe 2000 *European Landscape Convention*

Countryside Agency and Scottish Natural Heritage 2002 *Landscape Character Assessment: guidance for England and Scotland*

Croft, A 2004 *Thames Gateway: Historic Environment Characterisation project*, Chris Blandford Associates and English Heritage

DCMS 2010 *Principles of Selection for Listed Buildings*

DBEIS (Department for Business, Energy and Industrial Strategy) 2020 *Policy Paper: Offshore Wind Sector Deal*

Dobson, S 2008 *Action Research and Collaborative Strategic Thinking in Urban Planning*, University of Sheffield, presentation for English Heritage HLC Seminar

English Heritage, Buckinghamshire County Council and Milton Keynes Council 2004 *Milton Keynes Urban Expansion Historic Environment Assessment: historic environment considerations for the Milton Keynes and South Midlands Sub-Regional Strategy*

English Heritage 2008a *Conservation Principles: Policies and Guidance,* English Heritage

English Heritage 2008b *Constructive Conservation in Practice*

Essex County Council 2007 *Essex Thames Gateway Historic Environment Characterisation*, Essex CC with Wessex Archaeology

European Commission 2001 *The European Strategic Environmental Assessment (SEA) Directive 2001/42/EC: the assessment of the effects of certain plans and programmes on the environment*, European Commission

Exegesis and Locus, 2017 *National HLC Stage 5: final report* http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&ProjectID=19741&FromSearch=Y&Publisher=1&SearchText=LM0461&SortString=ProjectCode&SortOrder=Asc&Paging=10#Description

Fairclough, G 2013 'Recalibrating through "landscape"' *Landscapes* 14.1, 7–12

Fairclough, G and Herring, P 2007 *Reviewing Historic Environment Character and Sensitivity: correspondence*

Fairclough, G, Lambrick, G and McNab, A 1999. *Yesterday's World, Tomorrow's Landscape*, English Heritage.

Fairclough, G., Sarlov Herlin, I. and Swanwick, C, 2018. *Routledge Handbook of Landscape Character Assessment: current approaches to characterisation and assessment*, Routledge

Fairclough, G and Macinnes, L 2002 *Historic Landscape Characterisation*, Countryside Agency and Scottish Natural Heritage

Fluck, H and Holyoak, V 2017 *Natural Capital, Ecosystem Services and the Historic Environment*, Historic England Research Report Series 19/2017

GLVIA3 2013 *Guidelines for Landscape and Visual Impact Assessment* (3rd edition), Landscape Institute and Institute of Environmental Management and Assessment

Green, D 2008 *Integrating HLC with LCA in Buckinghamshire*, Bucks CC, presentation for English Heritage HLC Seminar

HM Government 2011 *UK Marine Policy Statement*

HM Government 2018 *A Green Future: our 25 year plan to improve the environment*

Herring, P, 1998 *Cornwall's Historic Landscape: presenting a method of historic landscape character assessment*, Cornwall County Council

Herring, P, 2008 *The Historic Landscape: sensitivity and capacity*, English Heritage, presentation for English Heritage HLC Seminar

Herring, P, 2011 'Historic landscape characterisation and urban characterisation', *Cornish Archaeology* 50, 107–14

Herring, P and McOmish, D 2017 *Using Historic Landscape Characterisation When Understanding and Assessing Sensitivity to Change* (draft), Historic England

Herring, P, Dabaut, N and Last, J 2021 'Where next for Historic Landscape Characterisation (HLC)', *Landscapes* 21(2), 98–112

Herring, P, Turner, S and Sevara, C 2022 *The Historic Landscape: assessing opportunity for environmental change*, Historic England Research Report Series 69/2022

Historic England 2017 *Understanding Place: Historic Area Assessments*

Historic England 2018 *Places Strategy*

Historic England 2020 *Enabling Development and Heritage Assets*

Historic England 2021 *Wellbeing and Heritage Strategy*

Hooley, D, 2017 *Seascape Character and Visual Assessment: incorporating Historic Seascape Assessment*, Historic England internal discussion document

Hooley, D, 2020 *HSC and Seascape Sensitivity Assessment: some notes*, Historic England

Hooley, D, forthcoming, 'Characterising seascape's historic cultural dimension: developing England's approach to Historic Seascape Characterisation', in G Pungetti (ed), *Routledge Handbook of Seascape*

ICOMOS 1994 *The Nara Document on Authenticity*

ICOMOS 1996 *Principles for the Recording of Monuments, Groups of Buildings and Sites*

ICOMOS 2002 *International Cultural Tourism Charter*

ICOMOS 2005 *Xi'an Declaration on the Conservation of the Setting of Heritage Structures, Sites and Areas*

ICOMOS 2008 *Charter for the Interpretation and Presentation of Cultural Heritage Sites*

ICOMOS 2013 *The Burra Charter: the Australia ICOMOS charter for places of cultural significance*

IEMA 2021 *Principles of Cultural Heritage Impact Assessment in the UK*, London, IEMA

Kidd, S and Green, D 2004 *Milton Keynes Urban Expansion*, Buckinghamshire CC

Kolen, J and Lemaire, T 1999 *Landschap in Meervoud: perspectieven op het Nederlandse landschap in de 20ste/21ste eeuw*, Uitg. J.van Arkel

LUC 2016. *Review of Environmental Sensitivity in Oxfordshire*, LUC.

Marine Management Organisation 2019 *An Approach to Seascape Sensitivity Assessment,* MMO 1204

Meentemeyer, V and Box E 1987 'Scale effects in landscape studies' in MG Turner (ed) *Landscape Heterogeneity and Disturbance*, Ecological Studies 64, Springer Nature, 15–34

Ministry of Housing, Communities and Local Government (MHCLG) 2021 *National Planning Policy Framework*

Natural England 2008 *Natural England Targeting of Higher Level Scheme Areas*, discussion document

Natural England 2012 *An Approach to Seascape Character Assessment*

Natural England 2019 *An Approach to Landscape Sensitivity Assessment – to inform spatial planning and land management*, Natural England

NatureScot 2020 *Draft Landscape Sensitivity Assessment Guidance*, NatureScot

Norfolk County Council, 2009 *Historic Characterisation and Sensitivity Assessment: Greater Norfolk growth points*, Norfolk CC

Office of the Deputy Prime Minister 2003 *Sustainable Communities: building for the future*

Reilly, S, Nolan, C and Monckton, L 2018 *Wellbeing and the Historic Environment*, Historic England

Renewal, Innovation & Change: Heritage and European Society (RICHES) 2014 *Tangible and Intangible Cultural Heritage*

Sagger, H, Philips, J and Haque, M 2021 *Valuing Culture and Heritage Capital: a framework towards informing decision making*, DCMS

Simetrica-Jacobs 2021 *Heritage and the Value of Place*, Simetrica-Jacobs

Swanwick, C, 2004 *Landscape Character Assessment Topic Paper 6: techniques and criteria for judging sensitivity and capacity*, Scottish Natural Heritage and The Countryside Agency

Tapper, B, Ratcliffe, D and Herring, P 2010 *HLC and Sensitivity Mapping for Photo-Voltaic (Solar Farm) Installations in Cornwall*, Cornwall Council

Tompkins, A 2017 *Capacity for Change: new woodland in Oxfordshire*, Oxfordshire CC

Turner, S 2018. 'Historic landscape characterisation: an archaeological approach to landscape heritage'. In G. Fairclough, I. Sarlov Herlin and C. Swanwick (eds) *Routledge Handbook of Landscape Character Assessment: current approaches to characterisation and assessment*, Routledge, 37–50

UNESCO 2003 *Convention for the Safeguarding of the Intangible Cultural Heritage*, UNESCO

United Nations 1987 *Sustainable Development*

Von Humboldt, A 1995 (1814) *Personal Narrative of a Journey to the Equinoctial Regions of the New Continent* (abridged and translated with an introduction by J.Wilson and a historical introduction by M. Nicholson), Penguin Books

Wallace, B 2006 *Woodlands Opportunity Mapping: Warwickshire cultural heritage classification*, Warwickshire CC

Went, D 2004 'Sustainable development, sustainable communities', *Conservation Bulletin* 47, 4–10

Went, D and Dyson-Bruce, L 2003 *London-Stansted-Cambridge Corridor Growth Area*

Wigley, A 2007 *Shropshire: employing HLC with LCA when assessing significance in landscape*, correspondence with Graham Fairclough, English Heritage

Wigley, A 2008 *Shrewsbury New Growth Point: historic environment assessment,* Shropshire CC, presentation for English Heritage HLC Seminar

Wylie, J 2007 *Landscape*, Routledge

Historic England Research and the Historic Environment

We are the public body that helps people care for, enjoy and celebrate England's spectacular historic environment.

A good understanding of the historic environment is fundamental to ensuring people appreciate and enjoy their heritage and provides the essential first step towards its effective protection.

Historic England works to improve care, understanding and public enjoyment of the historic environment. We undertake and sponsor authoritative research. We develop new approaches to interpreting and protecting heritage and provide high quality expert advice and training.

We make the results of our work available through the Historic England Research Report Series, and through journal publications and monographs. Our online magazine Historic England Research which appears twice a year, aims to keep our partners within and outside Historic England up-to-date with our projects and activities.

A full list of Research Reports, with abstracts and information on how to obtain copies, may be found on www.HistoricEngland.org.uk/researchreports

Some of these reports are interim reports, making the results of specialist investigations available in advance of full publication. They are not usually subject to external refereeing, and their conclusions may sometimes have to be modified in the light of information not available at the time of the investigation.

Where no final project report is available, you should consult the author before citing these reports in any publication. Opinions expressed in these reports are those of the author(s) and are not necessarily those of Historic England.

The Research Report Series incorporates reports by the expert teams within Historic England. It replaces the former Centre for Archaeology Reports Series, the Archaeological Investigation Report Series, the Architectural Investigation Report Series, and the Research Department Report Series.

ISSN 2398-3841 (Print)
ISSN 2059-4453 (Online)