

**APPENDIX G
CULTURAL HERITAGE -
METHODOLOGY**

**Dr. Michael Avery
Principal
Archaeological Associates (Ireland)**

Cultural Heritage – Methodology

This report assesses the impact of the proposed development upon archaeology and makes recommendations designed to mitigate any adverse impacts. The report has four parts: description of the development; description of the archaeology; assessment of impacts; conclusions and recommendations related to mitigation.

This section on methodology explains what counts as part of a development and what is included as archaeology. Archaeology comprises both known sites and also extra, previously unrecognised sites. The kinds of evidence, which are gathered together to describe the archaeology, are outlined. The nature of the impacts which development may have on archaeology are described along with the main methods by which these impacts are mitigated.

General

The development is taken to include not only the development itself but also any ancillary works which may have an impact in associated areas (such as access routes and compounds for materials, machinery and vehicles).

Archaeology is taken to cover early archaeology, industrial archaeology, historic buildings and heritage gardens, defence heritage and maritime and inter-tidal sites, where appropriate. The relevant evidence includes not only archaeological sites and artifacts but all data which throw light on the society, economy and environment of the archaeological past.

The description of the archaeology includes a description of the general background of the area followed by details both of known sites (Appendix I) and also, where appropriate, of extra sites (Appendix L).

The assessment of impacts includes both direct adverse impacts on sites and also impacts on their settings

Recommendations may be for further investigation, or for mitigation by preservation, by recording or by monitoring.

Data sources

To describe the archaeology, the sources of data divide into three categories. Evidence for known sites and finds is recorded in official lists. Extra sites, previously unrecognised and therefore not yet recorded in official lists, are in practice far greater in number; evidence for these extra sites occurs in a number of sources. Natural environment evidence may reveal whether archaeological sites are likely, and may identify locations which preserve environmental evidence relevant to archaeology.

Known sites

To seek known sites and finds, the relevant records are held by Environment & Heritage Service in the NI Monuments & Buildings Record. The EHS MBR comprises (1) The Archaeological Sites & Monuments Record (SMR); (2) the Architectural or Historic Buildings Record (HB); (3) the Industrial Archaeology or Industrial Heritage Record (IAR); (4) the Heritage Gardens Inventory; (5) the Defence Heritage Project; (6) the Maritime Sites and Monuments Record. EHS also holds lists of Sites in State Care, Scheduled Monuments and Conservation Areas. Databases of finds are held by the Ulster Museum and other museums, where appropriate.

Extra sites

To seek extra sites with evidence of archaeological information that has not yet been officially recorded, the relevant sources include (1) old Ordnance Survey maps (since 1830); (2) relevant Ordnance Survey Memoirs; (3) air photos, both those held by Ordnance Survey (Northern Ireland) and also those held by others; (4) evidence of Place Names; (5) older maps and estate records such as those held by the Public Record Office of Northern Ireland (PRONI).

Where appropriate, further information may be obtained by a walkover inspection in the field of the area of the proposed development.

Environmental background

To assess the general likelihood of the presence of extra archaeological sites, soil and land use maps may be consulted, and CORINE land cover maps. To assess whether the development will impact on locations likely to preserve environmental evidence relevant to archaeology, important information is published by EHS (Natural Heritage) on Areas of Outstanding Natural Beauty (AONBs); Areas of Special Scientific Interest (ASSIs); Marine Nature Reserves (MNRs); National Nature Reserves (NNRs); Ramsar Convention wetland sites; and Special Areas of Conservation (SACs).

Impact assessment

Almost all development is likely to have a damaging impact on archaeology, as archaeological evidence is fragile, shallowly buried, widespread and unpredictable. As a result, effectively any disturbance of the ground surface may have an impact on archaeology. Where there are damaging impacts, action should be taken to mitigate the impacts (see below).

The impacts may be divided into three categories. First, impacts on known and still existing archaeological sites, either (a) officially listed sites or (b) extra sites discovered during the assessment. Second, impacts on previously unrecognised archaeology, whether (c) predicted or (d) entirely unexpected. Third, there are sometimes impacts on the settings, or the historic environment, of important archaeological sites, as distinct from direct impacts on the sites themselves.

Sites

Archaeology is fragile. It is only in the last two centuries that it has become normal to build in brick or stone or concrete. Before that, most buildings were of wood, which rots away and leaves just discoloured smudges in the soil.

Archaeology is usually very shallow and near the surface. It is quite normal to find just 30 cm of topsoil, lying on 10 cm of archaeology, which lies on natural, undisturbed rock or gravel or clay. In towns, archaeology may be deeper, but rarely more than 50 or 100 cm.

Archaeology is widespread. Humans have lived in Northern Ireland for nearly 10,000 years and in that time, they have lived on or exploited most of its surface (from boggy mountains to the surrounding sea).

Archaeology is unpredictable. Some tens of thousands of archaeological sites are known in Northern Ireland but there must have been many more. Sometimes, an area is archaeologically sensitive, and it is possible to predict that archaeology may turn up there; often, archaeology turns up completely unexpected when the ground surface is disturbed. No investigation can rule out completely the possibility that unexpected archaeological evidence will turn up during disturbance of the ground.

Archaeology is vulnerable not only to obvious disturbances, such as the foundations of buildings or the construction of roads, but also to ancillary works, which include less conspicuous disturbances such as water pipes or drainage pipes or new pathways. In particular, archaeology may be threatened by the planting of trees, bushes and other vegetation, done for beneficial purposes such as screening or visual enhancement. The damaging impact is not limited to the holes dug for planting: the wide spread of roots can over the years do surprising and irreparable damage to archaeology.

Settings

Development sometimes has impacts on the settings, or the historic environment, of important archaeological sites, as distinct from a direct impact damaging a site itself. Adverse impacts then require measures in mitigation. Sometimes, the impacts may be favourable if, for example, an attractive site or monument is exposed more clearly to public view and admiration.

In evaluating impacts on settings, two factors are taken into account: first, the importance of the archaeological site, resource or setting; and second, the magnitude of the impact. The importance is normally a combination of two factors: the rarity of the archaeology and its current state of preservation. The importance of the archaeology is increased if it is of a kind which appears to be infrequently found or if it has unusual characteristics. The importance of the archaeology is increased if it is well preserved, or has reached a stable state of preservation.

Adverse impacts damage or destroy parts of an archaeological site, resource or setting. With a settings, the magnitude of an adverse impact depends mostly on the extent to which the damage or destruction affects significant parts of the setting.

Further investigation

It is sometimes appropriate to carry out further archaeological investigation (such as test excavation) in order to assess whether archaeological evidence is present, or the importance of the archaeology or the magnitude of an impact. This is further described below, under Advance Archaeology.

This sometimes leads to modifying a development, so as to avoid an impact or to avoid expensive mitigation.

Mitigation

Mitigation of direct impacts on known archaeological sites and other archaeological evidence normally involves one of four procedures: mitigation by preservation; mitigation by recording (that is, excavation); mitigation by preliminary clearance; and mitigation by monitoring.

Preservation is appropriate where a known archaeological site is identified at an early stage, and the development is designed to avoid it. Recording (that is, excavation) is the normal form of mitigation; it provides new evidence which counter-balances and mitigates the loss by destruction. Preliminary clearance is carried out to mitigate the impact on previously unidentified archaeological evidence; where necessary, it is followed by excavation, and the site is then clear for development. Monitoring is carried out during the construction works, on the understanding that, if any archaeological evidence does turn up, construction will halt while the archaeology is recorded by full excavation.

Mitigation of impacts on a setting or historic environment is a little different. Normal techniques are adapting, screening, moving or burying the development.

Preservation

Mitigation by preservation means preserving known archaeology undamaged. This may involve altering the development (or part of it), to remove the impact or adequately reduce it. Alternatively, it may sometimes involve protecting the archaeology (for example by protective coverings), so that the archaeology is not damaged by construction of the proposed development or by subsequent use. In the case of a road, a new embankment may sometimes serve to preserve any archaeology which is buried beneath it.

To preserve the archaeology is an option which may be chosen during the original design of the development if, for example, the archaeology consists of a well-known site. Alternatively, it is an option which may be chosen if Preliminary Clearance reveals archaeology.

Recording

Mitigation by recording means recording the archaeology and then allowing it to be destroyed by the development. This normally involves full archaeological excavation, recording and assessment. The new information which this provides counter-balances the destruction of the archaeology.

Advance Archaeology

Preservation and recording depend on first identifying archaeological evidence to preserve or record. Unfortunately, no investigation short of full excavation can rule out completely the possibility that unexpected archaeological evidence will turn up during disturbance of the ground. It is therefore often appropriate to mitigate the impact of development by carrying out Advance Archaeology before development starts, in order to avoid delays while construction is in progress.

Advance Archaeology may take two forms. First, where evidence of an archaeological site (or possible site) has been identified, it is often appropriate to carry out investigations before development starts. These may take the form of surveys or test excavations or full excavations, depending on what is discovered. All excavation must be carried out under the on-site supervision of a qualified archaeologist, operating under a license from Environment and Heritage Service. The site is then made available for development without further need for archaeological work.

Second, where no archaeological site has been identified, it is usually appropriate to carry out Preliminary Clearance, again in order to avoid delays while construction is in progress. Preliminary Clearance means that, before the ground surface of any area is disturbed for development, the surface layers such as topsoil are cleared off the area (under the on-site supervision of a qualified archaeologist, operating under a license from Environment and Heritage Service).

The surface layers are cleared off using a back-actor machine equipped with a flat-mouthed (or "sheugh") bucket, supervised by the archaeologist (at a ratio of one machine to one archaeologist). The clearance takes place until either archaeology is met or undisturbed natural strata.

If no archaeology is discovered, the site is usually made available to the development without further need for archaeological work. If any archaeology is discovered, it usually needs to be fully recorded by excavation. The site is then made available for development without further need for archaeological work. Sometimes, it may be possible to cover in and preserve some of the archaeological evidence (with the agreement of EHS).

Monitoring

Mitigation by monitoring means having a qualified archaeologist observe and monitor all disturbance of the ground during the construction works, under a license from Environment and Heritage Service. Since only full excavation can be sure to discover all the archaeology, it is possible that unexpected evidence will turn up during disturbance of the ground.

If any archaeological evidence does turn up, the archaeologist must have the authority to halt construction and record the archaeology by full excavation. This can cause considerable and unexpected delays. Wherever possible, it is advisable to carry out this investigation not by monitoring but by Preliminary Clearance during Advance Archaeology, so that construction may be carried through without archaeological interference.

Monitoring may be the only possible method in some situations (such as where service trenches must be dug through public streets).

Impacts on settings

Where the impact is on the setting or the historic environment (of an archaeological site or monument or a Historic Building) as distinct from the site or building itself, mitigation is a little different. It may logically take one of five forms: recording, adapting, screening, moving or burying the development.

Recording a setting before development is not on its own normally adequate mitigation of any serious adverse impact. It is usually too expensive to undertake the large-scale excavation which could provide new information to counter-balance the loss by destruction.

A development may be adapted to reduce its impact on a setting by designing it (or its architectural style) to be appropriate in that setting.

A development may be screened by planting vegetation to hide it from the relevant setting, or by an embankment or mound. It is necessary, of course, to assess also whether vegetation (and its roots) will have an impact on any archaeology.

A development may be moved an adequate distance further away from the archaeological site or historic building. The distance must be enough for the adverse impact to be removed or adequately reduced. In the case of a road development, the distance should be enough to remove the impact of the road itself and also (where appropriate) of any embankments or cuttings.

If a development is buried, it should be placed under-ground or within a mound or a tunnel in such a fashion that the setting above-ground is not damaged. If the mound or tunnel involves disturbing the ground, it is necessary to assess whether that disturbance will have an impact on any archaeology. Burying a development is expensive.

Timetabling

Where a development is on a major scale, either of a large area or of a long route, the task of archaeological recording (normally by excavation) may cause unpredictable delays, since it is always possible that unexpected evidence will turn up during disturbance of the ground.

To minimise the impact of such delays, it is always recommended that any large development be explicitly planned, before construction starts, as a set of self-contained units (different areas, or different lengths of a route). The units should be

designed so that, if archaeological work delays construction in one unit, construction may still continue in other, separate units.

It is advisable to prepare an approximate timetable (with estimates of the time which each unit is expected to require, and of the order in which they will be carried out). It may be advisable to carry out Further Investigation (or test excavations) so as to estimate how long archaeological recording may take in any unit.