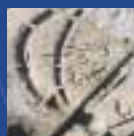
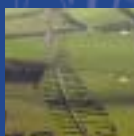


This guide outlines the four stages
the NRA undertakes to ensure
best practice in archaeology.

A GUIDE TO NRA

archaeology



Timeline of important historical events

*Construction of Stonehenge.
Construction of the Pyramids.*

Mesolithic

c. 7000 – c. 4000 BC

*Hunter – gatherer – fishers.
Mobile lifestyle. Mount Sandel, Co. Derry.*

Neolithic

c. 4000 – c. 2200 BC

*First farmers., Megalithic tombs e.g. passage tombs, portal tombs & court tombs, Bru na Bóinne – Newgrange, Knowth and Dowth.
First use of pottery.
Communal burial.*

PREHISTORIC

When developing the route of a new road, archaeology is an integral part of the planning process. The NRA employs Project Archaeologists to oversee the archaeological implications of all aspects of road schemes. The planning process is divided into 3 stages.

STAGE 1

planning

- 1 Complex of medieval earthworks in County Kilkenny (Photo VJK Ltd)
- 2 Multiple cropmark enclosure at Ardee, Co. Louth (Photo VJK Ltd)
- 3 A stone circle at Drombeg, Co. Cork (Photo Dept. of Environment, Heritage and Local Government)

1. Constraints

A proposed road scheme may cover a vast geographical area. Archaeologists highlight all known sites of archaeological importance so that where possible they can be avoided.

2. Route Selection

Following the Constraints Stage, a number of corridors emerge in the landscape within which more specific route options develop. At this stage archaeologists carry out further work such as site visits, aerial photography and historical study including more refined cartographic searches. At the end of this stage, what is called the Emerging Preferred Route is established.

3. Environmental Impact Statement (EIS)

An EIS is a description of the likely effects on the environment of the proposed road development. At EIS stage archaeologists carry out more in-depth research of the area of the proposed road scheme. This work will include a field-walking survey of all archaeological sites (known and newly identified), more detailed aerial survey, geophysical survey and refined historical searches. According to law, every large scale road planning application must include an EIS.



1



2



3

*Invention of the wheel.
First Olympic Games are held.
Birth of Buddha.*

Bronze Age c. 2200 – c. 600 BC

*First use of bronze tools & weapons, gold jewellery.
Earthen barrows, stone cairns & flat cemeteries.
Individual burial.
Fulachta fiadh, Stone Circles, Cremation burials.
Emergence of Kingships.*

*The birth of Christ.
The rise of the Roman Empire.*

Iron Age c. 600BC – c. 400 AD

*Large ceremonial sites.
Use of iron for tools & weapons.
Ring barrows.
Contacts with Romanised world.*

*The fall of the Roman Empire.
The birth of Islam.
Dark Ages in Europe.*

Early Christian 400 – 790 AD

*Introduction of Christianity.
Improved agricultural practices & technologies.
Construction of ringforts.
Development of ecclesiastical sites.*

HISTORIC

STAGE 2 testing

- 4 Geophysical survey at Baronstown on M3 Clonee - North of Kells (GSB Prospection)
- 5 Archaeological test trenching on the N4 Sligo Inner Relief Road



4



5

Once An Bord Pleanála has approved the EIS and the land to build the road has been purchased, the archaeologists conduct a comprehensive and extensive testing regime.

Archaeological sites that are known or have been previously identified during the EIS are targeted for specific testing strategies. This can include geophysical techniques, hand excavated test trenches and machine excavated test trenches. In advance to work being carried out all testing techniques must be agreed with the National Monuments Section of the DoEHLG in consultation with the National Museum of Ireland.

1. Archaeological geophysics

has been defined as
“The examination of the Earth’s physical properties using non-invasive ground survey techniques to reveal buried archaeological features, sites and landscapes” (Gaffney and Gater 1993, 12).

There are different types of geophysical technique such as Electrical Resistivity, Magnetometry and Magnetic Susceptibility

2. Test trenching known areas

Where archaeological sites have been identified the site will be investigated by hand digging one or several test trenches across the site and in the vicinity of the site. This involves the hand removal of the topsoil and exposing the archaeological features beneath the soil. The object of this exercise is to establish the nature and extent of the archaeological deposits underneath.

Where an archaeological site exists outside the land take for the new road but is close by the area within the land take adjacent to the site will also be test trenched in this way.

Areas of archaeological potential are also identified and tested even though there may be no surface expression of sites.

3. Blanket testing unknown areas

Across the remainder of the proposed route which may stretch for many miles, the whole area is archaeologically test trenched. A machine digs a trench along the centre line of the entire route with a number of offsets, perhaps every 15–20m. The objective of this exercise is to try and identify large previously unknown sites that will involve extensive excavation.

Once all the testing has been completed reports must be written with all the results.

Reign of Charlemagne.
Bayeux tapestry depicting the Battle of Hastings.

Spread of Black Death.
Invention of the printing press.
Christopher Columbus travels to America.
The Reformation.

Viking Age 790 – 1169 AD

Viking raids.
Development of High Crosses, Round Towers.
Foundation of towns.
Battle of Clontarf.

Medieval late 12th century – early 16th century AD

Anglo-Norman invasion.
Development of stone castles and manors.
Church reform.

STAGE 3

excavation

- 6 Excavation of a skeleton uncovered at Cloughvalley on N2 Carrickmacross-Aclint Road Scheme
- 7 Intact souterrain gallery uncovered at Newtownbalrigan on M1 Dundalk Western Bypass (Photo StudioLab)
- 8 Section of ditch fills at Killickaweeny on M4 Kilcock-Kinnegad Motorway (Photo IAC Ltd)
- 9 Aerial view of an enclosure at Johnstown on M4 Kilcock-Kinnegad Motorway (Photo ACS Ltd)
- 10 Recording an Early Medieval stone lined grave at Balriggeran, M1 Dundalk Western Bypass

Archaeological Excavation is a two pronged technique: on one side there is Excavation, on the other Recording. To excavate/record a site, we must:

- Understand how sites become lost and buried.
- Be able to recognise archaeological and cultural remains in order to approach excavation in an informed manner.
- Have a flexible recording system through which sites can be untangled and interpreted.

1. Excavating

Sites such as settlements tend to bury themselves by dynamically demolishing, levelling and rebuilding themselves continuously through time.

Settlement sites can thus create a heap of stratified deposits, with the earliest material at the bottom and the latest at the top.

Un-peeling stratified sites is an acquired skill since much is usually missing (removed or rotted to nothing). When clean, archaeological features can actually be seen. Each deposit or feature may contain artefacts (pottery, jewellery, weapons, tools etc) or preserved environmental remains (human or animal bone, seeds) by which a date and function can be given.

2. Recording

It is vital that the detailed variety within every site is preserved by record through the excavation process. If the record is jumbled, the site cannot be dated or interpreted with accuracy. To preserve site integrity, the Single Context Recording System is used.

With Single Context Recording, every archaeological action, is given a unique context number. Discovered artefacts and environmental remains are bagged and labelled according to their context number. The stratigraphic relationship of all contexts is then drawn up, from the earliest to the latest, as the site matrix. The records thus ensure every archaeological object or feature can be traced back to its original stratigraphic location.



6



7



8



9



10

*Spanish Armada.
The Tudor Reign.
Construction of the Taj Mahal.*

Post-Medieval
early 16th century – late 17th century AD

*Gaelic Wars.
The Plantation of Ulster.
Flight of the Earls.
Battle of the Boyne.*

*Captain Cook travels to Australia.
The Industrial Revolution.
The French Revolution.
The rise and fall of Napoleon.*

Industrial
18th century – 19th century AD

*Penal Laws.
1798 United Irishmen Rebellion.
1801 Act of Union.
Industrialisation begins.*

STAGE 4

post-excavation

Archaeology is the study of past peoples, but these people often leave little behind to tell the story of their everyday lives. It is through Fact, Interpretation and Reporting that Post-Excavation breathes life into dry remains.

1. Facts

Specialist analysis of pottery, flint, jewellery, human and /or animal bone, seeds etc can give amazing detail to many activities – bolstering the factual evidence considerably and providing a tangible link to the past.

2. Interpretation

Interpreting the facts is often more difficult. For example, the various features have usually had their tops cut off by modern, agricultural ploughing; and organic things can rot away to nothing – leaving no evidence. It is thus often difficult to give a function to some parts of the site: does this ditch mean there was an animal pen, a domestic house or a vegetable plot?

3. Reporting

In order to clarify how a site is interpreted, archaeologists use a simple technique of comparing it with similar sites that may be better preserved, better known and fully published. The overall aim of post-excavation is to circulate the results to other archaeologists and the general public.

- 11 Stone axe and arrowhead from Newrath on the N25 Waterford Bypass
- 12 Conservation Lab at the Museum (Photo National Museum of Ireland)
- 13 Copper alloy buckle uncovered during excavations at Woodstown on the N25 Waterford Bypass (Photo StudioLab)



11



13



12

Some artefacts found on NRA archaeological excavations

Over the years we have unearthed many items of both local and national significance. Some are more recognisable, some are mysterious. Here is a selection.



1



2



3



4

1. Viking Age

Decorative mount uncovered during excavations at Woodstown on the N25 Waterford Bypass (Photo StudioLab)

2. Medieval

Medieval pottery rim sherd uncovered during excavations at Cherryville on the M7 Kildare Bypass (Photo VJK Ltd)

3. Neolithic

Stone axe and arrowhead uncovered during excavations at Newrath on the N25 Waterford Bypass

4. Viking Age

Sword pommel uncovered during excavations at Woodstown on the N25 Waterford Bypass (Photo StudioLab)

5. Early Christian

Copper alloy brooch uncovered during excavations at Newtownbalregan on the M1 Dundalk Western Bypass

6. Viking Age

Copper alloy buckle uncovered during excavations at Woodstown on the N25 Waterford Bypass (Photo StudioLab)

7. Viking Age

Silver ingot uncovered during excavations at Woodstown on the N25 Waterford Bypass (Photo StudioLab)



5

5

6

7



for further information:

National Roads Authority
St. Martins House
Waterloo Road
Dublin 4
Tel: +353 1 660 2511
Fax: +353 1 668 0009
Email: info@nra.ie
Web: www.nra.ie