

INDUSTRIAL HERITAGE
SURVEY OF COUNTY LAOIS

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for
Laois County Council
January 2004

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Preface

This survey was commissioned by Laois County Council on behalf of the Laois Heritage Forum. Its objective is to compile a comprehensive database of sites of industrial heritage interest throughout Co Laois using published and other readily available sources. The database thus created is known as LAIAR – LAois Industrial Archaeology Record.

Chapter 1 outlines the scope of industrial archaeology and the progress of survey work in Ireland. Chapter 2 presents an overview of the contents of LAIAR. A detailed appraisal of the sources and sampling strategies used in its compilation is given in chapter 3. This database exists in both computer database and hard-copy formats and these are reviewed in detail in the next two chapters. Chapters 6 and 7 outline how LAIAR can be updated and interrogated. Finally, in chapter 8, recommendations are set out for its future development and enhancement.

I am extremely grateful to the members of Laois Heritage Forum for their invaluable assistance in the successful completion of this project: Catherine Casey (Laois Heritage Officer), Teddy Fennelly, Camin O'Brien (National Monuments Service), Mary Lalor, and Eric Lewis. I should also like to thank Martina Bracken and Michael Rainey of Laois CC, and Patsy Lynch and Maureen Scully of Laois County Library Headquarters, Portlaoise.

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1. Introduction

Industrial archaeology is, in essence, the study of past industrial activities through an examination of their physical remains, documentary and photographic records and reminiscences of those involved. Its subject matter encompasses both industry and infrastructure. The former includes extractive and manufacturing industries such as mining and quarrying, the processing of raw materials into usable ones, and the production of finished goods. Infrastructure relates to the means by which society functions – the generation of power, provision of water supplies and sewage disposal, transport by road, water, rail and air, and postal services and telecommunications. Although some of these activities have been practiced since prehistoric times, it is only since the industrial revolution some 250 years ago that they have come to prominence.

The range, scale and rate of industrial development in Ireland contrasts markedly with Britain. Eighteenth century Ireland did not experience the same degree of technological, social and economic change as Britain. This is partly due to Ireland having no significant deposits of coal and iron on which to base large-scale heavy industries. Ireland is predominantly rural and much of its past industry has focused on the processing agricultural output. The first nationally significant industry was flour milling during the later 1700s, followed by brewing, distilling and linen production in the early 1800s. Much of this development was due to economic and political conditions in Britain (e.g. rapid urbanization and the French Wars) and the development of trading and commercial centres such as Dublin and Cork.

The great famine in the 1840s arrested Ireland's economic and industrial development. The countryside became depopulated and the towns expanded, necessitating the eventual establishment of public utilities to support their growing populations, many of whom were now engaged full-time in manufacture, trade and commerce. Steam power, mechanisation and factory labour became commonplace, although only of real consequence in the larger urban centres such as Belfast, Cork, Dublin, Dundalk and Limerick. The coming of the railways in the later 1800s also enabled these town-based industries to extend their spheres of influence beyond their immediate hinterlands, often to the detriment of local enterprises.

Until the partitioning of Ireland in the 1920s, Irish industry was inextricably linked to the fortunes of the British economy. The protectionist policies of the 1930s encouraged the development of home-based industries and greater economic self-sufficiency.

The entry of Ireland into the European Economic Community in 19?? heralded a new era of industrial and infrastructural growth, the so-called 'Celtic tiger'. Paradoxically, it is this economic miracle which now threatens those surviving vestiges of past industry.

1.1 Industrial archaeology in Ireland

The first recorded industrial archaeological survey to be carried out in Ireland by Dr Rodney Green of Manchester University in the late 1950s. Commissioned by the Northern Ireland government, his work was published in 1963 as *The Industrial Archaeology of County Down*. This book was the first regional monograph on industrial heritage anywhere in Britain and Ireland and its success encouraged the government to fund a survey of industrial heritage sites throughout Northern Ireland. This work was undertaken by Dr Allan McCutcheon and published in 1980 as *The Industrial Archaeology of Northern Ireland*.

Despite these pioneering works, Ireland as a whole has lagged behind Britain in the recording and conservation of industrial heritage. Amateur interest has tended to focus

on specific aspects of industrial heritage such as inland waterways, railways and mills, and only recently has a general-interest group been established – the Industrial Heritage Association of Ireland. Most industrial heritage survey work has, to date, been instigated by local authorities and the State.

1.2 Local authority surveys

The first concerted attempt to record the Republic's industrial heritage was made during the 1970s by An Foras Forbartha (AFF). Established by the Government in 1964, part of AFF's remit was to assist local authorities with planning matters relating to the built environment. This issue had arisen as a consequence of the Local Government (Planning and Development) Act 1963 which required local authorities to prepare development plans. The Act also empowered them to include in such plans lists of buildings which were worth preserving on account of their artistic, architectural or historical interest. By 'listing' such buildings, planners could exercise a degree of control over their future development.

Responsibility for the compilation of these lists lay with AFF's Conservation and Amenity Advisory Service (CAAS) and 19 counties were surveyed between 1973 and 1978; unfortunately, Co Laois was not amongst them. Because of time, manpower and budgetary constraints, only the more obvious sites were recorded. Those of special industrial heritage significance were highlighted and subsequently recommended to the planning authorities for inclusion in their respective development plans.

Co Kilkenny was the last county to be surveyed by CAAS, in 1986. Unlike the previous AFF surveys, this was a systematic and comprehensive survey of a wide range of industrial sites. Using Ordnance Survey 6" maps from the 1830s onwards and published articles, a 'paper' survey was initially carried out to locate all sites of industrial interest. Some 650 sites were thus highlighted, all of which were then inspected in the field. Some 400 still had upstanding remains and those of special interest were identified and subsequently included in the 1994 Co Kilkenny Development Plan.

Although AFF was disbanded in 1987, its pioneering work formed the template for surveys by local authorities and other organisations: Co Dublin (1989), Cork City (1992), Dublin's Docklands (1995-96), and east Donegal (1999).

1.3 State surveys

Dúchas the Heritage Service and its predecessors have also carried out surveys of industrial sites as part of their general archaeological and architectural remit.

In 1982, the Archaeological Survey of Ireland (then part of the Office of Public Works) instigated a project to identify all known archaeological sites throughout the 26 counties. Over the next 10 years, a 'paper' survey was undertaken of published material and past editions of OS maps and the findings brought together as the *Sites & Monuments Record* (SMR). The SMR for Co Laois was published in 1989.

All SMR sites were subsequently inspected in the field and those which were locatable and confirmed to be of archaeological interest were included in the Record of Monuments and Places (RMP). This holds details of over 110,000 sites. However, because the focus of this work was primarily on sites pre-dating 1700 AD, only a tiny fraction of those identified relate to past industry and infrastructure. The RMP for Co Laois was published in 1995.

In 1991, the Office of Public Works also initiated an architectural survey of all upstanding buildings and structures in the Republic. This followed the Government's

signing of the 1985 Granada Convention for the Protection of the Architectural Heritage of Europe. This recognised the importance of systematic field survey as a basis for an inventory from which sites meriting protection could be selected. Under the Architectural Heritage (National Inventory) and Historic Monuments Bill 1998, the survey and inventory were both placed on a statutory footing under the auspices of Dúchas.

The NIAH's focus has been on upstanding sites - structures, buildings and houses - of post-1700 date. Work initially focused on those county towns which came within the remit of Urban Renewal Schemes as these being most likely to be subjected to development pressure. Portlaoise was systematically surveyed in the mid 1990s and published in inventory form in 1997.¹

Over the past five years, survey work has accelerated and now encompasses rural areas as well. During 2002, interim county surveys were published for counties Laois, Carlow, Fingal and South Dublin. Counties Kerry, Kildare and Meath followed in 2003.

As with the earlier AFF surveys, all sites deemed by the NIAH to be of regional, national or international significance are recommended for inclusion in the *Record of Protected Structures* (RPS). The RPS was instigated under the Planning and Development Act 2000 and works to sites included therein are subject to special planning conditions which will ensure the survival of those features which make them special. Unlike the centrally-administered RMP, the RPSs are administered and maintained on a county and urban district basis by their respective planning authorities. All are subject to review every five years with the coming into force of each new development plan.

1.4 Survey overview

On the basis of field survey in various parts of Ireland, it is estimated that there were some 100,000 sites of industrial archaeological interest in operation at one time or another in the Republic. Unfortunately most have yet to be located in the field and only a small fraction - less than 5% - has actually been inspected during the above surveys.

Each of the above surveys was undertaken with a specific purpose in mind and therefore the resultant databases are skewed according to those goals. The AFF and NIAH surveys, for example, have focused primarily on post-1700 upstanding sites of special architectural and/or historical significance. By contrast, the RMP includes industrial sites by virtue of their archaeological interest but is skewed towards defunct and buried sites pre-dating 1700AD.

In only a handful of cases have both a systematic paper and comprehensive field surveys been undertaken specifically of industrial sites – Co Kilkenny, Co Kilkenny, Cork City and east Donegal. Not only do such all-embracing surveys identify what existed in the past, but also what now survives. The data also enable the historical context and rarity (or otherwise) of particular sites to be established, both prerequisites of any proper evaluation of significance. The instigation of a paper survey is a vital first step in the identification, recording and conservation of Ireland's industrial heritage.

2. Database overview

The Laois Industrial Archaeology Record (LAIAR) contains information on a wide range of sites of industrial archaeological interest throughout Co Laois (the boundaries of

¹ This document is available in Dúchas headquarters and in the Irish Architectural Archive.

which are taken as those on the 1910 OS maps).² It contains data on upwards of over 1000 sites, all of which have been revealed through a systematic survey of Ordnance Survey maps, valuation books and publications.

2.1 Sites and site components

The building block of LAIAR is the *Site*. This is defined as a plot of ground containing one or more built forms, the functions of which are of industrial or infrastructural interest. The majority of sites have a single function, e.g. grain milling or timber sawing, or a river crossing point. Some sites have several functions, e.g. grain milling and wool fulling.

A *Site Component* is defined as a built form used for a specific industrial purpose within that site. Thus a grain milling site might contain two components in use simultaneously – the mill where grinding took place, and the kiln where the grain was dried; these two functions could be in the same or separate buildings. Two components may also be consecutive, e.g. a grain mill replaced by a later saw mill, or a grain mill converted to a saw mill. There is no presumption that a site’s components are necessarily related in any way, were in use simultaneously, or are still upstanding.

Most sites have a single component with a specific function, e.g. a quarry or sawmill, or road bridge over a river (fig.1a). Some single-function sites may contain several components, e.g. a grain milling site encompassing a corn mill and contemporary original kiln, and replacement modern kiln (fig.1b). Alternatively, a site could encompass several functions, each with several components, e.g. a corn mill which was later used as a hydro-electricity generating station, along with corn kiln, replacement kiln, tuck mill and saw mill. In this case, there are four functions (grain milling, wool fulling, timber processing and electricity generation) and six components (fig.1c).

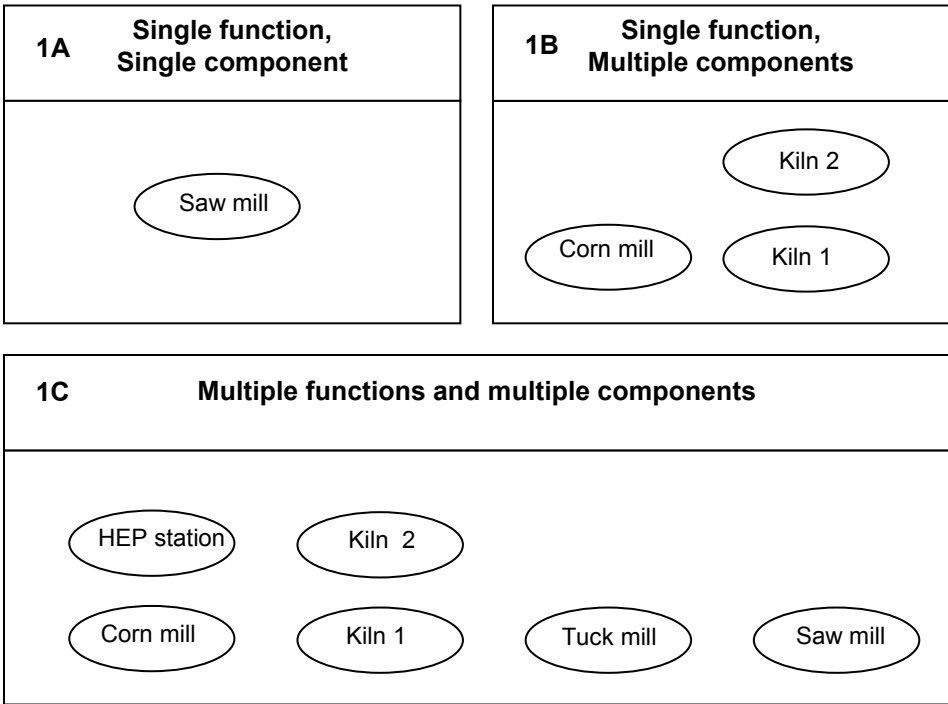


Fig.1 Schematic representation of site functions and components.

² Graigue was originally in Co Laois but was transferred to Co Carlow in the 1890s. Consequently, sites in this locality are excluded from LAIAR.

Most sites also lie within a restricted geographical area, but some are dispersed over a wide area (e.g. collieries) or extend linearly over many kilometres (e.g. railways and canals).

2.2 Site records and numbering

All data pertaining to each site has been brought together as a *Site Record*. These data include details of the site's name, functions, components, dates, location, statutory protection (if any) and references thereto in other databases. Details of depictions on OS maps, valuation books and publication references are also given.

Each Site Record has a unique identification number. This is designated according to the 1906-08 Ordnance Survey six-inch map sheet on which the site lies, and sequentially within each sheet, e.g. LAIAR-035-006 is site 6 on Co Laois six-inch map sheet 35.³ Every site is cross-referenced by its number to the marked-up six-inch map on which it lies.

2.3 LAIAR Database

All the Site Records and ancillary data combine to form the LAIAR database – the Co Laois Industrial Archaeology Record. This database contains details of every site in both hard-copy (paper) and computer formats (fig.2). The former contains indexes to the Site Records, files containing data not contained in the computer database (e.g. photocopies of relevant published data) and a set of marked-up OS six-inch maps. The computer format stores the data in a Microsoft *Access 2000* database (on CD) and site distribution maps at various scales in *MapInfo* format.

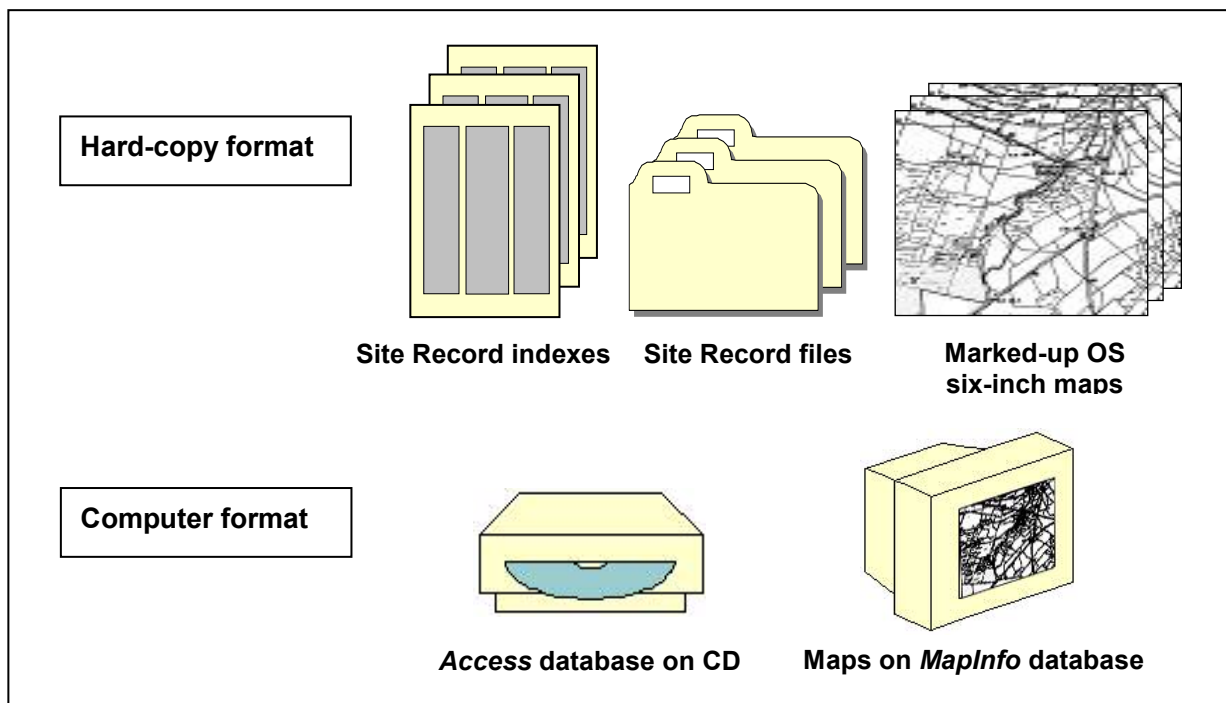


Fig.2 Schematic representation of LAIAR.

³ Where a site lies in a map sheet suffixed by 'A' or 'B', it takes the number of the parent sheet. e.g. site 1 falling within sheet 14A would be regarded, for the purposes of LAIAR numbering, as being in sheet 14. This numbering system allows for up to 999 sites within each sheet.

2.4 Database utility

Although essentially a 'paper' survey of readily available documentary records, LAIAR is potentially of enormous value in a number of key respects:

- A definitive record of industrial activity in Co Laois, much of which has disappeared.
- A tool for the analysis of Laois' industrial development over the past 250 years.
- A basis for devising effective strategies for general and thematic fieldwork.
- A basis for evaluating and highlighting sites of special heritage significance.
- A database of use in devising heritage conservation strategies for County Development and Local Area plans.
- A source of information for educational and tourism initiatives.

When fieldwork is initiated, the database also has the potential to be expanded to include the data thus gathered.

3. Sources

The principal sources used in the compilation of LAIAR are Ordnance Survey maps, valuation books, published documents, Record of Protected Structures, Record of Monuments & Places, Sites & Monuments Record, and National Inventory of Architectural Heritage.

3.1 Ordnance Survey maps

OS maps have revealed the vast majority of sites recorded in the IAR thanks to their systematic and comprehensive coverage of the county's physical infrastructure. Such maps depict a wide variety of industrial sites, especially extractive, manufacturing and transport sites, and many are also explicitly captioned with their function and/or name.

Co Laois is covered by 37 six-inch (1:10,560) sheets (fig.3) and was surveyed in 1838-39, 1888-91, and 1906-08; Slieve Bloom was resurveyed in 1961-62 (Appendix 1.1). The first edition maps are available in Laois County Library Headquarters (Portlaoise), the National Library and Trinity College Map Library. The two Dublin repositories hold copies of all surveys.

The six-inch maps are particularly useful in revealing the distribution of industry before and after the famine, and during the early 20th century. Unfortunately, there has been no systematic survey since 1910, so that industries established after this date can only be identified from other sources and by fieldwork.

The 1906-08 survey was also published at 25-inch scale (1:2500). There are 16 such sheets for every six-inch sheet. Given the vast number of map sheets available, only those 25-inch maps for urban areas were culled for the purposes of this survey (Appendix 1.2). These maps are available in the National Library and Trinity College Map Library. Their detail is such that sites were often revealed which were not apparent on the six-inch maps due to the congestion of buildings making their captioning impossible (e.g. smithies and water pumps).

Of all the urban areas in the county, only Portarlinton was surveyed at 1:1056 (five feet to a mile) in 1889 (Appendix 1.3). These maps may be consulted in Trinity College Map Library.

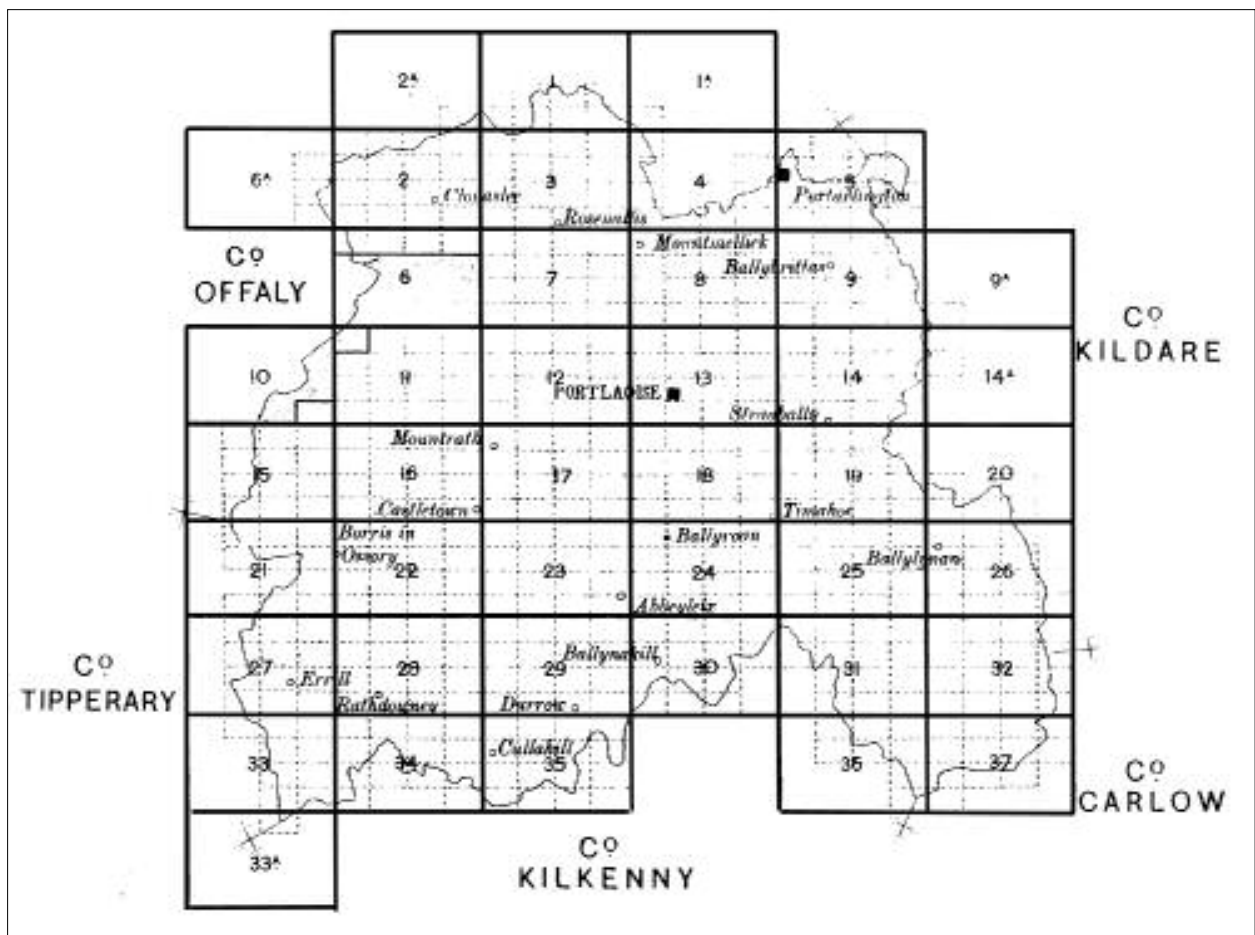


Fig.3 OS six-inch map coverage for Co Laois.

Seven OS Discovery Series maps at 1:50,000 scale also cover the county (Appendix 1.4). These are based on aerial photography carried out in 1995 and were published in 1997-98. Each map covers an area of 40km x 30km. Although at too small a scale to distinguish individual industrial sites, they proved useful in showing Bord na Mona's peat works and railways and the ESB's power stations, all of which came into operation in the 1960s.

Whilst the map coverage is reasonably comprehensive for the period 1839-1908, the identification of sites which subsequently came into existence is reliant on other sources such as publications. This was the case, for example, with the Athy-Wolfhill railway line, which operated from 1918 to 1929; the track was subsequently lifted and is not shown on the Discovery map.

Sampling strategies

Because of the high frequency of some site types, a sampling strategy was devised for selected types. Moreover, because of the small size of some types of site (e.g. water pumps), not all are necessarily depicted on the six-inch maps. The representativeness of the distribution of each of type of industrial site included in LAIAR is shown in the following table.

Industry

Quarries	Only those captioned 'quarry'.
Sand/gravel pits	Not selected.
Lime kilns	Where associated with quarries.
Brick fields	All depicted examples selected.
Peat working	All sites depicted on Discovery maps selected.
Mills, factories etc	All captioned sites and uncaptioned ones identified in other sources. Ancillary buildings such as mill owners' houses, offices and workers' houses could not be distinguished on the maps and are therefore not included.
Smithies	Where captioned (explicitly or by horseshoe symbol).

Infrastructure

Water/ Sewage	All captioned features relating to water supplies and sewage disposal in public and private ownership. Water pumps and fountains are generally only evident on 25-inch maps. Those in urban areas are included in LAIAR, but not those in rural areas (as the 25-inch maps were not examined).
Gas/ Electricity	All captioned public and private enterprises.
Roads	All named bridges over rivers and unnamed bridges over the main watercourses (including those in private estates); also selected footbridges. All captioned mile markers were recorded. These are generally captioned on the 1906-08 six-inch maps. They may have existed at the time of previous OS surveys but were not highlighted by the mappers.
Inland waterways	Canals, navigations and feeders. Also all bridges over and under canals (including aqueducts but excluding uncaptioned culverts), mile markers, locks, lock houses, and other canal-related features.
Railways	Mainline railways, branches, sidings, tramways; all bridges over/ under railways (but not culverts over watercourses), stations, halts, terminals, goods sheds, engine sheds, level crossing keepers' houses (at level crossings and clearly evident on 25-inch maps). Railway mileposts were not recorded.
Postal services	Only letterboxes where published data also existed were selected.

Miscellaneous

Place names which denote previous industrial activity were recorded even though the actual site could no longer be located precisely.

3.2 Valuation books

A valuation of all properties in the county was carried out in the mid 1800s for every barony in the county (Appendix 2.1). Known as the Griffith Valuation, the objective was to value all building and land plots for rating purposes. The results were organised by field plot, townland, parish, union and barony, and published in 1850-51. All premises were recorded under building type, occupant, owner, extent of associated ground, and valuation of buildings and land.

The Griffith Valuation is particularly useful in highlighting manufacturing sites, especially mills, distilleries, breweries, forges; some quarries and lime kilns were also identified. Details of all sites of industrial interest are included in LAIAR.

This information is of potential value in two respects. Firstly, in highlighting the small number of mill sites which were overlooked during the initial OS map search (mainly because they were not captioned). Secondly, in illustrating the wide variations in site

valuations and thus differentiating substantial industrial enterprises such as flour mills from smaller, lower-rated corn mills.

The published Griffith valuations are based on manuscript valuation books known as the 'house', 'field' and 'mill' books. These were compiled in the 1840s, following publication of the Ordnance Survey six-inch maps. The mill book contains details of upwards of 60 mill sites, arranged by parish and townland. The miller's name is given, along with the mill's function, dimensions of its waterwheel, machinery content and rateable valuation. These data have been reproduced by William Hogg in *The Millers & the Mills of Ireland of about 1850* (Dublin, 2000).

3.3 Published documents

The local studies collection in Laois County Library Service headquarters, Portlaoise, was systematically examined (shelved books, folders and filing cabinets). Some 120 publications were found to have references to industrial sites within the county (listed in Appendix 3). All references were photocopied and inserted in the relevant hard-copy site record file.

3.4 Record of Protected Structures

Ten sites of industrial heritage interest were noted in the Co Laois Record of Protected Structures and included in LAIAR.

3.5 Record of Monuments & Places and Sites & Monuments Record

Twelve sites of industrial interest in the Record of Monuments & Places have been included in LAIAR. Twenty-five additional sites in the Sites & Monuments Record which can be identified to at least townland level are also included (ie those only locatable to baronial level are excluded).

Although most of these sites pre-date 1700 AD and have no visible remains, their inclusion extends LAIAR's temporal scope beyond the modern era.

3.6 National Inventory of Architectural Heritage

The NIAH published a comprehensive survey of Portlaoise in 1997. Upwards of 100 sites of industrial interest are included in LAIAR, together with the NIAH evaluation of their heritage significance.

It should be noted that some structures and buildings associated with industrial sites (e.g. offices and workers' houses) may have been overlooked as their industrial connotations were not obvious from the NIAH summary descriptions. Such sites may be identified during future fieldwork.

4. LAIAR computer database

The different strands of data abstracted from the various sources noted above are grouped into separate Site Records. A Microsoft Access 2000 database has been used to store these data as separate *fields*, e.g. site number, townland, publication details. Each Site Record is headed by the database title and site number (as discussed in

section 2.2). These fields are arranged by category into seven pages - 1. General; 2. History; 3. Survey; 4. Evaluation; 5. References; 6. Photographs; 7. Record.

For the purposes of this paper survey, only pages 1, 5 and 7 have been completed; the remainder must await field survey and an appraisal of the documentary references.

4.1 General

This introductory page presents an overview of the site (function, components, date, location), statutory protection (if any), links to other LAIAR sites, and links to other databases.

- **Site name**

This is the name by which site is known. Most names are derived from the OS maps. Where a name has changed, the previous one is given in curly brackets, e.g. New Bridge {Wooden Bridge}.

- **Summary**

This is a summary description of the site (date, function, components) based on the data contained in the site record.

- **Functions**

This section notes the various functions embodied in the site, and their date of commencement.

Function number

Most sites have a specific function, e.g. grain milling, but others may be multi-functional, e.g. grain milling, wool fulling and hydro-electricity generation. Each separate function is accorded its own number.

Function/ Industrial category/ Context

A three-tier hierarchical classification system is used to denote the principal industrial context(s) of each site – site function, industrial category, and context (Appendix 4).⁴

Specific functions include brewing, linen production, electricity generation, canal transport. These, in turn, fall within the industrial sub-categories 'drink processing and products', 'textile production', power, and 'transport'. Most sites will fall into the general category of 'industry' or 'infrastructure'.⁵

Some sites may comprise more than component, each of which has a specific function. However, it is the site's *principal* industrial activity which determines the

⁴ This hierarchical system facilitates specific and more general searches. For example, someone interested in brewing would search for 'Brewing' under site function, whereas someone interested in the drinks industry in general would search under 'Drink Processing and Products' in industrial category; this saves having to search under all possible functional categories, in this case 'Brewing', 'Distilling' and 'Soft drinks'. Likewise, someone interested in transport could quickly retrieve all such sites without having to make separate searches under 'Inland Waterways', 'Roads' and 'Railways'.

⁵ 'Agriculture' and 'Settlement' are included under 'Context' to permit the inclusion of non-industrial sites which are strictly not industrial but which may be of interest to the industrial archaeologist, e.g. farm drying kilns and commercial laundries, and also water supplies and bridges in private demesnes.

functional context of its components. For example, the principal objective of a site containing a corn mill and kiln is to produce milled grain. Similarly, the purpose of a corn mill in the context of a distillery is to grind malted barley, so the site's primary function is distilling (and not grain milling as well). Likewise, a water tower at a railway station supplies steam locos with water, not the public with water. Hence it is subsumed within the site's overall function as railway-related.

In the case of bridges, their function is determined by the nature of the traffic which they carry, e.g. a railway bridge falls in the functional category 'Railway' irrespective of whether it is over a road, river, canal and another railway.

Function start date

This denotes the dates within which the site began to be used for a particular function. Where the year is known precisely, the from/to dates will be the same (e.g., 1856/1856). More usually, the exact date is unknown. For example, a site may be absent from the 1839 OS map but be shown on the 1890 edition. It thus came into use sometime between 1839 and 1890 inclusive, and its date would be 1839-1890. The dates of most sites on the 1838-39 OS 6-inch maps are, as yet, unknown. It is likely, however, that most were built in the 1700s or early 1800s; their dates are given as 1700/1839.

Where a series of replacement structures all have the same function, it is the date when this function started which is recorded: e.g. a site with a 1750s' timber bridge replaced by an 1856 masonry bridge a 1993 concrete bridge would be dated 1750/1759.

Note that the start date for a particular function may differ from the constructed date of the structure or building associated with it. For example, a late 18th century corn mill may have been converted to a sawmill in the 1890s and have housed a hydro-electricity generator in the 1980s. These changes would be recorded in the database as follows:

Fct no	Site function	Industrial sub-category	Industrial category	Site function start date
1	Grain milling	Food processing/products	Industry	1750-1799
2	Timber processing	Timber processing/products	Industry	1890-1899
3	Electricity	Power	Infrastructure	1980-1989

- **Components**

This section notes the types and dates of the various components which make up the site.

Component number

Each site component is identified by its own sequential component number (in no particular order).

Type

This field denotes the type of structure or building which comprises that particular site component, e.g. corn mill, corn kiln, mile marker, railway. Bridges, the commonest industrial structures, are classified according to what is carried over what, e.g. rail-over-road (denoted as rail/road), road-over-rail (road/rail). This

circumvents nomenclature ambiguities, e.g. a canal bridge is regarded as bridge over a canal. By the same token, however, a road- or a railway bridge over a river would be 'river' bridges, and a 'railway' bridge would be any bridge over a railway.

In the case of mills, motive power - water, steam and wind - is noted in brackets where known.

'Preferred' terms are used to denote component types so that data are retrieved in a consistent and effective fashion. For example, a mill where flax is scutched is variously known as a flax mill, scutch mill and flax scutching mill. Likewise, a blacksmith's shop is usually called a smithy or forge. By specifying a preferred term, one avoids having to be aware of all possible terms under which a site may be classified. In the two cases above, the preferred terms are 'flax scutch mill' and 'smithy' respectively. A full list of such terms is given in Appendix 5.

Component start date

This denotes the period during which that particular site component came into use. By way of example, a later 18th century corn milling site to which was added a steam-powered saw mill in the 1890s and a new kiln in the 1930s, and was then used for hydro-electric generation from the 1980s (with a replacement generator in 2001) would be recorded as follows:

Component no.	Component type	Component date
1	Corn mill (water)	1750-1799
2	Corn kiln	1750-1799
3	Saw mill (steam)	1890-1999
4	Corn kiln	1930-1939
5	Electricity station (hydro)	1980-1989
6	Electricity station (hydro)	2001-2001

- **Location**

This section notes the geographical location of the site and also the OS map sheets on which it is depicted.

County

This denotes the present-day county within which the site lies (ie as given on the 1906-08 OS maps). The county's previous name is also given in curly brackets, in this case {Queen's}. In those instances where a site straddles two or more counties, all names are given, beginning with Laois, followed by the others in alphabetical order, e.g. Kilkenny; Offaly; Tipperary.

Townland

The townland(s) within which a site lies are as shown on the 1906-08 OS six-inch maps. Their spellings are as given in the *General Alphabetical Index to the Townlands and Towns, Parishes and Baronies of Ireland* (published 1861).

Most sites lie within single townlands, but where they straddle several townlands (as with many road bridges over watercourses), all townland names are noted in alphabetical order and separated by semi-colons, e.g. Clonterry; Kilnacash; Kilmainham.

Where part of the site lies in a townland in an adjoining county, the county rather than townland name is given, e.g. e.g. Ballynahown; Co Offaly. In the case of linear sites such as railways, which cut through a multitude of townlands, the townland name is given as 'Various'.

Some townlands have two names, e.g. Coolnavarnoge and Coolaghy (OS map sheet 4), or alternative names e.g. Carn or Curraghane (sheet 8). In such cases, both names are cited as on the map.

Where a site has switched townland due to a boundary change between 1839 and 1908, the earlier name is also noted in curly brackets, e.g. Doonane {Farnans}.

In some instances, townlands in different parts of the county share the same name. Whilst it is possible to distinguish most of them by OS 6-inch map sheet, they have also been differentiated in the database by barony. Thus Townparks in Borris-in-Ossory is distinguished from Townparks in Mountmellick not only by the fact that they lie in OS sheets 21 and 23 respectively, but also because they also lie within Clandonagh and Tinnahinch baronies respectively. Where two identically named townlands also happen to be in the same barony, they are also differentiated by parish name, e.g. Graigue (Kilmanman Parish) and Graigue (Rosenallis Parish).

Town

Sites lying within the following urban areas are distinguished:

<ul style="list-style-type: none"> • Abbeyleix • Arless • Ballickmoyler • Ballybrittas • Ballycolla • Ballylynan • Ballynakill • Ballyroan • Borris-in-Ossory 	<ul style="list-style-type: none"> • Castletown • Clonaslee • Coolrain • Cullahill • Donaghmore • Durrow • Errill • Luggacurren • Mountmellick 	<ul style="list-style-type: none"> • Mountrath • Portarlinton • Portlaoise {Maryborough} • Rathdowney • Rosenallis • Stradbally • Timahoe
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Street

Most sites within urban areas lie on named streets. These have been identified where possible. Where a site lies on a corner, the names of both streets are given alphabetically and are separated by a semi-colon. Former street names, where known, are given in curly brackets.

OS 6-inch map

This denotes the sheet number of the 1906-08 edition of the OS six-inch (1:10,560) map within which the site lies. Some map sheets contain sub-sheets which are distinguished by lettered suffixes. Even though a site may fall on such a suffixed map, for the purposes of this field, its sheet number is given as the main sheet, without a prefix; e.g. if a site falls in sheet 14A, its map number is 14.

OS 50K map

This denotes the sheet number of the 1:50,000 Discovery Series maps which contain the site.

Grid - east/ north

The location of each site is marked-up on the 1910 OS 6" map as a circle attached to which is the Site number; the centre of the circle corresponds with the approximate centre of the site. Point sites are depicted on these maps as 1cm diameter circles. For area sites, the shape and size of the mapped representation varies according to their shape and size. Line sites are shown as lines on the maps. Note that the boundaries of the mapped depictions should be regarded as representing those of the actual site; rather they are merely schematic notations to illustrate the approximate area within which all or part of the site lies.

The centre point of each site's representation on the IAR map can be denoted by a 12-figure National Grid number – the easting and northing are given as separate 6-figure numbers. These figures denote the coordinate of the south-west corner of the 1m square within which the centre of the site lies, e.g. 253192 236204. This degree of exactitude is required if the data is to be accurately plotted using *MapInfo*.

Unfortunately, the 6-inch maps do not have a National Grid overlay, so the grid coordinates must be obtained from other sources. The most precise figures are available using *MapInfo*, a computer database in the possession of Laois CC, which contains both the 6-inch maps and a National Grid overlay. Coordinates can also be obtained from the Discovery Series maps, but only to the south-west corner of the 100m square within which the site lies. The above grid would be lifted from such a map as 2531 2362, but recorded in the database as 253100 236200 (as 12 figures are demanded). Similarly, a grid lifted from the half-inch maps (1:126,720 scale) can only be recorded with certainty to the 1000m square within which it lies.

Grid precision

In the IAR database, the precision of the grid is noted according to the source from which it is derived. *MapInfo* grids are precise down to 1m, Discovery map grids to 100m and those taken from half-inch maps (1:126,720 scale) to within 1000m.

By noting the grid's precision, it is possible to determine if, say, 204000 256000 was actually obtained as 204 256 from a half-inch map, as 2040 2560 from a Discovery map, or as 20400 25600 or 204000 256000 using *MapInfo*. We would then be aware that the centre of the site lay within a 1km, 100m, 10m or 1m box to the north-west of that particular grid coordinate. This is of relevance when interpreting site plots and distribution maps.

Site topography

This gives an indication of the shape and size of the site under review without having to consult its map plot. 'Point' sites are those which do not extend more than 100m in any direction. They therefore lie within a 1cm diameter circle on the corresponding OS 6-inch map (or 4cm diameter circle in the case of 25-inch maps). An example of such a site would be a bridge or mill site comprising a corn mill and corn kiln. 'Area' sites are those which extend over a greater area, e.g. mines and quarries comprising a number of dispersed workings. 'Line' sites traverse the landscape in a linear fashion, e.g. canals and railways.

Plot accuracy

Although the grid coordinates for the centre of a site can be specified very precisely, its marked-up position on the IAR map may not correspond with its true geographical location. 'Plot accuracy' indicates how well a site's mapped position corresponds with its actual location on the ground.

The last number in the easting and northing of a 12-figure grid is actually spurious. On a 6-inch map, 1mm is equivalent to 10m on the ground. As it is only possible to mark up a site to an accuracy of 1mm (at best), the actual geographical centre of a site with a grid number of, say, 253192 236204 could lie somewhere in a square diagonally bounded by the grids 253182 236194 and 253202 236214.

In most cases it will be possible to mark up a site on the 6-inch to within 10m of its actual position in the field. However, sites located on the basis of their representations on the Discovery and half-inch maps would have an accuracy of only 50m and 125m respectively (presuming that they can be pinpointed on the maps to within 1mm of their true positions).

There may also be instances when the existence of a site is known, but not its exact whereabouts, e.g. a site located only to its townland, town or street location. Such sites can be marked up on the IAR maps, but only to the approximate centre of the townland, town or street in which they lie.

The inherent uncertainty with which a site is plotted on the IAR map can be reflected in its accuracy designation – 10m, 50m, 125m, 1km, 10km, street, town, or townland.

- **Statutory protection**

This section notes the statutory protection, if any, accorded the site under the Planning and National Monuments acts.

Planning Authority

Laois County Council is responsible for all planning issues in the county. Where a site straddles the county boundary, the neighbouring planning authority as also listed, e.g. Laois CC; Kilkenny CC (note the semi-colon between authorities).

Protection – RPS/ RMP/ Other

The Record of Protected Structures (RPS) and Record of Monuments and Places (RMP) are the two commonest designations whereby a site can be statutorily protected against inappropriate development work. Where a site is in the RMP and/or RPS, its designation number is noted in the relevant box.

Other forms of protection include Conservation Areas, Register of Historic Monuments, Preservation Orders, Guardianship and State ownership; none of these have yet been applied to any industrial site in Co Laois.

- **Comments**

This field contains any additional observations and notes on the site.

- **Links (internal)**

This section notes any links between a particular site and other LAIAR sites.

Same as

Sites extending over two or more 6-inch maps, will have several numbers; this is invariably the case with railways and canals. This field links differently numbered sites which are actually one and the same. This field contains the number of the parent site, to which all the other sites are related.

The 'parent' site this is defined as the site nearest the origin point of that particular feature: e.g. the Mountmellick Branch of the Grand Canal is marked on three

contiguous 6-inch sheets as LAIAR-004-005, 005-007 and 008-031. LAIAR-005-007 is the parent site as it is nearest to Athy, whence this branch came. Parent-child links for railways and canals are given in Appendix 6.

Associated with

Some sites may be related to others, whether by function and/or ownership. This field highlights any demonstrable links to be highlighted. Suspected links which have yet to be confirmed are indicated by a '?' after the associated site's number.

This field enables one to link, say, a railway station with its associated railway line. It can also be used to link branch railways and canals with their main lines, and feeder streams to canals. Where there is more than one association, the associated sites are separated by semi-colons.

- **Links (external)**

This section highlights any known links between a particular site and those in other databases.

Database – SMR/ NIAH/ Other

Some sites may also be recorded in the Sites & Monuments Record (SMR) and National Inventory of Architectural Heritage (NIAH). These boxes note the registration number of the site as given in these other databases, e.g. SMR LA034-020---, NIAH 12901010. All other database references are prefixed by the name of the database and separated by semi-colons. No details of the data held in these other databases are held in LAIAR and they must be consulted separately.

4.2 History

This page of the Site Record details the site's historical development. Although the filling-in of the body of this page must await future work, it also contains ancillary data gleaned from the OS maps and Griffith valuations.

- **OS maps**

Sheet number

A three-figure number, prefixed by 'LA' to indicate it is a Co Laois sheet, e.g. Co Laois sheet 3 is LA003. Twenty-five inch sheets are shown after the 6-inch map number, e.g. LA013-15 denotes 25-inch sheet on 6-inch sheet 13. Similarly, 5-foot map numbers are shown as hyphenated sub-numbers, e.g. LA034-04-50.

Component number

This is the number of the component cited in the first page of the Site Record.

Scale

Most maps are 1:10,560 (6-inch to one mile), but some are 1:50,000 (Discovery series), 1:2500 (25-inch) and 1:1056 (5-foot).

Survey date

This is the date (or date range) when the sheet was surveyed, and usually precedes the map's publication by one or two years.

Depiction

This denotes whether a structure shown on the map and also whether it is associated with the component under review.

Y = the structure shown on the map is the component under review (whether still in use or defunct is immaterial). This would be the case, for example, with captioned sites (e.g. corn mill & kiln) or those shown by symbols (e.g. quarries, lime kilns, smithies, bridges).

Y(?) = a structure is shown on the map but it is uncertain whether it is the component under review.

Y(N) = a structure is shown on the map but it is not the component under review. This would be the case, for example, with a site component erected after that particular map sheet was surveyed. It would also be the case where a building was converted to industrial use, e.g. a building shown on the 1884 map which was subsequently used as a smithy and thus captioned on the 1910 map.

? = it is uncertain whether a structure is actually shown on the map. This is sometimes the case in built-up areas, where buildings cannot be differentiated owing to their congestion.

N = no structure is depicted on the map.

Caption

Where given, this is usually as a name and/or function, e.g. 'Millbrook Flour Mill' and 'corn mill & kiln'.

Comments

It is also noted where a structure is shown as a symbol rather than explicitly captioned, e.g. smithies and limekilns. Place names are also noted, as are ancillary structures connected with mills, e.g. ponds and races.

• **Valuations**

This database contains the following fields:

Publish date

Date of publication of that particular valuation book.

Poor Law Union(s), Barony, Parish, Townland, Town, Street

Self-explanatory.

Page

Page of book in which valuation entry occurs.

Map ref

This cross-references a site to its location on the valuation map.

Occupier

Name of person leasing site.

Lessor

Name of person from whom the site is leased.

Buildings

Description of the site's built forms, including industrial structures.

Land

Area of land associated with the above building(s).

Building val

Ratable valuation of the above buildings (£.s.d.).

Land val

Ratable valuation of the land (£.s.d.).

Total val

Ratable valuation of the buildings and land. Sometimes the valuation of ancillary lands are also included (£.s.d.).

Comments

Used to record any additional observations on the valuation entry.

4.3 Survey

This page is included to permit the later addition of field survey descriptions.

4.4 Evaluation

This page is included to permit the addition, once survey work has been completed, of analysis and the evaluation of a site's heritage significance.

4.5 Publications

This database contains details of the article's author, title, place of publication, publisher and date; also the page number on which the data occur. Photocopies of the relevant sections of these publications are in the LAIAR hard-copy files.

4.6 Photographs

This page is included to permit the addition of details of photographs taken during fieldwork.

4.7 Record

This page is a database management tool, and records all changes made to this particular Site Record.

Date

When amendment to the Site Record was made (dd/mm/year).

Event

Nature of change to record (e.g. creation, editing, additions).

Name

That of person making the change.

5. Using the computer database

Having clicked on the LAIAR database icon, the user is presented with the 'cover page' of the database. From here, one can carry out one of three tasks by clicking on the relevant labelled button: view records, find records and exit database (fig.4). In addition, the database Administrator can also amend and delete existing records and also add new records. By restricting changes to the database to a designated person, the proliferation of different versions of LAIAR will be avoided.

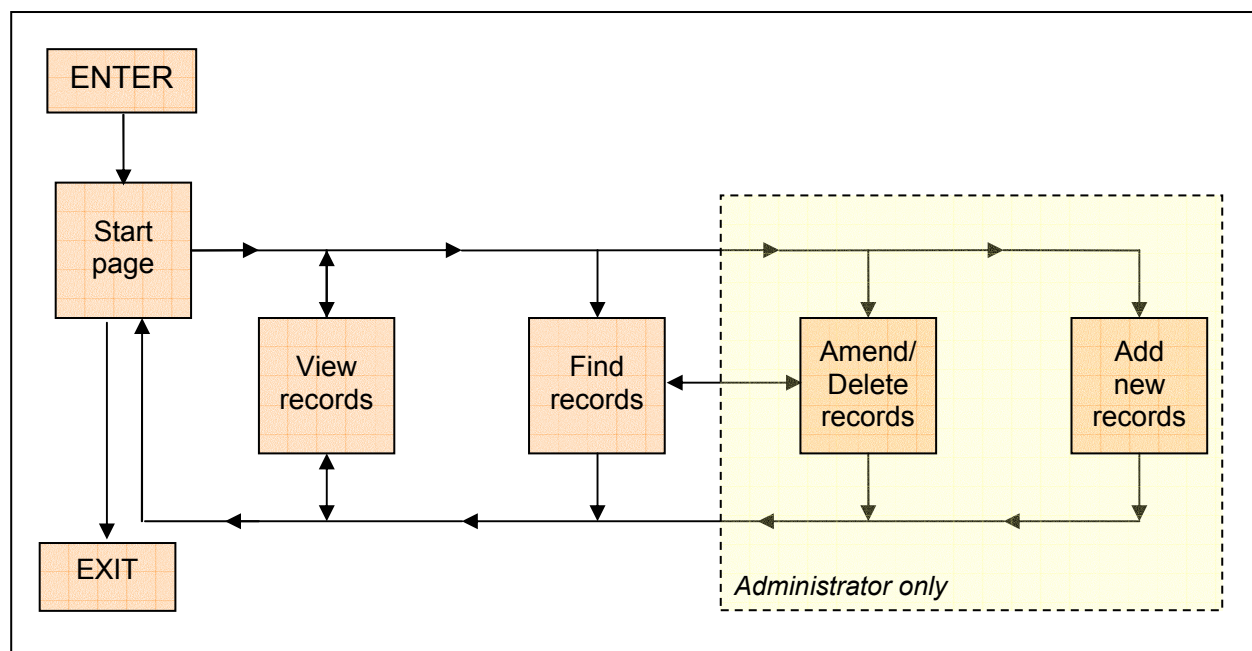


Fig.4 Database navigation

5.1 Viewing site records

In this view, the site records are ordered sequentially by number. The user can switch between records by clicking on the record button at the bottom left corner of the screen. By clicking on the tabs towards the top of the screen, one can access the other six pages relating to that particular Site Record.

Horizontal and vertical scroll bars enable all sections of a page to be read in cases where the computer monitor screen is smaller than the page size. There are also navigation buttons and bars within the functions/components section of the first page, for use where there is more than one function and a multiplicity of components. A click button at the bottom of each page enables the data to be printed out. There are also click buttons to select other records and exit the database.

5.2 Finding records

The database can be interrogated in order to access Site Records whose fields match specific criteria. Selection can be on a single field, e.g. all sites within a particular townland, or by multiple fields, e.g. all protected road bridges on OS six-inch sheet 15 which were operational before 1880.⁶

Because some fields contain more than one piece of data, the use of wildcard characters (“*”) is strongly recommended when searching these fields; they are recognisable by the fact that their respective field labels are suffixed ‘**’. For example, searching on the townland of ‘Aghmacart’ would throw up three sites, whereas searching on ‘*Aghmacart*’ reveals four; this is because the townland for the fourth site is ‘Aghmacart; Oldtown (Cm. By.)’.

The use of wild characters also enables approximate spellings to be entered where not precisely known. For example, if one was uncertain whether the name of a village was Ballinakill or Ballynakill, one could type in ‘*ball*’ and ‘*kill*’ in the town field.⁷

Besides performing searches on multiple fields, one can also perform sophisticated searches within particular fields. For example searching under ‘Barrow’ in the summary box of the general page would reveal all Site Component records where the word occurred in that field. Such a search would produce all water-powered mills and bridges on the River *Barrow* and its tributaries. If one was seeking only bridges over the Barrow, one would exclude mills and tributaries by typing ‘*barrow* and not *mill* and not *tributary*’.

5.3 Amending, deleting and adding new records

Only the administrator of LAIAR will be able to make changes to the database. These include corrections, additions and deletions to existing Site Records, and creating new Site Records. Access to this facility is by a password known only to the administrator. A separate manual details the nature of the data requirements for each field.

6. MapInfo

MapInfo is a powerful tool for displaying and analysing site data geographically and also for ascertaining what sites are to be found in a particular area. It thus offers an alternative to the marked-up hard-copy maps for entering LAIAR.

The location of every site has been marked up on a MapInfo Professional database (version 6.5). This also contains the site number, and precision and accuracy with which the site has been located.⁸ It enables site distributions to be superimposed on maps at 1:50,000 (Discovery series), 1:10,5060 (six-inch), 1:5000, 1:2500 (25-inch), and 1:1000 scales. MapInfo also has aerial photographic coverage of the entire county and the sites’ locations can also be superimposed on these.

The sites are shown as dots, areas and lines according to whether they are discrete entities, spread over an area (e.g. collieries), or linear (railways and canals). The depiction of the dots also varies by size and colour according to their precision and accuracy.

⁶ Note that, because of the structure of the behind-the-scenes database tables, a search will produce a record for every site component (as opposed to a more general Site Record).

⁷ It is immaterial whether upper or lower case letters are used in the spelling.

⁸ This facility was also used to obtain 12-figure grid coordinates for all sites.

MapInfo offers the facility to click on a particular site in order to find out more about it. This is achieved through linking the MapInfo and LAIAR databases. One can also select sites matching particular criteria in LAIAR (e.g. all watermills), and then display them geographically using MapInfo.

7. Hard-copy format

It is recognised that not everyone will have access to the computer database. However, it would be impractical to produce multiple copies of every page of every one of LAIAR's Site Records. On the other hand, the photocopied published material is only available in hard-copy format as it has not been scanned into the computer. The hard-copy format records therefore provide a generally accessible method of interrogating LAIAR and for managing photocopied data.

7.1 Indexes

These indexes enable limited interrogation of the database by site function, site component, townland, and statutory protection [to expand]. Additional data are also given, as well as Site Record number. The following indexes are available:

To Complete

7.2 Site Record files

There is published information (mostly in books and journals) on c.300 LAIAR sites. These data have been photocopied, cross-indexed to the relevant Site Record and placed in a file, labelled and ordered by site number.⁹ These files will be available for consultation in the Local Studies section of Laois County Library, Portlaoise.

7.3 OS six-inch maps

Every site has been marked up on its six-inch map. Large-scale maps have also been marked up for Portlaoise.

8. Enhancing LAIAR

It cannot be over-emphasised that although LAIAR will prove to be an invaluable research and planning tool in its present form, there is scope for data enhancement.

8.1 Site locations

Almost 90% of all recorded sites can be precisely located to within 10m of their actual position on the ground. Eight percent are locatable only to townland level: these include many of those cited in the Griffith Valuation and in the Camross heritage survey. A perusal of maps in the Valuation Office and in Camross Heritage Society respectively will be required in order to pinpoint these sites more exactly.

⁹ The existence of this photocopied data will also be apparent when clicking the 'References' page on the computerised Site Records.

8.2 Additional data sources

One obvious source not used in the compilation of LAIAR is the OS Field Name Books. These were compiled by the Ordnance Survey in the late 1830s and include references to industrial sites such as lime kilns, brick fields, mills and smithies.

Given that most sites noted in these books are located by townland (at best), a considerable amount of time would be required to establish their locations and cross-reference them to known IAR sites. Only then would it be possible to highlight new ones and avoid needless repetition of database records. Given the wide scope of the project it was felt that any time spent on this particular data source would be at the expense of other aspects of the project.

8.3 Fieldwork

As presently structured, LAIAR is essentially a 'paper' survey, ie it contains only data culled from documents; it is, for the most part, devoid of field information. Only by carrying out survey work can the current survival status of the sites be determined. Once this takes place, it should then be possible to evaluate the sites' industrial heritage significance and make recommendations for the conservation of the more significant examples.

Appendix 1.1: Co Laois OS six-inch map survey dates

001	1839	1888	1907-08	
002	1839	1888	1907	
003	1839	1888	1907-08	
004	1839	1888	1907	
005	1838	1888	1907	
006	1839	1888	1906	1961-62
007	1839	1888	1907	
008	1839	1888	1907	
009	1839	1888	1907	
010	1839	1888	1907	1962
011	1838	1888	1907	
012	1839	1889	1907	
013	1839	1889	1907	
014	1839	1889	1907	
015	1839	1888	1907	
016	1839	1890	1907	
017	1839	1889	1906-07	
018	1839	1889	1906-07	
019	1839	1889	1907	
020	1838-39	1889	1906-07	
021	1839	1890	1906-07	
022	1839	1890	1907	
023	1839	1890	1906	
024	1839	1889	1906-07	
025	1839	1890	1906	
026	1838-39	1890	1906	
027	1839	1890	1907	
028	1839	1891	1906-07	
029	1839	1890	1906	
030	1839	1890	1906	
031	1839	1890	1906	
032	1839	1890	1906	
033	1839	1891	1906	
034	1839	1891	1906	
035	1839	1890	1906	
036	1839	1890	1906	
037	1839	1890	1906	

Appendix 1.2: Co Laois OS 25-inch maps

Locality	Sheets
Abbeyleix	23.12, 23.16
Arless	32.1
Ballickmoyler	32.6
Ballinakill	30.5
Ballybrittas	9.6
Ballycolla	29.2
Ballylynan	26.1, 26.5
Ballyroan	24.1, 24.2
Borris-in-Ossory	21.8, 22.5
Castletown	16.12
Clonaslee	2.11, 2.12
Coolrain	16.10
Cullahill	35.5
Donaghmore	28.5
Durrow	29.15
Errill	27.11
Luggacurren	25.2
Mountmellick	8.1, 8.5
Mountrath	17.1, 17.5
Portlaoise	13.9, 13.10
Portarlinton	5.5, 5.9
Rathdowney	28.14
Rosenallis	3.15
Stradbally	14.14, 19.2
Timahoe	18.16

Graigue (sheets 37.3, .4,.7, .8) is excluded from LAIAR as it is now in Co Carlow.

Appendix 1.3: Co Laois OS large-scale town maps

Portarlinton surveyed 1889 at 1:1056 scale.

Appendix 1.4: Co Laois OS 1:50,000 Discovery maps

Sheet	Survey date	Publication date
54	1995	1998
55	1973	1996
60	1995	1997
61	1995	1997

Appendix 2: Griffith Valuation books

Barony	Poor Law Unions	Publication date
Ballyadams	Athy and Carlow	1850
Clandonagh	Donaghmore and Mountmellick	1850
Clarmallagh	Abbeyleix and Donaghmore	1850
Cullenagh	Abbeyleix	1850
Maryborough East	Abbeyleix and Mountmellick	1850
Maryborough West	Abbeyleix and Mountmellick	1850
Portnahinch	Mountmellick	1851
Slievemargy	Carlow	1850
Stradbally	Athy and Mountmellick	1850
Tinnahinch	Mountmellick	1851
Upperwoods	Abbeyleix, Donaghmore and Mountmellick	1850

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Appendix 4: Site hierarchy classification

To complete

Appendix 5: Site component preferred terms

To complete

Appendix 6: Relationships between linear features

To complete