Research Repository UCD

Title	Web-Enabling of Architectural Heritage Inventories
Authors(s)	Morrish, Sean, Laefer, Debra F.
Publication date	2009-11-09
Publication information	Morrish, Sean, and Debra F. Laefer. "Web-Enabling of Architectural Heritage Inventories" 4, no. 1 (November 9, 2009).
Publisher	Taylor and Francis
Item record/more information	http://hdl.handle.net/10197/4136
Publisher's statement	This is an electronic version of an article published in International Journal of Architectural Heritage, 4 (1) 2009. International Journal of Architectural Heritage available online at: http://www.tandfonline.com/doi/abs/10.1080/15583050902731056
Publisher's version (DOI)	10.1080/15583050902731056

Downloaded 2023-04-07T10:52:29Z

The UCD community has made this article openly available. Please share how this access benefits you. Your story matters! (@ucd_oa)

© Some rights reserved. For more information

Web-Enabling of Architectural Heritage Inventories

Mr. Seán William Morrish

Doctoral Candidate

School of Architecture Landscape & Civil Engineering

University College Dublin

Dublin

Ireland

sean.morrish@ucd.ie

Tel 353-1-716-3232

Fax 353-1-716-3297

Dr. Debra F. Laefer

Head of Development

School of Architecture Landscape & Civil Engineering

University College Dublin

Dublin

Ireland

debra.laefer@ucd.ie

Tel 353-1-716-3226

Fax 353-1-716-3297

Keywords:

Architectural Heritage, Web-Enabled, Cultural Heritage, Historical Buildings, GIS, Architectural Inventories, Urban Planning, Preservation, Conservation

ABSTRACT

Surveys and inventories of the built environment have improved the understanding of the state of existing heritage structures and historic districts and assisted in their preservation by thorough and consistent documentation. Unfortunately, full exploitation of these resources has been impeded by their static, non-interactive nature as printed documents (i.e. reports or maps). This paper presents recent attempts to improve access of such resources through their web-enablement. Specifically, issues of usability, relevance, contemporaneousness, and spatial integration are evaluated. These requirements are considered with respect to a new resource, Historic Ireland's Built Environment and Road Network Inventories Access (HIBERNIA). This integrated, extendable database and geographic information system (GIS) is featured as an example of how access to these surveys and inventories can be improved to form the basis for future developments to provide a more complete picture of heritage resources and enable innovative resource management strategies.

INTRODUCTION

The importance and appreciation of urban heritage has increased over the past half-century, with inner city gentrification resulting in the conversion of many industrial properties to office and residential use. This development departs from the wholesale demolition of existing buildings and neighbourhoods of 30-50 years ago that resulted in the destruction of the cultural fabric and vibrancy of many cities, especially in younger countries like the United States. While redevelopment is a key aspect to the continued life and vitality of the urban space, it is important to preserve a city's existing face through intelligent, fact-based planning and permitting.

One possible tool to promote and retain a city's architectural and cultural diversity is the generation and maintenance of an inventory of existing building stock and to employ the inventory as a yardstick with which to guide and integrate new development. Such a concept is not new. In 1985, the Council of Europe passed the Convention for the Protection of the Architectural Heritage of Europe commonly call the Granada Convention, in which Article 2 states "for the purpose of precise identification of the monuments, groups of structures and sites to be protected, each Member State will undertake to maintain inventories of that architectural heritage." (Council of Europe 1985) (Note: signed by Ireland 3/10/1985; ratified with reservations 20/1/1997; entry into force 1/5/1997). The Granada Convention emphasizes the importance of inventories in underpinning conservation policies and enlightened development. To date, however, despite many communities investing enormous resources in the creation of such inventories, their potential usefulness as planning aids has been extremely limited due to their static, dated, and inaccessible nature. Attempts at inventorying have resulted in the publication of many tomes but have failed to generate systems from which the information can be accessed and employed easily in the decision-making process for construction permitting or other purposes. This paper describes the genesis of just such a system and shows how it was developed to meet and overcome some of these shortcomings, as well as addressing the needs of its local stakeholders.

BACKGROUND

The web enablement of architectural inventories has been a gradual process that began with the direct digitisation of existing texts, progressed to the conversion of written collections to queriable tables based on the structure of the original inventory, and evolved to include

systems that were from their inception conceived as web-based resources. An exploration of these different types of systems helps to identify their current limitations with respect to accessing and querying data, updating records, and integrating the data into geographic information systems (GIS).

In 1999, English Heritage began digitisation and web-enablement of a 45 volume set of inventories that dates back to C. R. Ashbee's efforts to discover, record, and create awareness about London's historic monuments that were being threatened by the city's eastwards expansion into rural Essex (English Heritage 2008). Today, 32 of the 45 volumes are electronically accessible (English Heritage 2008), with the remainder anticipated by September 2008 (English Heritage 2008). The English Heritage web interface presents a scanned book with hyper-linked chapters and images and supports free-text searches, as well as guided inquiry (focusing on place, period, subject, and source) that simultaneously examines the whole of English Heritage's web-based holdings (Figure. 1). Their digitization both revolutionizes access to these resources and enables system administrators and registered surveyors to make corrections and insert new material.

Presently, English Heritage's system is restricted to the structure of the original surveys: each entry is independent of each other, standalone from a mapping interface, and devoid of advanced inquiry or decision support capabilities. For instance, while a user is able to search for monuments or sculptures commissioned during certain periods, it is not possible to get a geographic visualisation of their distribution.

As opposed to such subsequent digitisation, some inventories were initially conceived for on-line access. One example is the Old Montréal heritage inventory initiated in 1997 by the city of Montreal and the Ministère de la Culture et des Communications du Québec, to replace the 1980's hardcopy with an electronic database that could be simultaneously shared by these two governmental departments. The existing inventory of the designated historic district consists of seven main categories: building, people, groups, events, works of art, public spaces, and bibliography. Each component has multiple dependent tables, which are linked and are stored in a MySQL database, which responds to queries from the Flash-based web interface. While government and professional users have full access to the database and its mapping component, the general public interacts through a Flash-enabled map interface of the district (Québec 2008) [Figure. 2]. This feature allows users to navigate individual

neighbourhoods within the district and permits the selection of specific buildings and their affiliated records (Figure. 3). The mapping offers static snapshots of the historic district, but without the benefit of user navigation. In effect, the maps are HTML enabled images. As such, they cannot be queried for content, as would be possible in a fully enabled GIS system.

A more sophisticated example of an inventory that was always envisioned as an on-line resource is the California Historical Resource Inventory Database (CHRID) Network (CHRIDNET 2008) . This system was created to be a unified heritage repository for California's local governments and consultants to develop and share electronically information about historic resources. The city of Ontario, California is being used presently as a test case, for what is ultimately envisioned for state-wide deployment to achieve the following:

- Increase publicly available historical resources
- Map the location of historical resources
- Provide search capabilities by such factors as architectural style, year built, architect, historic district, and historic status
- Improve the electronic and hardcopy provision of surveys, thereby simultaneously lowering costs and enhancing data submission
- Integrate historic preservation further into the planning process
- Become a decision-support tool related to historic properties

Although still under review and development, CHRID demonstrates the visual and system integration possible when heritage and planning data are interlinked to form an integral part of the decision support system (Figure. 4).

Another inventory that was specifically intended to be resource for planning decisions was the Irish National Inventory of Architectural Heritage (NIAH 2008). Begun in 2000, this inventory is being conducted in response to the Granada Convention (Council of Europe 1985). NIAH was intended to identify, record, and evaluate Ireland's post-1700 architectural heritage, uniformly and consistently, as an aid in its protection and conservation. Building surveys are the core of the NIAH and are conducted by each county's administrative area using a common data collection template. As of January 2008, 20 administrative areas were complete with the remaining 12 administrative areas to be surveyed by the end of 2010.

When completed, the NIAH will be a comprehensive inventory of the country's building heritage. The information gathered is aimed at assisting local planning authorities in the identification of buildings of merit for inclusion in their Record of Protected Structures (RPS). The published surveys are also a public resource for research and education (Department of the Environment 2006). The NIAH was originally published in book form with a compact disk (CD) containing the inventory's database, along with maps of the surveyed areas. An updated version of a portion of this inventory is now on the web (<http://www.buildingsofireland.ie>). Although the online surveys can be searched electronically, the mapping component is not currently available due to copyright issues (Figure. 5). So while the data collected is comprehensive, the absence of online mapping makes synthesizing difficult.

These four inventories show how building inventories have developed over time from the simple digitization of existing hardcopy survey reports and scanning of building photographs to current web-oriented versions of the survey. Also shown is the development of searchable, online inventory databases, which allow for querying of particular inventory information but do not offer a means of interactively updating the inventories, or permitting their integration with mapping analysis and display tools. These issues limit their usefulness in providing decision support to heritage and development planners in the protection of heritage structures and neighbourhoods. A feature and capability comparison between the various aforementioned inventories and the author's recently developed HIBERNIA is shown in (Table 1), which gives a concise breakdown of the systems and capacities offered by each and the issues addressed with the implementation of HIBERNIA.

While all four of the above described inventories provided unprecedented access to their original data sets, the absence of integrated mapping and readily updateable structures prevent them from being fully exploitable in the protection of heritage structures and neighbourhoods. The identified limitations raised in the review of these above-described inventories were addressed in the creation and implementation of HIBERNIA as outlined below.

DUBLIN'S ARCHITECTURAL INVENTORIES IN 2006

The city of Dublin has a rich history of architectural heritage since its founding by the Vikings in 841. In recent years, there has been a growing appreciation for the unique

character and collection of the city's architecture. By 2002, 45 architectural inventories and related reports for Dublin existed. In 2002, the Dublin City Council, as part of the Dublin City Heritage Plan 2002-2006 (Dublin City Council 2002) commissioned an evaluation of these architectural heritage surveys (Dublin City Council 2003), which resulted in several recommendations to increase their usefulness:

1. A single system should be developed to enable access to all of the inventories.
2. Information about individual buildings and streets should be mapped on a large-scale digital map.
3. Making the Dublin Environmental Inventory (DEI) [the most detailed and geographical inclusive inventory and one that included a GIS] accessible should be undertaken as a matter of urgency; due to software and database issues, DEI has been inaccessible and lain unmodified for a number of years.
4. All future architectural inventory projects should employ the Council of Europe's Core Data Index fields, which is already used for the NIAH.
5. New inventories should be actively guided and supported by Dublin City Council, with specific funding earmarked for architectural inventories as an important source of information for informed planning and development.

To begin to rectify these problems, Ireland's Heritage Council funded the project Historic Ireland's Built Environment and Road Network Inventories Access (HIBERNIA), as a pilot program to web-enable DEI and one other survey [the Dublin Docklands Area Master Plan (DDAMP)] for which there were no unfavourable or unresolved copyright issues. The focus was to integrate building/street inventories with a geographic information system and deploy this system in both a desktop and web environment.

Survey of the Built Environment, DEI 1993-95

DEI was co-ordinated by the Dublin Chamber of Commerce and funded by the European Union to create an integrated database on the natural, social, and built environment of inner Dublin and involved the development of a template for the systematic recording and evaluation of streets, buildings, and other structures found in Dublin within the canal cordon (Figure. 6). The DEI compiled a database and conducted fieldwork and documentary research, the latter using historical and contemporary sources. The database included photographic records of streets and buildings, text data on the property's status, condition,

and historical evolution, together with a comprehensive listing of archival and published sources. Fieldwork included measured surveys of selected buildings, to supplement existing surveys of buildings that were to be incorporated into the data set. Copies of the data are held in digital form on CD at the Dublin City Council offices and at the Architectural Library of the University College Dublin (UCD 2008).

DDAMP Inventory of the Architectural and Industrial Archaeological Heritage 1996

DDAMP was commissioned by the Custom House Docks Development Authority (CHDDA) to document the architectural and industrial archaeological heritage of an extensive area of Dublin's docklands (Figure. 7), as primary information for the preparation of a master plan. The project used an extension of the methodology developed for the DEI and comprised literature and cartographic research, with extensive fieldwork and photographic recording. DDAMP was published by the CHDDA in 1996.

HIBERNIA

While the focus of HIBERNIA was the recovery, integration, and web-enablement of the DEI and DDAMP, core to the project was the opportunity to design and implement an integrated heritage and decision support system, which would form the foundation for the development of in-depth, two-dimensional (2D) analysis and would facilitate future developments in urban three-dimensional (3D) analysis. These long-term aspirations informed the creation of the data structure and GIS architecture for HIBERNIA.

Review of Data Sources

Prior to HIBERNIA's database development (and eventual web-enablement), the condition and completeness of the two inventories (DEI and DDAMP) had to be assessed, as current software and hardware could no longer access the originally collected data. Old archives were accessed through the University College Dublin's School of Architecture, Landscape, and Civil Engineering. As the data was stored on Magneto-Optical disks, a compatible reader had to be sourced to transfer the files to compact disk. The recovered data, all of which had been created on a Macintosh platform existed in a wide variety of file formats. Recovery required identification of the original software (Filemaker, Quarkexpress, Photoshop, and ClarisWorks). The core data set for both inventories had been compiled using Apple's

Filemaker version 2.0, and as the software's current version (8.5) could not convert such old files, an intermediary conversion to version 3.0 was required.

In total, data for 1280 building and 93 streets relevant to the DEI and DDAMP were recovered, plus over 800 other building records that were collected during the DEI survey but were never included in the final published project due to resource and time limitations. The buildings records formed the core of the inventory, with details of architecture, history, and in-depth biographical references. The street records gave an overview of the evolution of the area and also contained detailed historical, mapping, and biographical references. After conversion, the recovered files were reviewed for usable data and completeness, followed by an archiving of the original data files and the pioneering of a structure for archiving new data. To accomplish this, a listing of all fields in each of the databases was compiled and compared with the Council of Europe's Core Data Index fields (Council of Europe 1995).

As shown in (Figure. 8), this core index was the result of in-depth discussion of inventory methods by over 150 heritage documentation centres in 24 countries across Europe and was developed with the aim of codifying the classification of individual buildings and monuments by name, location, function date, architect, building materials construction techniques, physical condition and protection status (Council of Europe 1995). The core index (Figure. 8) enables surveyors to compile an overview of each building or monument surveyed, with the ability to link that information with more comprehensive data as they become available (e.g. written references, photographs, drawings, and exterior and interior details). The practice and methodologies of other relevant inventories and the existing data categories in the two recovered inventories were reviewed and updated to meet the needs of a citywide survey. Thus HIBERNIA contains concise, basic descriptions as gathered in the original surveys and has been extended to accommodate data that may be generated during future surveys (Figure. 9), both in terms of records for new buildings and monuments and with respect to the addition of new data fields as burgeoning forms and formats become available. Examples are the inclusion of more detailed photographic libraries of each building and linkage with full 3D terrestrial laser scanners point cloud scans of building exteriors and interiors.

While the data tables were the primary focus of the archive recovery, a fortunate discovery was made of a digital photo catalogue containing orthogonally correct photographs of each building in both inventories, as well as street reference photos and montages. While the

building images were included in the DDAMP hard copy publication, these images were not readily accessible in the original digital DEI. In HIBERNIA, these photographs were recovered and are now linked to the relevant building in the database and provide an important visual reference within the web interface.

Database Design and Population

The design of an integrated, relational database with linkage to spatial mapping features formed the basis of the database development for HIBERNIA. A review of NIAH's Microsoft Access data structure (Figure. 10) and CHRID's Unified Modelling Language (UML) data structure (Figure. 11) show the relational links between the separate data tables in the database to make an integrated relational database. Each of the tables focuses on an individual aspect of the survey. As an example, specific building features shown in CHRID in individual tables (e.g. walls, doors, roofs and windows) are linked to the properties tables by the (prop_ID) field, which is linked to the database resource master table by the (res_id) field, along with the resource address field. This permits inventory data collection at high levels of detail. Conversely, the NIAH's Access data structure uses a building registration number (REG_NO) to link the database tables and focuses on a more general survey, collecting both numerical and textual information on a regional scale. In this structure, major architectural features are in a single maintable with no subsidiary property tables and this main table is linked to location, references, maps and site photographic tables through the (REG_NO) field linkage.

Drawing on these examples and other spatial database structures, the flat file format of HIBERNIA's input files – the original building and street inventories – was redesigned using UML tools to fully exploit the capabilities of the most recent version of Filemaker 9. The resulting relational database schema is shown in Figures. 12, 13). The structure which optimises the database functionality by linking each of the individual tables (Figure. 12) to main query table (Figure 13). This results in improved data indexing and faster searching. While similar to the data schema of CHRID (Figure. 10) and NIAH (Figure. 11) in the data fields that are collected HIBERNIA adds data tables that index information on the heritage rating of the buildings/streets, details of the survey and surveyor, the historic cartography, bibliographic references, and any photographs or drawings available for each individual

building and street inventory. A further development makes use of building registration number and street inventory number fields to link with the GIS mapping component of the system. The GIS portion of the system consists of an ArcGIS Geodatabase (Figure. 14), which utilises a spatial database to map the study area at a 1:1,000 scale based on Ordnance Survey Ireland's (OSI's) base mapping, which presents highly detailed city topographical data which includes building footprints, street right of way, pavement outlines and street furniture (Figure. 15). In the Geodatabase, the building footprints are uniquely identified polygons, and the street centrelines are likewise identified to enable seamless linking with the building and street inventory databases. After the database structure was finalised, data from the recovered tables were imported into the database, and a record-by-record review was conducted to ensure the correct conversion of the archived data into the new database.

Once the building and street inventories were completely recovered, they were linked to the underlying 1:1,000 OSI Geodatabase base mapping with point, line and polygon features representing mapping for the survey area. Each of the individual building and street records were linked using the unique building/street registration number and longitude/latitude identifier field in the database to individual the building footprints and street centrelines. Finally the building and street image catalogues of each of the individual buildings and streets were linked and uploaded to the database.

As part of the development process of HIBERNIA the integration of all building/street inventory data and geospatial data into a single PostgreSQL database was tested but was found unsuitable due to limitations in updating the inventory database, overlong loading times of the data in the web interface, and user feedback on usability, as compared with the Filemaker desktop and web user interface. The requirement of a unified user friendly interface for both data browsing and data capture resulted in the selection of Filemaker as the core database for the data repository and the front end of the building/street inventory Web interface.

Once the inventory database and geospatial database were created and populated, the system was tested, with special attention paid to checking linking features. This consisted of querying the system through the Filemaker data tables and through interactive mapping using the GIS interface. Subsequently, the updating and editing capabilities of the system were

tested by adding new records to the inventory and editing the building footprints and other features in the GIS map.

Web Interface Development

The requirement of making the survey fully accessible lead to the development of the web interface which consisted of two tasks: (1) the web enablement of the database and mapping components (Figure. 16) and (2) the authoring of a web-based user interface. To enable database access, web-based interfaces were developed as follows:

- Guest: view access only; may browse and search database only
- Surveyor: may browse and search full database; may add data to certain fields (all of which are reviewed before inclusion into the database)
- Administrator: full control

Multiple access levels are necessary to maintain the integrity and security of the database, while simultaneously enabling the addition of new information into the database and to the integration of additional surveys HIBERNIA

As discussed previously, the Filemaker database formed the back end for the web user interface facilitating development of a familiar user interface for quick and easy browsing and searching (Figure. 17a and 17b). The structure also allowed for simple future updating of the database by researchers and surveyors. The integration of the database with the mapping section, while fully functional in the standalone system is undergoing development and implementation on the web-based system. When implemented, it will incorporate a map pinpointing the locations of each of the building and street records and will highlight the building's footprint on the map in relation to other buildings in the area.

CONCLUSION

The goals of this project commissioned by Ireland's Heritage Council were to examine the processes necessary to integrate 2 of Dublin's 45 architectural inventories and to pioneer the necessary techniques and procedures for data integration for the entire group of inventories. The resultant work recovered an important heritage resource that can be further developed to form the basis for a much more expansive and valuable resource. Crucial to the successful completion of this project was the development and creation of an expandable, searchable database and the implementation of a user-friendly, web-enabled graphical user interface.

This project not only met these goals but also developed the techniques and methodologies that are critical for future integration work, which will include the incorporation of 3D models within this web accessible system. The recovery of information for approximately 800 extra buildings from the archived records shows that there is scope for further development of this resource. A series of field surveys in 2007 made full use of the interface to update and add new buildings to the survey along the proposed metro route providing an important resource to planners and conservators on the effects of this project on the infrastructure of the existing building stock. Since its deployment building/street survey web interface has been used by staff researchers and individuals affiliated with Dublin's upcoming metro construction.

SUMMARY

This paper reviewed that state of access to architectural heritage records and how most are stored in formats that severely limit their potential contribution to being used in the planning and permitting process. Development and implementation of HIBERNIA, a new web-based resource for Dublin Ireland's architectural inventories is described as a means to show how the issues of usability, relevance, contemporaneousness, and spatial integration can be accommodated, even within the context of previously collected data. Further recommendations on how the system can be extended, to be a more dynamic tool that not only provides information on the existing state of an urban area's architectural heritage, but enables integration and visualisation of future project plans are also described.

ACKNOWLEDGMENTS

Funding for HIBERNIA was generously provided by Ireland's Heritage Council Grant 15014 and UCD's Urban Institute Ireland

Reference:

- CHRIDNET. 2008. *Cultural & Historical Resource Inventory Database* 2008 [cited 2008]. Available from <http://www.chridnet.com>.
- Council of Europe, Committee of Ministers. 1985. *Convention for the Protection of the Architectural Heritage of Europe*, edited by C. o. Europe.
- . 1995. Recommendation No. R(95) 3 of the Committee of Ministers to Member States on Co-ordinating Documentation Methods and Systems Related to Historic Buildings and Monuments of Architectural Heritage
- Department of the Environment, Heritage and Local Government. 2006. *National Inventory of Architectural Heritage Handbook*.
- Dublin City Council. 2002. *Dublin City Heritage Plan 2002-2006*. Dublin City: Dublin City Council.
- . 2003. *Dublin City: Architectural Heritage Surveys*. Baile Átha Cliath: Dublin City Council.
- English Heritage. 2008. *History of the survey of London*. English Heritage 2008 [cited 2008]. Available from <http://www.english-heritage.org.uk/server/show/nav.1637>.
- . 2008. *Survey of London Catalogue*. English Heritage 2008 [cited 2008]. Available from <http://www.british-history.ac.uk/catalogue.asp?gid=74>.
- . 2008. *Survey of London Online*. English Heritage 2008 [cited 2008]. Available from <http://www.english-heritage.org.uk/server/show/nav.9292>.
- NIAH. 2008. *National Inventory of Architectural Heritage* 2008 [cited 2008]. Available from <http://www.buildingsofireland.ie>.
- Québec, Ministère de la Culture et des Communications du. 2008. 2008 [cited 2008]. Available from <http://vieux.montreal.qc.ca/inventaire/hall.htm>.
- UCD, School of Architecture. 2008. *UCD School of Architecture Conservation studies* 2008 [cited 2008]. Available from <http://www.ucd.ie/arch>.

Alternate Reference formatting:

- CHRIDNET. 2008. *Cultural & Historical Resource Inventory Database 2008* [accessed June 1 2008]. Available at <http://www.chridnet.com>.
- Council of Europe, Committee of Ministers. 1985. *Convention for the Protection of the Architectural Heritage of Europe*, edited by C. o. Europe.
- Council of Europe, Committee of Ministers. 1995. Recommendation No. R(95) 3 of the Committee of Ministers to Member States on Co-ordinating Documentation Methods and Systems Related to Historic Buildings and Monuments of Architectural Heritage
- Department of the Environment, Heritage and Local Government. 2006. *National Inventory of Architectural Heritage Handbook*.
- Dublin City Council. 2002. *Dublin City Heritage Plan 2002-2006*. Dublin City: Dublin City Council.
- Dublin City Council. 2003. *Dublin City: Architectural Heritage Surveys*. Baile Átha Cliath: Dublin City Council.
- English Heritage. 2008. *History of the survey of London*. English Heritage 2008 [accesses June 1 2008]. Available at <http://www.english-heritage.org.uk/server/show/nav.1637>.
- English Heritage 2008. *Survey of London Catalogue*. English Heritage 2008 [accessed June 1 2008]. Available at <http://www.british-history.ac.uk/catalogue.asp?gid=74>.
- English Heritage 2008. *Survey of London Online*. English Heritage 2008 [accessed June 1 2008]. Available at <http://www.english-heritage.org.uk/server/show/nav.9292>.
- NIAH. 2008. *National Inventory of Architectural Heritage 2008* [accessed June 1 2008]. Available at <http://www.buildingsofireland.ie>.
- Québec, Ministère de la Culture et des Communiqués du. 2008. 2008 [accessed June 1 2008]. Available at <http://vieux.montreal.qc.ca/inventaire/hall.htm>.
- UCD, School of Architecture. 2008. *UCD School of Architecture Conservation Studies 2008* [accessed June 1 2008]. Available at <http://www.ucd.ie/arch>.

BRITISH HISTORY ONLINE

[Homepage](#)
[Browse](#)
[Places](#)
[Subjects](#)
[Periods](#)
[Sources](#)
[Maps](#)
[Text search](#)

Top Sources

- Local History
- Historical geography
- Urban & metropolitan
- Parliamentary
- Ecclesiastical & religious

By Region

- East
- London
- Midlands
- North
- Scotland
- South East
- South West
- Wales

Survey of London: volume 36 - Covent Garden

Year published 1970

Author F. H. W. Sheppard (General Editor)

Description Covent Garden has a special significance as the birth-place of modern town planning in London. Inigo Jones's Italianate Piazza, designed in the 1630s for the 4th Earl of Bedford, was unlike anything the capital had seen before, and provided the prototype for the laying-out of London's suburban estates for centuries to come. Based on a detailed study of the surviving fabric and the Bedford Estate's archives, this volume recounts the story of the Piazza's evolution (and eventual redevelopment), including the building of St Paul's Church, the area's principal monument. In addition to the Piazza and surrounding streets, the volume also describes the buildings of the Covent Garden Market, at the time the nation's principal market for horticultural produce, since removed to Nine Elms, Battersea.

Buy the book [Order the printed version now](#)

Sponsor English Heritage

Source [Survey of London](#) (Secondary texts)

Places [London](#)

Subjects [Intellectual, scientific and cultural](#), [Local](#), [Urban and metropolitan](#)

Periods [16th](#), [17th](#), [18th](#), [19th](#)

Search this publication

Showing records 1 - 50 of 150

1	Preface	VII-VIII
2	Thanks	IX
3	List of plates	XIII-XVIII
4	List of figures	XIX-XX
5	Plan pocket - Map of the Parish of St. Paul, Covent Garden	1
6	General Introduction	1-18
7	The Bedford Estate	19
8	The Bedford Estate - Covent Garden and the seven acres in Long Acre	19-21
9	The Bedford Estate - Friars Pyes	21-22
10	The Bedford Estate - The Bedford Estate from 1541 to 1627	22-25
11	The Bedford Estate - From 1627 to 1641	25-34
12	The Bedford Estate - From 1641 to 1700	34-37

Figure 1. Partial view of Survey of London Volume 36 Covent Garden survey showing the digital book structure of the inventory with free text search of the publication.

Figure 2. Historic Montreal mapping interface showing a selected section of the historic district along with an overview map in the lower right hand corner.

©Denis Tremblay, 2005

L'édifice du Grand Tronc vers 1900.
Musée McCord d'histoire canadienne,
Montréal, V6B-4T04. Collaboration
spéciale dans le cadre d'une entente de
partenariat. Photo : William Notman &
Sons.

©Denis Tremblay, 2005

Les termes précédés d'un sont définis au [glossaire](#).

Nom du bâtiment :	Édifice Grand Tronc
Autre appellation :	<ul style="list-style-type: none"> ■ Édifice Gérard-Godin ■ Édifice Grand Trunk Railroad
Adresses civiques :	<ul style="list-style-type: none"> ■ 360, rue McGill ■ rue Saint-Paul Ouest (façade latérale sans numéro civique) ■ rue William (façade latérale sans numéro civique) ■ rue de Longueuil (façade secondaire sans numéro civique)
Construction et modifications majeures :	1899-1902/ 1967-1968
Plan de localisation :
Caractères physiques :	<ul style="list-style-type: none"> ■ Nombre d'étages : 5 Les tours d'angle ajoutent deux étages supplémentaires. ■ Matériau dominant : pierre ■ Type de toit principal : plat <p>Pour plus d'information sur les caractères physiques du bâtiment, veuillez consulter le relevé des caractères physiques.</p>

Figure 3. Detailed view of the historic Montreal records showing the data fields and building images available through the web-interface.

CALIFORNIA HISTORICAL RESOURCES INVENTORY DATABASE

City of Ontario

[Home](#)
[Search](#)
[Help](#)
[Contact Us](#)
[Acknowledgements](#)
[Admin](#)

RECORDS

7914 E Edison Avenue

DPRS523

- A - Primary
- B - Bldg, Struct & Object
- D - District Record
- E - Linear Feature
- F - Milling Station
- I - Photograph
- J - Location Maps
- K - Sketch Maps

Federal

- National/California Registers

Local

- Resource Summary
- Architecture Fields

- Maps and Photos

Resource Summary

Address: 7914 E Edison Avenue

API: 105332102

print

RESOURCE OVERVIEW

Address: 7914 E Edison Avenue

City: Ontario

Zip Code: 91710

County Code:

State: CA

County: San Bernardino

Historic Name:

API: 105332102

Building Sq. Ft: 0

Year Built: 1925 Documented

Common Name:

Zoning: Sp(Ag)

Site Size (Acres): 4.000

District:

Resource Description:

Parcel no. 105332102 consists of 4.25 acres and includes 8 buildings. It is located on the northeast corner of the intersection of Cucamonga Avenue and Edison Avenue. The parcel boundary is limited to the parcel itself. This property is a nursery and residence and was formerly a dairy farm. In addition to the buildings present, the property has a cypress hedge that separates it from the parcel to the north, and metal fencing.

Building A is a single family residence constructed in the 1960s.

Buildings B and C are storage buildings constructed in the 1980s.

Building D is a pole barn.

Building E is a milking barn that was constructed in c. 1925 in the Art Deco style. It is located on the southeast corner of the property and faces south. It is a one story barn with a simple box plan. The principal façade is symmetrical and has 3 bays. The exterior is clad in smooth stucco. It is covered by a flat roof with an extended parapet. The main entry is located on the center of the south elevation and consists of a pair of replacement doors. There are 4 windows on the primary elevation. They are symmetrically spaced and consist of 4 metal sash, fixed windows, 2 diamond shaped and 2 rectangular. There is a semi-circular driveway in front of the building. Landscaping elements include a flat grass lawn and palm trees.

The condition of the building is good. Alterations to the building include the replacement entry doors that are smaller than the originals.

Building F is obscured.

Building G is a single family residence constructed in the 1960s.

Building H is a metal storage building.

Legal Description:

Rancho Santa Ana Del Chino S 1/2 Lot 31 Sec 17 Tp 2s R 7w 4.25 Ac

USGS

USGS Quad:

Township:

Range:

First 1/4 of:

Second 1/4 of:

USGS year: 1900

Section:

Benchmark:

UTM COORDINANTS

Zone:

Me:

Mn:

RESOURCE DETAILS

Primary Architectural Style: Art Deco

Secondary Architectural Style:

Architect:

Builder:

Contractor:

Original Owner:

Original Use:

Original Location:

Demolished: no

Moved: no

Date Moved: n/a

Figure 4. CHRID record query displaying building address information and detailed survey information including survey photograph.

4

**BUILDINGS of
IRELAND**

[Home](#) | [Surveys](#) | [NIAH Publications](#) | [Resources](#)

[Home](#) > [Surveys](#) > [Buildings](#)

Buildings

- > [County Survey Index](#)
- > [Quick Search](#)
- > [Advanced Search](#)
- > [Survey Highlights](#)
- > [Search Notes](#)
- > [Building of the Month](#)

Main Record - County Cork

[Additional Images](#) [Print This Page](#)

Courthouse, Washington Street, Cork City, County Cork

20503177

Reg. No.	20503177
Date	1830 - 1840
Townland	CORK CITY
County	County Cork
Coordinates	167087, 71798
Categories of	ARTISTIC
Special	ARCHITECTURAL
Interest	HISTORICAL SOCIAL
Rating	National
Original Use	court house
In Use As	court house

Description

Neo-classical court house with Corinthian detail, c. 1835 by Richard and George Pain. Partially destroyed by fire and rebuilt c. 1891 by William Hill architect and Samuel Hill building contractor. Limestone ashlar facade dominated by giant octostyle Corinthian portico with dentil and modillion detail; flanked by recessed outer bays articulated by pilasters. Plain frieze and tympanum. Pediment with three figures at its crown. Dome to roof. East and west elevations articulated by giant order Corinthian pilasters and plain frieze. Rusticated basement, horizontal chamfered courses to ground floor, ashlar masonry above. Square headed window openings. Windows to the basement having full sized bellied window guards, single windows elsewhere having moulded architraves and bracketed cills, small pediments to some windows. Central grouping of five openings having extended moulded cill on consoles and moulded cornice; central bay having decorative pilasters, swag motif to frieze in low relief and pediment; other openings are divided by plain pilasters, and have a plain frieze. Snecked limestone with cornice to north elevation. Square headed window openings with a mix of plain and moulded architraves, extended moulded cills, individual cills, some with apron panels, and pediments to individual windows. Two oriels to north elevation, both having a pair of windows. Windows throughout are timber sliding sash single pane. Island site with street frontage to all elevations.

Appraisal

Magnificent example of Neo-Classical public architecture in Ireland, and one of the most important buildings in Cork city. Reputed to have the only octostyle Corinthian portico in Ireland. Retaining much fabric from its rebuilding in 1891, which was in turn based on the remains of the 1835 building. Significant also for its role in the social history of Cork.

Figure 5 NIAH building record query with Architectural information and building appraisal.

Figure 6. DEI survey area of Dublin, Ireland

Figure 7. Dockland's study area

Figure 8. Structure for building inventory core index

Figure 9. Additional information collected in HIBERNIA beyond the core index

Figure 10. HIBERNIA Building Data Model illustrating core building information with additional building information integrated within the database relationship schema

Figure 11. HIBERNIA Street Data schema showing core street data fields and related linkage of additional fields

Figure 12 CHRID UML Data schema for individual building database

Figure 13 NIAH Microsoft Access data collection schema showing fields and relationship linkage

Any chance to make background white?

Fig 14 HIBERNIA GIS mapping geodatabase Schema illustrating layer features and attributes.

S, we ought to talk about the use of colour, as the document will be printed in black and white.

Fig 15 HIBERNIA mapping interface with building query result returned showing detailed OSI 1:1,000 mapping

Figure 16 HIBERNIA Home page with access to individual inventories in left-hand column

Browse

Layout:

Streets

View as:

Form

Record:

Found Set: 93

Total Records: 93

Unsorted

Log Out

Inventory of Streets and Buildings
 School of Architecture Landscape & Civil Engineering University College Dublin

Street Name
 Abbey Street Lower

Former Street Name
 None

Historical Account
 The name Abbey Street comes from the twelfth century Cistercian abbey of St Mary on the original lands of which the street is situated. The current Abbey Street runs from Capel Street to Beresford Place, divided into three almost equal sections (Lower, Middle and Upper), separated at the major junctions. Laid out by Henry Jervis before the end of the 17th century, this thoroughfare originally ran as now from Capel Street, but did not extend on the East side beyond the junction with Marlborough Street. The street ran on the site of the old coast road, a route reserved as a highway by the terms of the Amory Grant (The grant of land on the north side of the river to Jonathan Amory in 1672). On Brooking's map of Dublin (1728) the whole thoroughfare is referred to as 'Abbey Street' while on Rocque's map of 1756 the upper section towards Capel Street is called Little Abbey Street, with the lower section from Liffey Street to Marlborough Street referred to as Great

Current Description
 Abbey Street Lower runs in a east-west direction from its junction with Gardiner Street Lower and Beresford Street to its junction with O'Connell Street, it then continues as Abbey Street Middle and Abbey Street Upper. It is intersected by Marlborough Street and to the north by Northumberland Square. Abbey Street Lower runs roughly parallel to and between Eden Quay and North Earl Street/Talbot Street. It is very busy at the Beresford Place end where there is one way traffic. The O'Connell Street end becomes two-way with a large proportion of taxis and parking both sides. There is an important vista east to Buscras and the Financial Services Centre and west along Middle and Upper Abbey Street.

On the north side from O'Connell Street the Irish Permanent building is of five

Street Context
 Abbey Street was laid out on the lands of the Old St. Mary's Abbey which were subsequently developed as part of the Jervis, Drogheda and Gardiner Estates. (Cross reference to Jervis context account and Gardiner context account).

16

Table 1. Access and Structure Comparison of Architectural Inventory Evolution

Survey	Survey of London	Montreal Historic Survey	California Historic Resources Inventories Database	National Inventory of Architectural Heritage	HIBERNIA
Output Format	Originally book based	Paper based survey	Conceived as digital resource with paper forms	Digital database with paper collection forms	Digital and hardcopy publication
Detail of Survey	Surveyed monuments and building of merit only	Surveyed historic buildings only	Surveys of historic building neighbourhoods and areas of merit	National systematic survey of architecture and urban form	Survey of Architectural heritage within the canals for Dublin City
Search Capabilities	No searchable address database	Searchable by static map or address	Searchable by address, year or architectural type no map search at present	Searchable by address, type, year etc.	Search by address and free text search of all fields
Updates & Relevance	Conversion of existing published surveys no data update or entry	Static inventory of building has not been expanded since inception	Fully updatable by city, state and private consultants.	Updated on periodic basis as each county is completed no updates of changes to existing inventories.	Recovered archives from original survey, but can be easily updated with latest survey data
Online Mapping link	No mapping	Series of static maps for navigation	No mapping at this time	Mapping available only in earlier CD based inventories due to copyright issues	Mapping available on desktop version only, at present
Access	Open access to published data	Open access certain data	Login access required to browse and edit records	Open access to all published records	Open access to all recovered Data, controlled Administrator and Surveyor editing access
Software	Microsoft Access	Microsoft Access Flash Web Interface	MySQL	Microsoft Access ArcGIS ArcView	Filemaker Pro ArcGIS Arcview
Hardware	N/A	N/A	N/A	N/A	Dual Processor Server
Memory	N/A	N/A	N/A	N/A	1GB RAM

S, try calling one more time. If no luck in getting the highlighted information then just remove the two row as it raises more questions than it answers