



Discovery Metadata Specifications

Version 3.0

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Glgateway Services Team

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CHANGE HISTORY

Version	Date	Summary of change
1.0	June 1998	First issue
1.1	June 1999	Sections describing a Transfer Format and Communications Protocols added. Gateway recommendations included. Appendices C – F removed. New Appendices C – G added. United Kingdom added as an allowable value of National Extent
1.2	March 2000	Introduced NGDF prescribed keyword list 1.4.5 and 4.14 Improved descriptions of Conditional Requirements in Section 3.3 Refined the definition for Data Capture Period in Section 4.5 Minor grammatical changes. Removed Sections 5,6 and 7 and Appendices D and E. These sections now form the NGDF Discovery Metadata Transfer Format and Communications Protocol Version 1.2
1.2a	Dec 2001	Changes arising from the re-branding from NGDF to askGiraffe.
2.0	March 2002	Changes arising from the transfer of the askGiraffe Service from Ordnance Survey to Association for Geographic Information.
3.0	March 2003	Changes arising from the re-branding from askGiraffe to Glgateway.

OTHERS TO BE ADDED

Note: this document is liable to change at any time without notice and users should always check the Glgateway website - <http://www.glgateway.org.uk> - to ensure that this version is current.

CONTENTS

1. Introduction	6
1.1 Purpose of Specifications	6
1.2 About this document	6
1.3 The GIgateway Service (formerly known as askGIraffe)	7
1.4 Metadata	8
1.5 Comments on these Specifications	12
1.6 Glossary of Terms & Abbreviations	13
1.7 References	13
2. Scope and Application of the Specifications	16
3. Discovery Metadata Overview	18
3.1 Relationship to ISO Standard 15046-15	18
3.2 Metadata Characteristics	18
3.3 Discovery Metadata Elements	21
4. Preparing Discovery Metadata	27
4.1 Title	27
4.2 Alternative Title	28
4.3 Originator	28
4.4 Abstract	29
4.5 Data Capture Period	29
4.6 Status of Start Date of Capture	30
4.7 Start Date of Capture	31
4.8 Status of End Date of Capture	31
4.9 End Date of Capture	32
4.10 Frequency of Update	32
4.11 Presentation Type	33
4.12 Access Constraints	34
4.13 Use Constraints	35
4.14 Keywords	35
4.15 Geographic Extent	38
4.16 Spatial Referencing by Coordinates	39
4.17 System of Spatial Referencing by Coordinates	40
4.18 Bounding Rectangle	40

4.19 West Bounding Coordinate	41
4.20 East Bounding Coordinate	41
4.21 North Bounding Coordinate	42
4.22 South Bounding Coordinate	42
4.23 Spatial Referencing by Geographic Identifiers	43
4.24 National Extent	43
4.25 Administrative Area Extent	44
4.26 Postcode District Extent	45
4.27 Spatial Reference System	45
4.28 Level of Spatial Detail	46
4.29 Supply Media	47
4.30 Data Format	47
4.31 Additional Information Source	48
4.32 Dataset Association	48
4.33 Supplier	49
4.34 Contact Name or Title	49
4.35 Full Postal Address of Supplier	50
4.36 Postcode of Supplier	51
4.37 Telephone Number of Supplier	51
4.38 Facsimile Number of Supplier	52
4.39 Email Address of Supplier	52
4.40 Web address of Supplier	53
4.41 Date of Update of Metadata	53
4.42 Sample	54
<i>APPENDIX A - Worked Examples</i>	55
<i>APPENDIX B - UML Class Diagram</i>	64
<i>APPENDIX C - Mapping to Dublin Core</i>	65
<i>APPENDIX D - Abbreviated Field Names</i>	69
<i>APPENDIX E - Glgateway Website</i>	70

1. INTRODUCTION

1.1 Purpose of Specifications

These Specifications represent the first stage in the development of metadata services for the discovery of data resources that have a geographic component. They have been developed as part of the Glgateway Service. Their aim is to provide a consistent and simple method of documenting any data resources that are referenced in some way to the earth's surface whether by coordinates or geographic identifiers (addresses, administrative area, component of postcode). The consistent recording of metadata or information about data resources and their presentation in catalogues accessible to the user community via the Internet considerably facilitates the discovery of such data resources.

It is estimated that 80% of information has some relationship to the earth's surface or, to put it another way, it is *geospatially referenced*. These Specifications have been designed to be usable with any data resources that have some sort of geospatial reference whether these are maps, imagery, textual or numeric.

There are a number of metadata standards in existence or under development. None of those existing were found to meet with the requirements of being simple and applicable to the full range of data resources that are geospatially referenced. In developing these Specifications metadata standards which are not specifically for geospatial data such as the "Dublin Core" [3] have also been examined.

These Specifications have been produced for use in the United Kingdom. However, with the evolution of global information infrastructures, developments outside the UK cannot be ignored. Therefore the Specifications must be regarded as interim pending the development of standards at the international level such as those being developed by Technical Committee 211 of the International Organisation for Standardisation (ISO).

The Specifications will be reviewed and enhanced in the light of comments received from interested parties and developments in international standards.

1.2 About this document

The original document was prepared by the Working Group 2 of the NGDF Task Force (former name). The Working Group was responsible for the facilitation of NGDF compliant metadata services. It was made up of representatives from major vendors, national mapping agencies, government departments and members of the academic community.

The document is in four Sections and has five Appendices. The remainder of the introduction provides a brief background to the Glgateway Service and describes what metadata and the Glgateway metadata services mean. Section 2 defines the scope and application of these Specifications. Section 3 is an overview of the discovery metadata and Section 4 is the Specifications themselves.

Worked examples are provided in Appendix A. Appendix B provides a UML diagram illustrating the structure of the discovery metadata. Appendix C presents a mapping between the Glgateway Discovery Metadata and the Dublin Core. Appendix F suggests a list of abbreviated field names. Appendix G provides more detail about the content of the Glgateway website.

These Specifications should be read in conjunction with the Glgateway Metadata Transfer Format and Communications Protocol Guidelines. This additional document also provides conformance requirements for using the Glgateway Metadata Specifications.

1.3 The Glgateway Service (formerly known as askGlraffe)

More than ten years ago, the Report of the Committee of Enquiry into the Handling of Geographic Information [6], chaired by Lord Chorley, established that the use of different geospatial data for the same area was crucial but difficult because of:

- data inconsistencies
- poorly documented datasets
- incompatible computer systems

In the UK today, over 40 government departments and other organisations produce geospatial data for their own needs, spending approximately £400 million annually on data collection and assembly.

Much of this data is not available for reuse or is collected in ways that make it difficult to use with other datasets. Most datasets remain poorly documented. There are still inconsistencies in the ways different computer systems treat sophisticated geospatial data.

The National Geospatial Data Framework (NGDF) was designed to reduce these problems and ultimately to:

- increase the use of geospatial data
- facilitate development of markets for data and services
- “future proof” investments and enhance decision-making through use of better information

1.4 Metadata

1.4.1 The Requirement for Metadata

If geospatial datasets are to become more widely available and their true value realised by the community, then methods must be found to enable the public to discover their existence and determine if a particular dataset is appropriate for their needs.

This means that information about the data must be made available. Metadata is the term used to define this "data about data". The metadata itself has to be easily accessible and provided in such a way that the public can obtain information that will allow them to compare the suitability of data from different sources. It is therefore necessary for there to be standard ways of presenting metadata that will allow these comparisons to be made.

With the exponential growth in the use of the Internet and its adoption as a service within organisations (Intranets) a means is now available to use World Wide Web based search tools to locate sources of geospatial information. This increases the importance of providing standard methods for describing data that can be analysed by computer based systems.

Metadata content should vary according to purpose, for example:

- discovery of data resources
- access to data resources
- transfer of data

Discovery metadata provides sufficient information to enable an inquirer to ascertain the existence of data that is fit for purpose and to reference some point of contact for more information. If after discovery more detail is needed about individual datasets, then more comprehensive and more specific metadata is required. If the data is transferred as a single dataset then quite specific and detailed metadata is needed possibly down to the feature, object or record level.

Thus, not only can metadata content vary according to purpose; it can also vary according to scope of the data being defined. Discovery metadata usually, but not exclusively, relates to collections of data resources or dataset series that have similar characteristics but relate to different geographic extents or times. A map series is the commonest example but it can equally be applied to statistical surveys. More detailed metadata may be applied to a collection or series but may apply to an individual dataset (e.g. one map tile). Transfer metadata applies exclusively to that transfer.

For successful discovery of data resources which are geospatially referenced the following are also essential:

- thesauri as a source of keywords and synonyms
-

- Look-up tables of standard geographic units e.g. counties, districts, post-code districts preferably with a cross-reference to coordinates.

The Specifications set out in this document relate to discovery metadata only. The use of a thesaurus is recommended.

The rest of this section describes the Glgateway metadata service and then goes on to explain discovery metadata, detailed metadata and thesauri in more detail.

1.4.2 Glgateway Metadata Services

These Specifications have been developed on the assumption that metadata services will be implemented as Internet/Intranet applications and that a gateway infrastructure will be supported to provide a national focus and to encourage compliance to the guidelines. A diagrammatic illustration of the way the services is to be structured is given in Figure 11 below.

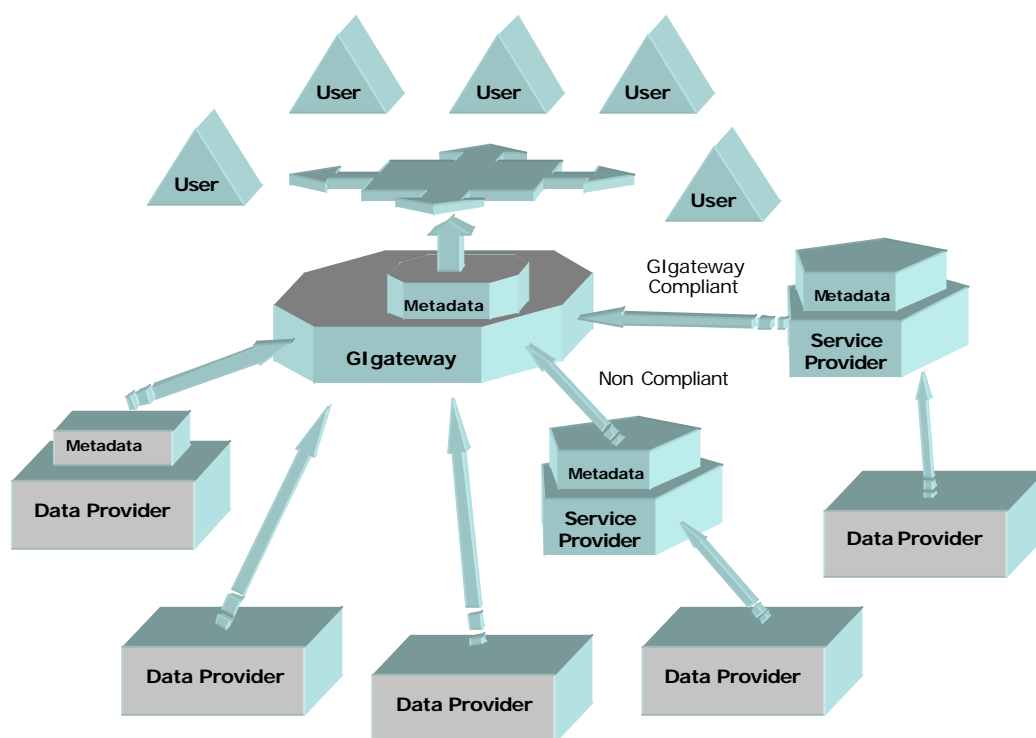


Figure 1 - Glgateway Metadata Infrastructure

The Glgateway gateway supports routing facilities to other service providers and Data Producers and a Metadata repository for those data providers unwilling or unable to support their own service. Service

providers are free to support enquiries from sources other than the gateway and may not even be Glgateway compliant. The central gateway, will itself provide support and encouragement to adhere to the standards and provide a central focus, where minor data providers may chose to register their metadata. Helpdesk facilities and impartial advisory services may also be developed.

It is the intention of Glgateway that all data flow through this system should be achieved using XML as a transfer file format and Z39.50 as the basis of a communications protocol. The application of XML and Z39.50 by Glgateway is described in the Glgateway Metadata Transfer Format and Communications Protocol Guidelines.

1.4.3 Discovery Metadata

Discovery Metadata is the minimum amount of information that needs to be provided to convey to the inquirer the nature and content of the data resource. The requisite information falls into the following broad categories;

- identification
- subject matter
- originator
- access use and restrictions
- time of capture
- geographic extent
- data supplier

Computer databases accessible on the Internet that contain metadata entries will be the first point of call for people searching for specific datasets. Indeed for some datasets the Discovery Metadata may be all that is needed for the inquirer to locate and obtain the data needed.

The provision of a Discovery Metadata component also recognises the considerable amount of work that some data producers may be required to undertake in order to prepare a detailed metadata definition. It is intended that there will always be a direct mapping between Discovery Metadata and Detailed Metadata. This will ensure that no discrepancies exist between the two definitions and that the Discovery Metadata can be automatically extracted from the Detailed Metadata thus saving time and effort.

A concise listing of Discovery Metadata is given in Section 3.3 and guidelines for its preparation are given in Section 4.

The Dublin Core [3] is a similar initiative in the definition of discovery metadata. Further information and a mapping between these Discovery Metadata Guidelines and the Dublin Core is given in Appendix C.

1.4.4 Detailed Metadata

Detailed metadata standards that provide for an exhaustive definition of all aspects of various types of geospatial data are currently under preparation by a number of bodies. The principals of these within an international context are:

- Emerging ISO Standard 19115 and its accompanying XML implementation schema - 19139 [1]
- European Standard prEN 287009 [2]

The United States Federal Geographic Data Committee (FGDC) have developed a standard known as the Content Standard for Digital Geospatial Metadata [4] that has strong parallels with the draft ISO standard.

There is a further initiative driven by the Open GIS Consortium (OGC)[7]. The OGC consists of a collection of organisations that are striving to define standards for the interoperability of Geographic Information Systems.

It is hoped that these standards will converge, indeed the ISO, FGDC and OGC standards already have a great deal in common. However, it will be some time before these initiatives bear fruit and so the Specifications are provided as an interim solution pending the final release of the above standards.

The definitions provided here are closely allied to the draft ISO standard. It is anticipated by GIgateway that these Specifications will remain unaltered until the publication of a new ISO standard (ISO 19115) in late 2003/early 2004 at which time it will be modified to match the ISO standard or possibly become a profile of the ISO standard.

1.4.5 Thesauri

When searching for information, the inquirer may not find any references based on the words used to describe the information sought. This problem can be overcome by use of a thesaurus.

In the context of metadata and other electronic documents, a thesaurus is a tool for the organisation and retrieval of information in electronic materials. It allows data to be indexed and retrieved in a consistent manner. It permits the display of hierarchies of concepts and ideas, leading the user, whether as indexer or information seeker, to define his or her search in terms that are most likely to lead to the retrieval of relevant information.

For example, it will allow improved information retrieval by providing successful searching on synonyms - if the user enters the term "farming" the thesaurus will find the term "agriculture". Hierarchies of meaning can be shown - the term "Great Britain" may retrieve data indexed with that term but could also expand the search to retrieve data on England, Wales

and Scotland which have been indexed under those three terms. The term "meals on wheels", although in a hierarchy of terms related to food, will also be linked to concepts relating to personal social services and to the different categories of recipients and a user can elect to follow and retrieve these related terms.

Consistent searching for metadata will be achieved if all those who prepare metadata use the same thesaurus. However different industries will have requirements for specific thesauri and there is no current implementation which will provide a simple search algorithm for the casual or general enquirer. Glgateway, cognisant that organisations will want to decide on their own specific keywords assignments, recommend that data providers utilise their own thesaurus or keyword selections in addition to using at least one of the predefined Glgateway keywords. Glgateway also recommend that data providers investigate the use of the thesaurus known as HASSET (Humanities and Social Science Electronic Thesaurus) which is maintained by the Data Archive at the University of Essex. The URL for this service is:

<http://www.data-archive.ac.uk/search/hassetSearch.asp>

1.5 Comments on these Specifications

Users of the Specifications are encouraged to send any comments concerning their scope and applicability to the Glgateway Services Team: info@glgateway.org.uk

1.6 Glossary of Terms & Abbreviations

ASCII	American Standard Code for Information Interchange
CD-ROM	Compact Disk - Read Only Memory
CGM	Computer Graphics Metafile
Data collection	Data captured to a common specification or to a common standard
Dataset	Identifiable collection of data
Dataset series	Data captured to a common specification or to a common standard
Discovery Metadata	A subset of a dataset's metadata as defined by these Guidelines
DXF	Drawing Exchange Format
Geospatial data	Data defined by reference to a position on the Earth's surface
GIF	Graphic Interchange Format
JPEG	Joint Photographic Experts Group Format
Metadata	Concise descriptions of a data resource
Metadata element	An individual characteristic of a data resource
NGDF	National Geospatial Data Framework
NTF	BS7567 National Transfer Format
Tag	XML notation to signify the beginning or end of an element data entry. The syntax for a tag is <tagname> for a start tag and </tagname> for an end tag.
TIFF	Tagged Image File Format
URL	Uniform Resource Locator
W3C	The World Wide Web Consortium
www	World Wide Web
XML	Extensible Markup Language, a subset of SGML (Standardised General Markup language)
Z39.50	Protocol to enable querying of multiple remote heterogeneous databases.

1.7 References

- [1] ISO/TC 211 Working Draft 15046-15 Geographic Information - Metadata (URL: www.isotc211.org).
- [2] CEN/TC 287 Draft European Standard prEN 287009 Geographic Information - Data Description - Metadata; AFNOR, Paris.
- [3] Dublin Core, Online Computer Library Centre (OCLC) (URL: www.purl.org/docs/metadata/dublin_core Note: there is an underscore "_" between dublin and core.)

- [4] Content Standard for Digital Geospatial Metadata, Federal Geographic Data Committee, c/o U.S. Geological Survey, 590 National Center, Reston, Virginia 20192 (URL: <http://www.fgdc.gov>).
- [5] ISO/TC 211 Working Draft 15046-5 Geographic Information - Conformance and Testing (URL: <http://www.isotc211.org/>).
- [6] Handling Geographic Information, Report of the Committee of Enquiry chaired by Lord Chorley, 1987, published by Her Majesty's Stationary Office, London. ISBN 0 11 752015 2.
- [7] The Open GIS Consortium can be contacted at <http://www.opengis.org>.
- [8] BS 7666 Spatial datasets for geographical referencing, Part 3 Specification for addresses, available from the British Standards Institution, Linford Wood, Milton Keynes, MK14 6LE.

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2. SCOPE AND APPLICATION OF THE SPECIFICATIONS

These Specifications define a number of metadata elements to be used in the documentation of data resources that have a geospatial reference or references, whether based on coordinates or geographic identifiers. These elements represent a minimum set for the discovery of data resources in the context of a metadata service designed for users searching for geographic information.

The metadata elements defined here may be applied to data resources at a number of levels but are primarily intended for use with collections or series i.e. datasets captured to a common specification or to a common standard. Datasets forming the collections or series may relate to different time periods or geographical extents or both. However, single datasets that do not form part of a collection or series may also be documented with these Specifications.

These Specifications should be read in conjunction with the Glgateway Metadata Transfer Format and Communications Protocol Guidelines which define an XML based transfer format and a communications protocol based on Z39.50.

Only datasets that are geospatially referenced to the United Kingdom may be documented using these Specifications although the principles are applicable world-wide. Although these Specifications are primarily intended for use with digital data resources they may be applied to other types of data resources such as those that are paper-based.

The Specifications do not constrain the manner in which a user interface may be designed or data stored. For example the Specifications specify that dates should conform to the format CCYYMMDD for transfer purposes, a user interface may wish to enable a user to enter the date in a more readable form such as DD-MMM-CCYY and hold the date in a commercial database format, neither of these options is excluded by the Specifications. The Specifications merely state that when date information is transferred between parties it should be converted to the format CCYYMMDD.

Although these Specifications contain certain information about implementation, they provide no specific guidance on metadata creation, metadata quality, metadata maintenance or the use of Internet search engines.

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3. DISCOVERY METADATA OVERVIEW

3.1 Relationship to ISO Standard 15046-15

The metadata elements for Discovery Metadata have been drawn from the (draft) ISO standard [1] wherever possible and, in general, they have undergone the minimum amount of modification to suit the needs of these Guidelines. It is anticipated that these Specifications will be modified when the new ISO Standard 19115 is implemented in late 2003/early 2004.

This section provides a concise description of the elements. Section 4 provides an explanation of each element together with examples of their application.

3.2 Metadata Characteristics

3.2.1 Metadata Attribution

Metadata element characteristics are defined by eight attributes: Element Name, Identifier, Element Definition, Obligation, Maximum Occurrence, Data Type, and Domain as described below.

3.2.2 Element Name

A label assigned to a metadata element.

3.2.3 Identifier

A number permanently assigned to each metadata element. The primary purpose of this identifier is to aid the tracing of elements should other attributes be modified. It is possible, for instance, that an Element Name may be changed to match the ISO standard when it is finally released. The identifier may also be used in computer systems to identify the elements.

3.2.4 Element Definition

The description or definition of a metadata element.

3.2.5 Obligation

A descriptor indicating whether a metadata element shall always be present or sometimes be present (i.e. contain value(s)). This descriptor may have the following values:

Mandatory (M): the metadata element shall always be present

Conditional (C): the metadata element shall be present if the dataset exhibits the characteristics defined by that element

Optional (O): the metadata element may be present or may not be present.

3.2.6 Maximum Occurrence

Specifies the maximum number of instances the metadata element may have. Single occurrences are shown by "1", when one or more occurrences are allowed, it is represented by "N". Where the supplier needs to provide repeating instances then there should be a separate entry for each instance.

In some cases, such as the definition of supplier contact information, it may be desirable to provide details for more than one supplier. This should be achieved by repeating the instances in groups of elements. In such a case, the **Contact Name or Title, Full Postal Address of Supplier, Postcode of Supplier, Telephone Number of Supplier, FAX Number of Supplier, Email Address of Supplier** and **Web Address of Supplier** (metadata elements 34 to 40) should be provided as a group for the first supplier then repeated again as a group for each alternative supplier. This concept is shown diagrammatically in Figure 2. This requirement to repeat as a group also applies when using spatial referencing by coordinates (elements 17 to 22) to define the geographic extent. A thick border in the table in Section 0 indicates repeating groups of elements.

3.2.7 Data Type

Specifies the way in which the field should be interpreted by a compiler, for example, text, integer, real, date and enumerated list, having the following meanings;

Text	Free text input composed of alpha-numeric characters
Integer	Whole number
Real	Number that may include digits to the right of the decimal point
Date	The calendar date in the format CCYYMMDD. Where any part of the date is not known then it should be replaced by asterisks. So if a date was known to be sometime in 1986 but the exact month and day are not known then the date would be given as 1986****.
Enumerated List	A pre-defined list from which values may be selected





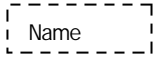
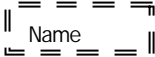

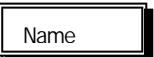

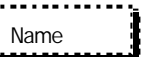
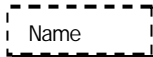

3.2.8 Domain

Specifies the values allowed for each metadata element. "Free text" indicates that no restrictions are placed on the content of the field.

3.2.9 Discovery Metadata Structure

The organisational structure of Discovery Metadata is shown in Figure 22 below (page 20). This illustrates the relationships between the various elements and in particular emphasises the use of repeating groups of elements.

Key to accompany Figure 2 below (page 22).

Obligation	Mandatory		Optional		Conditional	
	Element	Group	Element	Group	Element	Group
Occurrence = 1						
Occurrence > = 1						

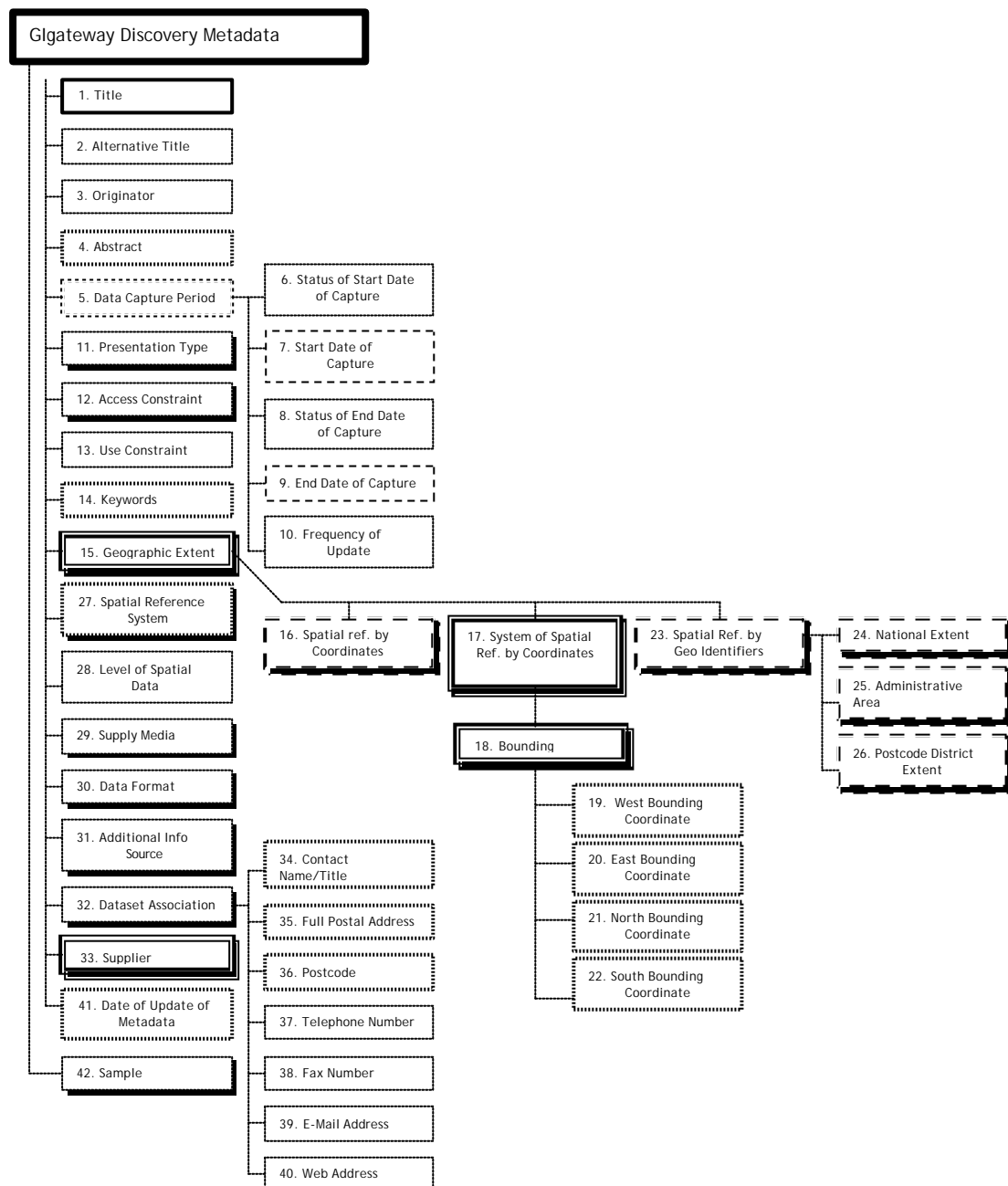


Figure 2 - Diagram Showing Structure of Discovery Metadata

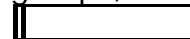
3.3 Discovery Metadata Elements

The following table provides a concise summary of the 42 Discovery Metadata Elements. Each element is described in greater detail in the following section. Shading indicates element groups with the heading element in the darker shading. Heading elements do not require a metadata entry. The Data Type and Domain cells being blacked out reinforce this.

A thick border indicates repeating groups, thus:



A double border indicates groups that may repeat within groups, thus:



Element Name	Identifier	Element Definition	Obligation	Maximum Occurrence	Data Type	Domain
Title	1	Name by which dataset is known	M	1	Character String	Free text
Alternative Title	2	Short name, other name, acronym or alternative language title	O	N	Character String	Free text
Originator	3	Person or organisation having primary responsibility for the intellectual content of the data	O	N	Character String	Free text
Abstract	4	Brief narrative summary of the dataset	M	1	Character String	Free text
Data Capture Period	5	The period during which data capture took place	O	1	Metadata Entity	
Status of Start Date of Capture	6	Status of knowledge on Start Date of Capture	O	1	Enumerated List	Known Not Known Not Applicable
Start Date of Capture	7	Date on which data was first collected.	C/ Status of Start Date = "Known"	1	Date	Date
Status of End Date of Capture	8	Status of knowledge on End Date of Capture	O	1	Enumerated List	Known Not known Not Applicable Ongoing
End Date of Capture	9	Date on which data was last collected	C/ Status of End Date = "Known"	1	Date	Date

Element Name	Identifier	Element Definition	Obligation	Maximum Occurrence	Data Type	Domain
Frequency of Update	10	Revision regime of dataset	O	1	Enumerated List	Hourly Daily Weekly Fortnightly Monthly Quarterly Biannually Annually Biennially Triennially Quinquennially Decennially Continuous Irregular Never Not Known Other
Presentation Type	11	Form in which the data resource is available	O	N	Enumerated List	Image Graphic Map Numeric Text Other
Access Constraint	12	Restrictions and legal prerequisites for accessing the dataset	O	N	Enumerated List	Financial Legal Other Not Known None
Use Constraints	13	Restrictions and legal prerequisites on using the data	O	1	Character String	Free text or "Not Known"
Keywords	14	Common-use words or phrases summarising the subject of the dataset	M	N	Enumerated List	At least one keyword must be from the GIgateway keyword list
Geographic extent	15	Geographic area or areas for which data is available	M	1	Metadata Entity	Lines 16- 26 Both Spatial Referencing by Coordinates and Geographic Identifiers may be used. But one or the other <u>must</u> be used.
Spatial Referencing by Coordinates	16	Geographic extent referenced by use of coordinates	C/ Spatial Referencing by Geographic Identifiers not used?	N	Metadata Entity	Lines 17 – 22

Element Name	Identifier	Element Definition	Obligation	Maximum Occurrence	Data Type	Domain
System of Spatial Referencing by Coordinates	17	Name or description of system or systems of spatial referencing by coordinates used for the geographic extent	M	1	Enumerated List	British National Grid, Irish Grid, Latitude and Longitude
Bounding Rectangle	18	Rectangle defining an area of occurrence of the dataset	M	N		
West Bounding Coordinate	19	Westernmost coordinate of the limit of the area	M	1	Real	Grid value / longitude
East Bounding Coordinate	20	Easternmost coordinate of the limit of the area	M	1	Real	Grid value / longitude
North Bounding Coordinate	21	Northernmost coordinate of the limit of the area	M	1	Real	Grid value / latitude
South Bounding Coordinate	22	Southernmost coordinate of the limit of the area	M	1	Real	Grid value / latitude
Spatial Referencing by Geographic Identifiers	23	Geographic extent referenced by use of geographic identifiers	C/ Spatial Referencing by Coordinates not used?	1	Metadata Entity	Lines 24 – 26 Any of National Extent, Administrative Area Extent and Postcode District Extent may be used. But one <u>must</u> be used.
National Extent	24	Geographic extent or occurrence of dataset by parts of the United Kingdom	C/ Administrative Area Extent and Postcode District Extent not used?	N	Enumerated List	England, Northern Ireland, Scotland, Wales, Isle of Man, Channel Islands, Great Britain Offshore United Kingdom
Administrative Area Extent	25	Geographic extent or occurrence of dataset by administrative area	C/ National Extent and Postcode District Extent not used?	N	Enumerated List	List of Administrative Areas

Element Name	Identifier	Element Definition	Obligation	Maximum Occurrence	Data Type	Domain
Postcode District Extent	26	Geographic extent or occurrence of dataset by postcode district	C/ National Extent and Administrative District Extent not used?	N	Enumerated List	List of Postcode Districts
Spatial Reference System	27	Name or description of the system of spatial referencing, whether by coordinates or geographic identifiers, used in the dataset	M	N	Character String	Free text
Level of Spatial Detail	28	Description of the granularity of the data	O	1	Character String	Free text
Supply Media	29	Type of media in which the data can be supplied	O	N	Enumerated List	Paper Magnetic Optical On-line Other
Data Format	30	Format in which digital data can be provided	O	N	Character String	Free text
Additional Information Source	31	Source of further information about the dataset	O	N	Character String	Free text
Dataset Association	32	Title of relevant related dataset or description of data resource which may be used or be of value in association with the subject dataset	O	N	Character String	Free text
Supplier	33	Details of the organisation(s) from which the data can be obtained	M	N	Metadata Entity	Lines 34 - 40
Contact Name or Title	34	Name or title of person nominated by the supplier as first point of contact	M	1	Character String	Free text

Element Name	Identifier	Element Definition	Obligation	Maximum Occurrence	Data Type	Domain
Full postal address of supplier	35	Postal address of supplier including organisation name, building name or number, street name, city, county and country	M	1	Character String	Free text
Postcode of supplier	36	Postal code part of address of supplier	M	1	Character String	Free text
Telephone number of supplier	37	Telephone number by which individuals can talk to the organisation or individual	O	1	Character String	Free text
Facsimile number of supplier	38	Facsimile number which individuals can use to contact the organisation or individual	O	1	Character String	Free text
Email address of supplier	39	Internet Email address which individuals can use to contact the organisation or individual	O	1	Character String	Free text
Web address of supplier	40	Supplying organisation's World Wide Web site	O	1	Character String	Free text
Date of Update of Metadata	41	Date on which the Metadata was last changed	M	1	Date	Date
Sample	42	A sample of the dataset	O	N	Image or text	CGM/GIF/JPEG/TIFF or Free Text

Appendix F contains abbreviated names that may be used on data entry and search forms.

4. PREPARING DISCOVERY METADATA

This Section gives a full exposition on the application of the Specifications. For each metadata element an example of its application is given together with additional comments and/or explanation where necessary. The examples are drawn from various datasets to illustrate each distinct metadata element and therefore do not form a coherent whole. Worked examples of complete metadata sets are included in Appendix A.

It is strongly recommended that an entry be provided for all discovery metadata elements. If a particular piece of information is not known or not available, saying so is more valuable than leaving the entry empty. Leaving the entry empty could mean that the data provider had just neglected to provide relevant information.

4.1 Title

Element Name	Identifier	Element Definition	Obligation	Maximum Occurrence	Data Type	Domain
Title	1	Name by which dataset is known	M	1	Character String	Free text

4.1.1 Example

Element Name	Identifier	Entry
Title	1	Lexicon of Named Rock Unit Definitions

4.1.2 Comments

This element is used to provide the title of the dataset, that is, the title by which the dataset is known in the public domain. The title should be short, typically not more than 50 characters and should not include terms or jargon that would render it incomprehensible by the general user.

Where there is a possibility of multiple titles then the name by which the dataset is most commonly known should be given and the others provided as **Alternative Titles**.

Where no title exists that is intelligible to external users, the data producer is encouraged to create a title by which it will be known externally from this point on. Titles should encapsulate the subject, temporal and spatial coverage of the dataset, e.g. Voter Participation in Liverpool Local Elections, 1994. Where a title has an acronym in common use, or where a discipline specific name exists, it should appear as an **Alternative Title**.

4.2 Alternative Title

Element Name	Identifier	Element Definition	Obligation	Maximum Occurrence	Data Type	Domain
Alternative Title	2	Short name, other name, acronym or alternative language title	O	N	Character String	Free text

4.2.1 Example

Element Name	Identifier	Entry
Alternative Title	2	NRUD
Alternative Title	2	Stratigraphical Lexicon

4.2.2 Comments

This may be used for any additional title(s) under which the dataset may be known, including other language translations. The **Alternative Title** should be short, typically not more than 50 characters. Where a dataset title has an acronym in common use, or where a discipline specific name exists, it should appear under this element. If there is no alternative title then enter "Not Applicable". More than one instance of this element is allowed. If multiple instances are desired then each instance should have a separate entry as shown in the example.

4.3 Originator

Element Name	Identifier	Element Definition	Obligation	Maximum Occurrence	Data Type	Domain
Originator	3	Person or organisation having primary responsibility for the intellectual content of the data	O	N	Character String	Free text

4.3.1 Example

Element Name	Identifier	Entry
Originator	3	Heath, A., Nuffield College (Oxford)
Originator	3	Jowell, R., Social and Community Planning Research
Originator	3	Curtice, J.K., University of Strathclyde
Originator	3	Brand, J.A., University of Strathclyde

Originator	3	Mitchell, J.C., University of Strathclyde
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4.3.2 Comments

This element should contain information about the person or body with prime responsibility for the intellectual content of the data. This is not necessarily the person or organisation named as contact for the data, or indeed, the person or organisation responsible for publishing the data. The originator(s) are not necessarily those who own the intellectual property rights in the dataset.

More than one instance of this element is allowed. If multiple instances are desired then each instance should have a separate entry as shown in the example.

For many government datasets it will be the originating department that has responsibility. The general rule is that where a work is produced as a result of the policy of a corporate body and at the expense of that corporate body, the corporate body has prime responsibility, not the individual who actually produced it.

4.4 Abstract

Element Name	Identifier	Element Definition	Obligation	Maximum Occurrence	Data Type	Domain
Abstract	4	Brief narrative summary of the dataset	M	1	Character String	Free text

4.4.1 Example

Element Name	Identifier	Entry
Abstract	4	Large scale digital topographic mapping, detailed framework mapping for site location, planning and land and asset management.

4.4.2 Comments

This element is used to provide a brief description of the dataset. It should include the content of the dataset and the purpose and/or applications for which the dataset was produced. Whilst there is no maximum length for this description it should be concise and ideally fewer than 100 words in length and not normally longer than 300 words.

4.5 Data Capture Period

Element Name	Identifier	Element Definition	Obligation	Maximum Occurrence	Data Type	Domain
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Element Name	Identifier	Element Definition	Obligation	Maximum Occurrence	Data Type	Domain
Data Capture Period	5	The period during which data capture took place	O	1		

4.5.1 Example

Element Name	Identifier	Entry
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Data Capture Period	5	No data entry required here
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4.5.2 Comments

Element 5 acts as a heading to the following 5 elements (elements 6 to 10) and so no metadata entry is required against this element. This element is used to specify the time period in which the information was collected. The date does not relate to when the information was digitised or converted into a particular format. It is used to show that if data capture period data is available then the following five elements are required.

If the start and/or end dates of capture are not known, not applicable or if data capture is ongoing then this fact cannot be conveyed by using a date data type. This information can be indicated by elements 6 and/or 8.

If the dataset is an amalgamation of a number of datasets with different start and end dates of capture then the overall first and last dates should be given.

4.6 Status of Start Date of Capture

Element Name	Identifier	Element Definition	Obligation	Maximum Occurrence	Data Type	Domain
Status of Start Date of Capture	6	Status of knowledge on Start Date of Capture	O	1	Enumerated List	Known Not Known Not Applicable

4.6.1 Example

Element Name	Identifier	Entry
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Status of Start Date of Capture	6	Known
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4.6.2 Comments

It is possible that for some datasets the start date of capture is not known in which case this fact should be indicated here. This element is

used to specify the time period in which the information was collected. The date does not relate to when the information was digitised or converted into a particular format.

In the case of a dataset that has been continuously updated for a number of years and does not contain an historic record, as in the case of the Ordnance Survey Land-Line® dataset, then the term “Not Applicable” may be used.

If the start date is known then the word “Known” should be entered here and the actual date provided in via element 7.

4.7 Start Date of Capture

Element Name	Identifier	Element Definition	Obligation	Maximum Occurrence	Data Type	Domain
Start Date of Capture	7	Date on which data was first collected	C/ Status of Start Date = “Known”	1	Date	Date

4.7.1 Example

Element Name	Identifier	Entry
Start Date of Capture		19850323

4.7.2 Comments

This element is used to specify the date on which data in the set was first collected and is conditional on the entry to element 6 being “Known”. This element is used to specify the time period in which the information was collected. The date does not relate to when the information was digitised or converted into a particular format. The date given should be in the format, CCYYMMDD. Where any part of the date is not known it should be replaced with asterisks. For example if data capture started in March 1985, as above, but the day is not known then the date entry should be 198503**.

4.8 Status of End Date of Capture

Element Name	Identifier	Element Definition	Obligation	Maximum Occurrence	Data Type	Domain
Status of End Date of Capture	8	Status of knowledge on End Date of Capture	O	1	Enumerated List	Known Not known Not Applicable Ongoing

4.8.1 Example

Element Name	Identifier	Entry
Status of Date of Capture	8	ongoing

4.8.2 Comment

It is possible that for some datasets the end date of capture is not known in which case this fact should be indicated here. This element is used to specify the time period in which the information was collected. The date does not relate to when the information was digitised or converted into a particular format.

In the case that the dataset is still being updated then "Ongoing" should be entered and the periodicity of update provided via element 10.

If the start date is known then the word "Known" should be entered here and the actual date provided via element 9.

4.9 End Date of Capture

Element Name	Identifier	Element Definition	Obligation	Maximum Occurrence	Data Type	Domain
End Date of Capture	9	Date on which data was last collected	C	1	Date	Date

4.9.1 Example

Element Name	Identifier	Entry
End Date of Capture		19960128

4.9.2 Comments

If data capture has ended then this element is used to provide the date on which data in the set was last collected and is conditional on the entry to element 8 being "Known". This element is used to specify the time period in which the information was collected. The date does not relate to when the information was digitised or converted into a particular format. The date given should be in the format, CCYYMMDD. Where any part of the date is not known it should be replaced with asterisks. For example where data capture ended in January 1996, but the day is not known then the date entry should be 199601**.

4.10 Frequency of Update

Element Name	Identifier	Element Definition	Obligation	Maximum Occurrence	Data Type	Domain
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Element Name	Identifier	Element Definition	Obligation	Maximum Occurrence	Data Type	Domain
Frequency of Update	10	Revision regime of dataset	O	1	Enumerated List	Hourly Daily Weekly Fortnightly Monthly Quarterly Biannually Annually Biennially Triennially Quinquennially Decennially Continuous Irregular Never Not Known Other

4.10.1 Example

Element Name	Identifier	Entry
Frequency of Update	10	Quarterly

4.10.2 Comments

If data capture still continues, then the period of update should be given here. Where a dataset is updated continuously and the user would obtain the data in whatever state it happened to be on the date of purchase then enter "Continuous". If the data continues to be updated but there is no regular period of update, enter "Irregular"

4.11 Presentation Type

Element Name	Identifier	Element Definition	Obligation	Maximum Occurrence	Data Type	Domain
Presentation Type	11	Form in which the data resource is available	O	N	Enumerated List	Image Graphic Map Numeric Text Other

4.11.1 Example

Element Name	Identifier	Entry
Presentation Type	11	Numeric

4.11.2 Comments

This element can be used multiple times to specify the forms in which the data is available. The allowable types are:

- Image: Photographic or, satellite image
- Graphic: drawing
- Map: data presented in map form
- Numeric: set of numbers or statistical data
- Text: free text

More than one instance of this element is allowed. If multiple instances are desired then each instance should have a separate entry as shown in example 4.2.1.

4.12 Access Constraints

Element Name	Identifier	Element Definition	Obligation	Maximum Occurrence	Data Type	Domain
Access Constraint	12	Restrictions and legal prerequisites for accessing the dataset	O	N	Enumerated List	Financial Legal Other Not Known None

4.12.1 Example

Element Name	Identifier	Entry
Access Constraint	12	none

4.12.2 Comments

Use this element to define any restrictions placed on access to the data. As well as financial and legal constraints relating to the data this might be used to specify categories of people who are/are not allowed access to the data. A financial constraint would imply that the data had to be purchased. A legal constraint implies that some security or contractual constraint applies to the dataset.

More than one instance of this element is allowed. If multiple instances are desired then each instance should have a separate entry as shown in example 4.2.1.

4.13 Use Constraints

Element Name	Identifier	Element Definition	Obligation	Maximum Occurrence	Data Type	Domain
Use Constraints	13	Restrictions and legal constraints on using the data	O	1	Character String	Free text

4.13.1 Example

Element Name	Identifier	Entry
Use Constraints	13	© Natural Environmental Research Council

4.13.2 Comments

When copyright or other legal restrictions protect the data this element is used to define the terms of the constraint including re-use fees, reproduction restrictions and acknowledgements. The actual fees payable would not be provided here, just the fact that a fee would be payable. If the use constraints are unknown then enter "Not Known".

4.14 Keywords

Element Name	Identifier	Element Definition	Obligation	Maximum Occurrence	Data Type	Domain
Keywords	14	Common-use words or phrases summarising the subject of the dataset	M	N	Character String	Free text

4.14.1 Example

Element Name	Identifier	Entry
Keyword	14	Agriculture
Keywords	14	Imagery

4.14.2 Comments

The entry for this element should take the form of a list of words or phrases that describe the subject of the dataset. Glgateway recommend a prescribed list of keywords to assist data providers and ensure searchers accurately and consistently find relevant records. As a

minimum, one Glgateway keyword should be selected, with data providers able to supplement the metadata with other local keywords. The Glgateway pick-list could also be enhanced or expanded by Glgateway as demand dictated especially with the introduction of new themes of metadata.

Keywords should be taken from an identifiable thesaurus of keywords. A recommended on-line thesaurus is the Humanities and Social Science Electronic Thesaurus (HASSET) which is maintained by the Data Archive at the University of Essex. The URL for this service is:

<http://www.data-archive.ac.uk/search/hassetSearch.asp>

Name	Definition
Agriculture / Farming	Agriculture (cultivation of crops, rearing or raising animals); herding; irrigation; aquaculture (cultivation or rearing of aquatic plants or animals); pests and diseases affecting crops and livestock; plantations
Aquaculture / Fishery	Cultivation or rearing of aquatic plants or animals, fishing areas, fishing limits
Biota	biology (living organisms); botany (physiology, structure, genetics, distribution of plants); zoology (animals, animal behaviour, physiology, structure, and distribution of fauna); pests and diseases affecting natural flora and fauna (see farming for pests and diseases affecting agricultural crops and livestock); wildlife (non-domesticated birds, insects, fish, animals, etc.); ecology (relation of organisms to one another and their physical environment) Biozones; Biomes
Cadastral and legal land descriptions	Cadastral boundaries; addresses, land restrictions/easements; land inventory; crime and justice;
Climatology / Meteorology/ Atmosphere	processes and phenomena of the atmosphere (cloud cover, precipitation, temperature); changes in climate
Communications	postal service, telecommunications (including artificial satellite), telegraph, radio, television, telephone, computer networks (local area networks, wide area networks)
Economy	Historical, conditions, production, labour and revenue, unemployment, taxes; Economic Activities: commerce (insurance, financial transactions, buying and selling on a large scale); industry; tourism; manufacturing (making of articles, including leather, tobacco, animal products, rubber, packaging); mining and metallurgy (exploration, extraction and processing of minerals); oil and gas (exploration, extraction and processing); forestry; hunting (other than for recreation); fishing; trade (including domestic and foreign trade); property valuation; business management boundaries (or sales territories)

Elevation and Derived Products	altitude (elevation, height above or below sea level);
Environment	protection (areas protected from industrial or domestic development to protect the flora, fauna and other resources, nature conservancy plans, environmental conservation); pollution (areas in which the environment has been contaminated or the sources of environmental contaminants); waste (unwanted or unusable remains or by-products, storage sites for waste); ecotourism; Environmental Impact Assessments;
Geoscientific information	geography (topography, toponomy); geomorphology (geophysical features of the surface of the earth including erosion and other processes); general geology (mineralogy, petrology, dynamic and structural geology, stratigraphic geology, palaeontology, composition, structure and origin of the earth's rocks, quaternary geology, glacial geology, engineering geology, hydrogeology); economic geology (ore, metals, industrial minerals, natural stone, gravel & crush, thermal energy); geophysics (properties and interactions of the earth's matter and energy, seismology, isostasy); soils; geochemistry (natural occurrence of elements, ecogeochemistry); permafrost; geological processes (erosion, tectonics, deposition, metamorphism, volcanism, isostatic uplift/subsidence) palaeontology (paleobotany, paleobiology, paleozoology, paleoantopology, fossils); risks of earthquakes, volcanoes, sinkholes, landslides, avalanches
Health	disease; illness; factors affecting health; geomedicine; human ecology; hygiene; public safety; substance abuse; mental and physical health; health services and medicine
Imagery	remotely sensed information such as ground cover R.g. scans of the earth by satellite, aerial photographs and imagery
Base maps	topographic maps, aeronautical, topocadastral maps, hydrographic charts
Earth cover	land use (land cover, public lands, land tenure, urban and regional land use plans)
Infrastructure	transportation (roads, highways, streets, airports, airstrips, air routes, water transportation, shipping routes, railways, automotive transportation, stage lines, ferries, systems of conveyance, tunnels); mines (opencast, oil platforms, etc.); buildings and structures; factories navigational aids (beacons, lights, satellites) nautical aids
Inland waters	rivers, lakes, glaciers, continental icesheets, snow; ground water; water utilisation plans; movement of water in relation to land; floods;

	dams; pans; swamps; reservoirs; marshes; drainage regions
Military infrastructure	military bases and installations
Oceans	salt water bodies and their features (excluding inland waters); bathymetry, tides, currents, tidal waves, nautical aids
Planning	Regional or local use plans, local authority plans. Projecting.
Political boundaries	Political and administrative boundaries
Society	human settlements; development, structure and functioning of human society; anthropology (physical anthropology, ethnology, social and cultural anthropology); archaeology (human history and prehistory studied through excavation of sites and analysis of physical remains); education; traditional beliefs, manners and customs; language; population (demographic and census data); recreation (outdoor recreation, camping, hiking, wilderness experience parks and other locations for recreational activities (see economy for tourism); memorials; social impact assessments
Utilities	electricity, gas, sewage collection and disposal systems, saline water conversion systems, water purification and distribution); energy (hydrocarbons, wood, solar and nuclear energy, hydroelectricity, thermal energy); production and distribution (pipeline routes)

4.15 Geographic Extent

Element Name	Identifier	Element Definition	Obligation	Maximum Occurrence	Data Type	Domain
Geographic extent	15	Geographic area or areas for which data is available	M	1		

4.15.1 Example

Element Name	Identifier	Entry
Geographic extent	15	No entry required here

4.15.2 Comments

Element 15 acts as a heading to the following two groups of elements (elements 16 to 22 and elements 23 to 26) and so no metadata entry is

required against this element. It is used to show that it is mandatory to provide information that defines the geographic extent covered by the dataset. The method used to define the extent can be in terms of spatial referencing by coordinates e.g. "British National Grid" or by geographic identifiers e.g. "England", "Berkshire" or "SO16". If the spatial referencing is by coordinates then the area or areas bounding the geographic extent described by the data is defined.

Therefore, whilst it is mandatory to define a geographic extent, the type of information provided is conditional on whether spatial referencing by coordinates or geographic identifiers is used. Coordinate data is defined by elements 16 to 22 and geographic identifiers by elements 23 to 26. To utilise the spatial searching capability of GIgateway, the geographic extent of each dataset will need to be described as a bounding rectangle based on latitude and longitude coordinates.

If the geographic extent is to be defined by coordinates then this can be achieved by providing National Grid or latitude and longitude values. If the extent covers both Great Britain and Northern Ireland then two sets of National Grid coordinates will be required. That is one set referring to the British National Grid and one referring to the Irish Grid.

Where a dataset contains data relating to a number of geographically localised areas, for example several archaeological sites within a county, then at the Discovery Metadata level, the surrounding enclave i.e. the county should be used to define the extent either using coordinates or geographic identifiers (e.g. administrative areas). Details of the locations of each of the areas would be provided at the detailed metadata level. Where data relates to a number of areas that are widely separated e.g. Cornwall, Yorkshire and Kent then this can be indicated by reference to a number of enclaves or administrative areas. These would require a multiple entry.

It should be noted that the information provided in elements 16 to 22 concerns the definition of the extent of the dataset and not to any coordinate system relating to information within the dataset. Information concerning the contents of the dataset should be provided in element 27.

4.16 Spatial Referencing by Coordinates

Element Name	Identifier	Element Definition	Obligation	Maximum Occurrence	Data Type	Domain
Spatial Referencing by Coordinates	16	Geographic extent referenced by use of coordinates	C	1		

4.16.1 Example

Element Name	Identifier	Entry
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Spatial Referencing by	16	No entry required here
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Coordinates		
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4.16.2 Comments

This element acts as a sub-heading for the following 5 elements that can be used to define the geographic extent of the dataset by means of coordinates.

4.17 System of Spatial Referencing by Coordinates

Element Name	Identifier	Element Definition	Obligation	Maximum Occurrence	Data Type	Domain
System of Spatial Referencing by Coordinates	17	Name or description of system or systems of spatial referencing by coordinates used for the geographic extent	M	N	Enumerated List	British National Grid, Irish Grid, Latitude and Longitude

4.17.1 Example

Element Name	Identifier	Entry
System of Spatial Referencing by Coordinates	17	British National Grid

4.17.2 Comments

Where coordinates are used to indicate the geographic extent of the data then the name of the system of spatial referencing should be selected from the following list:

- British National Grid
- Irish Grid
- Latitude and Longitude

More than one instance of this element is allowed. So if the supplier wishes to define the extent by more than one non contiguous footprint or by both British National Grid values and by Latitude and Longitude values then elements 17 to 22 should be repeated.

4.18 Bounding Rectangle

Element Name	Identifier	Element Definition	Obligation	Maximum Occurrence	Data Type	Domain
Bounding Rectangle	18	Rectangle defining an area of occurrence of the dataset	M	N		

Element Name	Identifier	Element Definition	Obligation	Maximum Occurrence	Data Type	Domain
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4.18.1 Example

Element Name	Identifier	Entry
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Bounding Rectangle		No entry required here
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4.18.2 Comments

This element acts as a sub-heading for the following 4 elements that can be used to define a rectangle that bounds the dataset.

If the data supplier wishes to identify multiple bounding rectangles to define non-contiguous footprints, then elements 17 to 22 should be repeated for each method of extent definition.

4.19 West Bounding Coordinate

Element Name	Identifier	Element Definition	Obligation	Maximum Occurrence	Data Type	Domain
West Bounding Coordinate	19	Westernmost coordinate of the limit of the area	M	1	Real	Grid value / longitude

4.19.1 Example

Element Name	Identifier	Entry
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West Bounding Coordinate		0
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4.19.2 Comments

This coordinate defines the western edge of the bounding rectangle within which the area or one of the areas of the dataset lies. The coordinate should be given either in metric units to the nearest kilometre or as a longitude to the nearest hundredth of a degree (0.01). Longitude values to the West should be expressed as negative numbers and those to the East as positive.

4.20 East Bounding Coordinate

Element Name	Identifier	Element Definition	Obligation	Maximum Occurrence	Data Type	Domain
East Bounding Coordinate	20	Easternmost coordinate of the limit of the area	M	1	Real	Grid value / longitude

4.20.1 Example

Element Name	Identifier	Entry
East Bounding Coordinate	20	700

4.20.2 Comments

This coordinate defines the eastern edge of the bounding rectangle within which the area or one of the areas of the dataset lies. The coordinate should be given either in metric units to the nearest kilometre or as a longitude to the nearest hundredth of a degree. Longitude values to the West should be expressed as negative numbers and those to the East as positive.

4.21 North Bounding Coordinate

Element Name	Identifier	Element Definition	Obligation	Maximum Occurrence	Data Type	Domain
North Bounding Coordinate	21	Northernmost coordinate of the limit of the area	M	1	Real	Grid value / latitude

4.21.1 Example

Element Name	Identifier	Entry
North Bounding Coordinate	21	1300

4.21.2 Comments

This coordinate defines the northern edge of the bounding rectangle within which the area or one of the areas of the dataset lies. The coordinate should be given either in metric units to the nearest kilometre or as a latitude to the nearest hundredth of a degree (0.01). Latitude values to the North should be expressed as positive numbers and those to the South as negative.

4.22 South Bounding Coordinate

Element Name	Identifier	Element Definition	Obligation	Maximum Occurrence	Data Type	Domain
South Bounding Coordinate	22	Southernmost coordinate of the limit of the area	M	1	Real	Grid value / latitude

4.22.1 Example

Element Name	Identifier	Entry
South Bounding Coordinate	22	0

4.22.2 Comments

This coordinate defines the southern edge of the bounding rectangle within which the area or one of the areas of the dataset lies. The coordinate should be given either in metric units to the nearest kilometre or as a latitude to the nearest hundredth of a degree (0.01).

4.23 Spatial Referencing by Geographic Identifiers

Element Name	Identifier	Element Definition	Obligation	Maximum Occurrence	Data Type	Domain
Spatial Referencing by Geographic Identifiers	23	Geographic extent referenced by use of geographic identifiers	C	1		

4.23.1 Example

Element Name	Identifier	Entry
Spatial Referencing by Geographic Identifiers	23	No entry required here

4.23.2 Comments

This element acts as a sub-heading for the following 3 elements that can be used to define the geographic extent of the dataset by means of geographic identifiers.

4.24 National Extent

Element Name	Identifier	Element Definition	Obligation	Maximum Occurrence	Data Type	Domain
National Extent	24	Geographic extent or occurrence of dataset by parts of the United Kingdom	C	N	Enumerated List	England, Northern Ireland, Scotland, Wales, Isle of Man, Channel Islands, Great Britain Offshore United Kingdom

4.24.1 Example

Element Name	Identifier	Entry
National Extent	24	England
National Extent	24	Scotland

4.24.2 Comments

The use of this element is conditional on geographic identifiers rather than geographic coordinates being used to define the spatial extent of the data. At the national level the area defined shall be selected from the following list:

- England,
- Northern Ireland,
- Scotland,
- Wales,
- Isle of Man,
- Channel Islands,
- Great Britain
- Offshore

Where the data extent covers more than one nation then multiple entries should be made as in the case above where the data extent covers England and Scotland.

4.25 Administrative Area Extent

Element Name	Identifier	Element Definition	Obligation	Maximum Occurrence	Data Type	Domain
Administrative Area Extent	25	Geographic extent or occurrence of dataset by administrative area	C	N	Enumerated List	List of Administrative Areas

4.25.1 Example

Element Name	Identifier	Entry
Administrative area extent	25	Lancashire

4.25.2 Comments

The use of this element is conditional on geographic identifiers rather than geographic coordinates being used to define the spatial extent of the data. Where the data extent covers more than one administrative area then multiple entries should be made.

4.26 Postcode District Extent

Element Name	Identifier	Element Definition	Obligation	Maximum Occurrence	Data Type	Domain
Postcode District Extent	26	Geographic extent or occurrence of dataset by postcode district	C	N	Enumerated List	List of postcode districts

4.26.1 Example

Element Name	Identifier	Entry
Postcode district extent		GU26

4.26.2 Comments

The use of this element is conditional on geographic identifiers rather than geographic coordinates being used to define the spatial extent of the data. Where the data extent covers more than one postcode district then multiple entries should be made.

4.27 Spatial Reference System

Element Name	Identifier	Element Definition	Obligation	Maximum Occurrence	Data Type	Domain
Spatial Reference System	27	Name or description of the system of spatial referencing, whether by coordinates or geographic identifiers, used in the dataset	M	N	Character String	Free text

4.27.1 Example

Element Name	Identifier	Entry
Spatial Reference System	27	WGS 84

4.27.2 Comments

This element is used to define the spatial referencing system used within the dataset. It should not be confused with the spatial referencing system used to define the spatial extent of the dataset (elements 15 to 26). The spatial referencing system may be based on coordinates e.g. British National Grid, Irish National Grid, latitude and longitude or geographic

identifiers e.g. postcodes, postal addresses, administrative units or countries.

Where the spatial referencing system has a recognised title e.g. "British National Grid", "WGS 84" or "Royal Mail Postcodes" then this should be used. Otherwise, the system should be described as succinctly as possible. If the Spatial Reference System is unknown then enter "Not Known".

4.28 Level of Spatial Detail

Element Name	Identifier	Element Definition	Obligation	Maximum Occurrence	Data Type	Domain
Level of Spatial Detail	28	Description of the granularity of the data	O	1	Character String	Free text

4.28.1 Example

Element Name	Identifier	Entry
Level of Spatial Detail	28	Constituencies

Element Name	Identifier	Entry
Level of Spatial Detail	28	10 metre square pixels

4.28.2 Comments

This element is used to give some indication of the resolution, the degree of disaggregation or generalisation of the data. This may not correspond to the level of spatial detail present when the data was captured. The nature of the information provided will depend on the type of data.

For statistical data the smallest unit to which data is disaggregated could be used, e.g.:

- enumeration district,
- postcode sector,
- county

For imagery the pixel size expressed in the equivalent ground measurement could be used:

- 10 metre square pixels

For data based upon topographical mapping nominal or capture scale could be used, e.g.:

- 1:2500
- 1:50,000

Where the level of Spatial Detail is unknown enter "Not Known"

4.29 Supply Media

Element Name	Identifier	Element Definition	Obligation	Maximum Occurrence	Data Type	Domain
Supply Media	29	Type of media in which the data can be supplied	O	N	Enumerated List	Paper Magnetic Optical On-line Other

4.29.1 Example

Element Name	Identifier	Entry
--------------	------------	-------

Supply Media	29	Paper
Supply Media	29	Magnetic

4.29.2 Comments

This element is used to define the format of the media in which the data can be provided. Example formats are:

- Paper (data can be supplied in printed form)
- Magnetic (Floppy disc, DAT tape)
- On-line (data can be downloaded electronically)
- Optical (CD-ROM)
- Other

More than one instance of this element is allowed. If multiple instances are desired then each instance should have a separate entry.

4.30 Data Format

Element Name	Identifier	Element Definition	Obligation	Maximum Occurrence	Data Type	Domain
Data Format	30	Format in which digital data can be provided	O	N	Character String	Free text

4.30.1 Example

Element Name	Identifier	Entry
--------------	------------	-------

Data Format	30	NTF Version 2, Level 3
-------------	----	------------------------

4.30.2 Comment

Examples of data formats might be:

- NTF
- DXF
- Microsoft Word
- Microsoft Excel
- Other

- not known
- not applicable (i.e. if only supplied on paper)

Where relevant, additional information concerning the format of the data may be provided, such as the version and level of NTF data in the example above.

More than one instance of this element is allowed. If multiple instances are desired then each instance should have a separate entry.

4.31 Additional Information Source

Element Name	Identifier	Element Definition	Obligation	Maximum Occurrence	Data Type	Domain
Additional Information Source	31	Source of further information about the dataset	O	N	Character String	Free text

4.31.1 Example

Element Name	Identifier	Entry
Additional Information Source	31	To obtain sample data contact Customer Services – Help Desk phone 01234 56789

4.31.2 Comments

This element can be used to provide an indication of where additional information about the dataset can be found. This could refer to the contact address given in elements 33 onwards or possibly a URL where information can be obtained. It could also refer to further documents such as a dataset handbook or research paper on the dataset.

This element should not be used as a place to add additional information about the dataset.

More than one instance of this element is allowed. If multiple instances are desired then each instance should have a separate entry.

Where there are no additional sources of data then enter "None".

4.32 Dataset Association

Element Name	Identifier	Element Definition	Obligation	Maximum Occurrence	Data Type	Domain
Dataset Association	32	Title of relevant related dataset or description of data resource which may be used or be of value in association with the subject dataset	O	N	Character String	Free text

4.32.1 Example

Element Name	Identifier	Entry
Dataset Association	32	OSCAR®
Dataset Association	32	ADDRESS-POINT™

4.32.2 Comments

Where similar or related datasets are available then they can be referenced in this element. A related dataset may be one where data for the same geographic extent exists but for a different time frame. Alternatively an identical dataset may exist for an adjacent geographic area. This information is meant as a pointer to related datasets and not as a description of such datasets and therefore should be kept as short as possible.

More than one occurrence of this element is allowed. If multiple instances are desired then each instance should have a separate entry as shown in the example. Where there are no associated datasets enter "None".

4.33 Supplier

Element Name	Identifier	Element Definition	Obligation	Maximum Occurrence	Data Type	Domain
Supplier	33	Details of the organisation(s) from which the data can be obtained	M	N		

4.33.1 Example

Element Name	Identifier	Entry
Supplier	33	No entry required here

4.33.2 Comment

Element 33 acts as a heading to the following 7 elements (elements 34 to 40) and so no metadata entry is required against this element.

Information concerning more than one supplier of the dataset can be provided. If this is the case then elements 34 to 40 should be repeated as separate groups for each supplier.

4.34 Contact Name or Title

Element Name	Identifier	Element Definition	Obligation	Maximum Occurrence	Data Type	Domain
Contact Name or Title	34	Name or title of person nominated by the supplier as first point of	M	1	Character String	Free text

Element Name	Identifier	Element Definition	Obligation	Maximum Occurrence	Data Type	Domain
		contact				

4.34.1 Example

Element Name	Identifier	Entry
Contact Name or Title	34	The Data Manager

4.34.2 Comments

This element and those that follow are used to provide contact information to those who wish to acquire the dataset or obtain further information about the dataset.

This element is used to give the name or title of the person who is the first point of contact for the inquirer. It is recommended that a title be given rather than the name of an actual person. This avoids having to update the discovery metadata if people change roles in an organisation.

4.35 Full Postal Address of Supplier

Element Name	Identifier	Element Definition	Obligation	Maximum Occurrence	Data Type	Domain
Full postal address of supplier	35	Postal address of supplier including organisation name, building name or number, street name, city, county and country	M	1	Character String	Free text

4.35.1 Example

Element Name	Identifier	Entry
Full postal address of supplier	35	Data Providers Ltd 12 High Street Borchester Wessex England

4.35.2 Comments

This element provides the postal address for the contact organisation and in accordance with BS7666 Part 3, Annexe C [8] should consist of:

- Organisation name
- Building name or number, street name
- Postal town or city
- Postal county
- Country

If a postal address is not provided then enter "Not Applicable".

4.36 Postcode of Supplier

Element Name	Identifier	Element Definition	Obligation	Maximum Occurrence	Data Type	Domain
Postcode of supplier	36	Postal code part of address of supplier	M	1	Character String	Free text

4.36.1 Example

Element Name	Identifier	Entry
Postcode of supplier	36	GU21 4DN

4.36.2 Comments

This element is used to provide the postcode or zip code in the contact address. If a postal address is not provided then enter "Not Applicable"

4.37 Telephone Number of Supplier

Element Name	Identifier	Element Definition	Obligation	Maximum Occurrence	Data Type	Domain
Telephone number of supplier	37	Telephone number by which individuals can talk to the organisation or individual	O	1	Character String	Free text

4.37.1 Example

Element Name	Identifier	Entry
Telephone number of supplier	37	+44 (0) 123 456789

4.37.2 Comments

This element is used to provide the telephone number for contact. The number given should be the full international dialling number. If a telephone number is not provided the enter "Not Applicable"

4.38 Facsimile Number of Supplier

Element Name	Identifier	Element Definition	Obligation	Maximum Occurrence	Data Type	Domain
Facsimile number of supplier	38	Facsimile number which individuals can use to contact the organisation or individual	O	1	Character String	Free text

4.38.1 Example

Element Name	Identifier	Entry
Facsimile number of supplier	38	+44 (0) 123 456789

4.38.2 Comments

This element is used to provide the facsimile number for contact. The number given should be the full international dialling number. If a facsimile number is not provided the enter "Not Applicable"

4.39 Email Address of Supplier

Element Name	Identifier	Element Definition	Obligation	Maximum Occurrence	Data Type	Domain
Email address of supplier	39	Internet Email address which individuals can use to contact the organisation or individual	O	1	Character String	Free text

4.39.1 Example

Element Name	Identifier	Entry
Email address of supplier	39	Abody@company.co.uk

4.39.2 Comments

Where the organisation, or individual, has an email address, then the address should be provided in this element. If an email address is not provided the enter "Not Applicable"

4.40 Web address of Supplier

Element Name	Identifier	Element Definition	Obligation	Maximum Occurrence	Data Type	Domain
Web address of supplier	40	Supplying organisation's World Wide Web site	O	1	Character String	Free text

4.40.1 Example

Element Name	Identifier	Entry
--------------	------------	-------

Web address of supplier	40	www.org.info.page
-------------------------	----	--

4.40.2 Comments

Where the contact organisation has a World Wide Web site which can be used to obtain further information about the dataset or from which the data can be purchased then the URL should be provided here. If a web address is not provided the enter "not applicable"

4.41 Date of Update of Metadata

Element Name	Identifier	Element Definition	Obligation	Maximum Occurrence	Data Type	Domain
Date of Update of Metadata	41	Date on which the Metadata was last changed	M	1	Date	Date

4.41.1 Example

Element Name	Identifier	Entry
--------------	------------	-------

Date of Update of Metadata	41	19971110
----------------------------	----	----------


4.41.2 Comments

This optional element can be used to state when the discovery metadata itself was last updated. If provided it should be given in the form CCYYMMDD, i.e. 19781105. Where any part of the date is not given asterisks should replace it. For example if only the year and month were provided then the entry should be 197811**.

4.42 Sample

Element Name	Identifier	Element Definition	Obligation	Maximum Occurrence	Data Type	Domain
Sample	42	A sample of the dataset	O	N	Image or text	CGM/ GIF/ JPEG/ TIFF or Free Text

4.42.1 Example

Element Name	Identifier	Entry
Sample	42	

4.42.2 Comments

This element can be used to provide a sample of the data to the enquirer. Where the dataset is graphical, i.e. a map, image or graphic then a sample of the dataset can be provided here in the form of an image file. If the dataset were statistical then a tabular sample of the data might be provided.

APPENDIX A - WORKED EXAMPLES

The examples given in Section 4 above for each of the data elements were drawn from a number of diverse metadata collections in order to illustrate each element. This may give a misleading view of a complete metadata definition. In order to correct this, a number of complete examples are given in this Appendix.

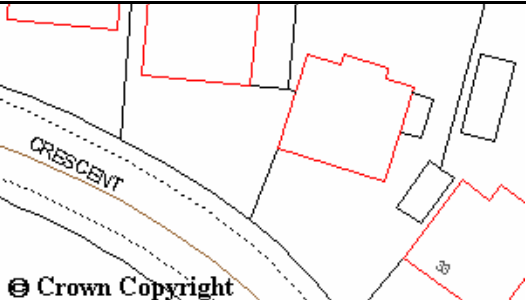
The names of the organisation that kindly donated the information are given for each dataset. It should be noted that this information has been provided purely for illustrative purposes. These examples should not be taken as evidence that the dataset provided can or will be provided by the relevant organisation.

A.1 Ordnance Survey Land-Line ®

This Discovery Metadata worked example has been kindly contributed by the Ordnance Survey.

Element Name	Identifier	Entry
Title	1	Land-Line
Alternative Title	2	Not Applicable
Originator	3	Ordnance Survey, Great Britain
Abstract	4	Large-scale digital topographic mapping for site location, planning and land and asset management. Land-Line contains 30 feature codes and six text categories. Standard map tile coverage 500 x 500 m in urban areas, 1km x 1km in rural areas and 5km x 5km in moorland areas
Data Capture Period	5	
Status of Start Date of Capture	6	Not Applicable
Start Date of Capture	7	
Status of End Date of Capture	8	Ongoing
End Date of Capture	9	
Frequency of Update	10	Continuous
Presentation Type	11	Map
Access Constraint	12	Financial
Use Constraint	13	All Ordnance Survey digital map data are Crown Copyright. Full details of the conditions under which Ordnance Survey digital map data may be processed, manipulated or copied by a customer are contained in Ordnance Survey leaflet: Copyright 3 - Digital Map Data. This is available from Copyright Licensing, Ordnance Survey, Romsey Road, Southampton, SO16 4GU, telephone +44 (0)1703 792913, fax +44 (0)1703-792435
Keywords	14	base maps
Keywords	14	geoscientific information
Keywords	14	roads
Keywords	14	rivers
Keywords	14	buildings
Keywords	14	geographic names
Geographic extent	15	
Spatial Referencing by Coordinates	16	
System of Spatial Referencing by Coordinates	17	British National Grid
Bounding Rectangle	18	
West Bounding Coordinate	19	0
East Bounding Coordinate	20	700
North Bounding Coordinate	21	1300

Worked Examples

Element Name	Identifier	Entry
South Bounding Coordinate	22	0
Spatial Referencing by Geographic Identifiers	23	
National Extent	24	England
National Extent	24	Scotland
National Extent	24	Wales
Spatial Reference System	27	British National Grid
Level of Spatial Detail	28	Nominal scale 1:1250 in urban areas, 1:2500 in rural areas and 1:10000 in moorland areas
Supply Media	29	Magnetic
Supply Media	29	Optical
Data Format	30	NTF v2.0 Level 2 (BS 7567)
Data Format	30	DXF Release 12
Additional Information	31	Ordnance Survey Customer Information HelpLine: +44 (0)8456 050505, fax +44 (0)1703 792452, e-mail custinfo@ordsvy.gov.uk
Additional Information	31	www.ordsvy.gov.uk
Dataset Association	32	ADDRESS-POINT™
Dataset Association	32	OSCAR®
Dataset Association	32	Land-Form Profile™
Supplier	33	
Contact Name or Title	34	Ordnance Survey Sales Desk
Full postal address of supplier	35	Ordnance Survey, Romsey Road, SOUTHAMPTON, United Kingdom
Postcode of supplier	36	SO16 4GU
Telephone number of supplier	37	+44 (0)1703 792773
Facsimile number of supplier	38	+44 (0)1703 792324
Email address of supplier	39	custinfo@ordsvy.gov.uk
Web address of supplier	40	www.o-s.co.uk
Date of Update of Metadata	41	19980430
Sample	42	

A.2 General Development Control Returns - PS1 and PS2

This Discovery Metadata Worked Example was kindly contributed by the Department of the Environment, Transport and the Regions (DETR).

Element Name	Identifier	Entry
Title	1	General Development Control Returns - PS1 and PS2
Alternate Title	2	Statistics on Planning Applications and Decisions
Originator	3	Department of the Environment, Transport and the Regions (DETR)
Abstract	4	Quarterly survey carried out by the DETR of all district planning authorities (shire districts, metropolitan districts, London boroughs, National Park authorities and Urban Development Corporations) to collect statistics of planning applications received and decided. The latter are broken down by size of development (two broad bands of major/minor development), type of development (for example, residential, industrial, retail), speed at which decision was reached by the authority (recorded in weeks) and data on formal enforcement action taken by local planning authorities against breaches of planning conditions. Statistics are used to monitor the level and pattern of planning activity, to assess local planning authorities' (LPAs) performance in handling planning applications and to monitor the effect of current planning policy and inform future policy direction.
Data Capture Period	5	
Status of Start Date of Capture	6	Known
Start Date of Capture	7	19790401
Status of End Date of Capture	8	Ongoing
End Date of Capture	9	-
Frequency of Update	10	Quarterly
Presentation Type	11	Numeric
Access Constraints	12	None
Use Constraints	13	None
Keywords	14	Planning
Keywords	14	Society
Keywords	14	Planning applications
Keywords	14	Planning decisions.
Geographic Extent	15	
Spatial Referencing by Geographic Identifiers	23	
National Extent	24	England
Spatial Referencing System	27	Administrative areas
Level of Spatial Detail	28	By Local Authorities - using list of standard codes.

Worked Examples

Element Name	Identifier	Entry
Supply Media	29	Paper
Supply Media	29	Magnetic
Data Format	30	Lotus 1-2-3
Data Format	30	WordPerfect
Data Format	30	ASCII text file
Data Format	30	DBase
Additional Information Source	31	None
Data set Association	32	Fees received for planning applications
Data set Association	32	General Development Control Return CPS1/2 ('county matter')
Data set Association	32	Land with outstanding planning permission for residential development (PS3 return)
Data set Association	32	Hazardous Substances Consents Return (HSC)
Supplier	33	
Contact Name or Title	34	Mr Guy Ellis
Full Postal Address	35	Department of the Environment, Transport and the Regions, Room 3/K10, Eland House Bressenden Place London SW1E 5DU
Postcode of Supplier	36	SW1E 5DU
Telephone Number Of Supplier	37	(+44) 0171 890 5507
Facsimile Number of Supplier	38	(+44) 0171 890 5519
Email Address of Supplier	39	doeplus@gtnet.gov.uk
Web Address of Supplier	40	www.open.gov.uk/doe
Date of Update of Metadata	41	19980401

A.3 SPOT Satellite Image

The University of East London kindly contributed this Discovery Metadata Worked Example.

Element Name	Identifier	Entry
Title	1	SPOT Satellite Image – Somerset Levels, Bristol & Glastonbury
Alternate Title	2	1 27-246 88/05/17 11:22:20 1 P
Originator	3	SPOT Image, 5 rue des Satellites, BP4359, F31030 Toulouse Cedex, France
Abstract	4	A panchromatic image at 10m resolution from the SPOT satellite system, covering the Somerset Levels, Bristol and Glastonbury.
Data Capture Period	5	
Status of Start Date of Capture	6	Known
Start Date of Capture	7	19880517
Status of End Date of Capture	8	Known
End Date of Capture	9	19880517
Frequency of Update	10	Irregular
Presentation Type	11	Image
Access Constraints	12	Unavailable outside University of East London.
Use Constraints	13	Data are the copyright of SPOT image, and may only be used within the University of East London for research and teaching purposes
Keywords		Imagery
Keywords		SPOT
Keywords		satellite
Geographic Extent	15	
Spatial Referencing by Coordinates	16	
System of Spatial Referencing by Coordinates	17	Latitude / Longitude
Bounding Rectangle	18	-
West Bounding Coordinate	19	-3.4
East Bounding Coordinate	20	-2.3
North Bounding Coordinate	21	+51.6
South Bounding Coordinate	22	+50.9
Level of Spatial Detail	28	10m square pixels
Supply Media	29	Optical
Data Format	30	Satellite image
Additional Information Source	31	SPOT Image, 5 rue des Satellites, BP4359, F31030 Toulouse Cedex, France

Data set Association	32	None
Supplier	33	
Contact Name or Title	34	Martin Ralphs
Full Postal Address of Supplier	35	GI Research Unit, School of Surveying, University of East London, Longbridge Road, Dagenham, Essex
Postcode of Supplier	36	RM8 2AS
Telephone Number Of Supplier	37	+44 (0) 181 590 7000 Ext. 2603
Facsimile Number of Supplier	38	+44 (0) 181 849 3618
Email Address of Supplier	39	m.p.ralphs@uel.ac.uk
Web Address of Supplier	40	www.uel.ac.uk/faculties/surv
Date of Update of Metadata	41	19980301

A.4 Geophysical Survey Data

This Discovery Metadata Worked Example has been kindly contributed by the British Geological Survey.

Element Name	Identifier	Entry
Title	1	Geophysical Survey Data
Alternative Title	2	not applicable
Originator	3	British Geological Survey
Abstract	4	The database contains geophysical data acquired by BGS as part of its offshore reconnaissance mapping programme. This programme was commenced in 1967, funded mainly by Department of Energy. The results of the programme are contained in a series of 1:250,000 scale geological and geophysical maps and 10 Regional Reports covering the UK Continental Shelf. The first phase of the programme was completed in 1986 and has been supplemented by additional data acquired through occasional surveys. The data are available as point values of gravity, magnetic and bathymetric information and as gridded data and derived maps.
Capture Period	5	
Status of Start Date of Capture	6	Known
Start Date of Capture	7	1968****
Status of End Date of Capture	8	Ongoing
End Date of Capture	9	
Frequency of Update	10	Irregular
Presentation Type	11	Numeric
Presentation Type	11	Maps
Access Constraints	12	Financial
Use Constraints	13	© Natural Environment Research Council
Keywords	14	geoscientific information
Keywords	14	geophysics
Keywords	14	geology
Keywords	14	offshore
Keywords	14	gravity
Keywords	14	magnetic
Keywords	14	bathymetry
Keywords	14	marine survey
Geographical Extent	15	
Spatial Referencing by Coordinates	16	
System of Spatial Referencing by Coordinates	17	Latitude and Longitude
Bounding Rectangle	18	
West Bounding Coordinate	19	-10
East Bounding Coordinate	20	+3

Worked Examples

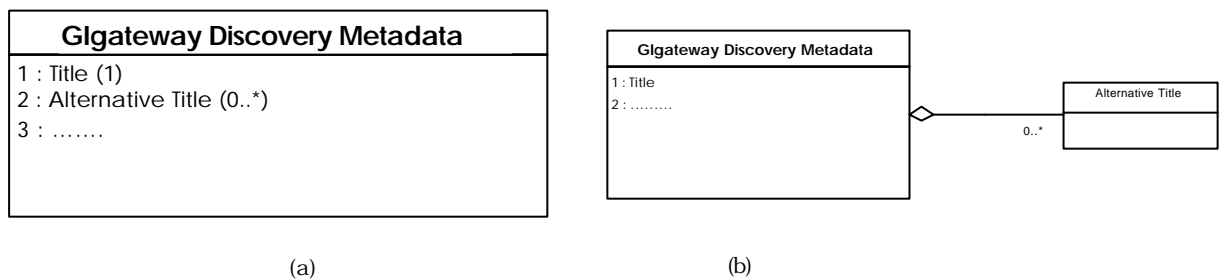
North Bounding Coordinate	21	+63
South Bounding Coordinate	22	+48
Spatial Referencing by Geographic Identifiers	23	
National Extent	24	Offshore
Level of Spatial Detail	28	Readings taken at approx. 1.5km interval pre 1972 and 200m intervals subsequently.
Supply Media	29	On-line
Supply Media	29	Magnetic
Data Format	30	ASCII text files
Data Format	30	CGM image files
Additional Information Source	31	none
Dataset Association	32	BGS Seismic track Index
Dataset Association	32	BGS Marine bore holes
Dataset Association	32	BGS Seabed sediment samples
Supplier	33	
Contact Name or Title	34	Offshore Geophysical Data Manager
Full Postal Address of Supplier	35	British Geological Survey Murchison House West Mains Road Edinburgh UK
Postcode of Supplier	36	EH9 3LA
Telephone Number of Supplier	37	+44 (0) 131 650 0274
Facsimile Number of Supplier	38	+44 (0) 131 668 4140
Email address of Supplier	39	a.mould@bgs.ac.uk
Web address of supplier	40	www.nkw.ac.uk/bgs/
Date of update of Metadata	41	19971001

APPENDIX B - UML CLASS DIAGRAM

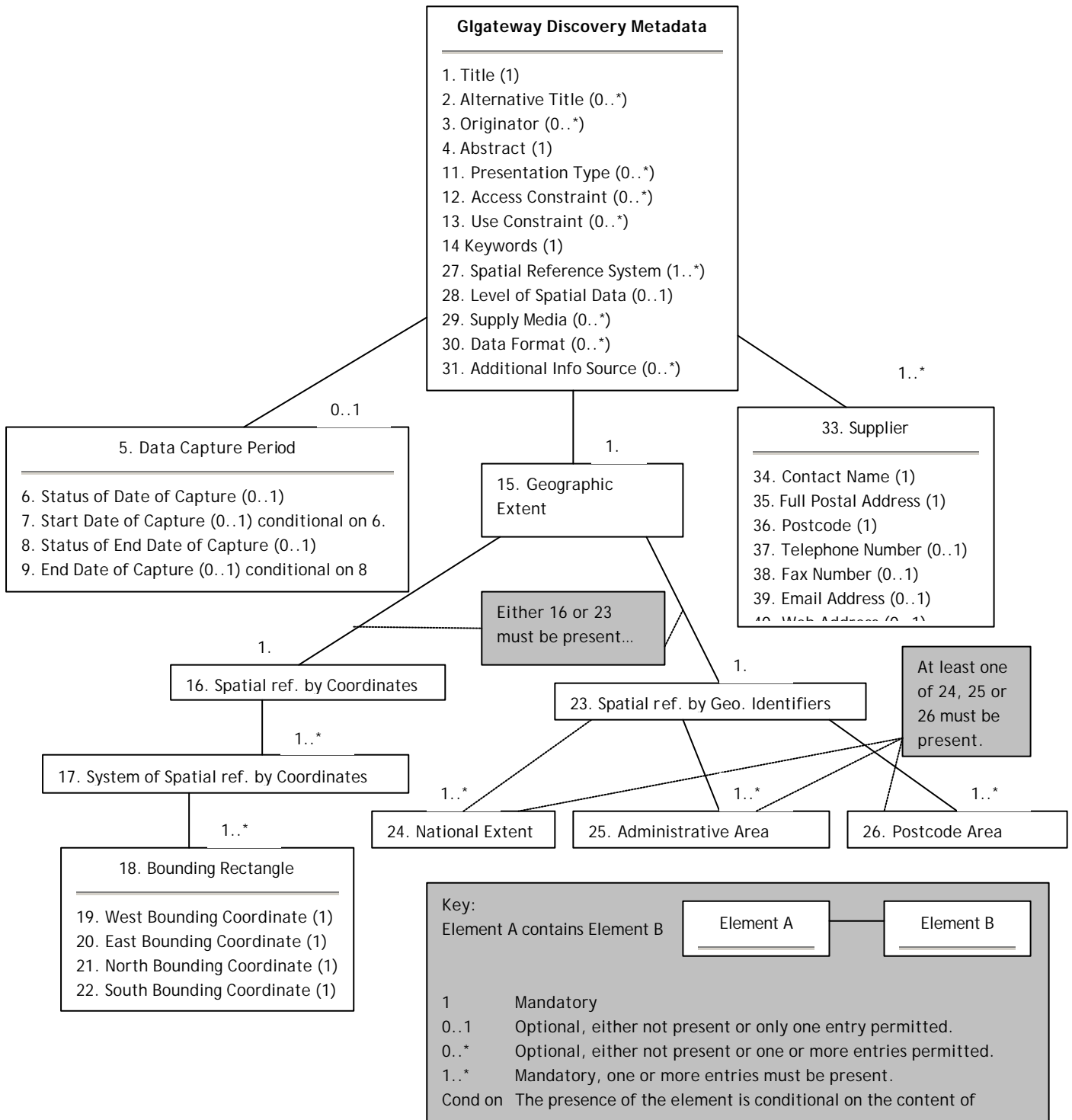
The diagram below represents the Glgateway Discovery Metadata in the form of a simplified Unified Modelling Language (UML) Class Diagram. A class diagram is used to describe the static structure of a system in terms of object classes and their relationships. Classes are described in terms of attributes and methods. The attributes define the state of an object and the methods define the behaviour supported by the object. The Glgateway Specifications are a data description, they provide no behavioural information; because of this only attributes are shown.

An attribute may be either a single datum or another class. The metadata structure is thus described in terms of a hierarchy of aggregated classes.

The reader should also note that the diagram has been simplified such that simple classes comprising a single datum but with cardinalities of 0..1, 0..n or 1..n have been subsumed as simple datum values into the higher level class (for example (a) below should strictly be represented as (b)).



This is not strict UML but provides a simpler less cluttered diagram. Likewise, each datum name is followed by its cardinality although this is not UML notation.



APPENDIX C - MAPPING TO DUBLIN CORE

The Dublin Core Metadata Element Set, or 'Dublin Core', is a set of fifteen attributes developed over the past couple of years by an international cross-disciplinary group comprising cataloguing experts, technologists and domain specific content specialists.

Many detailed standards already exist within different disciplines, including the US geospatial community's Content Standards for Digital Geospatial Metadata [4] and the draft ISO standard, both of which lie within GIgateway's sphere of interest.

Each of these standards is normally extremely detailed, labour-intensive to comply with, and highly specialised; a standard developed to describe library books is typically incapable of effectively describing museum objects or digital map data.

The Dublin Core, on the other hand, is neither highly detailed, nor tied to the resources or interests of a specific subject domain. It is in no way intended as a replacement for the existing detailed standards, each of which is well evolved for its particular niche, but rather offers the potential to blur the artificial distinctions they create.

In searching for - or 'discovering' - a resource, a user is far more likely to be interested in "environmental data for Northumberland" rather than "map data" or "borehole logs" or "river catchments", each of which might be provided by a different organisation or subject grouping. It is this need which Dublin Core seeks to address, offering users the potential to search across diverse data types, structures, etc. in a unified fashion. Users may then - if they need to - interact with the diverse detailed metadata formats describing those resources meeting their initial search criteria.

GIgateway's discovery metadata in many ways fulfils a similar set of criteria, allowing users to search consistent descriptions of resources in which the underlying data models may well be radically different. In order to facilitate easy integration of GIgateway with the growing number of resources worldwide which implement Dublin Core, a 'mapping' to the most basic form of Dublin Core is offered below. It illustrates the manner in which the fifteen elements of the Dublin Core may be related to the GIgateway structure.

Further information on the Dublin Core itself is available on the World Wide Web from http://www.purl.org/metadata/dublin_core. The Arts & Humanities Data Service, of which the NGDF-participating Archaeology Data Service is a part, recently released a report addressing many of the issues related to deploying Dublin Core in more detail, and this may be ordered from the AHDS web site at <http://www.ahds.ac.uk>, or browsed online.

Identifier	GIgateway	Dublin Core Element Name
1	Title	DC.Title
2	Alternative Title	DC.Title
3	Originator	DC.Creator
4	Abstract	DC.Description
5	Data Capture Period	—
6	Status of Start Date of Capture	—
7	Start Date of Capture	DC.Date This is beyond the strictest definition of the Date element, but many users of Dublin Core do extend their interpretation of the element in ways similar to this.
8	Status of Start Date of Capture	—
9	End Date of Capture	DC.Date This is beyond the strictest definition of the Date element, but many users of Dublin Core do extend their interpretation of the element in ways similar to this.
10	Frequency of Update	—
11	Presentation Type	DC.Type
12	Access Constraint	DC.Rights
13	Use Constraint	DC.Rights
14	Keywords	DC.Subject
15	Geographic Extent	Not filled in.
16	Spatial Referencing by Co-ordinates	Not filled in.
17	System of Spatial Referencing by Co-ordinates	DC.Coverage
18	Bounding Rectangle	Not filled in.
19	West Bounding Coordinate	DC.Coverage
20	East Bounding Coordinate	DC.Coverage
21	North Bounding Coordinate	DC.Coverage
22	South Bounding Coordinate	DC.Coverage
23	Spatial Referencing by Geographic Identifiers	Not filled in.
24	National Extent	DC.Coverage
25	Administrative Area Extent	DC.Coverage
26	Postcode Area Extent	DC.Coverage
27	Spatial Reference System	—
28	Level of Spatial Detail	—
29	Supply Media	DC.Format
30	Data Format	DC.Format
31	Additional Information Source	DC.Description (?)
32	Dataset Association	DC.Relation
33	Supplier	DC.Publisher
34	Contact Name or Title	DC.Creator/ DC.Publisher/ DC.Contributor A decision needs to be made as to which of these three elements relates best to the NGDF notion of 'supplier'.
35	Full postal address of supplier	DC.Creator/ DC.Publisher/ DC.Contributor
36	Postcode of supplier	DC.Creator/ DC.Publisher/ DC.Contributor
37	Telephone number of supplier	DC.Creator/ DC.Publisher/ DC.Contributor
38	Facsimile number of supplier	DC.Creator/ DC.Publisher/ DC.Contributor
39	Email address of supplier	DC.Creator/ DC.Publisher/ DC.Contributor
40	Web address of supplier	DC.Creator/ DC.Publisher/ DC.Contributor
41	Date of update of Metadata	—

Identifier	Gigateway	Dublin Core Element Name
42	Sample	DC.Relation (?) The Relation element could potentially be used to provide a URL or filename for an image related to the resource.

APPENDIX D - ABBREVIATED FIELD NAMES

The following table provides abbreviated names for use in user interfaces for data entry and data presentation applications where the full name may be unwieldy (underscores may be omitted). It is advised to use the full name where possible, only using the abbreviated form of it where the full form is difficult to integrate into a form.

Identifier	Element name	Abbreviated Name
1	Title	Title
2	Alternative Title	Alt_Title
3	Originator	Originator
4	Abstract	Abstract
6	Status of Start Date of Capture	Start_Status
7	Start date of Capture	Start_Capture
8	Status of End Date of Capture	End_Status
9	End Date of Capture	End_Capture
10	Frequency of Update	Update_Freq
11	Presentation Type	Pres_Type
12	Access Constraint	Access
13	Use Constraint	Use
14	Keywords	Keywords
17	System of Spatial referencing by coordinates	Georef
19	West Bounding coordinate	West_BCoord
20	East Bounding coordinate	East_BCoord
21	North Bounding Coord	North_BCoord
22	South Bounding Coord	South_BCoord
24	National Extent	Extent
25	Administrative Area Extent	Admin_Extent
26	Postcode District Extent	Postcode_Extent
27	Spatial Reference System	Spatial_ref
28	Level of Spatial Detail	Spatial_Detail
29	Supply Media	Supply_Media
30	Data Format	Data-Format
31	Additional Information Source	Add_Info
32	Dataset Association	Data_Assoc
34	Contact Name or Title	Contact
35	Full postal address of supplier	Address
36	Postcode of supplier	Postcode
37	Telephone number of supplier	Tel
38	Facsimile number of supplier	Fax
39	Email address of supplier	Email
40	Web address of supplier	Web
41	Date of Update of Metadata	Metadata_Update
42	Sample	Sample

APPENDIX E - GIGATEWAY WEBSITE

The Glgateway website can be found on <http://www.glgateway.org.uk>. It contains the most up-to-date information on Glgateway and also information relating specifically to Metadata.

With respect to Glgateway in general the website contains:

- The Glgateway Data Locator,
- The Glgateway Data Directory,
- An overview of the UK Standard Geographic Base (UKSGB),
- Previously published NGDF documents,
- News and events,
- Links to other related sites,
- 'About Us' information and contact details