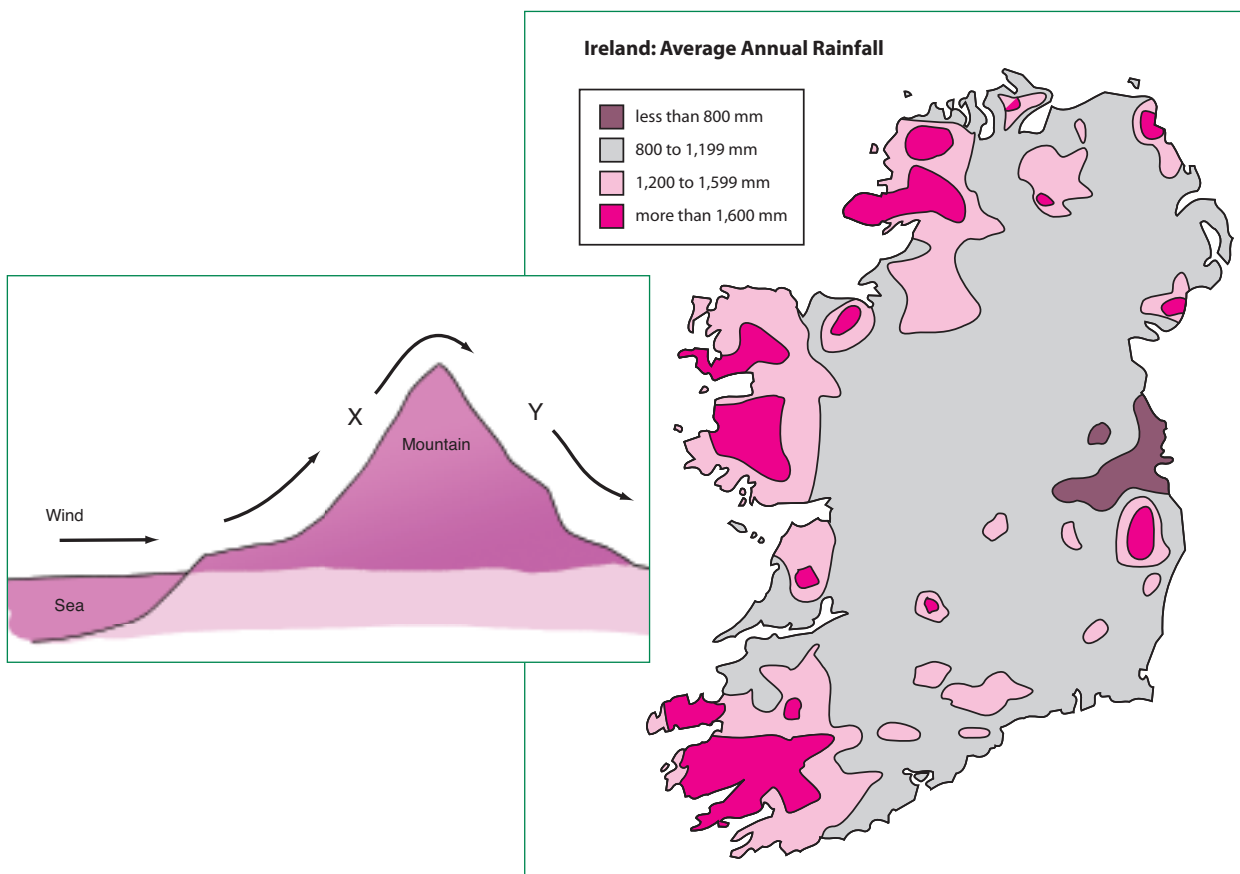


**JUNIOR CERTIFICATE EXAMINATION, 2007
GEOGRAPHY - HIGHER LEVEL - SECTION 2**

1. RAINFALL AND DROUGHT

- A. The map shows annual precipitation (rainfall) in millimetres throughout Ireland. The diagram shows the movement of air blowing in from the sea over a mountain.



- (i) What is the annual rainfall at Dublin City? (2)
Less than 800mm.
- (ii) What name is given to lines on maps which show places of equal precipitation? (2)
Isohyets
- (iii) Explain why the place labelled X on the diagram could be expected to have higher precipitation than the place labelled Y. (6)

Relief Rainfall

The place labelled X is on the windward side of the mountain and should expect more rainfall because of the effects of relief rainfall. Relief rainfall is caused when warm winds are blown in from the sea. The warm air rises as it meets mountains, cools and condenses, forming rain on the windward side of the mountain. When it blows to the area labelled Y, all the precipitation is lost, leaving the leeward side of the mountain dry.

B. Some countries use large irrigation schemes to help overcome problems associated with water shortages.

(i) Name **one** large-scale irrigation scheme that you have studied. (1)

Languedoc region, the Mediterranean coast of France.

(ii) Describe **one** advantage and **one** disadvantage of that irrigation scheme. (8)

One Advantage: Intensive Farming

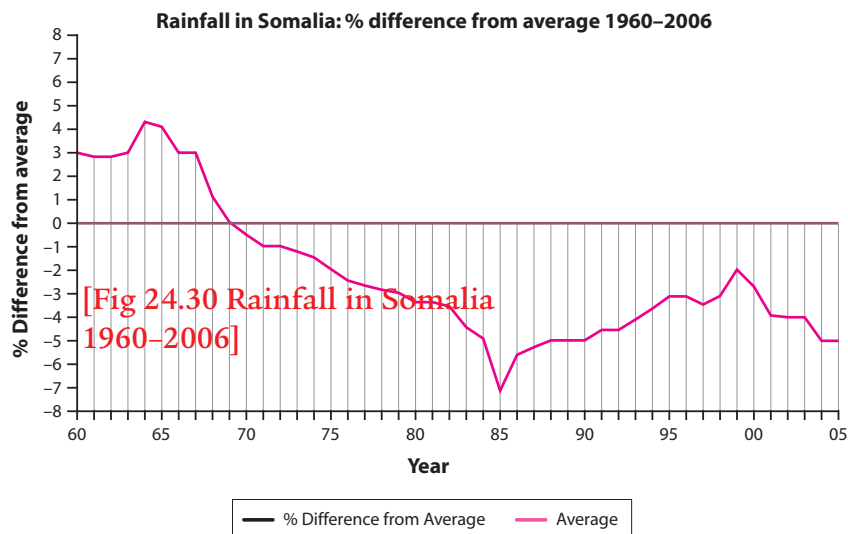
An advantage of an irrigation scheme (the artificial watering of land) is that the area that once suffered from drought is now capable of being farmed intensively, i.e. growing crops and vegetables for profits. This produce is now sold in the nearby markets, giving profits to farmers and raising their standards of living.

One Disadvantage: Salinatron

A disadvantage of an irrigation scheme is that the water that is pumped onto the crops may have been taken from an area of soil with high levels of salt. If there is a build-up of salt, i.e. salinatron, on the land it can be harmful to crop growth, even killing some plants.

C. Some African countries suffer because climate change may result in a shortage of precipitation.

The graph shows how rainfall levels changed over time in Somalia between 1960 and 2006.



(i)

Name the year that had the least rainfall. (1)

1985

(ii) Name the year that had the most rainfall. (1)

1964

(iii) Describe three effects which a severe shortage of rain might have on the development of a country such as Somalia. (9)

Famine

Severe shortages of rain in Somalia, for example during the years 1984–1986, when the rainfall was about 7 per cent below the average, can cause crops to fail. If crops fail, famine is likely to occur for the people in vulnerable areas like Somalia. Deaths may occur of the very young and the very old, as they are the most vulnerable in society.

Out-Migration

Prolonged shortage of rainfall, for example from 1970 to 2006, when the rainfall in Somalia was below the average by at least 3 per cent, can lead to out-migration of people from the area. This is for reasons such as poor living standards, lack of food and water supplies, and lack of jobs, as no industries are interested in locating there due to lack of basic facilities, e.g. water.

Soil Erosion

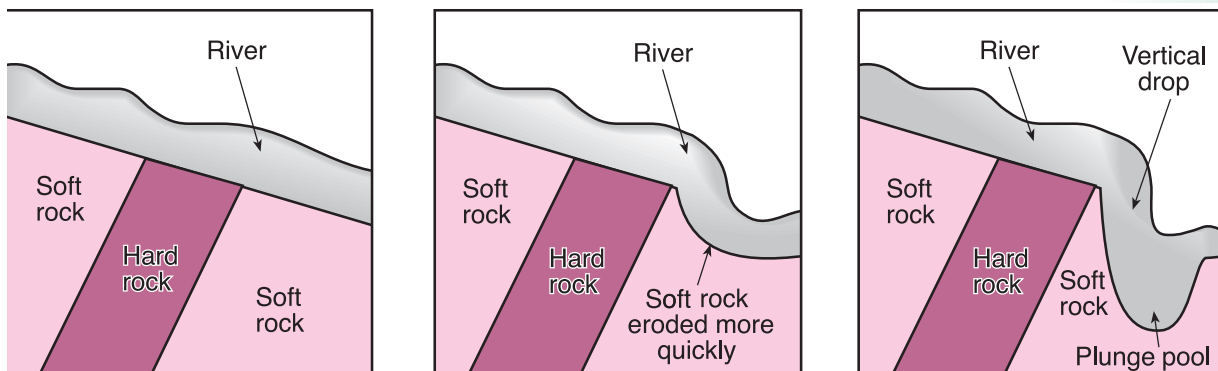
If an area, e.g. Somalia, has prolonged periods of drought and crop failure, the soil can become easily eroded. The crops' roots help to bind the soil, and without these, the soil is open to wind erosion. Also, if the area is located on the outskirts of a desert, desertification (the spreading of the deserts) can be a danger. Once soil has been exposed to soil erosion, it is of little use for agriculture.

2. RIVERS

A. Feature of River Erosion

Name one feature of river erosion and with the aid of a diagram explain how it was formed. (10)

Formation of a waterfall



Landform/Feature: Waterfall (Youthful stage)

Example: Powerscourt waterfall, Co. Wicklow.

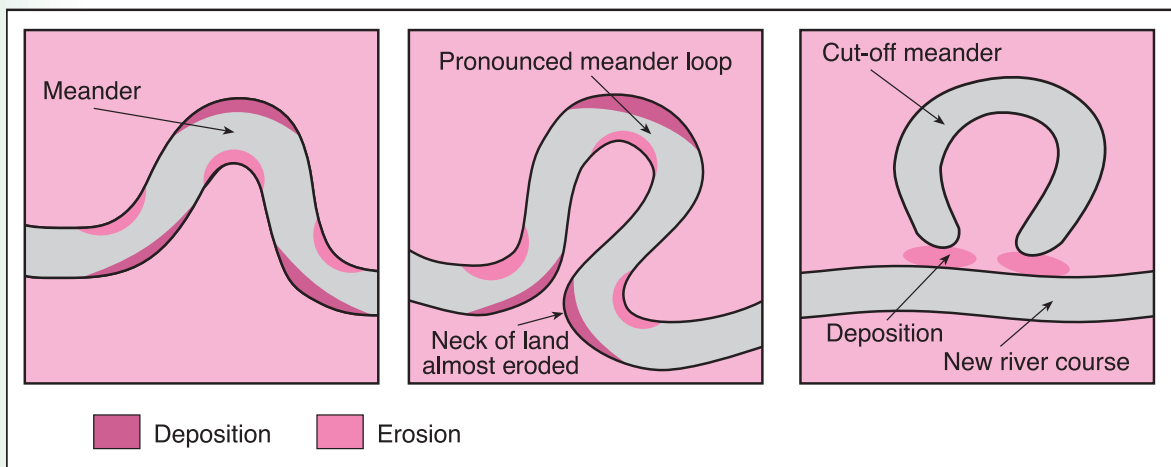
Processes: Hydraulic action, Abrasion, Attrition, Solution.

- Formation:*
1. Where the river flows over a vertical drop. (Description)
 2. The river flows over an area of hard (resistant) and soft (less resistant) rock.
 3. It erodes the soft rock more quickly, leaving a drop in the river's course.
 4. At the base of this drop, a plunge pool develops due to the force of the falling water.
 5. The water also undercuts the waterfall, forming an overhang.
 6. This will eventually collapse and the waterfall will retreat upstream, forming a gorge.

B. Feature of River Deposition

Name **one** feature of river deposition and with the aid of a diagram explain how it was formed. (10)

Formation of an ox-bow lake



Landform/Feature: Ox-Bow Lake.

Example: Liffey, Co. Dublin.

Processes: Deposition.

- Formation:*
1. It is a horseshoe-shaped lake on the floodplain of a river. (Description)
 2. When meanders grow very pronounced, the neck of land between them becomes very narrow.

3. During a flood, the river flows straight instead of around the meander, cutting through the narrow neck of land.
4. Sediment deposited by the river seals off both ends of the old meander loop. An ox-bow lake is formed.
5. Over time, the ox-bow lake will dry up and form an ox-bow scar.

C. Rivers and People

- (i) Name and briefly explain **one** way that people use rivers. (5)

Hydroelectricity

People build dams on rivers, e.g. Pollaphuca dam, Blessington, Co. Wicklow, to generate renewable energy, i.e. hydroelectricity. The cheap supply of electricity is created as water flows through the dam, turning turbines, which in turn creates electricity.

- (ii) Name and briefly explain **one** way that people pollute rivers. (5)

Pollution

People pollute rivers with industrial, domestic and agricultural waste. Effluent and fertilisers spread on farmland are washed into rivers after rainfall. They help to feed algae, a small plant naturally occurring in rivers. As the algae grows in the rivers, it uses up all the available oxygen in the water, which in turn kills fish. The consumption of polluted drinking water can also be harmful to humans.

3. GEOGRAPHICAL MIX

Answer **any three** of the questions A to D below

A. Global Warming

- (i) Name and explain **two** ways that people help to cause global warming. (6)

Burning Fossil Fuels

People can help to cause global warming by the burning of fossil fuels. These are fuels created from the decayed remains of plants and animals thousands of years ago, e.g. coal, oil and gas. When they are burned, they release carbon dioxide (CO₂) into the atmosphere. This gas can trap heat and help to raise overall world temperatures.

Deforestation

People cutting down forests can also help cause global warming. Trees

absorb carbon dioxide, one of the gases causing global warming, and convert it into oxygen, which people need to breathe.

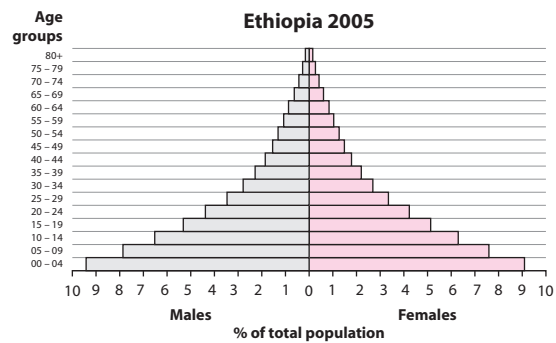
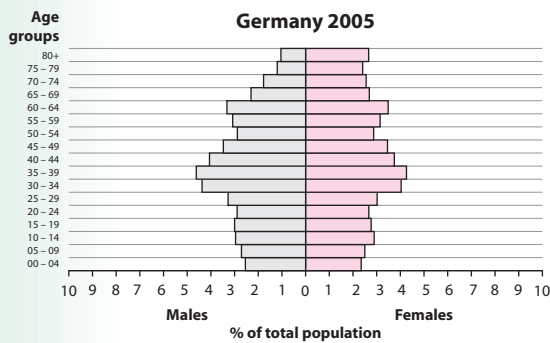
- (ii) Name and describe **one** way in which global warming could harm people in the future. (4)

Rising Sea Levels

Global warming causes overall world temperatures to increase. This increase will cause the polar ice caps to melt, and extra water will be released into the sea, causing sea levels to rise. This will be very harmful to people living on polders (land that was reclaimed from the sea, i.e. The Netherlands), as the infrastructure and homes built there are below the current sea level. If the sea level rises, the dams protecting these areas could break, flooding valuable residential areas and farmland.

B. Population Change

Examine the diagrams which show the population structures of Germany and Ethiopia.



- (i) What are these diagrams called? (1)

Population pyramids.

- (ii) Describe how the diagrams show the differences in birth rates, death rates and life expectancy between the two countries. (9)

Birth Rates

In the population pyramid for Germany in 2005, the birth rate is very low, less than 3 per cent (male and female) per year. This shows that Germany is in the developed world, with a low birth rate influenced by improved healthcare, high status of women and family planning.

From the population pyramid for Ethiopia in 2005, the birth rate is very high, with nearly 10 per cent (male and female) per year. This is more than triple the birth rate in Germany and suggests that Ethiopia is in the developing world. There is a high birth rate because the infant mortality rate

is high and children are viewed as an insurance policy for older people due to the lack of social services and pensions in the developing world.

Death Rates

In Germany, the percentage of people living beyond 80 years is less than 1 per cent for males and less than 3 per cent for females. This is quite high, indicating a low death rate in Germany. This again is a sign of a good healthcare system and old age state assistance.

In Ethiopia, less than 0.5 per cent of men and women live beyond 80 years. This shows that there is still a high death rate in the country. This is caused by poor healthcare facilities and social services.

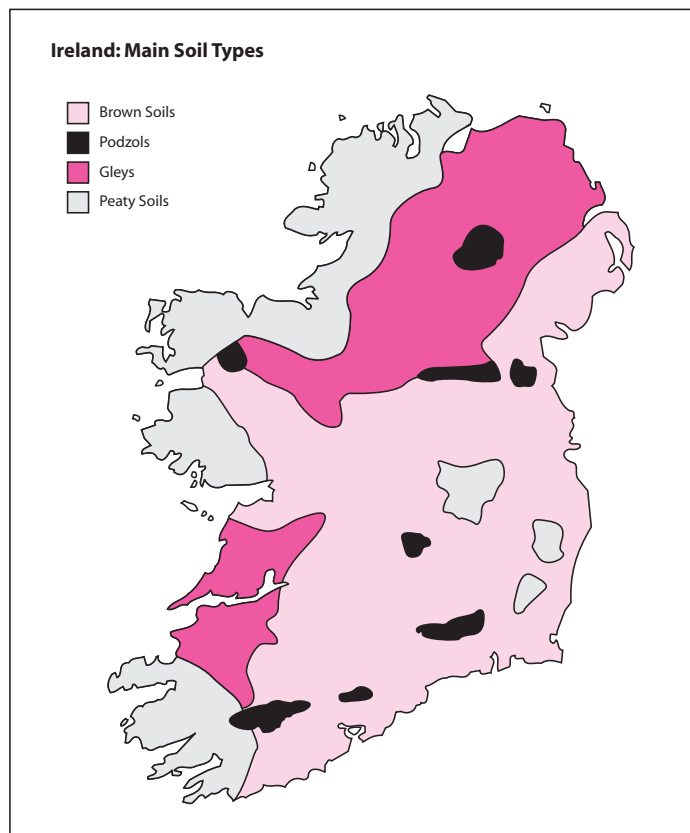
Life Expectancy

In Germany, the life expectancy is excellent, with most of the population found in the age brackets above 35 years. Women tend to have a longer life expectancy in Germany, which is a common trend in developed economies.

In Ethiopia, life expectancy beyond 60 years is less than 2 per cent, and more than half the population is found in the age brackets below 25 years. Life expectancy for both men and women is very similar, and is bleak for both sexes.

C. Irish Soil Types

Examine the map on page xxx, which shows some of Ireland's principal soil types.



- (i) Identify the most common soil type in the south east of Ireland. (1)
Brown soils.
- (ii) Choose two Irish soil types and describe any three differences between them. (9)

(1) Brown Earths

• *Vegetation*

Brown earths are found beneath deciduous trees (trees that lose their leaves). There is plenty of leaf litter. When this broken down by micro-organisms, it becomes humus, which makes the soil fertile.

• *Humus Content*

Brown earths are dark brown in colour because of their high humus content. Humus is a sticky substance full of nutrients. Humus also helps to bind the soil.

• *Location*

Brown earths are high in nutrients and are therefore excellent for both arable and pastoral farming. They are located in the lowland areas of the south, east and midlands of Ireland.

(2) Podzols

• *Vegetation*

- *Podzols are located beneath coniferous trees (tree that do not lose their leaves). There is a lack of leaf fall and therefore of humus.*

• *Humus Content*

Podzols are grey in colour, as they have low humus content. Absence of humus makes these soils infertile.

• *Location*

Podzols are often located in highland areas. In these areas they often receive high levels of rainfall, causing the soil to be leached of its nutrients. This often leads to the formation of a hardpan.

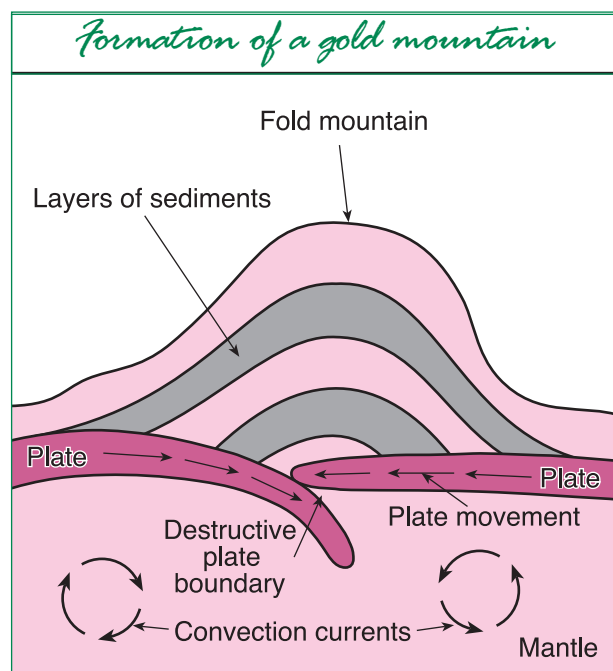
D. Fold Mountains

The movements of crustal plates have given rise to the fold mountains shown on the picture.



- (i) With the aid of a diagram, explain how fold mountains are formed.

Fold mountains are formed at a destructive plate boundary. As the plates come together, the land above is forced to buckle upwards, forming a mountain. This process is called folding. The downfold of the mountain is called the syncline, and the upfold is called the anticline.



- (ii) Name one range of fold mountains in Ireland.

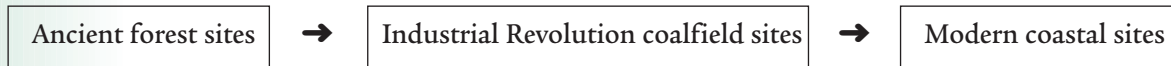
(10)

The Galtees, Munster.

4. INDUSTRIAL LOCATION AND URBAN STUDIES

A. Industrial Location

The general location of Britain's iron and steel industry has changed over time. Explain why this happened. You may use the diagram below to assist you. (10)



British Iron and Steel Industry

- *Ancient Forest Sites*
Ironworks were resourced-based, as transport facilities in the eighteenth century were very poor. They were located close to iron ore locations and forests. Forests were used to provide the ironworks with charcoal for the smelting process. Forests were quickly cleared and the ironworks had to move.
- *Industrial Revolution Coalfield Sites*
Ironworks relocated to the coalfields, as coal became their new energy source. During the Industrial Revolution, canals and railways were built for transportation of goods. Coalfields became exhausted, and new smelting methods made coal less valuable.
- *Modern Coastal Sites*
British steel production was unable to compete with the influx of cheap steel from Japan, Sweden and Germany. Ironworks moved to the coast, as it was cheaper to import inexpensive iron ore and coal from Poland. Inland cities experienced severe unemployment, e.g. in 1980 Corby lost 5,000 jobs.

B. Urban Renewal

The picture shows an area in Dublin that has undergone urban renewal.



- (i) What is urban renewal? (2)

Urban renewal is the demolition of old rundown buildings and their replacement with modern residential accommodation.

- (ii) Explain how urban renewal has benefited local people in one Irish urban area that you have studied. (8)

Urban renewal

Urban renewal is the demolition of old buildings and their replacement with modern residential accommodation. Urban renewal is evident in the area I have studied in Inner City, Dublin.

Inner-City Dublin:

Since the 1970s, the once thriving docklands area of Dublin was one of the most neglected areas in the city. Jobs were lost in the area as machines replaced manual labour. The population dropped by 50 per cent from 1900 to 1980. In the late 1980s the area started to be revived, with the building of the IFSC (International Financial Services Centre) and the creation of jobs in the area again. The setting up of the DDDA (Dublin Docklands Development Authority) has helped to promote economic and social development in the area. DDDA also hope to increase the population of the area to 42,500 – this is called infill development.

C. Urban Functions

The functions of many towns have changed over time.

In the case of one named Irish town or city that you have studied, describe how its functions have changed. In your answer refer to three different functions. (10)

Resource-Based Function

In 1977 Tara Mines, one of the largest lead and zinc mines in Europe, opened in Navan, Co. Meath. The mine created 650 jobs directly and hundreds of jobs indirectly, therefore boosting Navan's economy.

Market Function

There has been a huge growth in the population of the town – from 5,907 in 1971 to 21,436 in 2002. This has had a huge effect on the local economy. There are a wide range of facilities in the town, for example shops, restaurants and supermarkets. Navan is a large town in a mainly rural area and therefore attracts a wide customer base.

Commuter Function

Navan's population growth between 1961 and 2002 has also been caused by an overspill from Dublin, as it is now becoming a commuter town. People are deciding to move out from the city to Navan for a higher quality of life.

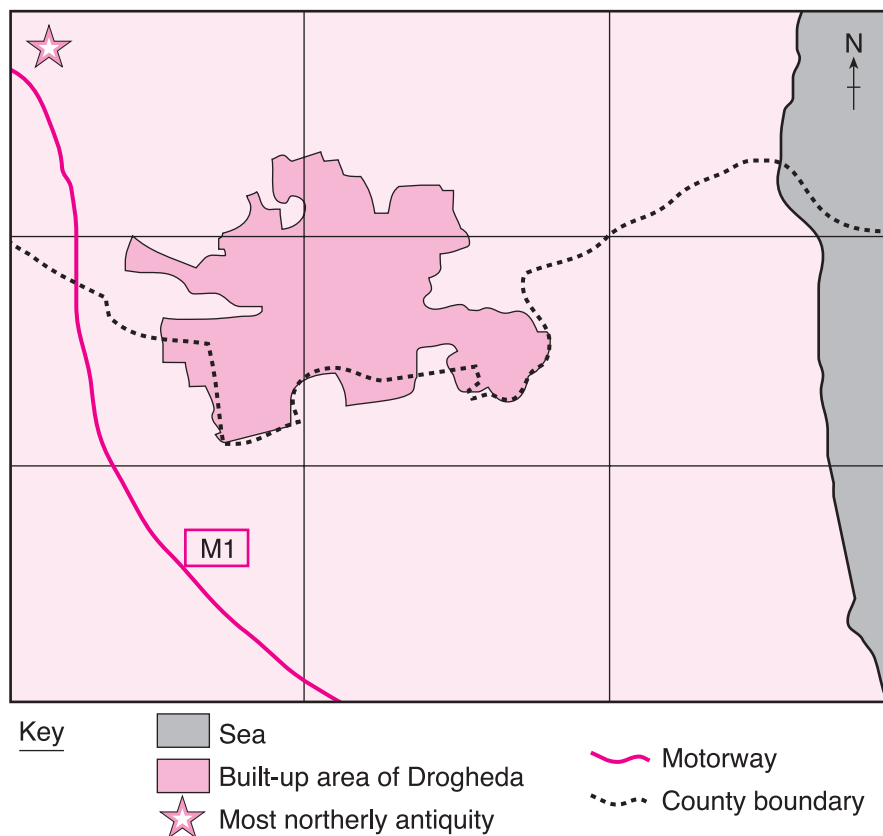
5. ORDNANCE SURVEY MAP AND AERIAL PHOTOGRAPH

A. Draw a sketch map of the area shown on the Ordnance Survey map. On your sketch map show and name each of the following features:

- The built-up area of Drogheda
- An industrial estate within the built-up area of Drogheda
- The most northerly antiquity shown on the map
- A motorway
- The county boundary

(12)

Sketch map of Drogheda



B. Using the Ordnance Survey map on page xxx, name and describe two different tourist attractions shown in the Bettystown and Laytown area in the east and south east of the map. (12)

Beach

From the Ordnance survey map, there is a sandy beach stretching alongside the areas of Bettystown and Laytown, which is a tourist attraction. The beach is located in the area between O 16 70 and O 16 73. It is within walking distance from both towns, but there is also access for tourists by rail at O 162 713, plenty of road access (R 151) and parking facilities at O 165 714. Tourists can use the beach for swimming, water sports and fishing.

Recreational

There is an eighteen-hole golf course located less than 1 km north of Bettystown at O 158 174. This would bring trade to Bettystown, as tourists using the course would also use accommodation, restaurants and pubs in the local area. Golfing holidays have become a niche market in Ireland today. There is also a deciduous forest located near to the River Nanny at O 14 70 and O 14 71. This can be used by tourists for picnics, forest walks and nature trails.

- C. Name and locate two different land-uses shown on the Aerial Photograph. (6)

Forestry Land Use

In the left and centre foreground of the photograph, there is a large area of natural woodland. The area looks well maintained and could be part of a park. This type of woodland was often planted in historical estates to improve the scenery and to give privacy to the owners of the estate.

Commercial Land Use

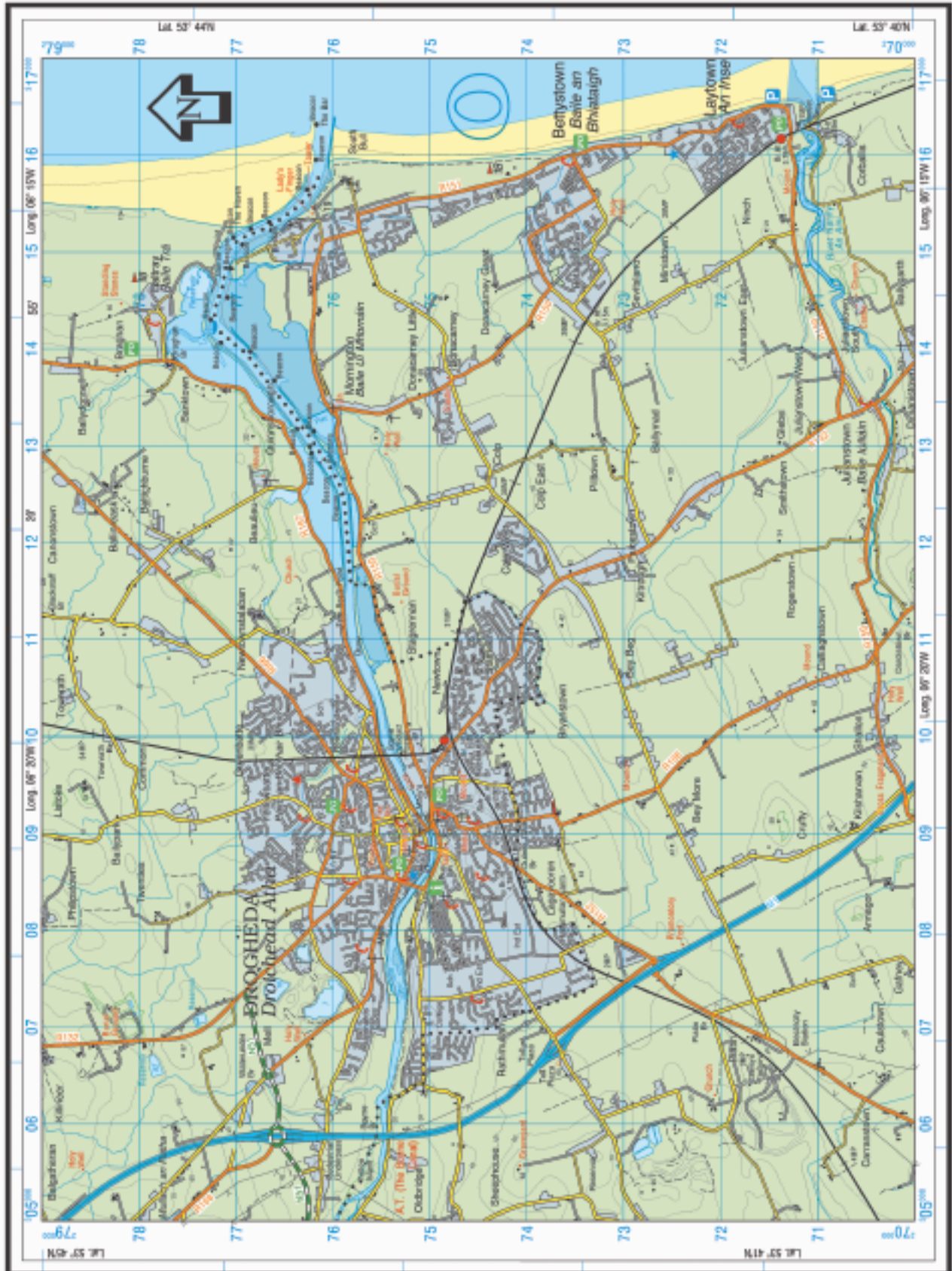
In the centre of the photograph, the row of buildings appears to be part of the CBD (Central Business District) of the town, as the buildings seem to have brightly coloured shop fronts. Its location in the centre of the town indicates a large turnover potential. In the same area, there are two car parks and wide streets, which suggests that the area receives a good volume of shoppers.

Aerial photograph — Drogheda



Photo: Peter Barrow 3rd November 2016. Tel: 0672-459938

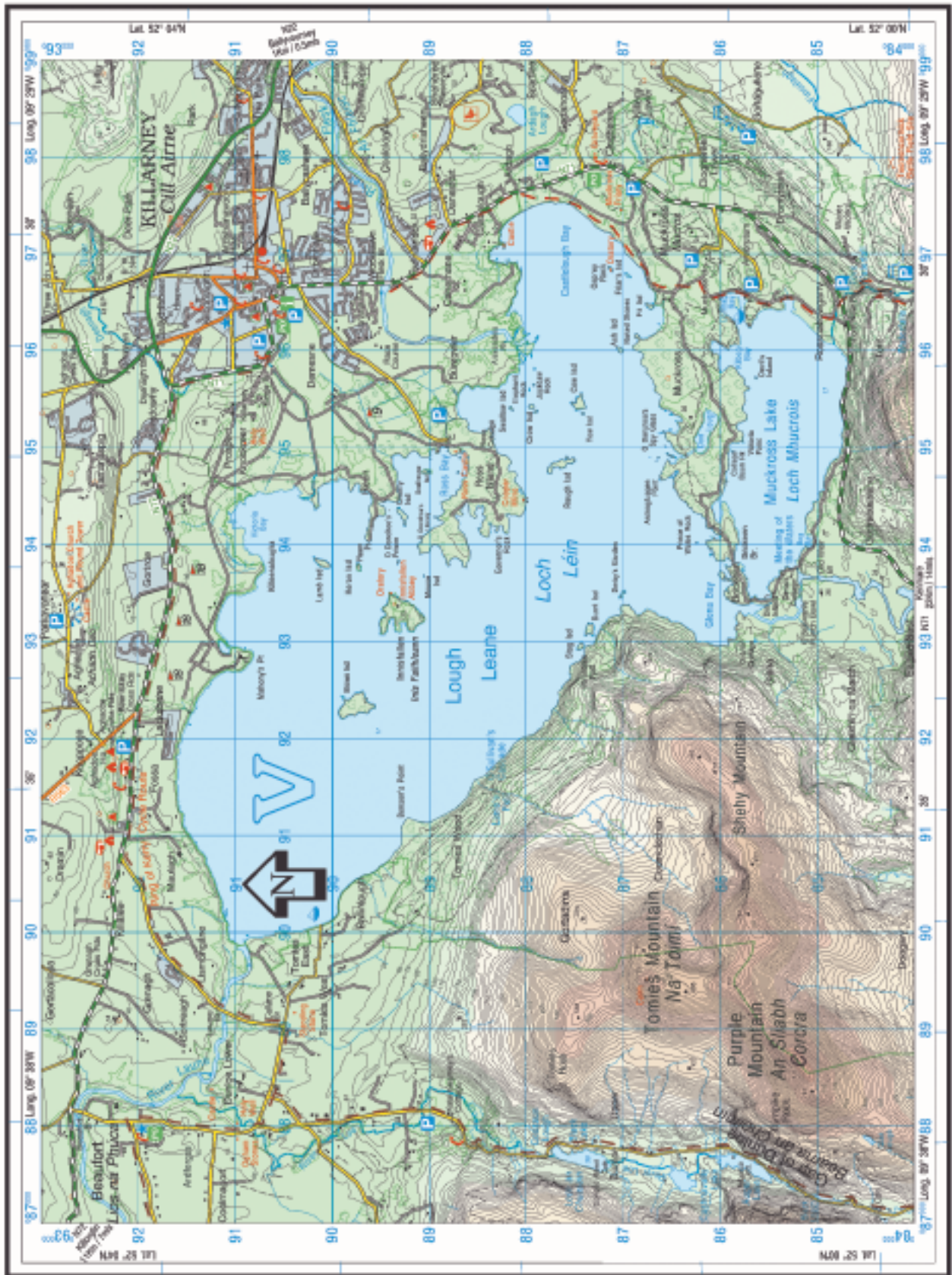
OS Map extract — Drogheda



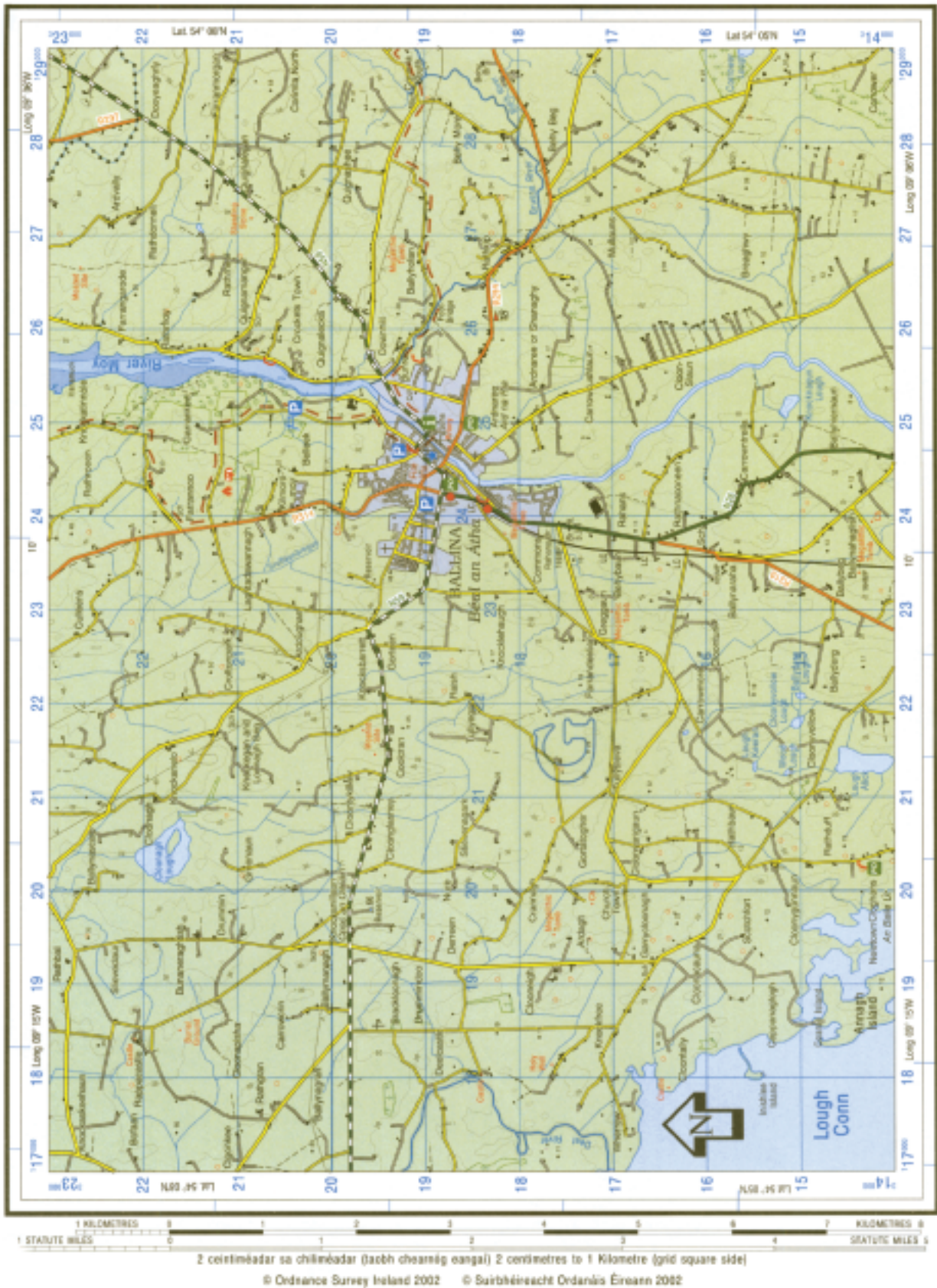
Aerial photograph — Killarney



OS Map extract — Killarney



OS Map extract — Ballina



Aerial photograph — Carlow



Legend Eochair



Ordnance Survey Ireland
Súirbhíreachtairí Oibríochais Éireann

DISCOVERY SERIES

SKAITH EOLAIS

Eolas Turasóireachta Tourist Information

- Lárleisín cabáin (óifiteirís)
Carráras aite (turas)
Bri de chuid An Oige
Youth Hostel (An Oige)
- Breasaíne Muirneapáisteach
Independence Hill/Gáiríochtíocht
Hótel
- Ionad páircála
Parking
- Leisireáil pícaic
Picnic site
- Teilefón Poblí
Public Telephone
- Leisireáil campála
Camping site
- Ionad eolais turasóireachta
Tourist Information Centre
(regular opening)
- Ionad eolais turasóireachta
Tourist Information Centre
(irregular opening)
- Ionad dochtála
Verepoint
- An Taisce
National Trust
- Teoirneáras Dála
Nature Reserve
- Gailchúrsa, maicháras gailf
Golf Course or Links

Boithre Roads

- Mótárbealach
Motorway (Junction number)
- Bóthar príomha náisiúnta
National Primary Road
- Bóthar ábairteach náisiúnta
National Secondary Road
- Carbairtealach ábairte
Dual Carriageway
- Bóthar ábairteach ábairteach
Proposed Road, Primary
- Bóthar ábairteach ábairteach
Secondary Road
- Bóthar Réigiúntach
Regional Road
- Séthair den tríú grád
Third Class Road
- Beithne eile
Other Roads
- Beathach
Track

Teorainneacha Boundaries

- Teorainn idirnáisiúnta
International Boundary
- Teorainn chontae
County Boundary
- Páirc Náisiúnta
National Park
- Páirc Foraeise
Forest Park
- Eanáil de chuid an Aire Chontae
Dist. of Defence
County Property
- Forais bhairneach
Confused Paradise
- Coill náisiúnta
National Woodland
- Forais míheasda
Mixed Woodland

Gnéithe ginearálta General features

- Féirgáin le has a chéile
Built up Area
- Aerfort
Airport
- Stáisiún cumhachta (tuisce)
Fire Station (Hydr)
- Stáisiún cumhachta
(Breasaíne tuisceach)
Fire Station (Fossil)
- Oifig phóist
Post office
- Gearrta Sárchúrsa
Fence
- Líne uisce airde
High Water Mark
- Líne íog ísle
Low Water Mark
- Trá
Beach

Gnéithe uisce Water features

- Loch
Lake
- Canál, canál (áirim)
Canal, Canal (dry)
- Abhainn nó sruthán
River or Stream
- Tréa
Upraised stream / Causeway
- Bádáireacht
Boating activities

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Fheinisín, Baile Átha Cliath 8, Éire.

Séadchomhartha Antiquities

- Séadchomhartha
Ainsebh
Named Antiquities
- Oile, n.ú. Ráth nó Lios
Enclosure, e.g. Rathfort
- Lámhár Chathra (nó óileáir)
Lighthouse (with 6000)

Relief Relief

- Céim ísle
Contour Interval
- Céim ísle
Contour Interval
- Spota airde
Spot Height

Iarnróid Railways

- Iarnróid
Railways
- Iarnróid ianacailíoch
Inland Life
- Taisín
Tunnel
- Crosáil cothreálach
Level Crossing
- Stáisiún iarnrach
Railway Station

IRISH NATIONAL GRID



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denote 50m intervals and
double figures always
denote 100m intervals.
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