AQA

Please write clearly in block capitals.

Centre number | | | | | | Candidate number | | | | |

Surname _____

Forename(s) _____

Candidate signature _____

GCSE
GEOGRAPHY

Paper 3 Geographical applications

Monday 11 June 2018 Afternoon Time allowed: 1 hour 15 minutes

Materials

For this paper you must have:
- the Pre-release resources booklet (enclosed)
- the OS key insert (enclosed)
- a pencil
- a rubber
- a ruler.

You may use a calculator.

For Examiner's Use	
Question	Mark
1	
2	
3	
4	
5	
TOTAL	

Instructions
- Use black ink or black ball-point pen.
- Fill in the boxes at the top of this page.
- Answer **all** questions.
- You must answer the questions in the spaces provided. Do **not** write outside the box around each page or on blank pages.
- Do all rough work in this book. Cross through any work you do not want to be marked.

Information
- The marks for questions are shown in brackets.
- The total number of marks available for this paper is 76.
- Spelling, punctuation, grammar and specialist terminology will be assessed in Questions **03.2** and **05.4**.

Do not write outside the box

For the multiple-choice questions, completely fill in the circle alongside the appropriate answer.

CORRECT METHOD 

WRONG METHODS 

If you want to change your answer you must cross out your original answer as shown. 

If you wish to return to an answer previously crossed out, ring the answer you now wish to select as shown. 

Section A Issue evaluation

Answer **all** questions in this section.

Study **Figure 1**, 'Water in the United Kingdom' in the resources booklet.

0 1 . 1 Which of the following cities has the highest annual rainfall?

Shade **one** circle only.

A Bristol ⬭

B Glasgow ⬭

C Liverpool ⬭

D London ⬭

[1 mark]

0 1 . 2 Give **two** effects of water stress.

[2 marks]

1 _____

_____

2 _____

_____

Do not write outside the box

0 1 . 3 'Water transfer schemes will be essential to meet the growing demand for water in the UK.'

Do you agree? Explain your answer.

[6 marks]

Extra space

Question 1 continues on the next page

Do not write outside the box

0 1 . 4 Suggest why water companies need 25-year plans.

[6 marks]

Extra space

15

Do not write outside the box

Study **Figure 2**, 'Managing water demand in Oxfordshire' in the resources booklet.

0 2 . 1 What is the approximate area of the proposed reservoir as shown on the Ordnance Survey (OS) map extract?

Shade **one** circle only.

A 3 km^2 ⬭

B 6 km^2 ⬭

C 9 km^2 ⬭

D 12 km^2 ⬭

[1 mark]

0 2 . 2 Describe the relief of the land in the area of the proposed reservoir.

[2 marks]

0 2 . 3 Give **one** reason why clay is a suitable material on which to build a reservoir.

[1 mark]

4

Turn over for the next question

Do not write outside the box

Study **Figure 2**, 'Managing water demand in Oxfordshire' and **Figure 3**, 'A new reservoir for Oxfordshire?' in the resources booklet.

0 3 . 1 'The physical environment provides opportunities for a range of socio-economic activities.' Use **Figure 2** and **Figure 3** to discuss this statement.

[6 marks]

Extra space

Do not write outside the box

0 3 . 2 Do you think that the proposed reservoir development should go ahead?

Yes ☐ No ☐

Tick the box to show your choice.

Use evidence from the resources booklet and your own understanding to explain your choice.

[9 marks]
[+3 SPaG marks]

Extra space

Do not write outside the box

18

End of Section A

Do not write outside the box

There are no questions printed on this page

Turn over for Section B

DO NOT WRITE ON THIS PAGE
ANSWER IN THE SPACES PROVIDED

Do not write outside the box

Section B Fieldwork

Answer **all** questions in this section.

Study **Figure 4**, information collected by students about visitors to Bournemouth, a coastal town in Dorset.

Figure 4

Survey of 100 people staying in a hotel
(carried out by questionnaire on a Saturday in August)

Origins of visitors (Where people came from)	
Scotland	4
North East	8
Yorkshire and the Humber	6
East Midlands	14
East Anglia	6
South East	20
South West	12
Wales	4
West Midlands	16
North West	8
Northern Ireland	2

Visitor spending	
Accommodation	19%
Shopping	22%
Food and drink	30%
Attractions and entertainment	11%
Travel	15%
Other	3%

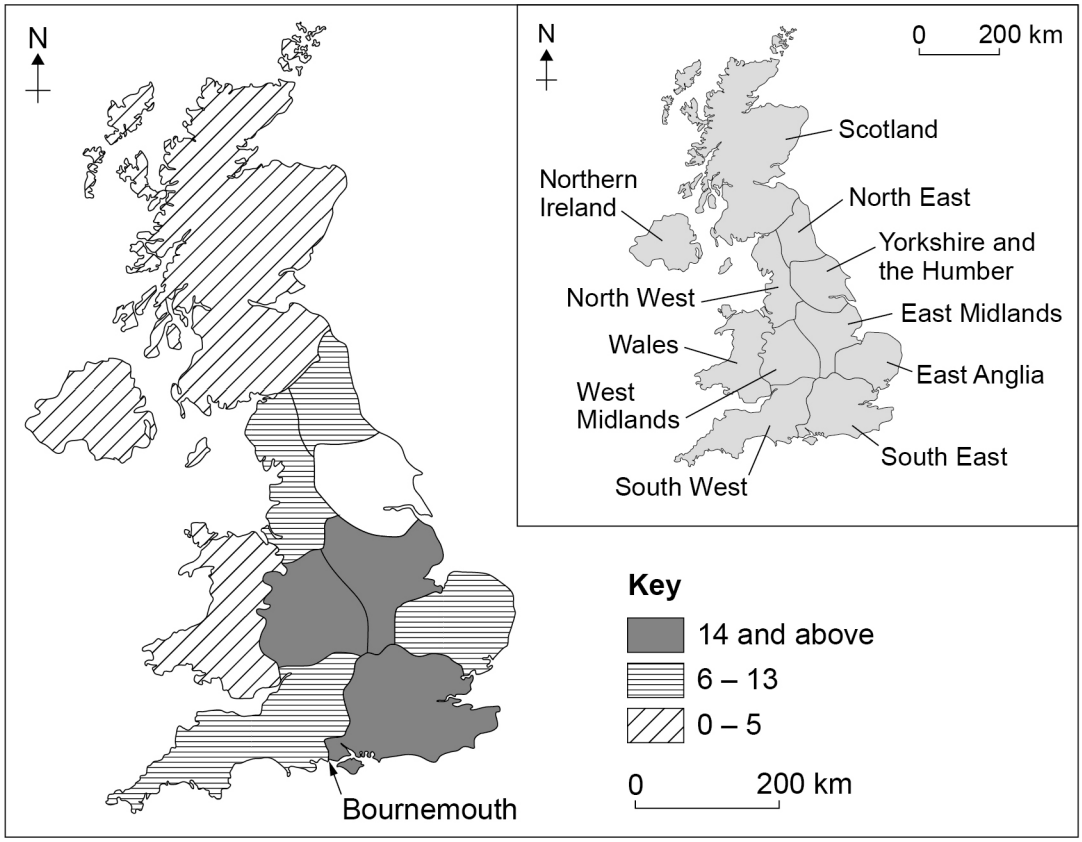
Do not write outside the box

0 4 . 1 Complete the map below (**Figure 5**) to show the origin of visitors to Bournemouth using the following data.

Yorkshire and the Humber	6%

[1 mark]

Figure 5



0 4 . 2 Describe the pattern shown by **Figure 5**.

[2 marks]

Question 4 continues on the next page

Do not write outside the box

0 4 . 3 **(a)** Suggest **one** additional question which could be included on the visitor survey.

[1 mark]

(b) Give **one** reason why your chosen question might provide useful information for the visitor survey.

[1 mark]

Study **Figure 6**, information about visitor numbers to the main tourist attractions in a city.

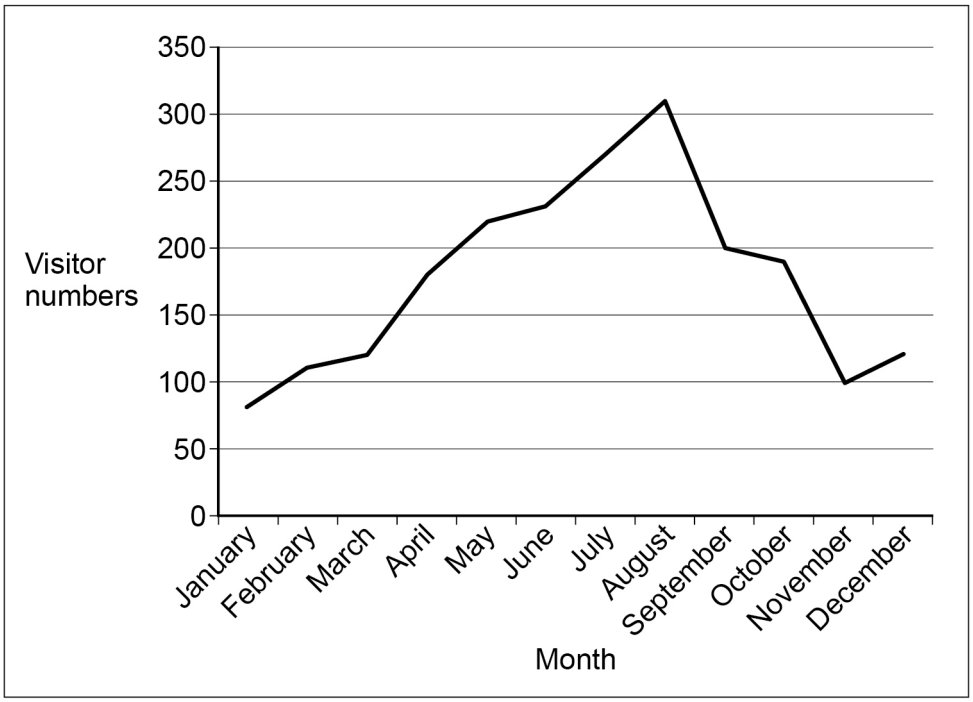
Figure 6

Visitor numbers to main tourist attractions (thousands)	
January	80
February	110
March	120
April	180
May	220
June	230
July	270
August	310
September	200
October	190
November	100
December	120

Do not write outside the box

A student used the following presentation method (**Figure 7**) to show the information in **Figure 6**.

Figure 7



0 4 . 4 **(a)** Suggest a more appropriate method for presenting the data shown in **Figure 6**.

[1 mark]

(b) Give a reason for your choice.

[1 mark]

Question 4 continues on the next page

Do not write outside the box

As part of a geographical enquiry, students carried out an environmental quality survey in one part of a town centre. The results are shown in **Figure 8**.

Figure 8

	–2	**–1**	**0**	**+1**	**+2**	
Lots of traffic pollution				✓		No traffic pollution
Lots of litter	✓					No litter
Unattractive buildings					✓	Attractive buildings
Lots of vandalism		✓				No vandalism
No landscaping					✓	Good landscaping

0 4 . 5 What is the total environmental quality score for the area shown in **Figure 8**?

[1 mark]

_____

0 4 . 6 Suggest **one** advantage and **one** disadvantage of using the technique shown in **Figure 8** to measure environmental quality.

[2 marks]

Advantage _____

_____

Disadvantage _____

_____

Do not write outside the box

There are no questions printed on this page

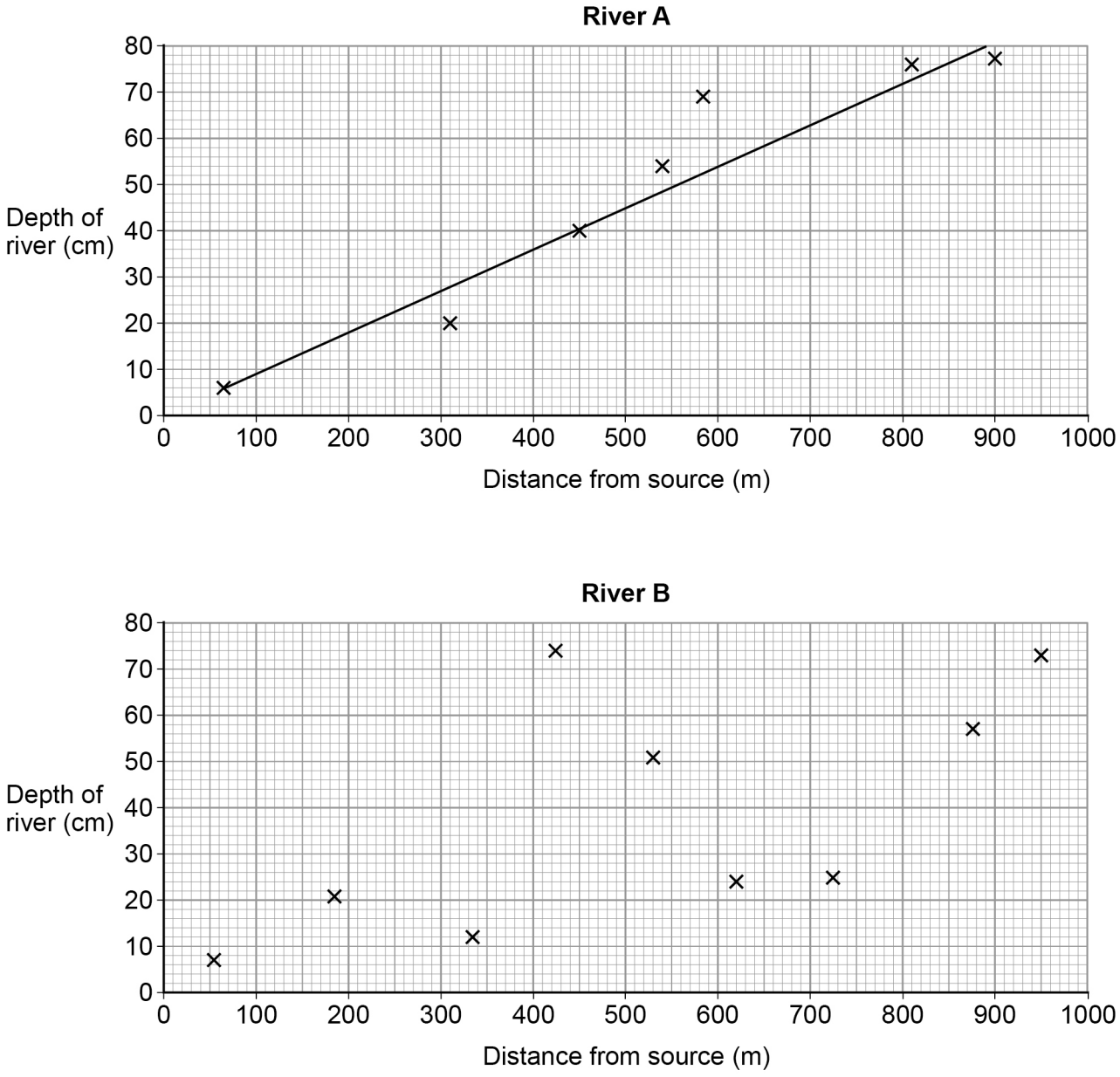
Question 4 continues on the next page

DO NOT WRITE ON THIS PAGE
ANSWER IN THE SPACES PROVIDED

Do not write outside the box

Students studied two different rivers over a distance of 1000 metres. For each river they measured the depth at a number of sites. The results are shown on **Figure 9**.

Figure 9



Do not write outside the box

0 4 . 7 Complete the scattergraph for **River B** by plotting the following data.

Distance from source – 450 m

Depth of river – 22 cm

[1 mark]

0 4 . 8 Draw a line of best fit on the scattergraph for **River B**.

[1 mark]

0 4 . 9 Compare the relationship between distance from source and depth of river for the two rivers.

[4 marks]

Extra space

16

Turn over for the next question

Do not write outside the box

Write the title of your **physical** geography fieldwork enquiry.

Title of fieldwork enquiry _____

_____

0 5 . 1 Explain why the chosen location was suitable for the collection of data.

[2 marks]

_____

_____

_____

_____

0 5 . 2 Justify **one** primary data collection method used in your **physical** geography enquiry.

[3 marks]

_____

_____

_____

_____

_____

_____

Do not write outside the box

Write the title of your **human** geography fieldwork enquiry.

Title of fieldwork enquiry _____

_____

0 5 . 3 Explain how **one** data presentation technique used in your **human** geography enquiry helped you to interpret the data.

[6 marks]

_____

_____

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Extra space _____

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_____

Question 5 continues on the next page

Do not write outside the box

0 5 . 4 For **one** of your fieldwork enquiries, assess the extent to which the accuracy of the results and the reliability of the conclusions could be improved.

[9 marks]
[+3 SPaG marks]

Title of fieldwork enquiry _____

Extra space _____

Do not write outside the box

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END OF QUESTIONS

AQA

GCSE
GEOGRAPHY

Resources for Paper 3 Geographical applications

Pre-release resources booklet

To be issued to students on Monday 19 March 2018.

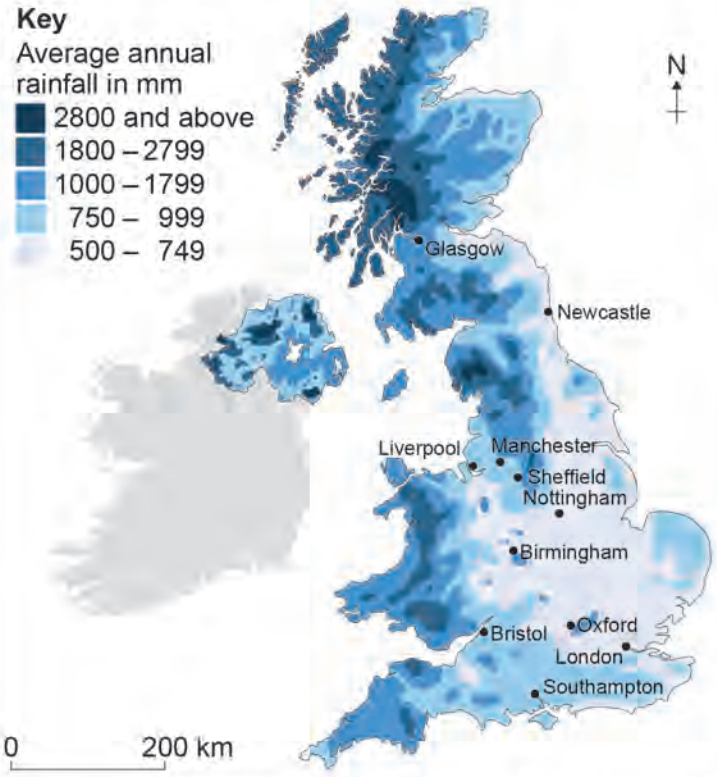
This booklet contains three resources as follows:

- Figure 1 – Water in the United Kingdom: pages 2–3
- Figure 2 – Managing water demand in Oxfordshire: pages 4–5
- Figure 3 – A new reservoir for Oxfordshire?: pages 6–7

Figure 1

Water in the United Kingdom

Annual rainfall in the UK



Water – the facts

Did you know that the UK has less rainfall per person than our northern European neighbours, and that London is drier than Istanbul?

In the UK every person uses approximately 150 litres of water a day, a figure that has been growing by 1% every year since 1930. If you take into account the water that is needed to produce the food and products you consume in your day-to-day life you actually consume 3400 litres per day.

This is quite alarming if you consider that the UK has less available water than most other European countries. If you live in the south east of England it is even more so, as this part of the country is the most water stressed.

By making small changes and choosing more water efficient products you can save water without sacrificing too much money, comfort, or level of service.

(Waterwise Factsheet)

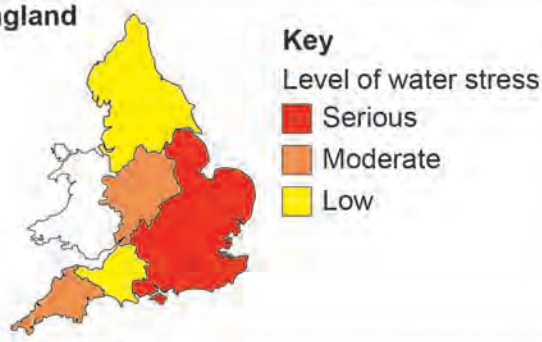
Water stress in England

What is water stress?

Water stress is when the demand for water exceeds the available amount during a particular time period.

What problems are caused by water stress?

Water stress can cause too much water to be removed from underground sources of water and rivers, damaging the environment.



Future demand for water in south-east England

All water companies have 25-year water resource plans. These show how companies plan to meet demand in the future. Water companies plan their water supply using methods agreed by the Environment Agency. Plans are designed to maintain water supply through the worst drought in the last hundred years, with at least a month's water supply left at the end of any potential period of drought.

It is expected that total water demand in south-east England will rise from about 4900 million litres/day in 2005 to 5600 million litres/day in 2030.

Water demand management is broken down into three components:

- **leakage** is expected to fall by 25% by 2030
- **non-household demand** is expected to increase by 200 million litres/day between 2005 and 2030
- **household demand** is expected to increase from 164 litres per person/day to 180 litres per person/day between 2005 and 2030.

Figure 1 continued

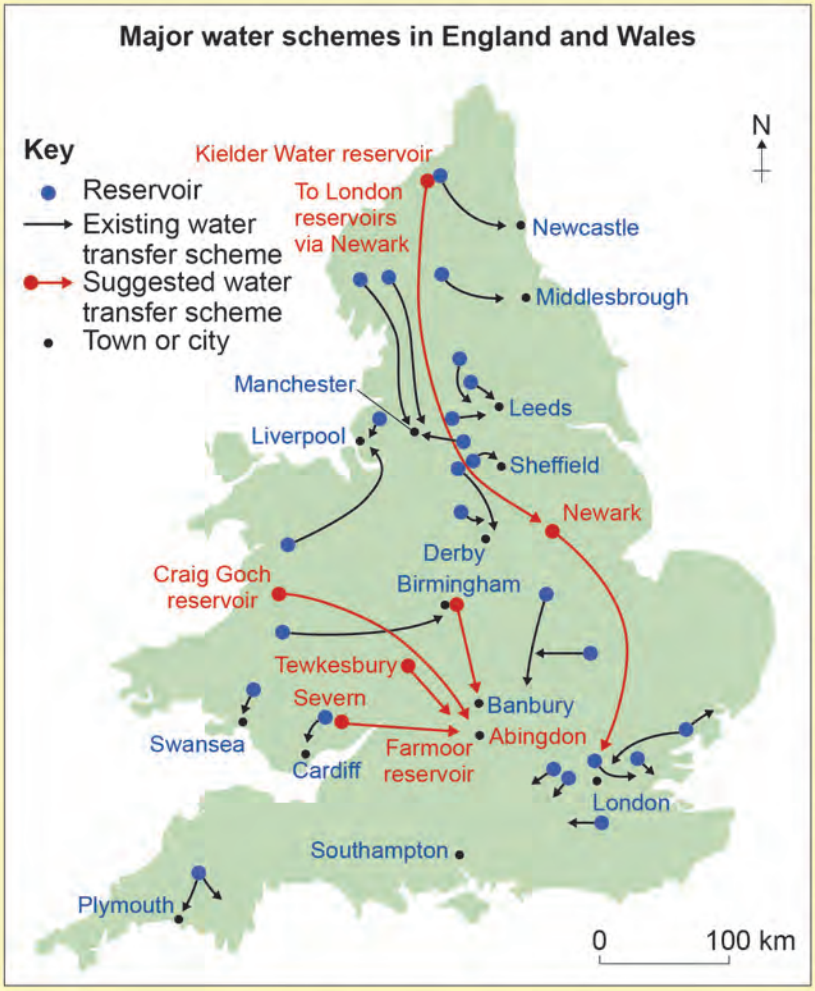
Water in the United Kingdom

Water suppliers are being encouraged to consider engineering projects as they prepare to cope with growing demand.

A new era of building pipes and canals to divert water from rivers and underground sources across Britain is being proposed as concern grows about how to keep the taps flowing in drought-prone regions of the country.

After the driest spring for a century left crops dying in parts of England, and the threat of bans on hose pipes and car washes becomes an annual summer event, experts say around four major transfer projects could be approved in the coming years as water companies struggle with growing demand and falling supplies.

The government is expected to allow companies in water-rich areas to make money from selling it to drier regions. However, the plans are likely to meet opposition from those worried about the impact on the landscape and wildlife, and the cost of pumping water over vast distances.



One of the most controversial proposals is a huge project to move water from the River Severn. It would be transported more than 160 kilometres from mid-Wales or the west of England into the River Thames, in order to supply London and south-east England.

Other large schemes could include bringing supplies from south Wales, Birmingham via the Oxford canal, and from the Kielder reservoir in Northumberland in the north-east of England – down to the east and south-east of England, where the need is greatest.

The most likely schemes will involve transfers between neighbouring regions. These schemes will be considered alongside measures to reduce demand and repair leaking pipes, and other investments such as building new reservoirs or 'recycling' sewage water.

Kielder Water reservoir

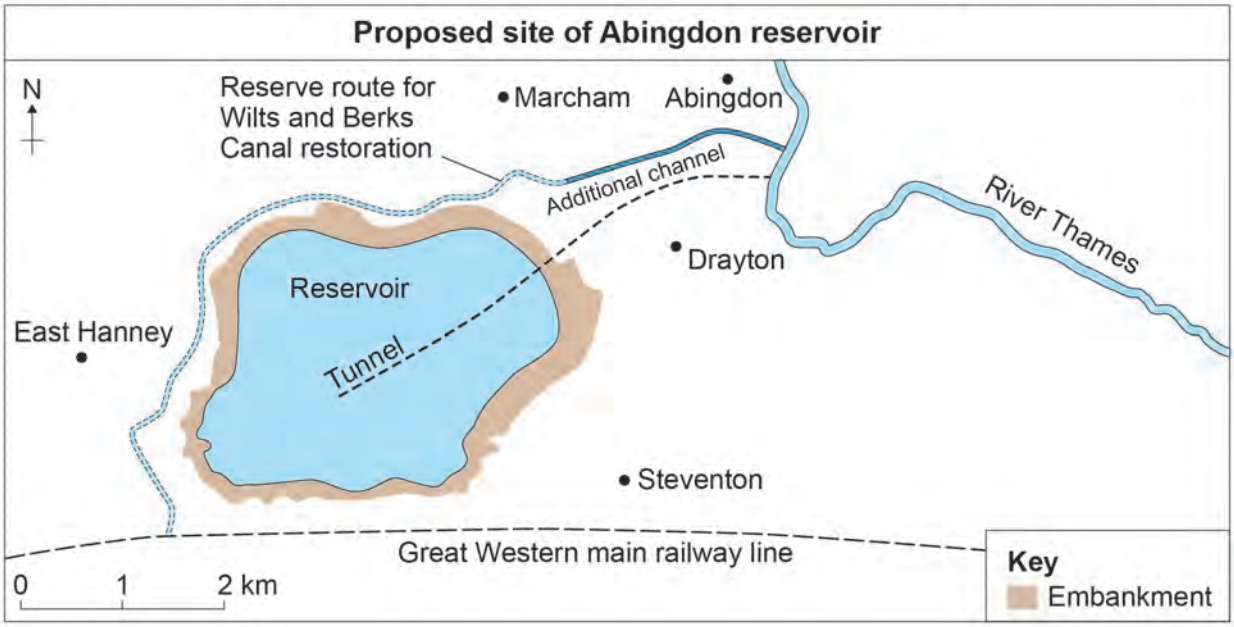
Figure 2

Managing water demand in Oxfordshire

New reservoir for Oxfordshire

Lower rainfall, increased consumer consumption, housing and industrial growth, and leakage are all contributing to a growing problem of water stress and shortage in the Thames Water region.

To alleviate the shortage Thames Water want to build a large reservoir near Abingdon, in Oxfordshire. When completed, the reservoir will store approximately 150 billion litres of water which would be transferred from other parts of the UK. The site is largely agricultural and is a low-lying clay vale, so there will be a need to build an embankment around the reservoir in order to contain the water. The height of the embankment will vary, but estimates suggest that it will be approximately 20 metres at its highest, near the village of Marcham.



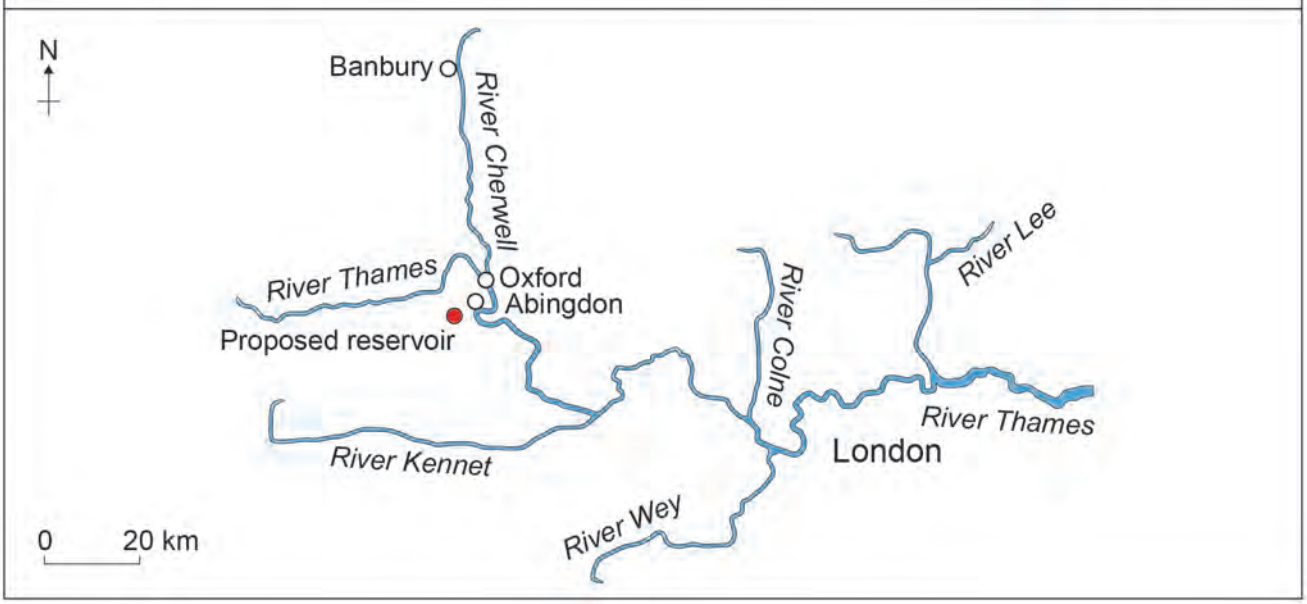


Figure 2 continued

Managing water demand in Oxfordshire

Thames Water management plan

The Thames Basin is the largest river basin in the south of England. The average rainfall for the area is 737 mm per year, substantially less than the national average. Of the rain that falls, two thirds is lost to evaporation and transpiration and 55% of the remainder is abstracted for use, making it one of the most intensively used river basins in the world. In total, we supply over 9 million customers in over 3.4 million properties. The population in the Thames Water area has been growing at approximately 100 000 per year.

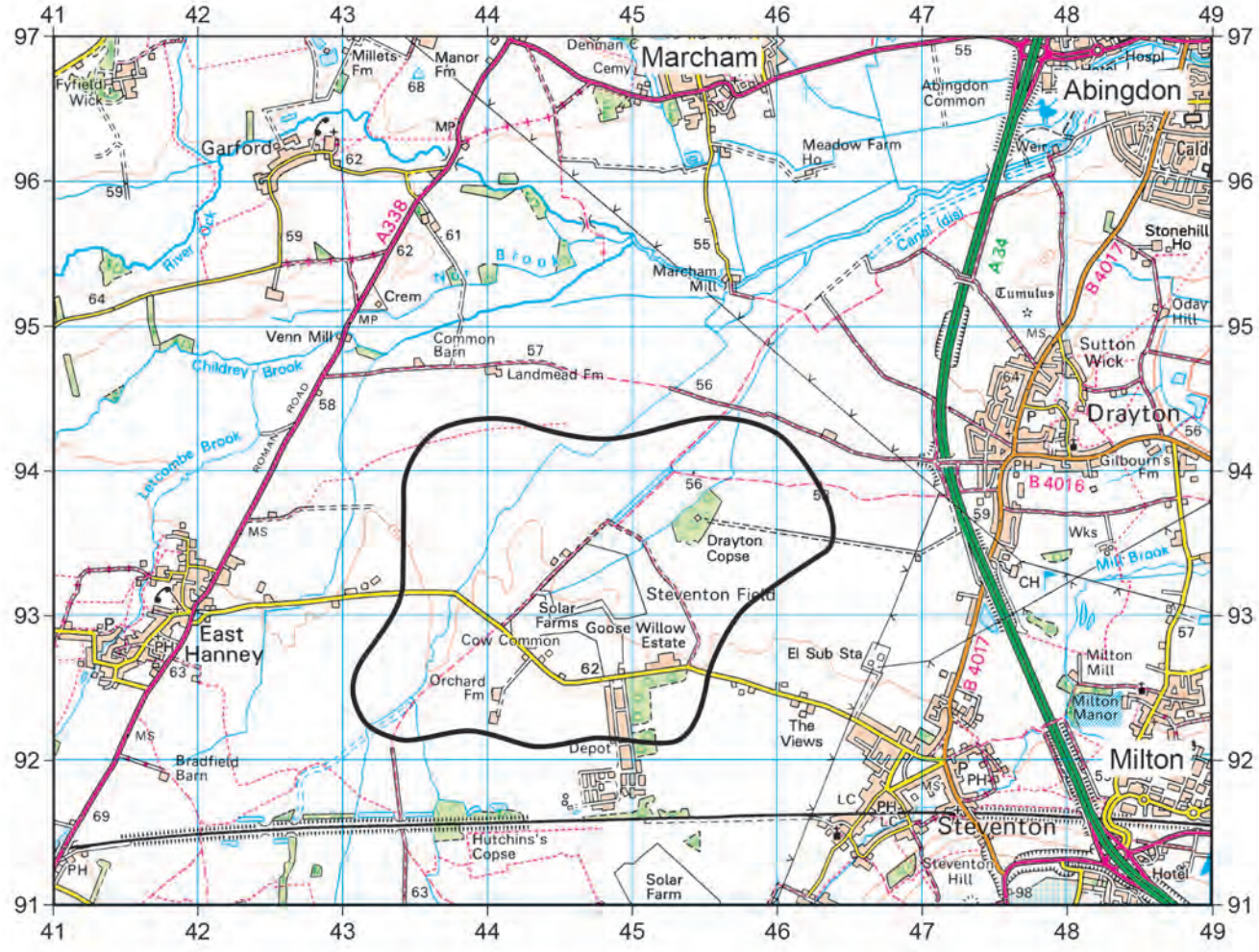
Over the planning period we face continued growth in demand from:

- population increase
- increasing number of households
- increasing domestic water use per person
- climate change.

These pressures are partially offset by:

- modern low-volume toilet cisterns
- modern, water-efficient dishwashers and washing machines
- water-efficient new housing resulting from design requirements of Building Regulations.

Source: Thames Water



Turn over ►

Figure 3

A new reservoir for Oxfordshire?

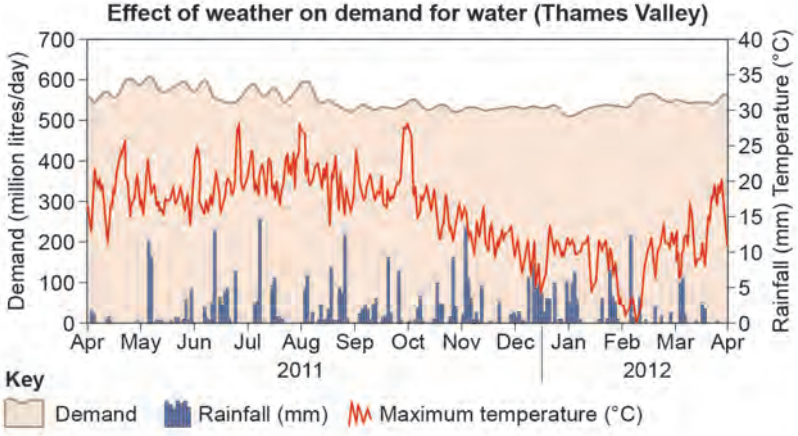
The proposed Abingdon reservoir

Thames Water states that:

- the building of the Abingdon reservoir is required in order to reduce the future risk from drought in the area and ensure that the future water supplies are sustainable. If no action is taken, Oxford will be left with a shortfall of 1 million litres of water a day by 2020.
- reducing water leakage and encouraging people to use less water is unlikely to solve the problem of the growing demand for water. The store of water in the reservoir would also help to manage the challenges resulting from seasonal precipitation and variations in demand.

Total household water use							
Year	2011–12	2014–15	2019–20	2024–25	2029–30	2034–35	2039–40
Million litres/day	1377	1390	1431	1476	1525	1577	1634

Effect of weather on demand for water (Thames Valley)



A Thames Water Resource Manager said, "We are determined that the potential shortfall in water supply will not become a reality", adding that "If we do build a reservoir, we will make sure that it has a limited impact on the surrounding area. Not only would it be a site for storing water, but also a place for nature to thrive and for people to use and enjoy, as they do at our Farmoor reservoir."

Farmoor reservoir – Oxfordshire

Farmoor reservoir, built in 1967, lies in an old river channel 7 km west of Oxford. It is owned by Thames Water, who have a longstanding relationship with the Environment Agency and Pond Conservation, who have created wetland wildlife habitats which have been designated as nature reserves. The area is one of the most important birdwatching sites in Oxfordshire; the combination of open water, wetlands and meadows, attracting migrating and wintering birds. Thames Water have installed car parks and toilets as well as a bird-feeding station. In addition to birdwatching, the area provides a range of recreational opportunities, including:

- a 6 km walkway around the reservoir
- a wetland trail for nature lovers and photographers
- fishing, including a trout fishery
- sailing and windsurfing.

Figure 3 continued

A new reservoir for Oxfordshire?

Group Against Reservoir Development (GARD)

The proposed reservoir at Abingdon would:

- destroy natural habitats. It is estimated that a number of protected species would be displaced, including water voles, bats, hedgehogs, and many bird species
- be visually intrusive, especially where 20-metre embankments are constructed
- cause massive disruption during the building phase as millions of tonnes of rock and building materials are brought to the area
- increase the risk of flooding in an area which is already prone to flooding
- have a significant impact on local towns and villages, which is unacceptable to Oxfordshire communities when most of the water will be used to supply London.

Campaign to Protect Rural England

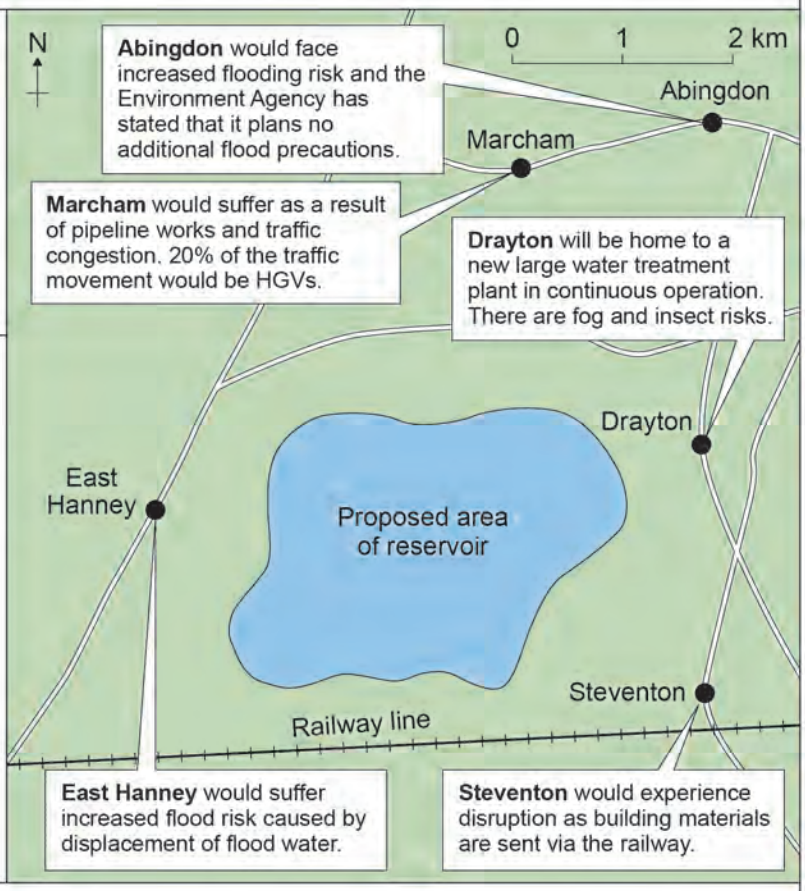
"The proposed reservoir would be huge and have a devastating impact on the environment and local communities as well as losing valuable farmland."

Water Conservation

There is no doubt that the south east faces a growing risk of water shortages, but much of this could be alleviated by managing existing water supplies more effectively or building a number of smaller reservoirs.

Some of the measures that could be taken include:

- reducing leakage
- encouraging lower water use
- building more desalination plants.



Local views

Many people would rather see a reservoir than have the countryside covered in new houses.

Rather than have one large reservoir, why not have a number of smaller water storage facilities, serving local communities?

This project may guarantee water security to the area, but during construction there would be a massive increase in traffic in an area that already suffers from congestion and commuter delays.

The reservoir will be landscaped with wooded hills and could be a fantastic environmental and recreational facility.

END OF SOURCES

There is no resource material printed on this page

GCSE
GEOGRAPHY

Paper 3 Geographical applications

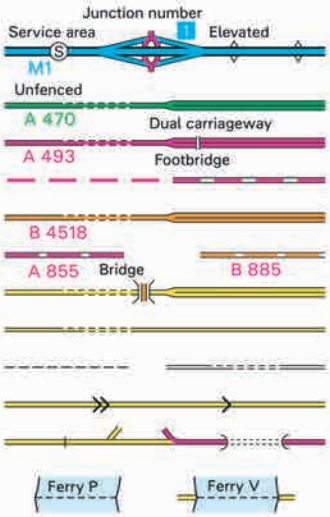
Insert

This insert contains the key for use with the OS map extract in the resources booklet.

OS map extract key

ROADS AND PATHS

Not necessarily rights of way



- Motorway (dual carriageway)
- Primary Route (recommended through route)
- Main road
- Road under construction
- Secondary road
- Narrow road with passing places
- Road generally more than 4m wide
- Road generally less than 4m wide
- Path / Other road, drive or track
- Gradient: steeper than 20% (1 in 5), 14% to 20% (1 in 7 to 1 in 5)
- Gates, Road tunnel
- Ferry (passenger), Ferry (vehicle)

TOURIST INFORMATION

- Camp site / caravan site
- Garden
- Golf course or links
- Information centre (all year / seasonal)
- Nature reserve
- Parking, Park and ride (all year / seasonal)
- Picnic site
- Recreation / leisure / sports centre
- Selected places of tourist interest
- Telephone, public / roadside assistance
- Viewpoint
- Visitor centre
- Walks / Trails
- World Heritage site or area
- Youth hostel

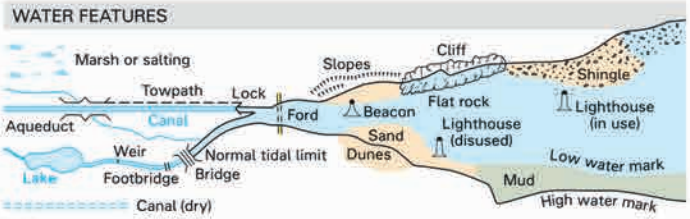
RAILWAYS

- Track multiple or single
- Track under construction
- Siding
- Tunnel, cuttings
- Light rapid transit system, narrow gauge or tramway
- Bridges, footbridge
- Level crossing
- Viaduct, embankment
- Station, (a) principal
- Light rapid transit system station

LAND FEATURES

- Electricity transmission line (pylons shown at standard spacing)
- Pipe line (arrow indicates direction of flow)
- Buildings
- Important building (selected)
- Bus or coach station
- Current or former place of worship: with tower; with spire, minaret or dome
- Place of worship
- Glass structure
- Heliport
- Triangulation pillar
- Mast
- Wind pump, wind turbine
- Windmill with or without sails
- Graticule intersection at 5' intervals
- Cutting, embankment
- Landfill site or slag/spoil heap
- Coniferous wood
- Non-coniferous wood
- Mixed wood
- Orchard
- Park or ornamental ground
- Forestry Commission land
- National Trust (always open / limited access, observe local signs)
- National Trust for Scotland (always open / limited access, observe local signs)

WATER FEATURES



HEIGHTS

1 metre = 3·2808 feet

- Contours are at 10 metres vertical interval
- ·144 Heights are to the nearest metre above mean sea level

Where two heights are shown the first height is to the base of the triangulation pillar and the second (in brackets) to the highest natural point of the hill

ROCK FEATURES

PUBLIC RIGHTS OF WAY

- Footpath
- Bridleway
- Restricted byway
- Byway open to all traffic

The symbols show the defined route so far as the scale of mapping will allow.

The representation on this map of any other road, track or path is no evidence of the existence of a right of way. Not shown on maps of Scotland

Danger Area — Firing and Test Ranges in the area. Danger! Observe warning notices.

OTHER PUBLIC ACCESS

- Other route with public access (not normally shown in urban areas). Alignments are based on the best information available. These routes are not shown on maps of Scotland.
- On-road cycle route
- Traffic-free cycle route
- 4 National Cycle Network number
- 8 Regional Cycle Network number
- National Trail, European Long Distance Path, Long Distance Route, selected Recreational Routes

BOUNDARIES

- National
- District
- County, Unitary Authority, Metropolitan District or London Borough
- National Park

ANTIQUITIES

- Site of antiquity
- Battlefield (with date)
- Visible earthwork
- VILLA Roman
- Castle Non-Roman

ABBREVIATIONS

Br	Bridge	MS	Milestone
Cemy	Cemetery	Mus	Museum
CG	Cattle grid	P	Post office
CH	Clubhouse	PC	Public convenience (in rural areas)
Fm	Farm	PH	Public house
Ho	House	Sch	School
MP	Milepost	TH	Town Hall, Guildhall or equivalent