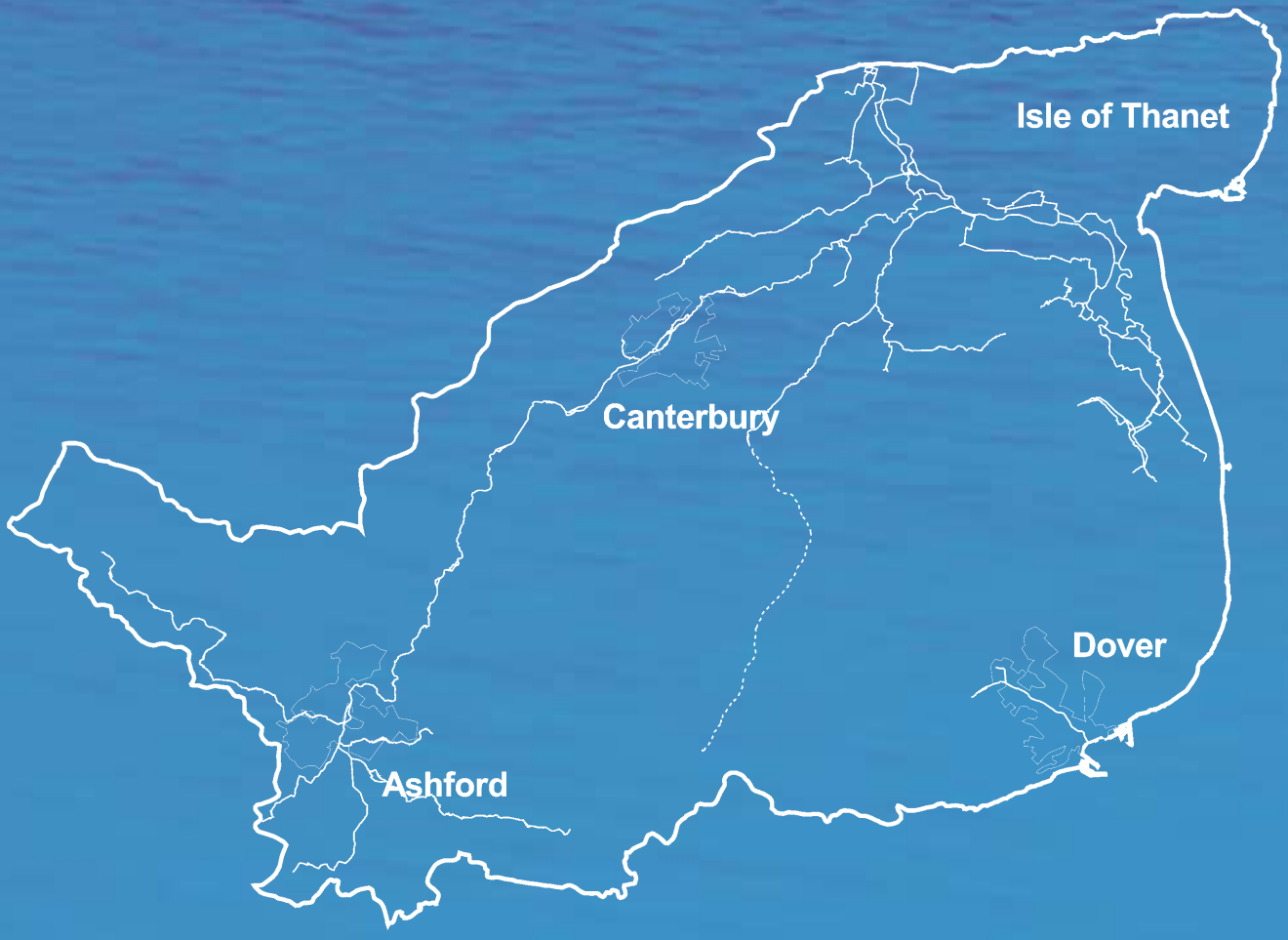
The Stour Catchment Abstraction Management Strategy

May 2003



Environment Agency

Published by:
Environment Agency,
Guildbourne House,
Chatsworth Road,
Worthing,
West Sussex BN11 1LD
Tel: 01903 832000
Fax: 01903 821832

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CONTACTS:

THE ENVIRONMENT AGENCY HEAD OFFICE

Rio House, Waterside Drive, Aztec West, Almondsbury, Bristol BS32 4UD.
Tel: 01454 624 400 Fax: 01454 624 409

www.environment-agency.gov.uk
www.environment-agency.wales.gov.uk

ENVIRONMENT AGENCY REGIONAL OFFICES

ANGLIAN
Kingfisher House
Goldhay Way
Orton Goldhay
Peterborough PE2 5ZR
Tel: 01733 371 811
Fax: 01733 231 840

MIDLANDS
Sapphire East
550 Streetsbrook Road
Solihull B91 1QT
Tel: 0121 711 2324
Fax: 0121 711 5824

NORTH EAST
Rivers House
21 Park Square South
Leeds LS1 2QG
Tel: 0113 244 0191
Fax: 0113 246 1889

NORTH WEST
Richard Fairclough House
Knutsford Road
Warrington WA4 1HG
Tel: 01925 653 999
Fax: 01925 415 961

SOUTHERN
Guildbourne House
Chatsworth Road
Worthing
West Sussex BN11 1LD
Tel: 01903 832 000
Fax: 01903 821 832

SOUTH WEST
Manley House
Kestrel Way
Exeter EX2 7LQ
Tel: 01392 444 000
Fax: 01392 444 238

THAMES
Kings Meadow House
Kings Meadow Road
Reading RG1 8DQ
Tel: 0118 953 5000
Fax: 0118 950 0388

WALES
Rivers House/Plas-yr-Afon
St Mellons Business Park
St Mellons
Cardiff CF3 0EY
Tel: 029 2077 0088
Fax: 029 2079 8555

ENVIRONMENT AGENCY
GENERAL ENQUIRY LINE
0845 933 3111

ENVIRONMENT AGENCY
FLOODLINE
0845 988 1188

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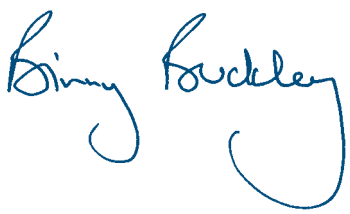
River Great Stour at Chartham

Foreword

Water is vital for life and the most essential of our natural resources, so we need to manage and use it effectively. The Stour has demonstrated its dynamic character in recent years with episodes of both extreme low flows and severe flooding. Within this part of Kent, there are increasing pressures on water resources due to development and being in the driest part of England.

Catchment Abstraction Management Strategies (CAMS) represent a positive change in the way in which we manage this vital resource. They make more information on water resources and licensing practice publicly available and provide new opportunities for partnership to ensure that decisions are taken with as full an understanding as possible of the local issues. We have consulted widely on our proposals for the Stour CAMS and have taken into account the many responses we received.

In the following pages we set out our policy for managing surface and groundwater abstraction licences and proposals to help recover resources in parts of the catchment where abstraction is unsustainable. The success of CAMS depends on the commitment and involvement of all those who have an interest in the way our water resources are managed. I encourage you to participate in the implementation of this strategy so our vision for CAMS – a shared strategy for the sustainable management of water resources within a catchment – can be realised.



Binny Buckley, Kent Area Manager.

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1 Introduction

The aim of the Stour Catchment Abstraction Management Strategy (CAMS) is to contribute to the sustainable management of water resources.

CAMS is a national initiative

Catchment Abstraction Management Strategies (CAMS) are strategies for managing water resources at a local level. Although CAMS does consider water quality, the strategy is predominately about the amount of water available in the catchment.

CAMS make more information on water resources and licensing practice publicly available and allows the balance between the needs of the abstractors, other water users and the aquatic environment to be considered in consultation with the local community and interested parties. Nationally, the CAMS objectives are to:

- make information publicly available
- provide the opportunity for greater public involvement
- provide a structured approach
- provide a framework for time limited licences
- facilitate licence trading

Stour CAMS structure

Each strategy takes two years to produce and is reviewed every six years. The Stour CAMS is the first to be completed in the Kent area, and the licensing strategy set out in this document will be reviewed in April 2009.

The purpose of the Stour CAMS is to assess how much water is available and to identify areas for future investigation. Chapter 5 explains the water abstraction licensing strategy and investigative actions for the next six years and Chapter 7 provides information on how these actions will be implemented. The intermediary chapters set out the evidence for these strategy decisions.

Accompanying documents

This document should be read in conjunction with 'Managing Water Abstraction', the Stour CAMS Technical document CD-ROM and the Regional Water Resources Strategy.

'Managing Water Abstraction' is the national document that supports the development of CAMS. It sets out the national policy and the regulatory framework within which CAMS operate, describes the process of developing CAMS and provides information on the structure and content of CAMS documents. This is available on the Internet at www.environment-agency.gov.uk and from either the Area or Regional offices.

A technical document for the Stour CAMS is also produced which provides the detailed technical information on which the development of the strategy has been based.

In March 2001, the Agency published the Southern Region Water Resources Strategy entitled: 'Water resources for the future – a strategy for Southern Region'. This strategy states how the Agency is going to meet the demands for water whilst protecting the environment over the next 25 years. The Stour CAMS incorporates the principles and polices of the Regional Strategy, but it also provides a detailed approach to sustainable management of resources at a management unit level.

If you wish to receive any of these accompanying documents, please contact:

Sarah Norton
The Environment Agency
Endeavour Park
London Road
Addington
Kent ME19 5SH
Email: cams.kent@environment-agency.gov.uk
Telephone: (01732) 223110

2 Consultation on the Stour CAMS

Consultation is a vital part of the CAMS process; it ensures that the CAMS process is transparent. There have been four stages of consultation in the Stour CAMS process:

- Pre-consultation leaflet (July 2001)
- The Stour CAMS discussion groups (internal and external)
- Stour CAMS launch (July 2002)
- The three month consultation period for the consultation paper (July to October 2002) and the technical document (September to November 2002)

Pre-consultation leaflet

An awareness-raising leaflet was distributed in July 2001. Its aim was to raise awareness of the development of the CAMS in the local area. It invited anyone with an interest to send in written comments, providing information, views and suggestions for consideration during the early development of the CAMS.

Stour CAMS discussion groups

An internal project group was set up with Agency members from Water Resources, Water Quality, Biology, Flood Defence, Fisheries and Conservation functions.

The stakeholder group is the external CAMS discussion group, where members are appointed to represent different interest areas. The purpose of the stakeholder group is to help the Environment Agency to balance the final strategy by identifying issues of local importance and to consider the likely importance of different strategy options.

The members of the Stour CAMS Stakeholder Group were:

Donald Charlesworth	Chairman
Paul Bolas	Conservation, Water Use & Quality
Duncan Foster	Industry
George Iafrate	Fishing/ Fisheries
Julian Sampson	Land agents
Paul Seeley	Water company
Jon Shelton	Kentish Stour Countryside Project
Jeff Thatcher	Water company
David Rogers	English Nature
Simon Bandy	Ashford Borough Council
Alan Turner	Kent County Council
Martin Tapp	Agriculture/ land drainage

Due to limited numbers, other interest areas such as navigation were not represented on the group, so observers were invited to attend meetings. Observers had an opportunity to comment and ask questions at the end of each meeting.

Launch & formal consultation

The Stour CAMS Consultation document was launched on July 24th 2002 at Canterbury Cathedral Education Centre. Over 250 Consultation documents and 7 Technical documents CD-ROMs were sent out during the three-month consultation period. We received 53 written responses in addition to the questions and comments raised during the launch. The Stour CAMS Statement of Response was published in December 2002. This CAMS document now sets out the final strategy that has been determined for the Stour CAMS area.

3 The CAMS Area

3.1. Hydrology

The drainage pattern of the River Stour is very closely related to its geology and topography. Both the Great Stour and the East Stour originate from springs issuing from the Chalk and Lower Greensand which flow into the Gault Clay valley, this means that these upper reaches of the river are characteristically flashy; run-off is rapid with high peak flows. The flow characteristics change further downstream, as the river cuts through the North Downs, where recharge from the chalk springs gives the middle reaches typical chalk stream characteristics; the water is clear, summer and winter flows are less extreme and water temperature is less variable between the seasons. These conditions support a rich diversity of invertebrate life and important game fisheries

Downstream of Canterbury, the river passes through younger rocks such as Brickearth and Thanet Beds. Valley deposits are largely alluvium around the old Wantsum Channel, and Clay with Flints on the Chalk dip slopes. Some 15 km downstream of Canterbury at Plucks Gutter, the Little Stour joins the Great Stour. The upper reaches of the Little Stour are known as the Nailbourne, which is an ephemeral stream that only flows when the water table in the chalk aquifer is sufficiently high enough to produce springs. The tidal stretch of the River Stour extends 35km upstream to Fordwich Bridge.

The River Dour is also located in this CAMS area, and is the only surface stream within the Dover chalk block. The ephemeral part of the River Dour runs for 5km through the Lydden valley before meeting the perennial source at Temple Ewell, it then flows south east into the English Channel at Dover.

3.2 Conservation

There are many important sites of conservation interest that rely on an input of freshwater; figure 3 shows that most designated sites are concentrated in the lower catchment. The two most important habitats in this catchment are the Chalk river and wetland.

Chalk river habitat

A chalk river is a river that is dominated by groundwater discharge from chalk geology. The Great Stour, River Little Stour and River Dour are identified by the Agency as priority habitats under the UK Biodiversity Action Plan (BAP) Chalk rivers. The Agency is the lead organisation responsible for delivering obligations under the UK Chalk Stream BAP. A significant part of this is the maintenance of the characteristic macrophyte community dominated by water crowfoot *Ranunculus*.

The Little Stour at White Bridge (downstream of Littlebourne)

The Chalk influence in these rivers is very important as it creates an unique hydrochemistry and flow regime, creating distinctive assemblages of plants and animals. They also play host to rare and/or endangered species e.g. native crayfish, otters and water voles, and have a high value as a functioning ecosystem when managed sensitively.

Human pressure can greatly alter the characteristics of a chalk river. Firstly, there is great demand for abstracting the high quality water from the chalk aquifer that feeds the rivers. Secondly, the river often receives effluent discharges (e.g. the River Great Stour at Ashford). Thirdly, factors such as altering channel shape for flood alleviation and intensified agriculture all add ecological stress to this habitat.

To help solve these problems, the Agency has identified that River Little Stour and the River Dour are impacted by licensed abstractions. Through the National Environmental Programme (NEP) Alleviation of Low Flow (ALF) project, the causes of low river flows are being investigated and a sustainable solution will be implemented. This work involves liaison with other Agency functions such as Conservation, Flood Defence, Fisheries, Biology and Conservation and external partnerships with water companies.

Wetland areas

There are many wetland sites in this CAMS area that have great ecological importance, most are concentrated in the area downstream of Canterbury, refer to figure 3.

Protected wetland sites in the lower reaches of the River Stour catchment include:

- Stodmarsh (SPA, cSAC & Ramsar)
- Sandwich Bay (cSAC)
- Thanet Coast (cSAC)
- Thanet Coast and Sandwich Bay (SPA & Ramsar)
- Ash Level and South Richborough Pasture, Sandwich (SNCI)
- Chislet Marshes, Sarre Penn and Preston Marshes (SNCI)

Although these sites need water, there is no direct evidence to suggest that abstraction is adversely affecting the biodiversity within them. However, as there are many important conservation sites in the lower parts of the catchment, it is essential that there is enough fresh water reaching these areas.

For example, Stodmarsh is just one of these wetland sites that is superb for wildlife. Many wetlands of the Stour valley were eradicated by drainage, but subsidence due to underground coal workings has lowered this area and helped to recreate the marshes. This reserve has many different types of marshland: shallow lagoons, grazing meadows, wet woodlands and the largest remaining area of reed-beds in Kent. Many birds, including several types of warbler breed in summer and in winter wildfowl are plentiful. Numerous species of wetland plant are present, including the rare marsh dandelion. Invertebrates such as the silver barred moth and the shining rams-horn snail, which is a priority species for action under the UK BAP, can be found at Stodmarsh.

One of the Agency's objectives, in partnership with others, is to retain and enhance the management and extent of these wetland areas, and to create new habitats where practical and justified.

3.3. Fisheries

The River Dour and especially the Stour are widely acknowledged as quality fisheries for both coarse (Cyprinid) and game (Salmonid) fish. Their catchment areas also hold many stillwater fisheries, both coarse and game.

Most of the inland fisheries are classified as coarse fish, belonging to the Cyprinidae family. Good populations of roach, bream, perch, pike and eel live in the middle and lower stretches of the rivers. For instance, the Great Stour tideway is nationally renowned for its coarse fishery, particularly bream.

The remaining fish species are classified as members of the Salmonidae family. The Stour and Dour river catchments are not principal salmon rivers, although salmon can be found in the River Great Stour above Ashford. A single salmon kelt was found in the River Dour during a routine survey in 2001, and sea trout are seen trying to move up into the river, although their success is unknown. There are good populations of wild brown trout, and the River Dour is one of the best spawning grounds for trout in Kent. A decline in trout stocks has been noticed in the River Great Stour above Ashford and the River Little Stour, although it is unknown whether this is due to siltation, drought, a deterioration in water quality, over abstraction or a combination of all these factors.

Current deflectors and weirs have been used in the Stour catchment, e.g. at Barnfield, Rippers Cross, Godinton, Ashford, Trimworth, Godmersham, Chilham, Pickledon and Tonford. Deflectors utilise the river flow to create pools and riffles, increase water speed, direct water flow and improve the habitat for fish. These have either been installed by the Agency or by fishing clubs and the River Stour Project in partnership with the Agency.

As part of the National Fisheries Core Monitoring Programme, the Agency carries out electric fishing surveys at 12 cyprinid sites and 3 salmonid sites in the Stour CAMS area. The results help the Agency to monitor population trends at a local level and feed into the National Fish Populations Database. This database was developed to standardise fisheries survey information throughout through out England and Wales.

The Agency also enforces fisheries legislation and bylaws in this catchment.

Wild Brown Trout

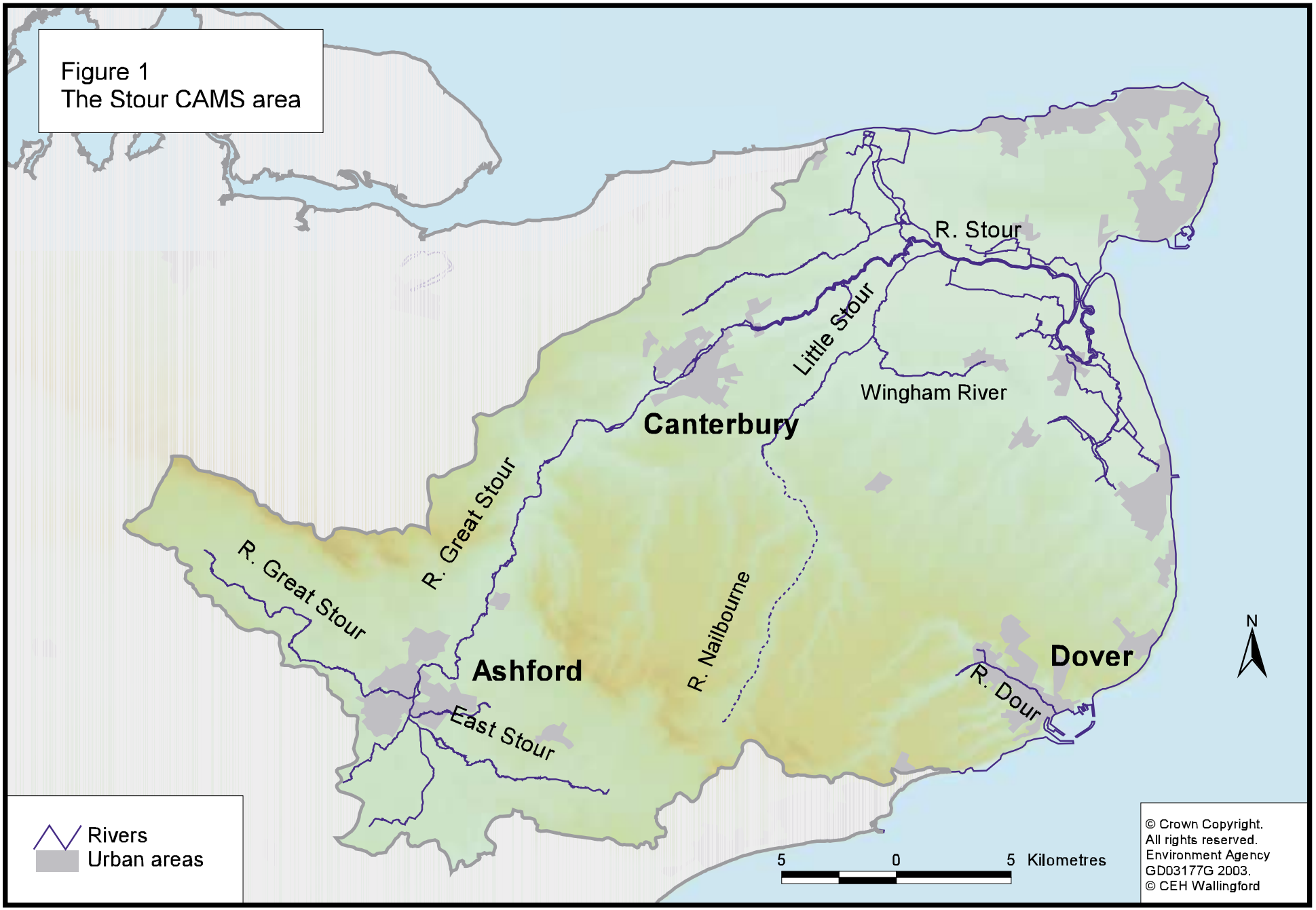
Figure 1
The Stour CAMS area
R. Stour
Little Stour
Wingham River
Canterbury
R. Great Stour
R. Great Stour
R. Nailbourne
Ashford
East Stour
Dover
R. Dour
N
Rivers
Urban areas
5 0 5 Kilometres
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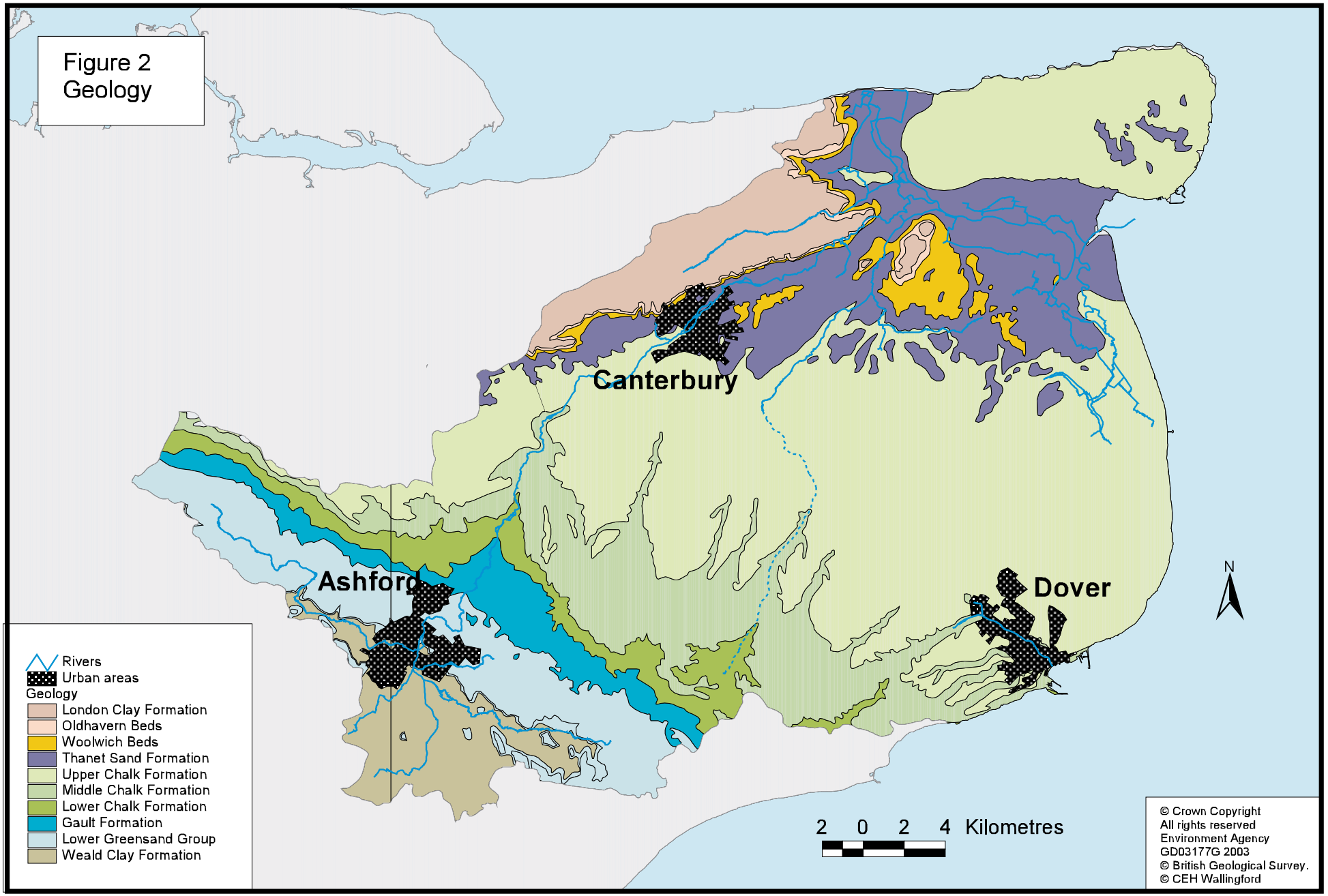
Figure 2
Geology
Canterbury
Ashford
Dover
N
Rivers
Urban areas
Geology
London Clay Formation
Oldhavern Beds
Woolwich Beds
Thanet Sand Formation
Upper Chalk Formation
Middle Chalk Formation
Lower Chalk Formation
Gault Formation
Lower Greensand Group
Weald Clay Formation
2 0 2 4 Kilometres
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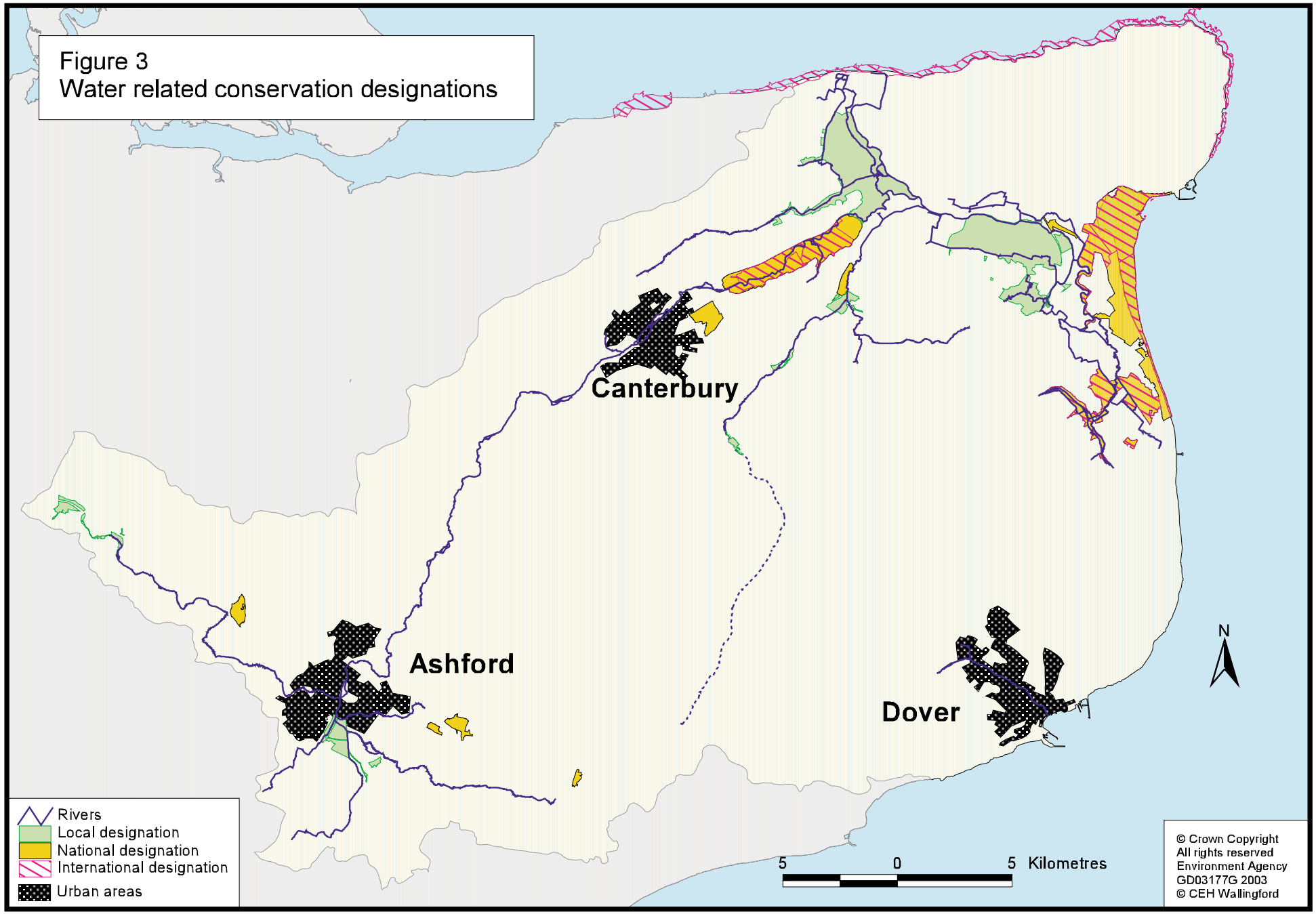
Figure 3
Water related conservation designations
Canterbury
Ashford
Dover
N
Rivers
Local designation
National designation
International designation
Urban areas
5 0 5 Kilometres
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3.4. Agriculture & rural activities

Agriculture is the dominant land use within the River Stour and River Dour catchments. There is limited industrial use of water within the Stour CAMS area.

Arable farming and horticulture is found in the north eastern half of the catchment (Stour Marshes & Estuary) where the soil is high quality. Here the demand for water for spray and trickle irrigation is high. For instance crops such as Maris Piper potatoes, one of the most popular varieties, require high quantities of water to meet the strict quality requirements of the supermarkets. Soft fruit and salad vegetables also create a high demand for reliable water supplies.

In the south western half of the River Stour catchment and the River Dour catchment, it is mainly grassland which is typically grazed by sheep and arable crops such as oil seed rape and wheat. This is because soils over the chalk geology are often thin, well drained and of comparatively poor quality.

Navigation is important on the tidal River Stour, and the river supports waterside businesses as well as boat users.

The River Stour and River Dour catchments are part of the Kent Downs Area of Outstanding Natural Beauty (AONB). This whole CAMS area has a high amenity value, with an extensive network footpaths and bridleways. Although this catchment is in a densely populated county and there are good transport links to the continent, it is still able to maintain its rural quality.

River Great Stour at Shalmsford Street

This area has a rich variety of tourist attractions. These range from the traditional seaside resort of Margate, to historic centres such as, Dover Castle and Canterbury Cathedral which is the top tourist attraction in south east England, attracting over 1.5 million visitors in 2002. The influx of visitors to east Kent during the summer raises the peak demand for water.

There is also a wide choice of golf courses in this part of Kent. Sandwich Bay has two championship links, both of which have hosted The Open in the past. Within 20 miles of Sandwich there are 15 other courses ranging from parkland, cliff top, and downland courses. Golf courses abstract water for irrigation purposes. On average, an 18-hole golf course can use as much as 455M^3 of water per night. In order to reduce the impact of this on scarce water resources, the Agency has a Southern Regional Policy Guidance for the irrigation of Golf Courses (refer to chapter 5).

The principal urban areas in the catchment are Folkestone, Dover, Deal, Ramsgate, Margate, Canterbury and Ashford. The population of the catchment is increasing due to a combination of natural increase and net immigration. Due to the Channel Tunnel Rail Link and improvements to the road network, this part of Kent is an attractive commuter area to London and the Thames Gateway. For example, Ashford has anticipated housing development of approximately 700 units per year, over the next 20 years. This would make Ashford the largest urban development in Kent.

3.5. Water Quality

The Great Stour supports a rich and extremely diverse fauna especially in stretches removed from the impacts of urbanisation. The general biological quality varies between grade ‘a’, very good quality, and grade ‘b’, good biological quality. The two exceptions being downstream of Lenham and Ashford STW.

The uppermost reaches down to Ashford are typically of good biological quality, except immediately below Lenham STW where the effluent is not sufficiently diluted and at Charing where there is good evidence for pesticides periodically affecting the watercourse.

In Ashford and immediately below, the river is impacted by the Cobbs Wood Interceptor in Victoria Park, the general urban runoff and Ashford STW final effluent. Since 1996 the river downstream of Ashford STW has shown a steady decline, which has resulted in the 1998 biological band being reduced to ‘d’.

At Wye, the river shows some signs of eutrophication with extensive growths of filamentous algae. The phosphate stripping plant at Ashford STW has enabled mean water quality below the STW to equate to quality upstream.

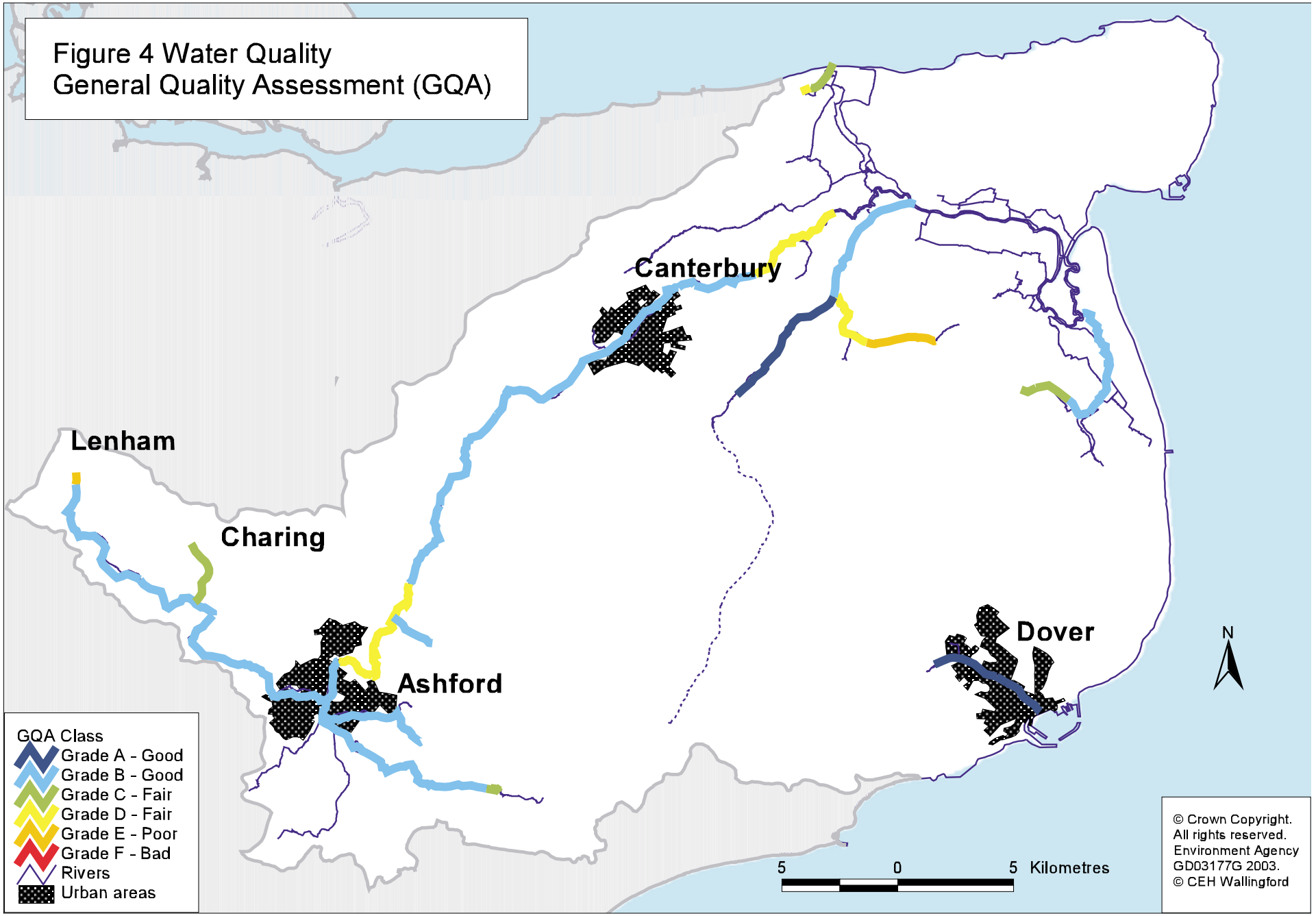
Figure 4 Water Quality
General Quality Assessment (GQA)
Canterbury
Lenham
Charing
Ashford
Dover
N
GQA Class
Grade A - Good
Grade B - Good
Grade C - Fair
Grade D - Fair
Grade E - Poor
Grade F - Bad
Rivers
Urban areas
5 0 5 Kilometres
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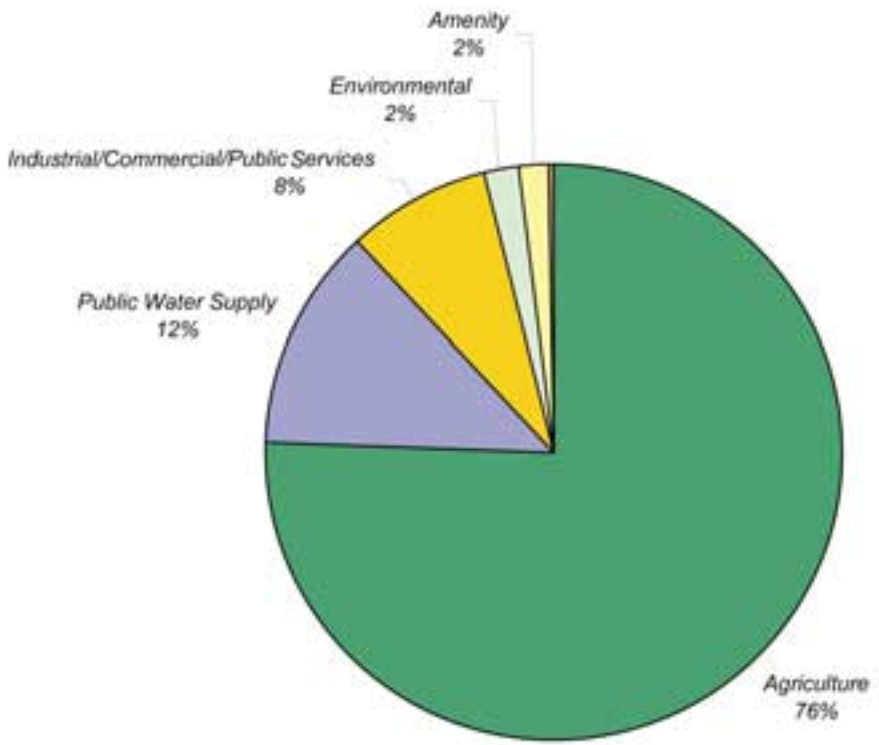
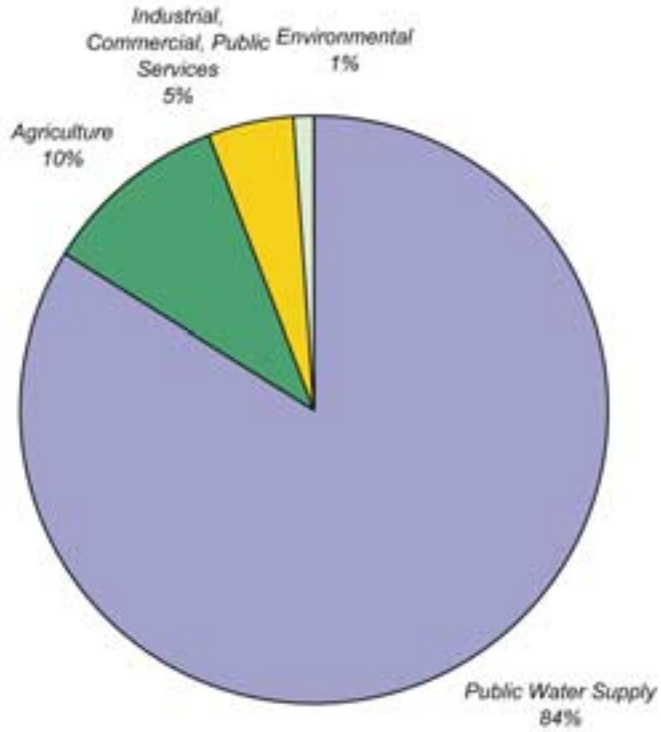
Figure 5 Number of Abstraction Licence



Purpose	Number of Abstraction Licences
Agriculture	286
Public Water Supply	47
Industrial/Commercial/Public Services	30
Environmental	8
Amenity	6
Production of Energy	1
Total	378

Figure 6 Annual Licensed Quantity



Purpose	Annual Licenced Quantity in Megalitres
Public Water Supply	101,911
Agriculture	12,607
Industrial/Commercial/Public Services	5,962
Environmental	1,160
Amenity	26
Production of Energy	15

There are populations of native crayfish upstream of Ashford between Bucksford and Victoria Park, and from Wye to Canterbury. The river quality through Ashford seems to prevent contact between the two populations.

Below Canterbury sewage works, the river divides with one branch passing under Whitemill bridge, and the other branch under Blackmill bridge. Here the biological quality in 2000 was grade 'a', very good, and similar to Vauxhall bridge upstream of the works.

Many of the changes below Fordwich are attributable to the physical change in the river's character to that of a deeper, slow flowing watercourse. The introduced species, *Corophium curvispinum,* (a small crustacean) is becoming more common in the lower reaches of the Great Stour. It is unknown whether the species will affect the native community. Continued surveillance will give some idea of its likely impact.

The Little Stour is affected by the low flows in drought years and in places can become dry or a static pool. The recent increase in ground water available due to above average rainfall has enabled the river to recover from the early 1990's drought. The data collected has proved invaluable to the calculation of minimum ecological flows.

The Spiders Castle Dyke is unusual for the Stour Catchment, because iron deposits characterise this stream which at times can be bright orange. This could be due to local springs issuing from the Lower Greensand Aquifer. The macroinvertebrate community reflects this and contains non-typical (for the Great Stour) organisms such as several species of Beraeidae. Again, this site is vulnerable to low flows as the watercourse is virtually a headwater.

The East Stour downstream of Sellindge STW has deteriorated slightly to grade 'c', but just upstream of Ashford the quality has returned to grade 'a'

The role of the CAMS is to make sure that any strategy will have a neutral or positive impact on water quality and maintains river baseflow; this is achieved through the sustainability appraisal process. For more detailed information on water quality, please refer to the Technical document CD-ROM.

3.6. Water abstraction

There are 378 licensed abstractions in the CAMS area. 286 of all licences are for spray irrigation, although this is a high proportion of all licences, this accounts for only 10% of the annual licensed quantity. Public water supply is the main abstractor, as it is licensed to take 84% of the total annual licensed quantity for the Stour CAMS area.

Figure 7 shows the location of the two main abstraction licence purposes: public water supply and agriculture. It also shows the boundaries for all three public water supply companies operating in this area. The water companies supplying water in this area are, Southern Water, Mid Kent Water and Folkestone and Dover Water Services. Water demand does increase during a dry year, but the average demand for water has stayed relatively constant during the last six years. The biggest change has been an increase in summer (peak) demand. This is due to increased summer population associated with the tourist industry and ever-increasing use of sprinklers on gardens and golf courses. In the future, the difference between average and peak demand could get greater with climate change, as drier summers are predicted.

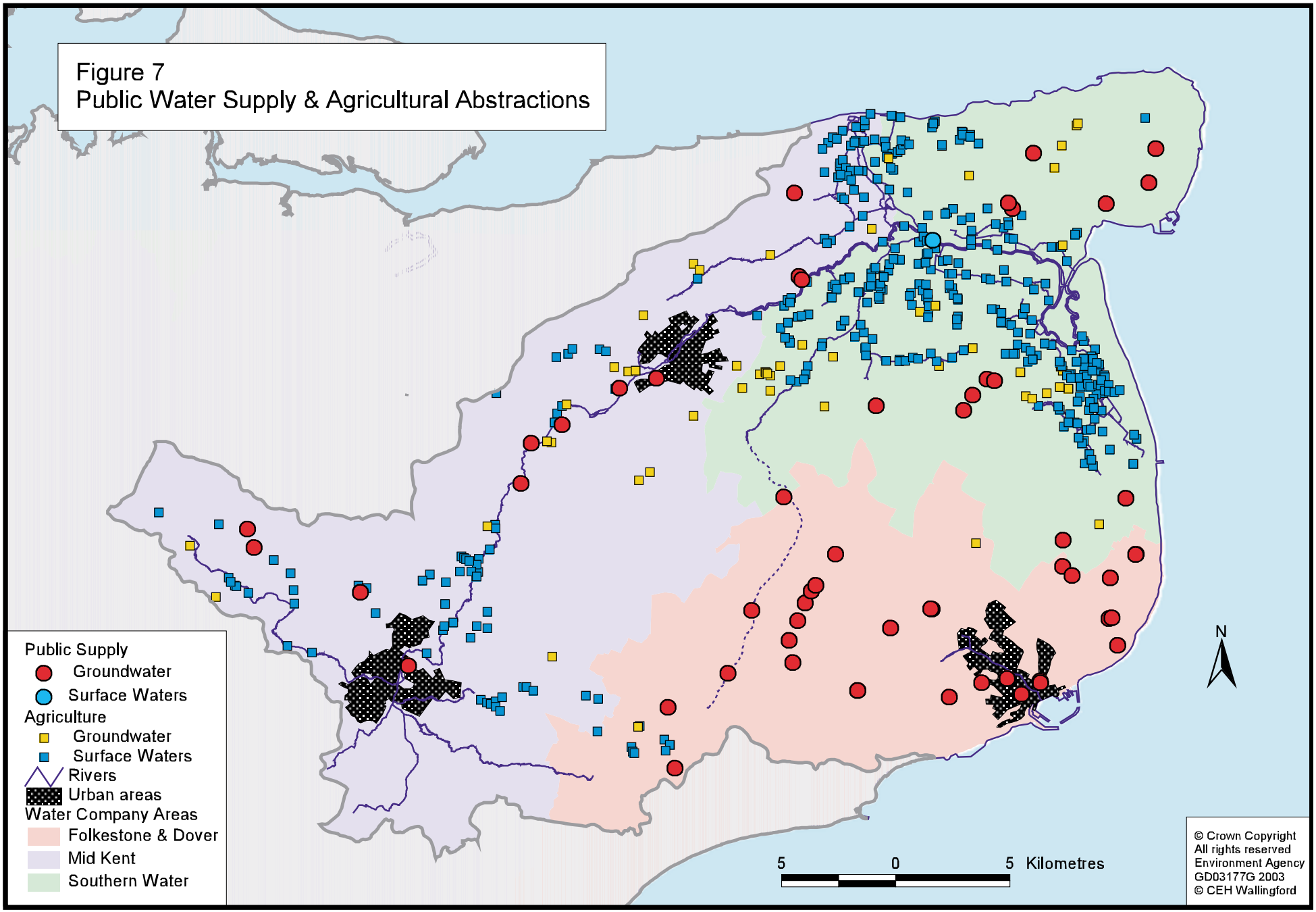


Figure 7
Public Water Supply & Agricultural Abstractions
Public Supply
Groundwater
Surface Waters
Agriculture
Groundwater
Surface Waters
Rivers
Urban areas
Water Company Areas
Folkestone & Dover
Mid Kent
Southern Water
5 0 5 Kilometres
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