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# Colne Abstraction Licensing Strategy

February 2013

A licensing strategy to manage water resources sustainably

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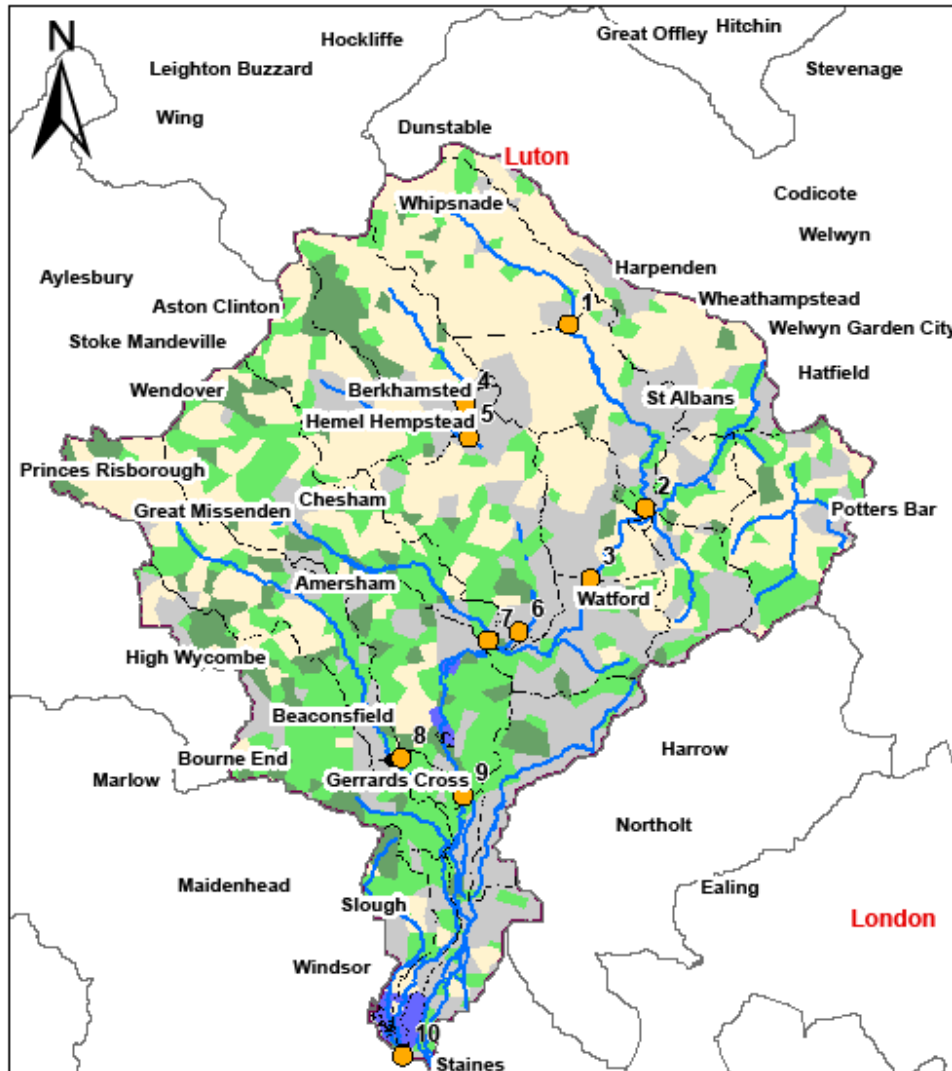
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# Colne CAMS area



### Legend

- Colne\_CAMS\_WBs
- Colne\_CAMS\_APs
- Colne\_Rivers
- Arable
- Managed Grassland
- Forestry / Woodland
- Semi Natural Vegetation
- Urban
- Water

Creation date: 09/2011

0 2 4 8 12 16 Kilometres

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Map 1 Colne Catchment Abstraction Management Strategy (CAMS) area.

# Foreword

Water is the most essential of our natural resources, and it is our job to ensure that we manage and use it effectively and sustainably. This licensing strategy sets out how we will manage water resources in the Colne catchment and provides you with information on how we will manage existing abstraction licences and water availability for further abstraction.

The Chiltern Hills are designated as an Area of Outstanding Natural Beauty and form the backbone of the Colne catchment. Their characteristic chalk streams are recognised as an internationally rare habitat. Chalk streams are an ideal environment for many of our beloved species, such as brown trout, bullhead and water voles.

Groundwater resources play a vital role in supporting the flow of chalk streams, as well as supplying the majority of our drinking water. We all therefore have a part to play in conserving this finite resource. By using water wisely in our homes, we can ensure more water is available for wildlife and plants, and help to preserve chalk rivers for everyone's enjoyment for years to come.

The latest population growth and climate change predictions show that pressure on water resources is likely to increase in the future. In light of this, we have to ensure that we continue to maintain and improve sustainable abstraction and balance the needs of society, the economy and the environment.

A handwritten signature in black ink that reads "Julie Nunn". The signature is written in a cursive style with a large, sweeping initial 'J'.

Julie Nunn  
North East Thames Manager (Interim)

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# 1. About the Licensing Strategy

This **Licensing Strategy** sets out how water resources are managed in the Colne catchment. It provides information about where water is available for further abstraction and an indication of how reliable a new abstraction licence may be.

This strategy was produced in February 2013 and it supersedes the strategy issued in December 2007.

## **How CAMS contributes to achieving environmental objectives under the (WFD) Water Framework Directive**

The Water Framework Directive's main objectives are to protect and enhance the water environment and ensure the sustainable use of water resources for economic and social development.

Catchment Abstraction Management Strategies (CAMS) set out how we will manage the water resources of a catchment and contribute to implementing the WFD.

CAMS contribute to the WFD by:

- providing a water resource assessment of rivers, lakes, reservoirs, estuaries and groundwater referred to as water bodies under the WFD;
- identifying water bodies that fail flow conditions expected to support good ecological status;
- preventing deterioration of water body status due to new abstractions;
- providing results which inform River Basin Management Plans ([RBMPs](#)).

## **When is an abstraction licence required?**

You need a licence from us if you want to abstract more than 20 cubic metres (4 000 gallons) of water per day from a:

- river or stream
- reservoir, lake or pond
- canal
- spring or
- an underground source

Whether or not a licence is granted depends on the amount of water available after the needs of the environment and existing abstractors are met and whether the justification for the abstraction is reasonable.

If you want to apply for an abstraction licence or make changes to a licence that you already have then, please contact us:

- by telephone on 03708 506 506
- by email at [enquiries@environment-agency.gov.uk](mailto:enquiries@environment-agency.gov.uk)
- or visit our website at <http://www.environment-agency.gov.uk>

## **Sustainable abstraction**

This licensing strategy has been produced using evidence and information gathered during the Catchment Abstraction Management Strategy (CAMS) process. Through this process we consider the impact of abstractions at all flows. This helps to manage future abstraction more sustainably.

We now assess water resources at a sub-catchment level called waterbodies. This means that we can provide more detailed information on the availability of water resources in the Colne CAMS area compared to the scale used in the previous strategy.

Within this strategy we also outline where we may need to reduce current rates of abstraction and our approach to time limited licences.

The background, aims and principles of CAMS, the over arching principles we use when managing abstraction licences and links with other initiatives are detailed in our document: [Managing Water Abstraction](#). You should read Managing Water Abstraction when reading this catchment specific licensing strategy.

## 2. Colne CAMS area

The Colne CAMS covers an area of approximately 1018 km<sup>2</sup> to the north-west of Greater London. The catchment covers Hertfordshire in the north, and Buckinghamshire and Middlesex in the south.

The catchment topography shows two distinct areas. Within the northern and western areas of the catchment, the topography slopes steeply away from the Chiltern Hills towards the south east. Within the easterly and southerly areas of the catchment, where the majority of the rivers converge or meet the River Colne, the topography is lower lying with a gentle slope towards the south.

Map 1 and Map 2 show land use and designated conservation areas. The north and west sections of the catchment border the southerly edge of the Chilterns. This is characterised by chalk streams, rural landscapes and medium sized towns. The Chilterns are designated as an Area of Outstanding Natural Beauty (AONB) in recognition of its exceptional landscape qualities. Approximately half of the Chiltern AONB is located within the Colne CAMS Area. The central, south and eastern parts of the catchment are more densely populated and urban. These areas have been influenced by gravel extraction and urban fragmentation. However pockets of the lower Colne Valley retain the rural character and the rivers, reservoirs and gravel pits provide a green corridor.

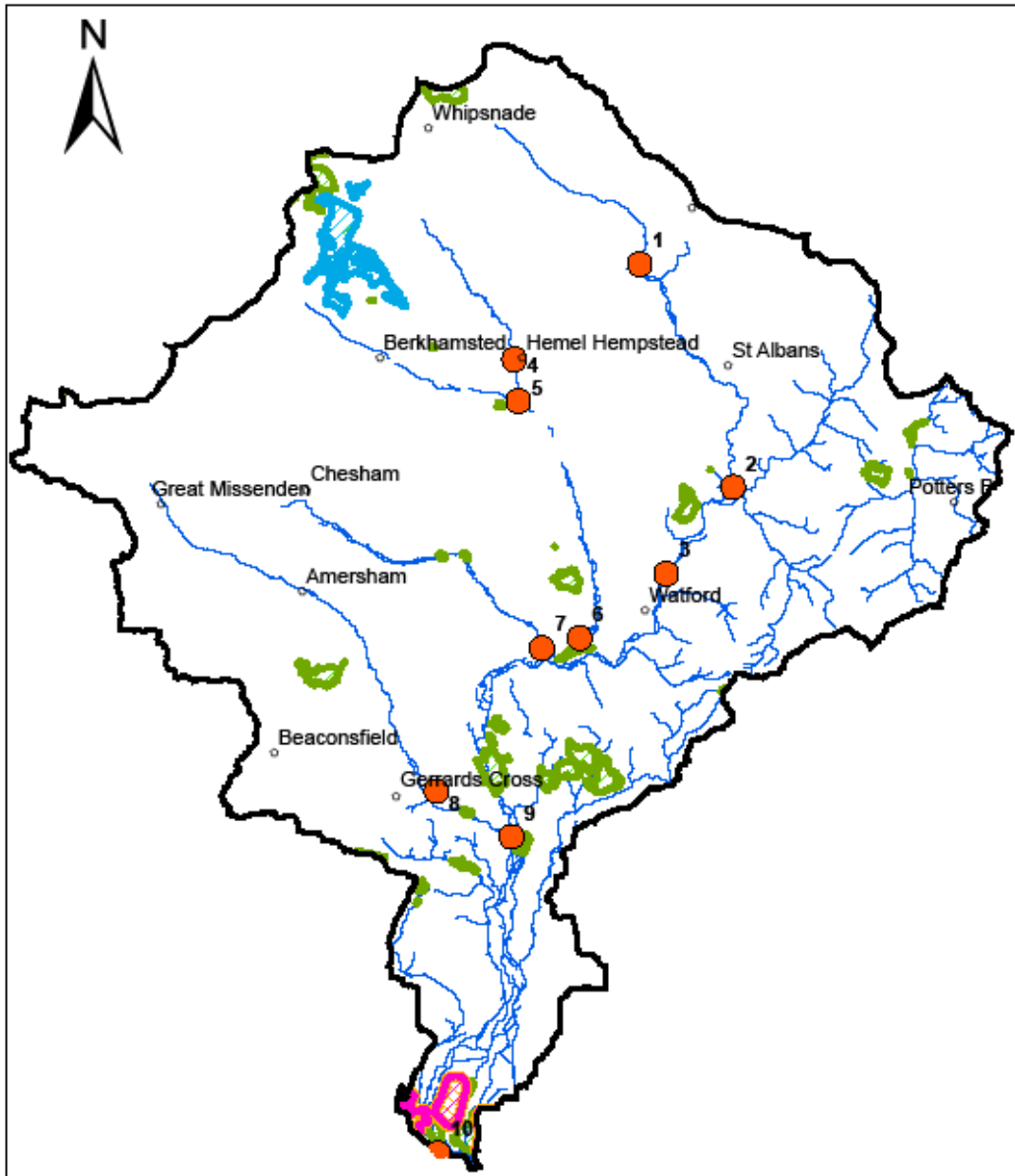
The Colne catchment contains six main rivers and their tributaries: the Colne, Ver, Gade, Bulbourne, Chess and Misbourne. They are typical chalk streams and their sources are subject to seasonal and annual climatic variations. These rivers drain in a south-easterly and southerly direction. Southerly sections culminate in a complex network of rivers before the Colne flows into the River Thames upstream of Teddington Lock, with the recreationally important Grand Union Canal interlinking throughout the catchment with the Colne, Gade and Bulbourne rivers.

Unconfined chalk dominates the geology, overlain by London clay along the southeast boundary of the catchment. The upper reaches of the Colne's main tributaries are dependent on the unconfined chalk as a source of groundwater to maintain their flow. Nine water-dependant Sites of Special Scientific Interest (SSSIs) are present in the Colne catchment, in addition to the Habitats Directive site of South West London Waterbodies SPA.

The Colne area receives an average annual rainfall of 716 mm. With approximately 830,000 people living in the Colne catchment (based on 2001 census data), human activity and the pressure of urban growth has and will continue to increase water demand.



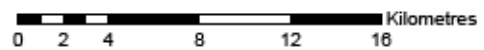
Designated sites within the Colne CAMS.



**Legend**

-  SSSIs
-  SPAs
-  RAMSAR
-  SACs
-  Assessment Points
-  Midtown
-  1:50k Rivers

Creation date 5 February 2013



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Map 2 Designated sites in Colne CAMS area.

# 3. Water resource availability of the Colne area

## 3.1 Resource assessment

Resource assessment is at the heart of abstraction management. To manage water effectively we need to understand how much is available and where it is available, after considering the needs of the environment. We have a monitoring network to measure river flows and groundwater levels. We use this data along with our knowledge of human influences and environmental needs to establish a baseline of water availability for each water body that builds into a picture for the catchment. The main components of this assessment that help us to understand the availability of water resources are:

- a resource allocation for the environment known as the Ecological Flow Indicator (EFI);
- the Fully Licensed (FL) scenario - the situation if all abstraction licences were being used to full capacity;
- the Recent Actual (RA) scenario – the amount of water, which, has actually been abstracted on average over the previous six years.

River flows change naturally throughout the year, so we want to protect flow variability in our rivers from low to high flow conditions. We use flow statistics to help to do this. Flow statistics are expressed as the percentage of time that flow is exceeded. Resource availability is calculated at four different flows, Q95 (lowest), Q70, Q50 and Q30 (highest).

This information gives a realistic picture of what the current resource availability is within a given water body. Water bodies are sub-catchment surface water units or ground water units on which we carry out assessments and map results.

## 3.2 Resource availability

### 3.2.1 Surface water

If you want to abstract water, you need to know what water resources are available within a catchment and where abstraction for consumptive purposes is allowed. To show this we have developed a classification system which indicates:

- the relative balance between the environmental requirements for water and how much is licensed for abstraction;
- whether water is available for further abstraction;
- areas where abstraction may need to be reduced.

The availability of water for abstraction is determined by the relationship between the fully licensed and recent actual flows in relation to the EFI. The results mapped onto these water bodies are represented by different water resource availability colours showing the availability of water resource for further abstraction. The water resource availability colours are green, yellow and red.

In addition to these water resource availability colours we've classified some surface water bodies as 'high hydrological status' which are coloured blue on the maps. In these water bodies very little actual abstraction occurs and they show virtually undisturbed, or close to natural, flow conditions.

Another category of water body are Heavily Modified Water Bodies (HMWB). These can be classified for many reasons but for water resources they are classified if they may contain a lake and/or reservoir that influences the downstream flow regime of the river. The downstream 'flow modified' water bodies are also classified as heavily modified.

We'll add any conditions necessary to protect flows to a new licence during the licence determination procedure. We'll base these on the water resource availability colours from high to low flows. Table 1 lists the implications for licensing for each water resource availability colour.

In cases where there is a flow deficit (RA is below the EFI) or risk of a flow deficit (FL below the EFI), there may be water available for abstraction at higher flows. This means that water may be scarce at low flows, but may be available to abstract at medium or high flows. A licence may still be granted but with conditions which protect the low flows. This usually takes the form of a Hands Off Flow (HOF) condition on a licence which requires abstraction to stop when the river flow falls below a certain amount. A river may also be heavily supported by flows from a reservoir and may have unnaturally high 'low' flows and that the river environment is most vulnerable at medium flows.

When assessing water availability we have to consider downstream requirements i.e. existing licences and environmental needs. To help us protect these downstream requirements we colour water bodies with the worst downstream resource availability colour. Map 3 shows the water resource availability colours in Colne area.

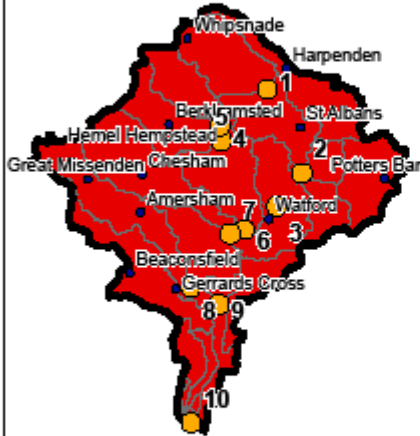
Water resource availability colour	Implication for licensing
High hydrological regime	There is more water than required to meet the needs of the environment. However, due to the need to maintain the near pristine nature of the water body, further abstraction is severely restricted.
Water available for licensing	There is more water than required to meet the needs of the environment. New licences can be considered depending on local and downstream impacts.
Restricted water available for licensing	Full Licensed flows fall below the EFIs. No new consumptive licences would be granted. It may also be appropriate to investigate the possibilities for reducing fully licensed risks. Water may be available if you can 'buy' (known as licence trading) the entitlement to abstract water from an existing licence holder.
Water not available for licensing	Recent actual flows are below the EFI. This scenario highlights water bodies where flows are below the requirement to meet Good Ecological Status (as required by the Water Framework Directive). No further consumptive licences will be granted. An economic appraisal of flow recovery and ecological benefit will be carried out. Water may be available if you can 'buy' (known as licence trading) the entitlement to abstract water from an existing licence holder.
HMWBs	These water bodies have a modified flow that are influenced by reservoir compensation releases or they have flows that are augmented. These and are often known as 'regulated rivers'. They may be managed through an operating agreement, often held by a water company. The availability of water is dependent on these operating agreements. More detail is provided in section 4.2.1.

**Table 1 Implications of water resource availability colours.**

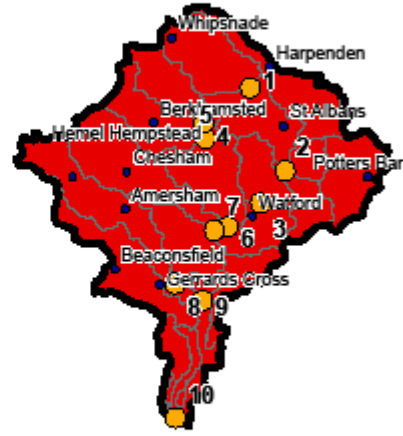
[Back](#)

# Colne CAMS Downstream Resource Colours

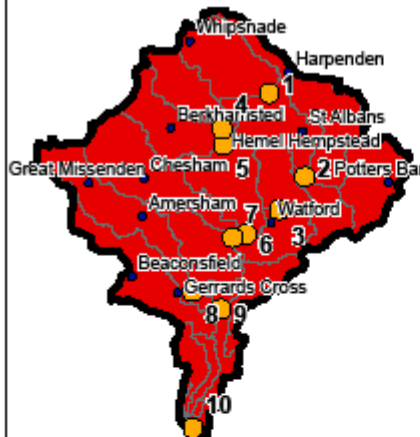
Q30



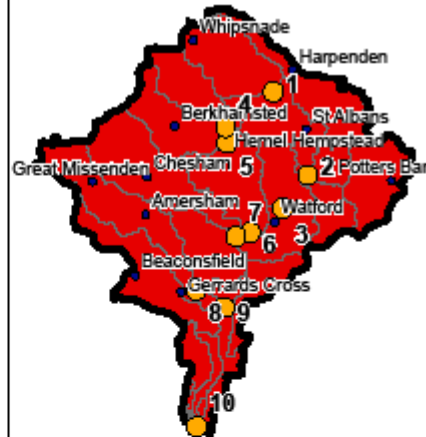
Q50



Q70



Q95



## Legend

- Water available for licensing
- Restricted water available for licensing
- Water not available for licensing
- Assessment Points

0 10 20 30 km



Date created 24/01/2013

Area Environmental Planning

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Map 3 Water resource availability colours for Colne CAMS including downstream requirements.

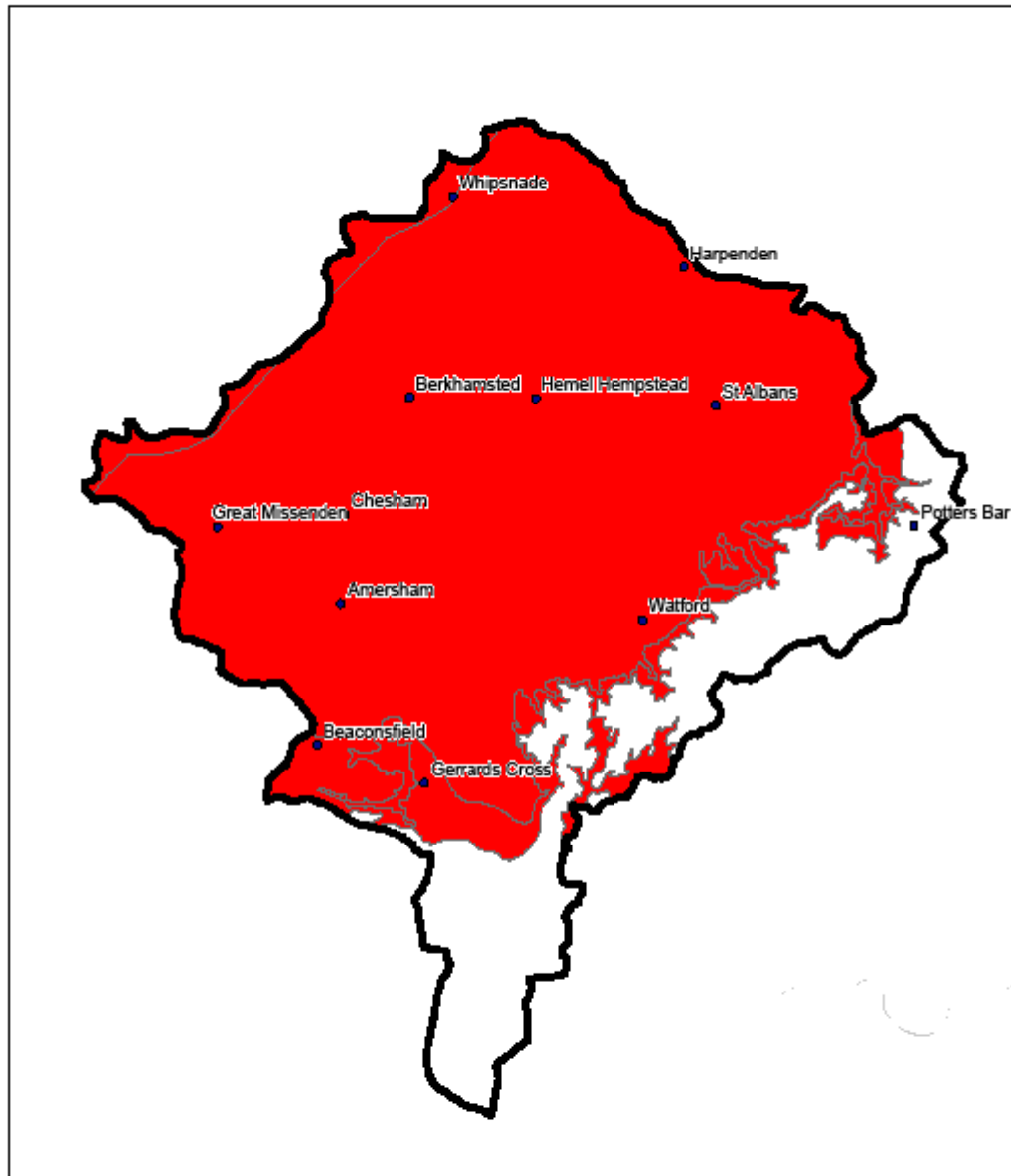
### 3.2.2 Groundwater

Map 3 shows the water resource availability colours in Colne area. The same availability is applied to groundwater and surface water with the exception of the southeast chalk aquifer, which is overlain by London clay. This part of the chalk aquifer is covered under London CAMS. Map 4 shows the boundary of unconfined and confined aquifer within Colne area.

GWMU resource availability colour	Implication for licensing
Water available for licensing	Groundwater unit balance shows groundwater available for licensing. New licences can be considered depending on impacts on other abstractors and on surface water.
Restricted water available for licensing	<p>Groundwater unit balance shows more water is licensed than the amount available, but that recent actual abstractions are lower than the amount available <b>OR</b> that there are known local impacts likely to occur on dependent wetlands, groundwater levels or cause intrusions but with management options in place.</p> <p>In restricted groundwater units no new consumptive licences will be granted. It may also be appropriate to investigate the possibilities for reducing fully licensed risks. Water may be available if you can 'buy' (known as licence trading) the entitlement to abstract water from an existing licence holder.</p> <p>In other units there may be restrictions in some areas e.g. in relation to saline intrusion</p>
Water not available for licensing	<p>Groundwater unit balance shows more water has been abstracted based on recent amounts than the amount available.</p> <p>No further consumptive licences will be granted.</p>

**Table 2 Implications of groundwater resource availability colours.**

## Colne CAMS Groundwater Management Unit Resource Availability



### Legend

- Water available for licensing
- Restricted water available for licensing
- Water not available for licensing



Date created 24/01/2013

Area Environmental Planning

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Map 4 Water resource availability colours for Colne CAMS, specifically for groundwater. The chalk aquifer overlain by London clay and managed under London CAMS is shown in white.

### 3.3 Resource reliability

If you want to apply for a licence, it is worth considering that in some areas a new, consumptive abstraction may not be 100% reliable. Reliability information is based on CAMS resource availability colours and is a way of presenting the reliability of new abstractions at all flows.

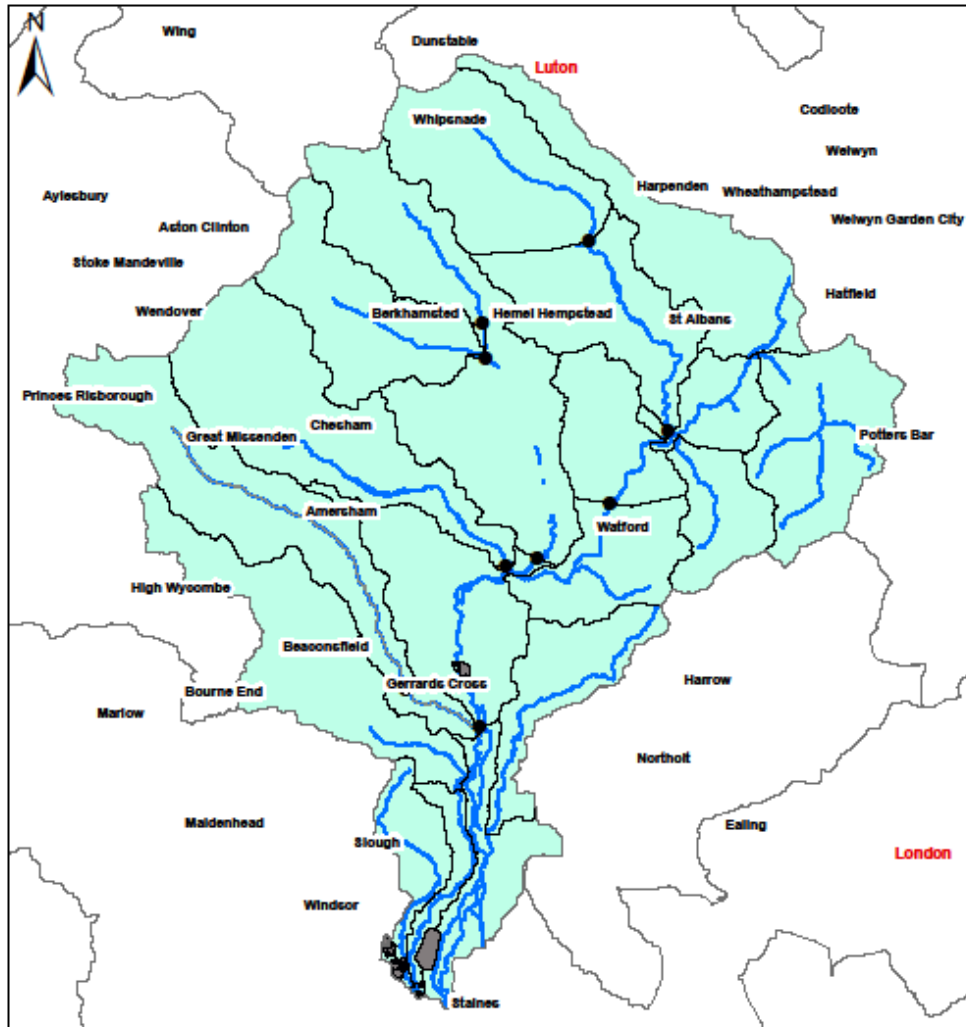
The availability of water for abstraction within a river varies greatly from high to low flows. By assessing the quantity of water available at different flows it is possible to see when there is a surplus or deficit of water and the associated reliability of an abstraction. This is an indication only actual reliability of a licence will be discussed on application.

Table 3 shows the resource availability colour associated with the percentage reliability of consumptive abstraction. Map 5 gives an indication of the resource reliability in CAMS area expressed as percentage of time.

Resource	Percentage of the time additional consumptive resource may be available
	Consumptive abstraction available <b>less than</b> 30% of the time.
	Consumptive abstraction available <b>at least</b> 30% of the time.
	Consumptive abstraction available <b>at least</b> 50% of the time.
	Consumptive abstraction available <b>at least</b> 70% of the time.
	Consumptive abstraction available <b>at least</b> 95% of the time.
	Not assessed

**Table 3 Percentage reliability of consumptive abstraction.**

# Colne CAMS Resource Reliability (% of the time)



## Legend

- Colne\_CAMS\_WBs
- Colne\_CAMS\_APs
- Heavily Modified and Artificial Lakes
- Heavily Modified and Artificial Rivers
- Colne\_CAMS\_Rivers
- Water resource available less than 30% of the time
- Water resource available at least 30% of the time
- Water resource available at least 50% of the time
- Water resource available at least 70% of the time
- Water resource available at least 95% of the time

0 1.5 3 6 9 12 Kilometres

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Creation date 03/10/2011

Map 5 Water resource reliability expressed as percentage of time available.

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# 4. How we manage abstractions in the Colne catchment

## 4.1 Principles

The document [Managing Water Abstraction](#) outlines the over-arching principles that we follow in managing our water resources. How we apply these principles in the Colne catchment is outlined in this section. If you want to abstract water it outlines where water is available for further abstraction and the principles we follow in assessing your application for a licence.

### **Abstraction licence application process**

Anyone wanting to take more than 20m<sup>3</sup>/day from a 'source of supply' (river, stream, lake, well, etc) must have an abstraction licence. The application process for abstraction is similar to the planning process in that we may require the application to be advertised and may require supporting environmental information. When considering the application we check that the quantities applied for and the purpose of the abstraction are reasonable, that there is sufficient water available to support it and that the potential impacts on the environment and other water users are acceptable. Depending on the outcome of our investigations we will issue a licence either as applied for, or with conditions that restrict the abstraction to protect the environment or other users. In certain cases we may have to refuse the application. Any applicant who is not happy with our determination (decision) has the right to appeal against it.

### **Each application is determined on its own merits**

Whilst this document may say that water is available for further abstraction, this does not guarantee that all applications will be successful. We'll determine each application upon its own merits and any local impacts.

### **A licence does not guarantee that water is available**

It's important to understand that when we issue a licence we do not guarantee the supply of water. We have to protect the environment and rights of other abstractors. To do this we may add constraints to licences. Licence holders need to understand the implications of this as it affects the reliability of supply. For example, in drier years it's more likely that conditions will come into effect and abstraction is more likely to be stopped.

### **Abstractions are managed to protect the environment.**

#### **No ecological deterioration**

We assess the impact of new applications for water to make sure that the resultant river flows:

- will maintain a good ecology or if the ecology is not good, will not deteriorate the ecology of our rivers further;
- will maintain the near pristine condition of high hydrological regime water bodies.

We'll also take action if necessary to limit the increase in current abstraction, if we think this will lead to deterioration of the ecology or the near pristine condition of our high hydrological regime water bodies.

These principles apply to the water body in which the abstraction is located and also to all downstream water bodies that may be affected by any reduction in abstraction related flow. Doing this means that we will maintain the water body status as reported in the River Basin Management Plans (2009) and ensure compliance with the European Union Water Framework Directive.

### **Water efficiency and demand management**

We need to make the best use of our existing water resources. Adopting water efficiency and demand management measures can help us achieve this goal. Water efficiency is one of the tests that will need to be satisfied before we grant a new licence or renew a time limited licence. We will promote the wise and efficient use of water and actions to limit demand (and reduce leakage) to curb the growth in abstraction and limit the impact on flows and any consequent impact on the ecology.

### **Building Design**

The South East is densely populated with household water use being the highest in the country at 164 litres per capita consumption (PCC) against a national average of 148 PCC. Throughout the area we are working closely with local authorities to ensure water conservation and efficient water use is embedded within their strategic spatial planning policies. One way this can be achieved is by designing all new homes and business units to achieve a minimum water efficiency level. Water efficiency and the reduction in household water demand are crucial elements of good water resource management planning especially as the South East is under increased pressure from climate change and population growth.

**Sustainable drainage systems (or SuDS)** are a positive way of controlling surface water runoff as close to its origin as possible, before it is discharged to a watercourse or the ground. They involve moving away from traditional drainage systems to softer engineering solutions such as permeable paving. The benefits are reduced flood risk, improved water quality and increased groundwater recharge. This water can also be collected and reused for non-potable purposes.

### **Water audits**

All businesses can use their water wisely. By investing a little time and money in implementing a simple water management plan, an organisation could reduce its water consumption by up to 80%, releasing money to be invested in other parts of the business and establishing 'green' credentials. Water audits allow the volume of water used during an average year to be calculated and suggest ways to reduce water use and therefore costs.

### **Waterwise**

Waterwise is a UK Non-governmental Organisation (NGO) focused on decreasing water consumption in the UK and building the evidence base for large scale water efficiency. [www.waterwise.org.uk/pages/save-water.html](http://www.waterwise.org.uk/pages/save-water.html)

### **Environment Agency**

The Environment Agency provides a range of free guidance on water efficiency, including best practice case studies for agriculture, business, industry, public sector and the domestic consumer. Consult [www.environment-agency.gov.uk/savewater](http://www.environment-agency.gov.uk/savewater).

### **Water companies**

For local water efficiency advice, contact your water company along side leakage rates and water metering targets.

- Thames Water Utilities [www.thameswater.co.uk/](http://www.thameswater.co.uk/)
- Affinity Water [www.affinitywater.co.uk](http://www.affinitywater.co.uk)

### **Water Regulations Advisor Service**

WRAS provides advice on the Water Supply (Water Fittings) Regulations which prevents waste, misuse, undue consumption or contamination of wholesome water. Consult [www.wras.co.uk](http://www.wras.co.uk) or telephone 01495 248454.

### **Water in the School benchmarks**

Water in the School is a website supported by a number of water companies aimed at National Curriculum Key Stage 2 and 3 pupils and their teachers. It provides a wealth of information for pupils on how to make savings. Consult [www.waterintheschool.co.uk](http://www.waterintheschool.co.uk)

### **Hospitals**

Water UK has collaborated with NHS Estates and Watermark to produce *Water Efficient Hospitals*, an information pack to help hospitals use water wisely and save money by cutting both water and energy bills. Consult [www.water.org.uk/index.php?cat=3-4701](http://www.water.org.uk/index.php?cat=3-4701)

### **UK Irrigation Association (UKIA)**

The UKIA provides information on irrigation to its members and runs technical workshops. Consult [www.ukia.org](http://www.ukia.org)

### **DEFRA's Rural Development Service (RDS)**

DEFRA's Rural Development Service provides grants for agricultural water resources management schemes under its Rural Enterprise Scheme. Consult [www.defra.gov.uk/rural/rdpe/](http://www.defra.gov.uk/rural/rdpe/) or telephone 0845 9335577.

### **Linking Environment & Farming (LEAF)**

LEAF promote and develop integrated farm management, this includes whole farm water savings. Consult [www.leafuk.org](http://www.leafuk.org)

### **Impoundments**

Applications for impoundments will be dealt with on a case-by-case basis. An impoundment is a dam, weir or other construction in an inland water that obstructs or impedes flow and/or raises water levels.

### **Hydropower**

Anyone wishing to abstract for hydropower should refer to the hydropower information on our [website](#).

### **Ground Source Heat Pumps**

Anyone wishing to abstract for ground source heat pumps should refer to the relevant information on our [website](#).

## **4.2 Abstraction restrictions**

When issuing a licence we have to protect the environment and rights of other abstractors. To do this we may add conditions to licences.

### **Time limited licences**

In recognition of changing pressures on water resources all new licences and variations (other than downward variations or minor variations having no environmental impact) will have a time limit imposed. This allows for the periodic review and changes to abstraction licences where circumstances have changed since the licence was granted.

Most licences within a CAMS have a common end date (CED) so they can be reviewed at the same time. When an application is made within six years of the CED, we will generally apply the subsequent CED to any licence granted. This is to avoid issuing shorter and shorter duration licences as the CED approaches. This means that the initial CED on a licence may be between six and 18 years duration. On replacement the normal duration will then be 12 years.

However, where we are uncertain about the long term impacts of an abstraction we will grant a short term licence during which time potential impacts are monitored.

29% of the licences in Colne CAMS are time-limited. CEDs occur every twelve years. The next CED for Colne CAMS is 31 March 2014 and the subsequent one is 31 March 2026.

Time-limited licences may be renewed with more restrictive terms and conditions to protect the environment, i.e.:

- Licensed quantity may be reduced to reflect actual abstraction rates;

- We will endeavour to provide licence holders notice of significant changes to their abstraction permission. These could include:
  - A dual Hands Off Flow (HOF) system may be imposed : a local HOF and a Q50 HOF at Kingston on the river Thames to protect flows in the Lower Thames.
  - Increased monitoring of abstraction volume, and/or monitoring of surface/ groundwater levels.

Additional information about the replacement of time limited licences is available in [Managing Water Abstraction](#).

### **Hands off flow conditions**

To protect the environment we may issue a licence with a condition referred to as a 'Hand-Off Flow' (HOF). This specifies that if the flow in the river drops below that which is required to protect the environment abstraction must stop, hence 'Hands-Off Flow'.

#### **4.2.1 Surface water**

We assess surface water flows at Assessment Points (APs) which are significant points on the river, that is where two major rivers join. Where flows fall below the EFI, new abstractions may be subject to HOFs.

In the Colne catchment the river flow is well below the EFI at all assessment points. The critical AP is AP10, Lower Colne. In order to protect the ecology of the river at this point the HOF is set at the level equal to 1% of the time or 3 days in an average year. No water is available to take above that value for consumptive use.

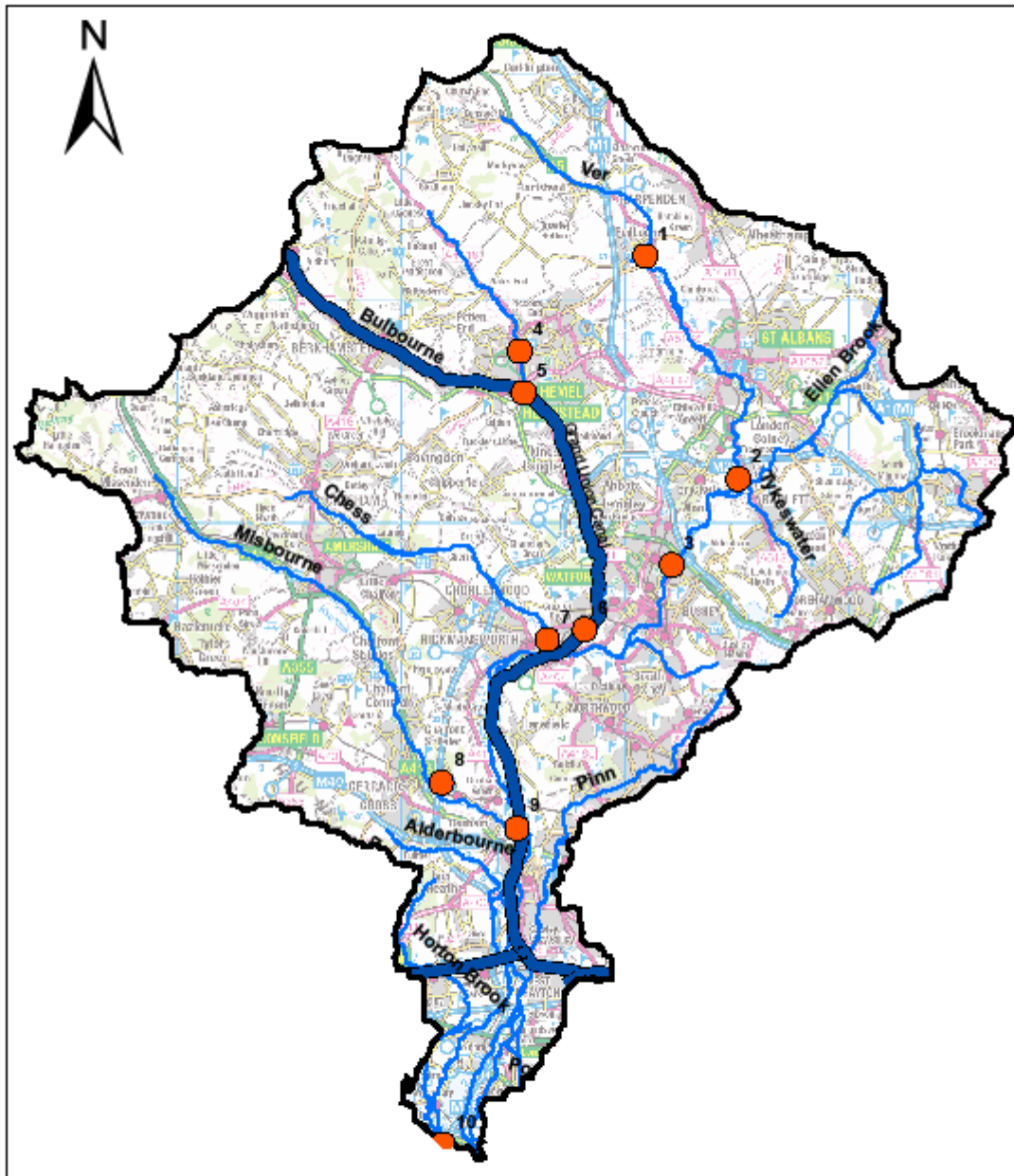
Abstractions that are considered to be non-consumptive or small scale consumptive licences that result in an overall net benefit to the water environment may be considered, subject to a local impact assessment.

### **Heavily Modified Water Bodies**

The Grand Union Canal (GUC) is a part of the navigation system linking London with Birmingham. Map 6 shows the canal's location within the Colne area.

The canal forms a part of the surface water system and as such the same licensing strategy applies to it as to the other surface water bodies within the Colne catchment.

Location of the Grand Union Canal  
within the Colne CAMS

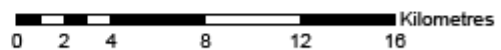


**Legend**

 Assessment Points

 Canal

 Rivers

 Kilometres  
0 2 4 8 12 16

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Environment Agency 100026380. 2011.

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Creation date 5 February 2013

Map 6 Location of the GUC within the Colne catchment.

## Important local features that may affect water availability

European law provides a very high level of protection to two types of designated sites due to their special environment. These are:

- Special Areas of Conservation (SAC), which contribute to biodiversity by maintaining and restoring habitats and species;
- Special Protection Area (SPA), which provides protection to birds, and their nests, eggs and habitats

Ramsar sites and Sites of Special Scientific Interest (SSSI) also carry a high level of environmental importance.

### 4.2.2 Groundwater

Where groundwater (GW) abstractions directly impact on surface water flows, the impact is measured at the surface water AP.

Similarly to the surface water, the unconfined groundwater aquifer is closed to consumptive licences. New consumptive groundwater licences may be available from within the confined chalk aquifer. Applications for abstractions from this source will be assessed as part of the London CAMS. Map 4 shows division between the unconfined and confined chalk aquifers.

## 4.3 Opportunities for licence trading

We want to make it easier to trade water rights. A water rights trade is where a person sells all or part of their water right, as defined by their abstraction licence(s), to another person on a permanent or temporary basis. In the majority of cases a trade will involve a change in abstraction location and/or use which we will need to approve through the issue or variation of abstraction licences.

In licensing trades, as with new abstraction licences, we need to make sure that we do not cause any deterioration in WFD water body status both within the water body/ bodies) where the trade will take place or to downstream water bodies. The table below provides a guide to the potential for trading in water bodies of a particular CAMS water resource availability colour, as shown on Map 3.

CAMS water resource availability colour including downstream requirements	Our approach to trading
High hydrological regime	Opportunities for trading water rights will be limited
Water available for licensing	Allow trades of recent actual abstraction and licensed abstraction, but little demand for trading expected within water body as water available for new abstractions.
Restricted water available for licensing	Initially, we will allow trades of recent actual abstraction and licensed abstraction but post trade recent actual abstraction must remain sustainable. The current level of recent actual abstraction means there is a risk that in the future we may only be able to trade recent actual abstraction.
Water not available	We will only trade recent actual abstraction but no increase in recent actual abstraction is



<b>CAMS water resource availability colour including downstream requirements</b>	<b>Our approach to trading</b>
for licensing	permitted in water body. Licensed abstraction will be recovered for the environment.
HMWBs	Opportunities for trading will depend on local operating agreements and local management.

**Table 4 Trading opportunities.**

To find out more about licence trading please go to our [website](#).

## 4.4 New Authorisations

The Water Act 2003 brought all significant water abstraction under licensing control. This will result in trickle irrigation, dewatering of mines, quarries, engineering works and construction sites, abstractions related to Internal Drainage Districts, navigation abstraction and abstraction for ports and harbour authorities coming into the licensing regime.

As a result we'll be able to manage water resources more effectively by ensuring that all significant activities influencing the availability of water and its impact on the environment are undertaken in a sustainable manner.

Government are still developing their policies as to how to resolve some of the issues raised during the consultation process. Government will publish their proposals before new regulations are implemented and expect to do this at least 3 months before commencement so that we can issue guidance to those affected by the changes.

Where we have details of these abstractions we have included them in our assessments to consider how they impact on the catchment.

## 4.5 Restoring Sustainable Abstraction

Where water abstractions cause or potentially cause actual flows to fall short of the EFIs and result in environmental damage, we may need to change or even revoke existing abstractions in order to achieve a sustainable abstraction regime. In twelve out of seventeen water bodies within the Colne CAMS recent actual flows are not sufficient to support their ecology. The abstraction licences within these water bodies that cause these issues are being investigated. Investigations into the impact caused by these licences, individually or cumulatively, will result in options being developed with licence holders on how to improve sustainability. Investigations will include a cost/benefit analysis. Information on how licences in the RSA programme are dealt with can be found in our [Step by Step guide](#) on our website.

### Investigation Water Framework Directive Water bodies

In addition to the RSA programme, we are investigating whether reduced water flow may be causing problems under the Water Framework Directive (WFD). About four per cent of rivers are failing to support WFD good ecological status due to pressures from over-abstraction.

### Habitats Directive

Under the Habitats Regulations we have assessed the effects of existing abstraction licences and will assess new applications to make sure they are not impacting on internationally important nature conservation sites. These sites are known as Special Areas of Conservation (SAC's) and Special Protection Areas (SPA's). If your current licence has been reviewed under this legislation to assess its impact you will already know about the review. If we have not contacted you yet then

your licence is either not near a SAC/SPA or is not having an impact on these sites. If our assessment shows that a new application could have an impact on a SAC/SPA we have to follow strict rules in setting a time limit for that licence. These are:

- we may be able to grant the licence but only with a short time limit. This allows us to monitor the impact of the abstraction on a SAC/SPA and change the licence if necessary;
- if we can't determine that your application will not affect the site we have to either put conditions on the licence so that it cannot affect the site or refuse the application. If we grant the licence we may ask you to monitor its impact;
- if our assessment shows that there isn't an impact on the site we will manage the application according to the principles in this document.

There is one Special Protection Area (SPA) in the Colne CAMS area: South West London Water bodies SPA. This is also a Ramsar site. South West London water bodies is located at the bottom of the catchment and comprises a series of gravel pits and reservoirs, which are internationally important for supporting wintering wildfowl. The predominant species of interest are Gadwall and Shoveller. These sites are dependent on the water resources of the area and will be affected by a change to water levels and water utilisation.

In addition to this there are nine water dependent SSSIs in the Colne CAMS area. These provide a variety of important habitats and support species many of which are nationally important. Table 5 lists all the sites. Map 2 shows their locations.

Type of protected habitat	Site name	Location – AP catchment
Water-related Sites of Special Scientific Interest (SSSI)	Mid Colne Valley	AP9, Middle Colne
	Sarrat Bottom	AP7, Chess
	Croxley Common Moor	AP6, Lower Gade
	Frogmore Meadows	AP7, Chess
	Old Rectory Meadows	AP10, Lower Colne
	Staines Moor	AP10, Lower Colne
	Denham Lock Wood	On the border of the AP9, Middle Colne and AP10, Lower Colne
	Frays Farm Meadows	On the border of the AP9, Middle Colne and AP10, Lower Colne
	Kingcup & Oldhouse Wood	AP10, Lower Colne
Water-related Special Protection Area (SPA)	South West London Waterbodies SPA	AP10, Lower Colne
Water-related Ramsar sites	South West London Waterbodies	AP10, Lower Colne

**Table 5 Protected habitats that are water-dependant in the Colne catchment.**



## 4.6 Protected rights and lawful use

As well as protecting the environment, we must consider existing abstractors rights. We are not allowed to grant a new licence or varied an existing one in such a way that would cause derogation to a protected right. We also have to consider lawful uses when determining new applications.

Existing full abstraction licences have a protected right to abstract. Transfer licences are considered a lawful use, but do not have protected rights.

From April 2005 licensed abstractions of less than 20m<sup>3</sup>/d no longer required a licence. These deregulated abstractions still have protected rights if they are being operated by the original licence holder. Abstractions under the threshold which have come about since 2005 are considered to be of a lawful use and we need to have due regard to them when assessing new proposals.

## 5. Strategy actions

In the first round of CAMS we highlighted where there was room for improvement as far as sustainable abstraction was concerned. A list of actions to be carried out before the next CAMS update was published in the first licence strategy document. Updates on the progress of those actions have been posted annually on the [CAMS website](#).

Table 6 shows the progress or completion of measures arising from the 1st round of Colne CAMS.

Table 7 shows new actions proposed as a result of the latest assessment of resources.

Unsustainable abstraction risks and implications are considered through the Restoring Sustainable Abstraction programme.

Action	AP unit	Partner	Start	Finish	Progress
We will continue routine sampling programmes to monitor fisheries, macrophytes and macroinvertebrates.	All	-	2007	-	Ongoing
We will progress AMP4 and RSA schemes as per existing schedule.	All	Water Companies	2007	-	Work ongoing under AMP5 and RSA schemes
We will investigate and identify quantifiable methods to relate species/ habitat presence and viability to river flow at key sites.	All	Water Companies	2010	2013	Ongoing. This work will complete in 2013
We will approach different sectors to highlight resource issues within the Colne CAMS and we will encourage the adoption of efficiency measures for the use of water with all new and existing licences.	All	Licence holders, local authorities, developers.	2007	-	Ongoing. We have been influencing local authorities to include the efficiency measures within their local development frameworks. We influence developers to incorporate these measures through the planning application system. Efficient water use is one of the three tests that the application for water abstraction must satisfy.
We will make licence holders aware of the economic and environmental benefits of using less water.	All	Licence holders, local authorities, developers.	2007	-	We have used charging scheme to inform our licence holders of savings they can make through conserving water.
We will continue to collect data from our gauging stations, which monitor river flows and from our observation boreholes, which monitor groundwater levels. This data will be used in the CAMS review.	All	Local volunteer groups	2007	-	Ongoing
We will continue our programme of licence visits to ensure compliance with	All	Licence holders	2007	-	Ongoing

licence conditions.					
We will investigate the possibility / likelihood of revoking unused abstraction licences after four years, and amounts that could be recovered.	All	Licence holders	2007	2008	The change in legislation has been clarified. We do not have powers to revoke a licence for non use. Non use is relevant in the process of determining whether compensation is payable for the licence changes should they be required to protect the environment.
All new licence applications in the catchment will be considered with regard to the Colne CAMS licensing policy.	All	Applicants	2007	-	Ongoing
We will publish annual licensed quantities so that external stakeholders can review our progress in reducing licensed quantities.	All	Environmental groups, water companies, licence holders, local authorities	-	-	We have not published annual licensed quantities, but we shared this data with our partners individually.

**Table 6 Progress on the actions from 1st round of Colne CAMS.**

Measures	AP unit	Partner	Start	Finish	Progress
We will continue routine sampling programmes to monitor fisheries, macrophytes and macroinvertebrates.	All	-	2013		Ongoing
We will progress AMP5 and RSA schemes as per existing schedule.	All	Water Companies	2010	2015	Ongoing
We will approach different sectors to highlight resource issues within the Colne CAMS and we will encourage the adoption of efficiency measures for the use of water with all new and existing licences.	All	Licence holders, local authorities, developers.	2007	-	Ongoing
We will make licence holders aware of the economic and environmental benefits of using less water.	All	Licence holders, local authorities, developers.	2013	-	Ongoing
We will continue to collect data from our gauging stations, which monitor river flows and from our observation boreholes, which monitor groundwater levels. This data will be used in the CAMS review.	All	Local volunteer groups	2013	-	Ongoing
We will work with our partners to restore flows in our rivers, where investigations undertaken under WFD confirmed that the ecology has been compromised by the abstractions.	All	Water companies, licence holders, government, Ofwat, environmental groups	2013	-	Ongoing

**Table 7 New actions rising from the latest assessment of resources in the Colne CAMS.**

# Glossary of terms

Abstraction	Removal of water from a source of supply (surface or groundwater).
Abstraction licence	The authorisation granted by the Environment Agency to allow the removal of water.
Assessment Point Unit	Point at which the flow from upstream catchment is assessed.
Catchment	The area from which precipitation and groundwater will collect and contribute to the flow of a specific river.
Consumptive abstraction	Abstraction where a significant proportion of the water is not returned either directly or indirectly to the source of supply after use. For example for the use of spray irrigation.
Discharge	The release of substances (i.e. water, sewage, etc.) into surface waters.
Environmental flow indicator	Flow indicator to prevent ecological deterioration of rivers, set in line with new UK standards set by UKTAG.
Full licence	A licence to abstract water from a source of supply over a period of 28 days or more
Groundwater	Water that is contained in underground rocks.
Hands off flow	A condition attached to an abstraction licence which states that if flow (in the river) falls below the level specified on the licence, the abstractor will be required to reduce or stop the abstraction.
Hands off level	A river flow level below which an abstractor is required to reduce or stop abstraction.
Impoundment	An impoundment is a structure that obstructs or impedes the flow of inland water, such as a dam, weir or other constructed works.
Non-consumptive abstraction	Abstraction where all water is returned to the source a relatively short distance downstream of the abstraction point, e.g. fish farming.
Protected right	Means a right to abstract, which someone has by virtue of the small abstractions exemptions defined in the Water Act 2003 or by virtue of having an abstraction licence. The right protected is the quantity that can be abstracted up to that allowed by the exemption or the terms of the licence. The small abstraction exemptions defined by the Water Act 2003 are for domestic and agricultural purposes (excluding spray irrigation) not exceeding 20 m <sup>3</sup> /d.
Surface water	This is a general term used to describe all water features such as rivers, streams, springs, ponds and lakes.
Transfer licence	A licence to abstract water from one source of supply over a period of 28 days or more for the purpose of; <ol style="list-style-type: none"> <li>1. transferring water to another source of supply; or,</li> <li>2. transferring water to the same source of supply, but at another point, in the course of dewatering activities in connection with mining, quarrying, engineering, building or other operations (whether underground or on the surface);</li> </ol> <p>without intervening use.</p>
Water body	Units of either surface water or groundwater at which assessments are completed for WFD.

# List of abbreviations

AMP	Asset Management Plans
AP	Assessment Point
ASB	Abstraction Sensitivity Bands
AWB	Artificial Water body
CAMS	Catchment Abstraction Management Strategies
CED	Common End Date
Defra	Department of Environment Fisheries and Rural Affairs
EA	Environment Agency
EFI	Ecological Flow Indicator
FL	Full Licensed (scenario)
GES	Good Ecological Status
GW	Groundwater
HES	High Ecological Status
HMWB	Heavily Modified Waterbody
HoF	Hands off Flow
HoL	Hands off Level
LDE	Level Dependent Environment
maOD	Metres above ordnance datum
Q95	The flow of a river which is exceeded on average for 95% of the time.
RA	Recent Actual (scenario)
RSA	Restoring Sustainable Abstraction
RBMP	River Basin Management Plans
SAC	Special Areas of Conservation
SPA	Special Protection Areas
SSSI	Sites of Special Scientific Interest
SW	Surface water
WB	Water body
WFD	Water Framework Directive

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