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Upper Lee Abstraction Licensing Strategy

February 2013

A licensing strategy to manage water resources sustainably

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Published by:

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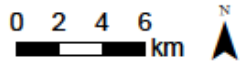
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Upper Lee Land Use



Legend

- Lee_CAMS_APs
- Upper Lee CAMS
- Rivers
- Arable
- Managed Grassland
- Forestry
- Semi Natural Vegetation
- Urban
- Water



Area Environmental Planning Team
North East Thames

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Map 1 Upper Lee Catchment Abstraction Management Strategy (CAMS) area.

Foreword

Water is the most essential of our natural resources, and it's our job to ensure that we manage and use it effectively and sustainably.

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. This licensing strategy explains how we will manage water resources in the Upper Lee catchment, including existing abstraction licences and the availability of water for further abstraction.

The Upper Lee catchment is home to 700,000 people, yet no-one lives further than five kilometres from a river. These rivers offer vital spaces for people to enjoy the natural environment. The Beane Marshes at Hertford were described by the Hertfordshire Natural History Society as the most beautiful place in Hertfordshire.

Chalk rivers, such as the River Mimram at Panshanger, are recognised as an internationally rare habitat. They can offer an ideal environment for many of our beloved species, such as brown trout, water voles and bullhead. 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 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.

A handwritten signature in black ink that reads "Julie Nunn". The signature is written in a cursive style with a large initial 'J' and a horizontal line at the end.

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 Upper Lee 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 June 2006.

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
- 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 Upper Lee 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. Upper Lee CAMS area

The Upper Lee CAMS covers an area that drains into the River Lee from its source near Luton downstream to Feildes Weir to north east of Hoddesdon where the River Stort meets the Lee. Below this point the River Lee is assessed in the London CAMS.

The Upper Lee catchment covers an area of approximately 1,033 km² and includes the Rivers Upper Lee, Mimram, Beane, Rib, Ash, and Stort. The extent of the Upper Lee catchment is shown in Map 1.

The catchment incorporates parts of Hertfordshire, Essex and Bedfordshire, including the urban areas of Luton, Stevenage, Harlow, Hertford, Welwyn Garden City and Bishops Stortford. Outside of the urban areas the catchment is characterised by open farmland, predominately for arable use. The catchment contains a number of Sites of Special Scientific interest (SSSIs) and part of the Lee Valley Special Protection Area (SPA). Many of the watercourses exhibit characteristics of chalk stream habitat; the Mimram is considered to be the best example in the catchment.

The source of the River Lee is at 'Five Springs' in Leagrave, Luton, in Bedfordshire. The river is further fed by springs to the south east of Luton and then joined by the flow from East Hyde sewage treatment works which makes up the bulk of the flow. This is also the source of the river during sustained dry periods.

The catchment lies predominantly on unconfined chalk. The River Lee and tributaries are dependent on the underlying groundwater aquifer for much of their flow with a smaller proportion coming from overland runoff. Because of this, many tributaries of the Lee are winterbourne and suffer from low flows during periods of low rainfall, these issues can be exacerbated by abstraction. In the eastern parts of the Upper Lee catchment the chalk is confined by an impervious layer of clay, and the tributaries here (Rivers Ash and Stort) are predominantly fed by runoff and are therefore flashier in nature. Here the land use is more suburban with towns and suburbs divided by farmland, woodland and parkland.

The catchment is generally low lying with no notable hills or steep slopes. The highest point of the catchment is at the western edge of the Chiltern Hills Area of Outstanding Natural Beauty, the rest of the catchment is dominated by generally flat land with the major rivers flowing in a south-easterly or a southerly direction.

The catchment is monitored via an extensive hydrometric network. Data collected is used for routine drought and flood monitoring, enforcement of constraints and water resources investigations.

There are a large number of abstraction licences within the CAMS area, most of the licences are to abstract groundwater. The main use of abstracted water is for public water supply, the second is for agricultural use as many farmers rely on groundwater to irrigate their crops. Water is used also for industry, golf course irrigation, public amenities and fish farms.

Discharges form an important resource augmenting flows and supporting downstream abstractions. Over 50% of consented discharge into the catchment is from sewage treatment works (STWs). A large proportion of sewage, however, is treated at Rye Meads STW and discharged into River Lee outside the Upper Lee catchment, into the London CAMS.

There are many pressures in the Upper Lee CAMS area, from the increasing demand for good quality water to meet residential and business needs (the majority of the catchment falls into a growth area which means there is a significant requirement for new housing), through to protecting numerous environmental interests.

This strategy will seek to consider all of these demands and to provide a consistent, structured and sustainable approach to water resources management within the Upper Lee catchment.

3. Water resource availability of the Upper Lee 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 2 shows the water resource availability colours in Upper Lee 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](#)

Upper Lee CAMS Downstream Resource Colours

Q 30



Q 50



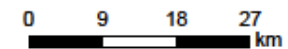
Legend

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

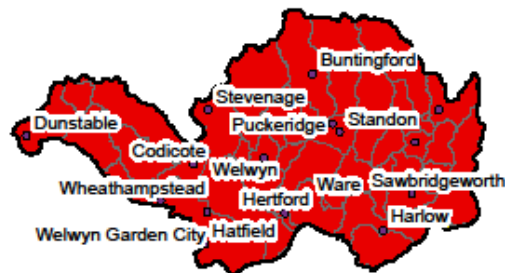


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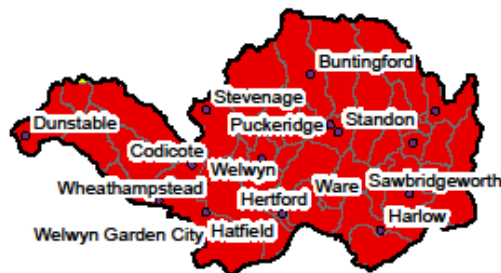
Area Environmental Planning



Q 70



Q 95



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Map 2 Water resource availability colours for Upper Lee CAMS including downstream requirements.

3.2.2 Groundwater

Map 2 shows the water resource availability colours in Upper Lee area. The same availability is applied to groundwater and surface water as the both aquifers are interlinked.

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

The map shows water availability below 30% of the time. In Upper Lee catchment, water for new consumptive uses may be available only from 3% of the time in AP13, Lee to Luton Hoo Lakes to 11% of the time in the Lower Stort and Pincey Brook catchments. More details can be found in Table 3.

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

Table 2 Percentage reliability of consumptive abstraction.

Upper Lee CAMS Resource Reliability (% of the time)

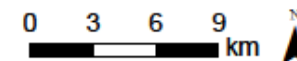


Legend

- CAMS Assessment Points
- Upper Lee
- 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

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North East Thames

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Map 3 Water resource reliability expressed as percentage of time available.

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4. How we manage abstractions in the Upper Lee 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 Upper Lee 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 20m³/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

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.

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/
- Affinity Water 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 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

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

UK Irrigation Association (UKIA)

The UKIA provides information on irrigation to its members and runs technical workshops. Consult 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/ 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

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

Water abstraction for hydropower schemes is non-consumptive, with all water used returned to the watercourse. Hands off Flows and maximum abstraction volumes are determined in line with the Environment Agency's Hydropower Good Practice Guidelines and based on the assessment of environmental risk for each scheme. For further information please refer to 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.

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'.

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.

23% of the licences in Upper Lee CAMS are time-limited. CEDs occur every twelve years. The next CED for Upper Lee CAMS is 31 March 2018 and the subsequent one is 31 March 2030.

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:
 - HOF may be imposed to protect river environment.
 - 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](#).

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 Upper Lee catchment the river flow is well below the EFI at most assessment points. Flows are sufficient to support ecology only in Lower Stort and Pincey Brook. This licensing strategy, however, has to protect the ecology downstream of these APs. The most vulnerable and therefore critical APs in River Lee network are AP13, Lee source to Luton Hoo Lakes and AP1, Rye Bridge. Water availability for Stort and Pincey Brook is constrained by status of Lower Lee (covered under London CAMS), and existing flow constraints operational in these watercourses.

Table 3 gives an indication of how much water is available for further abstraction and the associated restrictions that we may apply to new and varied abstraction licences from the main river. Tributaries to the main river may be subject to different restrictions and quantities.

All abstraction licence applications are subject to an assessment to take account of any local and downstream issues including protection of any existing abstraction rights and therefore, may be subject to further restrictions.

Reading from top to bottom in Table 3 are the APs in the Upper Lee CAMS area. Reading across the columns you can see the potential HOF that may be applied to a licence, the number of days water may be available under this restriction and the approximate volume of water in MI/d that may be available. In cases where there is water available at all flows we may apply a Minimum Residual Flow (MRF) to protect very low flows. We'll decide this on a case by case basis.

AP	Name	HOF Restriction Q value = MI/d	Number of days abstraction may be available	Approximate volume in MI/d
1	Rye Bridge	Q10 = 581.8	36	121.8
2	Lower Stort	Q11 = 240.9	40	256.7
3	Pincey Brook	Q11 = 50.1	40	52.8
4	Upper Stort	Q11 = 7.7	40	3.0
5	Ash	Q10 = 79.3	36	47.6
6	Lower Rib	Q10 = 118.6	36	39.2
7	Upper Rib	Q10 = 105.7	36	63.8
8	Beane	Q10 = 99.5	36	19.4
9	Stevenage Brook	Q10 = 27.7	36	25.4
10	Lower Mimram	Q10 = 88.7	36	5.3
11	Upper Mimram	Q10 = 52.6	36	25.1
12	Lee to Howe Green	Q10 = 192.6	36	101.1
13	Lee to Luton Hoo	Q3 = 110.0	10	8.4

Table 3 HOFs for the assessment points of Upper Lee CAMS.

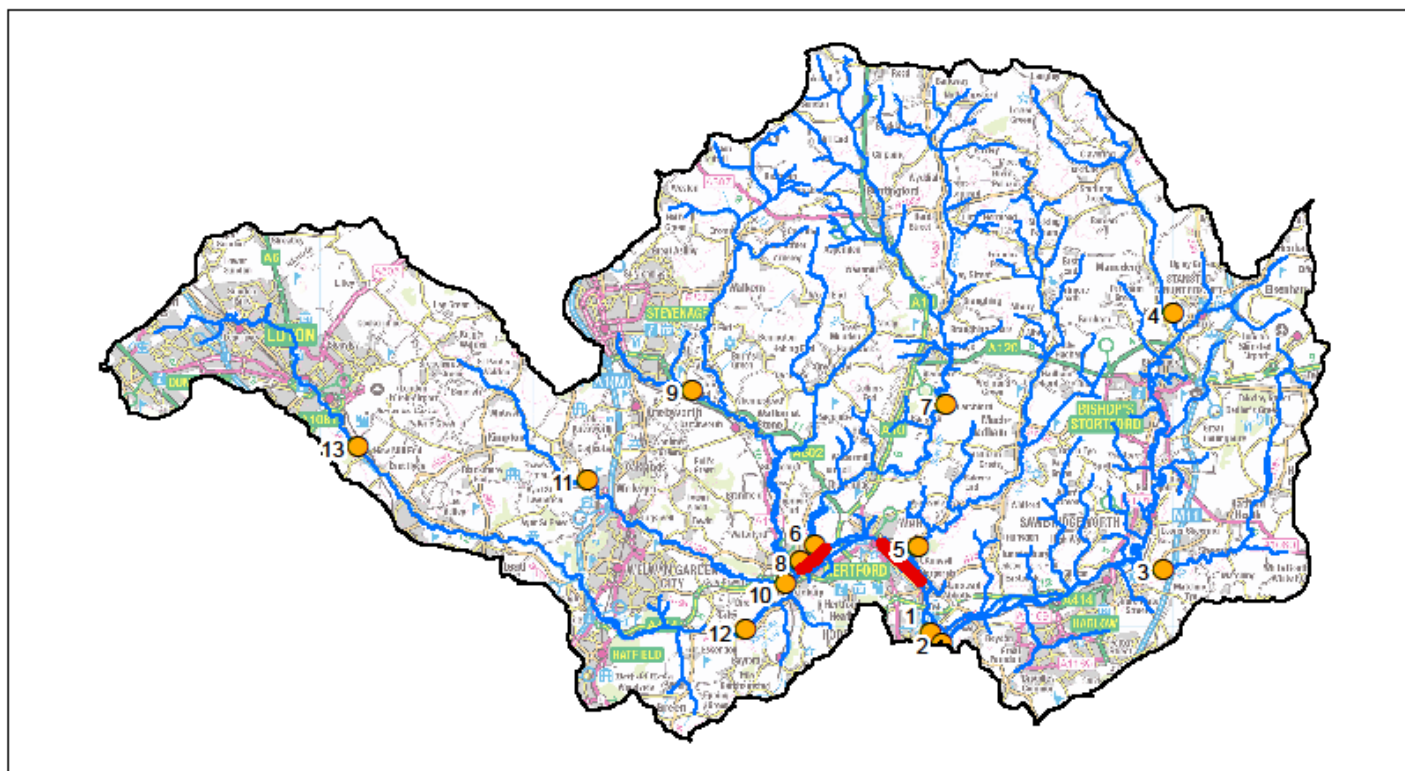
Summarising the above table, no new consumptive licenses from surface waters in Upper Lee source to Luton Hoo catchment will be granted. New consumptive surface water abstractions in the remaining part of the catchment will be considered only at times of very high flows. Abstraction at very high flows will not provide a reliable source of water as they may not occur every year. Applicants will need to invest in water storage reservoirs to store water when it's available.

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

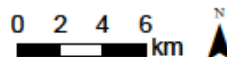
Map 4 shows location of canals used for navigation purposes within the Upper Lee area. The canal forms a part of the surface water system and as such the same licensing strategy applies to it as to the other surface water bodies within the Upper Lee catchment.

Upper Lee Canals



Legend

- Upper Lee
- Canals
- CAMS Assessment Points
- Rivers



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Map 4 Navigation canals in the Upper Lee 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. Further information can be found in Section 4.5 – Restoring Sustainable Abstraction.

4.2.2 Groundwater

We will not grant any new consumptive abstractions from the groundwater aquifer. An exemption may apply to small scale consumptive licences that result in an overall net benefit to the water environment. These proposals may be considered, subject to a local impact assessment.

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 2.

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 for licensing	We will only trade recent actual abstraction but no increase in recent actual abstraction is 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 nine out of thirty two water bodies within the Upper Lee 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.

The Upper Lee CAMS area contains a diverse range of habitats and species including wildlife and landscape features that are dependent on water. It is rich in sites designated for their nature conservation interest ranging from sites of local interest to those that contain species and habitats of national and international importance. The Lee Valley Special Protection Area (SPA) falls partly

within the Upper Lee CAMS area and is designated for its ability to support important wintering populations of gadwall, shoveler and bittern.

There are 14 water-dependent Sites of Special Scientific Interest (SSSIs) in the Upper Lee CAMS area, including rivers, wet woodland, ponds, wet grassland and marsh. Map 5 shows the location of these sites.

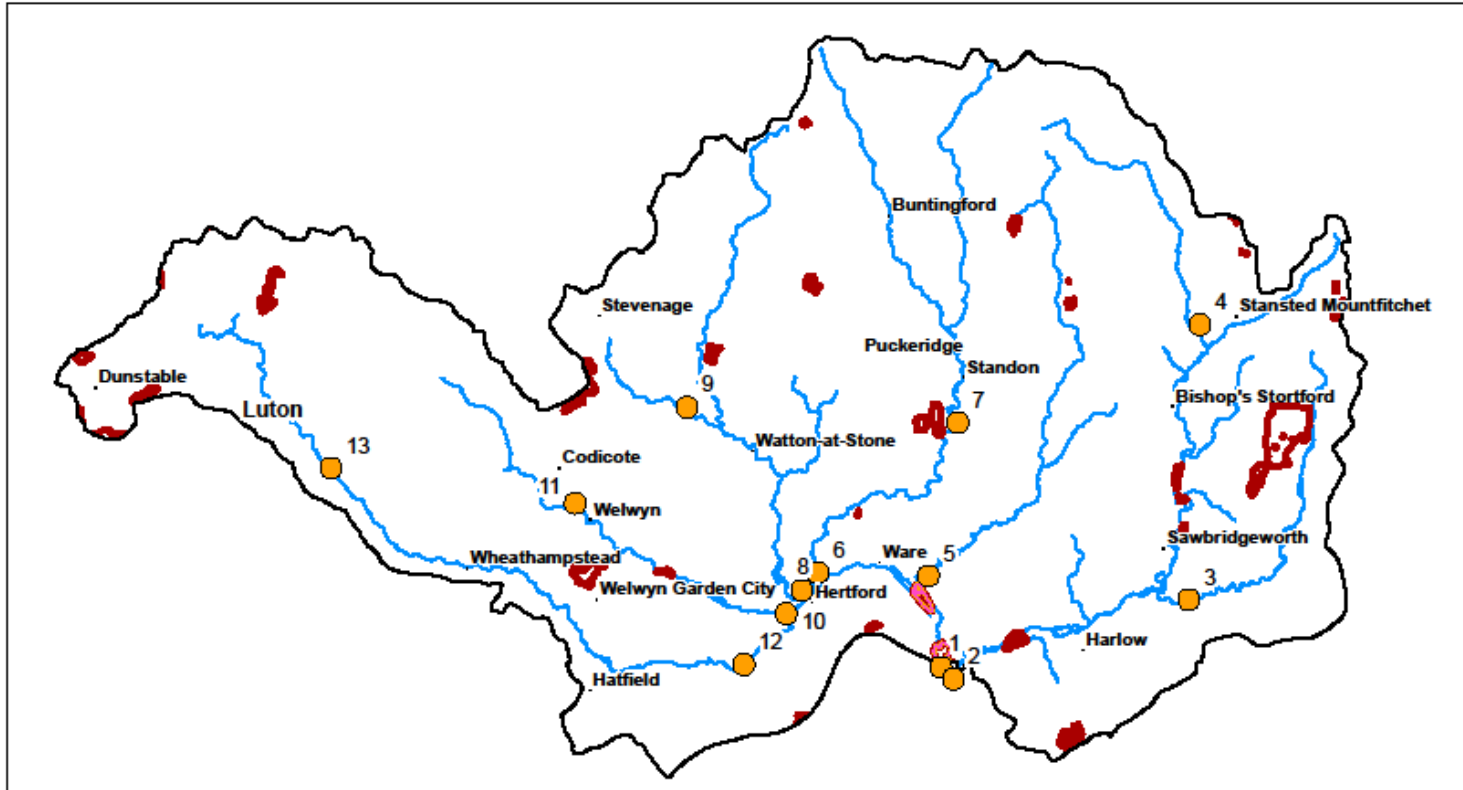
4.6 Protected rights and lawful use

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.

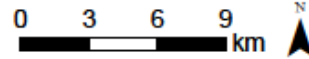
From April 2005 licensed abstractions of less than 20m³/d no longer required a licence. These deregulated abstractions still have protected rights if they are being operated by the original licence holder. Abstractions under the threshold which have come about since 2005 are considered to be of a lawful use and we need to have due regard to them when assessing new proposals.

Upper Lee Designated Sites



Legend

- CAMS Assessment Points
- RAMSAR sites
- Upper Lee
- Special Protection Areas
- Rivers
- Sites of Special Scientific Interest



Date created - 14/02/2013

Area Environmental Planning Team
North East Thames

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Map 5 Designated sites in Upper Lee CAMS area.

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 5 shows the progress or completion of measures arising from the 1st round of Upper Lee CAMS.

Table 6 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
Resource availability status of the rivers and groundwater within the Upper Lee CAMS catchment will be less over-abstracted in the next resource assessment.	All exc. AP2 and AP3	Water Companies, Licence holders, local authorities, environmental groups	2006	-	ongoing
New licences will be granted where there is surplus water at high flows and the application satisfies the determination requirements.	All	Applicants	2006	-	We defined the high flow that might be available for abstraction.
We will have a better understanding of the needs of the environment at high flows.	All	Local authorities, developers, water companies.	2006	-	Ongoing. We focused our work on investigating issues related to low flows in the catchment. We are in the process of identifying quantifiable methods to relate species/ habitat presence and viability to river flow at key sites. This work is due to be completed in 2013.
Data required for the groundwater assessment will be improved to increase our understanding of groundwater resource availability.	All	Water companies, local authorities, public	2010	-	Ongoing. We developed a groundwater model to improve our understanding of the groundwater abstractions on the surface waters and the water availability.
Routine monitoring programmes for fisheries, macrophytes and macro-invertebrates will continue to monitor any changes to the river environment against the baseline identified in this CAMS.	All	-	2006	-	Ongoing
Any new licence applications in the catchment will be considered with regard to the Upper Lee CAMS licensing policy.	All	Applicants	2006	-	We continue to grant licences in line with the Upper Lee CAMS licensing policy.

Regular visits to licence holders will promote water efficiency and ensure that licence conditions are met.	All	Licence holders	2006	-	Ongoing. We have a programme of visits to licence holders to ensure they comply with the conditions of their licence.
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Table 5 Progress on the actions from 1st round of Upper Lee 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 continue approaching different sectors to highlight resource issues within the Upper Lee 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.	2006	-	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 6 New actions rising from the latest assessment of resources in the Upper Lee 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 ³ /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"> 1. transferring water to another source of supply; or, 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); <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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