

water abstraction getting the balance right

The Brue, Axe and North Somerset Streams
Catchment Abstraction Management Strategy

May 2006



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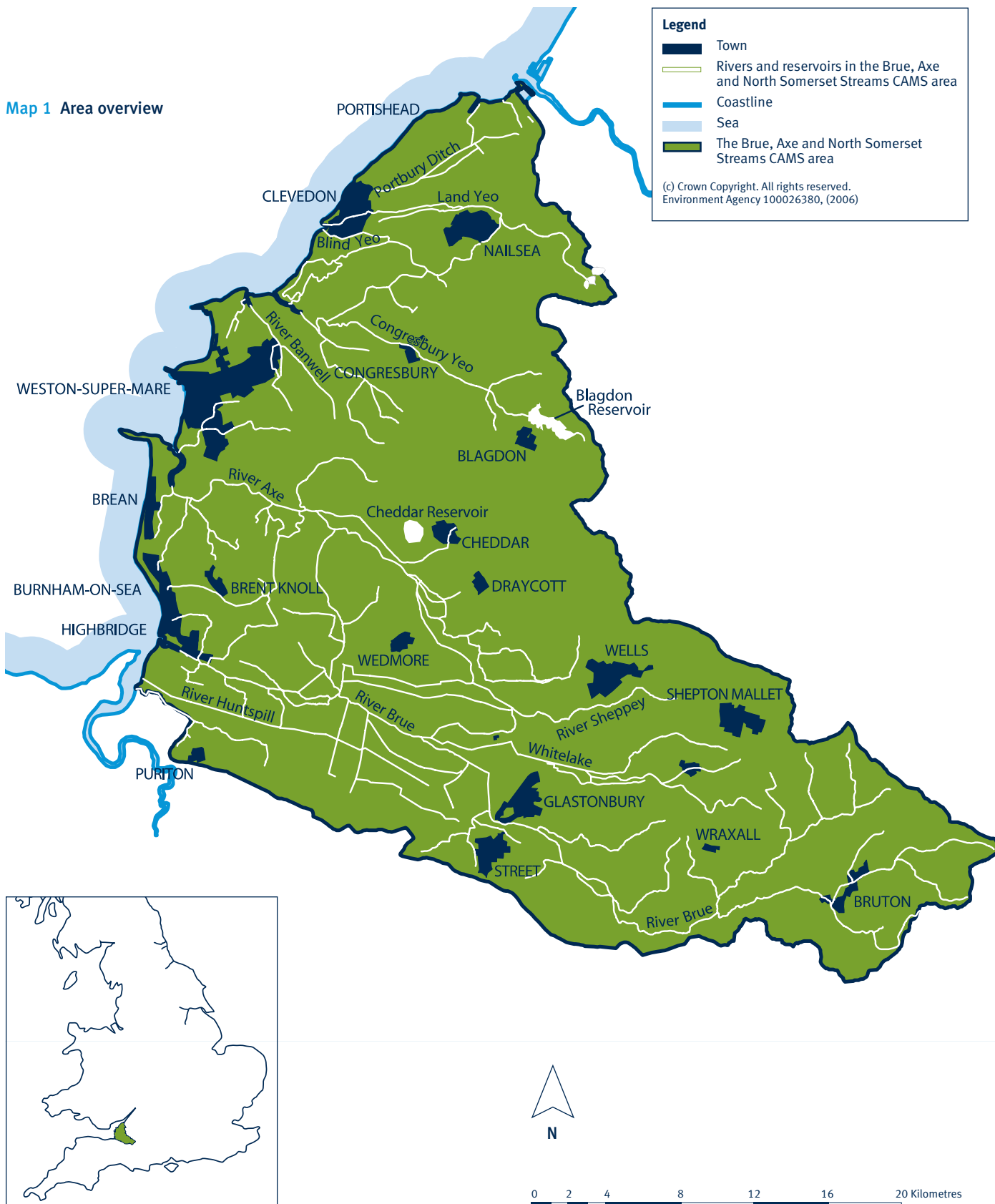
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Brue, Axe and North Somerset Streams CAMS area overview

Map 1 Area overview



Executive Summary

This is the Brue, Axe and North Somerset Streams Catchment Abstraction Management Strategy (CAMS).

This document will enable us to manage water resources in a more sustainable way. Through a clear and open process, CAMS aims to involve the public in managing water abstraction in this area.

This CAMS area consists of two contrasting landscapes; the Somerset Levels and Moors and the Mendip Hills. However, the Somerset Levels and Moors could not be included in this assessment of the water resources as the rivers are level managed and not naturally flowing. We are currently working on new methodology to include this in future CAMS (see section 2 for further information).

There are many abstractions in the catchment. Resources in the Land Yeo, Congresbury Yeo and Cheddar Yeo are fully stretched at low flows. In these cases this is mainly due to public water supply abstractions. On the River Axe and Whitelake the available resource is greater but still impacted by significant industrial and water supply abstractions. The River Sheppey and the River Brue are large rural catchments with available water resource; this gives the opportunity for further licensing in the future.

To assess the water available in the Brue, Axe and North Somerset Streams CAMS we have divided the area into 7 separate river catchments, known as Water Resource Management Units (WRMUs) and 1 Groundwater Management Unit (GWMU). Each unit has a water resource availability status, which indicates the water situation for current and potential abstractors.

This water availability status gives an indication of the likelihood of anyone obtaining a water abstraction licence in each management unit and how strict the conditions might be. It also gives an indication of how reliable the abstraction will be, as tighter conditions will reduce the number of days when water can be abstracted.



Cover image: River Brue

CAMS water resource assessment status

Water available	Water available for new licence abstractions during the whole year.
No water available	Water available for new abstractions during higher flows but conditions on the licence issued will stop or limit the abstraction during low flows.
Over-licensed	If all abstraction licence holders abstract their full legal limit during low flows, the current amount of abstraction licences may cause an environmental impact.
Over-abstracted	At recent actual abstraction levels there may be an impact on the environment during low flows.

These are our strategies for each of the 8 management units for this CAMS cycle:

<p>WRMU 1 – Sheppey & WRMU 2 – Brue Strategy – move from water available to no water available</p> <p>New abstraction licences are likely to be issued, although they may have conditions limiting or stopping abstraction when river flow is very low. As this is a water available unit these conditions would not be strict.</p>	<p>WRMU 5 – Congresbury Yeo Strategy – remain at over licensed</p> <p>This unit contains complex abstractions for public water supply, including Blagdon reservoir, which contribute to the status of over licensed. Further data is required to accurately model these abstractions. Staying at over licensed will be reviewed after this work has been completed. New licences maybe issued but are very likely to have conditions limiting or stopping abstraction when river flow is low.</p>
<p>WRMU 3 – Whitelake & WRMU 6 – Axe Strategy – remain at no water available</p> <p>New abstraction licences are likely to be issued, but may have conditions limiting or stopping abstraction when river flow is low. This will ensure that we remain within the status of no water available.</p>	<p>WRMU 7 – Cheddar Yeo Strategy – stay at no water available</p> <p>This unit is heavily influenced by the abstraction to Cheddar reservoir. This has not been included in the resource assessment for this CAMS cycle as it is a permanent feature of the catchment. New licences may be issued but will be considered on a case-by-case basis and will include the influence of the reservoir. It is very likely that they will have constraints limiting abstraction to higher flows.</p>
<p>WRMU 4 – Land Yeo Strategy – remain at over licensed</p> <p>This unit is marginally within the over licensed status and there is no known impact on the water environment. New abstraction licences may be issued, but are likely to have tight conditions limiting or stopping abstraction when river flow is low. This will ensure we remain at over licensed and the situation does not worsen.</p>	<p>WRMU 8 – Broadfield Down Strategy – stay at water available</p> <p>This is a complex groundwater unit with springs supplementing flows in the Congresbury Yeo, Land Yeo, the River Kenn and to the Bristol Avon CAMS catchment. Staying at water available will protect the flows to these rivers. New licences may have constraints to limit or stop abstraction when flows in these rivers are low.</p>

Our licensing officers will use this strategy to help with new abstraction licence applications. However, each application will still be determined on an individual basis. All new licences issued within the Brue, Axe and North Somerset Streams catchment will be time-limited and will have a common end date of 31 March 2013.

A technical document CD has also been produced to provide detailed information on the development of this CAMS strategy. The CD can be found at the back of this document.



Dr Tony Owen

**North Wessex Area Manager
 May 2006**

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Document structure and accompanying documents

What are CAMS?

Sections 1 and 2 outline what this strategy is for and the area that it covers.

The abstraction licensing strategy

This is the main part of the document. If you are an existing water abstraction licence holder it is this section that outlines what this strategy will mean for you. If you want to abstract water it outlines where water is available for further abstraction.

Section 3 of this document outlines the main principles of abstraction licensing that we follow in the catchment.

Section 4 outlines in more detail our abstraction licensing strategy for each part of the catchment.

Section 5 outlines how we are going to implement the strategy.

Technical information

The detailed technical information used to develop this strategy and information about how we made our decisions is included in **Appendix 1**. This is on a CD at the back of this document.

Updates to this strategy

We will update this strategy every year. The update will be published on our website at www.environment-agency.gov.uk/CAMS. Please contact us on 08708 506 506 if you want more information.

1.0

This strategy sets out how we will manage water resources in the catchment. It provides you with information about how we will manage existing abstraction licences and the availability of water for further abstraction.

Your local CAMS

This is the Catchment Abstraction Management Strategy (CAMS) for the Brue, Axe and North Somerset Streams catchment. It sets out how we will manage water abstraction until 2010, when we will start to re-assess this CAMS. It outlines where water is available, and also, if relevant, where we need to reduce current rates of abstraction. We also outline our policy on time-limited licences and whether existing licences should be renewed and, if so, on what terms. If water is available we will give you an **indication** of the reliability of a potential abstraction licence.

The purpose of CAMS is the protection of water, primarily at low flows, needed by the ecology whilst allowing excess flows to be available for abstraction. It does not consider higher flood flows. Climate change is also outside of the scope of CAMS, although the potential slow changes in rainfall and climate will alter the data we use in our calculations for subsequent CAMS cycles. Water quality is also not considered when determining the river flow required by the ecology but is important when new abstraction and discharge licences are assessed. Our Environment Management teams will investigate any issues concerning water quality.

Once you have read this strategy, if you want to abstract water, you should contact us to find out if you need an abstraction licence. If you do require a licence we will advise on the likely reliability of a proposed abstraction and any issues that could affect the likelihood of a licence being issued.

You can get more information about water availability and how to apply for an abstraction licence by contacting us on 08708 506 506.



Upper Cox Mills Pond Weir at Cheddar

The Brue, Axe and North Somerset Streams CAMS sets out how much water is available in the catchment and our strategy for managing this water now and in the future. This CAMS is the fourth to be completed in the North Wessex area.

A technical document for the Brue, Axe and North Somerset Streams CAMS, which contains the detailed technical information on which we have based this strategy, is available on the attached CD. You can also view a printed copy of this document at the address below.

The document *Managing Water Abstraction: The Catchment Abstraction Management Strategy Process* sets out both the national policy and the regulatory framework within which CAMS operates. A copy of this document is on the attached CD. If you would like to be sent a paper copy please contact us at the following address.

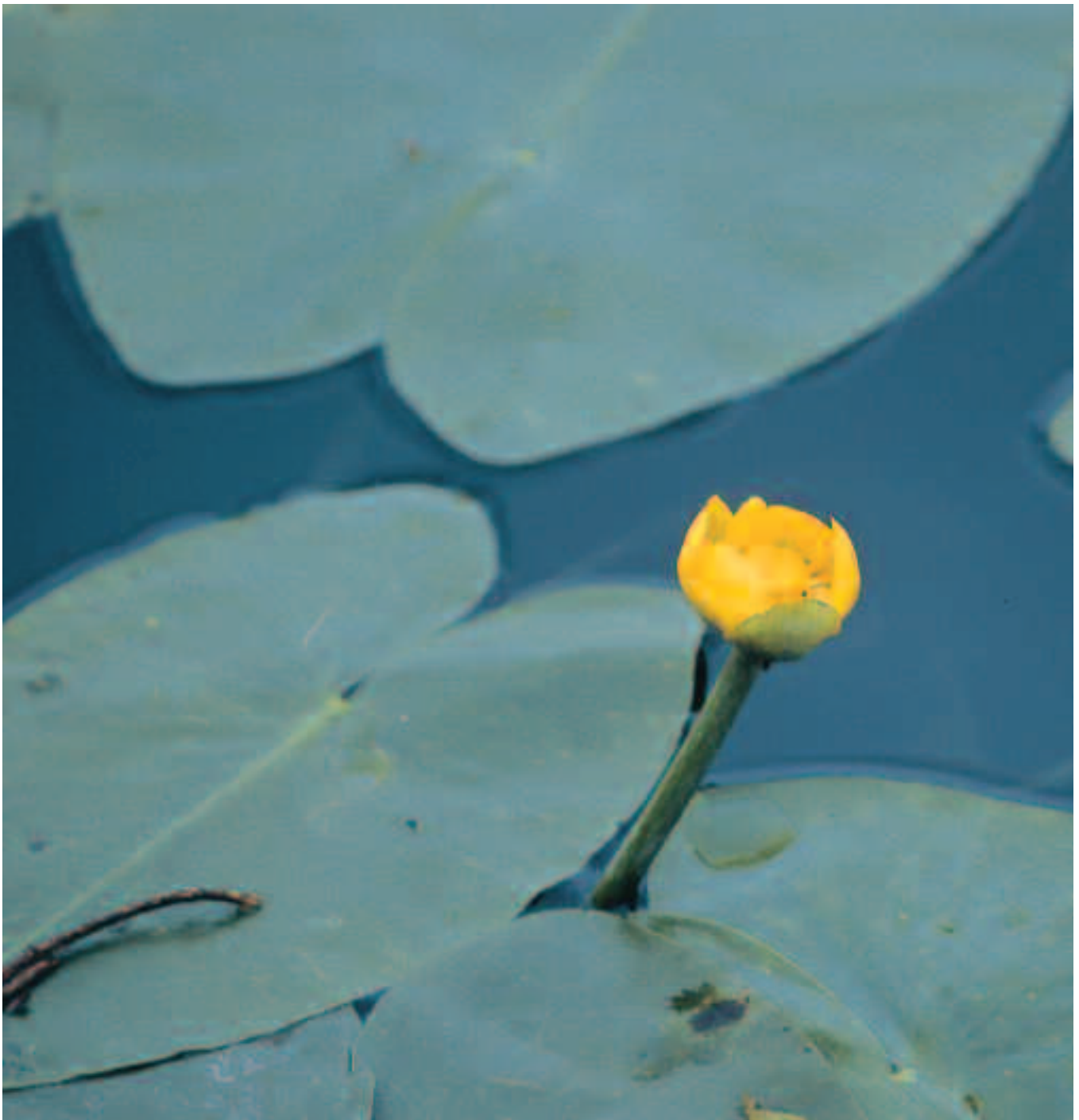
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2.0

There are three main catchments within the Brue, Axe and North Somerset Streams CAMS: the Brue near Glastonbury and Street, the Axe near Shepton Mallet and Wells and the North Somerset Streams in the area between Weston-super-Mare and Portishead.

The CAMS area

The River Brue rises in the clay uplands in the east of the catchment near Bruton, before flowing slowly through the flat lowlands on the Somerset Levels and Moors. This is an area with international, national and county designation for its conservation and landscape value. The river eventually enters the sea at Highbridge.

The Rivers Axe, Sheppy, Cheddar Yeo and Lox Yeo, rise from the limestone springs on the Mendips, before flowing through the Somerset Levels and Moors to the sea just north of Brean Down. These rivers are interconnected in several places by rhynes controlled by sluices, forming a very complex artificial drainage system.

Within the North Somerset Streams area are the river catchments of the Banwell, Oldbridge, Congresbury Yeo, Kenn, Blind Yeo and Land Yeo, as well as the Uphill Great Rhyne, the Drove Rhyne and the Portbury Ditch. These rivers are characterised by having short upland reaches and long lowland reaches with very low gradients. The lower reaches are penned to maintain water levels, mainly for agricultural benefit.

Unfortunately the Somerset Levels and Moors could not be included in our RAM calculations (see Map 2). This is because the watercourses in this area are not natural flowing rivers. The water level is managed using penning structures so to minimise the flood potential, improve the conservation value and provide wet fencing for agriculture. A new methodology to assess this area will be available for the next CAMS cycle. It will assess the water level requirements on the Somerset Levels and Moors and how much water is abstracted from the rivers to meet this need (see Technical Document section 2).

The Internal Drainage Boards help manage this area and abstract river water to feed the network of rhynes and ditches. This is a vital supply to maintain the peat soils, the Sites of Special Scientific Interest and Ramsar designated sites and the archaeology in this area, especially during dry periods. We must consider the implication of new water abstraction licences in the upper reaches as these may impact the Somerset Levels and Moors.

A significant part of the catchment is tidal and this again cannot be included in the RAM calculations. There is however methodology currently being developed so these important areas can be included in future CAMS.

The most significant geological strata within the area, with respect to water resources, are the Carboniferous strata of the Mendip Hills and Broadfield Down. They rise above the Somerset Levels and Moors and the adjacent lowlying areas to the north of the Mendips and comprise of highly permeable Karstic Limestones renowned for their cave systems such as Wookey Hole.

The Carboniferous Limestones and associated permeable deposits are designated as a Major Aquifer Unit and the limestone groundwater is a significant source of public water supply. The limestone aquifer is the source rock from which drains the headwaters of the Rivers Sheppey, Axe and the Cheddar Yeo.



Low permeability Lower Lias Clays and Mercia Mudstone strata are predominate in the lowland areas, which do not constitute significant regional water resources, although they are used locally for small scale water supplies.

There are also locally important small aquifers within the Brue catchment but these are not of a significant resource to form part of the CAMS study.

The abstraction and discharge data used in this assessment is from 1999 to 2004. Almost 60% of the total water abstracted is used for the production of energy in small scale hydropower schemes and a further 26% for amenity features such as lakes and ponds. However all of this water is returned and there is little effect on river flows on a catchment scale. Of the rest, 10% is used for public water supply and 3% for industry. In comparison with the other uses, agriculture uses the smallest amount of water, even though it is the predominant land use.

The area has many Sites of Special Scientific Interest (SSSI), Special Protection Areas (SPA) and Special Areas of Conservation (SAC) that are designated for their nature conservation. Of the SPA and SAC sites, only two are within the assessed area: the North Somerset & Mendip Bats (SAC) and the Mendip Woodlands (SAC). There are a number of other designated sites such as statutory Local Nature Reserves and County Wildlife Sites where we would take account of local effects of abstraction as part of our general duty.

The Somerset Levels and Moors (SPA/Ramsar) site and the Severn Estuary (SAC/SPA/Ramsar) site are outside the CAMS assessment area. It is clear, however, that the impact of any water shortage could be felt in all or part of these internationally important sites, as both sites lie downstream of the CAMS assessment area. Any impact on the Severn Estuary is likely to be very localised, as the site is mostly coastal and dependent on many other factors beyond the fluvial impact of the Rivers Brue, Axe and North Somerset Streams.



Mendip Hills AONB and Cheddar Reservoir SSSI

Within this area, but again outside the assessed area, are huge areas of wetland, agricultural land and developed land with a high water table. The waterlogged land excludes oxygen and prevents the normal process of decay. Organic remains such as wood can survive for thousands of years. The peat moors of Somerset contain all the Scheduled prehistoric trackways and wetland settlements in England. Recently similar structures have been found within the coastal clay zone. The peatlands also contain pollen insect and plant remains that provide irreplaceable information on landscape, sea level and climate change. Recent studies partly funded by the Environment Agency have shown that this rich heritage is at risk from a lack of adequate summer irrigation. To maintain this unique environment, the water from the rivers feeding into this area is crucial and any change may have a harmful impact.

The catchment area supports a wide variety of wildlife and plant species. Native white-clawed crayfish and the depressed river mussel are found in the Brue and the Catcott reserve is the South West's only recorded site for the shining ram's-horn snail (*Segmentina nitida*). In Britain the endangered Lesser Silver Water Beetle (*Hydrochara caraboides*) is now confined to the Levels and Moors and this area is also the main British stronghold for the rare great silver water beetle (*Hydrophilus piceus*). Maintaining conditions for these species is an important part of this CAMS process.

The BANSS area is a good coarse fishery and the upper reaches of the rivers often supports self-sustaining brown trout populations. The Brue is one of the most prolific coarse fisheries in Somerset.

Most of the rivers in the catchment are of high ecological quality and regularly meet the quality expected of unpolluted watercourses. However, there have been some Environment Agency River Quality Objectives (RQO) failures along the Sheppey and on the lower reaches of the Alham. The major discharges in the catchment are from sewage treatment works that can contribute to nutrient levels in rivers. Signs of nutrient enrichment are noticeable at times of low flow and the ecology of the Sheppey in particular is adversely affected in its upper reaches. The lower reaches of the Axe and South Drain have also been affected in the past by significant growths of floating duckweed.

There is an extensive network of public footpaths enabling riverside access in most of the catchment area; this includes walking up the popular Glastonbury Tor. The area is also popular for caving at places like Wookey and Cheddar.



Walkers enjoying Glastonbury Tor

Cheddar Reservoir is popular for sailing and has its own sailing club and Cheddar, Blagdon and Barrow Tanks Reservoirs are all popular for fishing. The towns and villages of Wells, Cheddar, Glastonbury and Wookey attract tourists from far afield due to their interesting history and attractions.

More detail on the Brue, Axe and North Somerset catchment, including maps and charts is available in Appendix 1, on the attached CD.

3.0

This strategy provides the framework for any decision on an abstraction licence application.

Main principles of abstraction licensing in the Brue, Axe and North Somerset Streams catchment

3.1 National principles

3.1.1 Licence determination

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 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.

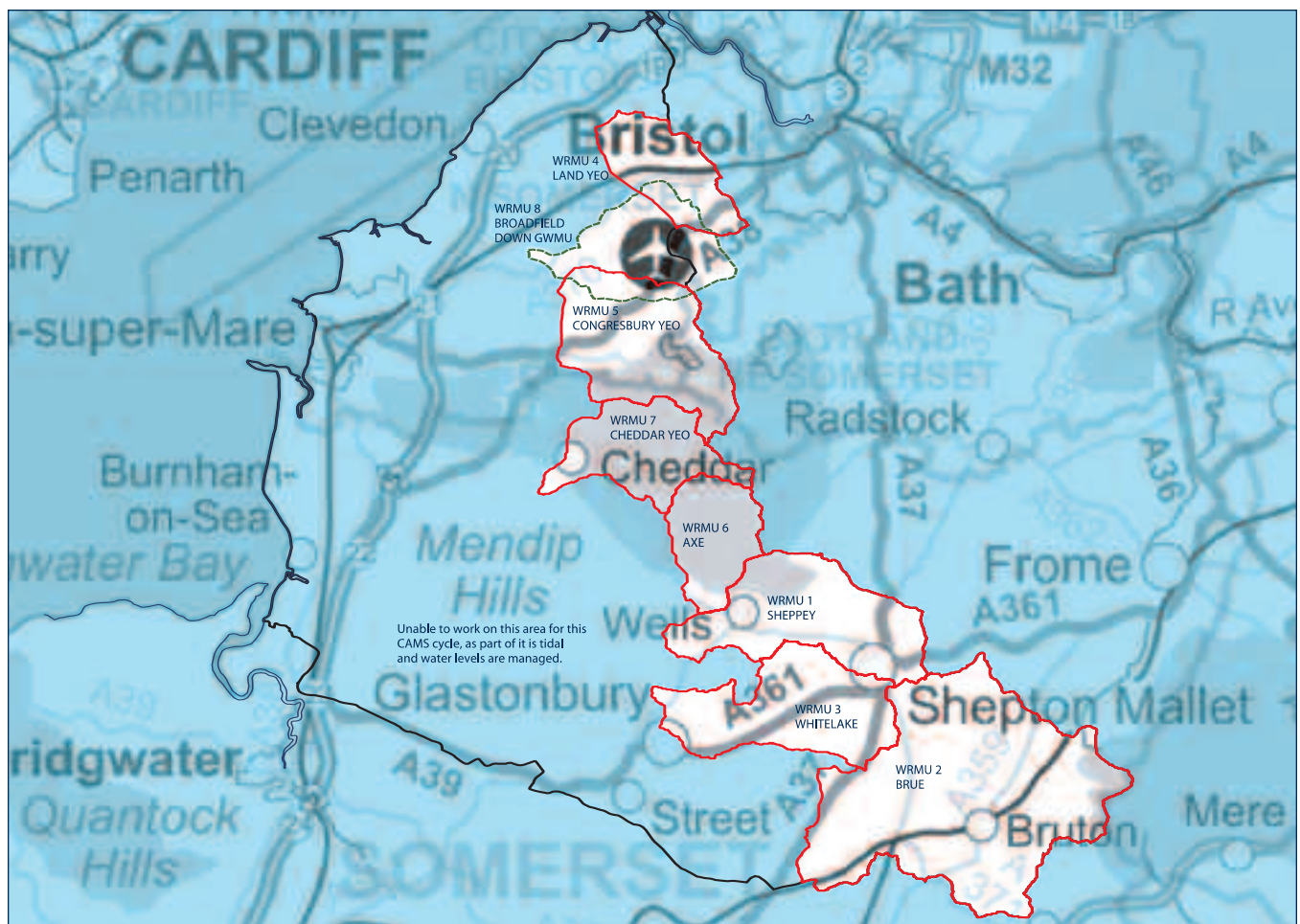
Each application is determined on its own merits

Whilst the strategy that we develop may conclude that water is available to be licensed in the catchment, this does not guarantee that all applications will be successful. Each application will be determined upon its own merits/impacts.

We have split the catchment into areas of water that can be managed as individual units. The Brue, Axe and North Somerset Streams CAMS has 7 Water Resource Management Units (WRMU – these are surface waters) and 1 Groundwater Management Unit (GWMU – these are areas of water under the ground). These are shown on Map 2 on Page 13.

Where a proposal for an abstraction licence may have a potentially significant environmental effect, we may ask applicants to provide additional information about the likely environmental impact of the proposed abstraction with their applications. To help identify these situations this document contains maps of all the WRMU and GWMU with the location of the main environmental features that are potentially vulnerable to abstractions.

Map 2 Water Resource Management Units and Groundwater Management Units



Legend

- Water Resource Management Units (WRMUs)
- Groundwater Management Units (GWMUs)
- Brue, Axe and North Somerset Streams
- CAMS area

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This document sets out our licensing strategy for the catchment. If you want to apply for a licence you should contact us on 08708 506 506 for further advice and an application pack.

Abstractions are managed to protect the environment

To protect the environment we may issue a licence with conditions. One type of condition is referred to as a ‘Hands-Off Flow’. This specifies that if the flow or level in the river drops below that which is required to protect the environment the abstraction must stop, hence ‘Hands-Off Flow’ (HOF).

A licence does not guarantee that water is available

It is 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, as described above. The licence holder needs to understand the implications of this as it affects the reliability of supply. For example, in drier years it is more likely that conditions will come into effect and abstraction is more likely to be stopped. Details of HOF conditions are described in more detail in Section 4.

Water efficiency

We need to make the best use of our existing water resources. Adopting water efficiency measures can help us achieve this goal. Water efficiency is one of the tests that need to be satisfied before we grant a new licence or renew a time limited licence.

Approach to time limiting of licences

All new licences and variations (other than downward variations or minor variations having no environmental

impact) will have a time limit imposed. CAMS are the mechanism for managing time limits on licences by indicating whether they should be renewed and, if so, on what terms. Where possible, the intention is to have all time limits on licences within a CAMS area expiring on the same date (known as the “common end date”). However, there may be situations where shorter or longer time limits may be justified. The next common end date for the Brue, Axe and North Somerset Streams CAMS is 31 March 2013.

We will notify licence holders 18, 12 and 6 months before the expiry of their licence. If you hold a time limited licence you will then need to apply for a renewal of that licence. There is a presumption that time limited licences will be renewed if:

- environmental sustainability is not in question;
- there is a continued justification of need for the water;
- the water is used efficiently.

We will also take into account any objections received prior to renewal of the licence. We will endeavour to give six years notice if a licence will not be renewed or is to be renewed on more restrictive terms which impact significantly on the use of that licence. In very exceptional circumstances we may also grant licences for longer periods.

3.1.2 Water rights trading

We want to make it easier to trade water rights. Such trading refers to the transfer of licensable water rights

from one party to another. Abstractors may be able to pass on this right to others. More detailed information is available in Section 4 of *Managing Water Abstraction* and Chapter 7 of the attached CD.

We sent licence holders a guidance leaflet – *Water Rights Trading* – in 2002. This explained the current opportunities for trading abstraction licences. In 2003 we consulted on more detailed proposals. We have now taken your responses into account and we will publish further information and guidance to coincide with the implementation of the relevant parts of the Water Act 2003. Further information is available on our website at www.environment-agency.gov.uk.

3.1.3 Environmental considerations

Important local features that may effect 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 Areas (SPA), which provide 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. Table 1 lists the related environmentally designated sites in this CAMS.



Compensation Weir at Lower Cox Mills Pond, Cheddar

Important local features that may affect water availability

Table 1 Presence of features that may affect water availability

Feature	Present	WRMU/GWMU
Water-related Sites of Special Scientific Interest (SSSI)	Axbridge Hill & Fry's Hill	outside WRMU
	Berrow Dunes	outside WRMU
	Biddle Street, Yatton	outside WRMU
	Blagdon Lake	5
	Bridgwater Bay	outside WRMU
	Burrington Combe	5
	Catcott Edington & Chilton Moors	outside WRMU
	Chancellor's Farm	6
	Cheddar Reservoir	outside WRMU
	Cheddar Wood	outside WRMU
	Clevedon Shore	outside WRMU
	Cogley Wood	2
	Compton Martin Ochre Mine	5
	Crook Peak to Shute Shelve Hill	outside WRMU
	Dolebury Warren	5
	Draycott Sleights	outside WRMU
	East Polden Grasslands	outside WRMU
	Ebbor Gorge	6
	Ellenborough Park West	outside WRMU
	Friar's Oven	3
	Gordano Valley	outside WRMU
	Kingdown & Middledown	7
	King's Wood & Urchin Wood	5 & 8
	Max Bog	outside WRMU
	North Brewham Meadows	2
	Priddy Pools	6
	Purn Hill	outside WRMU
	Puxton Moor	outside WRMU
	Rodney Stoke	outside WRMU
	Severn Estuary	outside WRMU
	Shapwick Heath	outside WRMU
	Sharpham Moor Plot	outside WRMU
	Shiplate Slait	outside WRMU
	Street Heath	outside WRMU
	Tealham & Tadham Moors	outside WRMU
	The Cheddar Complex	7
	The Perch	7 (partially within)
	Tickenham, Nailsea & Kenn Moors	outside WRMU
	Twinhills Woods & Meadows	1
	Uphill Cliff	outside WRMU
Walton Common	outside WRMU	
Westhay Heath	outside WRMU	
Westhay Moor	outside WRMU	
Weston Big Wood	outside WRMU	
Windsor Hill Marsh	1	
Wookey Hole	6	
Yanal Bog	outside WRMU	
Water-related Special Area of Conservation (SAC)	North Somerset & Mendip Bats	5, 6, 7 & 8
	Mendip Woodlands	6
	Mendip Limestone Grasslands	outside WRMU
	Severn Estuary	outside WRMU
Water-related Special Protection Area (SPA)	Somerset Levels and Moors	outside WRMU
	Severn Estuary	outside WRMU
Water-related Ramsar sites	Somerset Levels and Moors	outside WRMU
	Severn Estuary	outside WRMU

Habitats Regulations

Under the Habitats Regulations¹ we have to assess the affects of existing abstraction licences and any 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) and Special Protection Areas (SPA).

If your current licence is being reviewed under this legislation to assess its impact, you will already have been sent a letter with information about the review. If you have not received a letter from us your licence is either not near a SAC/SPA or cannot have an impact on these sites.

If our assessment shows that a new application could have an impact on a SAC/SPA we will have to follow some 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 is so we can monitor the effect of the abstraction on a SAC/SPA and change the licence if necessary;
- If it cannot be determined that your application will not affect the site we have to either put conditions on the licence so that it cannot effect 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 it in line with this CAMS.

3.1.4 The Water Act 2003

The Water Act 2003 introduces a new statutory framework for managing water resources that will be implemented into the water resources authorisation system over the next few years. The main changes that are still to be implemented include:

- new controls on previously exempt abstractions for mine and quarry de-watering, trickle and other forms of irrigation, transfers into canals and internal drainage districts;
- stronger powers for water resources planning and management;
- more flexibility to the licensing regulations to improve their efficiency and to encourage water rights trading;
- stronger powers on water conservation.

On the Somerset Levels there may be some changes as to how things are licensed. Previously exempt forms or areas of irrigation, such as internal drainage districts may now need a licence. This is currently under investigation.

Applications for new abstraction licences in and around this area will be dealt with on a case-by-case basis.

For more details on the Water Act 2003 and its implementation, see our website, www.environment-agency.gov.uk or contact your local Environment Agency office on 08708 506 506. The website will be updated to provide information as the Water Act 2003 is implemented.

3.1.5 Exempt purposes and areas

Some abstractions do not need to be licensed: for example, those that do not exceed 20 cubic metres per day. Other abstractions are exempt because they take place in a part of the country where a general exemption has been given from the need for abstractions to be licensed. The existence of these 'exempt areas' could prevent the proper management of water resources. We will put forward proposals to remove the 'exempt areas'.

3.1.6 Impoundments

Applications for impoundments will be dealt with on a case-by-case basis.

3.1.7 Management of new and renewal of existing licences

We carry out routine licence inspections to ensure that licence compliance is ensured. As described earlier in this section, there is a presumption that time limited licences and variations will be renewed.

We will continue to encourage all abstractors to reduce their demands for water and we propose to promote voluntary reduction or revocation of unused licences.

3.2 Catchment water resource availability

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 provide this information we have developed a classification system. This gives a "resource availability" status and indicates:

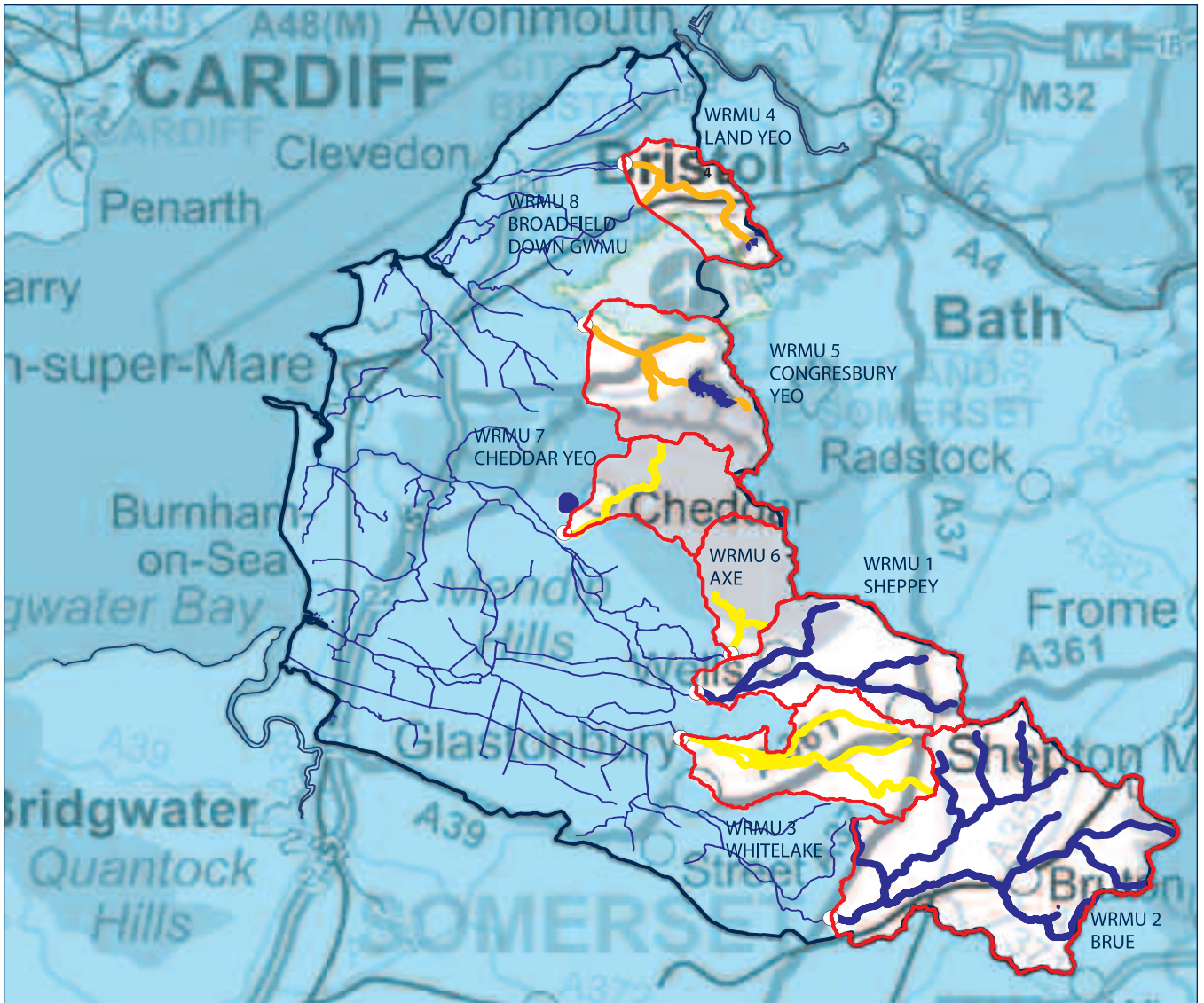
- the relative balance between the environmental requirements for water and how much is licensed for abstraction;
- whether water is available for further abstraction;
- areas where abstraction needs to be reduced.

Licence applications still have to go through the normal licensing process. More information on this process is in *Annexe 2 of Managing Water Abstraction* on the attached CD.

There are four categories of resource availability status, as shown in Table 2. The resource availability status and target status for each WRMU are shown in Table 3 and on Map 3.

¹ The Conservation (Natural Habitats, &c.) Regulations, 1994, (the Habitats Regulations).

Map 3 Integrated Resource Availability Status for river reaches and Groundwater Management Units



Legend

Surface water results

- Water available
- No water available
- Over-licensed
- Water Resource Management Units (WRMUs)
- WRMU – 8 Broadfield GWMU, water available
- Rivers
- Lakes and reservoirs
- Brue, Axe and North Somerset Streams CAMS area

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Table 2 Resource availability status categories

Indicative resource availability status	Licence availability
Water available	Water is likely to be available at all flows including low flows. Restrictions may apply.
No water available	No water is available for further licensing at low flows. Water may be available at higher flows with appropriate restrictions.
Over-licensed	Current actual abstraction is such that no water is available at low flows. If existing licences were used to their full allocation they could cause unacceptable environmental damage at low flows. Water may be available at high flows, with appropriate restrictions.
Over-abstracted	Existing abstraction is causing unacceptable damage to the environment at low flows. Water may still be available at high flows, with appropriate restrictions.

Table 3 Overview of the existing water resource availability and the target water resource availability at low flows for this CAMS

WRMU/GWMU Name	Associated main river	Resource Availability Status			Details of the unit are on page
		Individual WRMU status	Integrated WRMU status	Target status in 2010	
1 – Sheppey	River Sheppey	Water available	Water available	No water available	20
2 – Brue	River Brue	Water available	Water available	No water available	24
3 – Whitelake	Whitelake	No water available	No water available	No water available	27
4 – Land Yeo	Land Yeo	Over-licensed	Over-licensed	Over-licensed	30
5 – Congresbury Yeo	Congresbury Yeo	Over-licensed	Over-licensed	Over-licensed	32
6 – Axe	River Axe	No water available	No water available	No water available	35
7 – Cheddar Yeo	Cheddar Yeo	No water available	No water available	No water available	38
8 – Broadfield GWMU	Groundwater unit only	Water available	Water available	Water available	42



4.0

This section describes the licensing strategy and available water resource for each WRMU and GWMU in the catchment.

Abstraction licensing strategy

It is important to note that this strategy may not apply to abstractions that are substantially non-consumptive and have no significant net influence on river flows at the downstream assessment point. Examples include transfer licences within the same assessment area, hydropower schemes, fish farms and quarry dewatering. Also licences that result in a net benefit to the surface water environment may not be included. For further details on licensed determination please see section 3.1.1 (page 12) as there are different requirements for different types/size of licence.

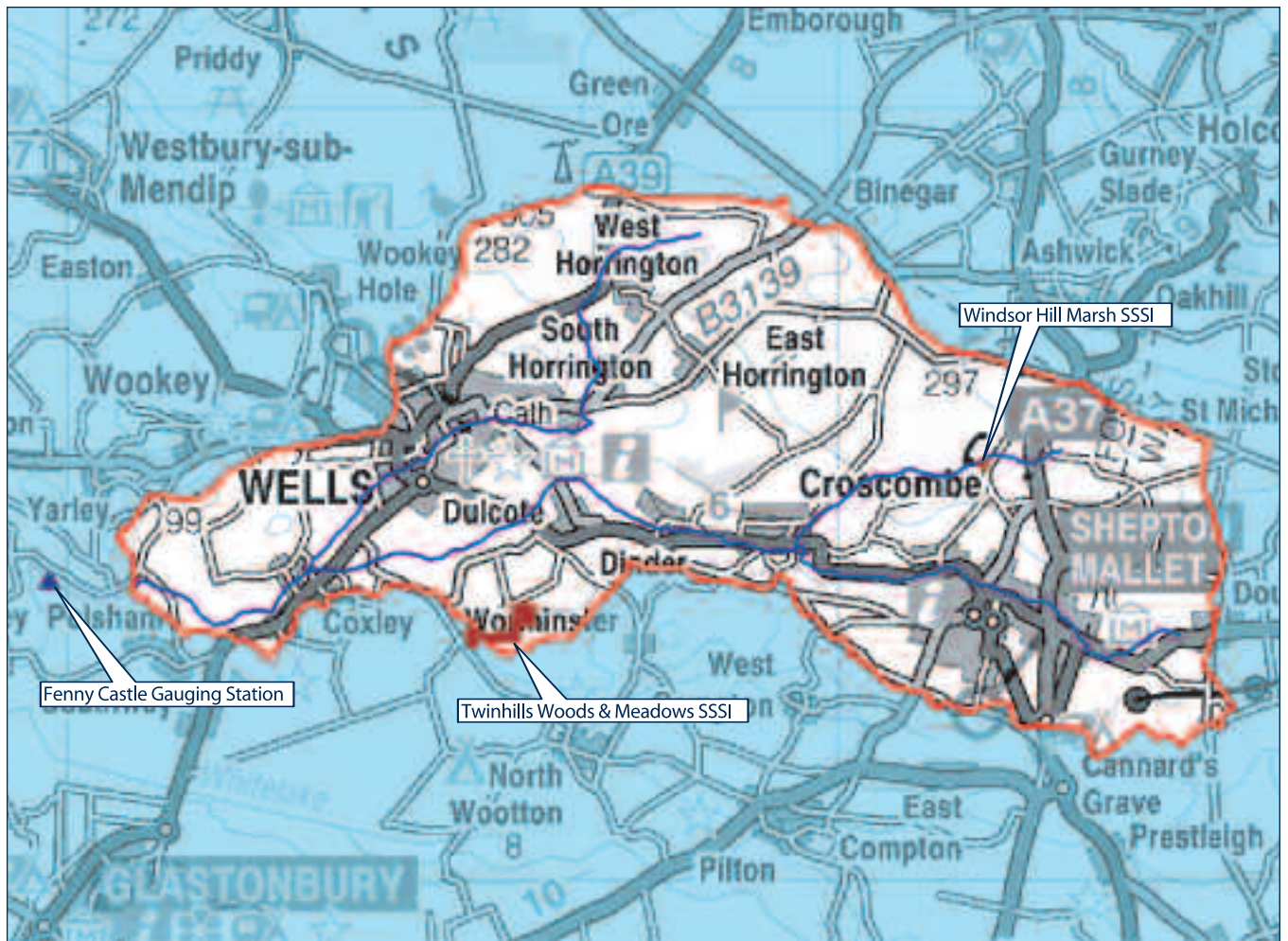
4.1 Water Resource Management Unit 1 – Sheppey

Map 4 shows the location of sites and features that may affect abstraction licence/water availability.




Springs at Wells Cathedral

Map 4 River Sheppey Water Resource Management Unit



Legend

-  Gauging station
-  Water-related SSSI
-  Water Resource Management Unit (WRMU)

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Table 4 Existing low flow resource availability status and target low flow resource availability status for the Sheppey Water Resource Management Unit

Associated main river	Resource Availability Status			Comment
	Individual WRMU status	Integrated WRMU status	Target status in 2010	
River Sheppey	Water available	Water available	No water available	We would allow this WRMU to move from water available towards no water available in this CAMS cycle. No water available is a sustainable status and there would be no damage to the environment. We would only grant further licences if there was a genuine need and there would be no damage to the environment. We do not need to retain the water and stay at water available, as there is currently no known environmental damage and this water is not required for the environment. This means that there can be development in the WRMU.

Our strategy

The water resource availability status of this WRMU is water available at low flows. The target status for this WRMU in 2010 is to move towards no water available.

The target status is the outcome of the sustainability appraisal process. If you want more information about the sustainability appraisal process and how we came to this decision please refer to Chapter 3 of the technical document on the attached CD.

Strategy for new and existing licences

The strategy for this WRMU is to move towards the boundary of no water available. This means that for **new** licences:

- we will continue to licence the available resource until we reach the Q95 boundary at no water available. We will then issue licences with HOF conditions as in table 5;
- all new licences will be subjected to a local impact assessment that may require constraints to protect the local environment or other water users;
- all new licences (except special circumstances) will have a time-limit of 31 March 2013;
- we will consider the impact of any proposed licence on the water abstractions required to feed the internationally recognised Somerset Levels and Moors downstream of the WRMU.

and for **existing** licences:

- there will be no impact on **existing** abstraction licences;
- there is a presumption of licence renewal, subject to renewal criteria and other local considerations.

How much water is available and what restrictions might apply

Table 5 gives an indication of how much water is available for further abstraction and the associated restrictions that may apply to **new or varied** abstraction licences from the main river. Tributaries to the main river may be subject to different restrictions and quantities. We will be able to advise you on this. **All abstraction licence applications will be subject to an assessment to take account of any local issues and be granted on a first-come-first-served basis.**

The quantities shown in Table 5 are accurate at the time this document was published and apply to the main river. For up to date information please contact us or look at the annual update of this information on our website at www.environment-agency.gov.uk/CAMS

Additional local information specific to this WRMU

The gauging station used to set the HOF in this WRMU is Fenny Castle, as shown on map 4 on page 21.

Table 5 How much water is available and for how long can you abstract it (in an average year)

Restriction/condition on abstraction	Amount of water available in MI/d	Number of days abstraction allowed (average year)	Explanation
Unconstrained abstraction	1.3	365	We will consider new unconstrained abstractions up to 1.3 MI/d. Unconstrained means you can abstract water all year round
Once the unconstrained water has been licensed the HOF1 will be applied to new licences			
HOF 1 = 12.7 MI/d	2.3	354	We will consider new abstractions up to 2.3 MI/d with a HOF of 12.7 MI/d. With this condition you could abstract water for most of the year, except during times of very low flow.
Once the HOF1 water has been licensed the HOF2 will be applied to new licences			
HOF 2 = 21.9 MI/d	3.5	303	We will consider new abstractions up to 3.5 MI/d with a HOF of 21.9 MI/d. With this condition you could still abstract water for the majority of the year, except during times of lower flow.
Once the HOF2 water has been licensed the HOF3 will be applied to new licences			
HOF 3 = 35.8 MI/d	6.9	244	We will consider new abstractions up to 6.9 MI/d with a HOF of 35.8 MI/d. With this condition you could abstract water during times of medium to high flows.

Important local features that may affect water availability

Table 6 Presence of features that may affect water availability

Feature	Comment
Water-related Sites of Special Scientific Interest (SSSIs)	<p>There are 2 water related SSSIs in the WRMU. These are Twinhills Woods & Meadows SSSI which comprise of ancient, semi-natural woodland, neutral and calcareous grassland with associated mature hedges and areas of shrub growth and Windsor Hill Marsh SSSI, a site consisting of a dry limestone grassland bank, marshy silted pond and waterlogged, slightly acid ground.</p> <p>Applications in and around the SSSIs will be dealt with on a case-by-case basis.</p>
Other designated sites	<p>There are a number of other designated sites such as statutory Local Nature Reserves and County Wildlife Sites, where we would take account of local affects of abstraction as part of our general duty.</p> <p>Applications within or near to these sites will be dealt with on a case-by-case basis.</p>

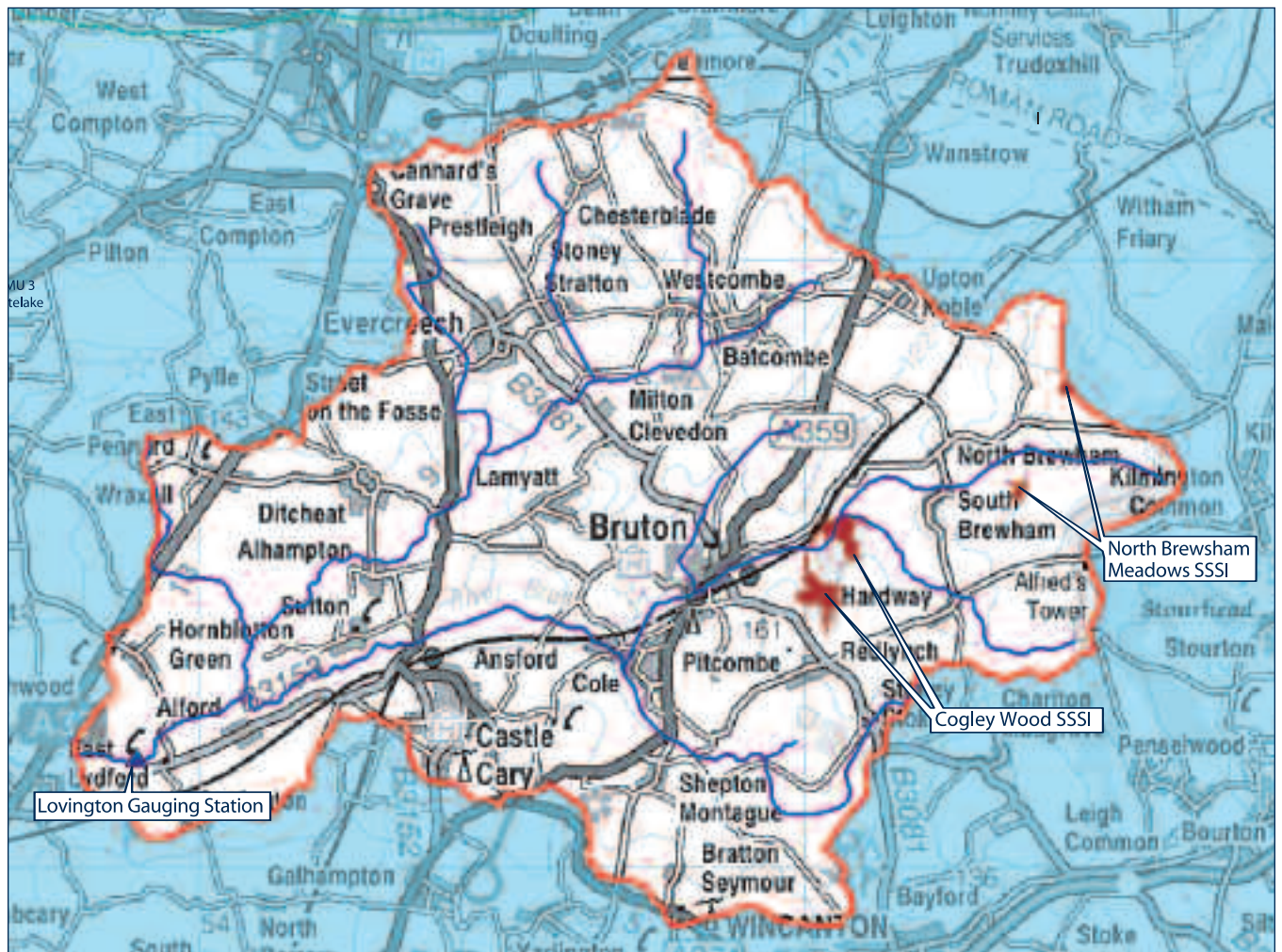






Swans Brian Phipps (www.brianhipps.net)

4.2 Water Resource Management Unit 2 – Brue

Map 5 shows the location of sites and features that may affect abstraction licence/water availability.

Map 5 Brue Water Resource Management Unit



Legend	
	Water available result
	Gauging station
	Water-related SSSI
	Water Resource Management Unit (WRMU)

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Table 7 Existing low flow resource availability status and target low flow resource availability status for the Brue Water Resource Management Unit

Associated main river	Resource Availability Status			Comment
	Individual WRMU status	Integrated WRMU status	Target status in 2010	
River Brue	Water available	Water available	No water available	We would allow this WRMU to move from water available towards no water available in this CAMS cycle. No water available is a sustainable status and there would be no damage to the environment. We would only grant further licences if there was a genuine need and there would be no damage to the environment. We do not need to retain the extra water and stay at water available, as there is currently no known environmental damage and this water is not required for the environment. This means that there can be development in the WRMU.

Our strategy

The water resource availability status of this WRMU is water available at low flows. The target status for this WRMU in 2010 is to move towards no water available.

The target status is the outcome of the sustainability appraisal process. If you want more information about the sustainability appraisal process and how we came to this decision please refer to Chapter 3 of the technical document on the attached CD.

Strategy for new and existing licences

The strategy for this WRMU is to move towards the boundary of no water available. This means that for **new** licences:

- we will continue to licence the available resource until we reach the Q95 boundary at no water available. We will then issue licences that may have HOF conditions (see table 8);

- all new licences will be subjected to a local impact assessment that may require constraints to protect the local environment or other water users;
- all new licences (except special circumstances) will have a time-limit of 31 March 2013;
- we will consider the impact of any proposed licence on the water abstractions required to feed the internationally recognised Somerset Levels and Moors downstream of the WRMU.

and for **existing** licences:

- there will be no impact on existing abstraction licences;
- there is a presumption of licence renewal, subject to renewal criteria and other local considerations.



River Brue at Gants Mill

Table 8 How much water is available and for how long can you abstract it (in an average year)

Restriction/condition on abstraction	Amount of water available in Ml/d	Number of days abstraction allowed (average year)	Explanation
Unconstrained Abstraction	2.0	365	We will consider new unconstrained abstractions up to 2.0 Ml/d. Unconstrained means you can abstract water all year round.
Once the unconstrained water has been licensed the HOF1 will be applied to new licences			
HOF 1 = 19.9 Ml/d	3.3	350	We will consider new abstractions up to 3.3 Ml/d with a HOF of 19.9 Ml/d. With this condition you could abstract water for most of the year, except during times of very low flow.
Once the HOF1 water has been licensed the HOF2 will be applied to new licences			
HOF 2 = 32.9 Ml/d	4.5	296	We will consider new abstractions up to 4.5 Ml/d with a HOF of 32.9 Ml/d. With this condition you could still abstract water for the majority of the year, except during times of lower flow.
Once the HOF2 water has been licensed the HOF3 will be applied to new licences			
HOF 3 = 52.4 Ml/d	9.7	245	We will consider new abstractions up to 9.7 Ml/d with a HOF of 52.4 Ml/d. With this condition you could abstract water during times of medium to high flows.

Important local features that may affect water availability

Table 9 Presence of features that may affect water availability

Feature	Comment
Water-related Sites of Special Scientific Interest (SSSIs)	<p>There are 2 water related SSSIs in the WRMU. These are Cogley Wood, consisting of two extensive areas of species-rich, semi-natural ancient woodland with an exceptionally rich butterfly fauna and North Brewham Meadows, which are traditionally-managed species-rich meadows supporting a neutral grassland community with a restricted national distribution. The fields are poorly drained and seasonally waterlogged.</p> <p>Applications in and around the SSSIs will be dealt with on a case-by-case basis.</p>
Other designated sites	<p>There are a number of other designated sites such as statutory Local Nature Reserves and County Wildlife Sites, where we would take account of local effects of abstraction as part of our general duty.</p> <p>Applications within or near to these sites will be dealt with on a case-by-case basis.</p>

How much water is available and what restrictions might apply

Table 8 gives an indication of how much water is available for further abstraction and the associated restrictions that may apply to **new or varied** abstraction licences from the main river. Tributaries to the main river may be subject to different restrictions and quantities. We will be able to advise you on this. **All abstraction licence applications will be subject to an assessment to take account of any local issues and be granted on a first-come-first-served basis.**

The quantities shown in Table 8 are accurate at the time this document was published and apply to the main river. For up to date information please contact us or look at the annual update of this information on our website at www.environment-agency.gov.uk/CAMS

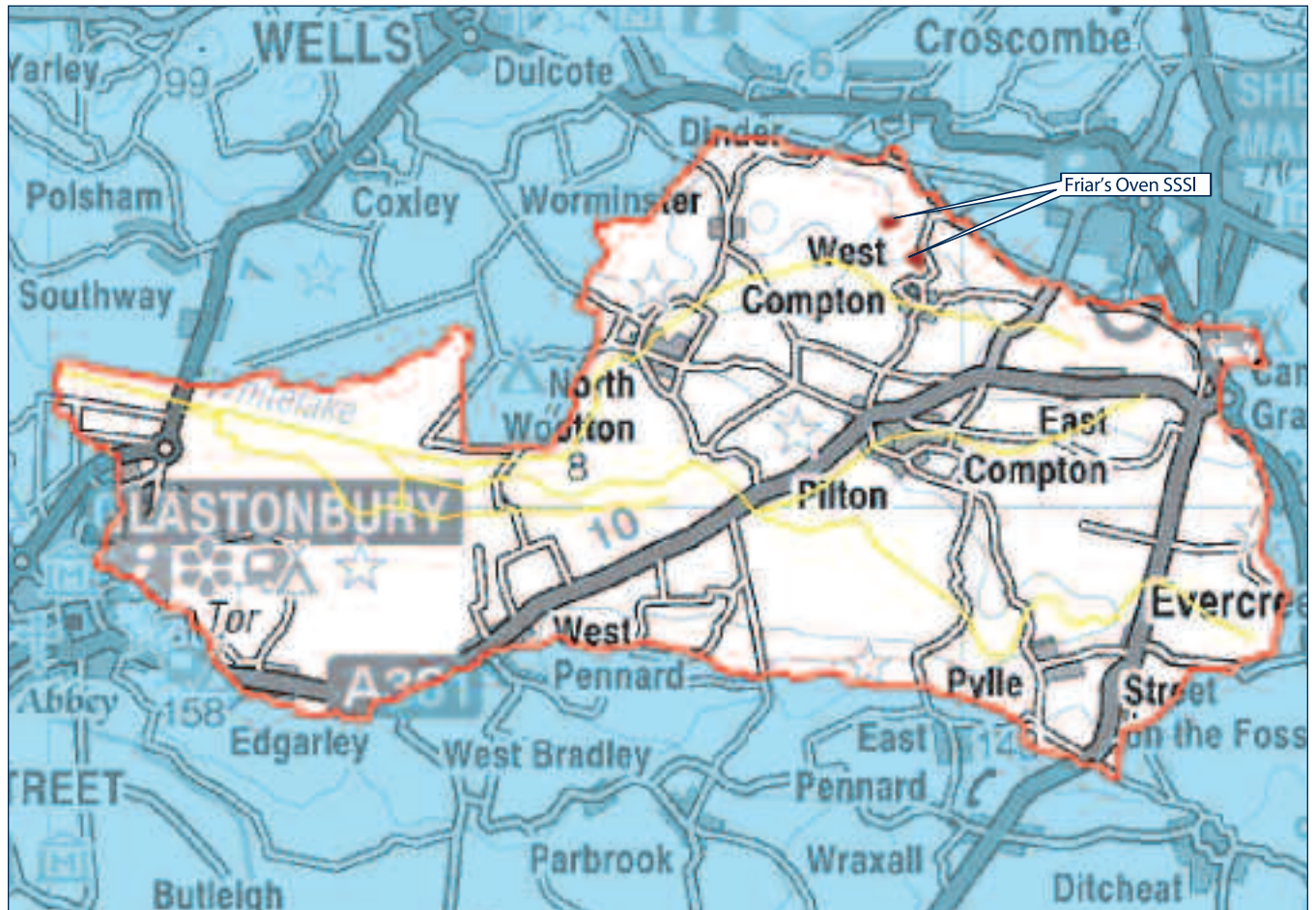
Additional local information specific to this WRMU

The gauging station used to set the HOF in this WRMU is Lovington, as shown on map 5 on page 24.

4.3 Water Resource Management Unit 3 – Whitelake

Map 6 shows the location of sites and features that may affect abstraction licence/water availability.

Map 6 Whitelake Water Resource Management Unit



Legend

- No water available result
- Water-related SSSI
- Water Resource Management Unit (WRMU)

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Table 10 Existing low flow resource availability status and target low flow resource availability status for the Whitelake Water Resource Management Unit

Associated main river	Resource Availability Status			Comment
	Individual WRMU status	Integrated WRMU status	Target status in 2010	
Whitelake	No water available	No water available	No water available	We will keep this WRMU within the status of no water available, because this is the most sustainable position. Licences will be issued but are likely to have conditions to protect the low flow period of the year and not let the situation deteriorate.



Whitelake near Cockmill Farm

Our strategy

The water resource availability status of this WRMU is no water available at low flows. The target status for this WRMU in 2010 is to remain within the status of no water available.

The target status is the outcome of the sustainability appraisal process. If you want more information about the sustainability appraisal process and how we came to this decision please refer to Chapter 3 of the technical document on the attached CD.

Strategy for new and existing licences

The strategy for this WRMU is to remain within the status of no water available. This means that for **new** licences:

- there is no unconstrained water resource available at low flows. We will issue licences that may have HOF conditions (see table 11);
- all new licences will be subjected to a local impact assessment that may require constraints to protect the local environment or other water users;
- all new licences (except special circumstances) will have a time limit of 31 March 2013;
- we will consider the impact of any proposed licence on the water abstractions required to feed the internationally recognised Somerset Levels and Moors downstream of the WRMU.

and for **existing** licences:

- there will be no impact on existing licences;
- presumption of renewal, subject to the other renewal criteria and local considerations.

How much water is available and what restrictions might apply

Table 11 gives an indication of how much water is available for further abstraction and the associated restrictions that may apply to **new or varied** abstraction licences from the main river. Tributaries to the main river may be subject to different restrictions and quantities. We will be able to advise you on this. **All abstraction licence applications will be subject to an assessment to take account of any local issues and be granted on a first-come-first-served basis.**

The quantities shown in Table 11 are accurate at the time this document was published and apply to the main river. For up to date information please contact us or look at the annual update of this information on our website at www.environment-agency.gov.uk/CAMS

Additional local information specific to this WRMU

There is no gauging station at the assessment point or elsewhere in the unit. The HOFs referred to in Table 11 are related to flows at the AP but the location of the HOF for new abstractions will be determined for each application on a case-by-case basis.

Table 11 How much water is available and for how long can you abstract it (in an average year)

Restriction/condition on abstraction	Amount of water available in Ml/d	Number of days abstraction allowed (average year)	Explanation
Unconstrained Abstraction	0	N/A	There is no unconstrained water available.
The unconstrained water has been fully licensed			
HOF 1 = 6.7 Ml/d	0.7	321	We will consider new abstractions up to 0.7 Ml/d with a HOF of 6.7 Ml/d. With this condition you could abstract water for most of the year, except during times of very low flow.
Once the HOF1 water has been licensed the HOF2 will be applied to new licences			
HOF 2 = 9.9 Ml/d	3.2	274	We will consider new abstractions up to 3.2 Ml/d with a HOF of 9.9 Ml/d. With this condition you could still abstract water for the majority of the year, except during times of lower flow.
Once the HOF2 water has been licensed the HOF3 will be applied to new licences			
HOF 3 = 16.3 Ml/d	5.5	212	We will consider new abstractions up to 5.5 Ml/d with a HOF of 16.3 Ml/d. With this condition you could abstract water during times of medium to high flows.

Important local features that may affect water availability

Table 12 Presence of features that may affect water availability

Feature	Comment
Water-related Site of Special Scientific Interest (SSSI)	<p>There is 1 water related SSSI within the WRMU, this is called Friar’s Oven and has two sites. These sites consist of two separate fields that support herb-rich calcareous grassland classified as the <i>Upright Brome Bromus erectus</i> type. Such grassland has a restricted distribution within Somerset and also in a national context.</p> <p>Applications in and around the SSSI will be dealt with on a case-by-case basis.</p>
Other designated sites	<p>There are a number of other designated sites such as statutory Local Nature Reserves and County Wildlife Sites, where we would take account of local effects of abstraction as part of our general duty.</p> <p>Applications within or near to these sites will be dealt with on a case-by-case basis.</p>

4.4 Water Resource Management Unit 4 – Land Yeo

Map 7 shows the location of sites and features that may affect abstraction licence/water availability.

Map 7 Land Yeo Water Resource Management Unit



Legend

- Over-licensed result
- ▲ Gauging station
- Water Resource Management Unit (WRMU)

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0 0.3 0.6 0.9 1.2 1.5 Kilometres



Table 13 Existing low flow resource availability status and target low flow resource availability status for the Land Yeo Water Resource Management Unit.

Associated main river	Resource Availability Status			Comment
	Individual WRMU status	Integrated WRMU status	Target status in 2010	
Land Yeo	Over-licensed	Over-licensed	Over-licensed	The WRMU is over-licensed by 1.1 Ml/d but there is no known impact. However the ecology survey of the main river has not been completed and therefore we do not want to change status before any ecological impact has been identified. The ecology survey is due to be completed before the next CAMS cycle. Remaining at this status means that the situation will not deteriorate.

Our strategy

The water resource availability status of this WRMU is over-licensed at low flows. The target status for this WRMU in 2010 is to remain at over-licensed and to ensure the situation does not deteriorate.

The target status is the outcome of the sustainability appraisal process. If you want more information about the sustainability appraisal process and how we came to this decision please refer to Chapter 3 of the technical document on the attached CD.

Strategy for new and existing licences

The strategy for this WRMU is to remain at over-licensed. This means that for **new** licences:

- there is no unconstrained water resource available at low flows. We will issue licences that may have HOF conditions (see Table 14);
- all new licences will be subjected to a local impact assessment that may require constraints to protect the local environment or other water users;
- all new licences (except special circumstances) will have a time limit of 31 March 2013;
- we will consider the impact of any proposed licence on the water abstractions required to feed the internationally recognised Somerset Levels and Moors downstream of the WRMU.

and for **existing** licences:

- there will be no impact on existing licences;
- presumption of renewal, subject to the other renewal criteria and local considerations.

How much water is available and what restrictions might apply

Table 14 gives an indication of how much water is available for further abstraction and the associated restrictions that may apply to **new or varied** abstraction licences from the main river. Tributaries to the main river may be subject to different restrictions and quantities. We will be able to advise you on this. **All abstraction licence applications will be subject to an assessment to take account of any local issues and be granted on a first-come-first-served basis.**

The quantities shown in Table 14 are accurate at the time this document was published and apply to the main river. For up to date information please contact us or look at the annual update of this information on our website at www.environment-agency.gov.uk/CAMS

Additional local information specific to this WRMU

The gauging station used to set the HOF in this WRMU is Wraxall, as shown on map 7 on page 30.

We will manage this unit by only issuing licences after a full determination has been completed, this means that the situation will not worsen. Licences are likely to have strict conditions.

We will continue to monitor the unit for this CAMS cycle to improve data for the environmental weighting score and also improve our modelling of complicated scenarios such as reservoirs.



Table 14 How much water is available and for how long can you abstract it (in an average year)

Restriction/condition on abstraction	Amount of water available in Ml/d	Number of days abstraction allowed (average year)	Explanation
Unconstrained Abstraction	0	N/A	There is no unconstrained water available.
Once the unconstrained water has been licensed the HOF1 will be applied to new licences			
HOF 1 = 5.3 Ml/d	0	N/A	There is no water available with this constraint.
Once the HOF1 water has been licensed the HOF2 will be applied to new licences			
HOF 2 = 7.9 Ml/d	0	N/A	There is no water available with this constraint.
Once the HOF2 water has been licensed the HOF3 will be applied to new licences			
HOF 3 = 12.8 Ml/d	4.3	186	We will consider new abstractions up to 4.3 Ml/d with a HOF of 12.8 Ml/d. With this condition you could abstract water during times of medium to high flows.

Important local features that may affect water availability

Table 15 Presence of features that may affect water availability

Feature	Comment
Other designated sites	There are a number of other designated sites such as statutory Local Nature Reserves and County Wildlife Sites, where we would take account of local effects of abstraction as part of our general duty. Applications within or near to these sites will be dealt with on a case-by-case basis.

4.5 Water Resource Management Unit 5 – Congresbury Yeo

Map 8 shows the location of sites and features that may effect abstraction licence/water availability.

Our strategy

The water resource availability status of this WRMU is over-licensed at low flows. The target status for this WRMU in 2010 is to remain at over-licensed and to ensure the situation does not deteriorate.

The target status is the outcome of the sustainability appraisal process. If you want more information about the sustainability appraisal process and how we came to this decision please refer to Chapter 3 of the technical document on the attached CD.

Strategy for new and existing licences

The target status for this WRMU in 2010 is to remain at over-licensed and to ensure the situation does not deteriorate. This means that for **new** licences:

- there is no unconstrained water resource available at low flows. We will issue licences that may have HOF conditions (see table 17);
- all new licences will be subjective to a local impact assessment that may require constraints to protect the local environment or other water users;

- all new licences (except under special circumstances) will have a time limit of 31 March 2013;
- we will consider the impact of any proposed licence on the water abstractions required to feed the internationally recognised Somerset Levels and Moors downstream of the WRMU.

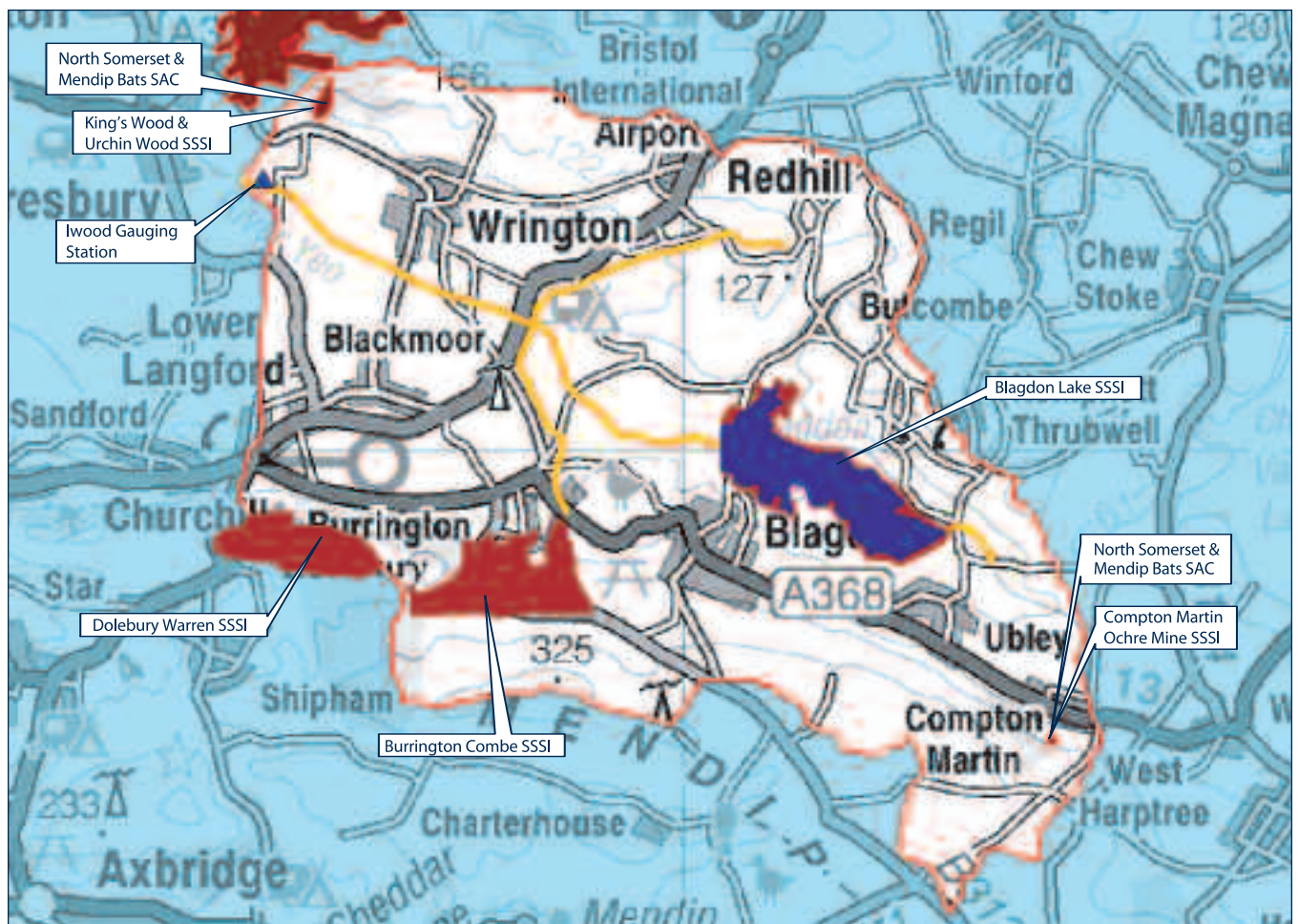
and for **existing** licences:

- there will be no impact on existing licences;
- presumption of renewal, subject to the other renewal criteria and local considerations.

How much water is available and what restrictions might apply

Table 17 gives an indication of how much water is available for further abstraction and the associated restrictions that may apply to **new or varied** abstraction licences from the main river. Tributaries to the main river may be subject to different restrictions and quantities. We will be able to advise you on this. **All abstraction licence applications will be subject to an assessment to take account of any local issues and be granted on a first-come-first-served basis.**

Map 8 Congresbury Yeo Water Resource Management Unit



Legend

- Over-licensed result
- ▲ Gauging station
- Water-related SSSI
- Water-related SAC
- Water Resource Management Unit (WRMU)
- Lakes and reservoirs

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0 0.487 0.975 1.95 2.925 3.9 Kilometres



Table 16 Existing low flow resource availability status and target low flow resource availability status for the Congresbury Yeo Water Resource Management Unit

Associated main river	Resource Availability Status			Comment
	Individual WRMU status	Integrated WRMU status	Target status in 2010	
Congresbury Yeo	Over-licensed	Over-licensed	Over-licensed	This unit contains complex abstractions for public water supply which contribute to the status of over-licensed. Further data is required to accurately model these abstractions. Also survey work on the ecology within the main river has not been completed. Staying at over-licensed will be reviewed after this work has been completed and means that the situation will not deteriorate.

Table 17 How much water is available and for how long can you abstract it (in an average year)

Restriction/condition on abstraction	Amount of water available in MI/d	Number of days abstraction allowed (average year)	Explanation
Unconstrained Abstraction	0	N/A	There is no unconstrained water available.
The unconstrained water has been fully licensed; the HOF1 will be applied to new licences			
HOF 1 = 22.8 MI/d	0	N/A	There is no water available with this constraint.
The HOF1 water has been fully licensed; the HOF2 will be applied to new licences			
HOF 2 = 29.4 MI/d	0	N/A	There is no water available with this constraint.
The HOF2 water has been fully licensed; the HOF3 will be applied to new licences			
HOF 3 = 39.4 MI/d	0	N/A	There is no water available with this constraint.
The HOF3 water has been fully licensed; water maybe available at higher flows			

The quantities shown in Table 17 are accurate at the time this document was published and apply to the main river. For up to date information please contact us or look at the annual update of this information on our website at www.environment-agency.gov.uk/CAMS

Important local features that may affect water availability

Table 18 Presence of features that may affect water availability

Feature	Comment
Water-related Sites of Special Scientific Interest (SSSIs)	<p>There are 5 water related SSSIs within this WRMU. These are Blagdon Lake, Burrington Combe, Dolebury Warren, King’s Wood and Urchin Wood, and Compton Martin Ochre Mine.</p> <p>Blagdon Lake is important as it supports important populations of wintering wildfowl and breeding bird assemblages typical of lowland open waters and their margins, as well as a varied invertebrate fauna (in particular dragonflies and damselflies).</p> <p>Burrington Combe and Dolebury Warren SSSIs consist of Calcareous grassland. King’s Wood and Urchin Wood consist of broadleaved, mixed and yew woodland and Compton Martin Ochre Mine consists of inland rock and earth heritage.</p> <p>Applications in and around the SSSIs will be dealt with on a case-by-case basis.</p>
Water-related Special Area of Conservation (SAC)	<p>There is one water related SAC in this WRMU, the North Somerset and Mendip Bats. This is present at the top of the WRMU at Compton Martin and at the bottom of the WRMU. The designated SAC area also continues below the range of this WRMU. The primary reason for designation is the (i) semi-natural dry grasslands and scrub-land facies on calcareous substrates (<i>Festuco-Brometalia</i>) and (ii) <i>Tilio-Acerion</i> forests of slopes, screes and ravines.</p> <p>Applications in and around the SAC will be dealt with on a case-by-case basis.</p>
Other designated sites	<p>There are a number of other designated sites such as statutory Local Nature Reserves and County Wildlife Sites, where we would take account of local effects of abstraction as part of our general duty.</p> <p>Applications within or near to these sites will be dealt with on a case-by-case basis.</p>

Additional local information specific to this WRMU

The gauging station used to set the HOF in this WRMU is Iwood, as shown on map 8 on page 33.

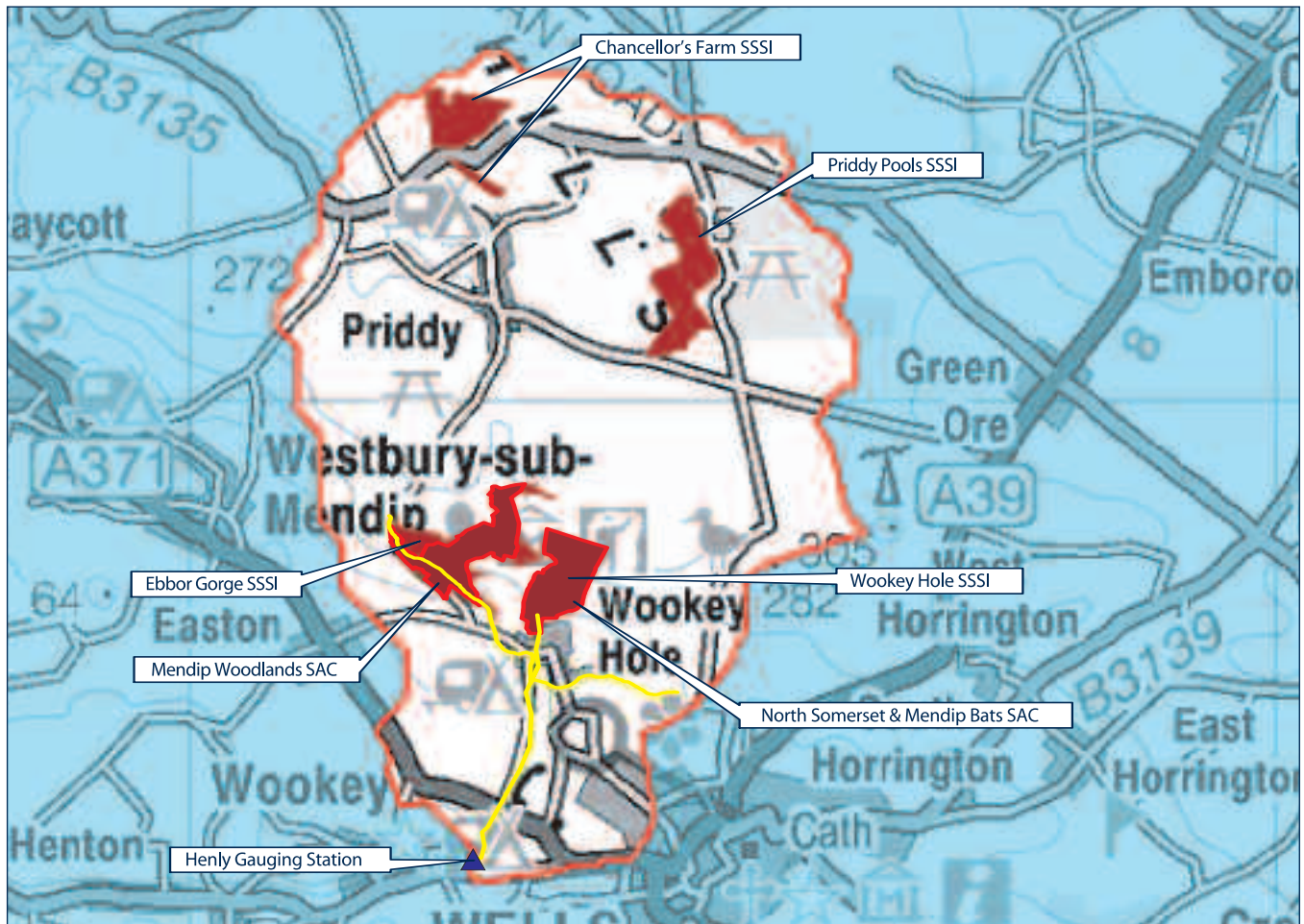
We will manage this unit by only issuing licences after a full determination has been completed. This means that

the situation will not deteriorate. Licences are likely to have strict conditions. We will continue to monitor the unit for this CAMS cycle to improve data for the environmental weighting score and also improve our modelling of complicated scenarios such as reservoirs.

4.6 Water Resource Management Unit 6 – Axe

Map 9 shows the location of sites and features that may effect abstraction licence/water availability.

Map 9 River Axe Water Resource Management Unit



Legend

- No water available result
- ▲ Gauging station
- Water-related SSSI
- Water-related SAC
- Water Resource Management Unit (WRMU)

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0 0.5 1 1.5 2.0 Kilometres



Table 19 Existing low flow resource availability status and target low flow resource availability status for the Axe Water Resource Management Unit

Associated main river	Resource Availability Status			Comment
	Individual WRMU status	Integrated WRMU status	Target status in 2010	
River Axe	No water available	No water available	No water available	We will keep this WRMU within the status of no water available, because this is the most sustainable position. Licences will be issued but are likely to have conditions to protect the low flow period of the year and not let the situation deteriorate.

Our strategy

The water resource availability status of this WRMU is no water available at low flows. The target status for this WRMU in 2010 is to remain within the status of no water available.

The target status is the outcome of the sustainability appraisal process. If you want more information about the sustainability appraisal process and how we came to this decision please refer to Chapter 3 of the technical document on the attached CD.

Strategy for new and existing licences

The strategy for this WRMU is to remain within the status of no water available. This means that for **new** licences:

- there is no unconstrained water resource available at low flows. We will issue licences that may have HOF conditions (see table 20);
- all new licences will be subjective to a local impact assessment that may require constraints to protect the local environment or other water users;
- all new licences (except under special circumstances) will have a time limit of 31 March 2013;
- we will consider the impact of any proposed licence on the water abstractions required to feed the internationally recognised Somerset Levels and Moors downstream of the WRMU.

and for **existing** licences:

- there will be no impact on existing licences;
- presumption of renewal, subject to the other renewal criteria and local considerations.

How much water is available and what restrictions might apply

Table 20 gives an indication of how much water is available for further abstraction and the associated restrictions that may apply to **new or varied** abstraction licences from the main river. Tributaries to the main river may be subject to different restrictions and quantities. We will be able to advise you on this. **All abstraction licence applications will be subject to an assessment to take account of any local issues and be granted on a first-come-first-served basis.**

The quantities shown in Table 20 are accurate at the time this document was published and apply to the main river. For up to date information please contact us or look at the annual update of this information on our website at www.environment-agency.gov.uk/CAMS

Additional local information specific to this WRMU

The gauging station used to set the HOF in this WRMU is Henley, as shown on map 9 on page 35.



Lower River Axe, upstream of Burcott Mill

Table 20 How much water is available and for how long can you abstract it (in an average year)

Restriction/condition on abstraction	Amount of water available in MI/d	Number of days abstraction allowed (average year)	Explanation
Unconstrained Abstraction	0	365	There is no unconstrained water available.
The unconstrained water has been fully licensed; the HOF1 will be applied to new licences			
HOF 1 = 12.6 MI/d	0	324	There is no water available with this constraint.
The HOF1 water has been fully licensed; the HOF2 will be applied to new licences			
HOF 2 = 16.6 MI/d	0.6	288	We will consider new abstractions up to 0.6 MI/d with a HOF of 16.6 MI/d. With this condition you could still abstract water for the majority of the year, except during times of lower flow.
Once the HOF2 water has been licensed the HOF3 will be applied to new licences			
HOF 3 = 22.6 MI/d	3.0	234	We will consider new abstractions up to 3.0 MI/d with a HOF of 22.6 MI/d. With this condition you could abstract water during times of medium to high flows.

Important local features that may affect water availability

Table 21 Presence of features that may affect water availability

Feature	Comment
Water-related Sites of Special Scientific Interest (SSSIs)	<p>There are four water related SSSIs within this WRMU, these are Ebbor Gorge, Wookey Hole, Chancellor’s Farm and Priddy Pools. Chancellor’s Farm is designated for its grasslands and rare plant species. Priddy Pools supports a very rich invertebrate and amphibian fauna. A wide range of semi-natural habitats are present, including valley mire, open water, swamp and tall fen. The hydrology of the site is complex. Nutrient-poor water flows from springs in the north of the site to St Cuthbert’s Swallet where it disappears before re-emerging at Wookey Hole.</p> <p>Wookey Hole caves support an unimproved calcareous grassland community of the Sheep’s-fescue-Meadow Oat-grass type. It is also an important roost for Greater Horseshoe Bats <i>Rhinolophus ferrumequinum</i>.</p> <p>Ebbor Gorge lies on the south west facing slope of the Mendip Hills and consists of a steep sided ravine cut into Carboniferous Limestone. A stream issuing to the west of the site runs down the tributary valley of Hope Wood before joining the main gorge. The majority of the site consists of calcareous Ash woodland with a varied age and canopy structure. Many of the flora and fauna present are a result of the woodland canopy.</p> <p>Applications in and around the SSSIs will be dealt with on a case-by-case basis.</p>
Water-related Special Area of Conservation (SAC)	<p>There are 2 SACs within this WRMU, these are North Somerset and Mendip Bats and Mendip Woodlands.</p> <p>North Somerset and Mendip Bats, is present in the middle of the WRMU around Wookey Hole Caves. The primary reason for designation is the (i) semi-natural dry grasslands and scrub-land facies on calcareous substrates (<i>Festuco-Brometalia</i>) and (ii) <i>Tilio-Acerion</i> forests of slopes, screes and ravines.</p> <p>Mendip Woodlands is situated to the west of the WRMU towards Westbury-sub-Mendip. The reason for its designation is that the site is a relatively extensive example of <i>Tilio-Acerion</i> forests on limestone. It is a cluster of three ash-dominated woods on Carboniferous limestone. A rich variety of other trees and shrubs are also present. The site is in the centre of the range of common dormouse <i>Muscardinus avellanarius</i>.</p> <p>Applications in and around the SACs will be dealt with on a case-by-case basis.</p>
Other designated sites	<p>There are a number of other designated sites such as statutory Local Nature Reserves and County Wildlife Sites, where we would take account of local effects of abstraction as part of our general duty.</p> <p>Applications within or near to these sites will be dealt with on a case-by-case basis.</p>

4.7 Water Resource Management Unit 7 – Cheddar Yeo

Map 10 shows the location of sites and features that may affect abstraction licence/water availability.

Map 10 Cheddar Yeo Water Resource Management Unit

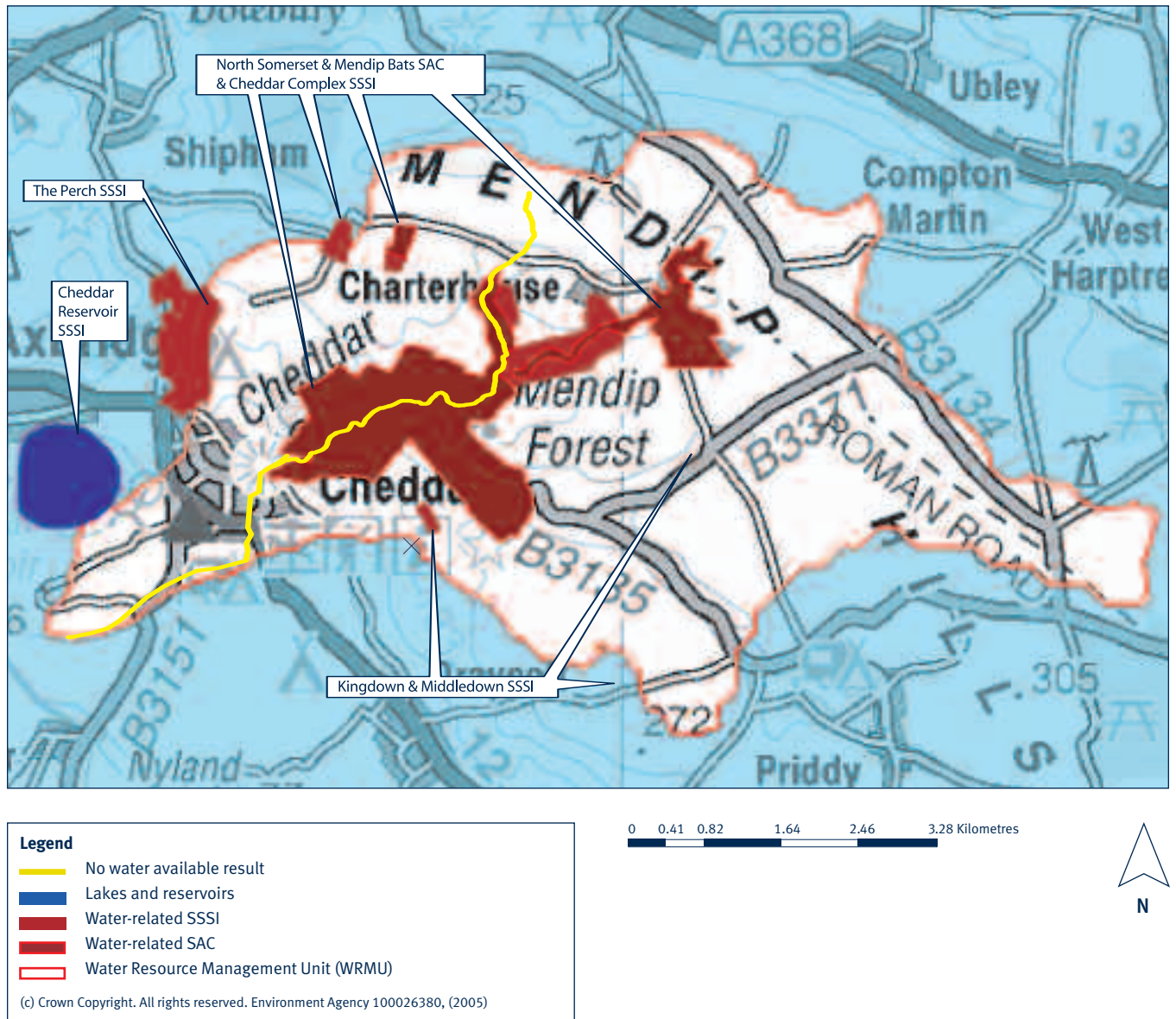


Table 22 Existing low flow resource availability status and target low flow resource availability status for the Cheddar Yeo Water Resource Management Unit

Associated main river	Resource Availability Status			Comment
	Individual WRMU status	Integrated WRMU status	Target status in 2010	
Cheddar Yeo	No water available	No water available	No water available	This unit includes the large public water supply abstraction to Cheddar reservoir. This has not been included in the resource assessment as it is a permanent feature of the catchment. However, when the ecology survey of the main river has been completed, this may indicate an abstraction-related impact. This abstraction may then require a full assessment during the next CAMS cycle and a possible review of the abstraction and its influence on river flows and the ecology. Keeping the WRMU at this status means that the situation will not deteriorate.



Upper Cox Mills pond at Cheddar

Our strategy

The water resource availability status of this WRMU is no water available at low flows. The target status for this WRMU in 2010 is to remain within the status of no water available.

The target status is the outcome of the sustainability appraisal process. If you want more information about the sustainability appraisal process and how we came to this decision please refer to Chapter 3 of the technical document on the attached CD.

Strategy for new and existing licences

The strategy for this WRMU is to remain within the status of no water available and not let the situation deteriorate. This means that for **new** licences:

- there is no unconstrained water resource available at low flows. We will issue licences that may have HOF conditions. These will be dealt with on a case-by-case basis;
- all new licences will be subjective to a local impact assessment that may require constraints to protect the local environment or other water users. This

assessment will include the impact of the Cheddar reservoir abstraction;

- all new licences (except under special circumstances) will have a time limit of 31 March 2013;
- we will consider the impact of any proposed licence on the water abstractions required to feed the internationally recognised Somerset Levels and Moors downstream of the WRMU.

and for **existing** licences:

- there will be no impact on existing licences;
- presumption of renewal, subject to the other renewal criteria and local considerations.

How much water is available and what restrictions might apply

Table 23 gives an indication of how much water is available for further abstraction and the associated restrictions that may apply to **new or varied** abstraction licences from the main river. Tributaries to the main river may be subject to different restrictions and quantities. We will be able to advise you on this.

All abstraction licence applications will be subject to an assessment to take account of any local issues and be granted on a first-come-first-served basis.

The quantities shown in Table 23 are accurate at the time this document was published and apply to the main river. For up to date information please contact us or look at the annual update of this information on our website at www.environment-agency.gov.uk/CAMS

Additional local information specific to this WRMU

There is no gauging station at the assessment point. The location of the HOF for new abstractions will be determined for each application on a case-by-case basis.

We will manage this unit by only issuing licences after a full determination has been completed. This will consider the influence of the reservoir abstraction on river flows. Licences are likely to have conditions limiting abstraction to higher flows.

We will continue to monitor the unit for this CAMS cycle to improve data for the environmental weighting score and also improve our modelling of complicated scenarios such as reservoirs.

Table 23 How much water is available and for how long can you abstract it (in an average year)

Restriction/condition on abstraction	Amount of water available in Ml/d	Number of days abstraction allowed (average year)	Explanation
Unconstrained Abstraction	0	365	There is no unconstrained water available.
The unconstrained water has been fully licensed; the HOF1 will be applied to new licences			
HOF 1			Due to the unknown influence of the Cheddar reservoir abstraction within this catchment, it is likely that all new unconstrained abstraction licences will be subject to HOFs. This will be done on a case-by-case basis.

Important local features that may affect water availability

Table 24 Presence of features that may affect water availability

Feature	Comment
Water-related Sites of Special Scientific Interest (SSSIs)	<p>There are four water related SSSIs within this WRMU: Kingdown & Middledown, The Cheddar Complex, The Perch and Cheddar Reservoir (just touching the edge of the WRMU).</p> <p>Kingdown & Middledown SSSI is designated for its grasslands and rare plant species.</p> <p>The Cheddar Complex site supports a wide range of semi-natural habitats which includes unimproved grassland, calcareous dry dwarf-shrub heath, semi-natural broadleaved woodland and dense and scattered scrub. Four nationally rare plants are also present – two of which are endemic to the Cheddar area – as well as fifteen nationally scarce species.</p> <p>The Perch SSSI consists of Calcareous grassland.</p> <p>Cheddar Reservoir SSSI is standing open water and canals. It is a wildfowl site, largely undisturbed and still carrying good populations of waterfowl although not at the levels of 30 years ago.</p> <p>Applications in and around the SSSIs will be dealt with on a case by case basis.</p>

Table continued overleaf

Table 24 continued Presence of features that may affect water availability

Feature	Comment
Water-related Special Area of Conservation (SAC)	<p>There is one SAC designation for the North Somerset and Mendip Bats present in the Mendip Forest in the centre of the WRMU. The SAC area also continues below the range of this WRMU. The primary reason for designation is the (i) semi-natural dry grasslands and scrub-land facies on calcareous substrates (<i>Festuco-Brometalia</i>) and (ii) <i>Tilio-Acerion</i> forests of slopes, screes and ravines.</p> <p>Applications in and around the SAC will be dealt with on a case by case basis.</p>
Other designated sites	<p>There are a number of other designated sites such as statutory Local Nature Reserves and County Wildlife Sites, where we would take account of local effects of abstraction as part of our general duty.</p> <p>Applications within or near to these sites will be dealt with on a case-by-case basis.</p>



Cheddar Reservoir

4.8 Groundwater Management Unit 8 – Broadfield

Map 11 shows the location of sites and features that may affect the abstraction licensing/water availability.

Map 11 Broadfield Down Groundwater Management Unit

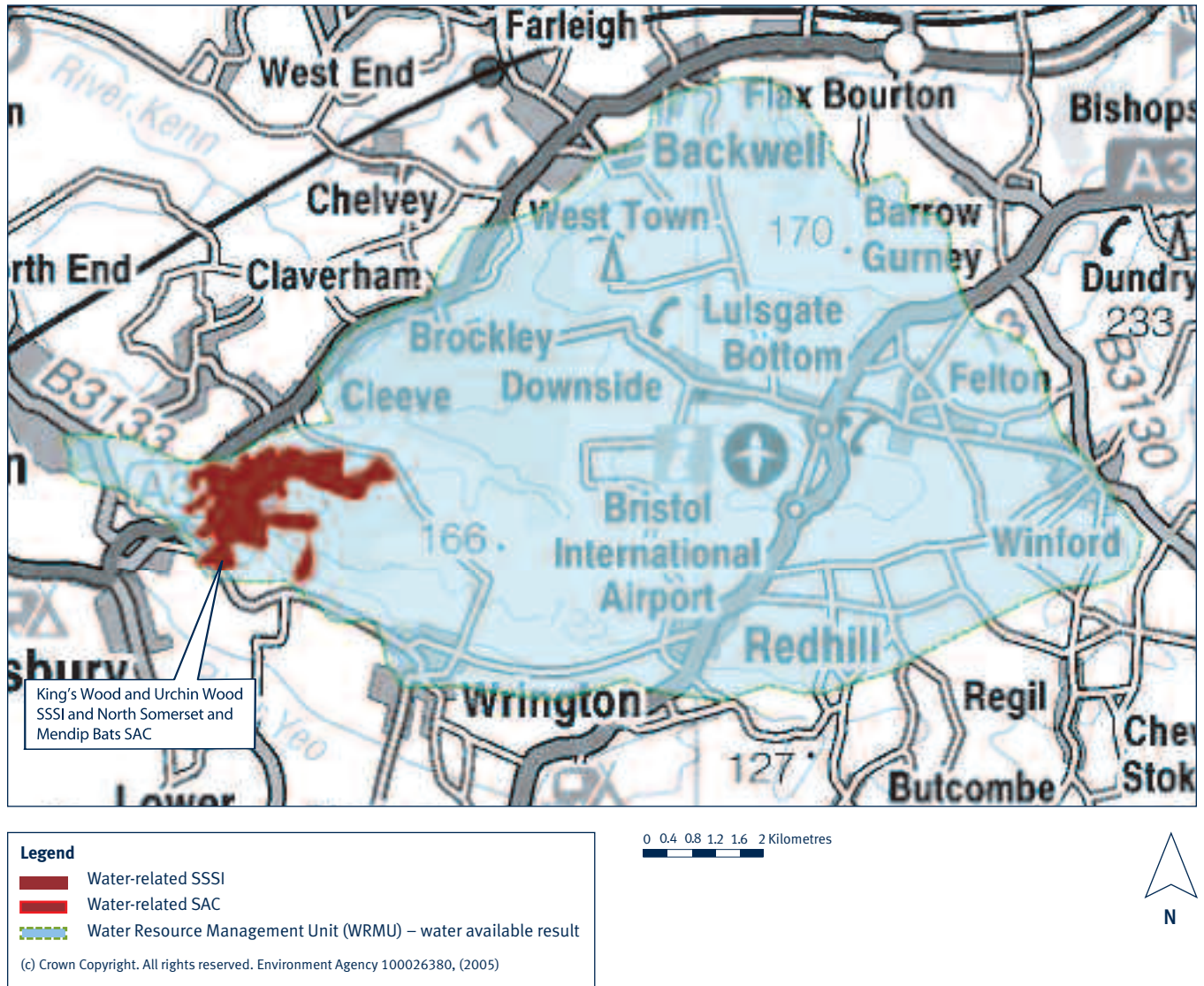


Table 25 Existing low flow resource availability status and target low flow resource availability status for the Broadfield Groundwater Management Unit

GWMU	Resource Availability Status			Comment
	Individual GWMU status	Integrated GWMU status	Target status in 2010	
Broadfield	Water available	Water available	Water available	We will keep this unit at water available in this CAMS cycle. This is a complex groundwater unit that provides baseflow to many river catchments including the Congresbury Yeo, Land Yeo, the river Kenn and to the Bristol Avon CAMS catchment. At present it is not known how much groundwater is needed as baseflow in these rivers and there have been problems in the past. Further unconstrained abstraction may have an impact, so keeping the WRMU at this status means that the situation will not deteriorate.

Our strategy

The water resource availability status of this GWMU is water available. The target status for this GWMU is to remain within the status of water available.

The target status is the outcome of the sustainability appraisal process. If you want more information about the sustainability appraisal process and how we came to this decision please refer to Chapter 3 of the technical document on the attached CD.

Strategy for new and existing licence holders

The strategy for this GWMU is to remain at water available. This means that for **new** licences:

- there is unlikely to be any unconstrained water available for abstraction from this GWMU;
- there will be a local impact assessment on all licence applications, which may result in the requirement for constraints;
- all new licences (except special circumstances) will have a time-limit of 31st March 2013.

and for **existing** licences:

- there will be no impact on existing abstraction licences;
- there is a presumption of licence renewal, subject to renewal criteria and other local considerations.

How much water is available and what restrictions might apply

There is unlikely to be any unconstrained water available for abstraction from this GWMU.

We will be able to advise you further. **All abstraction licence applications will be subject to an assessment to take account of any local issues and be granted on a first-come-first-served basis.**

Additional local information specific to this GWMU

We will continue to monitor the unit for this CAMS cycle to improve our knowledge of the groundwater scenario.

Because of current limited knowledge of the unit a pragmatic approach will be taken to licence applications. We will only issue licences after a full determination has been completed. This means that the situation will not deteriorate and appropriate licences may be issued. New licences may have conditions.

Important local features that may affect water availability

Table 26 Presence of features that may affect water availability

Feature	Present
Water-related Sites of Special Scientific Interest (SSSIs)	<p>There is one SSSI on the surface of this GWMU which may be affected by water level in the GWMU. The SSSI is King's Wood and Urchin Wood.</p> <p>King's Wood and Urchin Wood SSSI is a large area of ancient woodland with some ancient boundaries. It is also a roosting area for Greater Horseshoe Bats.</p> <p>Applications for licences on or around the SSSI will be dealt with on a case by case basis.</p>
Water-related Special Area of Conservation (SAC)	<p>There is one SAC on the surface of this GWMU which may be affected by water level in the GWMU. The SAC is called North Somerset and Mendip Bats, designated primarily for its semi-natural dry grasslands and scrublands facies on calcareous substrates (<i>Festuco-Brometalia</i>) and <i>Tilia-Acerion</i> forests of slopes, screes and ravines.</p> <p>Applications for licences on or around the SAC will be dealt with on a case by case basis.</p>
Other designated sites	<p>There are a number of other designated sites such as statutory Local Nature Reserves and County Wildlife Sites, where we would take account of local effects of abstraction as part of our general duty.</p> <p>Applications within or near to these sites will be dealt with on a case-by-case basis.</p>

5.0

These are the actions that we will undertake in the next six years to implement this strategy.

Strategy actions

Table 27 outlines what we will do to assist in water resource management during the lifetime of the strategy.

Table 27 Actions to assist in water resource management

Description, aim and comments	WRMU/GWMU	Start	Finish	External partners
The stated status within each WRMU & GWMU will be maintained for this CAMS cycle.	All	1/6/06	Start of next CAMS cycle in 2010	
If a licence is assessed as requiring conditions, conditions will be applied in conjunction with the RAM recommendations.	All	1/6/06	Start of next CAMS cycle in 2010	
The ecological flow requirement of the WRMU will be fully protected.	All	Ongoing	Ongoing	Additional information required from external partners.
The management strategy introduced will recognise the needs of all water users and will be used by those with an interest in abstraction related issues.	All	Ongoing	Ongoing	Additional information required from external partners.
We will encourage water efficiency in all cases.	All	Ongoing	Ongoing	All abstraction licence holders and new applicants.
We aim to ensure that there are no negative effects on the environment and 'at risk' categories.	All	Ongoing	Ongoing	
We will ensure that current abstractors rights are not affected.	All	Ongoing	Ongoing	
We will continue monitoring to improve information.	All	Ongoing	Ongoing	

Glossary of terms and abbreviations

Abstracted flow

Hydrograph representation of flow removed from river or the ground by abstraction.

Abstraction

Removal of water from a source of supply (surface or groundwater).

Abstraction – actual

The volume of water actually abstracted as opposed to the volume of water that may be abstracted under the terms of an abstraction licence. Most individual abstraction records are reported to the Environment Agency each year.

Abstraction charges

The charges payable on an annual basis to the Environment Agency under the terms of an abstraction licence.

Abstraction impact

The effect of abstractions taken directly from a body of water.

Abstraction licence

The authorisation granted by the Environment Agency to allow the removal of water.

Aquifer

A geological formation that can store and transmit groundwater in significant quantities.

Aquifer transmissivity

A measure of the ease at which water moves through a porous medium.

Artificial impacts

Combined impacts of abstraction and discharge on flows at the assessment point.

Artificial influences

Catchment activities such as surface water abstractions, effluent returns and groundwater abstractions which, individually or collectively, have an influence on natural flows or levels.

Artificial recharge

Water which is deliberately discharged to groundwater for the purposes of groundwater management.

Assessment Point (AP)

Critical point in a catchment at which an assessment of available resources is made. Assessment Points are located at the extremities of identified reaches and Water Resource Management Units.

Asset Management Plans (AMP)

Asset Management Plans are produced by water companies for Ofwat and set out the investment programme for the water industry. These plans are drawn up through consultation with the Environment Agency and other bodies to cover a five year period and have to be agreed by Defra and Ofwat.

Baseflow

The component of river flow that is derived from groundwater sources rather than surface run-off.

Benchmark flow

The river flow regime selected as a context for setting river flow objectives (may be natural, partly natural or gauged).

Biodiversity

The living component of the natural world. It embraces all plant and animal species and communities associated with terrestrial, aquatic and marine habitats. It also includes genetic variation within species.

Borehole

Well sunk into a water bearing rock from which water will be pumped.

Canal

An artificial watercourse used for navigation.

Candidate Special Area of Conservation (cSAC)

A candidate Special Area of Conservation classified under the EC Habitats Directive and agreed with the EU to contribute to biodiversity by maintaining and restoring habitats and species. It is expected to become a SAC.

Catchment

The area from which precipitation and groundwater will collect and contribute to the flow of a specific river.

Cessation condition

A condition on a licence that requires the licence-holder to immediately stop abstracting when a pre-determined flow or water level is reached, in order to prevent environmental damage.

Compensation flow

Water released from reservoirs in order to maintain a certain flow or level further downstream of the river.

Confluence

The point where two or more streams or rivers meet.

Consumptive use/Consumptiveness

Use of water where a significant proportion is not returned, either directly or indirectly, to the source of supply after use, e.g. spray irrigation.

Cubic metre (m³)

Equivalent to 219.969 gallons or 1,000 litres.

De-naturalisation

Process of converting a natural flow to an estimated existing or scenario flow by adding consumptive abstraction and discharge impacts.

Derogate

To depreciate or diminish – used in abstraction licensing where a proposed new licence would reduce resources to an existing authorised abstraction.

Designated water dependent sites

Nationally or internationally important (habitat) sites that have been legally recognised, which could be affected by water management or water quality issues.

Discharge

The release of substances (i.e. water, sewage, etc.) into surface waters.

Discharge consent

A statutory document issued by the Environment Agency, which defines the legal limits and conditions on the discharge of effluent into controlled waters.

Drought

A general term covering prolonged periods of below average rainfall resulting in low river flows and/or low recharge to groundwater, imposing significant strain on water resources and potentially the environment.

Drought order

A means where Water Companies and/or the Environment Agency apply to the Secretary of State for the imposition of restrictions in the uses of water.

Drought permit

Used by the Environment Agency in order to allow a Water Company to abstract water outside of the normal terms of an Abstraction Licence during a drought period.

Dry Weather Flow (DWF)

This can be thought of as the average flow in the driest week in the average summer.

Ecological River Flow Objectives/Level Requirements

The minimum river flows (or water levels) required to protect ecological objectives.

Environmental impact

The total effect of any operation on the environment.

Environmental Weighting (EW)

An assessment of a rivers sensitivity to abstraction based on physical characteristics, fisheries, plant life and invertebrates. It is specifically used in the CAMS RAM.

EU Water Framework Directive

First major review of European water policy. Seeks to improve water quality in rivers and groundwater in an integrated way (see Integrated River Basin Management).

Evapotranspiration

The total loss of water as a result of transpiration from plants and the evaporation of water from soil, rock and surface water.

Existing abstraction and discharge impacts

The amount by which all abstractions reduced natural flows in the scenario year, taking into account the consumptiveness of the use, the location of any effluent return and any lags or smoothing effects between abstraction and outflow impact. Based on estimated abstraction returns from the scenario year.

Flood plain

Land adjacent to a watercourse that is subject to flooding.

Flow duration curve

A graph showing the plot of flow versus exceedance value. Thus Q95 (the natural river flow that is exceeded 95% of the time) will be a low rate of flow, and Q5 (the natural river flow which is only exceeded 5% of the time) will be a high rate of flow.

Flow regime

The statistical pattern of a rivers varying (mean daily) flow rates.

Fluvial

A term applied to the action of rivers and streams.

Gauged flow records

Records of flow in a river as conventionally measured. They reflect natural runoff from the catchment and artificial influences (abstraction, discharge, etc) that occur upstream of the measurement point.

Gauging station

A site where the flow of a river is measured.

General Quality Assessment (GQA)

Method for assessing the general quality of inland and coastal waters.

Groundwater

Water that is contained in underground rocks.

Groundwater baseflow

The contribution that groundwater makes to the flow of rivers. It maintains the flow of rivers during extended periods of dry weather.

Groundwater catchment

The area from which groundwater will collect and flow to a specific river or over a specific discharge boundary.

Groundwater Management Units (GWMU)

Administrative sub-divisions of aquifers, defined on geological and hydrogeological criteria, which form the basis for groundwater resource management and licensing policy decisions.

Habitat

Place in which a species or community of species live, with characteristic plants and animals.

Habitats Directive

A European directive on Conservation of Natural Habitats and of Wild Flora and Fauna. The Directive is implemented in the UK by the Conservation (Natural Habitats & c.) Regulations 1994 – commonly known as the ‘Habitats Regulations’. The Directive created a network of protected areas across the European Union known as ‘Natura 2000’ sites.

Hands-Off Flow (HOF)

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.

Hydrogeology

Branch of geology concerned with water within the Earth’s crust.

Hydrology

The study of the Earth’s water, in particular of water under and on the ground before it reaches the ocean or before it evaporates.

Hydrometric network

Networks of sites monitoring rainfall, river flow and other water levels. The data collected is used for water resources management and planning, water quality, ecological protection and improvement, flood defence design and flood warning.

Hydrometry

The measurement of water on or below the earth’s surface.

Hydropower

The production of electricity by the force of fast moving water, usually by using turbines, water wheels, etc.

Impoundment

An artificial body of water or wastewater such as a pond or dam for collection or storage of water for future use.

Integrated River Basin Management

The method by which the EU Water Framework Directive will be implemented to ensure that all requirements and pressures on the water environment are taken into account.

Irrigation

The artificial distribution and application of water through man made systems in order to stimulate crop growth.

Land drainage

Actions taken to reduce waterlogging of land and to minimise flood risk.

Leakage

Water lost from a supply network between the point of supply and point of demand.

Licence

Formal permit allowing the holder to engage in an activity (in the context of this report, usually abstraction), subject to conditions specified in the licence itself and the legislation under which it was issued.

Licence application

Formal request by an individual or organisation to the competent authority for a licence. For abstraction licences, the competent authority is the Environment Agency.

Licence determination

A decision by the Environment Agency on what terms to grant or refuse a licence application, by reference to regulatory powers and duties.

Licence of right

A licence that was introduced by the 1963 Water Resources Act in order to regulate abstractions. It is restricted mainly by the quantity of water authorised by abstraction. This type of licence is no longer issued.

Licensed abstraction and discharge impacts

The impacts of abstractions and discharges calculated for current abstraction licences and discharges based on full uptake of licensed abstraction rates and consumptiveness assumptions.

Licensed Entitlement

Amount of water that may be abstracted within the terms of a licence. Generally it is specified in terms of maximum per day, month, year or season. The monthly/annual amounts tend to be less than the factored daily equivalent.

Low flow

It is usually determined at a given value of 'Q95', which means that flow falls below this level 5% of the time.

Low Flows 2000

A software package which originated from CEH, which can be used to generate low flow statistics for a catchment.

Main river

The watercourse shown on the statutory Main River Maps held by the Agency and Defra. The Agency has permissive powers to carry out works of maintenance and improvements on these rivers.

Managing Water Abstraction

Document produced in May 2001 about the CAMS process. It was updated in July 2002.

Mean flow

A long term average of the daily flow.

Natural flows

The flows which would exist in the absence of any artificial impacts.

Naturalisation

Process of converting gauged flows into natural flows by removing consumptive abstraction and discharge impacts.

Naturalised flow records

The measured flow with a best estimate of upstream abstractions from and discharges to the stream taken into account. These represent the runoff from the catchment that would occur if there were no artificial influences upstream.

Non-consumptive

This is where all abstracted water is returned to the source a relatively short distance downstream of the abstraction point e.g. hydropower generation, fish farming.

Precipitation

Deposition of moisture including dew, hail, rain, sleet and snow.

Prescribed flow

A generic term for any flow set down as a rule or guide to be followed under statute or regulation.

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 m³/d.

Public Water Supply (PWS)

Term used to describe the supply of water provided by a water company.

Q50

The flow of a river which is exceeded on average for 50% of the time.

Q95

The flow of a river which is exceeded on average for 95% of the time.

RAM Framework

Resource Assessment and Management Framework – a technical framework for resource assessment (for the definition and reporting of CAMS) and subsequent resource management (including abstraction licensing).

Ramsar site

A site of international conservation importance classified at the Convention on Wetlands of International Importance 1971, which was ratified by the UK Government in 1976.

Reach

Unit of a river between two Assessment Points, delineated for the purposes of abstraction licensing and resource management.

Recent actual abstraction and discharge impacts

The impacts of abstractions and discharges calculated for current abstraction licences and discharges based on recent abstraction returns or estimated from uptake and consumptiveness assumptions.

Residual flow

The flow remaining in a river following the abstraction of water from it.

Restoring Sustainable Abstraction Programme (RSA)

The programme for resolving environmental problems caused by unsustainable abstraction in certain catchments.

Revocation

The cancellation of a licence and all associated rights and benefits.

River

An open channel of fresh water flowing along a definite course, usually towards the sea, which is fed by tributaries.

River Corridor

The continuous area of river, riverbanks and immediately adjacent land alongside a river and its tributaries.

River Flow Objectives (RFOs)

The minimum river outflows required to protect ecological objectives within the area. It also considers effluent dilution requirements, navigation and other in-river needs.

River Quality Objective (RQOs)

An agreed strategic target, expressed in terms of River Ecosystem standards, which is used as the planning base for all activities affecting the water quality of a stretch of watercourse.

River reach

Unit of a river between two Assessment Points, delineated for the purposes of abstraction licensing and resource management.

Salmonids

Family of fish (salmonidae) which includes many commercially farmed species such as the Salmon, Trout and Char.

Scenario abstraction and discharge impacts

The amount by which all the abstractions in the area reduce natural outflows, taking into account the consumptiveness of the use, the location of any effluent return and any lags or smoothing between abstraction and outflow impact. Based on an assumed abstraction and discharge scenario (e.g. 'Full Licensed Rate', 'Existing', 'Recent Actual' etc).

Scenario flows

The flow at a given assessment point based on a defined abstraction and discharge rate.

Site of Special Scientific Interest (SSSI)

An area given a statutory designation by English Nature or the Countryside Council for Wales because of its nature conservation value.

Source of supply

Either an inland water (river, stream, canal, lake, etc.) or underground strata.

Special Area of Conservation (SAC)

An area classified under the EC Habitats Directive and agreed with the EU to contribute to biodiversity by maintaining and restoring habitats and species.

Special Protection Area (SPA)

An area classified under the EC Birds Directive to provide protection to birds, their nests, eggs and habitats.

Spray Irrigation

Abstracted water sprayed onto grassland, fruit, vegetables, etc. During the summer period it has a high impact on water resources.

Springs

These occur where the water table intersects the ground's surface.

Strata

Layers of rock, including unconsolidated materials such as sands and gravels.

Surface Water

This is a general term used to describe all water features such as rivers, streams, springs, ponds and lakes.

Surface water catchment

The area from which runoff would naturally discharge to a defined point of a river, or over a defined boundary.

Surplus or Deficit

How much more or how much less abstraction impact is acceptable:
= Scenario flows – RFOs.

Sustainable development

Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

Sustainable management

The interpretation of the principles of sustainable development at a local or regional level within the boundaries of national and international political, economic and environmental decision making.

Telemetry

A means of collecting information by unmanned monitoring stations (often river flows or rainfall) using a computer that is connected to the public telephone system.

Threshold

A Hands Off Flow (HOF) value within a sequence of HOFs, each individual MI/d higher than the previous.

Tidal limit

The most upstream point within an estuary or river where water levels are subject to tidal variation.

Time Limited Licence

Licence with specified end date.

Treatment Works (also Waste Water Treatment Works)

Sewage Treatment Works or Water Treatment Works.

Trickle irrigation

The irrigation of crops by taking water direct to the plant roots, but without spraying or ejecting into the air.

Underground Strata

A term used to signify geology under the surface soil layer.

Unlicensed Abstraction

An abstraction that is carried out unlawfully or that is exempt from licensing.

Uptake

The degree to which a licensed entitlement is actually abstracted over a period of time.

Water Resource Management Unit (WRMU)

An area that has similar groundwater and/or surface water characteristics and is managed in a similar way.

Water Resource(s)

The supply of groundwater and surface water in a given area.

Water Resources Strategies (The)

Strategy for Water Resource planning in England and Wales over the next 25 years which will ensure sustainable use and sufficient water for all human uses with an improved water environment. The strategies predict demand using different social and economic scenarios.

Water Rights Trading

The transfer of licensable water rights from one party to another for benefit.

Water table

Level below which the ground is saturated with water. May vary with rainfall and pumping of boreholes.

Watercourse

Any channel along which water flows.

Wetland

An area of low lying land where the water table is at or near the surface for most of the time, leading to characteristic habitats.

List of Abbreviations

AMP

Asset Management Plan produced by the Water Companies for OFWAT. It sets out the investment programme by the water industry.

AONB

Area of Outstanding Natural Beauty.

AP

Assessment Point.

BANSS

Brue, Axe and North Somerset Streams

CAMS

Catchment Abstraction Management Strategy.

cSAC

Candidate Special Area of Conservation.

cSPA

Candidate Special Protection Area.

Defra

Department for the Environment, Food and Rural Affairs (succeeds former DETR and MAFF).

EU

European Union.

GQA

General Quality Assessment.

GWMU

Groundwater Management Unit.

HOF

Hands-Off Flow.

Km

Kilometres.

Km²

Square kilometres.

m³/s

Cubic metres per second.

ML, ML/d, ML/day

ML = megalitres = 1,000,000 litres = 1,000 cubic metres = 1,000 m³ = 220,000 gallons

ML/d = ML/day = ML per day, = thousand cubic metres per day (tcmd).

ML/a

ML/a = Megalitres per year.

OFWAT

Office of Water Services.

PWS

Public Water Supply.

Q50

Flow exceeded 50% of the time period considered.

Q95

Flow exceeded 95% of the time period considered.

RFO

River Flow Objectives.

RQO

River Quality Objective.

SAC

Special Area of Conservation.

SPA

Special Protection Area.

SSSI

Site of Special Scientific Interest.

SW

Surface Water.

WRMU

Water Resource Management Unit.



The South Drain Brian Phipps (www.brianhipps.net)

Appendix 1: The technical document structure and CD





This CD-ROM contains the Brue, Axe and North Somerset Streams CAMS Technical Document in a printable PDF format and can be viewed in Adobe Acrobat. If you have any problems with the CD, please contact

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