



# Broadland abstraction licensing strategy

A strategy to manage water resources sustainably

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8 May 2017

We are the Environment Agency. We protect and improve the environment.

Acting to reduce the impacts of a changing climate on people and wildlife is at the heart of everything we do.

We reduce the risks to people, properties and businesses from flooding and coastal erosion.

We protect and improve the quality of water, making sure there is enough for people, businesses, agriculture and the environment. Our work helps to ensure people can enjoy the water environment through angling and navigation.

We look after land quality, promote sustainable land management and help protect and enhance wildlife habitats. And we work closely with businesses to help them comply with environmental regulations.

We can't do this alone. We work with government, local councils, businesses, civil society groups and communities to make our environment a better place for people and wildlife.

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# 1. About the licensing strategy

This strategy sets out our approach to managing new and existing abstraction and impoundment within the Broadland catchment in the Anglian river basin district. The Broadland Rivers catchment area is extensive and covers 3188 km<sup>2</sup> of relatively flat land predominantly in the county of Norfolk with a small proportion of the area (16%) lying in Suffolk. The catchment area extends from Felbrigg and Briston in the north to Thordon in the south. The most westerly extent is Great Massingham with Lowestoft being the most easterly extent.

Many parts of the Broadland Rivers CAMS area are designated for their variety of habitats and species. These include Broadland Special Protection Area (SPA), The Broads Special Area of Conservation (SAC), Norfolk Valley Fens SAC, River Wensum SAC, and The Broads Environmentally Sensitive Area

Our approach ensures that River Basin Management Plan objectives for water resources activities are met and we avoid deterioration within this catchment.

We apply this approach to the water body in which the abstraction is located. It also applies to all downstream surface water bodies that may be affected by any reduction in abstraction-related flow, or adjacent groundwater bodies affected by any reduction in groundwater level.

Please see [managing water abstraction](#) on GOV.UK for the technical explanation, legal and policy requirements behind the Abstraction Licensing Strategy (ALS).

Please see the [abstraction pages](#) on GOV.UK for advice on who needs an abstraction or impoundment licence, and how to apply.

## 2. Water resource availability of the Broadland ALS

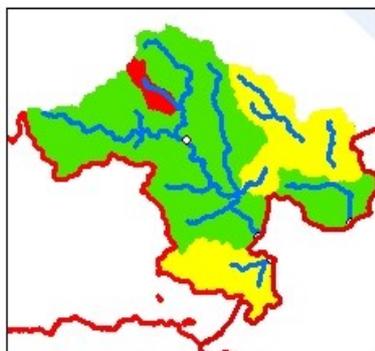
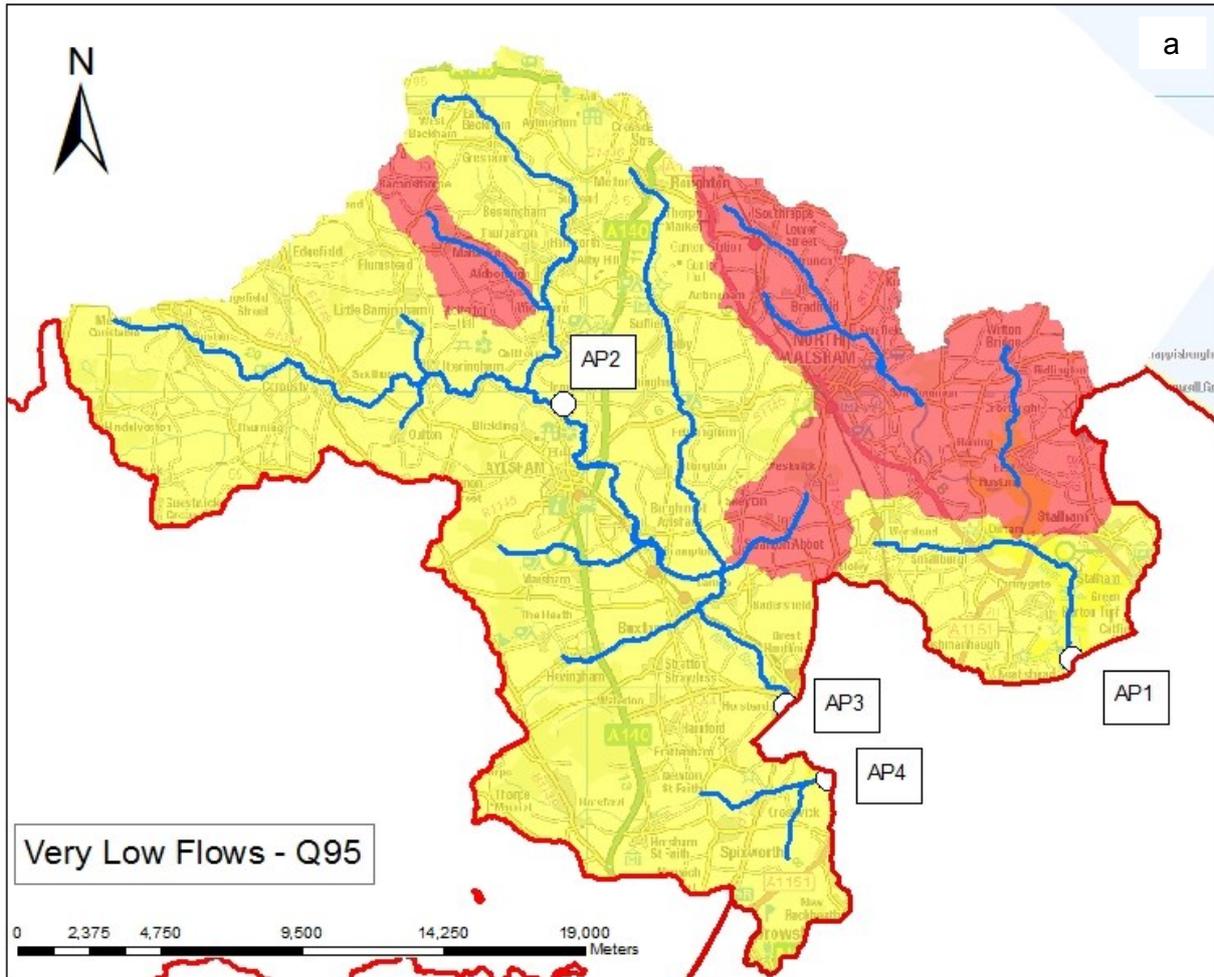
### 2.1. Resource availability

The water resource availability, calculated at four different flows, Q95 (lowest), Q70, Q50, and Q30 (highest) for this ALS are presented and explained in map 1a-e and table 1 below.

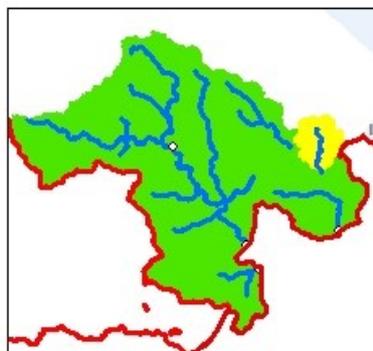
**Licence renewals will continue to be considered with regard to environmental sustainability, justification of need, and efficient use of water. We must ensure that the licensing of abstraction is sustainable and won't cause deterioration in the ecology of our rivers, wetlands and estuaries or deplete groundwater resources. Section 4.2 contains more information on how our approach to renewing time limited licences will manage the risk of deterioration.**

Maps 1a-1e. Water resource availability colours at Q30, Q50, Q75 and Q95 in the Broadland Abstraction Licensing Strategy

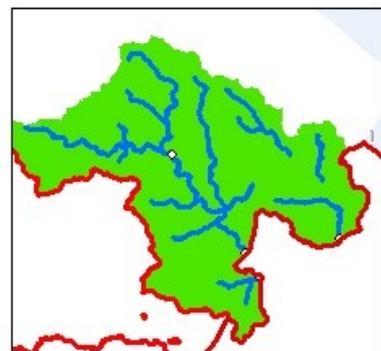
# Broadland CAMS Ant, Bure & Spixworth Group Downstream Colours



Low Flows - Q70



Median Flows - Q50

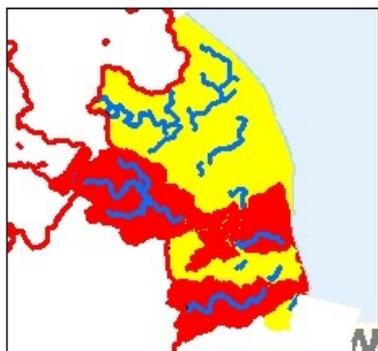
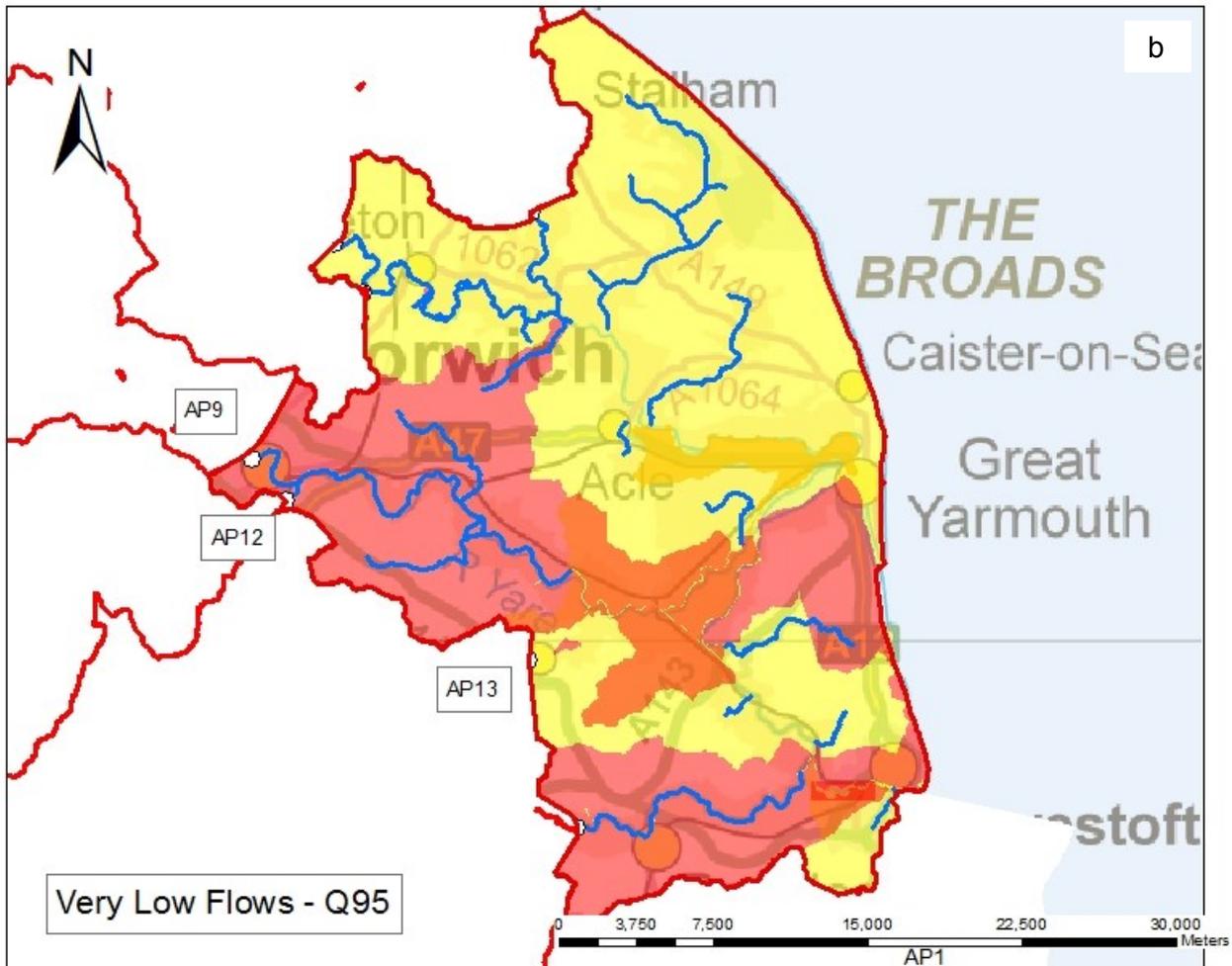


High Flows - Q30

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Broadland CAMS  
 Broads Group  
 Downstream Colours



Low Flows - Q70



Median Flows - Q50

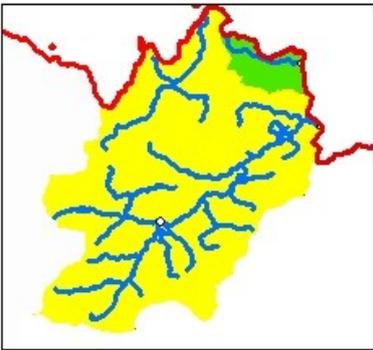
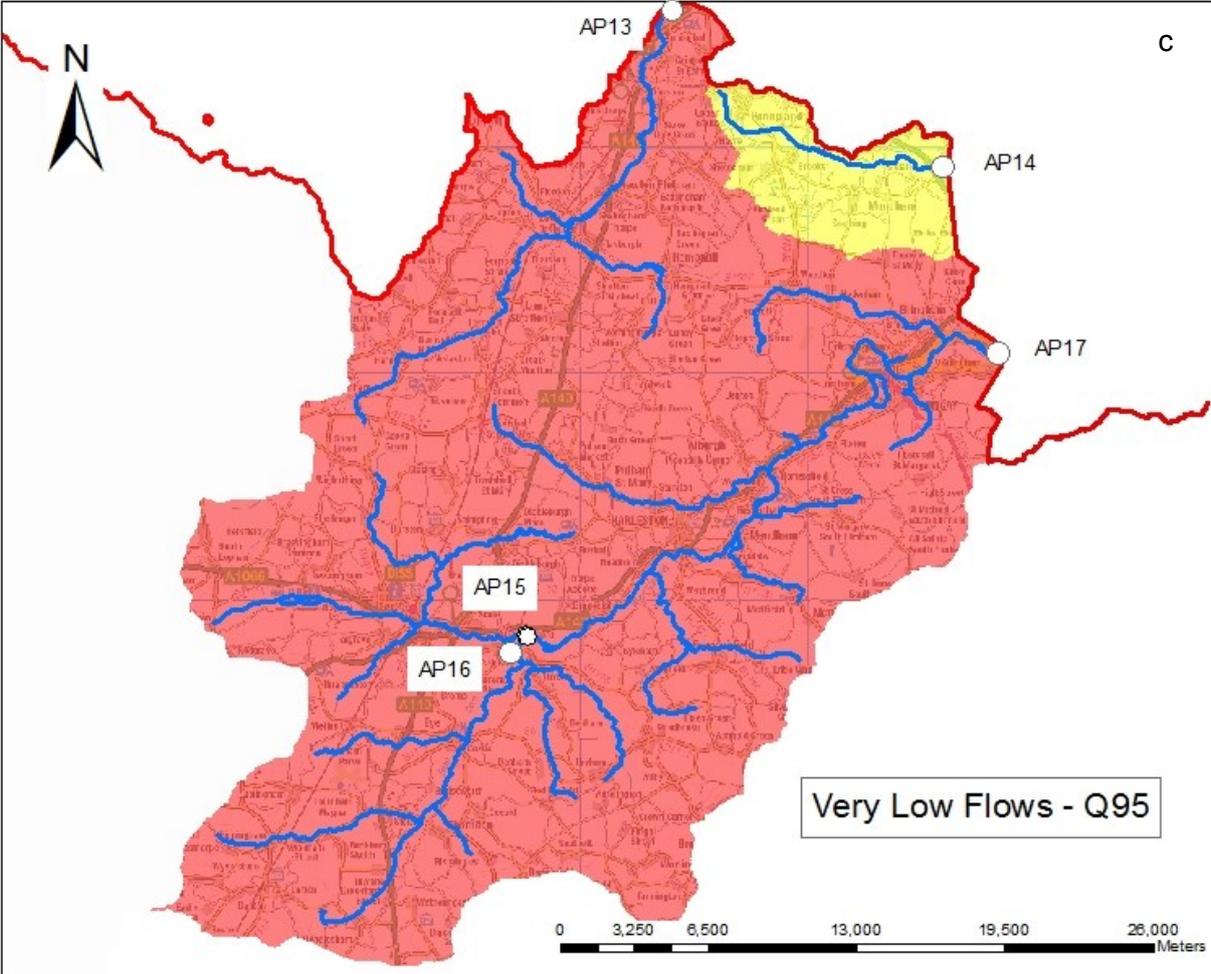


High Flows - Q30

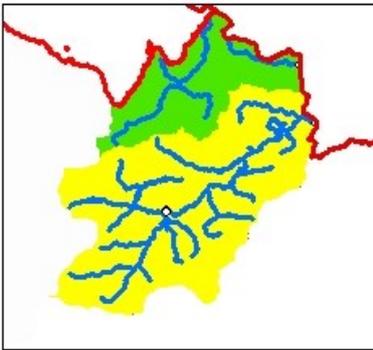
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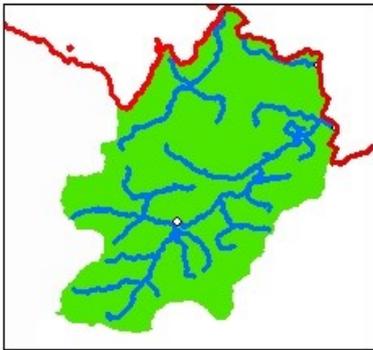
Broadland CAMS  
 Tas, Waveney & Chet Group  
 Downstream Colours



Low Flows - Q70



Median Flows - Q50

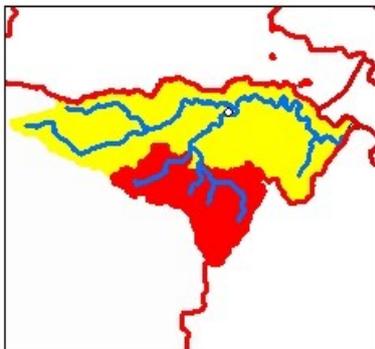
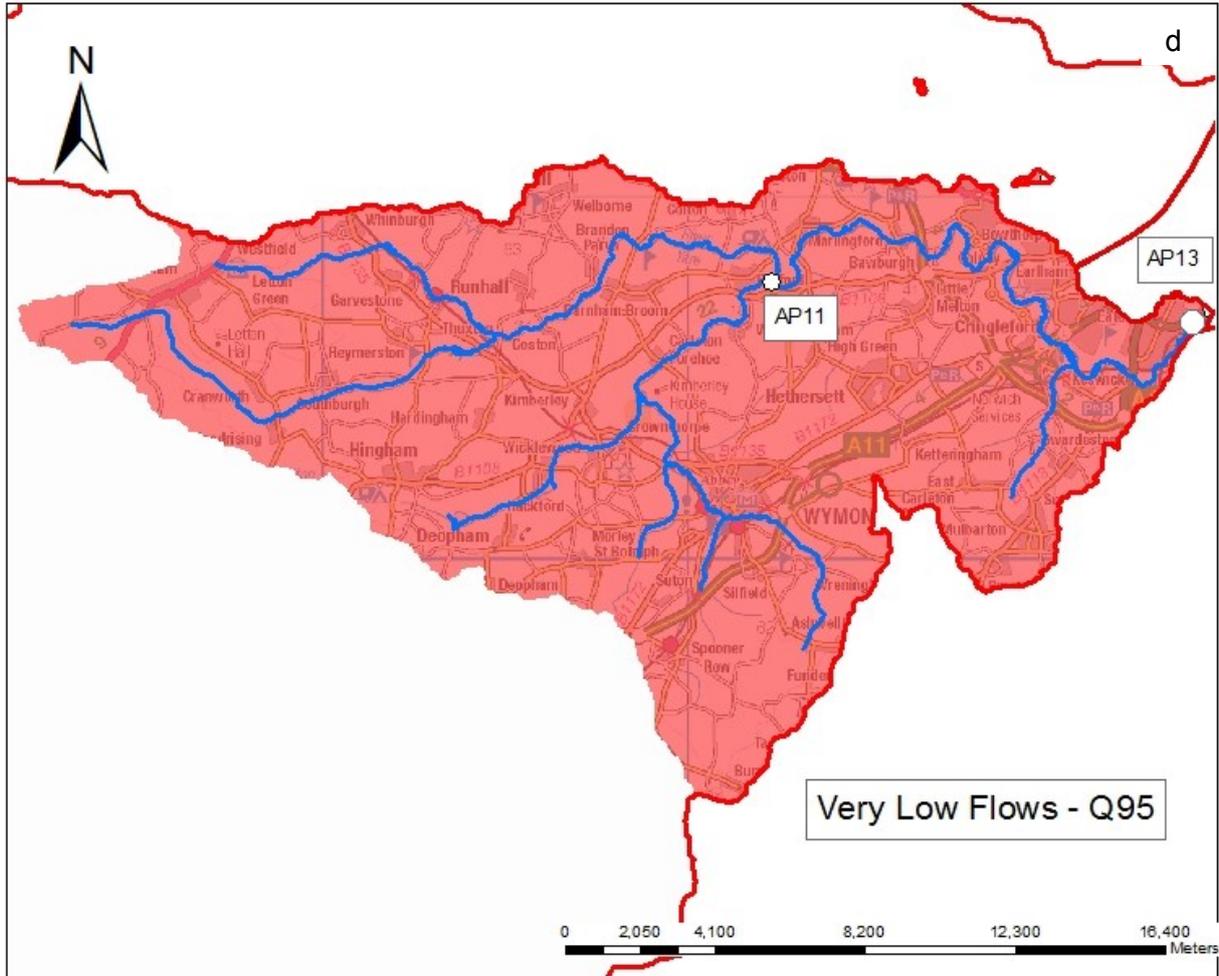


High Flows - Q30

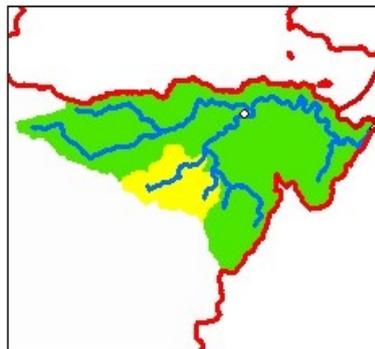
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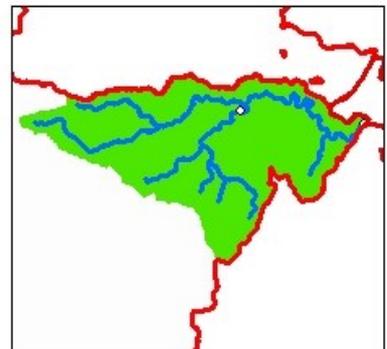
Broadland CAMS  
Tiffey & Yare Group  
Downstream Colours



Low Flows - Q70



Median Flows - Q50

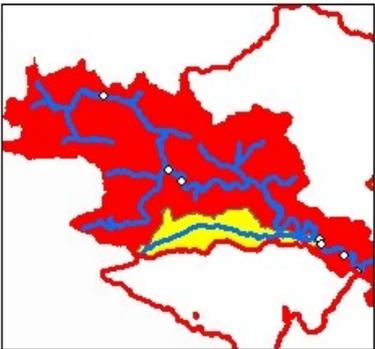
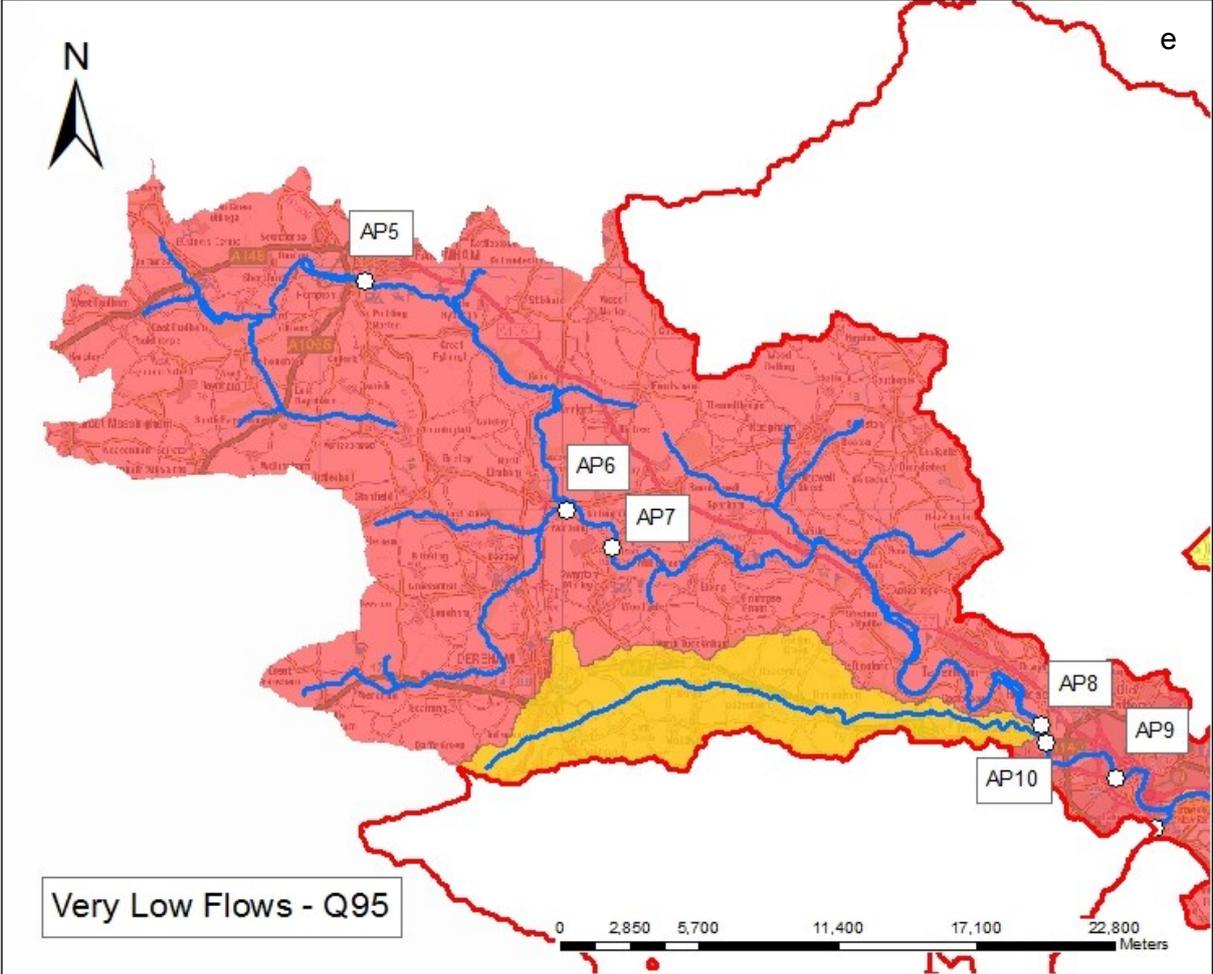


High Flows - Q30

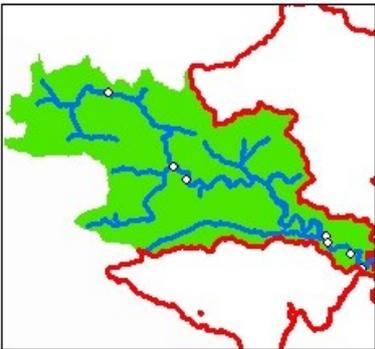
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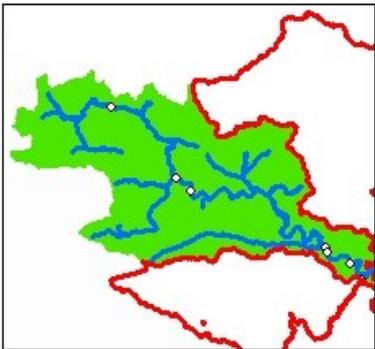
Broadland CAMS  
 Wensum & Tud Group  
 Downstream Colours



Low Flows - Q70



Median Flows - Q50



High Flows - Q30

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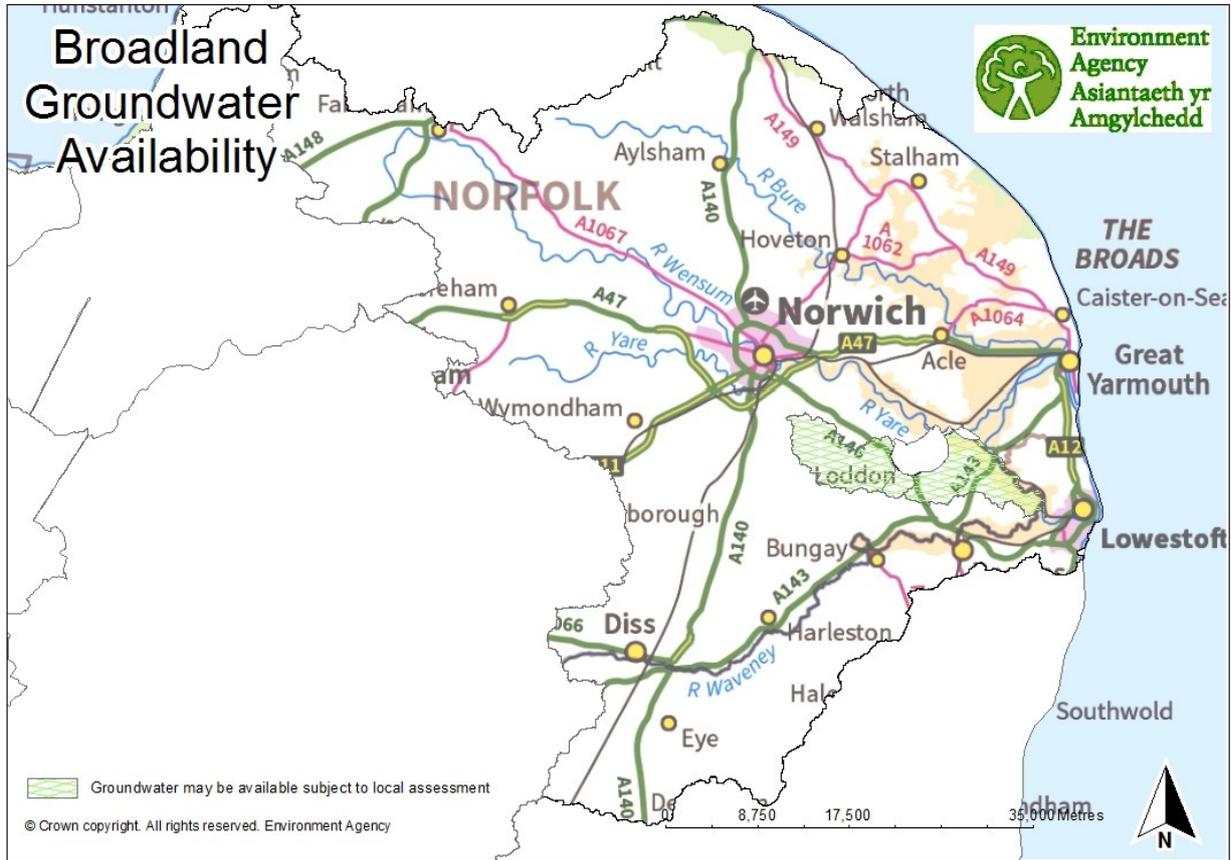
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Table 1. Water resource availability colours and their implications for licensing .

<b>Water resource availability colour</b>	<b>Implication for licensing</b>
Water available for licensing	<p>There is more water than required to meet the needs of the environment.</p> <p>New licences can be considered depending on local and downstream impacts. Some time limited licence renewals may require changes to reflect historic annual usage in order to manage the risk of deterioration to the environment.</p> <p>Abstractions for non-consumptive uses can still be permissible in catchments where there are sustainability issues.</p>
Restricted water available for licensing	<p>Full Licensed flows fall below the Environment Flow Indicators (EFIs).</p> <p>If all licensed water is abstracted there will not be enough water left for the needs of the environment. No new consumptive licences would be granted. Some time limited licence renewals may require changes to reflect historic annual usage in order to manage the risk of deterioration to the environment. It may also be appropriate to investigate the possibilities for reducing fully licensed risks. Water may be available if you can ‘buy’ (known as licence trading) the entitlement to abstract water from an existing licence holder.</p> <p>Abstractions for non-consumptive uses can still be permissible in catchments where there are sustainability issues.</p>
Water not available for licensing	<p>Recent actual flows are below the EFI.</p> <p>This scenario highlights water bodies where flows are below the indicative flow requirement to help support Good Ecological Status/Potential (GES/P) (as required by the Water Framework Directive).</p> <p>Note: we are currently taking action in water bodies that are not supporting GES / GEP). No further consumptive licences will be granted. Some time limited licence renewals may require changes to reflect historic annual usage in order to manage the risk of deterioration to the environment. Water may be available if you can buy (known as licence trading) the amount equivalent to recently abstracted from an existing licence holder.</p> <p>Abstractions for non-consumptive uses can still be permissible in catchments where there are sustainability issues.</p>
HMWBs (and /or discharge rich water bodies)	<p>These water bodies have a modified flow that is influenced by reservoir compensation releases or they have flows that are augmented by a support scheme or large water recycling centre. These are often known as ‘regulated rivers’. They may be managed through an operating agreement, often held by a water company. The availability of water is dependent on these operating agreements. More detail if applicable can be found in section 4.2.1 Surface Water</p> <p>Some time limited licence renewals may require changes to reflect historic annual usage in order to manage the risk of deterioration to the environment.</p> <p>There may be water available for abstraction in discharge rich catchments, you need to contact the Environment Agency to find out more.</p> <p>Abstractions for non-consumptive uses can still be permissible in catchments where there are sustainability issues.</p>

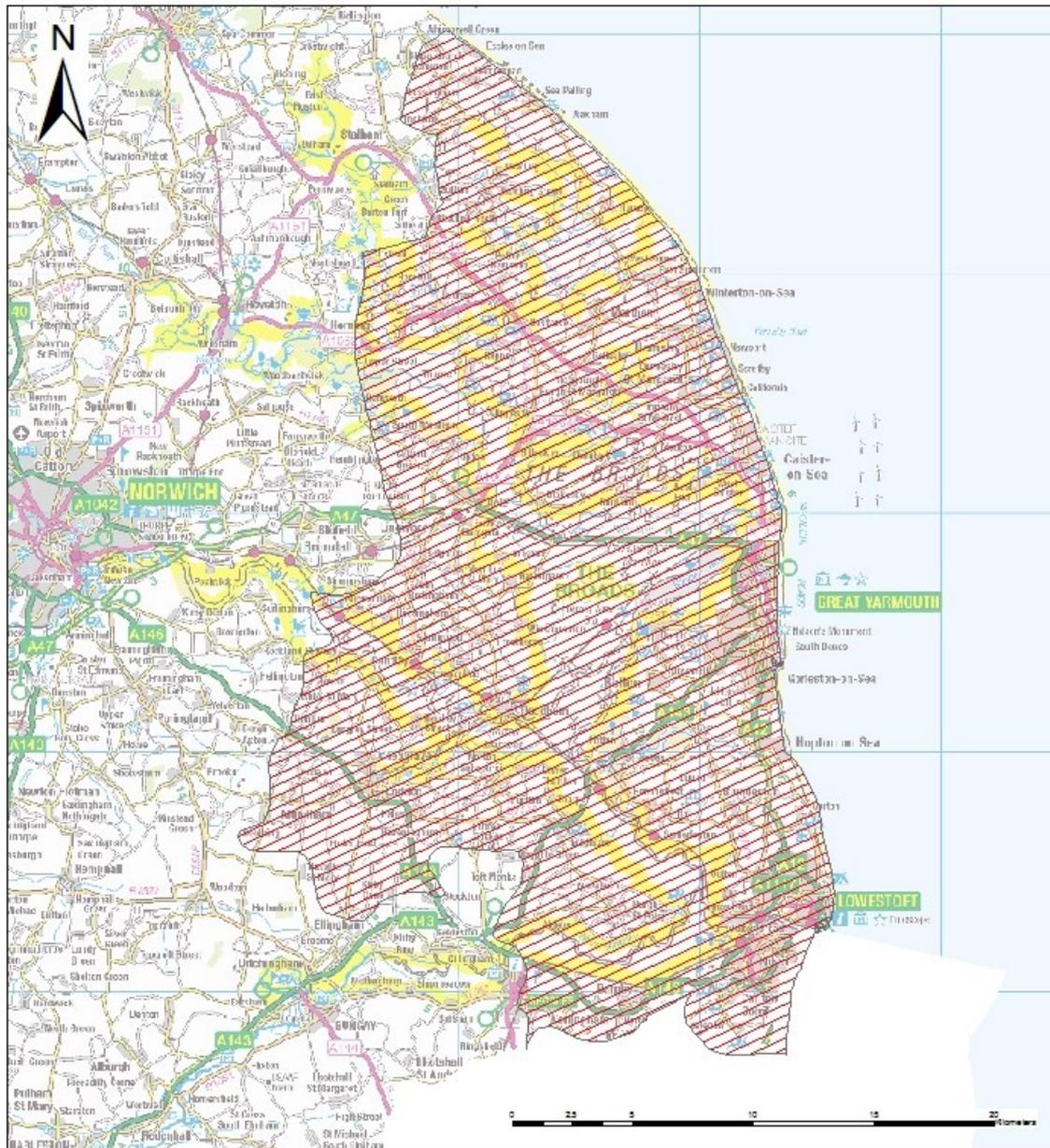
Water availability for unconfined groundwater in the Broadland abstraction licensing strategy is based on surface water availability at Q95.

In certain areas, resource concerns over groundwater mean that the standard water resource availability colours have been overridden. Table 1a explains the groundwater resource availability colours, and maps 1f and 1g show these colours for groundwater in Broadland area.



Map 1f Shallow Groundwater availability in Broadland.

# Broadland CAMS Area Broads Confined Chalk



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## Legend

 Broads Chalk

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Map 1g Confined Chalk groundwater availability in Broadland. - No Water Available

Table 1a. Groundwater resource availability colours and their implications for licensing.

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

## 2.2. Resource reliability

If you want to apply for a licence, it's worth considering the reliability of your abstraction.

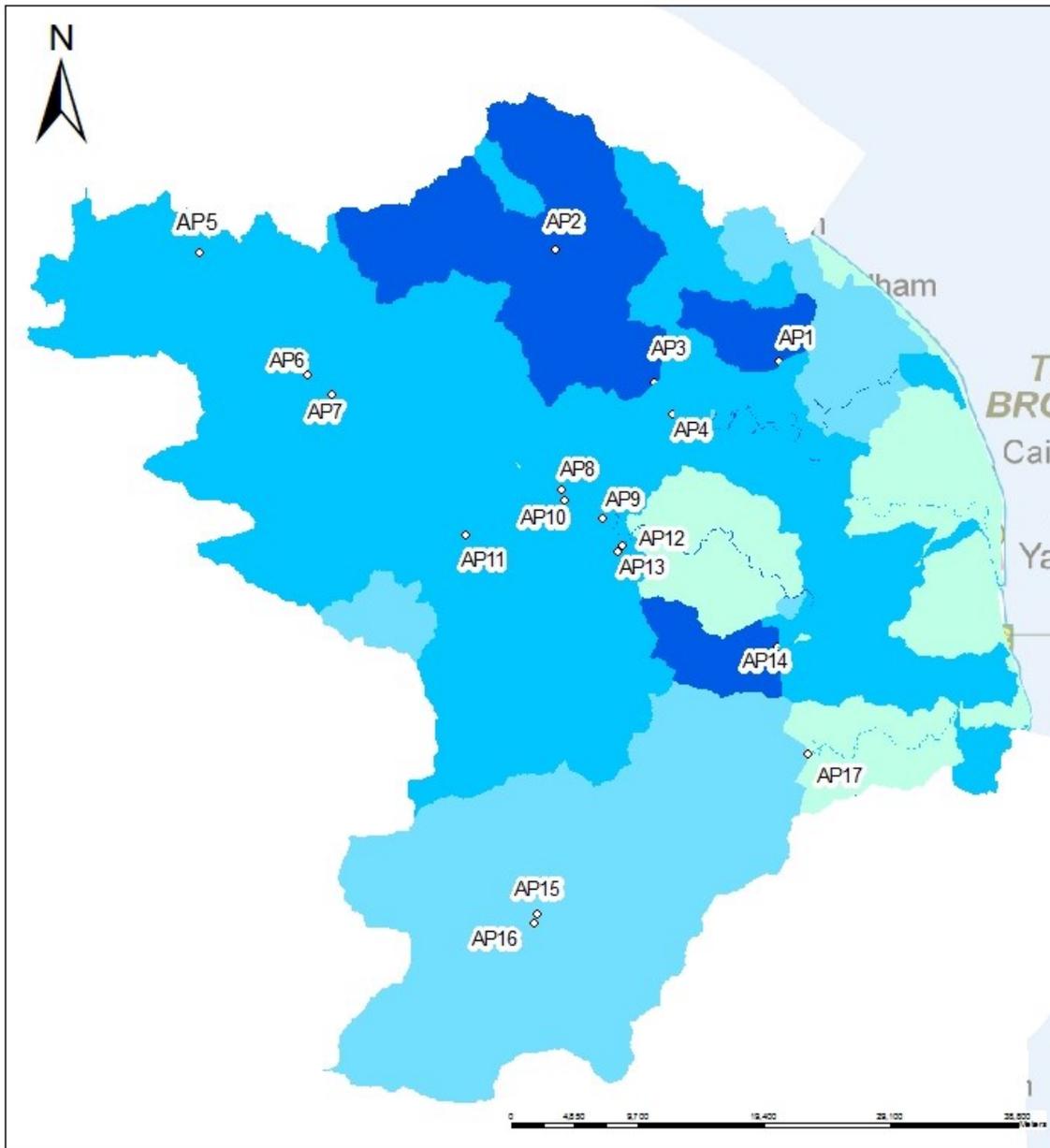
By assessing the quantity of water available at different flows it's possible to see when there is a surplus or deficit of water and the associated reliability of an abstraction. This is an indication only; actual reliability of a licence will be discussed when you apply.

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

Table 2. Percentage reliability of consumptive abstraction

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

# Broadland CAMS Area Resource Reliability



### Legend

- less than 30%
- at least 30%
- at least 50%
- at least 70%

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Map 2 Water resource reliability expressed as percentage of time available.

## 2.3. Other considerations for availability and reliability

When we grant a licence, it doesn't mean that we guarantee a supply of water. Because we have to protect the environment and the rights of other abstractors, we may have to add constraints to licences such as 'hands off flow' (HoF) conditions. These conditions specify that if the flow in the river drops below what's needed to protect the environment, abstraction must reduce or stop. So, in dry years, restrictions are likely to apply more often, which will affect the reliability of supply.

Whilst this document may say that water is available for abstraction, this doesn't guarantee that all applications will be successful. This is because we have to determine each application on its own merits, and local factors may mean we're either unable to grant a licence as applied for, or even at all.

New licences within an ALS are usually given a Common End Date (CED), which allows them to be reviewed at the same time. The next CED for this ALS is 31 March 2030, apart from the Wensum catchment where the CED is 31 March 2024.

## 2.4. Impoundments

Applications for impoundments will be dealt with on a case by case basis. More information may be found on our [web site](#).

# 3. How we manage abstraction in the Broadland ALS

## 3.1. Assessment points

We assess surface water flows at Assessment Points (APs), which are significant points on a river, often where two major rivers join or at a gauging station. APs cover multiple surface water bodies.

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

Table 3 gives an indication of how much water is available for further abstraction and the associated restrictions we may have to apply to new and varied abstraction licences from the main river. Tributaries to the main river may be subject to different restrictions and quantities and will be assessed locally on a case by case basis.

Each HoF is linked to an AP and is dependent on the resource availability at that AP.

All abstraction licence applications are subject to an assessment to take account of any local and downstream issues and may be subject to further restrictions.

Reading from top to bottom in Table 3 are the APs in the Broadland ALS area. Reading across the columns you can see the potential HoF that may be applied to a licence, the number of days water may be available under this restriction and the approximate volume of water in Ml/d that may be available.

Table 3. Summary of licensing approach for the assessment points of Broadland Abstraction Licensing Strategy.

AP	Name	Water Resource Availability Colour at Q95 low flows	HOF Restriction (MI/d)	Number of days per annum abstraction may be available	Approximate volume available at restriction (MI/d)	Is there a gauging station at this AP?
1	River Ant	yellow	22.1 (Q91)	331	4.5	No
2	River Bure (Ingworth)	yellow	51.1 (Q91)	331	1.6	Yes – at Ingworth
3	River Bure (Horstead)	yellow	94.3 (Q91)	331	9.4	Yes – at Horstead
4	Spixworth Beck	yellow	10.5 (Q68)	248	0	No
5	River Wensum at Fakenham	red	63.1 (Q49)	179	18.1	Yes – at Fakenham
6	River Blackwater	red	37.3 (Q49)	179	17.0	No
7	River Wensum Swanton Morley SAC	red	179.1 (Q49)	179	19.6	Yes – at Swanton Morley
8	River Wensum Hellesdon SAC	red	232.8 (Q49)	179	19.6	Yes – at Costessy Mill
9	River Wensum New Mill SAC	red	234.6 (Q59)	215	7.1	No
10	River Tud at New Costessey	yellow	16.1 (Q59)	215	4.0	Yes – at Costessy Park
11	River Tiffey	red	28.5 (Q54)	197	6.8	No
12	River Yare	red	69.6 (Q54)	197	10.3	No
13	River Tas	red	29.8 (Q61)	223	1.3	No
14	River Chet	yellow	4.1 (Q95)	347	1.8	No

15	River Waveney (Billingford)	red	25.5 (Q51)	186	4.1	Yes – at Billingford Bridge
16	River Dove Red Bridge	red	40.0 (Q51)	186	4.1	Yes – at Oakley park
17	Lower River Waveney Shipmeadow	red	94.4 (Q51)	186	4.1	No

### 3.2. Groundwater

The confined chalk groundwater in the Broadland area is fully committed and no further consumptive abstraction can be considered.

In areas where there is unconfined chalk, or other, shallower aquifers in continuity with surface water, the groundwater status is linked to the surface water status. Practically, this means that there are certain areas where the impact of a groundwater abstraction on the Q95 flow in the local river may be considered acceptable. These areas are marked green on map 1f.

Where groundwater abstractions directly impact on surface water flows, including reduction of base flow, the impact is measured at the surface water AP. In these cases, restrictions may be applied to licences, such as Hands off Level (HoL) conditions. The HoL is a groundwater level below which an abstractor is required to reduce or stop abstraction.

Other restrictions may apply where availability is limited or to protect the environment, for example to prevent saline intrusion.

### 3.3. Coasts and estuaries

Much of the area of the Broads lies downstream of the surface water assessment points, has a complex tidal regime, and is afforded additional environmental protection under various legislation. Abstractions in these waterbodies will be decided on a case-by-case basis, and the specific needs of the local environment will over-ride any indicative status shown in the Abstraction Licensing Strategy.

### 3.4. Heavily modified water bodies

A proportion of watercourses within the catchment have been classified under the Water Framework Directive as Heavily modified water bodies (HMWBs) due to the presence of flow control structures such as sluices and gauges. You can find more information in our [River Basin Management Plan](#).

### 3.5. Protected areas

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

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

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

There are many SAC, SPA, SSSI and Ramsar sites in Broadland, mostly around the coasts and estuaries. The most complex of these is the River Wensum SAC. If your proposal falls or is relevant to one of these areas, it will be dealt with on a case-by-case basis. If the protected area requires a more stringent level of protection than the EFI suggests, the specific requirements of the protected site will over-ride the EFI. The River Wensum in particular has a complex abstraction regime, and advice should be sought for any proposals in this river.

## 4. Managing existing licences

### 4.1. Water rights trading

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

In licensing trades, as with new abstraction licences, we need to make sure that we don't cause any deterioration in water body status both within the water body / bodies where the trade will take place or to downstream water bodies. The table below provides a guide to the potential for trading in water bodies of a particular ALS water resource availability colour, as shown on map 1a-e.

Table 6. Water resource availability colours and their implications for trading.

ALS water resource availability colour	Our approach to trading
Water available for licensing	Allow trades of recent actual abstraction and licensed abstraction, but little demand for trading expected within water body as water available for new abstractions.
Restricted water available for licensing	There may be opportunities for licence holders to trade up to their full licensed quantities, but the quantities of water available to trade may be restricted once levels of actual abstraction reach sustainable limits. We will not permit licence trades in water bodies where we are taking action to prevent deterioration unless the trade is consistent with achieving water body objectives.
Water not available for licensing	We will only trade recent actual abstraction but no increase in recent actual abstraction is permitted in water body. Licensed abstraction will be recovered for the environment.
HMWBs	Opportunities for trading will depend on local operating agreements and local management.

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

## 4.2. Taking action on unsustainable abstraction

Action to tackle unsustainable abstraction in the Broadland Abstraction Licensing Strategy area on surface water bodies where flow does not support good ecological status, (or potential if the water body is heavily modified) and on managing the risk of deterioration or correct instances of serious damage include:

- Actions under the water industry national environment programme
- Revocations of licences for non-use
- Reductions of under-used and unused licences
- Changes to time limited licenses as detailed in the paragraphs below:

### Abstraction licence renewals

During the renewal process we will take into account the current licence conditions, for example, whether there is a Hands off Flow (HoF) condition protecting low flows, and past licence use when deciding if changes are required. A HoF specifies that if the flow in the river drops below that which is required to protect the environment, abstraction must stop until flows recover.

We will aim to issue renewed licences to our Abstraction Licensing Strategies, (previously known as Catchment Abstraction Management Strategies - CAMS) common end date where:

- all the sustainability issues in the catchment are resolved and;
- renewal of time-limited licences does not pose a risk of deterioration in ecological status and;
- the quantities are justified and;
- the water is used efficiently.

A shorter time limit may be required where there are residual risks to the sustainability of catchments.

Our approach will depend on whether it is a surface water or a groundwater time-limited licence.

### Surface water licences

Surface water licences will be renewed on the following broad principles around environmental sustainability:

As a minimum, all surface water licences will need a HoF to protect the ecological needs of a river at low flows. Low flows are defined as the Q95, which is the amount of flow in a river that is exceeded 95% of the time. To calculate the amount of water required to support the ecology of a river we use a tool called the Environmental Flow Indicator (EFI).

Subject to having a HoF condition that protects low flows, where there are no other sustainability issues in the surface water bodies influenced by the abstraction, the quantities are justified and the applicant has demonstrated that the water is being used efficiently, then the application would be renewed on same terms to the relevant ALS common end date.

In surface water bodies where a low flow HoF doesn't help to resolve all of the sustainability issues in the catchment, renewed licences will be time-limited to 31 March 2024. Further changes may be needed after 2024 to protect the ecology at higher flows.

Alternative management arrangements may be needed for some locally specific catchments. For example, in level controlled areas, a Hands off Level may be applied upon renewal.

### Groundwater licences

Groundwater licences will be renewed on the following broad principles around environmental sustainability:

We will consider renewing the licence at the same quantities when the aquifer, overlying rivers and associated wetland habitats have environmentally sustainable rates of water abstraction both now, and at times when abstractors take their full licensed quantities of water.

If there is a risk that the ecology could be adversely affected at fully licensed rates of abstraction, then we will cap the licence at the historic maximum uptake to reduce the risk of ecological deterioration from the 2015 RBMP baseline. The standard period for assessing the historic maximum rate of an abstraction will be the 10 years prior to 2015 (2005 - 2015). The period for spray irrigation purposes will be the years 2000-2015, to better reflect the annual differences in climate and cropping patterns.

If both the groundwater and/or surface water bodies are already subject to unsustainable rates of abstraction, we will need to renew the licence with measures to help restore that waterbody/groundwater body to a sustainable level of abstraction. These measures could be licence reductions or Hands off Flow/level conditions. Where measures are still under investigation, then a licence would be renewed with a cap at historic maximum uptake and time-limited to 31 March 2024. Further licence changes may be required after 2024.

If you wish to discuss the renewal of your current licence then please contact your local Environment Agency office.

### 4.3. Regulating currently exempt abstraction

As the abstraction licensing system in England and Wales developed over the past 50 years, certain abstractions have remained lawfully exempt from licensing control. This means that unlimited supplies of water can be abstracted, even in areas that are water stressed.

Defra, the Welsh Government, the Environment Agency and Natural Resources Wales have consulted jointly on an intended approach to remove most exemptions from abstraction licensing and to bring these abstractions under licensing control (New Authorisations).

A light-touch, risk based approach is proposed to bring the majority of exempt abstractors into the licensing system to help balance the needs of all abstractors and the environment. This will enable more effective water management by ensuring that all significant activities influencing the availability of water and its impact on the environment are undertaken in a sustainable way. Defra propose to begin bringing New Authorisations into the licensing system in 2016. Some abstractions that are considered low risk will remain exempt.

The main activities that will be impacted by the changes include:

- transferring water from one inland water system to another by a navigation, harbour or conservancy authority;
- abstraction of water into internal drainage districts;
- dewatering mines, quarries and engineering works;
- warping;
- all forms of irrigation (other than spray irrigation, which is already licensable), and the use of land drainage systems in reverse (including transfers into managed wetland systems) to maintain field water levels;
- geographically exempt areas; and
- the majority of abstractions covered by Crown and visiting forces exemptions.

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

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

## 5. List of abbreviations

ALS	Abstraction Licensing Strategy
AP	Assessment Point
CED	Common End Date
Defra	Department of Environment Fisheries and Rural Affairs
EFI	Ecological Flow Indicator
GEP	Good Ecological Potential
GES	Good Ecological Status
GW	Groundwater
HMWB	Heavily Modified Water Body
HoF	Hands off Flow
HoL	Hands off Level
MI/d	Megalitres per day
Q95	The flow of a river which is exceeded on average for 95% of the time.
SAC	Special Areas of Conservation
SPA	Special Protection Areas
SSSI	Sites of Special Scientific Interest
UKTAG	United Kingdom's Technical Advisory Group
WB	Water body
WFD	Water Framework Directive

## 6. Glossary

Abstraction	Removal of water from a source of supply (surface or groundwater).
Abstraction licence	The authorisation granted by the Environment Agency to allow the removal of water.
Assessment Point	A significant point on a river, often where two major rivers join or at a gauging station.
Catchment	The area from which precipitation and groundwater will collect and contribute to the flow of a specific river.
Consumptive abstraction	Abstraction where a significant proportion of the water is not returned either directly or indirectly to the source of supply after use. For example for the use of spray irrigation.
Discharge	The release of substances (i.e. water, sewage, etc.) into surface waters.
Environmental flow indicator	Flow indicator to prevent environmental deterioration of rivers, set in line with new UK standards set by UKTAG.
Groundwater	Water that is contained in underground rocks.
Hands off flow	A condition attached to an abstraction licence which states that if flow (in the river) falls below the level specified on the licence, the abstractor will be required to reduce or stop the abstraction.
Hands off level	A river flow or borehole (groundwater) level below which an abstractor is required to reduce or stop abstraction.
Impoundment	An impoundment is a structure that obstructs or impedes the flow of inland water, such as a dam, weir or other constructed works.
Surface water	This is a general term used to describe all water features such as rivers, streams, springs, ponds and lakes.
Water body	Units of either surface water or groundwater at which assessments are completed for WFD.

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