Don and Rother Abstraction Licensing Strategy

February 2013

A licensing strategy to manage water resources sustainably

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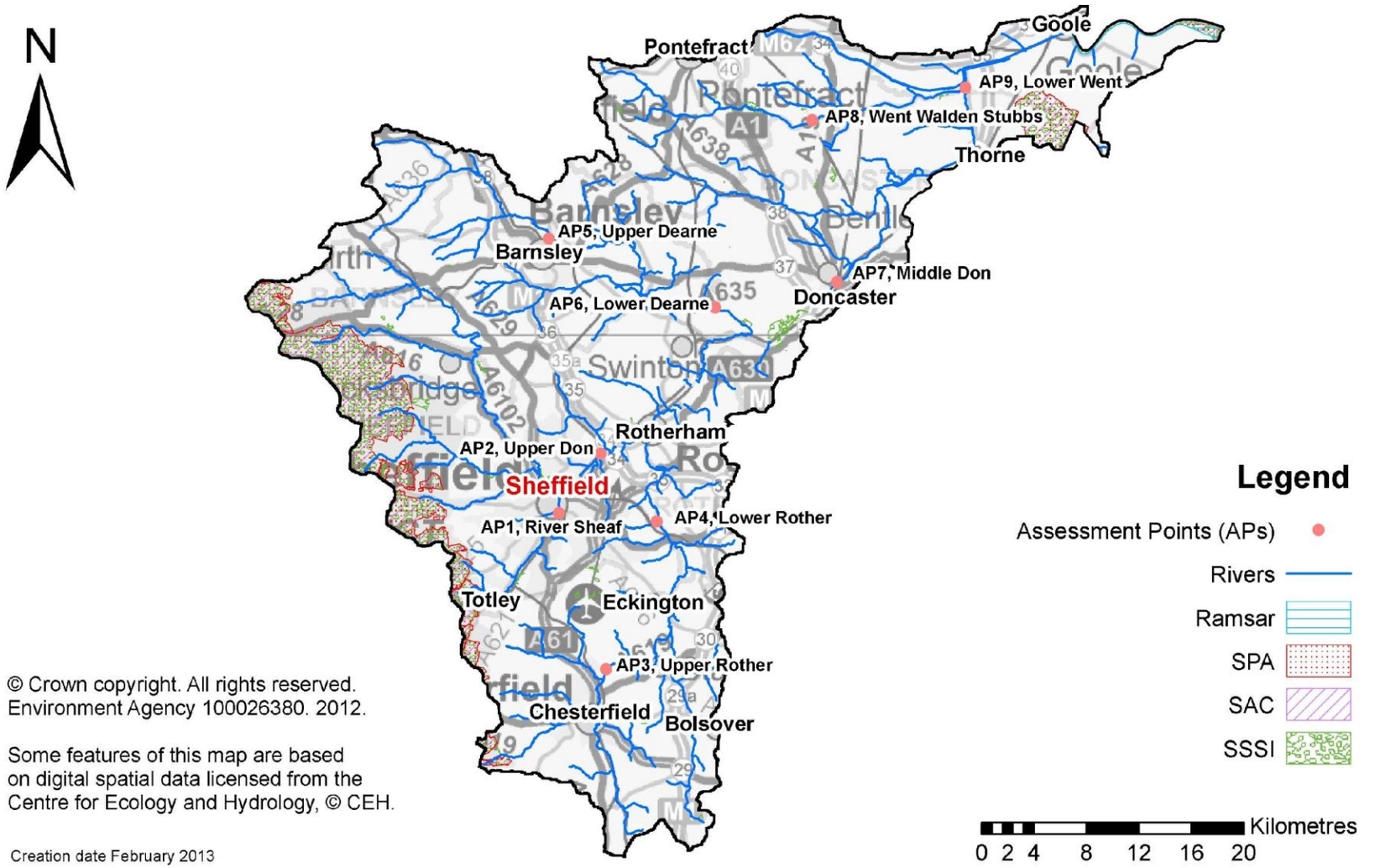
Don and Rother CAMS Area



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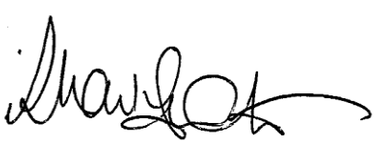
Map 1 Don and Rother CAMS (Catchment Abstraction Management Strategy) area

Foreword

Water is the most essential of our natural resources, and it is our job to ensure that we manage and use it effectively and sustainably. The latest population growth and climate change predictions show that pressure on water resources is likely to increase in the future. In light of this, we have to ensure that we continue to maintain and improve sustainable abstraction and balance the needs of society, the economy and the environment.

This licensing strategy sets out how we will manage water resources in the Don and Rother catchment and provides you with information on how we will manage existing abstraction licences and water availability for further abstraction.



Mark Scott Yorkshire Area Manager

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1. About the Licensing Strategy

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

This strategy was produced in February 2013 and it supersedes the strategy issued in 2003.

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

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

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

CAMS contribute to the WFD by:

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

When is an abstraction licence required?

You need a licence from us if you want to abstract more than 20 cubic meters (m^3) (4,400 gallons) of water per day from a:

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

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

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

- by telephone on 03708 506 506
- by email at enquiries@environment-agency.gov.uk
- or visit our website at www.environment-agency.gov.uk.

Sustainable abstraction

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

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

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

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

2. Don and Rother CAMS area

Map 1 shows the Don and Rother catchment.

The Don and Rother CAMS covers an area of approximately 1360km^2, with the majority of this lying in South Yorkshire and North East Derbyshire. This area is densely populated and much of the catchment is urbanised. There are five main centres of population (Doncaster, Barnsley, Rotherham, Sheffield and Chesterfield) with a population of around 1.5 million people. There is a long history of industrial and commercial activity, especially in metal manufacturing, the production of metal goods and engineering.

The surface water boundary includes all the land from which precipitation and surface runoff drains into the River Don and its tributaries. The Don and Rother CAMS has an extensive reservoir system to the west of the area. This water is fully committed to public water supply and reservoir compensation releases.

There are three groundwater bodies within the Don and Rother CAMS area: the Aire and Don Magnesium Limestone, the Aire and Don Sherwood Sandstone, and the Don and Rother Millstone Grit & Coal Measures.

The Don and Rother CAMS area extends from the heights of the South Pennine Moors and Peak District National Park in the west to the low-lying flood plain of the Sherwood Sandstone in the east. It is surrounded by four other CAMS areas: the Aire and Calder CAMS to the north, Trent CAMS to the South, Hull and East Riding CAMS to the east and the Derbyshire Derwent CAMS to the west. The River Don joins the River Ouse at Goole, which then flows into the Humber Estuary in the Hull and East Riding CAMS. Although the Humber Estuary is outside the Don and Rother CAMS area it exerts a tidal influence on the River Ouse and the River Don up to Kirk Sandall. This can have implications for flooding in the Middle Don and Lower Went Assessment Point areas.

The main rivers in the Don and Rother CAMS area are the Don, Rother, Dearne and Went. The River Don is the biggest river in the CAMS area and flows east from its headwaters in the Pennines, passing through Sheffield, Rotherham and Doncaster before joining the River Ouse near Goole to form the upper part of the Humber Estuary. The River Rother begins in the Peak District National Park and flows through Chesterfield and Rotherham before joining the River Don just east of Sheffield. The River Dearne drains the high ground around Huddersfield and Barnsley and then opens up into the Dearne Valley by Bretton Hall Country Park. It passes through Barnsley, Wath and Mexborough before joining the River Don at Conisborough. The headwaters of the River Went can be found to the south of Featherstone and Ackworth. This river passes through mostly agricultural land before joining the River Don at Went Green.

There is a general reduction in rainfall from west to east, corresponding to the reduction in land height. Rainfall ranges from 1580mm per year in the Pennines to 580mm in Doncaster.

The Don and Rother CAMS area has an extensive canal network. From the centre of Sheffield downstream, the River Don is navigable. At Doncaster it splits away from the natural course of the river and eventually forms the Stainforth and Keadby Canal and the New Junction Canal. There are three other canals in the catchment which are currently not in use; however work is underway to restore the Chesterfield Canal which links Chesterfield to Sheffield.

The greatest use of water in the catchment after public water supply is industry, with fish farming and agriculture also accounting for much of the licensed abstraction. The rivers are used for navigation and a variety of recreation and leisure activities, including angling and canoeing.

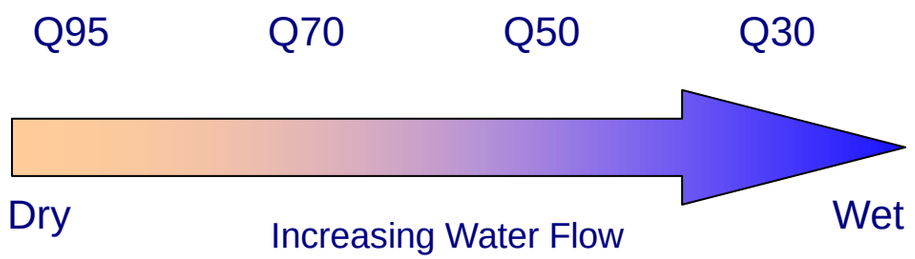
3. Water resource availability of the Don and Rother area

3.1 Resource assessment

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

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

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



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

Map 2 shows the water resource availability for the Don and Rother CAMS area at the four different flow values.

3.2 Resource availability

3.2.1 Surface water

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

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

The availability of water for abstraction is determined by the relationship between the fully licensed and recent actual flows in relation to the EFI. The results mapped onto these water bodies are represented by different water resource availability colours showing the availability of water resource for further abstraction. The water resource availability colours are explained in Table 1.

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

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

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

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

Water resource availability colour	**Implication for licensing**
High hydrological regime	There is more water than required to meet the needs of the environment. However, due to the need to maintain the near pristine nature of the water body, further abstraction is severely restricted.
Water available for licensing	There is more water than required to meet the needs of the environment. New licences can be considered depending on local and downstream impacts.
Restricted water available for licensing	Fully Licensed flows fall below the EFIs. If all licensed water is abstracted there will not be enough water left for the needs of the environment. No water is available for further licensing at low flows. Water will be available at higher flows with appropriate restrictions. It may also be appropriate to investigate the possibilities for reducing fully licensed risks. Water may be available if you can 'buy' (known as licence trading) the entitlement to abstract water from an existing licence holder.
Water not available for licensing	Recent actual flows are below the EFI. This scenario highlights water bodies where flows are below the indicative flow requirement to help support Good Ecological Status (as required by the Water Framework Directive. Note: we are currently investigating water bodies that are not supporting GES/GEP). Water may be available for further licensing at high flows with appropriate restrictions. Water may be available if you can buy (known as licence trading) the amount equivalent to recently abstracted from an existing licence holder.
HMWBs (and /or discharge rich water bodies)	These water bodies have a modified flow that is influenced by reservoir compensation releases or they have flows that are augmented. 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. There may be water available for abstraction in discharge rich catchments, you need to contact the Environment Agency to find out more.

Table 1 Implications of surface water resource availability colours

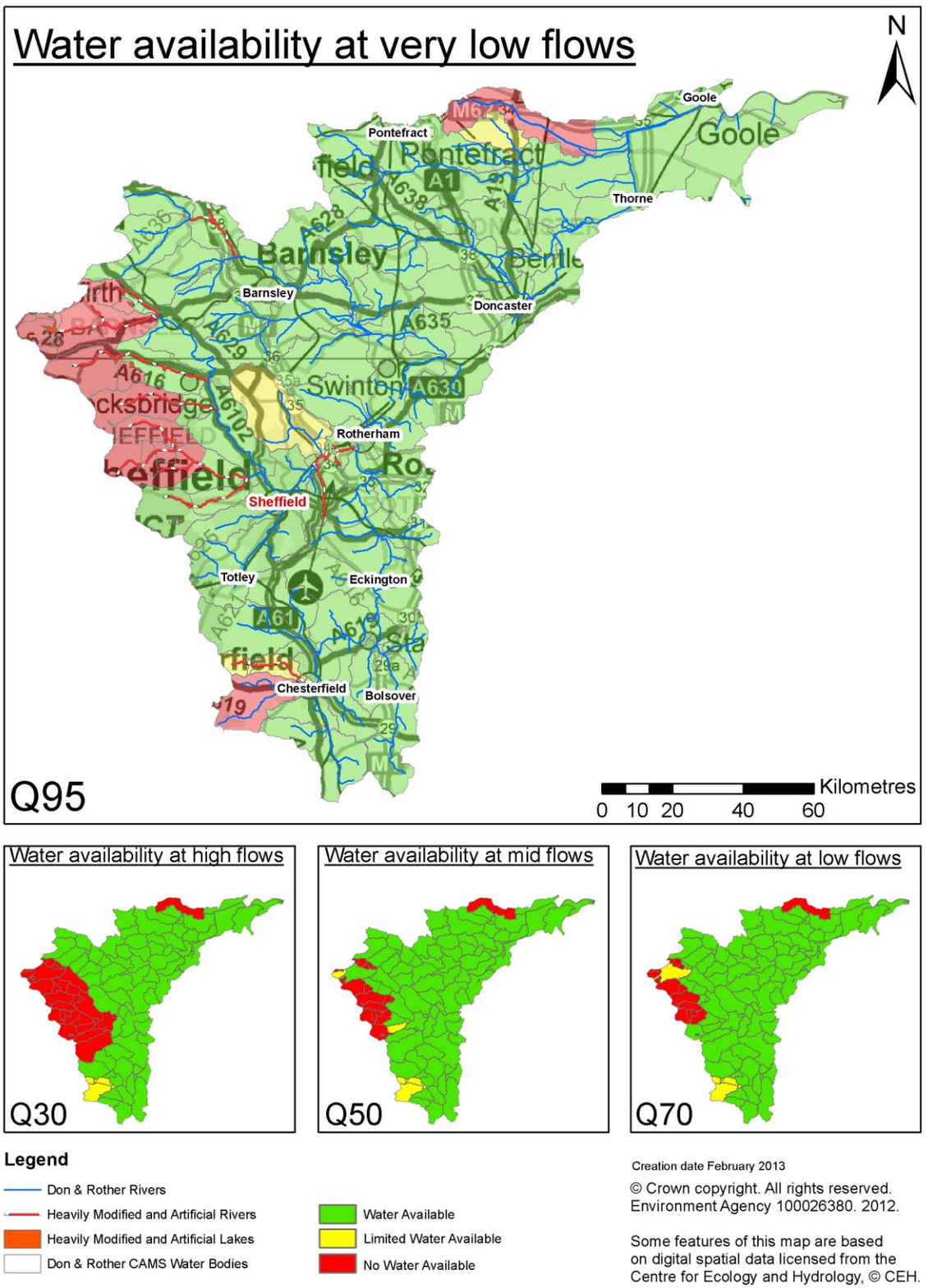
3.2.2 Groundwater

Groundwater availability is guided by the surface water resource availability colours unless we have better information on principle aquifers or are aware of local issues we need to protect. Water availability is different for groundwater and surface water in the Don and Rother CAMS area. Please refer to section 4.2.2 for further information.

GWMU resource availability colour	Implication for licensing
Water available for licensing	Groundwater unit balance shows groundwater available for licensing. New licences can be considered depending on impacts on other abstractors and on surface water.
Restricted water available for licensing	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 abstraction may cause local impacts likely to occur on water dependent habitats, groundwater levels or cause intrusions. In restricted groundwater units licences will be issued on a case by case basis. Conditions may be applied to licences that link the groundwater abstraction to surface water flows and restrictions. Surface water availability may override groundwater availability. In other units there may be restrictions in specific areas e.g. in relation to saline intrusion. It may be appropriate to investigate the possibilities for reducing fully licensed risks. Water may also be available if you can 'buy' (known as licence trading) the entitlement to abstract water from an existing licence holder.
Water not available for licensing	Groundwater unit balance shows more water has been abstracted based on recent amounts than the amount available. No further consumptive licences will be granted.

Table 2 Implications of groundwater resource availability colours

Map 2 Don and Rother
CAMS Resource Availability Colours



Map 2 Water resource availability colours for the Don and Rother CAMS

3.2.3 About Map 2 Don and Rother CAMS Resource Availability Colours

Map 2 shows the water resource availability for the Don and Rother CAMS area at the four different flow values. Because flows in water bodies vary over time we have tried to show how water resource availability also varies. Map 2 shows this variability and how we are likely to apply restrictions, such as HOFs, to licences.

The largest map, Q95, shows where water is available at very low flows, for instance during dry periods. This represents water resource availability for 5% of the time – most of the time there is more water available than this. Q95 is when there is the least water available for consumptive use and shows where restrictions on licences come into force. Red coloured areas are those where we need licence-holders to stop abstracting at very low flows in order to protect the natural environment and other abstractors further downstream.

Gradually as the flows increase towards Q30, more water is available and can be licensed without risking ecological damage. The resource availability of water at Q30 shows what the situation is for about 30% of the time at high flows, such as when there has been a lot of rainfall. Most of the time there is less water available than this. Certain licences only allow abstraction at high flows, so in some areas there may actually be less water available when flows are high.

3.3 Resource reliability

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

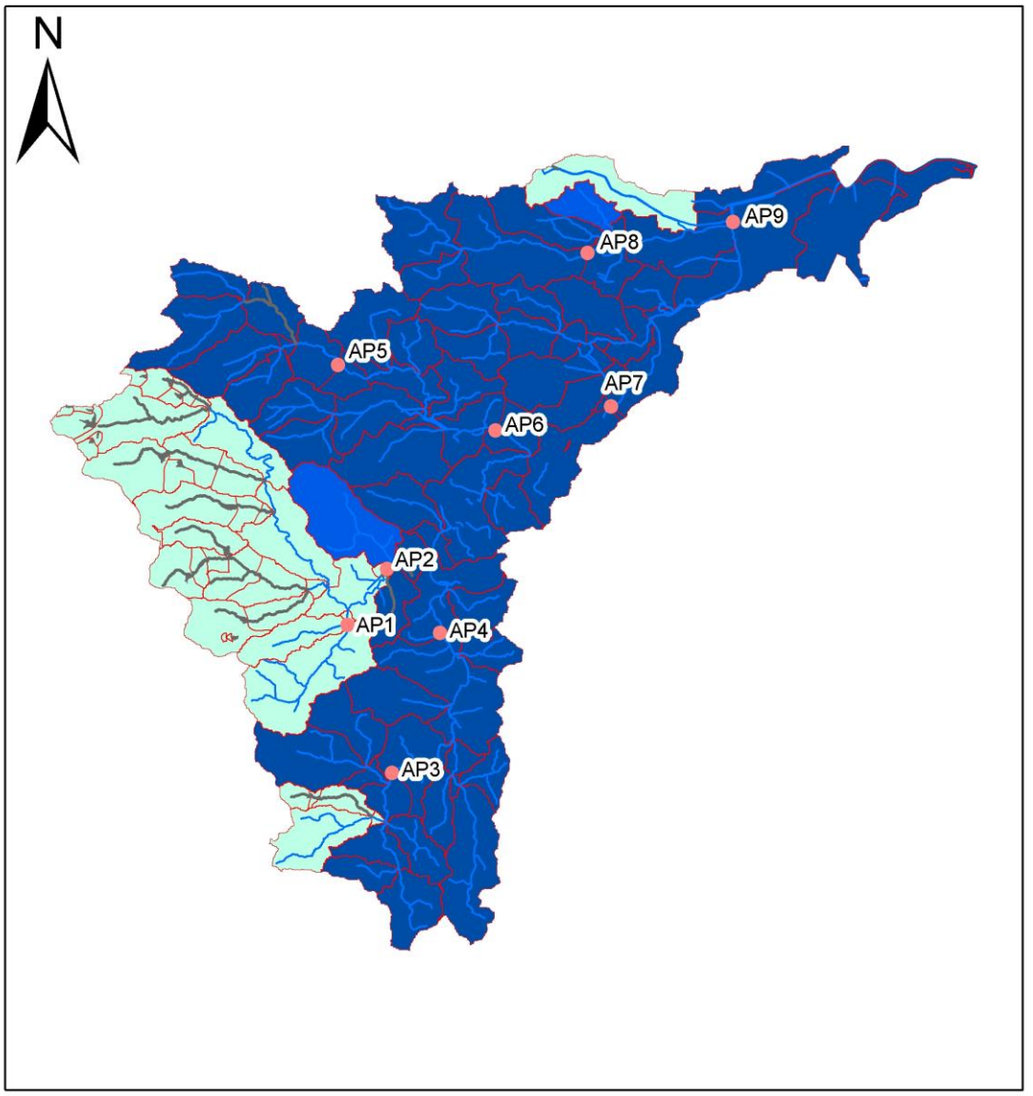
The availability of water for abstraction within a river varies greatly from high to low flows. By assessing the quantity of water available at different flows it is possible to see when there is a surplus or deficit of water and the associated reliability of an abstraction. This is an indication only;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

Table 3 shows the resource availability colour associated with the percentage reliability of consumptive abstraction. Map 3 gives an indication of the resource reliability in Don and Rother area expressed as percentage of time. Availability is heavily influenced by reservoirs in the west of the catchment, particularly upstream of Assessment Point 2.

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

Table 3 Percentage reliability of consumptive abstraction

Map 3 Don and Rother CAMS
Resource Reliability (% of the time)



Legend

- Don & Rother CAMS APs
- Don & Rother Rivers
- Heavily Modified and Artificial Rivers
- Heavily Modified and Artificial Lakes
- Don & Rother CAMS Water Bodies
- Water Resources available less than 30%
- Water Resources available at least 30%
- Water Resources available at least 50%
- Water Resources available at least 70%
- Water Resources available at least 95%

Kilometres
0 3 6 12 18 24 30

Creation date February 2013

Map 3 Water resource reliability expressed as percentage of time available

4. How we manage abstractions in the Don and Rother area

4.1 Principles

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

Abstraction licence application process
Anyone wanting to take more than 20m^3/day (4,400 gallons) from a 'source of supply' (river, stream, lake, well, groundwater, etc.) must have an abstraction licence. The application process for abstraction is similar to the planning process in that we may require the application to be advertised and may require supporting environmental information. When considering the application we check that the quantities applied for and the purpose of the abstraction are reasonable, that there is sufficient water available to support it and that the potential impacts on the environment and other water users are acceptable. Depending on the outcome of our investigations we will issue a licence either as applied for, or with conditions that restrict the abstraction to protect the environment or other users. In certain cases we may have to refuse the application. Any applicant who is not happy with our determination (decision) has the right to appeal against it.

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

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

Abstractions are managed to protect the environment

No ecological deterioration
We assess the impact of new applications for water to make sure that the resultant river flows:

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

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

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

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

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

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

4.2 Abstraction restrictions

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

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

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

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

39% of the licences in the Don and Rother CAMS are time-limited. CEDs occur every twelve years. The next CED for the Don and Rother CAMS is 31 March 2017 and the subsequent one is 31 March 2029.

Additional information about the replacement of time limited licences is available in Managing Water Abstraction.

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

4.2.1 Surface water

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

Table 4 gives an indication of how much water is available for further abstraction and the associated restrictions that we may apply to new and varied abstraction licences from the main river. Tributaries to the main river may be subject to different restrictions and quantities.

Each HOF is linked to an AP and is dependent on the resource availability at that AP. In some cases additional restrictions may apply to licences where there is a more critical resource availability downstream to protect the ecological requirements of the river. This is detailed in the last column of Table 4 if applicable.

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 4 are the APs in the Don and Rother CAMS area. Reading across the columns you can see the potential HOF that may be applied to a licence, the number of days water may be available under this restriction and the approximate volume of water in megalitres per day (Ml/d) that may be available. In cases where there is water available at all flows we will apply a Minimum Residual Flow (MRF) to protect very low flows.

The Don and Rother CAMS contains a lot of discharges and reservoir compensation flows. Table 4 shows where an assessment point incorporates a lot of discharges into its resource assessment (i.e. it is discharge rich). It is important to note that although there may appear to be water available the Environment Agency can only licence discharge water for use under specific conditions. The Environment Agency has no control over the continued operation of these existing users. This means that the input of water is classed as unreliable; we will therefore licence discharge water on a case by case basis.

AP	Name	Water Resource Availability Colour at Q95	HOF Restriction (Ml/d)	Number of days per annum abstraction may be available	Approximate volume available at restriction (Ml/d)	Is there a gauging station at this AP?	Additional restrictions AP name and restriction
1	River Sheaf	Water available for licensing	4.1 MRF	365	0.6	Highfields	Critical AP
2	Upper Don	Water available for licensing	Discharge rich AP - licences to be issued on a case by case basis			Hadfields	Critical AP **Discharge Rich**
3	Upper Rother	Water available for licensing	Discharge rich AP - licences to be issued on a case by case basis			Whittington	Critical AP **Discharge Rich**
4	Lower Rother	Water available for licensing	Discharge rich AP - licences to be issued on a case by case basis			Woodhouse Mill	Critical AP **Discharge Rich**
5	Upper Dearne	Water available for licensing	Discharge rich AP - licences to be issued on a case by case basis			Barnsley	Critical AP **Discharge Rich**
6	Lower Dearne	Water available for licensing	Discharge rich AP - licences to be issued on a case by case basis			Adwick	Critical AP **Discharge Rich**
7	Middle Don	Water available for licensing	Discharge rich AP - licences to be issued on a case by case basis			Doncaster	Critical AP **Discharge Rich**
8	Went Walden Stubbs	Water available for licensing	Discharge rich AP - licences to be issued on a case by case basis			Walden Stubbs	Critical AP **Discharge Rich**
9	Lower Went	Water available for licensing	Discharge rich AP - licences to be issued on a case by case basis			No	Critical AP **Discharge Rich**

Table 4 HOFs/MRFs for the assessment points of the Don and Rother CAMS

Assessment Point descriptions

The information below for each AP gives an indication of whether licences will be renewed or granted.

Water available for licensing

The following AP has water available for licensing:

- **AP1 River Sheaf**

Using Table 4 and AP1 as an example, the following will apply where water is available for licensing:

For AP1, River Sheaf, there is water available for licensing. There is 0.6 Ml/d available for licensing, providing that the Minimum Residual Flow of 4.1 Ml/d can always be met. Following this, further licences will be issued with HOF conditions.

This means that for **new** licences:

• There is water available for abstraction;

• We will continue licensing the available resource and implement HOF conditions when necessary to protect flows at critical APs;

• There is a time limit of 31 March 2029.

For **existing** licences:

• There is a presumption of renewal, subject to the other renewal criteria and local considerations.

• Renewals may be subject to minor changes including the addition of water efficiency conditions.

Water available for licensing

NB: These assessment points are discharge rich. There may appear to be water available, however this water could be made up of discharges from existing users. The Environment Agency has no control over their continued operation. This means that the input of water is classed as unreliable and we may not be able to licence it. We also need to be confident that where the ecology has adapted to these higher volumes of water, any abstractions will not cause ecological deterioration.

The following APs have may water available for licensing:

- **AP2 Upper Don**
- **AP3 Upper Rother**
- **AP4 Lower Rother**
- **AP5 Upper Dearne**
- **AP6 Lower Dearne**
- **AP7 Middle Don**
- **AP8 Went Walden Stubbs**
- **AP9 Lower Went**

This means that for **new** licences:

• Licence applications in discharge rich APs will be considered on a case by case basis;

• There is a time limit of 31 March 2029, although shorter duration licences may be issued where there is uncertainty around discharge water availability.

For **existing** licences:

• There is a presumption of renewal, subject to the other renewal criteria and local considerations;

• Renewals may be subject to minor changes including the addition of water efficiency conditions.

Heavily Modified Water Bodies

Several surface water bodies are designated as Heavily Modified for water resource purposes in the Don and Rother CAMS area. These may contain a public water supply reservoir or the flow regime may be substantially modified due to reservoir compensation releases. All the reservoirs in this area are owned and maintained by Yorkshire Water. Table 5 contains information on reservoirs within the Don and Rother CAMS area.

Reservoir name	Compensates/Storage	AP impacted
Winscar Group		
Snailsden	Storage	AP2 Upper Don
Harden	Storage	AP2 Upper Don
Windleden upper	Storage	AP2 Upper Don
Winscar	Compensates & Storage	AP2 Upper Don
Windleden Lower	Storage	AP2 Upper Don
Don Group		
Ingbirchworth	Storage	AP2 Upper Don
Royd Moor	Storage	AP2 Upper Don
Scout Dyke	Compensates & Storage	AP2 Upper Don
Wharncliffe	Storage	AP2 Upper Don
Little Don Group		
Langsett	Storage	AP2 Upper Don
Midhope	Storage	AP2 Upper Don
Underbank	Compensates	AP2 Upper Don
Ewden Group		
Broomhead	Storage	AP2 Upper Don
Morehall	Compensates	AP2 Upper Don
Loxley Group		
Strines	Storage	AP2 Upper Don
Dale Dyke	Storage	AP2 Upper Don
Agden	Storage	AP2 Upper Don
Damflask	Compensates & Storage	AP2 Upper Don
Rivelin Group		
Rivelin Upper	Compensates & Storage	AP2 Upper Don
Rivelin Lower	Storage	AP2 Upper Don
Redmires Group		
Redmires Upper	Storage	AP2 Upper Don
Redmires Middle	Storage	AP2 Upper Don
Redmires Lower	Storage	AP2 Upper Don

Table 5 Reservoirs within the Don and Rother CAMS

Important local features that may affect water availability

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

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

Ramsar sites and Sites of Special Scientific Interest (SSSI) also carry a high level of environmental importance. Further information can be found in Section 4.5 – Restoring Sustainable Abstraction. Table 6 lists the water related designated sites in the Don and Rother CAMS area.

Designation	Designated site name
Water related Sites of Special Scientific Interest (SSSIs)	Denaby Ings Broomhill Ings Broomhill Flash Forlorn Hope Meadow Moss Valley Meadows Shirley Pool Sprotbrough Gorge Went Ings Meadow Wentbridge Ings Spring Meadows, Alderman's Head and Cow Croft Meadows The Dark Peak Eastern Peak District Moors Thorne, Crowle & Goole Moors Humber Estuary
Water related Special Areas of Conservation (SACs)	Thorne Moor South Pennine Moors Humber Estuary
Water related Special Protection Areas (SPAs)	Thorne & Hatfield Moors South Pennine Moors Humber Estuary

Table 6 Important features that may affect water availability in the Don and Rother CAMS area

4.2.2 Groundwater

Where groundwater abstractions directly impact on surface water flows, the impact is measured at the surface water AP. Restrictions may be applied to these licences. See Table 7.

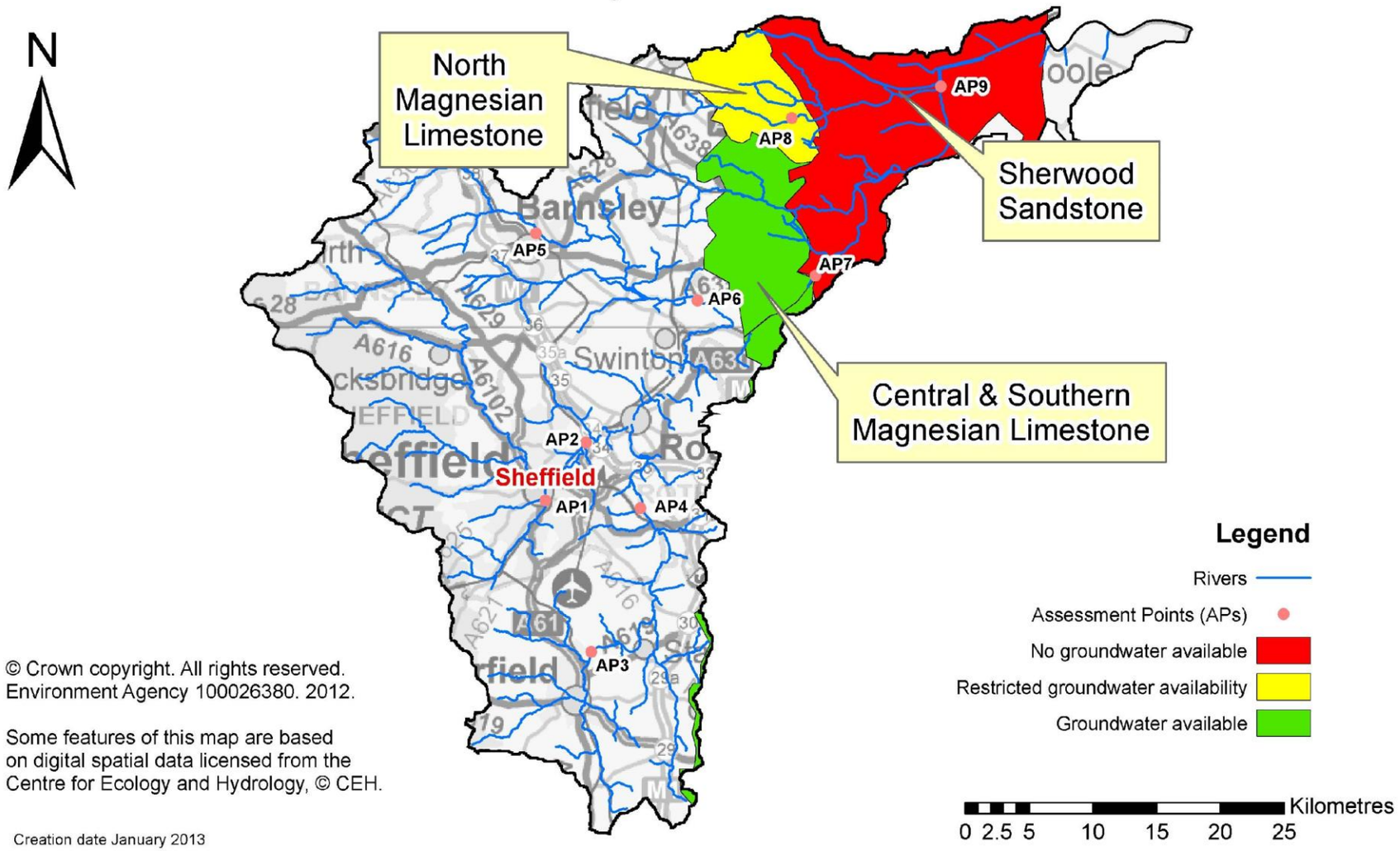
On principle aquifers we have divided the area into Groundwater Management Units (GWMUs). We use the information and assessments on these units to determine water availability and licence restrictions.

Where groundwater abstractions are likely to impact surface water features, or reduce baseflow to a river, a Hands-Off Level (HOL) condition may be applied to the abstraction. This is a groundwater level below which an abstractor is required to reduce or stop abstraction. There are currently no HOLs in the Don and Rother CAMS area. Map 4 and Table 7 summarise groundwater resource availability in this area.

Groundwater management unit	Licence restriction
Magnesian Limestone (North)	**Restricted groundwater availability** see Magnesian Limestone (North) for further details
Magnesian Limestone (Central & Southern)	**Groundwater is available**
Sherwood Sandstone	**Groundwater is not available** See Sherwood Sandstone for further details
Sherwood Sandstone Hatfield Unit Doncaster sub-unit	**Groundwater is available** See Sherwood Sandstone Hatfield unit, Doncaster sub-unit for further details

Table 7 Licence restrictions on groundwater abstractions in the Don and Rother CAMS area

Map 4 Don & Rother CAMS Area
Groundwater Resource Availability



Creation date January 2013

Map 4 Groundwater resource availability in the Don and Rother CAMS area

Magnesian Limestone (North)

The Upper River Went is dependent upon flow from the Magnesian Limestone North Groundwater Management Unit (GWMU) as the aquifer contributes to the baseflow of the river. Licences in this GWMU will be issued on a case by case basis to protect flows in AP8.

Magnesian Limestone (Central and Southern)

The central and southern GWMUs of the Magnesian Limestone underlie the drainage areas of different rivers to the North GWMU. These rivers are less closely connected to the groundwater because of thicker drift cover. This results in the river flows being less sensitive to groundwater abstraction than in the Upper River Went area. Groundwater is available for licensing in these GWMUs.

Sherwood Sandstone

The Sherwood Sandstone provides one of the major groundwater resources of Yorkshire and is extensively developed for public supply. The Sherwood Sandstone is an outcrop over the north east of the Don and Rother CAMS area and consists of a thick sequence (up to 300 metres) of fine to medium-grained sandstones with frequent marly layers.

Natural groundwater flow in the Sherwood Sandstone is generally eastwards. Most of the outcrop area is low-lying, resulting in low hydraulic gradients within the aquifer. The 'key well' monitored site aquifer is at Sykehouse. This shows a steady decline in levels from when records began in 1971 until 1997. This continual decrease in groundwater levels overshadows seasonal fluctuations and the effects of 'drought periods'. It was therefore concluded that groundwater over-abstraction is the cause of this decline. Groundwater levels displayed general recovery between 1997 and 2001 with a general fall up to 2006.

The latest groundwater level information suggests a slight recovery in groundwater level at Sykehouse, though it is still below sea level. Groundwater levels in this area will be drawn down if new licences are granted – this places a risk on the availability of water to existing licence holders and may lead to the introduction of saline water. We do not consider this to be acceptable because it means the water becomes unfit for most uses and we have a legal duty to protect the rights of existing abstractors.

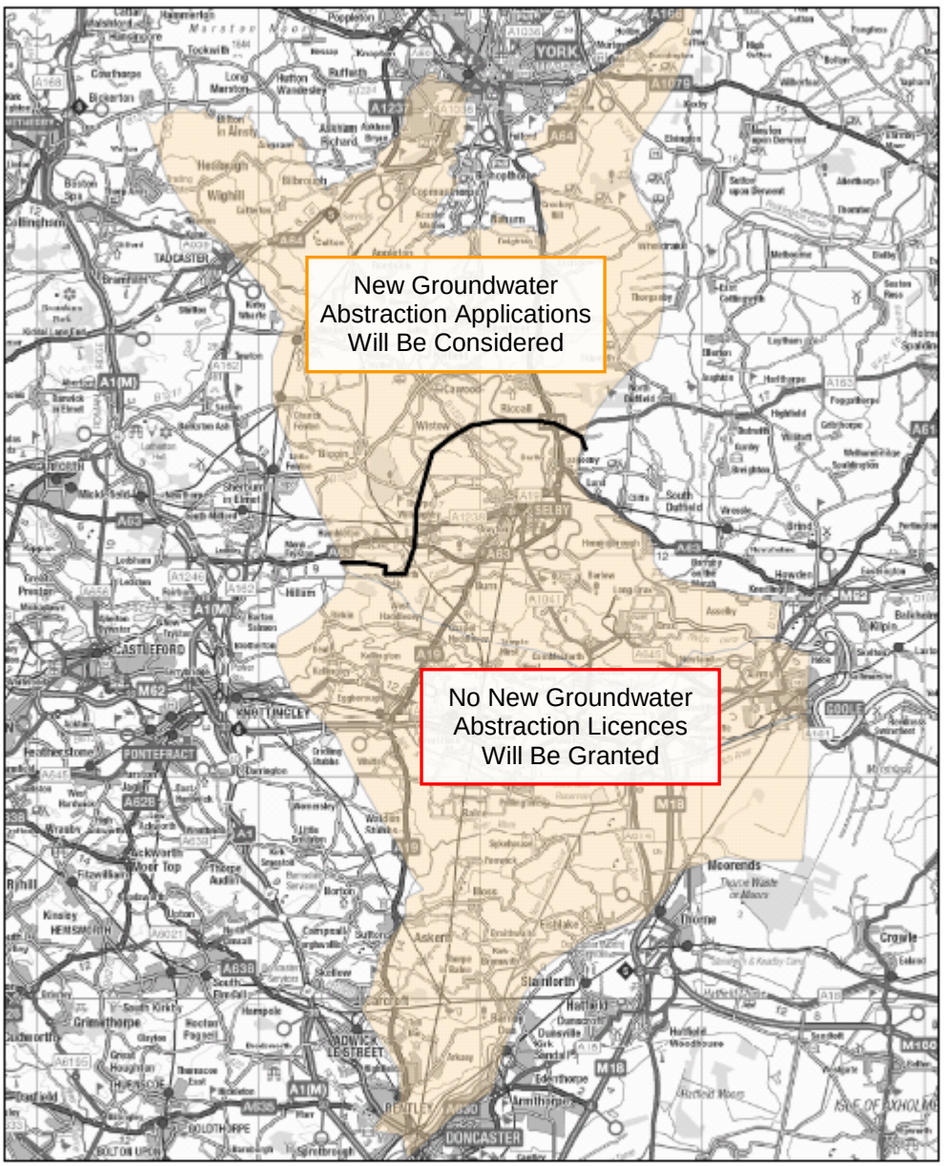
The freeze imposed on issuing new abstraction licences from the Sherwood Sandstone is still in place for the Don and Rother CAMS area.

Any new licence applications will be assessed on a case by case basis and determined using the Sherwood Sandstone numerical model and not the prescribed CAMS framework. In order to protect groundwater quality in this important aquifer we will not issue licences if the model shows that the abstraction will have negative environmental impacts. Map 5 shows the Sherwood Sandstone aquifer and the line we have modelled as where the groundwater table is at sea level.

Sherwood Sandstone Hatfield unit, Doncaster sub-unit

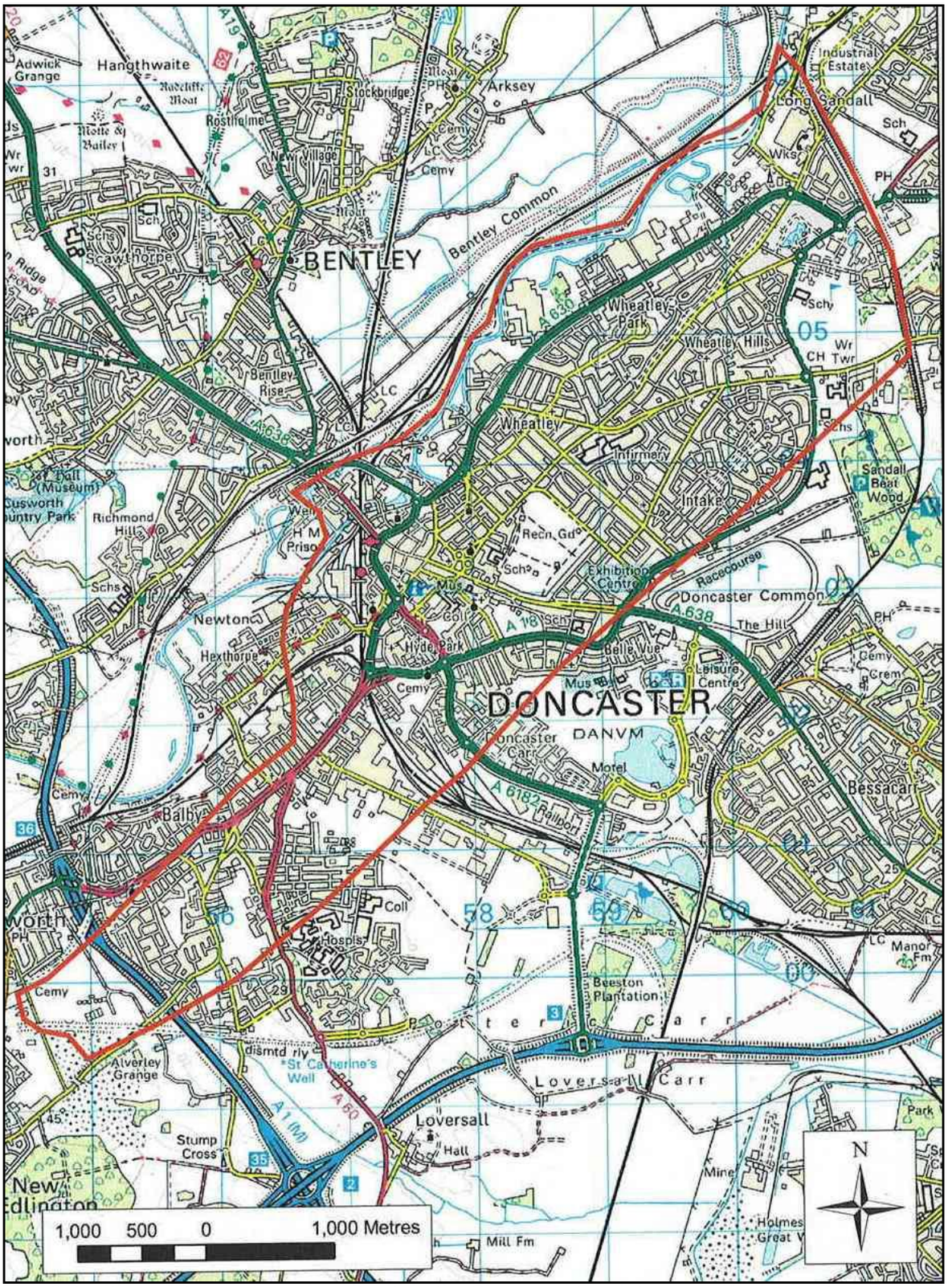
An exception to the above presumption exists within a small area around Doncaster town centre which has been subject to rising groundwater levels, following reductions in industrial abstraction from the Sherwood Sandstone aquifer. This area covers part of the Sherwood Sandstone Hatfield GWMU in the Don and Rother CAMS area and extends south into the Idle and Torne CAMS. The area is collectively referred to as the Doncaster sub-unit. The rising groundwater in this area contrasts with the remainder of the Hatfield unit, where historical abstraction has led to a fall in groundwater levels and depletion of baseflow. Map 6 shows the Doncaster sub-unit area outlined in red. Within this small area, we will consider applications for new licences up to a maximum resource of 1.5Ml/d.

Map 5 Sherwood Sandstone aquifer



Map 5 Position of sea level within the Sherwood Sandstone aquifer in the Don and Rother CAMS Area

Map 6 Doncaster Sub-Unit



Map 6 Position of Doncaster sub-unit within the Sherwood Sandstone aquifer in the Don and Rother CAMS Area

4.2.3 Estuaries and coastal

The Doncaster and Walden Stubbs river flow gauging stations measure most of the freshwater flow from the Don and Rother catchments to the Humber Estuary. This accounts for about 8% of the total freshwater inflow to the Humber.

Tidal effects are only seen at Doncaster in exceptional circumstances. The normal tidal limit is at Long Sandall. There is a river level recorder on the River Don at Kirk Bramwith, which is downstream of Ea Beck but still upstream of Went Outfall. The maximum value recorded here is just over 7.5 metres above Ordnance Datum (mAOD); a level of 6m has been exceeded 13 times in about 13 years. Licence applications in tidal and estuarine areas will be considered on a case by case basis.

4.3 Opportunities for licence trading

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

In licensing trades, as with new abstraction licences, we need to make sure that we do not cause any deterioration in WFD water body status both within the water body/bodies where the trade will take place or to downstream water bodies. The table below provides a guide to the potential for trading in water bodies of a particular CAMS water resource availability colour, as shown on Map 2.

CAMS water resource availability colour	Our approach to trading
High hydrological regime	Opportunities for trading water rights will be limited.
Water available for licensing	Allow trades of recent actual abstraction and licensed abstraction, but little demand for trading expected within water body as water available for new abstractions.
Restricted water available for licensing	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.
Water not available for licensing	We will only trade recent actual abstraction but no increase in recent actual abstraction is permitted in water body. Licensed abstraction will be recovered for the environment.
HMWBs	Opportunities for trading will depend on local operating agreements and local management.

Table 8 Resource availability colours and our approach to licence trading

To find out more about licence trading please go to our website.

4.4 New Authorisations

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

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

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

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

4.5 Restoring Sustainable Abstraction

Where water abstractions cause or potentially cause actual flows to fall short of the EFIs and result in environmental damage, we may need to change or even revoke existing abstractions in order to achieve a sustainable abstraction regime. Within the Don and Rother CAMS area there are seven water bodies in which recent actual flows have fallen below the EFI. The abstraction licences within these water bodies that cause these issues are being investigated under the Water Framework Directive (WFD) and may then go forward to become part of the Restoring Sustainable Abstraction (RSA) programme. Investigations into the impact caused by these licences, individually or cumulatively, will result in options being developed with licence holders on how to improve sustainability. Investigations will include a cost/benefit analysis. Information on how licences in the RSA programme are dealt with can be found in our Step by Step guide on our website.

Investigation of Water Framework Directive water bodies

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

Habitats Directive

Under the Habitats Regulations we have assessed the effects of existing abstraction licences and will assess new applications to make sure they are not impacting on internationally important nature conservation sites. These sites are known as Special Areas of Conservation (SACs) and Special Protection Areas (SPAs). If your current licence has been reviewed under this legislation to assess its impact you will already know about the review. If we haven't contacted you yet then your licence is either not near a SAC/SPA or isn't having an impact on these sites. If our assessment shows that a new application could have an impact on a SAC/SPA we have to follow strict rules in setting a time limit for that licence. These are:

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

Thank you for taking the time to read this Licensing Strategy. If you have any questions about it, or if you want to apply for an abstraction licence or make changes to a licence that you already have, then please contact us:

- by telephone on 03708 506 506
- by email at enquiries@environment-agency.gov.uk
- or visit our website at www.environment-agency.gov.uk

Glossary of terms

Abstraction	Removal of water from a source of supply (surface or groundwater).
Abstraction licence	The authorisation granted by the Environment Agency to allow the removal of water.
Assessment Point Unit	Point at which the flow from upstream catchment is assessed.
Catchment	The area from which precipitation and groundwater will collect and contribute to the flow of a specific river.
Consumptive abstraction	Abstraction where a significant proportion of the water is not returned either directly or indirectly to the source of supply after use. For example for the use of spray irrigation.
Discharge	The release of substances (i.e. water, sewage, etc.) into surface waters.
Environmental flow indicator	Flow indicator to prevent environmental deterioration of rivers, set in line with new UK standards set by UKTAG.
Full licence	A licence to abstract water from a source of supply over a period of 28 days or more
Groundwater	Water that is contained in underground rocks.
Hands-off flow	A condition attached to an abstraction licence which states that if flow (in the river) falls below the level specified on the licence, the abstractor will be required to reduce or stop the abstraction.
Hands-off level	A river flow 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.
Protected right	Means a right to abstract, which someone has by virtue of the small abstractions exemptions defined in the Water Act 2003 or by virtue of having an abstraction licence. The right protected is the quantity that can be abstracted up to that allowed by the exemption or the terms of the licence. The small abstraction exemptions defined by the Water Act 2003 are for domestic and agricultural purposes (excluding spray irrigation) not exceeding 20 m^3/d.
Surface water	This is a general term used to describe all water features such as rivers, streams, springs, ponds and lakes.
Transfer licence	A licence to abstract water from one source of supply over a period of 28 days or more for the purpose of; 1. transferring water to another source of supply; or, 2. transferring water to the same source of supply, but at another point, in the course of dewatering activities in connection with mining, quarrying, engineering, building or other operations (whether underground or on the surface); without intervening use.
Water body	Units of either surface water or groundwater at which assessments are completed for WFD.

List of abbreviations

AMP	Asset Management Plans
AP	Assessment Point
ASB	Abstraction Sensitivity Bands
AWB	Artificial Water Body
CAMS	Catchment Abstraction Management Strategies
CED	Common End Date
Defra	Department of Environment Fisheries and Rural Affairs
EA	Environment Agency
EFI	Environmental Flow Indicator
FL	Full Licensed (scenario)
GEP	Good Ecological Potential
GES	Good Ecological Status
GW	Groundwater
GWMU	Groundwater Management Unit
HES	High Ecological Status
HMWB	Heavily Modified Water Body
HOF	Hands-Off Flow
HOL	Hands-Off Level
LDE	Level Dependent Environment
Ml/d	Megalitres per day
mAOD	Metres above ordnance datum
MRF	Minimum Residual Flow
Q95	The flow of a river which is exceeded on average for 95% of the time
RA	Recent Actual (scenario)
RSA	Restoring Sustainable Abstraction
RBMP	River Basin Management Plans
SAC	Special Areas of Conservation
SPA	Special Protection Areas
SSSI	Sites of Special Scientific Interest
SW	Surface water
UKTAG	United Kingdom's Technical Advisory Group
WB	Water Body
WFD	Water Framework Directive
WRGIS	Water Resources Geographical Information System

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