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Northern Manchester abstraction licensing strategy

A licensing strategy to manage water resources sustainably

February 2013

Reference number/code [Sector Code]

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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.

In the Northern Manchester area water is used for industry, public water supply and agriculture as well as being an important amenity feature; so managing water wisely is essential if this resource is to remain sustainable.

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

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1. About the Licensing Strategy

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

The Northern Manchester CAMS supersedes the Northern Manchester CAMS (issued in May 2007)

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

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

Catchment Abstraction Management Strategies (CAMS) set out how we will manage the water resources of a catchment and contribute to implementing the objectives of 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 20m³/day (4 400 gallons) of water per day from a:

- river or stream
- reservoir, lake or pond
- 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
- whether the justification for the abstraction is reasonable
- the abstractor has considered water efficiency measures

If you want to apply for an abstraction licence or make changes to a licence that you already have, 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 Catchment Abstraction Management Strategy (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 Northern Manchester 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 refer to Managing Water Abstraction alongside this licensing strategy document.

2. Northern Manchester CAMS area

The Northern Manchester CAMS covers the catchment areas for the rivers Croal, Irwell, Roch, Irk and Medlock, combined catchment area of 793km².

Originating in the Pennines, these rivers flow south and east towards the cities of Manchester and Salford. The River Irwell flows through the towns of Rawtenstall, Ramsbottom and Bury, while the River Croal flows from the outskirts of Bolton through to Bolton and joins the River Irwell near Farnworth. The Rivers Roch, Irk and Medlock flow through the districts of Rochdale, Heywood, Oldham and onto Manchester city centre.

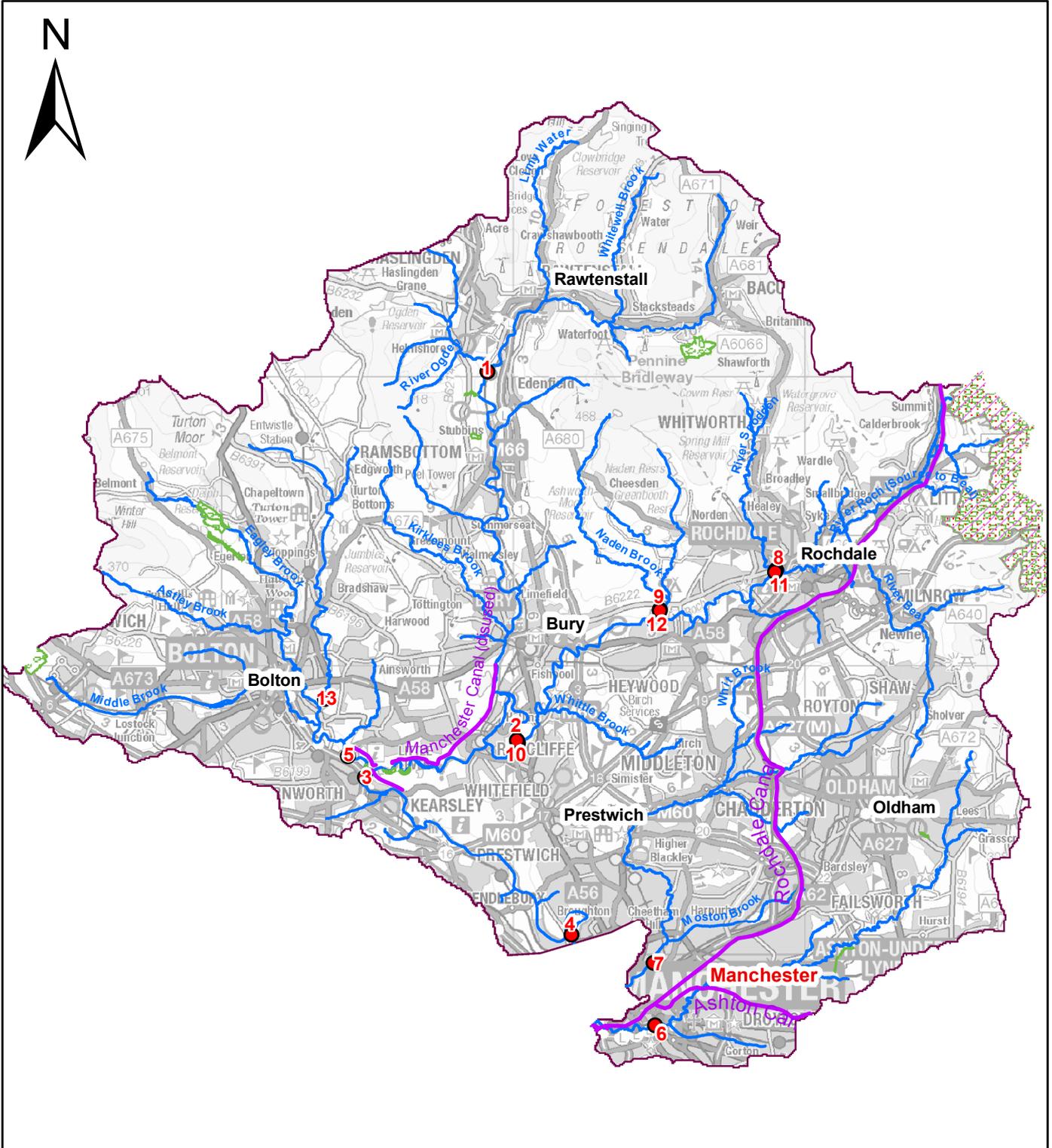
Water is abstracted from surface and groundwater sources for a wide variety of uses, including general agricultural use, industry and water supply. Industries range from breweries and food processing, to chemicals, textiles and paper manufacture. Water supply ranges from private domestic borehole abstractions to the public water supply.

Northern Manchester features many small, but vital, reservoirs such as Greenbooth, Naden and Watergrove in Rochdale, and Wayoh in Bolton. These reservoirs, along with other supplies in Lancashire are known as the Pennine Sources and supplement our major water supplies from the Lake District and Wales. Water-based recreation is mainly limited to reservoirs or canals rather than rivers. Activities such as windsurfing, sailing and canoeing are available at locations such as Hollingworth Lake, Belmont and Jumbles, Clowbridge, Delph and Watergrove reservoirs, and Burrs Country Park on the River Irwell.

The majority of the rivers, lodges and reservoirs are used for fishing. Footpath access to the watercourses is improving, so enabling wider enjoyment of their amenity value. There are several important conservation sites within the area. These include part of the nationally designated South Pennine Moors Site of Special Scientific Importance (SSSI) within the boroughs of Oldham and Rochdale, the Red Moss SSSI near Bolton, and the Ashclough SSSI near Salford. A number of the water supply reservoirs and lodges are valuable for overwintering wildfowl.

Map 1 shows the Northern Manchester area with designated sites.

Map 1 Northern Manchester CAMS Area

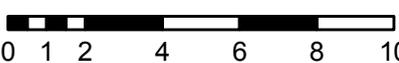


Legend

Designated sites

-  Ramsar
-  SAC
-  SPA
-  SSSI

-  North Manchester CAMS Assessment Points
-  North Manchester Rivers
-  North Manchester Canals

 Kilometres
0 1 2 4 6 8 10

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3. Water resource availability of the Northern Manchester 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). For example, Q95 is flow that is equalled or exceeded for 95% of the time. It's termed a low flow because only 5% of the time is flow less than this.

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.

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 is Heavily Modified Water Bodies (HMWB). These can be classified for many reasons but for water resources they are classified if they may contain a modified lake and/or reservoir that influence the downstream flow regime of the river.

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

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	There is more water than required to meet the needs of the environment. New licences will be considered depending on local and downstream impacts.
Restricted water available	Full Licensed flows fall below the EFIs. No new consumptive licences would be granted. It may also be appropriate to investigate the possibilities for reducing fully licensed risks. Water may be available if you can 'buy' (known as licence trading) the entitlement to abstract water from an existing licence holder.
Water not unavailable	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. No further consumptive licences will be granted. Water may be available if you can buy (known as licence trading) the amount equivalent to recently abstracted from an existing licence holder).
HMWBs	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 4.3.1 Surface Water. There may be water available for abstraction in discharge rich catchments; please contact us to find out more.

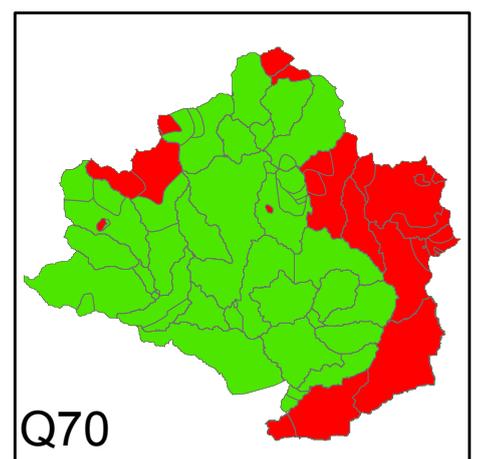
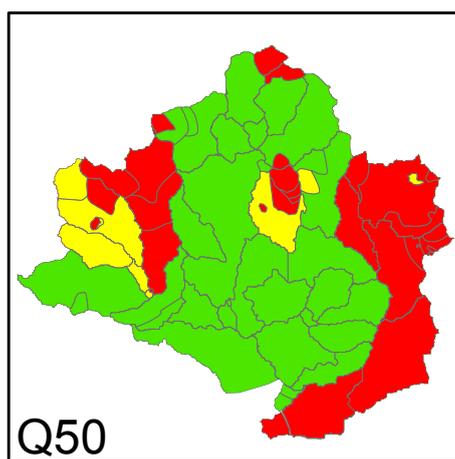
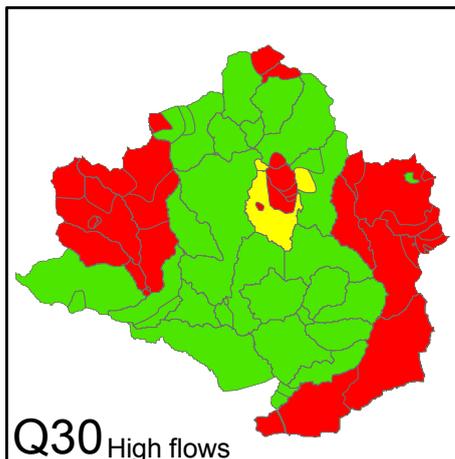
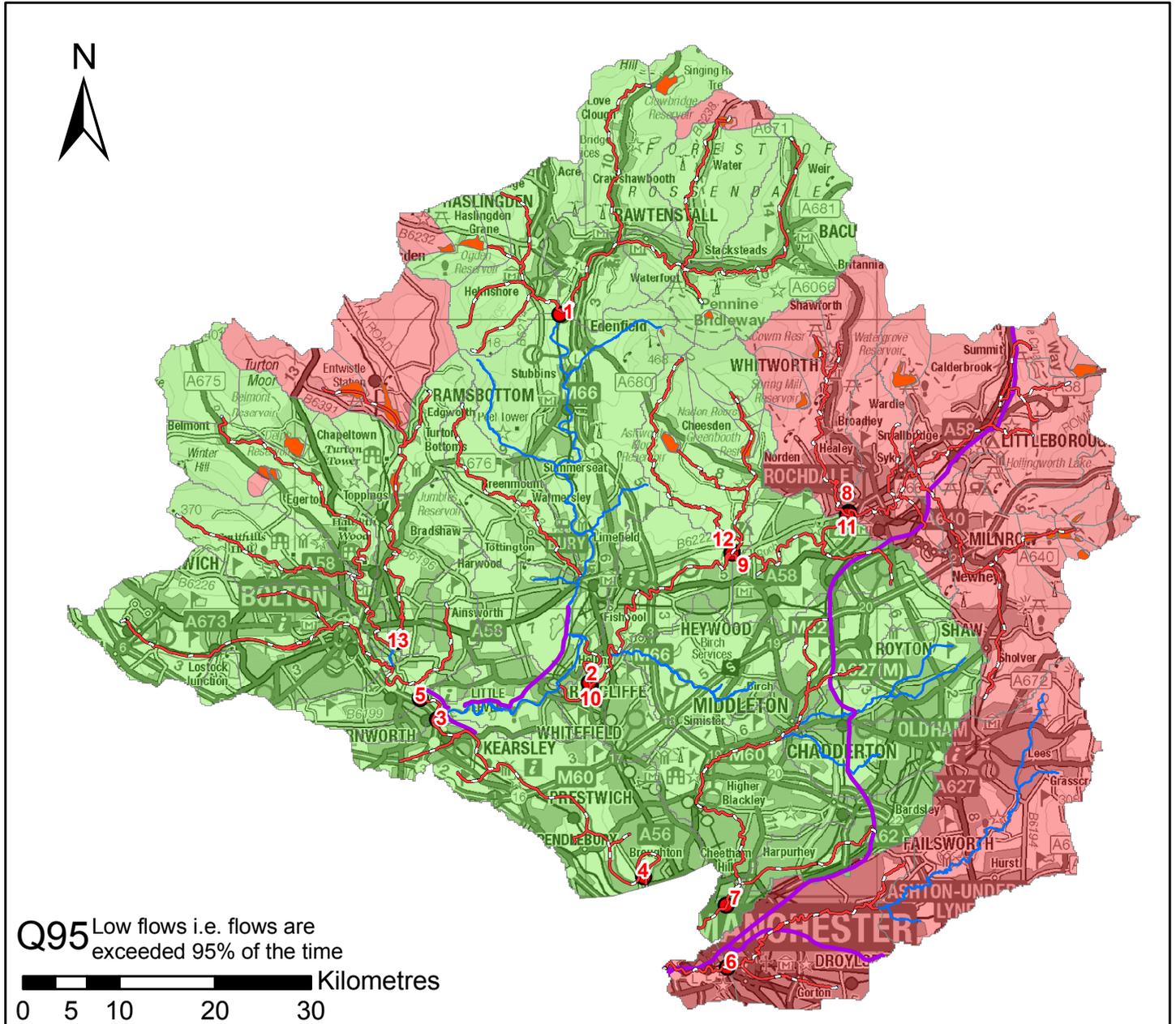
Table 1 Implications of water resource availability colours.

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.

At some water bodies it may appear that water is available at low flows (Q95) but unavailable at high flows (Q30). This may be due to existing abstractions that take large volumes of water, within their licensed limits, during times of high flow but at low flows may be subject to Hands off Flow conditions. These conditions require that abstraction stop when a specified flow occurs in the river in order to protect existing users and the environment. Also, some reservoirs are required to release a specific amount of water at all times, known as a compensation flow. During times of low flows, this compensation flow supports the river and can maintain flow in the river at times when it may have naturally run dry.

Map 2 shows the water resource availability colours in Northern Manchester area.

Map 2 Northern Manchester CAMS Resource Colours



Legend

- Northern Manchester CAMS APs
- Heavily Modified and Artificial Rivers
- Northern Manchester Canals
- Northern Manchester Rivers
- Heavily Modified and Artificial Lakes
- Northern Manchester CAMS WBs
- Water Available
- Limited Water Available
- No Water Available

Creation date 22 October 2012

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3.2.2 Groundwater

Groundwater availability is guided by the water resource availability colours unless we have better information on principal aquifers or are aware of local issues we need to protect.

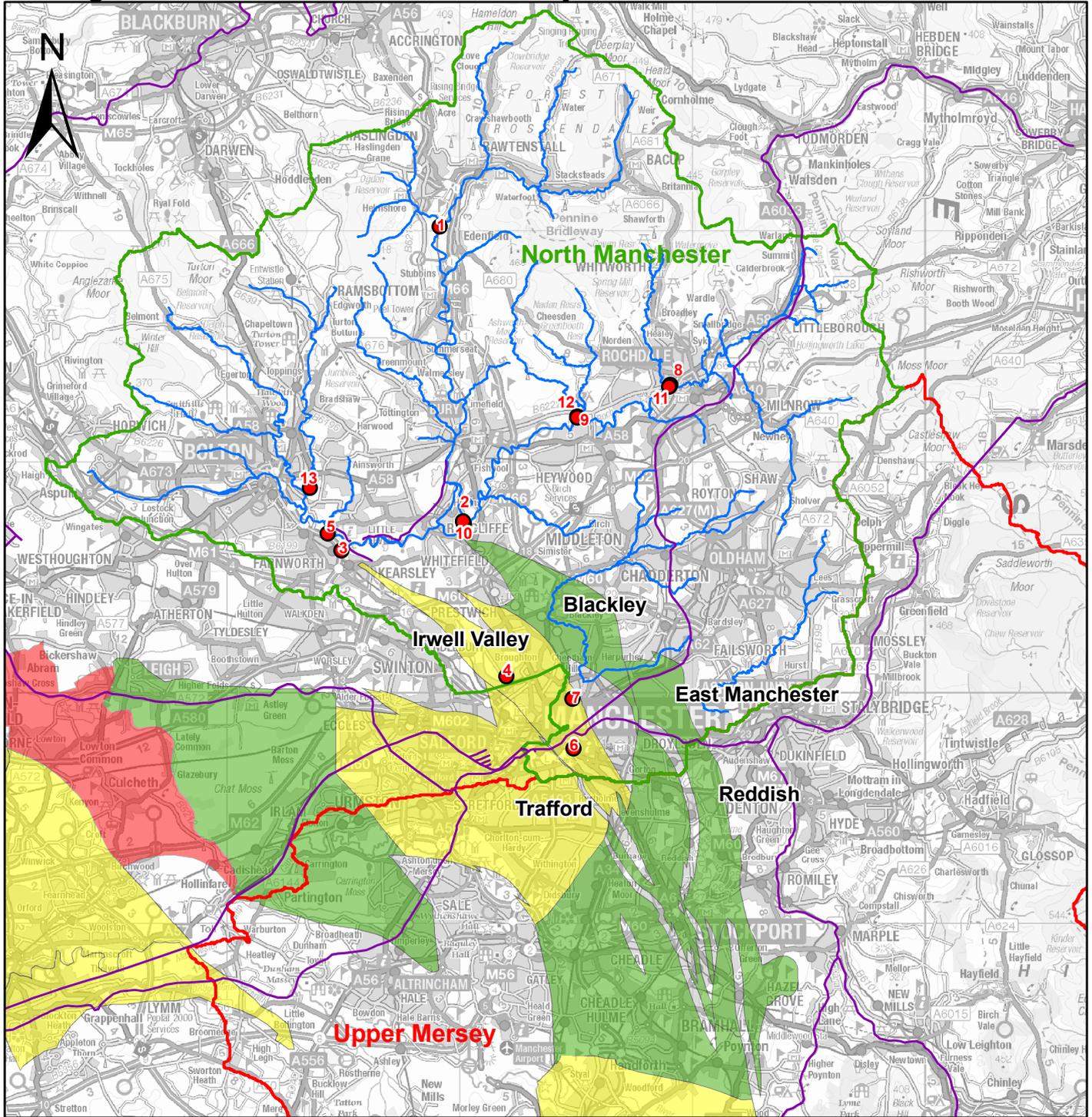
Please refer to section 4.3.2 for further information

Map 3 shows the water resources availability colours in Northern Manchester area, specifically for groundwater.

GWMU resource availability colour	Implication for licensing
Water available	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	<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 intrusions but with management options in place.</p> <p>Water may be available if you can 'buy' (known as licence trading) the entitlement to abstract water from an existing licence holder.</p> <p>In other units there may be restrictions in some areas e.g. in relation to saline intrusion.</p>
Water unavailable	<p>Groundwater unit balance shows more water has been abstracted based on recent amounts than the amount available.</p> <p>No further consumptive licences will be granted.</p>

Table 2 Implications of groundwater resource availability colours.

Map 3 Northern Manchester CAMS Groundwater Management Unit Resource Availability



Legend

- North Manchester CAMS APs
- North Manchester Rivers
- North Manchester Canals
- GWMU**
- Water Available
- Restricted Water Available
- Water Not Available
- CAMS Area**
- North Manchester
- Upper Mersey



Please note that all Ground Water Management Units that appear in this map are assessed in the Upper Mersey Licence Strategy

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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 4 gives an indication of the resource reliability in Northern Manchester area expressed as percentage of time.

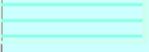
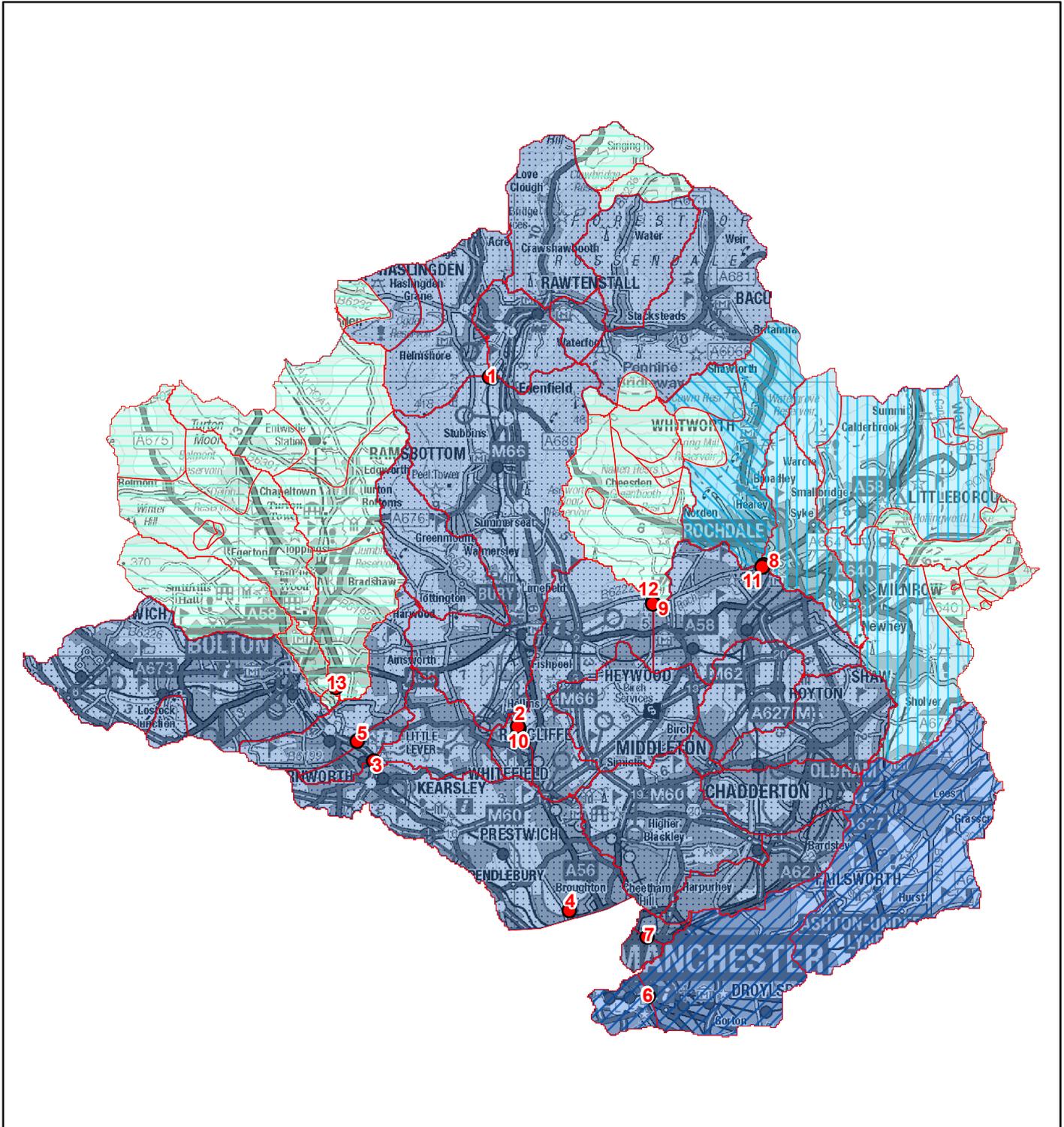
Resource	Percentage of the time additional consumptive resource may be available
	Consumptive abstraction available less than 30% of the time.
	Consumptive abstraction available at least 30% of the time.
	Consumptive abstraction available at least 50% of the time.
	Consumptive abstraction available at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

Table 3 Percentage reliability of consumptive abstraction.

Map 4 North Manchester CAMS Resource Availability (% of the time)



Legend

- North Manchester CAMS APs
- North Manchester CAMS WBs
- 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%

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4. How we manage abstractions in the Northern Manchester area

4.1 Water Abstraction in the Northern Manchester Area

A large amount of the water abstraction in the Northern Manchester catchment has traditionally been used for industries such as chemical, construction, metals and mineral, mining, leather and textiles however the number of new applications for industrial purposes are dwindling and increasing numbers of existing licences are revoked annually as traditional mill type industries cease trading.

The area also has numerous small sources that are used for domestic and agricultural purposes, mainly for the management of livestock. A significant proportion of the water is also used for public water supply with 29 surface water abstractions from licences permitting abstraction from reservoirs located at the headwaters of the Rivers Croal, Roch, and Irwell, and also one important groundwater abstraction.

There are many wastewater treatment work discharges in this CAMS area. These contribute to flow, and in many river sections flows are higher than they would be otherwise. Given that a significant amount of water is also imported into the catchment from the Lake District and Wales, the proportion of water supplied to the region by discharge is very significant.

4.2 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 Northern Manchester catchment is outlined in this section. If you want to abstract water it outlines where water is available for further abstraction and the principles we follow in assessing your application for a licence.

Abstraction licence application process

Anyone wanting to take more than 20m³/day (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 holder's needs 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.

For existing licences, where current abstraction is less than licensed i.e. more water could be legally abstracted, we may take action to limit such an increase if we think this will lead to deterioration of the ecology of 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 flow caused by abstraction. 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

You normally need an impoundment licence to construct, alter, repair or remove an impoundment structure. These structures include weirs, fish passes and sluices.

We will consider every case on its individual merits, and will normally only approve an application to install new structures in a watercourse if one or more of the following apply:

- it is demonstrated to our satisfaction that there are over-riding social or economic reasons for the structure(s) in line with our sustainable development remit and there is no reasonable alternative;
- we agree that the impacts on flood risk, ecology and morphology will not be significant or will be adequately mitigated against or compensated for;
- we accept that the watercourse or floodplain has been modified or degraded, and restoration or enhancement using in-channel structures is justified and acceptable to flood risk management and ecological interests;
- there are important strategic or operational reasons to monitor or regulate river levels and flows, and alternative methods are not technically or financially viable.

If we approve the application and it is appropriate to do so, we will seek mitigation or compensation to ensure environmental impacts and residual damage are minimised.

If we believe it is justified, practical and economic, we may seek the removal or modification of structures that have an adverse effect on flood risk or on the ecology, morphology and visual amenity of a river.

Hydropower

Hydropower schemes harness the energy from flowing water to generate electricity, using a turbine or other device. Sustainable, small scale hydropower has a small but important part to play in meeting UK renewable energy targets.

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

4.3 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 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.

11% of the licences in Northern Manchester CAMS are time-limited. CEDs occur every twelve years.

The next CED for Northern Manchester CAMS is **31st March 2015** and the subsequent one is **31st March 2027**.

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

Hands off flow conditions

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

Please refer to table 4 for hands off flows for each assessment point.

4.3.1 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 HoF's.

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.

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

AP	Name	Water Resource Availability Colour	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?	Discharge Rich Catchment ¹	
1	River Irwell at Irwell Vale Gauging Station	Restricted water available	24.0	365	45.8	Yes	Yes	
2	River Irwell ptc River Roch	Restricted water available	31.1	365	92.6		Yes	
3	River Irwell ptc River Croal	Restricted water available	55.1	365	143.3		Yes	
4	River Irwell at Adelphi Weir Gauging Station	Restricted water available	114.8	365	277.5	Yes	Yes	
5	River Croal at Farnworth Gauging Station	Restricted water available	21.8	365	24.9	Yes	Yes	
6	River Medlock at London Rd Gauging Station	Water unavailable	OVER LICENSED					
7	River Irk at Collyhurst	Restricted water available	11.5	365	55.4	Yes	Yes	

AP	Name	Water Resource Availability Colour	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?	Discharge Rich Catchment ¹
8	River Roch ptc River Spodden	Water unavailable	OVER LICENSED				
9	River Roch ptc Naden Brook	Restricted water available	26.6	365	46.1		Yes
10	Roch at Blackford Bridge Gauging Station	Restricted water available	32.4	365	53.8	Yes	Yes
11	River Spodden ptc River Roch	Restricted water available	6.0	365	10.5		Yes
12	Naden Brook ptc River Roch	Restricted water available	132.9	365	-36.9		Yes
13	Bradshaw Brook	Restricted water available	419.2	365	-90.6		Yes

Table 4 HoF's for the assessment points of Northern Manchester CAMS.

The overall water availability colour for an assessment point may differ to the colours shown in map 2 for the water availability at different flows. This is because map 2 does not take into account the fact that water available may be made up of discharges from existing abstractors. The Environment Agency has no control over the continued operation of discharges and so cannot guarantee reliability of these. At present the Environment Agency cannot grant licences for water that is made up from discharges. However, decisions about an application will be made on a case by case basis. Customers wishing to enquire about the availability of a source should contact us for further details.

¹ **Discharge Rich** - there may appear to be water available, however this water could be made up of discharges from existing users which the Environment Agency has no control over their continued operation. This means that the input of water is classed as unreliable and at this present time is not available for licensing. An update on the situation is due to be announced early 2013.

The information below for each assessment point gives an indication of whether licenses will be renewed.

Restricted Water Available

The following assessment points have restricted water available for licensing:

- AP1, River Irwell at Irwell Vale Gauging Station
- AP2, River Irwell prior to confluence of River Roch
- AP3, River Irwell prior to confluence of River Croal
- AP4, River Irwell at Adelphi Weir Gauging Station
- AP5, River Croal at Farnworth Gauging Station
- AP7, River Irk at Collyhurst Gauging Station
- AP9, River Roch prior to confluence of Naden Brook
- AP10, River Roch at Blackford Bridge Gauging Station
- AP11, River Spodden prior to confluence of River Roch
- AP12, Naden Brook prior to confluence of River Roch
- AP13, Bradshaw Brook

This means that for **new** licences:

- No new unconstrained licences will be granted;
- Water is only available during periods of medium to high flows with HOF conditions;
- There is a time limit of 31 March 2027 and for **existing** licences:
- No impact on existing licence holders.

Water Unavailable for licensing

The following assessment points have Water unavailable for licensing:

- AP6, River Medlock at London Rd Gauging Station
- AP8, River Roch prior to confluence of River Spodden

These units are closed to new consumptive abstractions. The only way we would consider a new licence would be as a result of licence trading. Please see section 4.4 for further details.

Further Information...

For further information about the availability of water at specific locations, please enquire using the following contact details

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

4.3.2 Groundwater

Where groundwater (GW) 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 5.

On major aquifers we have divided the area into groundwater management units. 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 condition may be applied to the abstraction. This is a groundwater level below which an abstractor is required to reduce or stop abstraction.

Waterbodies that have the status 'Restricted Water Available' and amount available is negative, may be due to water that has been licensed but is not abstracted and so we will still consider small abstractions that do not impact the environment or existing users. Please us for further information.

Groundwater management unit	Licence restriction	Reason for restriction	Amount available (MI/d)
East Manchester	Water Available		1.7
Irwell Valley	Restricted Water Available	Over licensed on water balance	-6.0
Blackley	Water Available		3.1
Reddish	Water Available		0.9

Table 5: Licence restrictions on groundwater abstractions in the Northern Manchester CAMS area.

4.4 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	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	Initially, we will allow trades of recent actual abstraction and licensed abstraction but post trade recent actual abstraction must remain sustainable. The current level of recent actual abstraction means there is a risk that in the future we may only be able to trade recent actual abstraction.
Water not available	We will only trade recent actual abstraction but no increase in recent actual abstraction is 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 6: Environment Agency approach to water trading

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

4.5 New Authorisations

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

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

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

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

4.6 Restoring Sustainable Abstraction (RSA)

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. The abstraction licences within these water bodies that cause these issues are being investigated as part of the 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.

Within the current RSA programme there are no waterbodies within the Northern Manchester CAMS area.

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 Water Framework Directive (WFD). About six per cent of rivers are failing to support WFD good ecological status due to pressures from over-abstraction.

4.7 Heavily Modified Water Bodies

Some water bodies have been designated as artificial or heavily modified if they are substantially modified or constructed to be used for water supply, urban purposes, flood protection or navigation. Many of the headwaters of the Mersey tributaries have been impounded to create reservoirs for public water supply.

Under the River Basin Management Plan for the Northern West, private, public and voluntary/third sector organisations will work together to ensure that these water bodies can achieve their full environmental potential.

4.8. Habitats Directive

Under the Habitats Regulations we have assessed the effects of existing abstraction licences and will assess new applications to make sure they are not impacting on internationally important nature conservation sites. These sites are known as Special Areas of Conservation (SAC) and Special Protection Areas (SPA). 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.
- When assessing new licence applications, we will consider any impacts on the Sites of Special Scientific Interest (SSSIs), Special Protection Areas (SPAs) and Ramsar sites as displayed in Map 1.

As much of the Northern Manchester area is so densely populated and industrialised, its natural habitats and wildlife populations have been modified, reduced and fragmented. Despite this, there are several Sites of Special Scientific Interest (SSSIs) within the catchment and numerous Sites of Biological Importance (SBIs); designated for their local, district or regional importance. The fact that many of these are concentrated along the river valleys highlights the importance of watercourses for conservation. There are several nationally important sites, or Sites of Special Scientific Interest (SSSIs) such as Moss Brook, the Rochdale Canal, South Pennine Moors, Red Moss, Oak field and Turton Moor, Longworth Clough, Hodge Clough and the Tonge River section.

5. Strategy actions

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

Table 7 shows progress on the actions from first round of the Northern Manchester CAMS

Table 8 shows new actions for Upper Mersey CAMS proposed as a result of the latest assessment of resources.

Action	AP unit	Start	Finish	Progress
We will continue to work with new applicants and current abstractors to promote water efficiency	All	2007	2013	On going
We will actively encourage licence holders to revoke unused licences and/or reduce licence volumes where appropriate	All	2007	2013	On going
We will encourage further spot flow gauging, temporary gauging sites or permanent gauging stations, as appropriate to better understand the flows in the rivers and improve benchmark flows for the next CAMS.	All	2007	2013	On going
We will conduct routine sampling programmes to monitor fisheries, and communities of macro-invertebrates	All	2007	2013	On going

Table 7 Progress on the actions from 1st round of the Northern Manchester CAMS

Measures	AP unit	Start	Finish	Progress
In this catchment there is a shortage of suitable gauging stations at which hands off flows can suitably be assessed. Review the number and quality of suitable gauging stations within the catchment in which HoF's can be assessed. Lack of quality data will result in licences that cannot be enforced and managed properly.	All waterbodies	2013	2016	On going
Investigate waterbodies that are over-licensed and have fallen below the EFI.	All waterbodies	2012	Ongoing	The abstraction licences within these water bodies that cause these issues are being investigated as part of the 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.
Monitoring groundwater levels	All waterbodies	2012	Ongoing	Our Groundwater team continue to monitor groundwater levels and review licence applications.
Investigate the possibility of reducing the risks of GWMU's being fully licensed.	All waterbodies	2012	Ongoing	Our Groundwater team continue to review existing licences in order to reduce the pressures on GWMU's
Investigation into the feasibility of licensing discharge flows.	All waterbodies	2012	On going	This is currently under review by the Environment Agency

Table 8 New measures arising from the latest assessment of resources in the Northern Manchester CAMS

Glossary of terms

Abstraction	Removal of water from a source of supply (surface or groundwater).
Abstraction licence	The authorisation granted by the Environment Agency to allow the removal of water.
Assessment Point Unit	Point at which the flow from upstream catchment is assessed.
Catchment	The area from which precipitation and groundwater will collect and contribute to the flow of a specific river
Consumptive abstraction	Abstraction where a significant proportion of the water is not returned either directly or indirectly to the source of supply after use. For example for the use of spray irrigation.
Discharge	The release of substances (i.e. water, sewage, etc.) into surface waters.
Environmental flow indicator	Flow indicator to prevent ecological deterioration of rivers, set in line with new UK standards set by UKTAG.
Full licence	A licence to abstract water from a source of supply over a period of 28 days or more
Gauging Station	A point along a river or lake where river flows and levels are measured.
Groundwater	Water that is contained in underground rocks.
Hands off flow	A condition attached to an abstraction licence which states that if flow (in the river) falls below the level specified on the licence, the abstractor will be required to reduce or stop the abstraction.
Hands off level	A river flow level below which an abstractor is required to reduce or stop abstraction.
Impoundment	An impoundment is a structure that obstructs or impedes the flow of inland water, such as a dam, weir or other constructed works.
Lodge	A lodge is a North West term for an artificial body of water used to alter flows e.g. a compensation reservoir or mill pond.
Minimum Residual Flow	The minimum flow condition that can be placed on a license to protect very low flows.
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; <ul style="list-style-type: none"> 1. transferring water to another source of supply; or, 2. transferring water to the same source of supply, but at another point, in the course of dewatering activities in connection with mining, quarrying, engineering, building or other operations (whether underground or on the surface); 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	Ecological Flow Indicator
FL	Full Licensed (scenario)
GES	Good Ecological Status
GW	Groundwater
HES	High Ecological Status
HMWB	Heavily Modified Water body
HoF	Hands off Flow
HoL	Hands off Level
LDE	Level Dependent Environment
maOD	Metres above ordnance datum
MRF	Minimum Residual Flow
Ptc	Prior to confluence
Q95	The flow of a river which is exceeded on average for 95% of the time.
RA	Recent Actual (scenario)
RSA	Restoring Sustainable Abstraction
RBMP	River Basin Management Plans
SAC	Special Areas of Conservation
SPA	Special Protection Areas
SSSI	Sites of Special Scientific Interest
SW	Surface water
WB	Water body
WFD	Water Framework Directive

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