

Weaver and Dane Abstraction Licensing Strategy



A strategy to manage water resources sustainably

November 2020

Foreword

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

We help people and wildlife adapt to climate change and reduce its impacts, including flooding, drought, sea level rise and coastal erosion.

We improve the quality of our water, land and air by tackling pollution. We work with businesses to help them comply with environmental regulations. A healthy and diverse environment enhances people's lives and contributes to economic growth.

We can't do this alone. We work as part of the [Defra](#) group (Department for Environment, Food & Rural Affairs), with the rest of government, local councils, businesses, civil society groups and local communities to create a better place for people and wildlife.

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About the licensing strategy

This 2020 Weaver and Dane Abstraction Licence Strategy (ALS) supersedes the 2012 strategy.

The ALS sets out how water resources are managed in the Weaver and Dane [catchments](#). It provides information about where water is available for further abstraction and an indication of how reliable a new abstraction licence may be.

Our approach ensures that [River Basin Management Plans](#) objectives for water resources activities are met and we avoid deterioration within this catchment.

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

Please see [Managing Water Abstraction](#) for further explanation, legal and policy requirements behind the ALS.

For information on when an abstraction licence is required, please go to our [Water Management: Abstract or Impound Water](#) online pages.

The Weaver and Dane Area

The Weaver and Dane Abstraction Licensing Strategy covers the catchment area for the River Weaver and the River Dane, an area of 1423 km². Map 1 outlines the ALS area and its boundary.

The River Weaver rises in the Peckforton Hills and flows until its confluence with the Manchester Ship Canal and Mersey Estuary just north of Frodsham. It has two main tributaries; the River Dane, which joins the Weaver Navigation in the centre of Northwich, and the River Wheelock, which joins the River Dane in Middlewich. Large stretches of the

river have been canalised to make them navigable, which has led to long, straight, hard-edged sections.

The River Dane originates in the Peak District National Park. At its source in the uplands it is fast flowing and begins to slow as it starts and continues to meander.

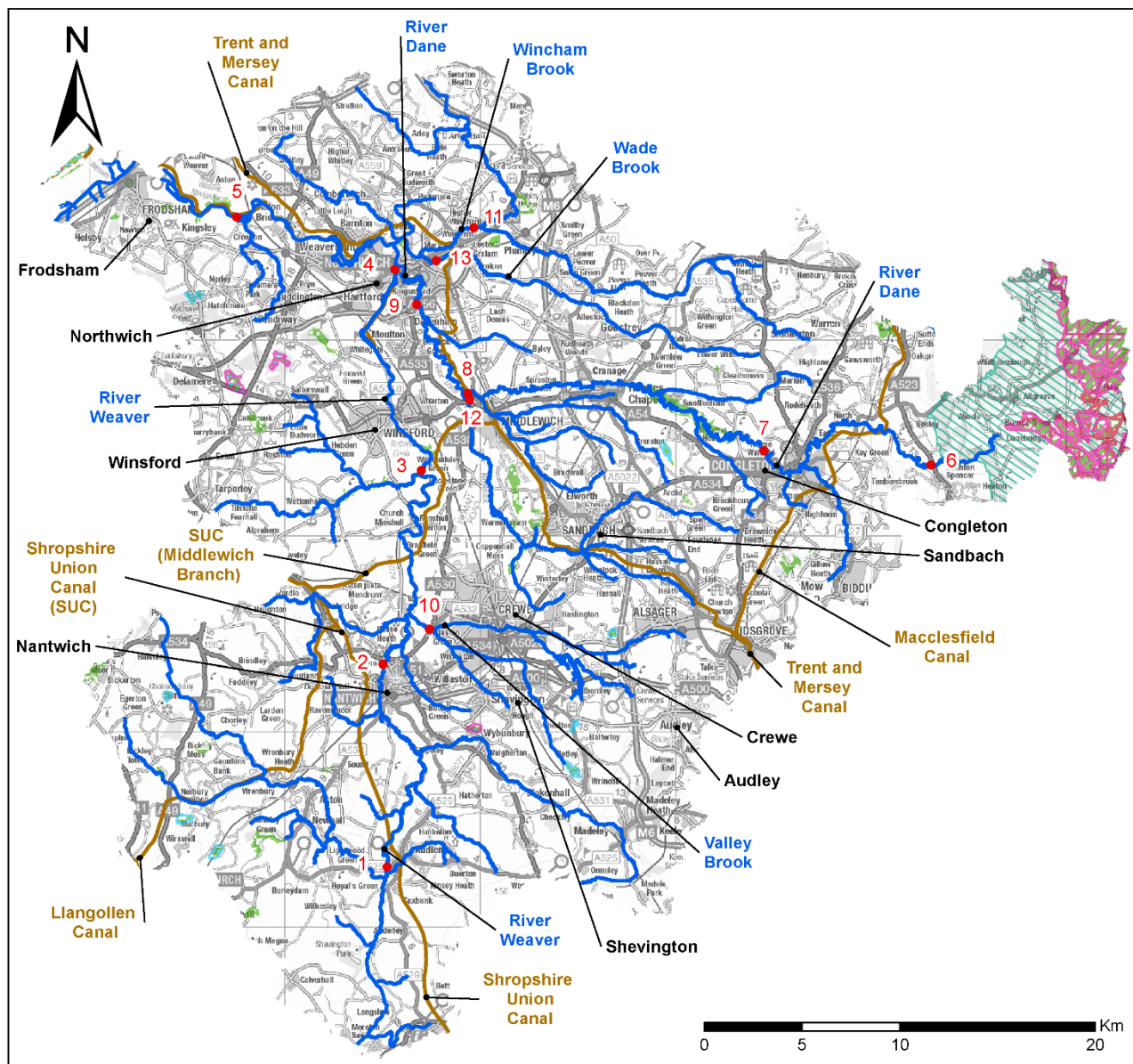
The River Wheelock drains the area between Sandbach and Crewe and joins the River Dane at Middlewich.

There are a number of canals within this ALS area. The Macclesfield Canal starts at Marple Junction with the Peak Forest Canal and works its way south to Hall Green near Kidsgrove. Two reservoirs, Sutton and Bosley, supply the canal and both reservoirs have extensive feeder systems stretching back into the hills above the canal.

The Trent and Mersey Canal runs through the ALS area to the North Midlands.

The Shropshire Union Canal also links the canal system of the West Midlands with the River Mersey and the Manchester Ship Canal at Ellesmere Port.

Map 1 Weaver and Dane CAMS Area



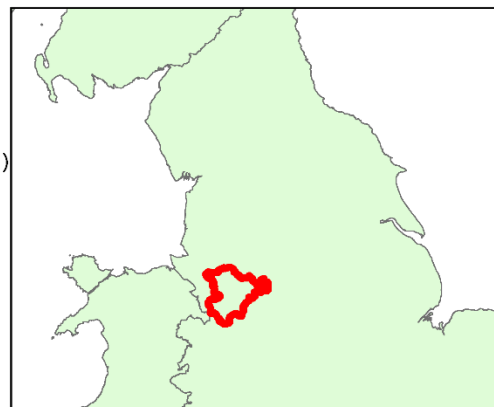
Legend

- CAMS Assessment Points
- Main Rivers
- Canals
- Ramsar Sites
- Special Areas of Conservation (SAC)
- Special Protection Areas (SPA)
- Sites of Special Scientific Interest (SSSI)
- National Parks

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Map 1. The Weaver and Dane CAMS area and local information

Water resource availability of the Weaver and Dane ALS

Resource availability

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 \(EFI\)](#)

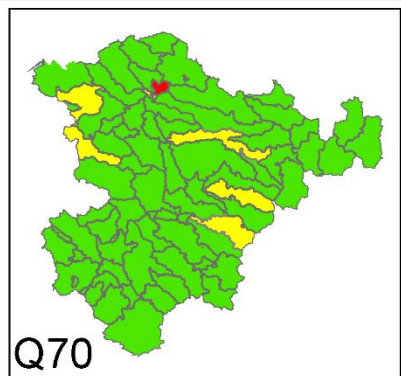
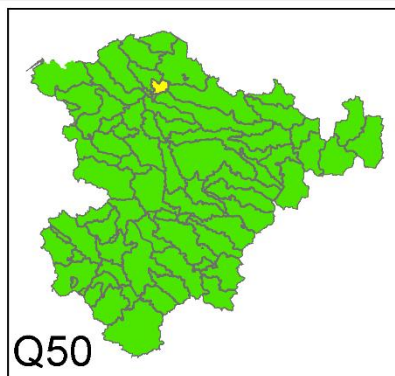
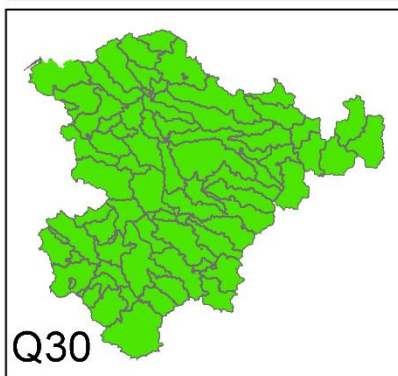
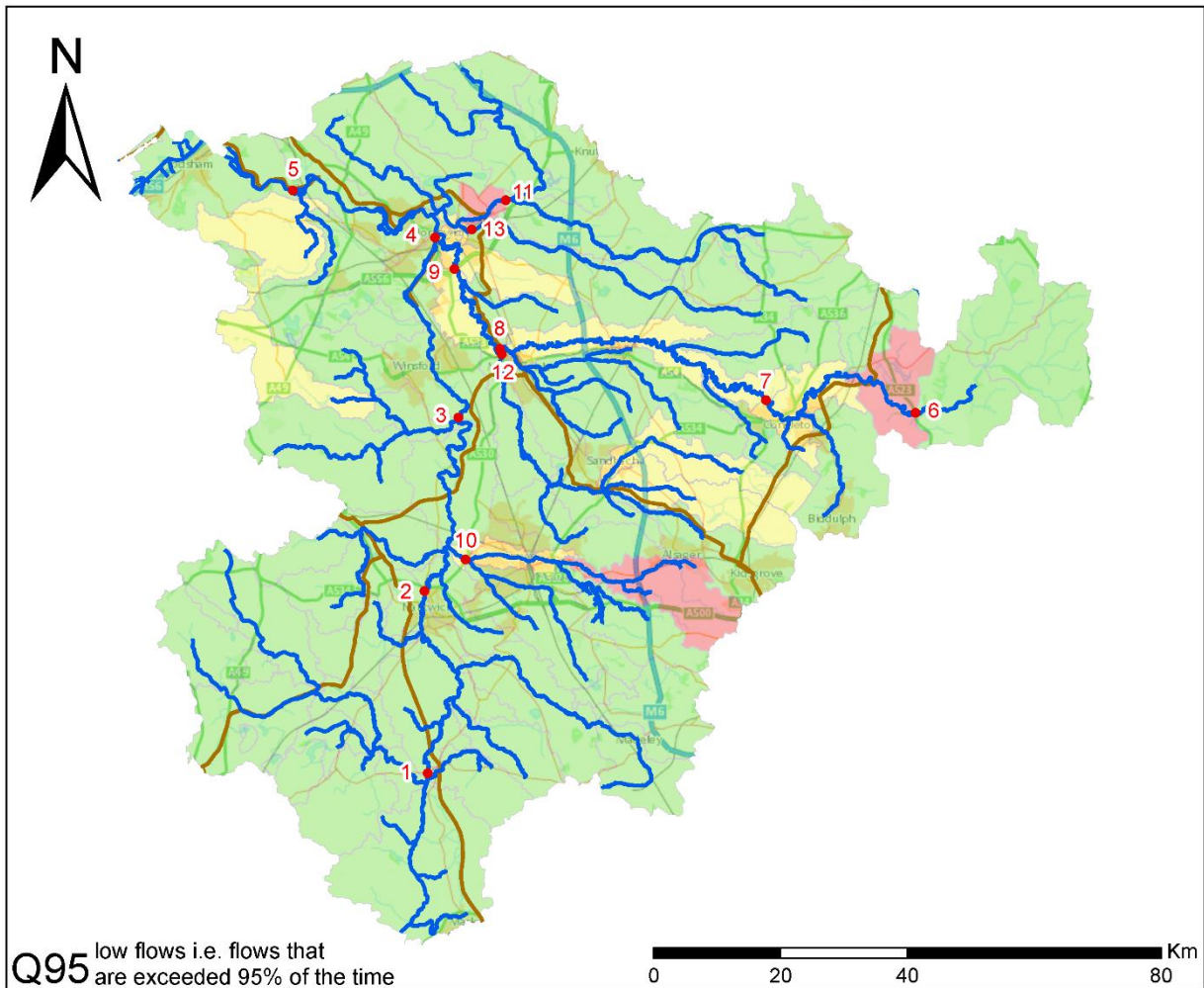
The Fully Licensed (FL) scenario - the situation if all abstraction licences were being used to full capacity

The Recent Actual (RA) scenario – the amount of water which has actually been abstracted on average over the previous six years

The water resource availability, calculated at four different flows, Q95 (the flow of a river which is exceeded on average for 95% of the time i.e. low flow), Q70, Q50, and Q30 (higher flow) for this ALS are presented in Map 2 below.

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. Our aim is to achieve 'Good Ecological Status' (GES) for each surface water body or 'Good Ecological Potential' (GEP) where a surface water body is heavily modified for reasons other than water resources and 'Good' status for each groundwater body.

Map 2 Weaver and Dane CAMS Water Resource Availability Colours



Legend

- CAMS Assessment Points
 - Main Rivers
 - Canals
 - CAMS WBs
- Water Availability**
- Water Available
 - Limited Water Available
 - Water Unavailable

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Map 2. Weaver and Dane CAMS water resource availability colours

Water resource availability colours and implications for licensing

Water available for licensing

Green 

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

Yellow 

[Fully Licensed flows](#) fall below the Environmental Flow Indicator (EFI).

If all licensed water is abstracted there will insufficient water left for the needs of existing abstractors and the environment. [Consumptive](#) abstraction licences may only be available at higher flows and less often e.g. flood water for winter storage. Water may be available for trading from an existing licence holder. More information on licence trading can be found in Section 0 or on our [website](#).

Water not available for licensing

Red 

Recent actual flows are below the EFI.

This scenario highlights water bodies where flows are below the indicative flow requirement to help support a healthy ecology in our rivers. We are currently taking action in water bodies that are not supporting GES or GEP. We will not grant further licences. Water may be available if you can buy (known as licence trading) the amount equivalent to recently abstracted from an existing licence holder.

Resource reliability and constraints

If you want to apply for a licence, it's worth considering the reliability of your abstraction i.e. how often you are allowed to abstract water from the source without damaging the environment.

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

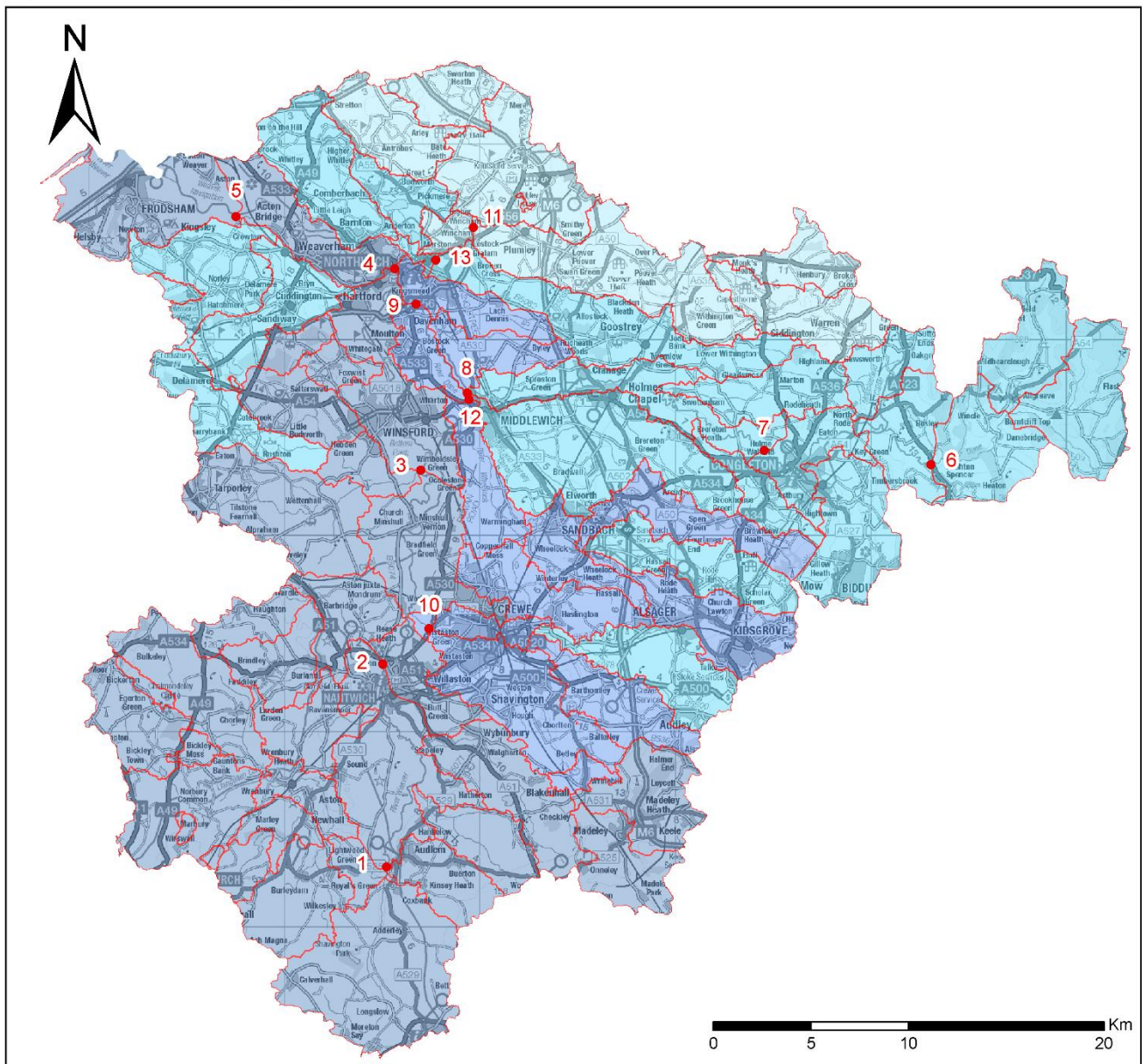
Map 3 gives an indication of the resource availability for [consumptive abstraction](#) in the Weaver and Dane area expressed as a percentage of time.

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

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

New licences within an ALS are usually given a Common End Date (CED), which allows them to be reviewed at the same time. The next CED for this ALS is 31 March 2025 and the subsequent one is 31 March 2037. It is at this point we may be required to make sustainability changes to licences in order to protect the environment e.g. a reduction of the licensed volume allowed or the addition of a HoF or HoL.

Map 3 Weaver and Dane CAMS Resource Reliability (% of the time)



Legend

- CAMS Assessment Points
- Weaver and Dane 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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Map 3. Weaver and Dane CAMS resource availability

How we manage abstraction in the Weaver and Dane ALS

Assessment points

We assess surface water flows at [Assessment Points](#) (APs), which are significant points on a river, often where two major rivers join or at a gauging station which is used to record flows. These assessment points are where we model the impacts of abstractions, discharges and complex impacts like reservoir discharges. After a proportion of the remaining water has been allocated to the environment, what water is left is available for abstraction. The location of these APs which cover multiple surface water bodies can be seen in Map 1.

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

Table 1 gives an indication of how much water is available for further abstraction and the associated restrictions we may have to apply to new and varied [abstraction licences](#) from the main river. Tributaries to the main river may be subject to different restrictions and quantities and will be assessed locally on a case by case basis.

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

Reading from top to bottom in Table 1 are the APs in the Weaver and Dane area. Reading across the columns you can see the potential HoF that may be applied to a licence, the number of days water may be available under this restriction and the approximate volume of water in Ml/d that may be available at this restriction. Further water may be available after this restriction but less often due to a higher HoF.

In cases where there is water available at all flows we may apply a [Minimum Residual Flow \(MRF\)](#) to protect very low flows. This will be determined on a case by case basis.

AP	Name	Water Resource Availability	HOF Restriction (MI/d)	Number of days per annum abstraction may be available	Approximate volume available at restriction (MI/d)	Is there a gauging station at this AP?
1	Audlem GS (River Weaver)	Water Available for Licensing	9.6	365	2.4	Yes
2	Beam Bridge (River Weaver)	Water Available for Licensing	21.3	365	7.6	No
3	Ashbrook GS (River Weaver)	Water Available for Licensing	53.5	365	34.2	Yes
4	Hayhurst Bridge (River Weaver)	Water Available for Licensing	57.1	365	40.9	No
5	Pickerings Cut GS (River Weaver)	Water Available for Licensing	111	365	22.8	No
6	Hug Bridge GS (River Dane)	Restricted Water Available for Licensing	71.2	241	1.8	Yes
7	Hulme Warfield (River Dane)	Restricted Water Available for Licensing	95	241	1.8	No
8	River Dane (ptc River Wheelock)	Restricted Water Available for Licensing	99.4	241	1.8	No
9	Rudheath GS (River Dane)	Restricted Water Available for	110.6	285	13.2	Yes

AP	Name	Water Resource Availability	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?
		Licensing				
10	Marshfield Bridge GS (Valley Brook)	Restricted Water Available for Licensing	14.7	329	1.4	Yes
11	Lostock Graham GS (Wincham Brook)	Water Unavailable for Licensing	11.4	365	1.2	Yes
12	River Wheelock (ptc River Dane)	Restricted Water Available for Licensing	27.2	285	7.1	No
13	Wade Brook (ptc Wincham Brook)	Restricted Water Available for Licensing	3.6	365	17	No

Table 1 Summary of licensing approach for the assessment points of Weaver and Dane ALS.

Note - the number of days per annum abstraction may be available assumes average condition. Data valid as of date of publishing. Contact the EA for a more up to date assessment.

Groundwater

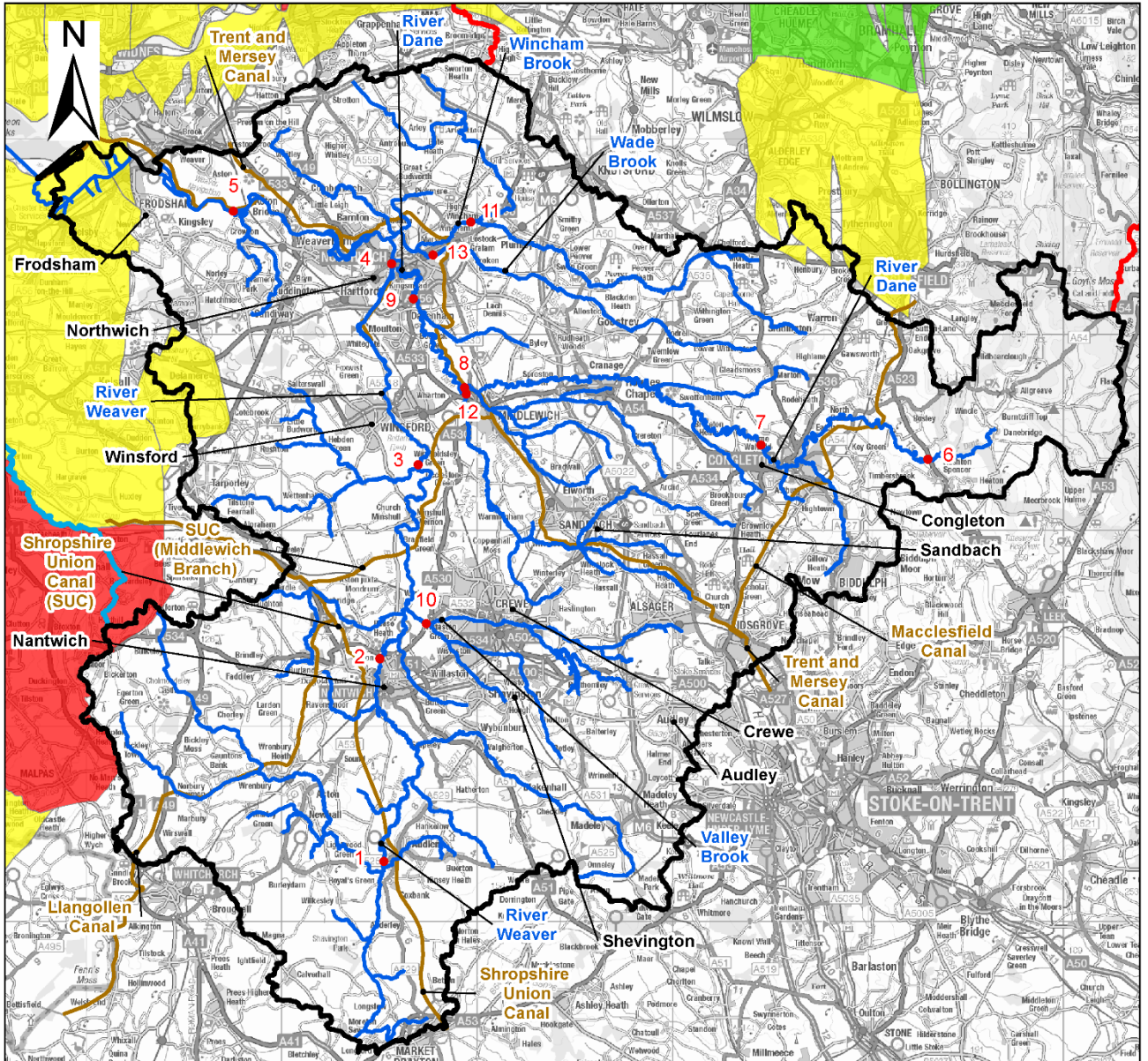
For principal aquifers, such as the Sherwood Sandstone, we divide the area into groundwater management units (GWMU), which are sub-divisions of the groundwater bodies. In these cases we use the information and assessments on these units to determine water availability and licence restrictions.

The geology in the Weaver and Dane catchment is glacial sands and gravels overlying Mercia Mudstone. Groundwater is predominantly held within the sands and gravels which are classed as a secondary aquifer and therefore there are no GWMUs within this ALS. Those GWMUs within the sandstone aquifer that cross the boundary into the Weaver and Dane catchment are assessed as part of the Lower Mersey and Alt ALS.

Groundwater abstractions in the Weaver and Dane catchment will directly impact on surface water flows, and this includes the reduction of base flow, therefore the impact is measured at the surface water AP. In these cases, restrictions may be applied to licences, such as [Hands off Level](#) (HoL) conditions.

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

Map 4 Weaver and Dane Groundwater Management Unit Resource Availability



Legend

- Weaver and Dane CAMS Assessment Points
- Weaver and Dane Main Rivers
- Weaver and Dane Canals
- GWMU**
- Water Available
- Restricted water available
- Water not available
- Weaver and Dane
- Upper Mersey
- Lower Mersey & Ait

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Map 4. Groundwater management unit resource availability

Protected areas

UK 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.

The Weaver Dane area includes three SAC designations that have international significance; Oak Mere, West Midlands Mosses (including Abbots Moss, a complex acidic wetland site) and Wybunbury Moss (an area of importance for invertebrate biodiversity).

The South Pennine Moors SPA lies on the far eastern boundary of the Weaver Dane area and covers large areas of semi-natural moorland habitats. The site is of European importance for several upland breeding species, including birds of prey and waders.

There are a large number of nationally important Sites of Special Scientific Interest (SSSI's) and 412 Sites of Biological Importance (SBI's) in the area that are designated by local authorities.

Managing existing licences

Water rights trading

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

In licensing trades, as with new abstraction licences, we need to make sure that we don't cause any deterioration in water body status both within the water body / bodies where the trade will take place and to downstream water bodies. The section below provides a guide to the potential for trading in water bodies of a particular ALS water resource availability colour, as shown on Map 3.

To find out more about licence trading please go to our [water management web pages on gov.uk](#)

Guide to the potential trading in water bodies of a particular ALS water resource availability colour

Water available for licensing

Green 

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

Yellow 

There may be opportunities for licence holders to trade up to their full licensed quantities, but the quantities of water available to trade may be restricted once levels of actual abstraction reach sustainable limits. We will not permit licence trades in water bodies where we are taking action to prevent deterioration unless the trade is consistent with achieving water body objectives.

Water not available for licensing

Red 

We will only trade recent actual abstraction but no increase in recent actual abstraction is permitted in the water body. Licensed abstraction will be recovered for the environment.

Taking action on unsustainable abstraction

We undertake a range of actions to address unsustainable abstraction in the Weaver and Dane area, including;

Regular abstraction compliance checks and visits to ensure our customers only take the water they are allowed.

Local investigations to assess the impact of abstraction on the ecology and wildlife that live in our watercourses. Where an impact is found, we work with abstractors to mitigate the impact of their activity.

Taking action to reduce or revoke any unused or partially used licences across the area to secure the proper use of water resources.

Taking actions under the **Water Industry National Environment Programme (WINEP)** to make sure that the water companies take a leading role in addressing any impact their abstractions are having on the environment.

Reviewing abstraction licences at their point of renewal and adjusting them as necessary to make sure they do not cause environmental damage now or in the future.

List of Abbreviations

ALS

Abstraction Licensing Strategy.

AP

Assessment Point.

CED

Common End Date.

Defra

Department of Environment Food and Rural Affairs.

EFI

Environmental Flow Indicator.

GEP

Good Ecological Potential.

GES

Good Ecological Status.

GW

Groundwater.

HMWB

Heavily Modified Water Body.

HoF

Hands off Flow.

HoL

Hands off Level.

MI/d

Megalitres per day.

SAC

Special Areas of Conservation.

SPA

Special Protection Areas.

SSSI

Sites of Special Scientific Interest.

UKTAG

United Kingdom's Technical Advisory Group.

WB

Water body.

Glossary

Abstraction

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

Abstraction licence

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

Assessment point

A significant point on a river, often where two major rivers join or at a gauging station.

Catchment

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

Consumptive abstraction

Abstraction where a significant proportion of the water is not returned either directly or indirectly to the source of supply after use. For example for the use of spray irrigation in which the majority of water will be lost to evaporation.

Discharge

The release of substances (for example, water, treated sewage effluent) into surface waters.

Discharge Rich

The flow within a watercourse is artificially much higher due to the influence of discharges.

Environmental flow indicator

Flow indicator to prevent environmental deterioration of rivers, set in line with new UK standards set by [UKTAG](#).

Fully Licensed Flow

The flow is all abstractors were to abstract at their full licensed quantity.

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

The level of the water table at which groundwater abstraction must stop.

Impoundment

A structure that obstructs or impedes the flow of inland water, such as a dam, weir or other constructed works.

Minimum Residual Flow

The minimum flow condition that can be placed on a licence to protect very low flows.

Recent actual abstraction

Environment Agency: Weaver and Dane Abstraction Licensing Strategy

The average volume of water that has actually been abstracted over the last 6 years.

Surface water

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

Water body

Units of either surface water or groundwater which we use to assess water availability.

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