



## FAQs Irrigation Water Supply

### For Golf & Sports Turf

Author: Giles Wardle CEng BSc MSc  
On behalf of

## Irriplan Ltd.

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+44 (0) 7771 546 358

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A reliable water supply for a golf course or sports pitch irrigation system is vital to maintain a healthy sward and consistent playing surface. It can prove to be a significant operating cost in a hot, dry year and also potentially be subject to restrictions or complete cessation of your supply.

This document addresses the most frequently asked questions about water supply for irrigation and is intended to inform those tasked with managing golf and sports facilities about the legislation regarding water use for irrigation, so that risks and opportunities can be identified and acted upon to secure a reliable and affordable water supply for irrigation use.

The questions answered are;

1. How can I reduce my water bill?
2. Can I harvest rainwater for irrigation use?
3. How can I avoid the risk of a “hosepipe ban”?
4. What’s involved in drilling a borehole?
5. Can I abstract from a river or lake?
6. Water storage tanks v. storage lake
7. What’s involved in planning and building a water storage lake?
8. If I build a water storage lake can I be affected by any restriction?

## **First, let’s bust the jargon and the acronyms;**

### TUBS.

Temporary use bans (TUBs) aka “hose pipe ban” refer to The Water Use (Temporary Bans) Order 2010, a statutory instrument enabled by the Water Industry Act 1991 which permits a water company to restrict or cease the supply of water to its customers for certain specific uses prescribed in the 1991 Act. Initially this legislation didn’t include sports turf in the list of uses that water companies could ban; however “*any natural or artificial surfaces used for sport or recreation*” have since been added to the list via an explanatory memorandum (no.2231). This only applies if you buy potable ‘mains’ water from the water company.

### Drought Permit/Drought Order.

A Drought Permit/Drought Order is a request submitted by a water company to the Environment Agency /Secretary Of State respectively to take drought management actions or make separate emergency abstractions to maintain the public water supply, where the public water supply has been affected due to a lack of rain. Before submitting a Drought Permit/Drought Order a water company must first demonstrate that it has taken steps to inform the public, produce a drought plan and reduce demand, such as by issuing a TUB.

### Consumptive Use.

When you purchase water from a water company there are two elements to the charge, the supply of water and its removal via the sewerage system. For domestic consumption or to a golf clubhouse or sports pavilion both elements are charged. Irrigation however is only a consumptive use, since no water is returned to the sewers. If you have a potable ‘mains’ water supply for your irrigation system on a separate meter from the clubhouse supply, the water charge will be less. This is a very easy and quick method of reducing your water bill.

## EA

The Environment Agency is the government body responsible for the licensing of water abstraction in England & Wales.

## SEPA

Scottish Environmental Protection Agency, as above for Scotland

## Section 57

Under Section of 57 of the Water Resources Act 1991, the EA has the right to stop or restrict an abstraction used for the purposes of spray (aka sprinkler) irrigation. This doesn't apply to abstractors who have already abstracted water and stored it in a purpose-built storage lake or reservoir. A Section 57 is only issued by the EA during times of drought.

## Hands Off Flow

A Hands Off Flow (HOF) is a condition to a surface water abstraction licence. When the flow in a water body at a specified gauging station is below a certain limit, this triggers the condition and abstraction has to cease. This doesn't apply to water that has already been abstracted and stored.

## De-regulated Abstraction

The de-regulated abstraction is the maximum permissible daily abstraction without a licence; currently this is 20 m<sup>3</sup>/day. Note; you may only abstract 20m<sup>3</sup>/d, each day; it is not permissible to abstract nothing for 5 days and then abstract 100m<sup>3</sup> in a day. However you could abstract 20m<sup>3</sup>/day for 365 days per year, yielding 7,300m<sup>3</sup>.

## CAMS

Catchment Abstraction Management Strategy is the water management plan produced by the EA for each catchment in the UK, which sets out the status of each catchment and whether there is any surface or groundwater available for new licences.

## Common End Date.

Each CAMS has a common end date, meaning that all abstraction licences are reviewed at this date and may be adjusted or revoked by the EA, with the exception of some historic licences issued by the old National Rivers Authority which were granted "as of right" and "in perpetuity". The vast majority of licences are time limited to the common end date, with a presumption of renewal, except where circumstances change within a catchment or an abstractor has violated the terms of their licence or no longer has need for the licence.

# **Now let's deal with the frequently asked questions.**

## ***1. How can I reduce my water bill?***

This applies if you are purchasing potable water from a water company.

### **1.1 Separate Connections**

If you have the same connection and water meter to supply both your clubhouse and the irrigation system you can apply for a separate connection and separate water meter for the irrigation tank. The water for the irrigation system is a consumptive use and is not returned to

the sewer and you pay a different rate. The saving will depend on your water company provider, but could be as much as £1.00/m<sup>3</sup>. A simple water audit would determine the annual saving.

*Note if you don't return your wastewater to the sewers because you have a private cesspit/cesspool or septic tank, then you should already only be paying the consumptive rate and not the sewer charge.*

### 1.2 Augment Your Supply With De-Regulated Abstraction

You can top up your potable supply from the water company with a de-regulated abstraction. You are only allowed to abstract 20m<sup>3</sup>/d, but you won't need to apply for a licence or pay a licence fee to the EA.

You could abstract 20m<sup>3</sup>/day from a river, brook or lake or from groundwater by drilling a borehole. The capital cost will depend on the type of abstraction and its proximity to a power supply and the water tank. The saving you make will depend on the individual circumstances of your golf course and irrigation system. This can be ascertained by a simple water audit.

### 1.3 Replace Mains Water Supply With A Licensed Abstraction

A summer abstraction licence to fill your irrigation tank during the irrigation season could eliminate your cost of purchasing water for irrigation from a water company. However there are many parts of the country where there is no available water resource for summer abstraction. Even in parts of the country where there is water available, any new licence would be subject to a HOF condition. This might be low or high risk depending on the type of abstraction (i.e. river or groundwater) and the status of the local catchment. The risk of a Hands Off Flow condition might be greater than the risk of a Temporary Use Ban with a mains water supply. A water audit could determine the risk of these scenarios.

If you're fortunate enough to be in a catchment where there is water available and there is low risk of a HOF, this is a very good option. The capital cost of a borehole or other abstraction will depend on the individual circumstances of each site. A feasibility study would determine the capital cost.

In addition to the capital cost of the abstraction infrastructure, there would be an annual charge to be paid to the EA. The annual charge will depend on your location and varies between £0.03 to £0.05 per m<sup>3</sup> i.e. significantly lower than purchasing potable water from a water company.

### 1.5 Increase The Efficiency Of Your Irrigation System

An irrigation review or audit would determine how much is wasted due to a poorly performing sprinkler system or an old and leaky pipe network that bursts.

## 2. Can I harvest rainwater for irrigation use

Obviously yes. However, unless you already have a water storage lake, this will likely be an expensive and negligible source of water. Here's why:

The irrigation system needs water when it is not raining and when it is raining you don't need water for irrigation. So you need to have a means of storage; this will require a lake. A storage tank or tanks will not provide any appreciable storage capacity at any reasonable cost (see section 6).

Obviously water can only be harvested from gutters and car parks when it's raining, whilst other sources such as groundwater (borehole) and surface water (river or stream) can be abstracted even when it isn't raining.

The infrastructure to harvest rainwater from roof gutters and car parks can be expensive, relative to other sources of water, as this usually requires excavation of hard standing areas and in the case of a car park will require the installation of oil separator to remove any hydrocarbon contaminants.

Furthermore the amount of water harvested from a clubhouse or maintenance shed roof is negligible when compared to the irrigated area, so the cost of the works per m<sup>3</sup> of harvested water is high.

If you are building a new development with an irrigation water storage lake, then it makes sense to design the infrastructure to harvest the rainwater and direct it to the lake; however this is rarely a practical or affordable proposition to retro-fit to an existing golf club or sports facility that doesn't already have a water storage lake in which to store the harvested water.

If you have piped land drains, this can be a significant source of water that doesn't require an abstraction licence to harvest and store, subject to certain conditions.

### **3. How can I avoid the risk of a "hosepipe ban"?**

"Hosepipe bans" only apply to the mains water supply, so the most effective way to avoid such a ban is to develop your own water supply, such as a groundwater or surface water abstraction.

### **4. What's involved in drilling a borehole?**

Firstly you would need to examine the CAMS to ascertain if there was any groundwater available for licensing and then assess the hydrogeology of your area to determine the likelihood of finding an aquifer.

If your intention is to abstract more than the de-regulated volume of 20m<sup>3</sup>/day then you would need to gain consent from the EA to drill and test pump before contracting a drilling company to drill the borehole.

The cost of the borehole, pump and water transfer will depend on the depth of the aquifer, the type of rock, size of well and the proximity of the well/borehole to the power supply and irrigation tank.

### **5. Can I abstract from a river or lake?**

If you intend to abstract more than 20m<sup>3</sup>/day, you would need an abstraction licence from the EA. Firstly you would need to examine the CAMS to ascertain if there was any water available for licensing. Any new surface water abstraction licence would be subject to HOF and would be at

risk of restriction in a dry year. This form of abstraction is mostly only viable and secure if it is for abstraction during winter for storage in a purpose built storage lake.

## 6. Tanks v. Storage Lake

An irrigation tank rarely holds more than enough supply of 1 day's consumption. In the majority of cases, the tank is really only a *balancing* tank and not a *storage* facility. Tanks are roughly 7–10 times more expensive to build per m<sup>3</sup> of capacity than a storage lake or pond for any appreciable volume of storage. Whilst tanks are commonly used to balance the inflow and outflow of a water supply and irrigation system, such as for a mains water supply or summer abstraction, they are not a cost effective means of storage beyond a day or two of peak consumption.

If you are intending to abstract water during periods of availability and storing it for subsequent use, the most cost-effective storage will be a pond, lake or reservoir.

## 7. What's involved in planning and building a water storage lake?

If you have the land available, a water storage pond or lake presents the most secure and reliable water supply (see section 8).

Firstly you will need to establish your water source and estimate your future water requirements to determine the capacity of the lake. Then you will need to determine a suitable location for the storage lake and excavate some trial pits to investigate the ground conditions.

Bear in mind, the water storage lake will be empty after the irrigation season, exposing the liner or clay bank. So it won't be an attractive feature, except for the few weeks a year when it is full. It is best located away from view.

The storage lake can be designed with a marginal shelf with aquatic planting and a vertical stone/timber wall to be more visually attractive when the water is drawn down, but this dramatically increases cost.

Once you've located the preferred site for the lake, the process to obtain planning consent can start. The most expedient way is to submit a pre-application planning enquiry to the local planning office, accompanied by a location plan, outline lake design, preliminary environmental statement and supporting document outlining the proposed works.

Subject to a positive outcome from the pre-application enquiry the formal planning application can be compiled. The amount of work and length of time will depend entirely from site to site.

## 8. If I build a water storage lake, can I be affected by any restriction?

If you have legally abstracted the water and stored it in a purpose built pond, lake or reservoir, the water is secure and any Section 57/HOF restriction do not apply to it. The EA can restrict your abstraction, but once abstracted and stored it is secure and immune from restrictions.

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- 💧 Water storage
- 💧 Irrigation
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### Our services include;

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- 💧 Engineering, design and technical specification
- 💧 Procurement and tender administration
- 💧 Contract management, construction supervision
- 💧 CDM Health & Safety planning

## About the Author

Giles Wardle is a Chartered Engineer specialising in irrigation and water supply to the golf and sports turf markets. Giles started his career in this industry in 1990 and founded Irriplan in 1994.

For more information or a complimentary initial consultation contact Giles Wardle  
[giles@irriplan.net](mailto:giles@irriplan.net) m: 07771 546 358