

5 Hydroelectricity generation

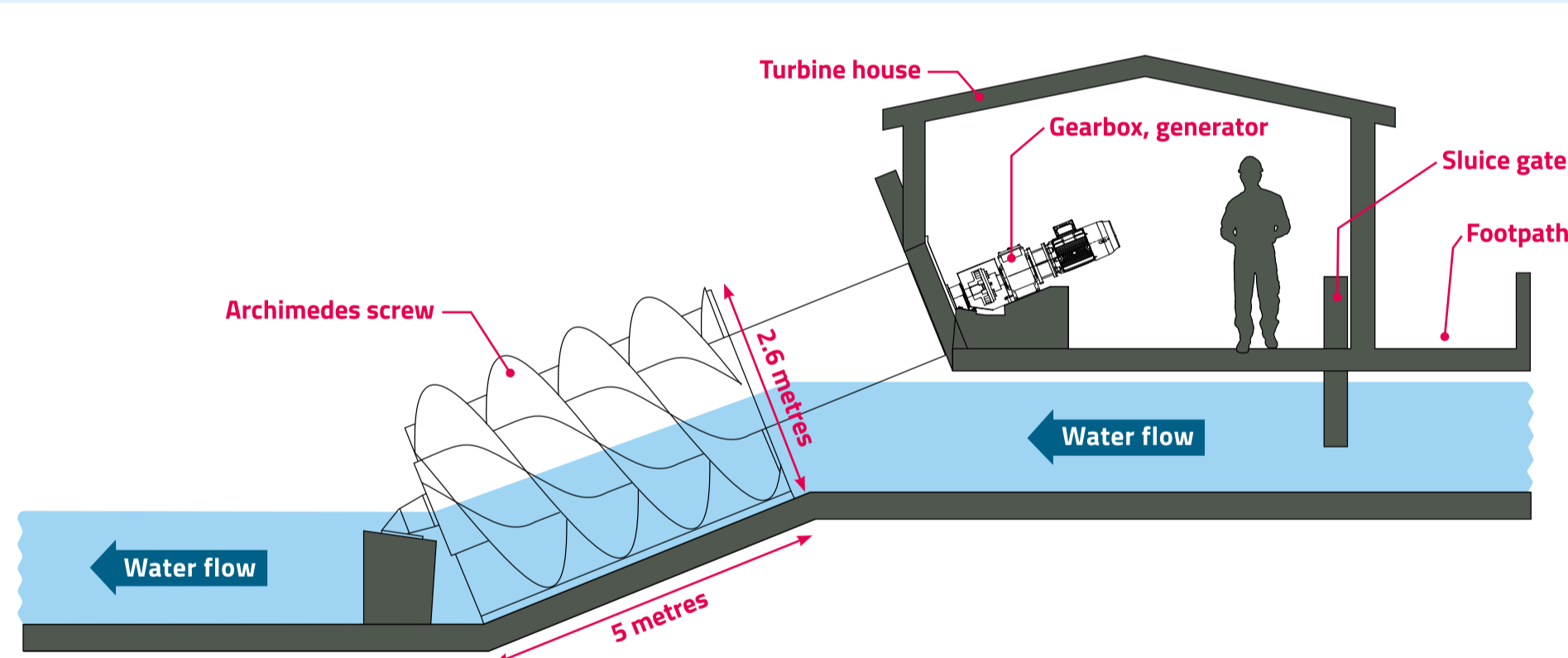
From here you can see Caversham Weir.
Reading Hydro has installed a hydroelectric plant on the river to generate electricity.

How do we generate electricity?

In front of you are two Archimedes screw turbines, powered by the river. They do the hard work! Water passes down the screw and pushes against the blades. This makes the turbine rotate. Up to 3,100 litres of water can pass through each screw every second.

Inside the turbine house each turbine is connected to a gearbox which drives a generator. The generator converts the rotation of the turbine (kinetic energy) into electricity. Sluice gates move up and down to let the right amount of water into the screws. Everything is controlled automatically to keep the system working. We just need to monitor the control panel and maintain the system.

Are the turbines turning at the moment? Can you count how many times they turn in a minute?



How much electricity can be generated?

The amount of electricity generated depends on the water flow through the turbines. It also depends on the 'head' of the water. That's the height the water drops as it goes over the weir. The electric power is high when the flow and head are high.

Each generator can produce a maximum of 23 kW of electricity. The turbines and generators automatically shut down if the river is in spate (very high) or the flow is too low. When river conditions improve they start again.

We expect the scheme will generate about 320 MWh (megawatt hours) of electricity in a year. That's enough for 90 average homes.

You can find out how much electricity each turbine is producing on our website.

What is the maximum amount of electricity that can be generated when both screws are turning?

What determines how much electricity is produced?



The turbines being installed

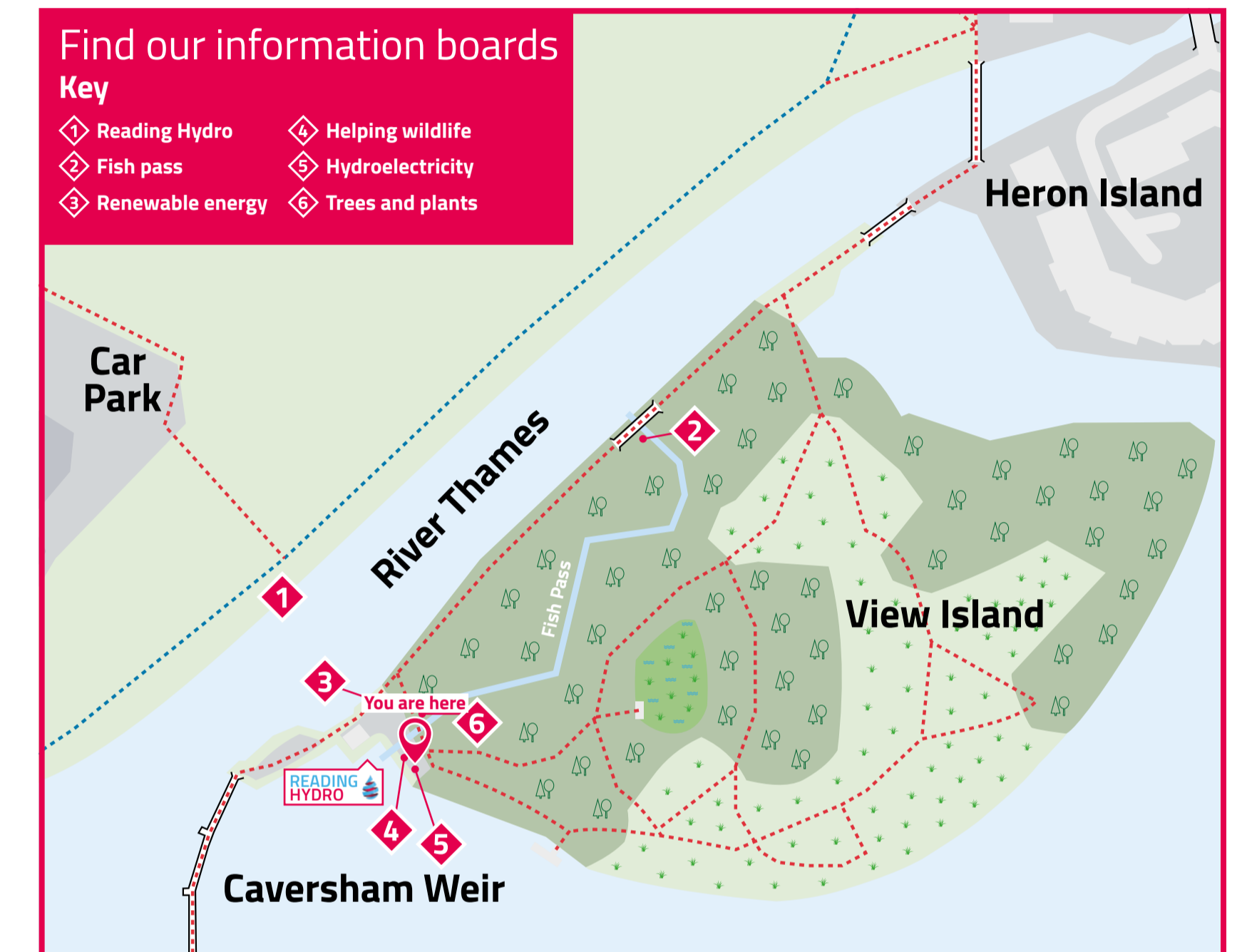
Did you know?

In 250 BC, Archimedes gave his name to screws used to lift water for irrigating crops. In fact screws were being used like this in Egypt many years before Archimedes had the idea!

What happens to the electricity?

Thames Lido, on the opposite bank of the Thames, uses most of our electricity. It goes through a cable under the river. The electricity has only this short distance to travel so any losses from the cable are small, reducing waste.

Did you know that 60 volunteers helped to pull the cable through a conduit under the river?



The turbines arriving from The Netherlands



Generating renewable electricity from the power of water

Reading Hydro thanks the 150 volunteers and 750 investors who made this possible