

BLenheim

Saving 'The finest view in England'

An introduction by Roy Cox, Head of Estates



Background to the project

The lake was created between 1768 and 1771 by Lancelot 'Capability' Brown and is classified as a Site of Special Scientific Interest (SSSI) most notably due to the over-wintering wading birds which make Blenheim their home. The lakes alongside Vanbrugh's Grand Bridge, which was built between 1708 and 1710, are the centrepiece of our 'Capability' Brown landscape and a vital part of what makes Blenheim a World Heritage Site.

Many will have noticed over the recent decades a gradual, but accelerating, decline in the quality of the lakes which are now classified by Natural England as "unfavourable and declining". Ecological studies classify it as hypereutrophic, which effectively means that it has high nutrient level, particularly nitrogen and phosphorus, meaning algal blooms are common.

In addition to this the lakes are rapidly silting up; 70% of the lake upstream of the Grand Bridge, referred to as Queen's Pool, has a water depth of 30cm or less compared to an original depth of over two metres. This is a 75% loss of volume in the lake upstream of the bridge equating to 250,000 cubic metres of silt, which is accumulating at a rate of between 1cm and 2cm in an average year. Strikingly, when we experience extreme

weather, such as the storms experienced in 2007, this can bring up to 20cm plus of silt into the lakes in a single incidence.

If this continues most of the area will revert to wetlands and this is only currently being held at bay by the grazing of the swans and geese as well as some herbivorous fish activity. However, once the silt accumulates reducing the water depth to less than 20cm, swans and geese are no longer able to graze, and the onset of a wetland accelerates.

Taking all this into account we are facing a situation where nature alone will not correct the decline in ecology without human intervention, and the silting up of the lakes will eventually cause 'the finest view' to be lost in the next ten years.

Away from the lakes, the massive and robust structure of our Grand Bridge is showing signs of distress, which is perhaps inevitable having survived 300 years with little intervention. With the water levels dropped to dredge the lakes, we are presented with a one-off opportunity to begin repair works to the structure and in particular the cracks and dislocations in the stonework which many can see today.

What are we doing about it?

This October we start building up towards what is the most ambitious restoration project in Blenheim's recent history. This multiyear project is the focal point of our £40M ten-year commitment to the World Heritage Site and will see four strands come together to save the finest view in a defining period for Blenheim.

Those four strands can be summarised as:

1. Repairs to Vanbrugh's Grand Bridge
2. Dredging silt from the Queen's Pool
3. Improving water quality in the catchment
4. Engaging our visitors in this project and the landscape

Why now?

If we do nothing, the lakes at Blenheim and the finest view will be lost to a wetland in the next ten years.

What is happening this October?

We are lowering the water level for a month to carry out surveys of the bridge and lakes. The dewatering process also allows us to test the contingencies we have in place for the private water supply, begin to manipulate fish stocks and also test the methodology for dredging.

It will be the most visible part of the project this year and will expose silt both upstream and downstream of the Grand Bridge. It will also expose many rooms in the Grand Bridge which have been flooded for over 250 years since 'Capability' Brown first made his mark on Blenheim.

The water level will then be raised back up for November ahead of our Christmas activities.

What is happening in 2020?

The main works to the lake are planned to start in spring 2020 and last through to the winter of that year. The Grand Bridge, river catchment and visitor work will start at the same time and run for an expected three years.

When we come to dredge the lake, we will drop the water levels again and mechanically remove the relatively dry silt during a 22-week period. This silt will then be transported via a haul road to the north of the park where it will be spread over around 150 acres of farmland. This farmland will then be reverted to grassland in keeping with the World Heritage Site.

On the bridge, stonemasons will make a start on the stone below water level in the first year and move upwards in subsequent years once the water level has raised.

In the catchment we will look to create wetland habitats and, utilising farmland, put in measures to reduce the amount of silt reaching the Queen's Pool. This is perhaps the most important strand of the project as we must not only address today's problems but also reduce the speed at which it will affect future generations.

For visitors this work sits in a natural amphitheatre and will be visible to all who enjoy the World Heritage Site. This presents an exciting opportunity to engage our visitors in the project by providing closer access to the lakes and bridge teams as they work and also to interpret a landscape revealed fully for the first time in 250 years.

Project Timeline

Phase 1 / September-November 2018

September 2018

Soil and silt samples taken by Northampton and Oxford Universities and University College London for climate change analysis.



Siphons and groundwater wells installed, dams constructed across part of the lake in preparation for the water level being dropped for initial investigations.



October 2018

Netting and migration of fish from Queen's Pool to the Great Lake.



Water level is lowered by approximately 20cm each day and kept low for 10 days allowing engineers to survey the Grand Bridge and other structures.



November 2018

The lake will be re-filled and the water level will be back to its original level.



Phase 2

April 2020-October 2020

Queen's Pool is dredged and 250,000 cubic metres of silt removed and thinly spread on farmland to the north of the Estate.

Vital repairs and restoration work start on the Grand Bridge in 2020.



What has happened so far?

Whilst October 2018 will be the first time many of our communities start to see big changes happening, the journey behind all four strands have been running for almost four years and involves a team of over 50 professionals. This journey has included ecological surveys of the water, surveys of birds that reside at Blenheim, core samples of silt for analysis and Bathymetric surveys of the lakes to bring together the picture we now know.

The work has been supported by our partners West Oxfordshire District Council, Natural England and the Environment Agency but it has also involved Thames Water, universities and voluntary organisations such as the Evenlode Catchment Partnership.

What about the ecology and wildlife?

The lakes and woodland in High Park are a Site of Special Scientific Interest (SSSI) and protecting those features is the key driver for this restoration project. The bridge is also home to many species of bats and impacts of the work are being carefully managed with Natural England.

This October the water levels will be dropped at a gentle rate over a period of two weeks to migrate wildlife into the remaining water in the Great Lake. We will also likely see some wildlife moving upstream to the water meadows and wider catchment where there are similar habitats.

For the main project in 2020 we are working closely with ecologists to look at how we can profile the banks of the lake to provide a range of habitats whilst protecting historic landscape – it is a fine balance but a good opportunity to explore whether this will be possible.

What about the fish?

One of the consequences of the ecological decline in the lake is the loss of fish stock and breeding sites for various species which, along with the challenge of high cormorant numbers, has led to a decline in the fishery at Blenheim. Thankfully recent surveys of fish health have come back to say that whilst fish numbers are in decline their health is excellent.

Taking this into account and with this project looming we have taken the sad decision to close the fishery this year. We will then reassess its future as we look to rebalance fish stocks within the lakes for the future.

During October you will see fish gradually moved in the main Lake as the water levels drop in Queen's Pool and a net put in place which will hold them in the main Lake. We will have plenty of the fishery team on hand to help fish which are left in pools or pockets created as the water drops.

How much will it cost?

We expect to commit around £12 million to the project which is made up of the lake dredge costing in the region of £6 million, bridge repairs £3.5 million, visitor aspects £2 million and the river catchment work around £500,000.

How are you paying for it?

The Grand Bridge and lake restoration projects are being funded from a number of sources including visitor admissions income, gift aid donations and the proceeds of development on Estate land. In addition further funds are being raised through public and corporate donations, as well as wider fund-raising activity.

Why are boats taking core samples of the silt?

We are working with a number of universities to preserve core samples of the silt which when we analyse the pollen data provide a fascinating insight into climate change. The data from these cores will also provide clues to steer the management of the catchment and land management practices.

Will it affect downstream?

We are working with the Environment Agency to slowly release and then subsequently refill the lakes at around 20cm per day. This is managed using a combination of the existing penstock at the cascades and the siphons which are installed at the bottom end of the Lake. The timing coincides with some of the lowest flow rates in the year and is carefully monitored to ensure we have a negligible effect on those downstream.

What will the lakes look like in the future?

Well, very similar to how they do today is the simple answer, but we will see less algae on the surface as the water will be deeper.

Will it smell?

The silt contains very little organic matter and is extremely dense which means it will not smell much when dry and subsequently dredged.

What about vehicle movements?

This year will see very few vehicle movements, just the odd boat on the lake but for the main works in 2020 there will be lots of vehicle movements and excavators on site. They remain inside the park and we do not envisage them leaving site during the works except in the case of an emergency.

Learn more about this fascinating project at blenheim.org/savingthefinestview

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