

CHEDDAR GORGE FLOOD RELIEF WORKS

LONGWOOD VALLEY

APRIL – SEPTEMBER 2013

PROJECT REPORT

Introduction

Unprecedented levels of rainfall over the winter of 2012/2013 led to severe flooding in Cheddar Gorge, which damaged the surface of the road to such an extent that it remained closed for several months as repairs could not take place while a stream was still issuing out of the Longwood Valley at Black Rock Gate.



Water filling Longwood Valley sink and flowing off down the valley.

Photo: A.A.D. Moody.

On 13th February 2013, local caver Rich Witcombe was able to relocate an entrance to a short section of cave passage known as Longwood Valley Sink that had been hidden under the bank of the valley for in the region of 20 years since a dig there was abandoned. With the assistance of cavers Ali Moody, Clive North and Stuart McManus, together with Bob Corns from Natural England and Chris Billinghamurst (volunteer reserve warden for landowners, Somerset Wildlife Trust), the entrance was dug out down to the level of an old grill and the stream was dammed to divert it down this sinkhole, preventing the water running down to Black Rock Gate. The

dam was strengthened the following day by Stuart McManus, Ali Moody and Mike Emery from SWT.

In advance of some predicted heavy rainfall, a party consisting of Linda Wilson (Conservation Officer for the Charterhouse Caving Company Limited, who hold a licence from the landowner, Somerset Wildlife Trust, to deal with the caves underlying the reserve), Graham Mullan and Tony Boycott, all from CCC Ltd, together with Neil Watson, Reserve Warden for SWT, found that water levels were about to overtop the temporary dam but they were able to unblock the entrance and allow the water to sink freely again.

A multi-agency meeting was held at Cheddar Caves on the 18th February 2013, led by Andrew Turner, Highway Service Manager for Mendip and Sedgemoor. The cause of the flooding was explained by Bob Corns as a natural occurrence consequent on the severity of the rainfall over a prolonged period. Linda Wilson offered the services of volunteers from the caving community to make an attempt to remove considerable mounts of silt, rocks, tree trunks and other debris that had contributed to blocking one of the upstream sinkholes near the main entrance to the cave system known as Longwood/August. Whilst attempts had been made in the past by Somerset Wildlife Trust to lower the level of debris in the sink,

this had been frustrated in recent years by increased levels of winter rainfall that had prevented the sink being dry enough to work.



The first temporary dam at Longwood Valley Sink.

Photo: A.A.D. Moody.

In addition, permission would be sought from Natural England to construct a permanent dam in place of the temporary structure and to allow work to take place in Longwood Valley Sink to replace the crumbling metal oil drums with a new plastic entrance pipe.

It was agreed that the work would be undertaken jointly by Somerset Wildlife Trust (SWT) and the Charterhouse Caving Company Ltd (CCC) and that the project management would be the responsibility of Andrew Turner of the Highways Department, with the project co-ordination being undertaken by Linda Wilson of CCC. Sedgemoor District Council agreed to underwrite the costs of the works up to a limit of £5,000.

Phase 1 – Digging out the Main Sink

Neil Watson of Somerset Wildlife prepared plans for submission to Natural England for the necessary consents for the works in the valley, as the area is a Site of Special Scientific Interest. Consent was obtained by early May, and by then the weather conditions had improved enough to make it possible to work at the Main Sink. It was envisaged that this might be possible at the end of April, and an initial plan was devised to pipe the stream past the swallet to make it dry enough to work. This would have involved 20 metres of piping, to be supplied by the Highways Department and installed by CCC and SWT, however, even getting the pipes in place would have taken a considerable effort to transport them that far up the valley, so it was agreed to make an attempt to dig the swallet by hand.

Cavers from the Charterhouse Caving Company Limited (Graham Mullan, Graham Price, Ali Moody, Tony Boycott and Linda Wilson) arrived to find a muddy pool almost level with the path through the woods being fed by a strong stream. With the aid of a very long metal bar, they succeeded in improving drainage at the sink enough to enable work to start on digging out the debris blocking the sink. They worked in difficult conditions for



Longwood Main Sink, silted up and flooding - April 2013.

Photo: A.A.D. Moody.

several days and finally uncovered the top of the enormous tree trunk that ended up in the swallet some 20 years ago, which meant that over time, debris consisting of wood, stones, leaves and silt had built up in layers until the sink became totally blocked.

After numerous digging trips consisting of the core team as above, plus some additional help, the swallet has now been lowered to the depth it had some 30 years ago and it is envisaged that this will now take all the water in all but the most extreme weather conditions.

This phase of the project took in the region of eight working days for between 6 to 8 people at a time. In addition, Chris Billingham from SWT worked with up to 10 volunteers to clear an accumulation of fallen wood from the immediate vicinity of the swallet and to transport the considerable quantity of rocks that had been dug out of the sink down to Longwood Valley Sink, the lower of the two sinks, for use in building the permanent dam.



Clearing the Main Sink - May 2013.

Photo: G.J. Mullan

Phase 2 – Digging out the Entrance to Longwood Valley Sink

After the time and work taken to clear the upper sink, it was agreed by the caving team that digging out Longwood Valley Sink (LVS) by hand was completely impractical. Agreement was obtained from Sedgemoor District Council to cover the cost of a mechanical excavator for up to the three days to enable the original pipework to be removed and a new entrance pipe to be installed. A three metre length of 750 mm diameter pipe was supplied by the Highways Department and transported to Black Rock Gate.



Digger and piping being transported to site - July 2013.

Photo: G. Price

D.G. Gibbons, Contractors, supplied a large digger, and the pipe was transported up to LVS on a Land Rover. Thanks to the skill of the digger driver, Kevin, the old pipework was removed and a larger hole was excavated in order to install the new pipe. This was by no means an easy task at any stage of the work, but the combined efforts of the caving team from CCC, Neil Watson from SWT and Kevin, ensured that the

job was completed in two days rather than three, and the area around the new pipe was back-filled and the stream bed was deepened to allow for the building of a dry stone wall in accordance with the plans submitted to Natural England.



The digger in action - July 2013.
Photo: G. Price.

The area around Longwood Valley Sink was made good, and the remains of some concrete and tin shuttering around the old, blocked adit entrance to LVS was removed, along with the iron winch that had remained in place after the original cave dig had been abandoned.

This phase of work took two days and involved the core team of cavers from CCC and Neil Watson from SWT.

Phase 3 – Building the Permanent Dam

This phase of work was carried out over the summer months by caving volunteer, Rich Witcombe, working with the aid of Clive North, another caver. A dry stone wall was built in a

long, gentle curve, leading down to the new piped entrance to Longwood Valley Sink, with a flight of steps leading down to the stream bed and the entrance. Behind the wall is a bank. This has provided a permanent replacement for the original temporary dam.

Phase 4 – Installing the Entrance Gate/Grill on Longwood Valley Sink

A permanent gate, incorporating a debris grill was needed for the entrance to LVS. This was made by local metalworker Dave Speed, transported to site and installed on 27th September 2013. This took another full day's work by both cavers and Somerset Wildlife Trust, and at the same time, a final day's work was carried out at the Main Sink, to lower the level by about a further metre, in readiness for the winter weather. The final section of stone walling was finished, and other large rocks were strategically placed around the entrance.

Conclusion

From start to finish, the flood relief project has taken six months, with at least a full months work put in by both cavers and Somerset Wildlife Trust. In addition, many hours have been spent on project co-ordination and liaison with all interested parties. The total cost will be under £2,000 (not including the cost of the pipe supplied by highways), rather than the original rough estimate of £5,000, with the



Longwood Valley Sink debris grill and gate.
Photo G.J. Mullan



The permanent dam - September 2013.

Photo: G.J. Mullan

Davies, Mike Emery and the many volunteers who moved wood and shifted rocks; from Charterhouse Caving Company Limited and the wider caving community: Rich Witcombe, Clive North, Stuart McManus, Tony Audsley, Graham Price, Ali Moody, Graham Mullan, Tony Boycott, Andrew Atkinson and Clive Owen, plus the group of cavers who were walking past one hot day and gave up their afternoon to help; Bob Corns from Natural England; Hugh Cornwall from Cheddar Caves and Gorge for their contribution towards the costs of the gate/grill; Julie Cooper from Sedgemoor District Council for her liaison over funding, Councillor Dawn Hill for her assistance in offering the funding and everyone from the multi-agency meeting in Cheddar for their support; Kevin from D.G. Gibbons for his skill with a digger and Dave Speed for making and helping to install the gate; Andrew Turner (Project Manager) and Liam Gill from the Highways Department for supplying the entrance pipe for LVS.

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majority of the expenditure going on the digger and the gate/grill. The cost of the digger will be met by Sedgemoor District Council, together with the cost of the sand and cement needed for the building of the wall and the installation of the entrance gate/grill. The cost of the entrance gate/grill is £480, which is being split between Cheddar Caves and Gorge and the Charterhouse Caving Company.

The project has been brought to a successful conclusion on time, to plan and under budget, which is a testament to the hard work and dedication of those involved

Acknowledgements

A large number of people have been involved in the project, and apologies in advance to anyone who has been omitted by accident. I would like to thank the following for everything they have done for the project.

From Somerset Wildlife Trust: Neil Watson, Tim Youngs, Chris Billingham, Liz Fishbourne, Harriet



Cavers digging the Main Sink - May 2013.

Photo: G. Price