

NRW response – Cwmwernderi – Secondary 23/02/22

Comments provided by NRW are in black for ease of reference.

The additional information notes the Cwmwernderi reservoir scour tunnel's use as both a summer and a hibernation roost. Whilst we welcome the submission of the additional information, it is difficult to understand the significance of the hibernation roost. In order to better inform the design of the proposed structure, additional data needs to be submitted which breaks down the static detector records to show the times through the day at which they were recorded. We are hopeful that this will give clarity to the importance of the hibernation roost site.

We are currently undertaking hibernation surveys (as stated in our original response), please find the results of these surveys below.

Figure 1 Hibernation survey results 2022

Date	Bats present	Notes
19 th January 2022	None	
16 th February 2022	1 LHS	The LHS was in torpor relatively near the entrance to the tunnel (16m in)
March TBC		

Please also find the static survey results from the December 2018 survey broken down by timings with the relevant sunrise and sunset times.

Figure 2 Static Survey Results 2018 (outlier daytime movements highlighted)

Day	Sunset sunrise time	Time Recorded	Label	Number
19/12/2018	08:15	04:15	LHS	16
19/12/2018	08:15	04:30	LHS	4
19/12/2018	08:15	06:15	LHS	1
20/12/2018	08:16	04:15	LHS	2
20/12/2018	08:16	07:30	LHS	1
21/12/2018	08:16	04:00	LHS	2
21/12/2018	08:16	04:15	LHS	4
22/12/2018	08:17	04:00	LHS	1
22/12/2018	08:17	04:15	LHS	6
22/12/2018	08:17	10:00	LHS	1
22/12/2018	16:10	13:15	LHS	1
23/12/2018	08:17	04:30	LHS	5
24/12/2018	08:17	04:15	LHS	5
24/12/2018	08:17	04:30	LHS	1
25/12/2018	08:18	04:15	LHS	7
25/12/2018	16:12	16:30	LHS	1
26/12/2018	08:18	04:00	LHS	3
26/12/2018	08:18	04:15	LHS	1
26/12/2018	16:12	13:45	LHS	1
27/12/2018	16:13	04:15	LHS	3
27/12/2018	16:13	16:30	LHS	44

Based on the static data, the associated camera trap footage (which shows a single LHS flying round and round) and the visits undertaken across the months of Jan, Feb, May, June and July (either one or no bats present). The roost is used occasionally by one/ a small number of bats at various points in the year.

We note alterations have been made to the compensation bat roost following our previous advice. As a consequence of additional information being submitted, we advise that further amendments are required to the design of the compensation structure as follows. Please note that we anticipate being able to provide you with definitive advice on the final design, following the receipt of the above detailed activity records:

- *To provide a suitable hibernation roost, the structure should be sunk into the ground by around a third, ensuring soil mounds over the back of the building in order to increase its thermal stability. Either 1/3 of the structure will be sunk into the ground or the structure will go down to the rock layer and then earth will be built up around the structure.*
- *We note the proposed drainage channel associated with the structure and advise that as well as water egress, the structure is designed to allow for water ingress to achieve desired humidity levels within the roost. The concrete structure will not be completely impermeable due to the use of manhole rings in the construction., some moisture will enter the inside of the structure regardless. The drainage channel will also allow water in during heavy periods of rainfall/flooding.*
- *We previously advised that the floor would need to be of a soil base and note a 150mm thick topsoil base has been provided on top of three levels of various substrate. We are concerned that this will result in a largely impermeable layer as no information has been provided to prove the layers are permeable. However, we do wish to note that this element of the design could be agreed through detailed design at the time of a licence application. The design included for there to be stone around the water egress hole, which would allow water out. Holes could also be drilled into the base of the slab to allow for drainage. These details will be confirmed at the licensing stage.*
- *In addition, we previously asked for a description of the habitat surrounding the proposed location of the bat house, which hasn't been provided. This is required to ensure suitable habitat and flight lines are present around the structure and therefore should be submitted in support of the application. We included this information in our original response. **"The bat house will be located approximately 35m from the existing roost entrance at the bottom of a deep shaded valley. The surrounding habitat comprises plantation woodland, scrub, grassland and a watercourse (to the south)."** There is also a small stream the runs immediately to west of the proposed location that runs into the main watercourse to the south. Please see the plan and photographs below.*

Figure 3 Bat house location

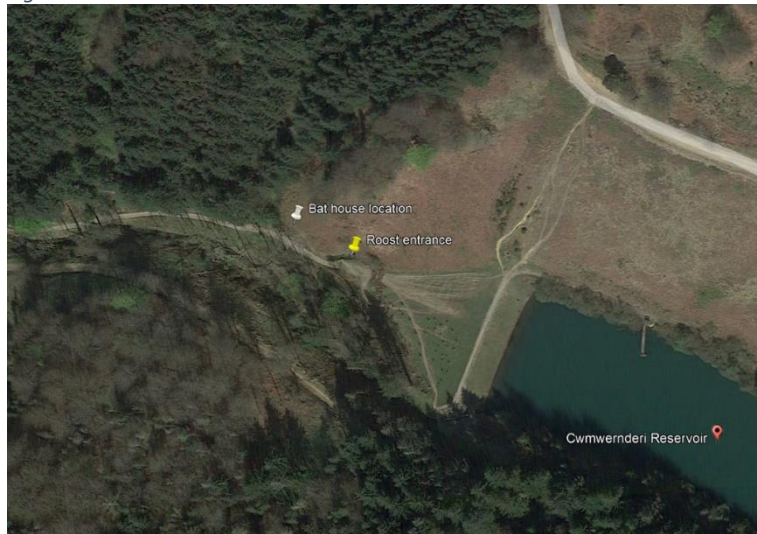


Figure 4 Bat house location (red arrow)



Figure 5 Bat House Location in Context (red arrow)



Ornithology Update

Approximately twelve mature trees were earmarked for removal as part of this planning application. A pre-commencement check by an ecologist of the twelve trees for nests birds was due to be undertaken prior to the trees being felled as stated in the previous correspondence.

Unfortunately, during the February bat hibernation survey, it was noted that these twelve trees and several more have been cleared by NRW Forestry. As a result, there will now be no tree or scrub removal required as part of this application.

Figure 6 Felled woodland (proposed secondary compound on the left of the track)



NRW response – Cwmwernderi – Initial 19/01/22

Licencing

- The scheme is necessary for public safety, as detailed in the dam safety report. The recommendations made in the report are a legal obligation. A matters in the interest of safety (MITIOS) date has been set by NRW to complete these works (6th July 2023).
- There is no suitable alternative to the works.
- Additional mitigation could be included if the number of hibernating bats recorded exceeds five during the upcoming hibernation surveys.

Bat house

- A digressionary advice service request was completed to discuss the design prior to the planning application being submitted; however the SW planning team informed us that they had insufficient resources to review the request. The mitigation was designed by bat licenced ecologist Elliott Hughes, with input from additional licenced ecologists within Mott MacDonald. It is hoped that the design can be repeated on other Welsh Water schemes.
- The proposed bat house design is a modification on the LHS night roost design used in the Forest of Dean¹. The addition of a second smaller 'cool tower' structure inside will provide a cooler, stabler environment for hibernating bats. Cool towers are often used to compensate for the loss of hibernation roosts and have been shown to be effective².

Figure 3 Cool tower example and evidence of droppings on middle shelf (West Dorset)



- The mitigation has been designed in this way to ensure the structure is also as secure and non-descript as possible due to the levels of vandalism in the area.
- The bat house will be located approximately 35m from the existing roost entrance at the bottom of a deep shaded valley. The surrounding habitat comprises plantation woodland, scrub, grassland and a watercourse (to the south).

¹ [Lesser Horseshoe Bat Night Roosts - Forest of Dean - Bat Conservation Trust \(bats.org.uk\)](https://bats.org.uk/lessor-horseshoe-bat-night-roosts-forest-of-dean/)

² [The-Lesser-Horseshoe-Cool-Tower.pdf \(vwt.org.uk\)](https://vwt.org.uk/The-Lesser-Horseshoe-Cool-Tower.pdf)

Figure 4 Bat house location



- The base slab is necessary for long-term stability of the manhole rings, a layer of soil will be added on top of the base to maintain humidity levels, however there will also be a drainage channel to prevent excess water from sideways rain pooling at the bottom of the structure.

Bat report

- Please refer to the bat survey report (B14504-123532-12-XX-RP-NB-E100476 Bat Report, January 2022). Further hibernation surveys are being undertaken in January and February 2022; the information will be included in the licence application.

Ornithology

- A pre-commencement check will be carried out by an ecologist prior to the removal of the plantation woodland. This level of survey is considered sufficient based on the number of plantation Sitka spruce trees to be removed (approximately 30 No.). No signs of schedule one birds were recorded in the two compound areas during the constraint surveys. It is possible that schedule 1 birds are present in the wider landscape (plantation woodland), however it is considered unlikely that the works will impact these species.

Flood Risk

- The reservoir will be fully drawn down for majority of the construction period.
- Water levels in the reservoir will be monitored regularly. Over-pumping arrangement on site will keep the reservoir drawn down during construction. This will also control the flows in the downstream watercourse.
- Site team will regularly monitor the weather conditions and in case of any storm events would evacuate the cabins accordingly or relocate if an extreme event was forecast.