Poynton Pool – Spillway improvements

Poynton Town Council have recently instructed an independent reservoir engineer to provide an opinion on the Spillway Improvements proposed by Cheshire East. The Engineer visited the site and met with representatives from the Town Council, Friends of Poynton Pool and the Flood Working Group and provided an initial report to the Town Council. Following receipt of the inspection reports and options papers from Cheshire East for the Pool we have now asked the Engineer to review these additional documents and provide a further opinion on the proposed works.

The Independent Engineer has confirmed that the Pool is a reservoir and it is a "High Risk" reservoir. His report states:

"Is the Pool a 'reservoir' as defined by the Reservoirs Act?
The Pool is registered as a 'large raised reservoir' under Section 1 of the Reservoirs Act 1975 (RA1975). This is a legal requirement for any body of water in England above 25,000 cubic metres in volume which is retained by an engineered structure such as a dam. Although the registered volume of 130,000 cubic metres is probably only approximate and some of it may be silt, it is clear the Pool is well above the threshold for registration. There is also clearly an engineered structure impounding the water. Hence, there is no doubt that the Pool is a 'large raised reservoir' as defined by the RA1975.
Only the permanent modification to reduce its potential stored volume below 25,000 cubic metres - and certification by a qualified engineer - would remove it from the ambit of the Act. If the Pool water level was permanently lowered, it would reduce the size and depth of the lake (average depth would need to be less than 0.385 metres to be under the 25,000 cubic metre threshold). Dividing the Pool into separate lakes is unlikely to reduce the escapable volume below the threshold as they would still be considered 'linked'.1
1 It is worth noting that there is an on-going consultation by Defra regarding lowering the threshold for a large raised reservoir to 10,000 cubic metres."

What potential risk does the Pool present?
The Pool has been designated as a 'High Risk' reservoir under Section 2A of the RA1975 by the Environment Agency as it is considered that in the event of an uncontrolled release of water from the reservoir, human life could be endangered. This designation will have been based on, amongst other things, the results from a computer simulation of the potential flood depths and velocities to land downstream in the event of a dam breach. An excerpt from the map showing the possible consequence is provided in Figure 3. This shows the A523 road and property in Bramhall Green and Cheadle Hume potentially at risk of flooding. While the modelling will have made some assumptions regarding dam height, location of a breach, etc., given the location of the Pool close to housing, I can see no reason to question the High Risk designation.

The primary purpose of the Reservoirs Act is to ensure that 'High Risk' reservoirs are managed in such a way as to reduce the risk of flooding from a dam breach or other uncontrolled release of water to the lowest practicable level.
The key means of managing the risk is the requirement for reservoir undertakers (i.e. the owners) to appoint qualified independent engineers to inspect and examine the reservoir and to act on their recommendations . This includes at least every 10 years an Inspection

under Section 10 of the Act. As part of such an Inspection the engineer will assess the reservoir and dam against the current safety standards and guidelines. Even if the reservoir is many years old it must still meet the current standards. These change with time in light of improved techniques such as flood estimation and learning from dam incidents (such as that from Toddbrook in Derbyshire in August 2019). An analogy is an historic hotel. Even if there has never been a fire, it must still comply with modern standards even if to do is costly and may require alterations to the building.

An important part of the assessment following an Inspection is whether the dam can safely pass a 'design' and 'safety check flood'. This is to ensure that the dam would not be breached and release water which would make a natural flood worse. I understand that Poynton Brook has been assessed as being in Category 'A' of the flood standard for reservoirs. This is the highest category and is used for a reservoir where, should the dam fail, there is a risk to life in a community. I have seen no evidence to question the appropriateness of a Category 'A' category.*
The last Inspector (in c. 2013-14) recommended an updated flood safety study to assess the capacity of the existing spillway and the adequacy of 'freeboard'. Freeboard is the vertical distance between the normal full reservoir water level and the lowest part of the dam crest. For a High Risk Category 'A' reservoir such as Poynton Pool, this is currently for a minimum of 0.6 metres plus an allowance for flood rise – although this can be reduced if a quantitative risk analysis shows that a lower freeboard would be acceptable.

While I have not seen a copy of the flood safety study, the current low freeboard on the dam and the relatively small overflow size mean that in my judgement it is unlikely they meet the current requirements for a High Risk Category A reservoir. While the flood study could be independently reviewed and could even result in slightly different flow estimates, my experience suggests that they it would result in no change to the conclusion that work is needed to the dam to meet the current safety standard." **(from the report of the reservoir engineer)**

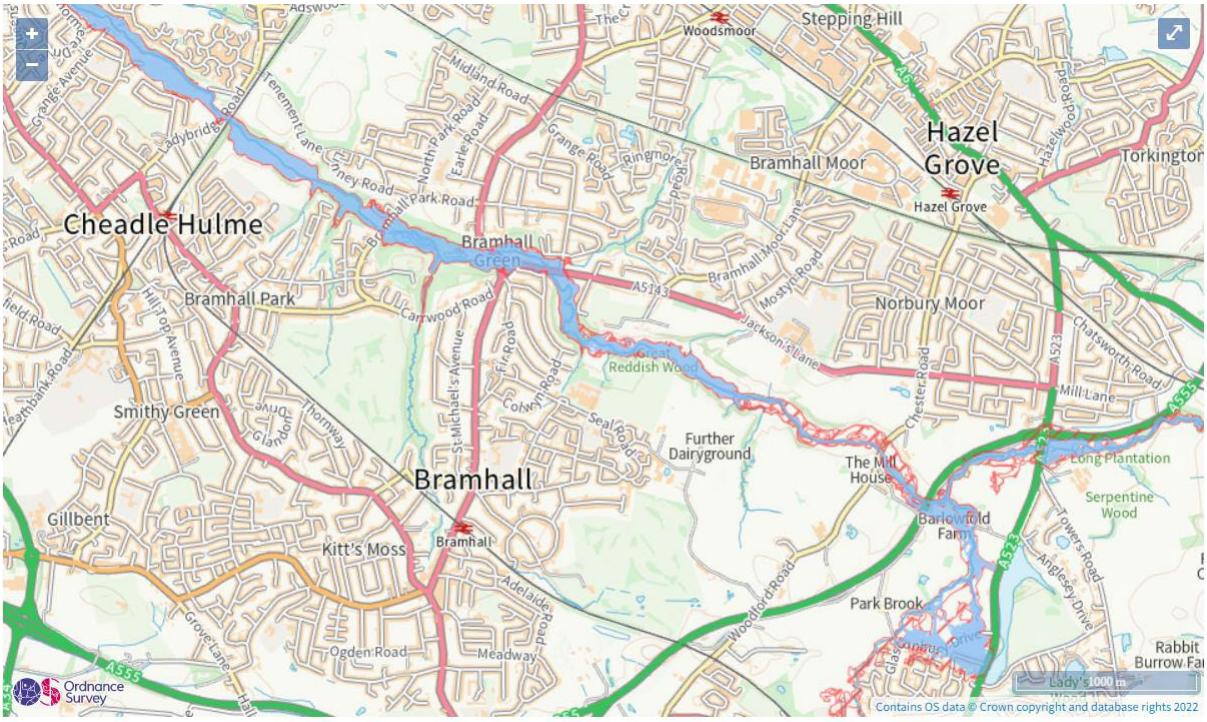

Figure 3: Estimated extent of flooding from a breach of the dam at Poynton Pool (*source: The Environment Agency)*

*After the receipt of the additional documents it was noted that the Poynton Pool was actually a Category B reservoir we sought clarification whether this would impact the engineer's finding but he confirmed that it would not.

Next Steps

The Town Council has now agreed to:

- Instruct **and pay for** an arboriculturist (tree expert) to provide an independent survey of the trees at the Pool
- Request that the reservoir engineer reviews the **recently received** inspection, flood study and options reports
- We have made a further submission to Cheshire East **regarding** the Environmental Impact Assessment Screening Application**,** querying the size of the proposed development site.

The Town Council now awaits these further reports, the decision regarding the Environmental Impact Assessment and the formal planning application from Cheshire East Council.