

ALDBURY POND: PLANS FOR ITS RESTORATION AND ONGOING MAINTENANCE

A proposal from the Aldbury Pond Restoration Working Group¹

A. SUMMARY

In quarter 4 of 2022, the Parish Council established a working group to investigate options for restoring the Pond on the village green with a view to bringing forward a set of costed recommendations. A decision in principle on the proposals brought forward here is requested from the Parish Council at its meeting on 15 May 2023 (see A5).

A1. Working methods: The Group reviewed the current issues with the Pond and investigated: i) the experience gained from previous restoration efforts in Aldbury ii) the approaches made to address similar issues concerning another 6 public ponds, one of which the Group visited (Bearsted pond in Kent) where talks were held with the Councillor who had led on the project; iii) options relating to the most appropriate depth, contouring and liner, after taking expert technical advice and with long-term maintenance in mind, iv) issues relating to the Pond's role in the village drainage system, v) ecological impact, vi) public safety, vii) compatibility with Aldbury's heritage, viii) public engagement, ix) logistics, costs and value for money, x) potential funding sources.

A2. Conclusions and recommendations: The Group recognises that previous interventions affecting the Pond provide a valuable guide to what has been beneficial and what has not. Unfortunately, the appearance and functionality of the Pond have deteriorated very significantly in recent years. This has become a cause for concern with parishioners and visitors alike. We recommend a major, one-off restoration of the Pond at a cost in the order of £35,000², followed by an ongoing maintenance programme contracted to a local company to ensure longevity of the improvements. Key features of the restoration will include: i) excavation of the Pond to remove accumulated silt, along with plant roots and tubers; tapering of the pond-bed from the margins to the middle and a maximum depth of 1.5m, along with creation of silt collection zones by the pond inlets to facilitate routine dredging (see *Appendix 1*) ii) renovation of the inlet and outlet pipework with the assistance of the HCC Highways department; iii) installation of a new, high performance, self-healing synthetic liner (Terraseal Ltd³) masked by a protective layer of concrete to spare the liner from mechanical or other damage (during subsequent dredging); completion of commissioning checks to ensure appropriate performance of the pond inlets, drainage diverter (re-directing flow from the Trooper Road inlet to Stoneycroft) and outlet/overflow.

A3. Funding and plans for Project delivery: Funding for the capital works will be met from multiple sources, subject to approval by the Parish Council. These include

¹ Membership of the Working Group includes: Steve Webb (Chair of Working Group & Councillor), Nick de la Bedoyere (Councillor), Graham Juniper (Retired Councillor), Rod Allsworth (Parishioner), Alistair Cromwell (Parishioner), Ted Bianco (Parishioner).

² This figure includes a provision for the costs of the first maintenance cycle.

³ <https://terraseal.net/>

contributions from Parish Council reserves and a grant from Dacorum Borough Council's Community Grant Scheme⁴. Costs will be significantly discounted by the use of volunteers. The project will be delivered using a combination of local contractors (excavation, spoil removal), HCC Highways (drainage) and volunteers drawn from the local community (liner installation and general support activities). The process will be supervised by the Pond Working Group, along with our technical consultant, Mr Mikk Bradley⁵ who has extensive experience with liner technologies, waterways restorations and the project management involved. His independent report on liner options is being passed to the Parish Council under separate cover. We propose conducting the capital works in September/October 2023 over a period of approximately 5 days. We recommend that a contract for routine maintenance is initiated within 6 months of the restoration, based on a service delivery arrangement to be agreed with the contractor and funded through the Parish Council's annual operating budget (see B13 and B16 below).

A4. Illustration of the Pond before and after restoration

Shown in the photographs below are how the Pond has appeared historically (panel A), how it looked in October 2022 (panel B) and how we aim for it to look following the restoration in 2023 (Panel C). The latter image was taken after a previous restoration.



⁴ The Chair of the Working Group will brief the Parish Council on a proposed breakdown of funding sources.

⁵ Technical officer at the Inland Waterways Association/Wendover Canal Trust up to retirement in May 2023

A5. Decisions required and next steps:

- Agreement in principle to the proposed capital works for pond restoration at the 15 May 2023 Parish Council meeting (cost estimate, £35,000).
- Agreement to, and approval for, a detailed implementation plan and budget for pond restoration to be tabled at the 3 July 2023 Parish Council meeting.
- Agreement to, and approval for, the conclusion of a maintenance contract with a professional, appropriately experienced firm within 6 months of the restoration, funded from the operating budget of the Parish Council.

B. CONSIDERATIONS LEADING TO THE RECOMMENDATIONS OF THE WORKING GROUP

A summary of works carried out on the Pond in the post-war era is given in *Appendix 2*. The Q & A section below is designed to address a number of questions that the Parish Council members may have which underpin the Working Group's recommendations.

B1. Why restore the Pond?

Aldbury is sited round its historic village green, of which the Pond is the dominant feature. The Green is the focal point of the village and provides it with a character that is familiar to residents and visitors alike. The Pond and Green are described as the 'historic core' of the townscape in the *Aldbury Conservation Area Character Appraisal and Management Proposals* document published by Dacorum Borough Council in 2008. Arguably, the Pond is one of the key attractions of Aldbury to location scouts seeking a quintessential English village for filming in the South East. This has been a source of significant, unhypothecated funds received by the Parish Council over the years. The Pond is also an integral part of the drainage system at the heart of the village (see B2 below). The continuous accumulation of silt and organic matter in the Pond will eventually clog it completely if left unchecked, resulting in excess growth of unsightly vegetation, a significant reduction in water holding capacity and an increased flood risk during periods of peak rainfall.

B2. What function does the Pond have in drainage?

Aldbury lies in a hollow, flanked to the East by Tom's Hill and to the North by a gentle incline that follows Stocks Road for around 2 miles from the watershed at Pitstone Hill. This means the village receives water from each of these directions as run-off from the highway. The Pond collects this water through 2 two inlets, acting as a holding reservoir that manages the flow rate into the drains that serve the village centre. A diverter on the Tom's Hill inlet allows water to be sent under Trooper Road to fields beyond Stoneycroft. At this time, this inlet is blocked.

B3. How will the restoration affect flood risk?

Restoration of the inlet and outlet pipes associated with the Pond should help to reduce flood risk. HCC Highways department has historically acknowledged a responsibility to maintain these, and has done so in the past, because the Pond primarily receives water in the form of run-off from Stocks Road and Tom's Hill Road. Silt traps associated with the two inlets require to be cleaned out regularly to keep the pipes patent. We are in discussion with Highways to put this on a sound footing

because it is not being attended to at the frequency required and the Tom's Hill inlet is completely blocked at this time.

B4. Why does the Pond silt up?

Aldbury Pond is not a naturally fed body of water, in that it is neither a dew pond, nor is it served by an underground spring. Rather, the water it receives originates in the fields adjoining Stocks Road or in the woods through which Tom's Hill Road winds. As an inevitable consequence of this, a large amount of silt, gravel and organic debris finds its way into the Pond, most especially after periods of heavy rainfall. With the increasing frequency of storms, this problem is set to worsen in the coming years. The arrangements we wish to put in place for the removal of silt are therefore a key element of an ongoing Pond maintenance plan.

B5. Why does the Pond need a new liner?

The Pond sits on chalk. It has therefore always required a liner to hold water. Traditionally, a layer of puddle clay would have been used, although a concrete liner is believed to have been put in place during the 1950s and a bentonite liner was installed during a major restoration in the 1980s (see *Appendix 2* for summarised history of works). At the time of a clear-out of silt and vegetation in 2017, it was discovered that the bentonite liner had been infiltrated extensively with the roots of Iris that had been introduced into the Pond some years earlier. This made maintenance extremely difficult, and the decision was taken the following year to dig out the Iris despite the unavoidable requirement to remove the liner in the process. The rapidly fluctuating water levels in the Pond that have been evident since that time are a consequence of the removal of the liner. The chalk base has no significant water retention properties and will not, left to itself, self-heal which is why a new liner is an essential element of the current restoration.

B6. How and why was Terraseal selected as the preferred liner?

Our consultant, Mr Mikk Bradley has prepared a technical report comparing the options for liners (see his independent assessment provided to the Parish Council under separate cover). The synthetic geotextile from Terraseal Ltd offers a liner that is strong and self-healing, while being light and flexible enough to be laid by hand using volunteer labour. It is a highly effective barrier against seepage that is being used for major projects such as canal restoration. The ability to lay the liner without specialist lifting equipment brings down the potential costs, inclusive of installation, very significantly. The concrete overlay is included to protect the liner against damage from the machinery used for dredging during routine maintenance⁶. A representative of Terraseal Ltd visited Aldbury to demonstrate the liner's properties to the Working Group. It was impressive for retaining water, even when punctured. He advised us that the liner has a longevity exceeding 20 years in tests conducted by the company.

B7. Why make the Pond deeper?

This is a question that has been considered at length, as discussed in *Appendix 3*. The basis for selecting a profile of sloping sides, culminating in a final depth of 1.5m (circa 5 feet) can be summarised as follows:

⁶ Whereas the liner can withstand a puncture, or other minor damage, it needs to be safeguarded from heavy equipment as might be used when removing a build-up of silt.

- a pond with shallow margins is good for wildlife, but benefits from having a deeper core in terms of water clarity, lower and more stable water temperature, slower evaporation rate and poorer nutrient levels
- research shows that these factors lead to a reduced biomass of periphyton, poorer growth of algae and higher levels of dissolved oxygen.
- marginal plants that may colonise the shallows are unable to grow into deeper water, ensuring that their spread is controlled
- deeper water will provide ice-free conditions in the winter, as required by many invertebrates and hibernating (male) frogs.
- deepening the Pond to 1.5 metres (at the centre) has historical precedence.

It should be noted that the Parish Council made a decision back in 2019 to deepen the Pond. But it did not see this through to completion at the time owing to the discovery of a layer of clay in the central zone after removing a plate of concrete that sat in the middle. It was decided to see what water-conserving benefits the clay might provide if left in place in order to establish unequivocally whether a new liner was needed. Having established that it is required, plans to deepen the Pond that were temporarily delayed by the COVID-19 pandemic can now proceed, in keeping with the Parish Council's previous intent.

B8. Will the Pond continue to dry up after the restoration?

We anticipate that the Pond will hold water very much more effectively than it has since 2020. The liner will make the greatest difference. There will also be a reduced rate of evaporation owing to the deepening of the Pond. Nevertheless, during extended periods of drought, the water level will inevitably drop. But once the Pond has been re-lined so that it retains water efficiently, it will be a practical proposition to re-institute the practice of topping it up with water from the well at Chantry Row, Stocks Road⁷. For this reason, the pipe that connects the well to the Pond and runs under the road on its Western flank will be retained.

B9. Will the Pond be safe?

All bodies of water present a hazard to the inexperienced or unwary, and the Pond is no exception. However, it is a familiar feature of the village green, so the hazard is not new. No young child or vulnerable adult should go unsupervised in the village centre, not least because of the risks posed by traffic on Stocks Road and Tom's Hill Road even before one reaches the water's edge. The proposed contouring means that deep water is confined to the middle and to the silt collection zones beneath the two inlets. The gentle tapering of the pond-bed alerts anyone entering the water that it becomes deeper as one wades further from the bank. The Working Group believes that the Parish Council will want to review the risk profile of the pond during its regular risk assessment process for Parish assets when the restoration work is complete.

B10. What plantings will the Pond have?

Historically, the Pond has been almost devoid of aquatic and marginal plants, based on photographs going back over 100 years. Irises were introduced for decorative purposes in the 1990s. As a cultivar with the propensity to be invasive, their spread across the Pond proceeded unchecked, making cleaning out very difficult and laborious because the roots had penetrated the liner. This resulted in the twin

⁷ The practice of topping up the Pond from the well was temporarily discontinued once it became evident that seepage had become a serious issue.

problems of silt build-up and liner seepage, culminating in significant damage to the liner during efforts to eliminate the roots. It is generally the advice from wildlife trusts that one should allow the natural colonisation of a pond by native species and avoid artificial plantings. Native plants tend to create far fewer problems, add to the biodiversity of the habitat and reflect the local ecology with greatest authenticity. This is the approach the Working Group recommends be adopted.

B11. What will happen to the wildlife currently present in the Pond?

We have compiled a list of all taxa observed in the Pond over 20 years (see *Appendix 4*). No endangered or protected species have been recorded; in fact, the list of fauna observed is neither remarkable or extensive. Creatures living in the Pond are limited to common forms of aquatic invertebrates and a transient population of frogs and their tadpoles. They will have left the water well before the Autumn. The principal species using the Pond on a regular basis are birds that come to the water to drink, feed, or wash. They will benefit from the more reliable source of water that the restored Pond will provide, as will the bats, martins and swifts that hunt above the pond in search of flying insects.

B12. What is the budget breakdown for the capital works?

The indicative budget for the restoration is in the order of £35,000, inclusive of the estimated costs for the first maintenance cycle. Major categories of expenditure include the dig-out and the liner. Repairs to the inlets and outlet have been met by HCC Highways historically. Failing that, the costs will need to be accommodated within the restoration budget. A detailed budget breakdown will be brought forward to the Parish Council for consideration at its meeting on 3 July 2023.

B13. How will the project deliver value for money?

The Working Group has used as a benchmark the costs of similar projects and a quotation received from a specialist contractor. For example, the cost of restoration of the Pond at Bearsted, which is a particularly close comparator with Aldbury, was between £35,000- £40,000 in 2020. They had originally received a quotation of £100,000 from a pond specialist company, but had decided instead to go with local contractors that were commissioned to address various elements of the job. The project-inclusive price that Bearsted Council was quoted is striking similar to an estimate the Working Group has received for a comprehensive restoration of Aldbury pond from another pond specialist firm (£89,000 plus VAT); lower estimates were received from companies offering a significantly more limited service (in the region of £35,000). It is with these benchmarks in mind that we adopted a number of strategies to bring the costs down, as follows:

- a comprehensive review of options for liners to identify a cost-effective solution, inclusive of the outlay for installation (see Mr Bradley's report).
- the use of volunteer labour where this is realistic and safe.
- access to a specialist in excavation from the canal restoration project at Wendover who charges well below the market rate.
- Sourcing of multiple quotations for legal disposal of the excavated spoil.

When it comes to identifying a contractor for routine maintenance after the capital works are complete, a procurement process that follows best practice will be followed by the Working Group, with the final decision reserved to the Parish Council.

B14. How will project delivery and cost management be assured?

The capital works will proceed over 5 days and be managed by members of the Working Group supported by our technical consultant (Mr Mikk Bradley). A detailed project plan will be drawn up with the provision to slip the date(s) for the dig-out and laying of the liner should the weather conditions be prohibitive. Cost management will be tightly controlled. All significant cost lines will be identified in the detailed budget which will be tabled for approval at the Parish Council meeting on 3 July 2023. The Council will be asked to approve this budget and all expenditures will be through the Parish Council (not the Working Group or its members) and approved in the normal way by signatory Councillors.

B15. Why do you believe people will volunteer their labour?

The Group has tested the enthusiasm of the community to become involved in the project implementation by including a stall at the May Day Fair on 1 May 2023. People were asked to register their interest in participating by providing contact details. Some 50 individuals signed up after expressing their support for what is planned. The Working Group is confident that even more people will come forward closer to the time of the works after we have publicised plans for the restoration more widely - principally through the *Outlook* and social media. We anticipate needing no more than 15 volunteers at any one time over the 5 day period of the restoration.

B16. What will routine maintenance involve & how much will it cost? The Group recommends that a contract is concluded with a local contractor within 6 months of the restoration work. The precise service delivery arrangements will need to be negotiated with the contractor but should include specific deliverables as follows: annual removal of all silt and organic material captured in the silt collection zones beneath each of the inlets; 6 monthly inspection of the inlet and outlet pipework, and drainage silt traps, and reporting of any problems for referral to HCC Highways; 6 monthly removal of any invasive plants or foreign objects that find their way into the pond; clearance of silt and debris from the pond as a whole on a schedule of between 2 and 3 years, subject to review. The anticipated cost of the contract will be around £2 500 per annum, averaged over a three-year cycle⁸.

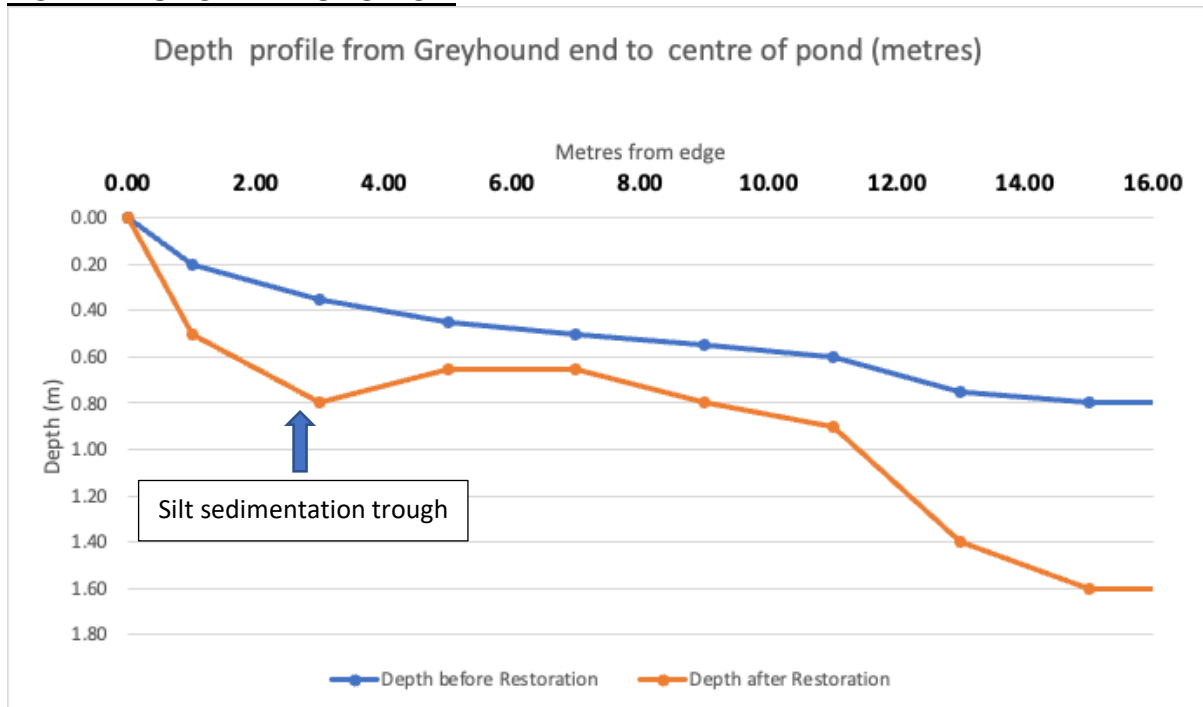
⁸ This estimate is based on the experience of Bearsted Parish Council.

Appendix 1

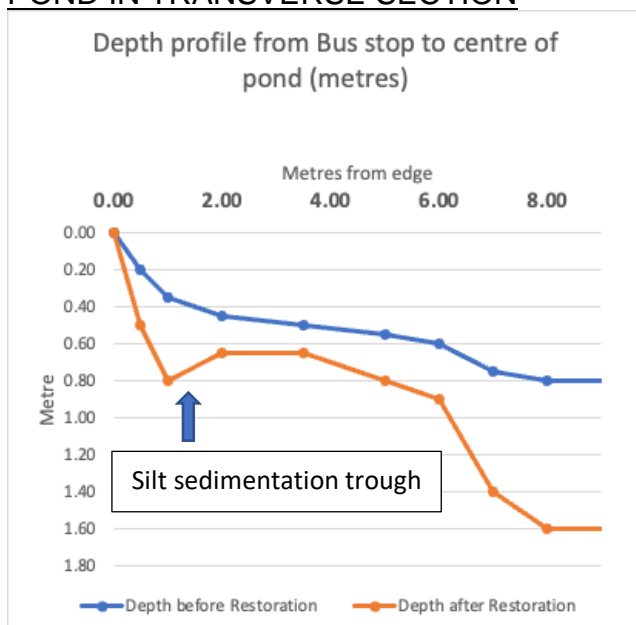
Computer model of the pond-bed profile: i) as estimated from a topographical survey carried out in April 2023 (blue lines), and ii) as proposed following re-modelling through excavation of the site (red lines).

Shown is the side of the pond that will have a silt sedimentation trough beneath either the Stocks Road inlet (upper panel) or the Tom's Hill Road inlet (lower panel). In each case, the contralateral side will have a simple, tapering profile from bank to the centre.

POND IN SAGITTAL SECTION



POND IN TRANSVERSE SECTION



Appendix 2

History of works carried out on Aldbury Pond over the post-war period

1950s	Having been used by the Department of Defence for washing military vehicles during the war, the Pond was in a state of dis-repair. The renovation carried out at this time included installation of a layer of concrete at the base of the Pond.
1980s	A major renovation of the Pond was carried out, led by the Parish Council and supported by Herts County Council Highways department. A bentonite liner was installed with a gravel overlay to signify the depth to which silt could be removed safely without damaging the liner.
1990s	Iris plants were introduced into the Pond for decorative purposes. Silt removal was carried out as required using a volunteer force of local residents.
2000s	Regular clear-outs of silt and vegetation continued by means of local volunteers.
2017	The spread of Iris had become a significant problem. During a planned clear-out of silt and vegetation, it was discovered the liner had been compromised by extensive invasion of roots from the Iris.
2018	A decision was taken to remove the Iris to permit ongoing dredging of silt and other debris. This necessitated removal of the liner because of the root infiltration. The concrete layer installed in the 1950s was revealed at this time.
2019	The Parish Council made a decision to deepen the Pond and the concrete layer was removed. Beneath it was a layer of clay. The works were put on hold to see how well the Pond could retain water with this clay layer preserved.
2020-21	It became evident that the Pond was unable to retain water. But the COVID-19 pandemic delayed the instigation of plans to rectify the seepage and the accumulation of silt made the Pond significantly shallower, adding to its deterioration in appearance.
2022	The Parish Council established a Pond Restoration Working Group to bring forward proposals to renovate the Pond.
2023	The Working Group submitted its recommendations for a major restoration of the Pond and an ongoing maintenance plan as outlined in this proposal.

Considerations with respect to depth

A critical decision in renovating the Pond relates to its contouring and depth.

Our conclusions are that a pond with contouring that tapers gradually to a depth of 1.5 metres (circa 5 feet) is the most desirable design in terms of preserving water clarity, maintaining a stable habitat (for creatures reliant on the persistence of free water) and following historical precedent. The gentle slope of the pond-bed alerts a person entering the water to the increase in depth towards the centre.

A. Variables influenced by depth

The relationship between depth and a range of variables relating to physico-chemical and biological parameters is complex. But research in the lower Mississippi River Basin, USA on the impact of depth in shallow agricultural lakes reached the following conclusions.

- i) Shallow water, defined as 0.8 metres, had higher mean temperatures, better light penetration and richer quantities of nitrogenous matter.
- ii) Deep water, defined as 1.7 metres, had lower and more stable mean temperatures, poorer light penetration and poorer quantities of nitrogenous matter.
- iii) Algal growth and periphyton biomass were most heavily influenced by nutrient availability and least impacted by light.
- iv) Observations from 3 lakes over 1 year revealed that the clearest water occurred in the areas defined as 'deep'. Shallow areas had more phytoplankton and periphyton.

Taken from 'Water depth influences algal distribution and productivity in shallow agricultural lakes'. Henderson KA, Murdock JN, and Lizzotte Jr RE (2021). *Ecohydrology* volume 14 (issue 6), e2319.

B. Depth in relation to the pond as a habitat

Whereas most fauna and flora tend to reside in the relatively shallow edges of a typical pond, the water condition is governed by the body of water in its entirety. This is because factors like pH, concentrations of organic and inorganic matter, evaporation rate and availability of open water are all impacted by the pond as a whole, and not by its margins in isolation.

Flora

The vegetation that has grown out of control in the pond in recent years has arisen in part because it is too shallow, aggravated by accumulating silt and the leaking of the clay liner. This has allowed rooted plants to spread out across the pond, rather than being confined to the margins, as would be expected in a pond of significant depth. In a pond that is several feet deep, native plants that may find their way into the pond by means of natural dissemination will be confined to the shallow margins in a way that is far more manageable. The natural colonisation of pond margins by native flora is also considered the most ecologically sensitive approach to planting, reflecting as it does those taxa present in the vicinity.

Fauna

Species of fauna supported by the pond break down into 2 major categories: those that drink from it and those that live in it. Both categories require the persistence of water through the seasons. Those that drink from it rely on toxicity remaining low, while those that live in it require that it holds adequate concentrations of dissolved oxygen and remains ice-free in places.

i) **Toxicity** is primarily a function of algal blooms and/or chemical contaminants originating from the roads or farm land. Deeper water mitigates against planktonic growth. And the greater volume of a relatively deep pond facilitates the dilution of contaminants washed into the pond by run-off waters.

ii) **Dissolved oxygen** in open bodies of water is primarily a function of temperature and turbidity, being reduced as these parameters increase. Turbidity, as measured by Secchi depth⁹, is most commonly governed by the biomass of plankton and suspension of sediments. In deeper water, temperatures are lower and plankton growth is diminished. And deeper water allows for the settling of sediments away from surface water disturbance (e.g. by wind or birds). Thus Secchi depth will be optimized by deeper water, meaning that there will be higher levels of dissolved oxygen to support creatures living in the pond (e.g. invertebrates, amphibian tadpoles, hibernating male frogs).

iii) **Ice-free conditions.** It is generally recommended that ponds should be at least 18-30 inches deep to prevent ponds freezing completely. With extremes of weather on the increase (as a result of climate change), it will be prudent to ensure water levels remain high even during periods of low rainfall.

iv) **The preservation of water as a drinking source or underwater habitat** should not be a problem if the pond is lined effectively and it remains possible to top up the pond as required. However, in extreme periods of drought (as experienced in 2022), a deeper pond will benefit from the reduced impact of evaporation which is a function of surface area only. Its larger holding capacity will also serve as a more resilient reservoir of water should topping up no longer seem a responsible position to maintain.

C. Safety

Like all bodies of water, Aldbury Pond poses a hazard to the unwary if not properly recognised for the risks it presents. Many water bodies in the area carry no warning signs, including large stretches of the Grand Union Canal that runs alongside the Western boundary of the parish.

The primary concern will be the safety of children. No young child should be left unsupervised in the centre of the village, where traffic presents the most obvious and immediate danger at this time already. Given that the pond has in recent years been relatively shallow, it is proposed to undertake a communication campaign with the parents, teachers and pupils of Aldbury School, and with the pupils using the bus service that originates and terminates at Aldbury Pond, to warn them of the change in depth and to discourage risky behaviours. This includes wading in the pond, throwing objects into the water and walking, skating or attempting to break the ice during periods when the pond is frozen over.

D. Historical precedent

⁹ Secchi depth in the distance a standardised black and white target remains visible from the surface

The Pond is said to have been in the order of 5 to 6 feet deep based on the testimony of residents in archival records:

'We used to slide from one end to the other on the pond; course that was six foot deep then'. [reference to children skating on the pond in the Winter].

'They used to get all the water for the cattle out the pond, used to back the horse¹⁰ in so as the barrel filled itself, then come out. If you went through it, you could just see the horse's back.'

Quotes attributed to Charlie Baldwin, taken from *Aldbury People: 1885-1945* by Jean Davis (1988). p 71

It was still of significant depth during the Second World War as evidenced by the practice of the army washing tanks in the pond. In the 1950s, the pond was made significantly shallower by the introduction of a concrete base. Later, a clay lining was added that reduced the depth further. And subsequently, the removal of silt has resulted in serious damage to the lining, such that the pond holds only a minimal body of water today.

¹⁰ If one assumes that a draft horse measures 16-18 hands at the withers (64-72 inches), the depth of its immersion when collecting water equates to between 5 and 6 feet.

Appendix 4

Aldbury Pond wildlife

Birds

Mallard *Anas platyrhynchos* (feeding on water; breeding)
Mandarin duck *Aix galericulata* (infrequent visitor, feeding on water; ?breeding)
Eurasian Coot *Fulica atra* (feeding on water)
Moorhen *Gallinula chloropus* (feeding on water)
Swift *Apus apus* (hunting over water)
Swallow *Hirundo rustica* (hunting over water)
House Martin *Delichon urbicum* (hunting over water, collecting mud for nest)
Pied Wagtail *Motacilla alba* (feeding at margins)
Grey Wagtail *Motacilla cinerea* (feeding at margins)
Blackbird *Turdus merula* (feeding/drinking at margins)
Chaffinch *Fringilla coelebs* (drinking at margins)
House Sparrow *Passer domesticus* (drinking at margins)
Dunnock *Prunella modularis* (drinking at margins)
Magpie *Pica pica* (drinking at margins)
Jackdaw *Corvus monedula* (drinking at margins)
Woodpigeon *Columba palumbus* (drinking at margins)
Collared Dove *Streptopelia decaocto* (drinking at margins)
Starling *Sturnus vulgaris* (drinking at margins)
Wren *Troglodytes troglodytes* (feeding at margins)

Mammals

Common Pipistrelle *Pipistrellus pipistrellus* (hunting over water)
Short-tailed Field Vole *Microtus agrestis* (at margins)

Amphibians

Common Frog *Rana temporaria* (breeding)
Common Toad *Bufo bufo* (in water periodically)
Smooth Newt *Lissotriton vulgaris* (rare sighting)

Invertebrates

Dragonflies (Southern Hawker *Aeshna cyanea*; Common Hawker *Aeshna juncea*).
Damselflies (Large Red Damselfly *Pyrrosoma nymphula*; Common Blue Damselfly *Enallagma cyathigerum*)
Horse Leech *Haemopsis sanguisuga*
Great Pond Snail *Lymnaea stagnalis*
Great Ramshorn Snail *Lymnaea corneus*
Ceratopogonid midges *Culicoides* spp
Common Pond Skater *Gerris lacustris*
Red worm *Limnodrilus hoffmeisteri*
Caddis Fly (Black Sedge) *Silo nigricornis*
Alder Fly *Sialis* spp
Crane fly (taxa unknown)
Freshwater amphipod *Gammarus pulex*
Whirligig beetle *Gyrinus* spp