

PRESTEIGNE AND NORTON TOWN COUNCIL

MEETING 27TH SEPTEMBER 2023

PLEASE NOTE THE APPLICATION FOR AN EXTENSION TO COMPLETE THE PROJECT HAS BEEN DENIED SO THE PROJECT MUST COMPLETE BY 31ST OCTOBER.

Pond liner and repair options to be considered are: -

Option One: Bentonite clay and re profiling the pond.

Approx cost £12,000 for both ponds.

This is the preferred option of the volunteers due to it having the least environmental impact and the lower costs means we can do work on both ponds and afford signs and a few replacement trees. John has managed to find a contractor that could start Monday so delivery in the time frame is achievable.

Bentonite is a naturally occurring, inert, clay-like mineral, imported from France.

Related to Fullers Earth which is very safe.

How it works – When bentonite is mixed with water, the water molecules will enter between the clay plates, forcing them apart. While the plates are dispersed, the bentonite slurry becomes quite fluid. However, on standing the particles become oriented with the negative surfaces of the plates being attracted to the positive edges. Viscosity increases and a gel is formed – a reversible effect known as thixotropy.

Advantages over other methods considered

- 100% impermeable if well installed as it increases the capacity of the pond
- lining to hold water – see above.
- 2 methods – blanket (rotovating into top layer of soil and compacting) and
- sprinkling on surface and letting it settle onto bottom of pond. Blanket
- method is more reliably waterproof.
- Plants can grow in and around pond without damaging capacity to hold
- water. Roots may and will penetrate but self-sealing – so no issue with
- puncturing membranes or exposed edges of membranes in dry periods.
- No plastics involved, less likely to be damaged and cheaper.

Available from R S Minerals –

Delivered as a lorry-load, on pallets. Delivery normally within one week of date of order. Could be lifted off into gateway of reserve or stored at Lewer's yard. Available as granules in 20kg bags which volunteers can move across site by wheelbarrow or by loader if time is tight.

Any extra contractor time could be used to deepen the central area of the lower pond. Any leftover bentonite can be stored and used for repairs, future repairs can use the sprinkling method.

Plan

Volunteers

- Move plants from top pond to bottom one and reposition any trees in way of contractor's works this weekend.
- Wheelbarrow bags of bentonite into place if loader cannot get to the areas where it is needed.
- Re plant pond plants once construction has finished.

Contractor

- Temporarily divert water entering pond so it flows straight down slope
- Dig out and reshape lead-in stream with wiggles and branches
- Deepen central area of pond
- Smooth and compact base and sides of pond area
- With hired garden-sized rotovator, combine bentonite granules into top layer of soil at stated rate (Could be done by volunteers if needed)
- Reroute inflow

Contractor for 3 weeks (available to start Monday) plus equipment hire = £5000 - £7000 + VAT

22t of bentonite delivered is 20 kilo sacks on pallets £5962 + VAT

Option Two: Rubber Pond Liner

Approx cost = £21500

The main reservations raised around this option is the use of a synthetic material and the visual impact if water levels drop of black rubber areas becoming visible.

If the liner route was the most viable option then this particular rubber product claims to be:

- Unaffected by uv, light or temperature or age
- Totally inert and chemically stable
- Does not contain plasticisers or additives
- No leaching
- 100% animal and plant friendly

There are two options:

Ecolan EPDM 0.75mm pond liner in a "made to measure single sheet" at £9.65/sqm =£13,317

The liner needs an underlay to protect from sharp stones etc. They supply a Geotextile 330PY Pond Liner Fleece in 25m x 1m roll at £45.83 each - total cost for 55 rolls = £2530

Greentech, using a 1mm thick Greenseal EPDM Sealeco Rubber liner 36m x 39m (1404 sqm) would cost £13,267.80 (exc VAT). The heavy-duty pond liner underlay (40m x 2m rolls - need 18 rolls) would ADD £2592

<https://www.green-tech.co.uk/>

<https://www.ecomerchant.co.uk/>

Plus some installation and ground work costs including hire of machinery to unload the very heavy roll. Approx £3,000.

In addition we have been advised to cover the steeper areas with coir mats planted up with pond plans the cost for this would be approx £2500

<https://britishpondplants.co.uk/>

Option Three: Puddling Clay

(Note - this option has become unviable due to the grant extension being denied as it definitely cannot be delivered in the time frame)

Approx cost £22,000.

Puddling clay to be supplied by Paul Unwin from J.E.UNWIN and SONS Bishops Castle.

He carried out a site visit and felt that the pond wasn't well designed for the site with the bund being too porous to hold the water in so a deeper more in-ground pond needed to be dug. He also assessed that if a gully was cleared concentrating the water supply it would be reliable enough to keep the pond topped up if it was lined with puddling clay and so cracking was less of a concern.

He proposes dig out and re make the pond and then puddle the clay (sourced from Shropshire) in and create gully and ditches to gather water,

His quote also covers supplying machines and clay and transport of machines.

The main consideration of this option is the sheer volume of clay (approx. 30 lorry loads) that would be needed and the amount of disruption to the site moving it around.