

<b>Committees:</b>	<b>Dates:</b>
Epping Forest and Commons Projects Sub	12 January 2015 21 January 2015
<b>Subject:</b> Gateway 3 Outline Options Appraisal: Baldwins and Birch Hall Park Ponds	<b>Public</b>
<b>Report of:</b> Director of the Built Environment	<b>For Decision</b>

### Summary

#### Dashboard

- Project Status: Amber. Has changed from green given appointed Reservoir Inspecting Engineer's comments that leaks at ponds are getting progressively worse, the estimated cost has increased significantly and the programme has slipped.
- Timeline: Anticipating Gateway 4 to be completed summer 2015.
- Total Estimated Cost: £0.675m to £2.930m cost range (previously £0.4m to £1.5m at Gateway 2)
- Spend to Date: £4,000 (Staff cost budget £12,000)
- Overall Project Risk: Green.

#### Context

Baldwins Pond and Birch Hall Park (Deer Sanctuary) Pond both store water by virtue of earth dams which are over 100 years old. Both ponds are currently managed under the Health and Safety at Work etc. Act 1973 and are subject to precautionary biannual inspection. The Ponds could potentially be reclassified by amendments being made to the Reservoirs Act 1975 (the 1975 Act) under the scope of the Flood and Water Management Act 2010 (when these provisions are brought into force). These amendments may reduce the confined capacity of water bodies defined as Large Raised Reservoirs (LRR) from 25,000 m<sup>3</sup> to 10,000 m<sup>3</sup> making them subject to statutory controls on engineering surveillance and inspections. Excessive wet weather over Spring 2012 highlighted leakage at both ponds as well as an overflow problem at Birch Hall Park Pond. Both ponds have been identified since 2010 through the biannual Panel Engineer's inspections as requiring works to stabilise the existing structure and manage leakage. Neither of the ponds has a spillway to facilitate controlled overflow. The inspecting Engineer visited both Ponds in November 2014 and reported that leaks were getting worse with a danger of progressive piping failure at both, and encouraged the City to undertake works in the near future rather than waiting.

#### Brief description of project

##### **Baldwins Pond**

Baldwins Pond is located on Forest Land at Baldwins Hill, near Loughton (see map Appendix 1), The pond was created by the construction of an earth dam across the natural valley of Loughton Brook. The dam which carries the surfaced Clay Ride across the valley is thought to have been commissioned by the previous landowner in

preparation for further residential construction. Baldwins Pond is an impounding reservoir with water being stored at a high level with an overflow discharging via a pipe culvert with a concrete weir at the top of the dam into a natural watercourse downstream. A leak at this pond has continued to be monitored by inspection for the last two years, although a potential leak had been revealed by a Willowstick Geophysical Investigation in 2012. It is necessary to make the dam safe as the leak could lead to its collapse or failure. The Pond does not have a dedicated spillway and was last subject to repair works in 2000.

### **Birch Hall Park Pond**

Birch Hall Park Pond is located to the east of Epping Forest between the settlements of Theydon Bois and Debden. The pond forms part of a designed parkland landscape which was once connected with Birch Hall. The Parkland was acquired in 1959 as Epping Forest's first element of Buffer Land to provide a Sanctuary for Epping Forest's melanistic (dark coated) Fallow Deer. The Pond is retained by an earth dam storing a body of water, and is thought to have originally formed a landscape feature and boating pond. As with Baldwins Pond, the City is aware of the leak. The dam should be made safe otherwise the leakage problem could lead to its collapse or failure.

### **Options**

The following outline options, with indicative costs, have been identified for further appraisal:

<b>Description</b>	<b>Option 1</b> Remove the Dams and Ponds	<b>Option 2</b> Demolish and reconstruct the Dams	<b>Option 3</b> Carry out repairs to the dams	<b>Option 4</b> Reduce the size of the ponds
Total Estimated Cost Baldwins Pond	<b>£528,000</b>	<b>£1,490,000</b>	<b>£365,000</b>	<b>£325,000</b>
Total Estimated Cost Birch Hall Pond	<b>£425,000</b>	<b>£1,440,00</b>	<b>£310,000</b>	<b>£395,000</b>
Total Estimated Cost	<b>£953,000</b>	<b>£2,930,000</b>	<b>£675,000</b>	<b>£720,000</b>

These estimated costs are indicative only at this stage and are in addition to the expenditure incurred to date, which is estimated to be circa £4,000 in staff time. The £4,000 staff time is not included in the above table and nor is future staff time. The above estimates are cost of works.

The total estimated cost range of £0.675m to £2.93m has increased significantly since Gateway 2 (£0.4m to £1.5m). The main reason for the significant increase in estimated costs has come from experience gained in developing other reservoir projects (e.g. Hampstead Heath Ponds and Highams Park Lake) but at this early stage are indicative only.

Birch Hall Park Pond falls within Buffer Land and funding will therefore need to be sought from the annual provision for new City's Cash schemes which will be subject to approval by Resource Allocation Sub (Policy and Resources) Committee.

Baldwins Pond is situated on Forest Land. It is anticipated that the capital costs associated with this project could be part-funded from the Epping Forest Capital Fund on the basis that it falls within the meaning of Section 41(1) of the Epping Forest Act 1878 with regards “expenses properly chargeable on capital”. However, this will be subject to the availability of resources and prioritisation against other potential calls on the Fund. The current balance on the fund is £0.5m. Any shortfall in funding is likely to be the subject of a bid to Resource Allocation Sub-Committee from the annual provision for new City’s Cash schemes.

The proposed funding strategies for both ponds will be confirmed as part of the next gateway report once firmer costs have been established.

### **Recommendations**

#### Option(s) recommended to develop to next Gateway

At this Gateway, none of the above options are to be discounted, although Option 2 is the least preferable at the present time due to cost and complexity.

#### Next Steps

Compile a list of suitable suppliers and prepare briefs for investigations, including topographic surveys, ground investigation and bathymetric surveys. Obtain competitive quotations in accordance with CoL procurement policy.

Explore the feasibility of the preferred option in greater detail in Gateway 4 report. Further consultation with stakeholders.

#### Resource requirements to reach next Gateway and source of funding

£50,000 to reach Gateway 4 (includes carrying out further investigations as detailed in Appendix 3). Funding of these costs is to be met from existing resources - £25,000 from the Director of Open Spaces local risk budget and the balance from the Additional Works Programme provision for reservoir surveys.

#### Financial assessment/Investment Appraisal to be provided in the Detailed Options Appraisal report

To be completed for Gateway 4.

#### Plans for consultation prior to the next Gateway report

- Site meeting(s) with the Superintendent; Head of Conservation and Head Forest Keeper
- Discuss requirements for site surveys and investigations in more detail with specialist suppliers.
- Discuss Options 1 & 2 with Planning Authorities and Natural England as the site lies within a Site of Special Scientific Interest and Special Area for Conservation. The scheme is also directly upstream from the Loughton Flood Alleviation Scheme at Staples Road which is jointly administered by the Environment Agency; Epping Forest District Council and the City of London.

#### Tolerances

At this early stage, the anticipated costs are difficult to predict and are therefore only indicative.

### **Options Appraisal Matrix**

See attached.

## **Appendices**

<b>Appendix 1</b>	Plan of Epping Forest showing Ponds.
<b>Appendix 2</b>	Photographs of the two ponds.
<b>Appendix 3</b>	Estimates build-up of resource requirements

## **Contact**

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## Options Appraisal Matrix

	<i>Option 1</i>	<i>Option 2</i>	<i>Option 3</i>	<i>Option 4</i>
<b>1. Brief description</b>	Remove the Dams and Ponds	Demolish and reconstruct the Dams	Carry out repairs to the dams	Reduce the size of the ponds
<b>2. Scope and exclusions</b>	The full scope and exclusions of the project cannot be determined at the present time. A better understanding will be obtained once site surveys are undertaken and feasible options considered in more detail.			
<b><i>Project Planning</i></b>				
<b>3. Programme and key dates</b>	The target at present is to obtain funding to allow investigations and surveys to proceed as soon as possible, preferably before end of FY14/15.			
<b>4. Risk implications</b>	<p>Low Risk</p> <ul style="list-style-type: none"> <li>▪ Loss of water source for Fallow Deer held within Birch Hall Park and for other wildlife generally at both ponds.</li> </ul>	<p>Medium Risk</p> <ul style="list-style-type: none"> <li>▪ Failure of the dams</li> <li>▪ Overtopping and flooding</li> <li>▪ Loss of life (Low Risk)</li> </ul>	<p>Medium Risk</p> <ul style="list-style-type: none"> <li>▪ Failure of the dams</li> <li>▪ Overtopping and flooding</li> <li>▪ Loss of life (Low Risk)</li> </ul>	<p>Medium Risk</p> <ul style="list-style-type: none"> <li>▪ Failure of the dams</li> <li>▪ Overtopping and flooding</li> <li>▪ Loss of life (Low Risk)</li> </ul>
<b>5. Benefits and disbenefits</b>	Benefit			
	<ul style="list-style-type: none"> <li>▪ Compliance with the</li> </ul>	<ul style="list-style-type: none"> <li>▪ Compliance with the 1975 Act and F&amp;WM</li> </ul>	<ul style="list-style-type: none"> <li>▪ Compliance with the 1975 Act and F&amp;WM</li> </ul>	<ul style="list-style-type: none"> <li>▪ Compliance with the 1975 Act and F&amp;WM</li> </ul>

	<b>Option 1</b>	<b>Option 2</b>	<b>Option 3</b>	<b>Option 4</b>
	<p>1975 Act and F&amp;WM Act 2010 should these reservoirs fall under the scope of the aforementioned legislation in the future.</p> <ul style="list-style-type: none"> <li>▪ Safety of members of the public who use the forest or are living in close vicinity in the case of Deer Sanctuary.</li> <li>▪ Demolition would be a clear solution for future costs.</li> </ul>	<p>Act 2010 should these reservoirs fall under the scope of the aforementioned legislation in the future.</p> <ul style="list-style-type: none"> <li>▪ Opportunity to proactively remediate the earth dams which are known to be leaking.</li> </ul>	<p>Act 2010 should these reservoirs fall under the scope of the aforementioned legislation in the future.</p> <ul style="list-style-type: none"> <li>▪ Opportunity to proactively remediate the earth dams which are known to be leaking.</li> </ul>	<p>Act 2010 should these reservoirs fall under the scope of the aforementioned legislation in the future.</p> <ul style="list-style-type: none"> <li>▪ Opportunity to proactively remediate the earth dams which are known to be leaking.</li> </ul>
	Disbenefits			
	<ul style="list-style-type: none"> <li>▪ Loss of water source for deer. New source would be required.</li> <li>▪ Loss of habitat for wildlife</li> <li>▪ Access for forest users made considerably difficult at Baldwins if the earth dam supporting the Clay Ride is demolished and removed but not replaced or alternative</li> </ul>	<ul style="list-style-type: none"> <li>▪ Cost of re-building.</li> <li>▪ Loss of habitat and water source for wildlife.</li> <li>▪ Cost of future maintenance not completely negated.</li> </ul>	<ul style="list-style-type: none"> <li>▪ No certainty that leakages will stop.</li> <li>▪ Loss of habitat and water source for wildlife.</li> <li>▪ Cost of future maintenance not completely negated.</li> </ul>	<ul style="list-style-type: none"> <li>▪ No certainty that leakages will stop or reduce.</li> <li>▪ Loss of habitat and water source for wildlife.</li> <li>▪ Cost of future maintenance not completely negated.</li> </ul>

	<b>Option 1</b>	<b>Option 2</b>	<b>Option 3</b>	<b>Option 4</b>
	access provided.			
<b>6. Stakeholders and consultees</b>	<u>Internal</u> Stakeholders – City of London <u>External</u> Local Authority – Epping Forest District Council Consultees – Natural England; Environment Agency; Loughton Town Council; Amenity Group			
<b>Resource Implications</b>				
<b>7. Total Estimated cost</b>	<b>£528,000</b> Total estimated for Baldwins Pond	<b>£1,490,000</b> Total estimated for Baldwins Pond	<b>£365,000</b> Total estimated for Baldwins Pond	<b>£325,000</b> Total estimated for Baldwins Pond
	<b>£425,000</b> Total estimated for Birch Hall Pond	<b>£1,440,00</b> Total estimated for Birch Hall Pond	<b>£310,000</b> Total estimated for Birch Hall Pond	<b>£395,000</b> Total estimated for Birch Hall Pond
	<b>£953,000</b> Total estimated for both ponds combined.	<b>£2,930,000</b> Total estimated for both ponds combined.	<b>£675,000</b> Total estimated for both ponds combined.	<b>£720,000</b> Total estimated for both ponds combined.
<b>8. Funding strategy</b>	<p>Birch Hall Park Pond falls within Buffer Land and funding will therefore need to be sought from the annual provision for new City’s Cash schemes which will be subject to approval by Resource Allocation Sub (Policy and Resources) Committee.</p> <p>Baldwins Pond is situated on Forest Land. It is anticipated that the capital costs associated with this project could be part-funded from the Epping Forest Capital Fund on the basis that it falls within the meaning of Section 41(1) of the Epping Forest Act 1878 with regards “expenses properly chargeable on capital”. However, this will be subject to the availability of resources and prioritisation against other potential calls on the Fund. The current balance on the fund is £0.5m. Any shortfall in funding is likely to be the subject of a bid to the Resource Allocation Sub-Committee from the annual provision for new City’s Cash schemes.</p> <p>The proposed funding strategies for both ponds will be confirmed as part of the next gateway report once firmer costs have been established.</p>			

	<i>Option 1</i>	<i>Option 2</i>	<i>Option 3</i>	<i>Option 4</i>
<b>9. Estimated capital value/return</b>	Not applicable.			
<b>10. Ongoing revenue implications</b>	When these two ponds become statutory reservoirs they are likely to have similar costs to our existing stock, increasing the existing budget for inspection and maintenance by approximately £10k from £158k to £168k (to account for the fact that Birch Hall Park Pond is a new asset that was not identified previously).			
<b>11. Investment appraisal</b>	Not applicable.			
<b>12. Affordability</b>	<p>The initial option appraisal costs are to be funded from existing local risk and Additional Works Programme budgets.</p> <p>Baldwins Pond is situated on Forest Land and therefore the main works of this project could be part-funded from the Epping Forest Capital Fund. However, the allocation of resources from this fund will be subject to prioritisation against any other calls.</p> <p>Birch Hall Park Pond falls within Buffer Land and therefore the cost of implementing this scheme would not be eligible for funding from the Epping Forest Capital Fund.</p> <p>There are insufficient local risk resources to meet these significant one-off costs and therefore, to supplement any contribution from the Epping Forest Capital Fund towards Baldwins Pond, a bid to Resource Allocation Sub-Committee for an allocation from the City's Cash annual provision for new schemes will need to be made after the detailed options appraisal has been completed.</p>			
<b>13. Procurement strategy</b>	All options listed here are likely to be procured through a competitive tendering process as was the case for works at Highams Park Lake, another reservoir retained by an earth dam also in Epping Forest.			
<b>14. Legal implications</b>	If these become statutory reservoirs, there could potentially be fines if the Corporation breaches the F&WM Act 2010 as well as a risk that the Environment Agency could take control at the expense of the Corporation. There are also criminal liabilities attached to non-compliance (under both Acts).			



	<i>Option 1</i>	<i>Option 2</i>	<i>Option 3</i>	<i>Option 4</i>
	The City also has statutory responsibilities for sub-LRRs such as Baldwins and Birch Hall Park Ponds under the HSAW Act and indeed the Occupiers Liability Acts. The Health and Safety Executive may also have a responsibility to inspect under the H&S (Enforcing Authority) Regs 1998.			
<b>15. Corporate property implications</b>	The works are required for safety reasons and to ensure that the City does not risk greater consequential damage and cost to the earth dams, aside from any statutory and reputational issues.			
<b>16. Traffic implications</b>	No significant traffic management implications, although routing traffic into the forest to the location of the ponds will need consideration at the next Gateway when considering the preferred option(s) in more detail.			
<b>17. Sustainability and energy implications</b>	<ul style="list-style-type: none"> <li>▪ Adapting to the likelihood of climate change that could result in higher water levels in the ponds and being better prepared in the likelihood that this does happen.</li> <li>▪ Supporting the local area to enjoy the forest, and encourage the use of walking, cycling in and around the forest.</li> <li>▪ Reducing waste by using any earth from dam demolition in the forest (subject to soil testing and acceptability)</li> <li>▪ Maintaining habitats for wildlife where possible, as well as exploring the possibility of encouraging wildlife.</li> </ul>			
<b>18. IS implications</b>	There are no IS implications envisaged at present.			
<b>19. Equality Impact Assessment</b>	Not applicable. However, if Option 1 is adopted for Baldwins and the dam removed, an EIA may be required.			
<b>20. <u>Recommendation</u></b>	Recommended	Recommended	Recommended	Recommended
<b>21. Next Gateway</b>	Gateway 4a - Inclusion in Capital Programme			
<b>22. Resource requirements to reach next Gateway</b>	£50,000 comprising £42,000 in surveys and investigations and £8,000 in staff costs. See Appendix 3 (attached).			

