

Committee(s): Epping Forest Consultative Committee – For Information	Dated: 20/10/2021
Subject: Wanstead Park Ponds Project Update	Public
Which outcomes in the City Corporation’s Corporate Plan does this proposal aim to impact directly?	1,11
Does this proposal require extra revenue and/or capital spending?	Y
If so, how much?	£51 000
What is the source of Funding?	Capital drawdown
Has this Funding Source been agreed with the Chamberlain’s Department?	Y
Report of: Juliemma McLoughlin, Environment Department	For Information
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Summary

This report sets out the progress of the Wanstead Park Ponds Project following the completion of the Roding-Ornamental Water Interaction Study and makes recommendations for the Project to progress to the outline options appraisal stage.

Recommendations

Members are asked to:

- Note the report.
- Endorse the progression of the project to the next gateway (3) of the City Corporation’s project gateway process.

Main Report

Background

1. Wanstead Park is East London’s oldest public park with a history dating back to the 1500s. At the height of its fame the estate had a house which was compared to Blenheim Palace and gardens that rivalled Versailles. It is today considered to be London’s greatest surviving designed waterscape. At its most extensive (circa 1800) there were nine artificial lakes within the Park.
2. Five lakes remain today and form a cascade with the lower four lakes the responsibility of the City of London Corporation. A substantial proportion of the Park and Out Park were added to Epping Forest by the City Corporation between 1876 and 1880.

In 2001 the Park was designated a Grade II* – ‘garden of special interest’ - Registered Park and Garden (RPG) by English Heritage (now Historic England), following an earlier Grade II designation in 1987.

3. Wanstead Park faces four key challenges to its continued integrity.
 - Heritage** - The Park was placed on the Heritage at Risk Register in 2009 due to differences in management by the four owners, the condition of the lake cascade and the deteriorating condition of the Park’s heritage features.
 - Water Supply** - The largely City-owned lake cascade at the heart of the listed landscape has a long-term negative water budget with insufficient inflow and widespread leakage. This is currently augmented by borehole aquifer pumping and is likely to see future reductions in abstraction permissions if the water holding capacity of the lakes is not stabilised.
 - Local Flooding** - The Park is also at risk of occasional flooding from the River Roding and the City Corporation has been identified since 2012 as a private riparian owner. The COLC are expected to contribute funds in partnership for upstream Shonks Mill flood alleviation works grant-aided by DEFRA
 - Reservoir Safety** – In 2018, The Environment Agency designated three of the cascade’s lakes, for which the City Corporation is the reservoir owner, as ‘High Risk’ in a risk assessment of dam safety. Under the Flood and Water Management Act 2010 the City Corporation has statutory responsibility for the maintaining the safety and integrity of the reservoir structures.

4. The Wanstead Park Ponds Project was initiated in July 2019 to fulfil the City Corporation’s statutory duties as the reservoir owner of the Wanstead Park ponds and to identify the solutions to achieving this and other works in the Wanstead Parkland Plan, contributing to the removal of the Heritage at Risk status of the listed landscape. This was required following the Environment Agency’s designation of the Large Raised Reservoirs as being ‘High Risk’.

5. Dams and Reservoirs Limited and their Panel Engineer were contracted to undertake an initial engineering assessment of the four ponds (Shoulder of Mutton, Heronry, Perch and Ornamental Water) in 2020. This was to assess the pond structures and if they were currently able to safely overtop in flood events. In the final study the Panel Engineer made various recommendations for additional work (Table 1). This included undertaking a further study to understand the effects of the interaction between the River Roding and the Ornamental Water, which sits in the flood zone of the river.

Pond	Recommendations
Shoulder of Mutton	<ul style="list-style-type: none"> - Regulation of the dam’s crest. - Maintenance of short grass cover to dam’s embankment.
Heronry	<ul style="list-style-type: none"> - Regulation of the dam’s crest. - Installation of a concrete edging beam. - Grass improvement to the dam’s embankment. - Regrading of the dam’s embankment.

Perch	<ul style="list-style-type: none"> - Regulation of the dam's crest. - Installation of a concrete edging beam.
Ornamental Water	<ul style="list-style-type: none"> - Ensuring the overtopping occurs only at overflow embankment. - Regulation of the dam's crest. - An 'engineered' reinforced grass system to the overflow embankment's downstream face. - A further study to understand the effects of the interaction with the River Roding.

Table 1: Summary of Panel Engineer's Recommendations

6. It was decided to undertake the additional study into the Roding-Ornamental Water interaction before progressing the project through the gateway process, as it was deemed to have a material impact on determining the options considered at that stage. This study was also an opportunity to consider the water supply to the ponds and implications on reservoir safety. To enable this, an Issues Report extending this stage of the project was approved by Corporate Projects Board, Policy and Resources (Projects) Subcommittee and the Epping Forest and Commons Committee in late 2020.

Current Position

7. Dams and Reservoirs were appointed following a competitive tender to undertake the Roding-Ornamental Water Interaction Study and a final report was received in September 2021. The study modelled the hydraulic relationship between the river, the lake and the surrounding area. Building on the previous study, it considered a range of possible rainfall events in the park and river catchment that would result for a storm that would cause the lake to overspill.
8. The over spilling event for the lake is a 1 in 1000-year storm. It was calculated that the River Roding would flood into Ornamental Water during a 1 in 5-year storm in the river catchment. It was judged that even with an extremely localised 1 in 1000-year storm that the Roding would be in a state of flood. It has therefore been deemed that the Ornamental Water would always overspill into an already flooded area.
9. For the range of events considered the model was used to determine in detail the speed and direction of water moving around the more vulnerable areas of Ornamental Water. This included the two embankment wall structures adjoining the River Roding, these are referred to as the 'northern wall' at the upstream end of the lake and the 'central wall' at the eastern end of the canal. On considering the length of the flow paths and the velocity of water movement involved the Panel Engineer does not consider these structures to be at risk of erosion and therefore is not recommending significant works in this area.

10. The study also assessed the impact of water balance interventions on reservoir safety, this included replacing the old pump house infrastructure to back pump water from the river to the Ornamental Water and works to increase surface water capture to fill up the ponds. These were not considered to have had an adverse impact on reservoir safety.

Options

11. Following the completion of both studies the works required for reservoir safety at Wanstead Park are now more fully understood. Investigations have also been running simultaneously to evaluate a range of options to increase the lakes water supply, reduce water losses and to improve water quality.
12. The ponds scheme is now ready to progress to the COLC third project gateway stage. This will include an outline options appraisal and which option to pursue in the next stage.

Proposals

13. A Gateway 3 – Outline Options paper will be sent to the Epping Forest and Commons Committee and Policy and Resources (Projects) Subcommittee for approval. This will request permission and resources to progress the project through to the subsequent gateway.
14. It is proposed to consider the following options:
 - a. Do nothing;
 - b. Reservoir safety works only;
 - c. Reservoir safety works and water balance interventions.
15. The do nothing option is being considered to demonstrate the unviability of not taking further action and will not be a recommended option. The reservoir safety works only will look at how to implement the Panel Engineer's recommendations in a way that is sensitive to the environment of the park. The final option will also look at how to implement the Panel Engineer's recommendation but in addition consider a range of water balance interventions that could be used to ensure a sufficient water level in the ponds which could be critical to the long-term safety of the structures.
16. To undertake this outline options appraisal further staff time will be required including of the Lakes and Ponds Engagement officer who will lead communication on the project with stakeholders, staff and the local community.

Key Data

17. Three of the ponds (Shoulder of Mutton, Heronry and Perch) are Dam Category C meaning their structures have to pass a Safety Check Flood inflow of a 1 in 1000-year storm. The Ornamental Water is a category D and has to pass a safety check flood of only 1 in 150 years. By considering the

1:1000-year event the City Corporation is being conservative in the assessment of risk.

18. The project budget is £1 million for the works required to address the ponds acting in a cascade. Central funding for this scheme was agreed 'in principle' from City's Cash reserves as part of the Fundamental Review. Drawdown will require the further approval of the Resource Allocation Sub Committee.

Corporate & Strategic Implications

Strategic implications

19. The project aims to fulfil the corporate plan aims of ensuring people in Wanstead Park and its environs are safe and feel safe by ensuring that the corporate obligations on reservoir safety are fulfilled and that Wanstead Park is an outstanding space that's has a thriving and sustainable natural environment. It also aims to deliver some of the elements of the Wanstead Parkland Plan.

Financial implications

20. The progression of the project to the next gateway will require the drawdown of project funding. Central funding for this scheme was agreed 'in principle' from City's Cash reserves as part of the Fundamental Review. Drawdown will require the further approval of the Resource Allocation Sub Committee.

Resource implications

21. Additional staff time (extension of contract) and resources for engagement will be needed to progress the project.

Legal implications

22. The City Corporation has statutory duties under the Flood and Water Management Act 2010 in relation to its responsibilities as reservoir owner. If these duties are not fulfilled the City Corporation could be served an enforcement notice by the Environment Agency.

Risk implications

23. The large raised reservoirs at Wanstead Park remain on the Corporate Risk register. The mitigation of that risk is one of the main aims of the project. To not progress the project would not enable that to happen.

Equalities implications

24. None.

Climate implications

25. An allowance for the impacts of climate change of river flooding has been considered as part of the recent study. The outline options considered will enable a review of how to sustainably manage water in the park.
26. The project gives an opportunity to manage the water levels in the lake cascade in a more sustainably way, with the aim to reduce groundwater abstraction.

Security implications

27. None.

Conclusion

28. The Wanstead Park Pond Project has sought to establish what is required of the City Corporation as a reservoir owner at Wanstead Park and how this relates to the long-term issues with water supply, local flooding and risk to heritage. By undertaking the Roding-Ornamental Water Interaction Study ahead of progressing the project to the next gateway there is now a fuller understanding of the extent of works required and useful insights into implications of a number of water balance interventions.

29. The project is now in a position to progress to the next gateway with a broader understanding of the impacts of outline options that will be considered. The Gateway 3 paper will secure the approval, funding and resources to progress the project to the next stage.

Background Papers

Wanstead Park Ponds Project – Initial Engineering Assessment [21/10/2020]

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