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<b>Subject:</b>	<b>RUSSELL GARDENS ORNAMENTAL POND AND BRIDGES</b>
<b>Meeting and Date:</b>	<b>Cabinet – 7 November 2022</b>
<b>Report of:</b>	<b>Martin Leggatt, Head of Assets and Building Control</b>
<b>Portfolio Holder:</b>	<b>Councillor Oliver Richardson, Portfolio Holder for Community and Corporate Property</b>
<b>Decision Type:</b>	<b>Executive Non-Key Decision</b>
<b>Classification:</b>	<b>Unrestricted</b>

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**Purpose of the report:** To advise Cabinet of concerns regarding the structural integrity of the ornamental pond in Russell Gardens and seek approval for the investigatory survey and repair works it is now proposed to undertake.

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**Recommendation:** That Cabinet:

1. Notes the concerns regarding the structural integrity of the ornamental pond in Russell Gardens.
2. Confirms approval for the proposed investigatory survey and repair works.
3. Allocates the sum of £110,000 from the Special Revenue Reserve to meet the cost of the proposed works.

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## 1. Summary

- 1.1 The ornamental pond in Russell Gardens is the centre piece of the recently restored Mawson designed garden although the pond itself was not included within the scope of the recently completed National Heritage Lottery Fund funded Parks for People project.
- 1.2 The pond has shown evidence for some years of limited water leakage, but this seems to have worsened significantly over the past year or so, which has resulted in some undermining of the bank and growing concerns at the effect this is having on the wider structural integrity of the pond and the foundations of the ornamental bridges.
- 1.3 This report seeks Cabinet agreement to undertake investigatory survey and repair works and to allocate the sum of £110,000 from the Special Revenue Reserve to meet the cost of the proposed works.

## 2. Introduction and Background

- 2.1 The ornamental pond in Russell Gardens is the centre piece of the Mawson Garden that has been restored by Dover District Council, with financial support from the Heritage Lottery fund. The garden is designated as a Grade II-listed Park and Garden with the pond noted in the list description as one of the principal features contributing to the historic significance of the garden. In addition, the two bridges and boathouse are individually designated as listed buildings at Grade II. It is therefore important, in heritage terms, that the integrity of the pond is safeguarded for its long-term future as the water feature that is key to the garden.
- 2.2 The features and garden were created in c.1906 using construction techniques available at the time when structural processes and geotechnical processes were less well understood. It is likely that, were the pond to be constructed today, it would be

water-proofed and incorporate expansion joints. However, these technologies were not available at the time of construction and over time, the existing structure has therefore developed a number of structural defects. The concrete base itself exhibits evidence of some cracking and so being porous, this allows small amounts of water to percolate through it.

- 2.3 Ordinarily, the limited loss of water from the pond is not problematic because the pond forms a section of the River Dour and so any water lost through the concrete base is therefore naturally replenished.
- 2.4 However, the action of water percolating through the base of the pond has led to material being leached out from beneath creating voids below the pond which has ultimately caused both the base of the pond and the adjacent bank to subside. This seems to have been exacerbated as a consequence of the underlying chalk being soluble with the concentration of the water percolation resulting in a number of voids forming in the chalk below the pond base.
- 2.5 Being a chalk stream the River Dour periodically dries up and the Council has taken advantage of these natural occurrences to monitor the pond base and sub-bases. The last two occasions that the River Dour dried up were in 2008 and 2017.
- 2.6 In 2017, limited surveys were undertaken to determine the extent of the damage, but at that time the integrity of the pond did not appear to have been compromised.
- 2.7 However, the continued deterioration of the structure was highlighted in December 2019, when a large section of the base collapsed as the voids formed underneath had extended beyond the structural integrity of the base to support itself. Due to the amount of water flow entering the pond at that time, the true extent of the damage could not be identified and so only limited action was taken to seek to limit the volume of water flowing through the base.
- 2.8 This year, as soon as it became clear that the River Dour would stop flowing into the pond, arrangements were made to remove the silt deposits and commission an ultrasound survey to determine the presence and extent of voids. Using ultrasound surveys, it is also possible to compare the extent and pattern of cracking in the pond base once the pond is dry and the silt deposits, which build up naturally in the pond, have been removed.
- 2.9 As flows in the River Dour reduced over the summer this provided an opportunity to undertake a further survey and appraisal, without incurring the costs involved when the river was still flowing. Arrangements were therefore made to drain and clear the base of the pond. This has revealed that the cracking is more extensive than was the case in 2017. Of particular concern is that a section of the pond base in the vicinity of the boat house, adjacent to the Alkham Valley Road, has subsided, creating a significant unintended outflow of water under the masonry wall that lines the pond.
- 2.10 The ultrasound results indicate the presence of significant voids in this vicinity, and these seem to have become much more widespread across the base structure, which is clearly the cause of the movement of the pond base, the adjacent pond walls and the nearby boat house.
- 2.11 In order to prevent further deterioration to the structure, it is therefore now proposed to undertake urgent repairs to the structure, which will involve the removal and reconstruction of the main defective areas of the concrete pond base and the repair of the adjacent pond wall, taking advantage of the pond being empty as ground water flows into the River Dour have yet to increase to their normal levels.
- 2.12 The cost of these works has been estimated to be c£110,000, which will be funded from the budget allocation included within the Special Revenue Reserve within the Medium-Term Financial Plan.

- 2.13 Whilst these works are being undertaken, checks will be carried out on the structural defects of the ornamental bridges and surrounding structures which have been caused by water undermining the foundations when the river is in full flow and repairs undertaken as far as the project budget will allow.

### 3. Identification of Options

#### 3.1 Options considered are:

1. To confirm approval to the works proposed. (Recommended option)
2. To seek to undertake more extensive repairs.
3. To take no action.

### 4. Evaluation of Options

- 4.1 To approve the project: **This is the recommended option** as it will redress an existing and worsening problem in respect of the pond base in a cost effective and proportionate way. The project will also deliver non-invasive design solutions to the problems associated with the listed boat house and ornamental bridges.
- 4.2 To seek to undertake more extensive repairs: As noted in the report modern construction techniques for features such as the pond would potentially seek to create a watertight structure. However, attempting to reconstruct the pond structure to these standards now would be a complex and very costly exercise and so is not recommended.
- 4.3 To take no action: This option, whilst involving no cost, ignores the existing problems which are getting worse at an accelerating rate. It risks significant future collapse that will threaten nearby structures including the pond itself, the ornamental bridges and the boat house. It is therefore not the recommended option.

### 5. Resource Implications

- 5.1 The project budget, which includes all design and construction costs as well as officer time, is £110,000, with these costs being met from the budget allocation included within the Special Revenue Reserve within the Medium-Term Financial Plan.

### 6. Climate Change and Environmental Implications

- 6.1 This is a repair project that does not of itself contribute to climate change or improved eco-systems, however it will prevent further erosion of the sub-soil and remedial work of a far greater magnitude, and the embodied carbon of those more extensive works. The design will, where possible, use sustainable materials and seek to minimise transport carbon emissions by sourcing locally. The quality questions that form part of the tendering process will examine the measures that contractors are taking to minimise their emissions.

### 7. Corporate Implications

- 7.1 Comment from the Director of Finance (linked to the MTFP): Accountancy has been consulted and has no further comment. (DL)
- 7.2 Comment from the Solicitor to the Council: The Solicitor to the Council has been consulted in the preparation of this report and has no further comments to make. (HR)
- 7.3 Comment from the Equalities Officer: This report relating to Russell Gardens does not specifically highlight any equality implications, however in discharging their duties members are required to comply with the public sector equality duty as set out in Section 149 of the Equality Act 2010. (KM)  
<http://www.legislation.gov.uk/ukpga/2010/15/section/149>

### 8. Appendices

Appendix 1 – Ultrasound report 2022

9. **Background Papers**

None.

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