

<p><b>Committees:</b> Corporate Projects Board <i>[for information]</i> Projects Sub <i>[for decision]</i></p> <p>Barbican Estate Residents Consultation Committee <i>[for information]</i> Barbican Residential Committee <i>[for decision]</i></p>	<p><b>Dates:</b> 08 July 2020 15 September 2020 07 September 2020 21 September 2020</p>
<p><b>Subject:</b> Concrete repairs to the Barbican Estate</p>	<p><b>Gateway 6:</b> <b>Outcome Report</b> Regular</p>
<p><b>Report of:</b> Director of Community &amp; Children's Services</p> <p><b>Report Author:</b> David Downing, Asset Programme Manager</p>	<p><b>For Decision</b></p>
<p><b>PUBLIC</b></p>	

## Summary

<p><b>1. Status update</b></p>	<p><b>Project Description:</b> The reinforced concrete elements of the Barbican Estate had been showing signs of deterioration. A project was initiated to first survey and test the structures to identify the causes and extent of the deterioration and then deliver a programme of repairs based on the recommendations from the condition survey. The programme of repairs is now complete.</p> <p><b>RAG Status:</b> Green (Green at last report to Committee)</p> <p><b>Risk Status:</b> Low (Low at last report to Committee)</p> <p><b>Costed Risk Provision Utilised:</b> £0</p> <p><b>Final Outturn Cost:</b> £1,043,894.90</p>
<p><b>2. Next steps and requested decisions</b></p>	<p><b>Requested Decisions:</b> <b><u>Barbican Estate Residents Consultation Committee</u></b></p> <p>1. To note the content of this report for information only.</p>

	<p><b><u>Projects Sub Committee and Barbican Residential Committee</u></b></p> <ol style="list-style-type: none"> <li>1. To note the content of this report,</li> <li>2. To note the lessons learnt,</li> <li>3. To authorise closure of this project.</li> </ol>
<p><b>3. Key conclusions</b></p>	<ol style="list-style-type: none"> <li>1. Works were completed within budget but not to the initial timescales envisaged. Significant delays were experienced during the procurement stage for the repairs contract where only one tender was received at the first engagement with the market. A second procurement was successful but Committee authorisation for an increased project budget was required as previous estimates were exceeded. During the delivery phase, completion of works to the upper levels of the towers was delayed due to access restrictions in place to safeguard nesting protected wildlife; it should be noted that there were no cost implications for this particular delay.</li> <li>2. Following completion of the identified repairs, the concrete elements of the estate in general are in good condition which is consistent with the age and exposure of the buildings. Our external concrete corrosion specialist has confirmed that the vast majority of the residential blocks do not require further comprehensive testing for a period of twenty years from the date of survey, the car parks - where concrete corrosion was more evident - for a further ten years.</li> <li>3. The contractor, Structural Renovations Ltd, who delivered both the testing and repair elements of this project performed well throughout and were proactive in working with the City's project management team to keep costs under control, to deliver the works within the agreed budget and to complete the repairs to the high standards required to satisfy heritage constraints. The direct appointment of a concrete repair specialist rather than one mediated via a larger contract management company is recommended for future works of this nature.</li> <li>4. The initial survey design, testing analysis and repair specification was supplied by industry leading specialist Dr John Broomfield. Dr Broomfield's technical guidance throughout the project was invaluable and critical to the successful outcome.</li> </ol>

## Main Report

### Design & Delivery Review

<b>4. Design into delivery</b>	<p>The project design worked well. The comprehensive condition testing of the concrete post Gateway 2 allowed for a detailed repair specification to be drawn up and applied to a measured bill of quantities for the subsequent repair contract post Gateway 5. The survey design, analysis of testing results and repair specification was supplied by industry leading concrete corrosion specialist Dr John Broomfield. Procuring separate testing and repair contracts did increase programme length but follows industry best practice and enabled proposed repairs to be independently verified and allowed for greater control of costs as a single contractor was not identifying their own repairs. As both testing and repair elements were facilitated via predominantly rope access the project design did not burden the projects finances with the costs of repeat scaffolding or estate residents with prolonged inconvenience.</p> <p>The project was combined at earlier Gateways with what at face value seemed similar concrete issues at Golden Lane and Middlesex Street estates. Although brought together to explore potential savings through economies of scale, little benefit was realised from this however as the three sites presented very different design issues which inevitably had to be handled separately from the condition survey tender stage onwards. Combining the design phases did not realise any cost savings and it is highly likely that if each was addressed separately throughout the process the overall programme length would have been shortened as a delay to one site would not necessarily entail a delay to the others.</p>
<b>5. Options appraisal</b>	<p>The selected option to procure a contractor to deliver a programme of repairs via open tender successfully delivered the projects objectives. No changes were required during project delivery.</p>
<b>6. Procurement route</b>	<p>Works were procured via open tender advertised on the capital esourcing portal. During the first issue of the tender only one bid was received which was insufficient to meet Section 20 consultation regulations. The works contract was subsequently retendered and successfully procured via open tender at the second attempt with four compliant bids received.</p> <p>Procurement Reference: Itt_COL_7215</p>

<b>7. Skills base</b>	The City of London project team had the required skills and experience to manage the delivery of the project. An external concrete corrosion specialist, Dr John Broomfield, was employed to define the testing requirements, analyse testing results, specify the repair methodology for identified repairs and oversee the enaction of those repairs.
<b>8. Stakeholders</b>	Stakeholders were engaged and managed well throughout the delivery of the project. A project specific FAQ document was circulated to Barbican Estate leaseholders in advance of the condition survey to ensure residents were appropriately informed. No negative feedback was received during this process.

**Variation Review**

<b>9. Assessment of project against key milestones</b>	<p>The project progressed as expected throughout the concrete testing phase culminating in the approval of Gateway 4 in February 2017 although as stated above may have progressed more quickly had the Barbican Estate programme been developed separately than that for the HRA Estates (albeit with continual lesson learnt transfer between the two project teams).</p> <p>Post Gateway 4 the project was subject to a series of delays that affected several key milestones. The initial attempt to procure a repairs contractor was not successful with only one estimate received through the tender process. A repeat procurement, following a market engagement exercise, was however successful as four compliant estimates from contractors were received. These were carefully evaluated on the quality and cost criteria as laid out in the procurement process with Structural Renovations Ltd subsequently identified as the successful contractor. Following the procurement process the total project budget for the Barbican Estate concrete repairs project, encompassing the successful tender for the repairs, the completed concrete testing programme and the associated fees and staff costs for both, exceeded the estimated budget approved at Gateway 4 by £389,775.22. An Issues Report seeking authority to increase the project budget by this sum was approved by Projects Sub Committee and the Barbican Residential Committee (March 2018). The total delay to programme covering the contractor engagement, re-procurement and securing approvals for a budget uplift combined was 9 months.</p>
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	<p>Post Gateway 5 the project proceeded largely as planned, although completion of the works to the Towers was delayed by 3 months due to access restrictions in place during the nesting period for protected wildlife.</p>
<p><b>10. Assessment of project against Scope</b></p>	<p>There were no changes to project scope from design to delivery.</p>
<p><b>11. Risks and issues</b></p>	<p>The project proceeded as planned with no significant risks realised during the delivery phase. This is largely attributable to the successful application of lessons learnt from previous projects which were incorporated into the project design and specification which greatly aided the management of the resultant repairs contract.</p> <p>Conducting comprehensive surveys in advance of procurement of a main works contractor was highly beneficial in minimising risks for the delivery phase of the project. A defined bill of quantities provided a degree of certainty for both client and contractor and set clear parameters for the execution of the contract.</p> <p>The risk of a failed procurement exercise was realised in an early phase of the project. The initial procurement for a works contractor only attracted one submission; a minimum of two being required for a compliant Section 20 consultation with long leaseholders.</p> <p>Costed Risk Provision was not applicable to this project.</p>
<p><b>12. Transition to BAU</b></p>	<p>The repairs have a defect liability period of 12 months commencing from the date of practical completion. There is also an additional a two year warranty covering both materials and workmanship with the contractor. At the close of this period, the ongoing maintenance of these repaired sections of concrete will transfer to the general Repairs &amp; Maintenance contract.</p> <p>Dr Broomfield has advised that the vast majority of the residential blocks do not require further comprehensive testing for a period of 20 years from the date of last survey (2016) whilst the car parks should be considered for reinspection in 10 years from this date. He further advised that there may be ongoing highly localised minor repairs required in sporadic areas of low reinforcement cover that may emerge in the intervening years between testing.</p>

## Value Review

<b>13. Budget</b>	<table border="1"> <tr> <td><i>Estimated Outturn Cost (G2)</i></td> <td>Estimated cost (excluding risk): £600,000</td> </tr> </table>		<i>Estimated Outturn Cost (G2)</i>	Estimated cost (excluding risk): £600,000																		
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<p>The Gateway 2 projected cost was estimated in 2014 with no provision for cost inflation. The officers managing the project at this time are no longer with the City and the estimating methodology they used is not known.</p>																						
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<p>There is a total underspend on the approved Gateway 5 budget of £250,880.32. Of this sum, a figure of £198,133.20 was omitted from the tendered works contract as provisional sums included to cover additional repairs to those identified in the condition survey which had potentially arisen post drafting of the tendered bill of quantities were not required. A smaller sum included to provide provision for out of hours working if required was also omitted from the contract as all works were able to be scheduled during normal working hours. The remainder of the underspend is unused provision for professional fees and staff costs. The contractor, Structural Renovations Ltd, performed well throughout the contract and did not require the degree of management and oversight that a less diligent operator would warrant.</p> <p>Final accounts have been subject to an independent verification check, undertaken by a suitably experienced officer within the relevant implementing department.</p> <p>A final retention payment of £10,667.42 is due to the main works contractor on expiry of the defects liability period. This is sum is included in the table above.</p>																						
<b>14. Investment</b>	N/A																					

<p><b>15. Assessment of project against SMART objectives</b></p>	<p>1. The concrete has been tested to the satisfaction of a leading concrete corrosion specialist.</p> <p>2. The condition of the concrete elements of the structures is now known with appropriate future testing requirements identified and to be programmed.</p> <p>3. Repairs to the concrete have been completed, maintaining the buildings and extending their useful life.</p>
<p><b>16. Key benefits realised</b></p>	<p>A comprehensive testing programme has been carried out all identified repairs have been completed. The concrete elements of the residential buildings and car parks have been confirmed to be in a good condition for their age and exposure.</p>

**Lessons Learned and Recommendations**

<p><b>17. Positive reflections</b></p>	<p>Works were done to a high standard, satisfying the heritage constraints of the Barbican Estate and were delivered well within the approved Gateway 5 budget.</p> <p>Provisional sums included within the contract for any additional repairs not identified during the testing contract were not required. This speaks well to the thoroughness and accuracy of the testing contractor and also provides reassurance as to the general condition of the buildings.</p> <p>The contractor, Structural Renovations Ltd, performed well and were proactive in working with the City's project management team to keep costs under control and to deliver the works within the agreed budget. As a specialist SME, the Barbican Estate works were a key contract for this supplier who demonstrated this via their clear commitment and diligence in delivering the works.</p> <p>The consultant employed, Dr John Broomfield, is a world leader in the field of concrete corrosion. Dr Broomfield provided specialist advice throughout the project, drafted the repair specification and provided independent oversight of the repairs. The access to industry leading knowledge and experience throughout the project was a critical factor in its successful delivery.</p> <p>Works to Frobisher Crescent, a mixed use building shared with the Barbican Centre, were successfully coordinated</p>
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	<p>between all relevant stakeholders to ensure any savings from combining works were realised and that any noisy elements of the works were programmed to minimise disruption to all building users as far as possible. Works were intelligently scheduled to avoid clashing with exam times and performances without the need to incur the additional expense of out of hours working.</p>
<p><b>18.Improvement reflections</b></p>	<p><b>Procurement</b> – as stated above, the initial procurement for a concrete repair contractor was not successful as it attracted only one bid which was not sufficient for a compliant Section 20 consultation with long leaseholders. A subsequent market engagement exercise before re-procuring resulted in a satisfactory procurement at the second time of asking. Engaging more with the market at an earlier stage should be considered for future projects where the pool of potential contractors is limited by the specialist nature of the required work.</p> <p><b>Project Design</b> – also as stated above, little benefit was realised in initial combining the project design phase with the similar works due to take place at the Golden Lane and Middlesex Street Estates. The three locations, although all with significant concrete elements in need of repair, presented very different design issues. Combining the design phases did not realise any cost savings and it is highly likely that if each was addressed separately through out the process the overall programme length would have been shortened.</p> <p><b>Delivery Programme</b> – completion of the works to the Towers was delayed by access restrictions in place during the nesting period for protected wildlife. Although this delay did not realise any cost implications for the City, smarter programming of this aspect of the works would have led to an earlier conclusion of the project.</p>
<p><b>19. Sharing best practice</b></p>	<ol style="list-style-type: none"> <li>1. Dissemination of key information through team and project staff briefings. A standard approach to concrete repairs has been adopted by the Major Works team reflecting industry best practice.</li> <li>2. Lessons learned have been logged and recorded on departmental SharePoint.</li> </ol>
<p><b>20. AOB</b></p>	<p>N/A</p>



## **Contact**

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