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| Committees: Planning & Transportation Committee Projects Sub (Policy & Resources) Committee | | Dates: 30 April 2019 24 April 2019 |
| Subject: Southwark Bridge South Viaduct Waterproofing Unique Project Identifier: 11987 | Gateway 3/4: Options Appraisal (Regular) | |
| Report of: Director of the Built Environment Report Author: Mark Bailey | | For Decision |
| <h1>PUBLIC</h1> | | |

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| 1. Next steps and Requested decisions | <p>Next Gateway: <i>Gateway 5: Authority to Start Work</i></p> <p>Next Steps:</p> <ol style="list-style-type: none"> 1) Detailed design by appointed term consultant 2) Trial investigations 3) Coordination of permits/approvals for works with City and Southwark highway authorities, including bus lane suspensions 4) Contract and tender preparation 5) Competitive tendering of works 6) Review of tenders and recommendations <p>Requested Decisions:</p> <ol style="list-style-type: none"> 1) Approval is sought to include waterproofing works to the north approach viaduct within the scope of works and to change the project name accordingly to “Southwark Bridge Approach Viaducts Waterproofing” 2) Authority is sought to progress the design to Gateway 5 and invite tenders for the works. 3) Approval is sought for £134,000 funding (from identified sums within the Bridge House Estates BHE 50-year Repair & Maintenance Fund) to proceed to Gateway 5. 4) Approval is sought for the project budget of £1,725,000 including the Costed Risk Provision of £200,000, on the basis of recommended option 2. 5) Authority is sought for delegated authority to be given to Chief Officer at Gateway 5 to appoint the successful tenderer and to instruct the Comptroller and City |
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| | <p>Solicitor to enter into contract, should tenders be returned within budget</p> <p>6) Authority is also sought for delegated authority to be given to Chief Officer following Gateway 5 to expend identified sums from the project risk register against specified risks</p> | | | | | | | | | | | | | | | | | | | | |
|--|--|---|----------------|--------------------------------|----------|-------------|--|---|--------|---------------------|------------------------------------|--------|-----------------|---|--------|---|---|--------|--------------|--|----------------|
| <p>2. Resource requirements to reach next Gateway</p> | <table border="1" data-bbox="528 427 1390 1435"> <thead> <tr> <th data-bbox="528 427 762 568">Item</th> <th data-bbox="762 427 991 568">Reason</th> <th data-bbox="991 427 1219 568">Funds/ Source of Funding</th> <th data-bbox="1219 427 1390 568">Cost (£)</th> </tr> </thead> <tbody> <tr> <td data-bbox="528 568 762 786">Staff Costs</td> <td data-bbox="762 568 991 786">Project Management and coordination of approvals</td> <td data-bbox="991 568 1219 1435" rowspan="5">Bridge House Estates 50yr Repair & Maintenance Fund</td> <td data-bbox="1219 568 1390 786">14,000</td> </tr> <tr> <td data-bbox="528 786 762 927">Investigation Costs</td> <td data-bbox="762 786 991 927">To reduce construction stage risks</td> <td data-bbox="1219 786 1390 927">50,000</td> </tr> <tr> <td data-bbox="528 927 762 1144">Consultant Fees</td> <td data-bbox="762 927 991 1144">Detailed design and preparation of tender documents</td> <td data-bbox="1219 927 1390 1144">60,000</td> </tr> <tr> <td data-bbox="528 1144 762 1361">Statutory consent and consultation fees</td> <td data-bbox="762 1144 991 1361">Approvals from highway authorities and Historic England</td> <td data-bbox="1219 1144 1390 1361">10,000</td> </tr> <tr> <td data-bbox="528 1361 762 1435">Total</td> <td data-bbox="762 1361 991 1435"></td> <td data-bbox="1219 1361 1390 1435">134,000</td> </tr> </tbody> </table> <p data-bbox="528 1473 1442 1659">Please note that consultant fees are based on tendered rates against works value from the term structural consultancy contract for Bridge House Estates structures, with approximately 60% of this value being used to take the project up to Gateway 5</p> <p data-bbox="528 1697 1442 1765">A cost breakdown for the recommended option is appended to the report</p> | Item | Reason | Funds/ Source of Funding | Cost (£) | Staff Costs | Project Management and coordination of approvals | Bridge House Estates 50yr Repair & Maintenance Fund | 14,000 | Investigation Costs | To reduce construction stage risks | 50,000 | Consultant Fees | Detailed design and preparation of tender documents | 60,000 | Statutory consent and consultation fees | Approvals from highway authorities and Historic England | 10,000 | Total | | 134,000 |
| Item | Reason | Funds/ Source of Funding | Cost (£) | | | | | | | | | | | | | | | | | | |
| Staff Costs | Project Management and coordination of approvals | Bridge House Estates 50yr Repair & Maintenance Fund | 14,000 | | | | | | | | | | | | | | | | | | |
| Investigation Costs | To reduce construction stage risks | | 50,000 | | | | | | | | | | | | | | | | | | |
| Consultant Fees | Detailed design and preparation of tender documents | | 60,000 | | | | | | | | | | | | | | | | | | |
| Statutory consent and consultation fees | Approvals from highway authorities and Historic England | | 10,000 | | | | | | | | | | | | | | | | | | |
| Total | | | 134,000 | | | | | | | | | | | | | | | | | | |
| <p>3. Overview of project options</p> | <p>At Gateway 1/2, 3 principal options were identified, albeit only relating to the south approach viaduct at that time. These are now considered necessary to both north and south viaducts, based on a subsequent review of recent inspections on the condition of the north viaduct and identified water ingress issues</p> | | | | | | | | | | | | | | | | | | | | |

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| | <ol style="list-style-type: none"> 1) “Do nothing” and purely monitor the deterioration of structures in the immediate term during the current two-yearly inspection programme 2) (Recommended Option) Design and implement shallow depth waterproofing at road sub-base level and new kerb drainage to both viaducts, with sub-soil relief drainage installed to south viaduct arches 3) Design and implement waterproofing (at depth) directly to exposed structures for both viaducts, with sub-soil relief drainage installed to south viaduct arches. This option requires full exposure of existing structures and temporary diversion of services. |
| 4. Recommended Option | <ul style="list-style-type: none"> • Option 2 is recommended, to expedite waterproofing of both approaches in the most efficient way and relieve both approaches of active water ingress problems • Whilst option 3 – in removing all fill and attempting to expose the structural deck and waterproof this directly, below the levels of services – represents the best technical option theoretically, this is not recommended on economic and practical grounds due to the high congestion of services and the preclusive costs of diverting or accommodating these during the works • Option 1 (“do-nothing”) is not recommended, as it only delays the inevitable and will ultimately lead to degradation of structural condition if not addressed in a timely manner. |
| 5. Procurement approach | <p>As these works are on relatively low complexity and as 3-phased traffic management has been recently used successfully to implement similar works to Park Street Bridge (part of the south approach), there are not considered to be particular technical or logistical challenges that would warrant anything other than a traditional procurement process by competitive tender, with weighted scoring of cost and quality submissions. Early Contractor Involvement (ECI) or Design-and-Build procurement strategies are not considered appropriate for this project.</p> <p>Please also refer to appended PT4 form</p> |

Appendices

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| Appendix 1 | Project Coversheet |
| Appendix 2 | PT4 Procurement Form |
| Appendix 3 | Cost Summary of Recommended Option |
| Appendix 3 | Project Risk Register |

Contact

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Options Appraisal Matrix

| <i>Option Summary</i> | <i>Option 1</i> | <i>Option 2</i> | <i>Option 3</i> |
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| 1. Brief description of option | “Do nothing” (Monitor only) | Shallow depth waterproofing at road sub-base level and new kerb drainage to both viaducts, with sub-soil relief drainage installed to south viaduct arches | Waterproofing directly to exposed structures (at depth) for both viaducts, with sub-soil relief drainage installed to south viaduct arches |
| 2. Scope and exclusions | Involves only monitoring water ingress and structural degradation in the interim, at two yearly routinely inspection intervals | As described above. Excludes applying waterproofing directly to structure and the need for substantial diversion/support of utilities | Includes full removal of fill to structures, diversion/support of services and applying waterproofing directly to structure |
| <i>Project Planning</i> | | | |
| 3. Programme and key dates | Not applicable | Estimated 12-16 weeks works programme, targeted for construction in Q2 or Q3 of 2019/20, subject to agreement of permits with highway authorities (Southwark and City) | Estimated 16-20 weeks works programme, subject to agreement of permits with highway authorities and costs/programme for major utility diversions with statutory undertakers |
| 4. Risk implications | Overall project option risk: Red Structural degradation due to un-addressed water ingress | Overall project option risk: Green | Overall project option risk: Red High risk of excessive delays and costs involved in diverting |

| Option Summary | Option 1 | Option 2 | Option 3 |
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| | problems, with increased costs in the longer term | | and accommodating heavily congested services |
| 5. Stakeholders and consultees | <ul style="list-style-type: none"> Tenants of occupied spaces beneath viaducts | <ul style="list-style-type: none"> City of London & Southwark highway authorities Transport for London (cycle and bus lanes) Utility companies Local residents and businesses Historic England (via Local Planning Authorities) Tenants of occupied spaces beneath viaducts | |
| 6. Benefits of option | <ul style="list-style-type: none"> No perceived benefit, other than the lack of expenditure in the short term and lack of immediate disruption to public | <ul style="list-style-type: none"> Provides an efficient solution to protect the structure from salt-laden water ingress from carriageway runoff, whilst avoiding the costs and disruption of major utility diversions | <ul style="list-style-type: none"> Provides the best technical solution to protect the structure from salt-laden water ingress from carriageway runoff, as well as from leaking services (as applied waterproofing below the services zone directly to structure). |
| 7. Disbenefits of option | <ul style="list-style-type: none"> Merely delays the inevitable, while potentially leading to structural deterioration with subsequent increased remedial costs in the longer term | <ul style="list-style-type: none"> Waterproofing applied above the level of (congested) services, such that risks remain of small amounts of water from buried services being able to access the structure, if present. In the case of water within | <ul style="list-style-type: none"> Practically and economically impossible to achieve, due to the high congestion of services, including trunk HV electrical and BT services. Would also involve the breakout of dense concrete fill above structure, with the |

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| | | <p>cable ducts, this will tend to drain away from the structure due to the high longitudinal falls of the road (and ducts).</p> <ul style="list-style-type: none"> The bigger risk relates to leaking water mains, although these sources do not contain contamination from de-icing road salts which causes corrosion of embedded steel structure | <p>potential to do more damage from percussive vibration that the gains/protection achieved by implementing a new waterproofing system.</p> |
| <i>Resource Implications</i> | | | |
| 8. Total Estimated cost | <ul style="list-style-type: none"> Not applicable. Monitoring of structures is already funded as part of the term inspection contract | <ul style="list-style-type: none"> Estimated project cost (including risk) £1.68 Million | <ul style="list-style-type: none"> Not established in detail, due to unknown costs and impracticality of trunk services diversions, but expected to exceed £3M |
| 9. Funding strategy | <ul style="list-style-type: none"> Not applicable | <ul style="list-style-type: none"> Appropriate funding of £2.04M currently identified in BHE 50-year Repair & Maintenance Fund | <ul style="list-style-type: none"> Funding of £2.04M currently identified in BHE 50-year Repair & Maintenance Fund Further funding from within the 50-year plan would be required to implement this option |

| Option Summary | Option 1 | Option 2 | Option 3 |
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| 10. Investment appraisal | <ul style="list-style-type: none"> • Not applicable | | |
| 11. Estimated capital value/return | <ul style="list-style-type: none"> • Not applicable | | |
| 12. Ongoing revenue implications | <ul style="list-style-type: none"> • By not mitigating current water ingress issues will lead to deterioration of structure and increased future remediation costs | <ul style="list-style-type: none"> • Reduced future structural deterioration and reactive repair costs by reducing water ingress | |
| 13. Affordability | <ul style="list-style-type: none"> • Not applicable | <ul style="list-style-type: none"> • Adequate funds available in BHE 50-year plan • Represents the most efficient and economic solution to mitigate water ingress | <ul style="list-style-type: none"> • Restrictively expensive and impractical due to high services congestion and the need for major diversions • Would require additional funding from within the 50-year plan, for little practical benefits over Option 2 |
| 14. Legal implications | <ul style="list-style-type: none"> • In the longer term, potentially does not address the City's obligations in terms of maintaining Grade-listed structures to an appropriate standard | <ul style="list-style-type: none"> • Assists in satisfying the City's obligations in terms of maintaining Grade-listed structures to an appropriate standard | |

| <i>Option Summary</i> | <i>Option 1</i> | <i>Option 2</i> | <i>Option 3</i> |
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| 15. Corporate property implications | <ul style="list-style-type: none"> Water ingress to lettable property below the viaducts is a nuisance and potentially reduces the value of this asset | <ul style="list-style-type: none"> Condition of City-owned lettable space beneath viaducts will be improved by reduced water ingress and damp | |
| 16. Traffic implications | <ul style="list-style-type: none"> None | <ul style="list-style-type: none"> Disruption will be limited by the ability to accommodate phased working, enabling a single lane in each direction at all times as successfully used on similar projects. Temporary suspension of bus lanes will be required, as will restrictions to cycle route | <ul style="list-style-type: none"> As Option 2, but for a significantly greater period of time |
| 17. Sustainability and energy implications | <ul style="list-style-type: none"> Not applicable | | |
| 18. IS implications | <ul style="list-style-type: none"> Not applicable | | |
| 19. Equality Impact Assessment | <ul style="list-style-type: none"> Not applicable | | |
| 20. Data Protection Impact Assessment | <ul style="list-style-type: none"> Not applicable | | |

| <i>Option Summary</i> | <i>Option 1</i> | <i>Option 2</i> | <i>Option 3</i> |
|---------------------------|-----------------|-----------------|-----------------|
| 21. Recommendation | Not recommended | Recommended | Not recommended |