

Committee(s): Streets and Walkways sub Projects Sub	Date(s): 20 May 2013 16 May 2013	
Subject: Issue Report – Riverside Walk Millennium Bridge Area		Public
Report of: The Director of the Built Environment		For Decision

Summary

Dashboard

Project Status	Amber	
Timeline indicating project stage	Post Gateway 3-4 - Pre-Gateway 5	
Total Approved Budget	£1,123,305	
Spend to Date	Item	Cost
	Fees and Staff Costs	£85,292
	Works (Installation of Play/Exercise Equipment) Dec 2012	£32,404
	Total	£117,696
Overall project risk	Medium	

Brief description of project

Improvements to the Millennium Bridge Area relate to two areas: 1) Millennium Bridge Approach on the upper level, and 2) Paul's Walk on the Riverside Walk. See **Appendix A** for site location plan. The main aims of the project are to create an enhanced gateway to the City, with a new green public space on the Riverside Walk. The City of London School fronts onto this section of the walkway and is very supportive of the landscaping proposals. There is also a desire to undertake noisy works in the summer recess to limit disruption to the school.

In September 2012, Members agreed that the scheme valued at £1,473,305 be progressed to authority to start work stage, subject to the paving options for the Millennium Bridge Approach being finalised at a cost of £350,000. A trial of paving options was undertaken in December 2012. Members agreed that the preference was for the existing paving to be repaired and cleaned as part of the current maintenance regime. These works are currently under construction. Therefore, the revised approved project budget is now £1,123,305 (£1,473,305 - £350,000) funded from Section 106 receipts as set out in Table 1 Appendix F.

Completed Works

In September 2012 Committee had approved the design and installation of the play/sports equipment on Paul's Walk in advance of the main works, funded by the London Marathon Charitable Trust (£34,500). Appendix D contains an image of the installation. The funds were time-limited and had to be expended by December 2012. £32,404 of the £34,500 allocation was utilised to install play/sports equipment which was completed by 17th December 2012. See "Spend to Date" in the Dashboard above.

Issue

Paul's Walk (Riverside Walk)

This area of the Riverside is reclaimed land and there is a pipe subway (housing utilities) beneath the walkway. The design includes planting beds and therefore structural investigations are required to determine the depth, loading and drainage of these to ensure that there are no adverse impacts on the pipe subway and increased flood risk.

Weight/depth restrictions have been identified as a project risk from an early stage. An initial structural investigation has been completed. Three options for the planting design have been assessed:

(A) Planting in raised planting beds.

(B) Planting in sunken planting beds (sealed beds that would drain directly into the sewer).

(C) Planting in sunken planting beds (free-draining – soak-away).

This initial assessment has ruled out Option (A) because the calculations show that this will add too much loading onto the wall of the pipe subway and threaten its structural stability. This leaves options (B) and (C).

Option (B): Not Recommended – Planting in sunken planting beds (sealed beds that would drain directly into the sewer)

This option would enable the construction to proceed in summer 2013 which would coincide with the school's summer holidays and limit disruption to the school. A trial hole would be required to determine the composition of the sub-surface which would inform the design.

However, Paul's Walk sits below the level of the River Thames at high tide and is within the City's Strategic Flood Risk Assessment area and critical sewer flooding zone. This option would therefore put additional pressure on sewers that are already at risk of flooding. Under the 2010 Flood & Water Management Act of Parliament, the City Corporation was designated as Lead Local Flood Authority (LLFA), with statutory responsibility for co-ordinating measures to reduce flood risk within the City. This option is a departure from the City's approved Flood Risk Assessment (July 2012) and if it is taken forward, the City would be in conflict with the 2010 Act by undermining its role as LLFA.

Option (C): Recommended – Planting in sunken planting beds (free-draining – soak-away)

This option would enable excess water from the planters and the surrounding paving to be drained into the soil below, taking pressure off of the sewer system. This would amount to a form of sustainable urban drainage (SuDS) and would meet policy objectives in accordance with the City's Strategic Flood Risk Assessment and the Mayor of London's London Plan chapter on Water: 4A.14 Sustainable drainage (see Appendix E).

Because ground water levels in this area are determined by tidal flows which vary seasonally, City Engineers have advised that borehole tests are carried out to assess water levels before, during and after the high tide period, ahead of any further design development. High tides fall in March and September and so the earliest date that these tests would be carried out is from August to November. The City's consultant engineers and the City's Senior Drainage Engineer advise that these investigations are essential if this option is to be progressed as ground water levels are unknown and the planters need to be designed to take these levels into account.

Officers have sought quotes for these borehole tests and the lowest quote is £17,200 which includes monitoring for 3 months. Staff costs of £1,000 would also be required to manage these works. These costs cannot be met from the current design budget to reach Gateway 5, of which £16,000 is remaining and is allocated to design fees and staff costs to develop the design. The proposed investigations would also have an impact on the project programme because of the time required to complete them and the desire to carry out noisy works in the vicinity of the school in the summer recess. If Option (C) is progressed, it is proposed that the borehole testing and trial holes commence in August 2013 (to coincide with the school recess) and monitoring completed in November 2013. The design would then be developed and a Gateway 5 report submitted in February 2014 to enable works to start on site in May 2014 with the works programmed so that noisy works in front of the school take place in July and August 2014.

Recommendations

It is recommended that Members:

- i) Approve the additional costs of £18,200 (fees and staff costs) for Option C to enable the necessary ground investigations to take place on Paul's Walk, to be funded from the approved project budget.
- ii) Note that the project programme will be extended by nine months if Option C is approved.

Overview

<p>1. Success Criteria</p>	<ul style="list-style-type: none"> • An improved gateway and connection to the City, • Increased green coverage and places to rest, • Improvement of the condition and function of the City's assets • Enhanced lighting and a safer and more pleasant walking route • A reduction in anti-social behaviour • Reduced surface water flood risk 									
<p>2. Project Scope and Exclusions</p>	<ul style="list-style-type: none"> • A plan of the project area is included in Appendix A • A plan of the proposed survey area is included in Appendix B • A plan showing the extent of the City's main flood risk hotspots taken from of the City's approved Strategic Flood Risk Assessment is included in Appendix C 									
<p>3. Link to Strategic Aims</p>	<p>This project has links to the following strategic aim:</p> <p>To provide modern, efficient and high quality local services and policing within the Square Mile for workers, residents and visitors with a view to delivering sustainable outcomes</p> <p>This project will provide much needed amenity space and added asset value to the public realm for the benefit of local occupiers and the millions of visitors who use the area.</p>									
<p>4. Within which category does the project fit</p>	<p>Fully reimbursable</p>									
<p>5. What is the priority of the project?</p>	<p>Desirable</p>									
<p>6. Governance arrangements</p>	<p>Regular meetings with Senior Responsible Officer and officers from other departments. Consultation with local stakeholders and Ward Members</p>									
<p>7. Resources Expended To Date</p>	<table border="1"> <thead> <tr> <th>Item</th> <th>Cost</th> </tr> </thead> <tbody> <tr> <td>Fees and Staff Costs</td> <td>£85,292</td> </tr> <tr> <td>Works (Installation of Play/Exercise Equipment) Dec 2012</td> <td>£32,404</td> </tr> <tr> <td>Total</td> <td>£117,696</td> </tr> </tbody> </table>	Item	Cost	Fees and Staff Costs	£85,292	Works (Installation of Play/Exercise Equipment) Dec 2012	£32,404	Total	£117,696	
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<p>8. Last Gateway Approval</p>	<p>A Gateway3/4 report was approved in September 2012.</p>									

Issue

9. Issue Description

The design includes introducing new planting areas on Paul's Walk forming a green frame around the school. This will provide a greatly enhanced environment in this currently drab and under-utilised section of the walkway.

Following approval of the Gateway 3 / 4 report, initial structural investigations have been carried out to determine the final planting design for the Riverside walk. These investigations were required because of unknown ground conditions in this area which is comprised of reclaimed land with a pipe subway (housing utilities) running beneath.

Three main options for the planting design have been assessed:

(A) Planting in raised planting beds

(B) Planting in sunken planting beds (sealed beds that would drain directly into the sewer)

(C) Planting in sunken planting beds (free-draining – soak-away)

Option (A) Planting in raised planting beds

The initial structural assessments have ruled out **Option (A)** because the additional weight of the planters will put too much loading onto the wall of the pipe subway beneath, threatening its structural stability. Option A is not recommended.

Option (B) Planting in sunken planting beds (sealed beds that would drain directly into the sewer)

The City's Senior Drainage Engineer and Assistant Director of Engineering have stated that it is possible to create an enclosed planter which would house the planting beds. Excess ground water (drainage) would then be diverted towards the sewer. A trial hole would be required to establish the ground composition in order to finalise the design.

This option would utilise existing drainage infra-structure that would need to accommodate an additional discharge load related to an increase in planting coverage. This option would be able to be progressed quite quickly and the main construction works could then commence in the summer.

However, this option would not address the need to tackle flood risk management in this area of the City that is particularly susceptible to flooding. Members will be aware that under the 2010 Flood & Water Management Act of Parliament, the City Corporation was designated as Lead Local Flood Authority (LLFA), with statutory responsibility for co-ordinating measures to reduce flood risk within the City of London. Included in these new duties is the requirement for LLFAs to prepare a Flood Risk Strategy which should identify the significant flooding risks for the LLFA area and propose actions to be taken to reduce these risks - this would include the provision of a Sustainable Drainage System (SuDS).

This option would put additional pressure on the sewer system that is already at risk of flooding. Therefore, it would be a departure from existing Corporate Policy contained within the City's approved Flood Risk Assessment (July 2012), the advice of the Mayor of London's Drain London Board and the City's responsibilities as the Lead Local Flood Authority. Therefore the City would be in conflict with the Flood and Water Management Act of Parliament (2010) and undermine its statutory role and responsibility as Lead Local Authority if this option was progressed. Option B is not recommended.

(C) Planting in sunken planting beds (free-draining – soak-away)

This option would enable excess water from the planters and the surrounding paving to be drained into the soil below, taking pressure off of the sewer system by slowing the rate of discharge. This would amount to a form of sustainable drainage (SuDS) and would meet policy objectives in accordance with the City's Strategic Flood Risk Assessment and the City's role as the Lead Local Flood Authority (Flood and Water Management Act 2010).

The City's consulting engineers and the City's Assistant Director of Engineering (City Surveyors) consider that **Option (C)** is the most feasible way forward but have advised that, in order to progress this, further investigations are required.

These investigations are necessary for design development and the main reasons for requiring them are summarised below:

- To determine the ability of the ground to take an increased water discharge and inform the drainage design associated with additional planting coverage
- To ensure the integrity of the planter design and associated drainage design to accord with the City's approved Flood Risk Assessment in an area identified as susceptible to flooding.

The advice of the City's Assistant Director of Engineering and the City's consultant engineers is that the investigative works associated with Option C are essential in order for the design to be developed and approved by the City, in accordance with the Construction Design and Management Regulations 2007.

Option C is recommended.

Scope of works for Option C

- 1 X 10m deep boreholes (BH1 in Appendix B)
- The borehole to have a piezometer installed to allow water level readings over a period of 3 months
- Soils will be examined and tested to determine their composition and engineering properties
- Soils will be examined and tested for contamination
- 1 X falling head test within the borehole, to assess feasibility of drainage to soils at planter outlet depth

Officers have been advised to carry out the study at a location on Paul's Walk close to the City of London School and monitor the sub-structure to groundwater movement (**Appendix B**). The investigations will enable automatic readings of water pressures and soil testing and will take up to 3 months. However, the noisy part of the works (drilling the bore hole) will only take 5 days.

Following the initial 5 day installation period the monitoring equipment will be left on site for 3 months and checked on a daily basis by the contractor and secured outside of working hours.

The survey test work will be initiated in September 2013 as advised by the Senior Drainage Engineer to coincide with the highest point of the seasonal tide. The highest spring tides of the year occur after the equinoxes (when day and night are of equal length) in March and September. Doing the test in

September will therefore improve the integrity of the final design.

Due to the proximity of the City of London School, it is proposed to programme the noisy works (boring) in August 2013 to coincide with the school summer holiday period. This will limit disruption to the school. The subsequent on-site monitoring will begin in September and involve a frame installed on the City Walkway directly above the bore hole. Pedestrian access to the City Walkway and access to buildings will be maintained at all times.

Cost Tolerance at this Stage

The cost of carrying out the ground investigation study is currently beyond the fees budget tolerance approved by Members at Gateway 3/4 and so additional funds are sought from the overall project budget to enable this essential ground investigation work to be carried out.

The estimated cost of carrying out this work including fees and staff costs is £18,200. This is summarised in table 2 below:

ITEM	Approved design Budget (Up to Gateway 5) (£'s)	Proposed Budget May 2013 (£'s)	Difference (£'s)
<u>Fees:</u> Design work, ground investigation, survey work, permits	25,000 (£15,000 spent to date)	42,200	+17,200
<u>Staff Costs:</u> Management and supervision	20,000 (£13,000 spent to date)	21,000	+1,000
TOTAL	45,000	63,000	18,200

Three quotes have been sought from ground investigation companies and the cost of the lowest quote has been included in Table 2. The estimated staff time to carry out the management of this additional work is approximately 10-12 hours of staff time over the 3 month duration.

It is proposed that the cost of this additional investigation work is absorbed within the approved project budget. Therefore, the scheme design will be adjusted to suit the reduced budget with any changes reported in a subsequent issues report.

10. Last Approved Limit

Approved project budget £1,123,305, inclusive of £45,000 (for evaluation staff and fees) to reach Gateway 5.

11. Tolerance Granted	There was no tolerance granted regarding related staff costs and fees in the approved Gateway 3/4 report to Committee in September 2012.		
12. Cause	The initial structural/site surveys have resulted in the need to carry out further ground investigations – which are beyond the existing funding tolerance and programme approved by Committees in September 2012.		
13. Consequences	<p>If necessary ground investigations are not carried out then it will not be possible to make an informed decision about the detailed design of the planters on the riverside at Paul's Walk and design work cannot be progressed.</p> <p>If Option B is approved then construction can take place in summer 2013. It includes planting in sunken planting beds which would drain directly to the sewer. However, this Option will not meet the requirement to mitigate excess surface water discharge in an identified flood risk area adjacent to the River Thames and is not in accordance with the City's Strategic Flood Risk Assessment.</p> <p>Option C recommends planting in sunken planting beds but advocates free draining – soak away planters to manage excess surface water discharge and therefore the rate of discharge into the sewer. This approach is in accordance with the City's Strategic Flood Risk Assessment.</p> <p>If approved this Option would extend the project programme by 9 months to allow for the investigations to take place due to the seasonal tide.</p> <p>The advice of the City's engineers and the City's consultant engineers is that these works are essential in order to progress the design of Option C.</p>		
14. Options	Option	Options Description	Recommendation
	A	Planting in raised planting beds	Ruled out <ul style="list-style-type: none"> • Would add too much loading onto the adjacent wall of the pipe subway and threaten its structural stability - therefore not viable
	B	Planting in sunken planting beds (sealed beds that would drain directly into the sewer)	Not recommended <ul style="list-style-type: none"> • Would not mitigate excess surface water in a known flood risk area • In conflict with the Flood and Water Management Act of Parliament 2010 • Not in accordance with the City of London Strategic Flood Risk Assessment
	C	Planting in sunken planting beds (free-draining – soak-away)	Recommended <ul style="list-style-type: none"> • Would introduce a mechanism for managing excess surface water and potential for flooding in a known flood risk area • In accordance with the City of London Strategic Flood Risk

		Assessment and London Plan
15. Recommendation	<p>It is recommended that Members:</p> <p>i) Approve the additional costs of £18,200 (fees and staff costs) to enable the necessary ground investigations to take place for Option C on Paul's Walk, to be funded from the approved project budget.</p> <p>ii) Note that the project programme will be extended by nine months if Option C is approved.</p>	
16. Lessons	<ul style="list-style-type: none"> • It would have been beneficial to the overall project risk if the initial structural investigations were carried out prior to Gateway 3 / 4 • It is apparent that there is only a limited amount of known information about the ground conditions in this area of reclaimed land 	

Appendices

Appendix A:	Site location map
Appendix B:	Proposed map of survey area
Appendix C:	Plan of the City's main flood risk hotspots taken from of the City's approved Strategic Flood Risk Assessment (July 2012)
Appendix D	Image of the Play/Sport Equipment Installation
Appendix E	Extract from the Mayor of London's London Plan chapter on Water 4A.14 Sustainable drainage
Appendix F	Table 1: Approved Funding Sources breakdown from Section S106 receipts

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