

Transport and Environment Committee

10.00am, Tuesday, 28 October 2014

Water of Leith Flood Protection Scheme Phase 2 Project Update

Item number	7.1
Report number	
Executive/routine	
Wards	06 - Corstorphine/Murrayfield 11 - City Centre

Executive summary

This report provides an update on Water of Leith Flood Prevention Scheme Phase 2 including details of a revised scope for the scheme, funding arrangements, project governance drawing on lessons learned from Phase 1, procurement and programme.

Links

Coalition pledges	P28
Council outcomes	CO15 , CO21
Single Outcome Agreement	SO4

Water of Leith Flood Prevention Scheme Phase 2 Project Update

Recommendations

- 1.1 It is recommended that Committee:
 - 1.1.1 approves the revised scope of works for the Water of Leith Flood Prevention Scheme Phase 2;
 - 1.1.2 notes realignment and transfer of existing Services for Communities (SfC) capital budgets to fund the shortfall on Phase 2 subject to full Council approval;
 - 1.1.3 notes the governance arrangements on the project which have been developed taking on board the lessons learned from Phase 1;
 - 1.1.4 notes the Design and Build procurement route and that further detailed work is now being carried out in conjunction with the City of Edinburgh Council (CEC) Legal and Procurement in developing the contract structure to support this approach;
 - 1.1.5 notes the outline programme set out in this paper; and
 - 1.1.6 notes that an order will need to be placed with Scotia Gas Networks before the end of 2014 and that approval to enter into any contract will be sought from the Finance and Resources Committee.

Background

- 2.1 In 2012 the Council identified a shortfall in funding for the Water of Leith Flood Prevention Scheme Phase 2 works. As a result, the Council asked Arup to consider options for prioritising sections of the Phase 2 works in order to develop a reconfigured scheme within the available budget. An options appraisal exercise was carried out and a report produced outlining a possible reconfigured scope, the potential mitigation measures which could be adopted and the associated risks.
- 2.2 At the end of 2013 a dedicated CEC project manager was assigned to the Water of Leith Flood Prevention Scheme Phase 2 and a review of the work done by Arup in 2012 commenced in January 2014.

- 2.3 This review and re-appraisal of options was carried out in parallel with a public consultation exercise and an engagement with key stakeholders through the project Stakeholder Engagement Group.
- 2.4 The review is now complete and a reconfigured scheme has been approved by the project Oversight Group.
- 2.5 Minor amendments to the existing planning permissions were submitted in August 2014 and the project is now gearing up to commence procurement.
- 2.6 This report provides a brief overview of the reconfigured scheme and the funding arrangements, it also sets out the governance arrangements now in place on Phase 2, the high level procurement strategy and an outline of the programme prior to construction commencing.

Main report

Scope of Works and Funding

- 3.1 Given the budget shortfall set out below a review of the Water of Leith Flood Prevention Scheme Phase 2 commenced in January 2014 and public open days were held on 20 February and 30 July 2014 as part of a wider consultation exercise. The review is now complete and has concluded that some works will need to be deferred and that efforts should be concentrated in the Murrayfield/Roseburn Park area as this contains the majority of properties that would be affected in the event of a flood.
- 3.2 Outline details of the reconfigured scheme are as follows:
 - a) Defer all works downstream from Corstorphine Road and defer works on Corstorphine road between Kwikfit and the Mazda/Nissan dealership, but consider some local mitigation measures in the form of flood guard defences to limited properties;
 - b) Omit Stank Burn Pumping Station from the scheme;
 - c) Omit sheet piles from embankments and use structural fill in lieu of as-dug material;
 - d) Retain existing Roseburn Park wall with the requisite heightening and strengthening works carried out in the north east corner of the park;
 - e) Realign flood defence wall behind properties on Baird Grove to minimise disruption during construction;
 - f) Replace gravity wall at 100 to 106 Baird Drive with sheet piled wall to remove requirement to underpin properties; and
 - g) Construct the permanent defences between Saughtonhall Avenue Bridge and Riversdale Crescent.

- 3.3 The reconfigured scheme is estimated to cost £25.241m including a provision for risk taking on board lessons learned from Phase 1. It should be noted that the estimated construction costs for the scheme are considerably lower than the overall budget.
- 3.4 Funding for the reconfigured scheme has been discussed at the project Oversight Group and a recommendation was submitted to the Finance and Resource Committee in August that budgets are realigned in the SfC Capital Investment Programme and funds transferred from previously approved projects to fund the shortfall on the reconfigured Water of Leith Phase 2. The table below provides an overview of the funding sources.

Capital Budget transferred to fund shortfall	Comments
SfC Capital Contingency	Amalgamation of various project under spends
Food Waste	Under spend on project
West End Public Realm	Under spend on project
WoL Phase 1	Transfer from project budget after considering future compensation events. Exercise carried out by Water of Leith Working Group to consider possible future claims and consensus reached on prudent allowance for future expenditure. Outstanding budgets reallocated on this basis.
Braidburn	Transfer from project budget after considering future compensation events. Exercise carried out by Water of Leith Working Group to consider possible future claims and consensus reached on prudent allowance for future expenditure. Outstanding budgets reallocated on this basis.
Carriageway/Footway Works [block]	Transfer from block budget with commitment that any future budget savings and under spends elsewhere in the SfC capital programme will be used to reinstate this transfer

- 3.5 At its meeting of 28 August 2014 the Finance and Resources Committee, in approving the revised Capital Programme for 2014–2019, noted the proposed realignment of capital budgets to fund the shortfall on Phase 2. Council subsequently approved this realignment on 25 September 2014.

Project Governance

Lessons Learned from Water of Leith FPS Phase 1

- 3.6 There are a number of lessons learned identified from Phase 1 that have been taken on board in developing the delivery strategy for Phase 2. These are set out below and form the basis for the approach set out in this report.
- Re-affirming the Senior Reporting Officer (SRO) and Sponsor roles to provide strong leadership with central commercial oversight of the project;
 - The appointment of a Council Project Manager to mitigate an over-reliance on an external project management company;
 - Closer monitoring of the project to pick up on early warnings;
 - Carrying out an independent review of contract and design adequacy;
 - Improving the understanding of contractual risk allocation;
 - Carrying out comprehensive ground investigation to mitigate as far as possible against unforeseen ground conditions;
 - Recognising and dealing with were risks associated with the diversion of public utilities;
 - Ensuring the award criteria for Phase 2 balances price and quality;
 - Developing robust change management procedures to deal with scope change on the project;
 - Taking account of possible flooding while the Works are being carried out;
 - Agreeing mitigation measures and risk allocation in relation to protesters;
 - Ensuring papers being submitted to the project oversight group are clear and provided in a timely manner;
 - Carrying out regular CPO Assurance Reviews to provide an objective assessment of progress being made on the project; and
 - Dealing with key issues which led to disputes with the Contractor on Phase 1 in relation to piling, temporary flood defences, access and perceived ambiguities in the contract documentation.

Core issues

- 3.7 Regarding the core substantive issues on Phase 1 it is clear that encountering ground conditions and public utilities different to those anticipated when the work was tendered was a contributory factor in the cost and time overrun. As the design was developed by the Council's technical advisors the Contractor was able to make claims in relation to the buildability of the design. This is one of the factors considered in reaching conclusions below regarding the Design and Build form of contract for Phase 2. Additional ground investigations are also being carried out for Phase 2 to supplement those carried out previously.
- 3.8 Another issue highlighted by the Phase 1 team relates to the award criteria applied in selecting the Contractor to construct the works. The award criteria were heavily weighted in favour of cost which led to quality issues once the works were on site. The weightings for Phase 2 will be subject to an options analysis and various pricing and quality scenarios will be tested prior to finalising the criteria.
- 3.9 A third key point to note in respect of Phase 1 is the robustness of the contract documentation. This could have been more robust in relation to the allocation of risk, measurement of the works and the Council's requirements in relation to accommodation works. On Phase 2 a detailed analysis of all risks is being carried out and a dedicated technical drafter has been appointed to draft the works requirements for the project. The Commercial Manager for the project is an expert in the NEC form of contract and will be taking a hands-on approach to developing the contract in conjunction with the Council's legal team and external legal advisors. It is also anticipated that a claims review will be carried out prior to the tender documents being released.

Oversight and Working Groups

- 3.10 The Acting Head of Transport has been confirmed as the Senior Responsible Officer (SRO) for the project and an Oversight Group has been established with formal terms of reference to ensure strong leadership. Key sponsors are represented at the Oversight Group including the Head of Corporate Programmes and Head of Finance. A Working Group has also been established with formal terms of reference and this group includes representation from Finance, Legal and Procurement as well as other key Council departments.
- 3.11 The Oversight Group meets on a bi-monthly basis or more regularly as required. The Working Group meets monthly and a list of Early Warnings and Issues are standing items on the Working Group Agenda utilising the project progress report which is produced on a monthly basis and is submitted to the Corporate Programme Office. Any key issues identified by the Working Group are then escalated to senior management at the Oversight Group. Formal Terms of Reference for both groups are set out in Appendix 1.

Risk Management

- 3.12 A process has now been put in place whereby Legal and Procurement will work closely with the project team in reviewing and agreeing the commercial framework for Phase 2.
- 3.13 In carrying out this exercise an in depth review of all project risks is being undertaken and risks are being formally allocated prior to the construction contract being drafted. Risks will generally fall into one of three categories. Firstly they may be retained by the Council in instances where the cost of risk transfer is prohibitive, there is no market appetite for the risk and/or the risk is best managed by the Council. Secondly a decision may be taken to seek to transfer the risk to the works contractor, this will be done after considering standard industry practice, whether the counter party has sufficient information to realistically price and manage the risk and/or if transferring the risk will provide optimal value to the Council. The third category is where it is considered prudent to share risks between the Council and the contractor and there are provisions within construction contracts to regulate the governance of risk sharing.
- 3.14 There is always a fine balance in apportioning risks in a construction contract and the project will draw on expertise within the project team together with legal and procurement input in finalising the apportionment exercise.

Roles and Responsibilities

- 3.15 Roles are clearly defined in the terms of reference for the Oversight and Working Groups. A dedicated Council Project Manager has been appointed through an agency and is acting on behalf of the Council in respect of all project related matters. The Project Manager attends both the Working and Oversight group meetings and is accountable for all matters relating to project delivery. Since commencing on the project the Project Manager has assembled a small project team to manage the preliminary stages of the project which is made up of Council staff, an agency construction manager, a consultant engineer and a consultant commercial manager. With the exception of the engineer the project team is based in Waverley Court and is working to all Council processes and procedures.

Internal Assurance Reviews

- 3.16 In line with Council best practice it has been agreed with the Corporate Programme Office (CPO) that internal Assurance Reviews of the project will be carried out starting in September 2014. These reviews have been scheduled to take place at the following key milestones:
- Prior to the publication of an OJEU Notice for the main construction contract;
 - Prior to Tender documents being released for the main construction contract; and
 - Prior to the award of the main construction contract.

- 3.17 These Assurance Reviews will follow standard CPO procedures and the findings will be reported to the Oversight Group and senior management.

Independent Reviews

- 3.18 An initial review of the design for Phase 2 has been undertaken by CH2M Hill and the findings of the review are being incorporated into the development of the delivery strategy for Phase 2. The review did not find any fundamental issues with the design although recommendations included making provision for additional ground investigation and consolidating information relating to site logistics. The Contract documentation for Phase 2 is currently being prepared and this will be reviewed by the project team and external legal advisors prior to tenders being issued. Consideration is also being given to carrying out a claims review prior to contract award.

Procurement

Design Options

- 3.19 Prior to selecting the appropriate Form of Contract for Phase 2 consideration was given to the allocation of risk as it relates to design. The client design approach taken on Phase 1 proved to be unsuccessful with some significant risks retained by the Council, particularly in relation to design changes and physical conditions on site.
- 3.20 If the Council was to retain responsibility for design in the delivery of Phase 2 it would largely be retaining the same risks as those that contributed to the problems encountered on Phase 1 (albeit there could be some reallocation of risk to take on board some of the lessons learned from Phase 1). The approach would also provide little or no scope for innovation by bidders in a competitive environment although it is recognised the scope for innovation will be limited given the constraints laid down by the statutory powers. There are always risks in separating out the design from the build element and an opportunity exists on Phase 2 to reallocate the risks in such a way as to provide the Council with additional protection from claims that are related to design issues and/or deficiencies in the design.
- 3.21 Adopting a design and build approach to Phase 2 could counter some of the risks experienced on Phase 1 and would provide the Council with an opportunity to allow the market to carry out a due diligence exercise on the existing Arup design as part of the tender process. Moving to a design and build model would also mean transferring the majority of the design risk to the contractor and in doing so the bidders would be incentivised to carry out the required level of due diligence. The design element would be a detailed design based on the parameters of the original Flood Prevention Order, with the contractor thereafter taking responsibility for construction of its own design. A more detailed description of the advantages and disadvantages of the design and build approach can be found in Appendix 2.

- 3.22 Based on the observations above and the points set out in Appendix 2 a recommendation was made to the Water of Leith Flood Prevention Scheme Phase 2 Oversight Group that the project should be delivered using a design and build approach. Further detailed work is now being carried out in conjunction with CEC Legal and Procurement in developing the contract structure to support this approach and this will be subject to independent legal review prior to the tender documentation being released.

Programme

- 3.23 Based on a Council funding decision in September 2014 a notice will be published in the Official Journal of the European Union (OJEU) seeking expressions of interest from potential tenders.
- 3.24 The scheme procurement is likely to take approximately 12 months from publication of the OJEU which allows time for tender preparation, prequalification of tenderers, tender and outline design, tender evaluation, assurance reviews and all necessary committee approvals.
- 3.25 An advanced works package to divert a 600mm gas main is required prior to the main works commencing and an order will need to be placed with Scotia Gas Networks in autumn 2014 to allow works to commence in spring 2015. Approval to proceed with the advanced works will be sought from the Finance and Resources Committee.
- 3.26 The programme set out above is contingent upon the Council reaching final agreement with the Scottish Rugby Union (SRU) in relation to the transfer of land and some outstanding technical issues. Discussions with the SRU since January 2014 have been productive although final agreement is yet to be reached.

Measures of success

- 4.1 Modifications to the spillways at Threipmuir, Harlaw and Harperigg Reservoirs in 2010 are helping to reduce the risk of flooding downstream. This benefits all risk properties along the length of the watercourse by providing additional storage capacity when storms occur.
- 4.2 Full Phase 2 is seeking to provide 1:200 year protection to over 400 properties – over 200 of which are residential properties directly affected by a flood event. The project will also provide protection to the national rugby stadium and Murrayfield Ice Rink.

Financial impact

- 5.1 The reconfigured scheme is estimated to cost £25.241m and a paper was submitted to the Finance and Resource Committee on 28 August 2014 outlining how Services for Communities have realigned budgets and transferred funds within the existing Capital Investment Programme from previously approved projects to fund the shortfall on the reconfigured Water of Leith Phase 2. The paper has been referred to full Council for approval on 25 September 2014.
- 5.2 The budget for the reconfigured scheme has been re-assessed and includes provision for construction risk and a contingency sum for unforeseen events.
- 5.3 Monthly financial reporting is now in place through the Working Group, Oversight Group and Corporate Programme Office and any significant issues likely to increase the overall funding requirement will be flagged early to ensure the necessary mitigation measures are put in place.

Risk, policy, compliance and governance impact

- 6.1 Given the cost overruns of previous flood defence schemes a lessons learned exercise was carried out and measures have now been put in place to mitigate the issues that contributed to previous cost overruns.
- 6.2 The project has developed a comprehensive risk register and this is being used to develop the risk apportionment under the construction contract.

Equalities impact

- 7.1 A Record of Rights and Equalities Impact Assessment has been carried out for this report.

Sustainability impact

- 8.1 As part of the planning process, an environmental impact assessment was carried out and an action plan prepared for each Phase of the Scheme. The environmental impact of the scheme is mitigated by the agreed action plan which will be included in the contract documentation for Phase 2. This defines the Contractors' work methods and the restoration of the areas post construction.

Consultation and engagement

- 9.1 Consultation has been undertaken several times during the course of the project:
- 9.1.1 Promotion of the Flood Prevention Order in April 2003;
 - 9.1.2 Planning Application of November 2003 (Planning Application Ref 03/04204/CEC);
 - 9.1.3 Planning Application of February 2008 (Planning Application Ref 08/00609/FUL);
 - 9.1.4 Modified Flood Scheme consultation in September 2005;
 - 9.1.5 Confirmed Scheme (Flood Prevention Order) in March 2007; and
 - 9.1.6 Reconfigured Flood Scheme February 2014 and July 2014 as well as bi-monthly Stakeholder Engagement meetings and direct contact with residents immediately adjacent to the works.

Background reading/external references

None Required.

John Bury

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Links

Coalition pledges	P28 – Further strengthen our links with the business community by developing and implementing strategies to promote and protect the economic well being of the city
Council outcomes	CO15 – The public are protected. CO21 – Safe – residents, visitors and businesses feel that Edinburgh is a safe city.
Single Outcome Agreement	SO4 – Edinburgh’s communities are safer and have improved physical and social fabric
Appendices	Appendix A – Advantages and Disadvantages of Design and Build

Appendix 1

Terms of Reference for Project Oversight & Working Groups

Oversight Group

Purpose

The Group's purpose will be to drive forward and deliver the agreed outcomes and the benefits of the project through scrutiny and guidance of each phase of the project.

Objectives of the Group

For the Water of Leith Flood Prevention Scheme the Oversight Group will

- define the acceptable risk profile and risk thresholds of the project
- set the delegated authority rules and the escalation protocol within which the project must operate
- ensure that the project delivers within its agreed parameters (cost, time, organizational impact, benefits)
- resolve strategic issues taking into account engagement with stakeholders
- understand and manage the impact of change, including appropriate change control processes
- consider risks and issues escalated to the Oversight Group
- consider appropriate action to manage dependencies with other areas of the Council
- ensure the appropriate skill levels and resources are deployed on the project
- set project tolerances (including financial and degree of delegation)

Meetings

The group will meet at two month intervals, at times and locations to be confirmed.

Status reports will be provided by the Project Management Team on

- Programme/progress
- Finance and commercial
- Risk
- Issues requiring escalation
- Key milestones
- Dependencies
- Benefits

- Change control
- Tolerances
- 3rd Party Compensation

Standard attendee list:

Chair - SRO

Vice Chair - Head of Corporate Programmes

Group members - Head of Finance

Advisors to the group - Major Projects Manager (Corporate Programme Office), Traffic and Engineering Manager, Legal Services Manager

Project team – Water of Leith Flood Prevention Client Project Manager and NEC Project Manager (At appropriate time)

Standard Agenda Items

- Actions from previous meeting
- Highlight Report (Project Manager)
- Issues referred from Working Group
- Programme
- Costs
- Risk and Issues registers
- Compensation
- AOCB

Project Tolerances

The Oversight Group will decide on all matters affecting project delivery within the approved 5 year Capital Investment Programme project budget for the project subject to contract standing orders and the scheme of delegation. Matters which fall outwith the above will be referred to the relevant committee of the Council.

Working Group

Purpose

The Group's purpose will be to scrutinise / monitor the management and progress of the Water of Leith Flood Prevention Project and provide support to the Oversight Group.

Objectives of the Group

For the Water of Leith Flood Prevention Scheme the Working Group will

- scrutinise the information provided by the Project Manager to ensure that the directions given by the Oversight Group are carried out
- scrutinise in detail the day-to-day management aspects of the Water of Leith Flood Prevention Scheme and take decisions, within agreed tolerances, on programme, budgets, and on matters referred by the Project Manager
- refer decisions outwith agreed tolerances to the Oversight group
- report to the Oversight Group and make recommendations on matters requiring resolution
- receive reports from and instruct the Project Manager in relation to changes and project tolerances as defined by the Oversight Group
- ensure project delivery within agreed parameters (cost, time, organisational impact, benefits)
- manage the impact of risk and change, including appropriate change control processes within the tolerances set by the Oversight Group
- manage risk and issues delegated by the Senior Responsible Officer and where appropriate escalate to the Oversight Group

Meetings

The group will meet every 4 weeks (or more frequently as required) intervals at times and locations to be confirmed.

Project status reports will be provided by the Project Managers on

- Programme/progress
- Finance and commercial
- Risk
- Issues requiring escalation
- Key milestones
- Dependencies
- Benefits
- Change Management requests
- 3rd party compensation

Standard attendee list:

Chair - Traffic and Engineering Manager

Group members - Legal Services, Finance, Corporate Communications, Planning, Estates, Corporate Programme Office, Procurement (as required), Neighbourhood Team (as required)

Advisors - Maintenance Manager, Project Manager

Suppliers for some items on the agenda - Representative from Consultant & Representative from Contractor

Standard Agenda Items

- Feasibility
- Detailed design
- Site supervision
- Finance (budgets)
- Programme
- Risk/Issues Registers
- Early Warnings/Contractual Matters
- Legal Matters
- Property/Land Matters
- Planning Matters
- Communications
- Change Management
- 3rd party compensation

Papers on the various issues to be discussed at the Working Group will require to be circulated at least 7 days in advance of meetings

Project Tolerances

The Working Group can make decisions on matters which will increase individual elements of the project costs by less than £50,000 individually or £250,000 aggregated subject to the overall project cost remaining within the approved 5 year Capital Investment Programme budget for the project.

The Working Group can make decisions on matters which will delay delivery of the completion date for the project programme by less than one month

The Working Group can make decisions on matters relating to 3rd party compensation subject to remaining within the approved project budget for compensation.

Anything which will exceed the above tolerances must be referred to the Oversight Group

Appendix 2

Advantages & Disadvantages of Design & Build

Some of the advantages and disadvantages of the design and build approach are:

Advantages of Design and Build

- Single point responsibility - The contractor is responsible for the design and the construction. Therefore the Council would have a single point of responsibility and liability against the contractor. This is more advantageous than the traditional forms of contract where the Council has entered into separate construction and design agreements;
- Acceptance of design - Because the contractor is responsible for the design and the construction, the contractor and its supply chain are involved in the production of the design to be used, and hence 'buy-in' to that design. Also, it follows that the design is more likely to be 'buildable' than may be the case under other procurement methods;
- Cost certainty - It is generally the case that, as the contractor can use its experience and expertise in providing a design that allows it to buy goods and services which allows it to obtain the best buying margins, the design and build procurement route can be more cost effective and can provide more cost certainty - provided, of course, that the Council does not continually change the brief; and
- There is less client management/consultant involvement required during construction, and this therefore results in lower direct management costs and consultants' fees for the Council.

Disadvantages of Design and Build

- The initial price may be higher as the contractor may build into his price a 'risk premium'. This however provides the Council with more transparency on price, prior to awarding the construction contract and may lead to overall better cost certainty;
- Post-contract variations can be more expensive, and it is often more difficult to monitor the additional charges raised (particularly where works are priced on the basis of a specification and drawings). In the case of the Water of Leith Phase 2, however, the budgetary constraints are likely to dictate that there will be very few changes to the requirements;
- The client has less control and influence over design matters and there is not as much flexibility in the contract if the Council wishes to change a criteria such as a stakeholder requirement. While this can be troublesome it can also act as a deterrent to late Council changes as the cost of such changes can be prohibitive;
- There can be difficulties in defining the scope of the work under a performance specification and key decisions will need to be made in relation to matters such as seepage and load criteria. To counter this the project team intends employing an external "Technical Author" with experience of design and build contracts;

- There may be a conflict between the client's requirements and the contractor's proposals unless both documents are carefully checked. This conflict can be obviated by making it clear in the contract which document takes precedence. This is relevant to Phase 2 as the contractor's proposals and design are likely to be derived from the Arup flood model and care will need to be taken in contract drafting to mitigate any risk to the Council;
- Design quality - Because it is often perceived that the contractor is driven by price rather than by design standards, it is often considered that the design and build procurement route is not the appropriate route to use where a high quality design is required, unless a robust specification is included within the client's requirements. This however applies more to high profile structures and buildings and is not likely to be an issue on Phase 2.