East Lothian Council

REPORT TO:	Special East Lothian Council
MEETING DATE:	23 January 2024
BY:	Executive Director for Place
SUBJECT:	Musselburgh Flood Protection Scheme – Presentation of the Outline Design

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1 PURPOSE

1.1 To present the updated Outline Design of the Musselburgh Flood Protection Scheme (the Scheme) to Council, and to ask Council to approve commencement of Project Stage 5 (which is named 'Statutory Approvals') to allow the Scheme's design to advance.

2 RECOMMENDATIONS

2.1 It is recommended that Council:

a) Notes the considerable work which has been done by the project team to complete the Outline Design and Environmental Impact Assessment (EIA) following the public exhibition in June 2023;

b) Notes the considerable work done to advance the Outline Design through an extensive consultation process with regulatory organisations, key stakeholders, community groups, businesses and the people of Musselburgh since the Preferred Scheme was approved by a meeting of Cabinet in January 2020;

c) Notes that feedback received through the consultation process has been incorporated into the Outline Design, where doing so was considered appropriate for the design and/or compatible with the Council's capacity to operate and maintain the Scheme once constructed;

d) Confirms that the Outline Design of the Scheme is now developed sufficiently to allow the current stage of its development to be concluded so the design can be formally presented to the Scheme's stakeholders and the public through the formal consultation processes of the Flood Risk Management (Scotland) Act 2009 (the FRM);

e) Approves the commencement of the next stage of the project (Project Stage 5, which is named ‘Statutory Approvals’) in accordance with the Scheme’s PRINCE2 Project Management System, including the formal ‘notification’ of the Scheme under the FRM based on the Outline Design as presented through this report;

f) Notes that approval to undertake formal ‘notification’ of the Scheme during Project Stage 5 of the project does not constitute legal confirmation of the Scheme itself, which remains subject to conclusion of the statutory process set out in the FRM and its associated regulations;

g) Notes the revised estimated cost of £53.9 million for the Scheme, which is an updated estimate compared to the £43.5 million reported to Council in October 2022, and that the increase in cost is primarily due to the increased quality of the Scheme further to the consultation process alongside inflation costs in the period. That this remains an estimate and that this estimate is expected to increase before final delivery is confirmed in the future;

h) Notes the revised estimated cost of £52.1 million for the works to the Ash Lagoons Seawall to make it part of the scheme, which is an updated estimate compared to the £52.4 million reported to Council in October 2022. That this remains an estimate and that this estimate is expected to increase before final delivery is confirmed in the future;

i) Notes the revised estimated cost of £26.5 million for investment in active travel in Musselburgh, which is an updated estimate compared to the £122,000 reported to Council in October 2022, and that this huge increase in cost is due to only the first part of the 100% Sustrans funding having been presented in that last report. That this remains an estimate and that this estimate is expected to increase before final delivery is confirmed in the future;

j) Notes that together these three projects achieve the objectives of Council to deliver multiple benefits and that together they comprise a combined capital investment in Musselburgh of £132.5 million. That this remains an estimate and that this estimate is expected to increase before final delivery is confirmed in the future;

k) Notes that for the first time, and primarily for the purposes of Scheme approval under the legislation, that the works to the Ash Lagoons Seawall are now being formally designated as flood protection scheme operations;

l) Notes that these cost estimates are all Net Present Value costs and have been developed in accordance with the appropriate estimation techniques for infrastructural projects under the HM Treasury Greenbook and other appropriate guidance. Further that the use of Optimism Bias continues to be used on the construction works estimates and that a rate of 45% has generally been used within the numbers presented in this report;

m) Notes that there remain significant risks associated with the delivery of the Scheme and its constituent multiple benefit projects; however, it is highlighted that this report does not constitute a final decision to deliver these projects. An update on these risks will continue to be provided within each future report to Council before Council takes a final decision; and

n) Instructs the project team to return to Council at a future date for either a 'Decision' or a 'Preliminary Decision' on the Scheme, as defined in the FRM, following the conclusion of the statutory '28-Day Objections Period' set-out in the FRM and referred to in Section 3.2.

3 BACKGROUND

3.1 General

3.1.1 Musselburgh has a significant flood risk. The town has a history of flooding from the River Esk with the last major flood occurring in August 1948. This risk is projected to become larger due to the impacts of climate change.

3.1.2 The town also has a flood risk from the Firth of Forth. The present-day risk from the Firth of Forth is less extensive than that from the River Esk today, with areas of flooding limited to the mouth of the River Esk by Loretto Newfield / Mountjoy Terrace and the Esksides up the River Esk as far as the Rennie Bridge. The impact of climate change during the lifetime of the Musselburgh Flood Protection Scheme (the Scheme) is projected to make the future flood risk from the coast greater than that from the River Esk.

3.1.3 In May 2016 a meeting of East Lothian Council's Cabinet approved the Local Flood Risk Management Plan for the Forth Estuary Local Plan District which included a proposed flood protection scheme for Musselburgh.

3.1.4 From 2016 until January 2020 the Scheme was established as a project and undertook the early stages of development. This saw the following take place (this list provides an example of key activities and is not an exhaustive list):

a) Project establishment, including processes and governance;

b) Procurement of Turner & Townsend for Project Management Services;

c) Procurement of Jacobs (formerly known as CH2M) as Design Consultant;

d) The initial development of the Catchment Hydrology and Hydraulic Model and then the production of the 'Model A' flood maps deriving from that model;

e) The establishment of contact with relevant Regulatory Authorities, key stakeholders, and the people of Musselburgh;

f) The undertaking of project surveys to collect data that is required for project design, development, and the environmental impact assessment: e.g. ecology; topography; ground investigation, etc.;

g) The identification of possible flood risk reduction options and then a comprehensive Options Appraisal Process (OAP) leading to the identification of the preferred combination of options (which is known as the Preferred Scheme) to deliver the project objectives; and

h) Holding two public exhibitions over a combined five days at The Brunton in 2019. The formal Public Exhibition Number 1 was held in July and was to consult on the flood risk and the flood risk reduction options. The comments collected from the public were considered in the OAP through the process that led to the 'Preferred Scheme' being identified.

3.1.5 In January 2020, a report was presented to East Lothian Council's Cabinet at the end of the Scheme's Project's Stage 3 (which is named 'Options Appraisal Process'). This presented an update on the development of the Scheme and requested approval of the proposed 'Preferred Scheme', the cost of which was then estimated at £42.1M. This was a Net Present Value Cost, based on the concept design, and estimated in Quarter 2 of 2019 (Q2-2019). The recommendations of that report were approved and are paraphrased as:

a) To note progress since 2016;

b) To approve the 'Preferred Scheme';

c) To approve commencement of the next stage of the Scheme development (Stage 4 – which is named 'Outline Design') in accordance with the Scheme's PRINCE2 Project Management System; and

d) To seek multiple benefits with other projects.

3.1.6 This project is primarily intended to provide a high level of flood risk reduction to the town of Musselburgh. The Scheme's Project Objectives report confirmed that the aspiration is to provide protection against a major flood event such as the one that took place in August 1948. Such protection would also provide protection from all smaller flood events up to and including the design event. The Scheme will not remove the risk of flooding: there will always remain a residual risk that a flood larger than the Scheme is designed to protect against could come along. This is unavoidable as Musselburgh has been built on natural flood plains. It is also noted that the project team have identified that the projected increase in flood risk due to climate change is not necessarily easy for the people of Musselburgh to accept, and that this challenge is compounded when it is recognised that the Scheme must choose one possible climate change future scenario out of many possible futures, to protect against. This report provides further detail on flood risk in Section 3.3.

3.1.7 The Scheme was not set up to protect Musselburgh against the scale of coastal erosion now identified. Council is being updated on this risk

through a report in January 2024, and there is further detail on this matter in Section 3.3.6.

3.2 The Flood Risk Management (Scotland) Act 2009 (the FRM)

3.2.1 The Scheme is being advanced in accordance with a statutory procedure as defined in the FRM, its associated regulations, and non-statutory guidance.

3.2.2 For this Scheme, the next step in the procedure, as recommended in this report, is for the Council to 'give notice' of the proposed flood protection scheme in accordance with the requirements of the FRM. For the Scheme to remain eligible for funding under Cycle 1 of the Scottish Government's flood protection programme, 'notification' of the Scheme's must be achieved by 31 March 2024.

3.2.3 Once the Scheme is formally 'notified', the public may inspect the proposals for a defined period in accordance with Paragraph 2 of Schedule 2 of the FRM. For 28 days after the commencement of that period any person may submit a written objection to the proposals in accordance with the processes defined in the FRM. This period, when objections may be submitted, is known as the '28-Day Objections Period'. These processes, and details of where and / or how the Scheme Documents may be viewed by the public will be confirmed in writing to the public through the formal notice when the Scheme is formally notified by the Council.

3.2.4 The FRM sets out the procedure for determining the validity of any objections received, and the steps to be taken if any are received. This process of consideration and next steps will only commence after the conclusion of the 28-Day Objections Period.

3.2.5 If no 'valid' objections are received by the conclusion of the 28-Day Objections Period, then Council must take a decision to either confirm the proposed Scheme or reject it in accordance with Paragraph 4 of Schedule 2 of the FRM.

3.2.6 If 'valid' objections are received the Council must instead take a 'Preliminary Decision' in accordance with Paragraph 5 of Schedule 2 of the FRM. This decision is to either: (1) 'confirm' the proposed Scheme without modification; (2) 'confirm' the proposed Scheme with modification; or (3) 'reject' the proposed Scheme.

3.2.7 If Council is required to take a 'Preliminary Decision' as detailed in Section 3.2.6, a further report will be submitted to Council with details of the various options open to the Council in respect of the Scheme's approval under the FRM, and any relevant update on the Scheme's Programme and / or Cost Estimate, and / or other deliverability matters.

3.2.8 Members should note that:

a) Council may be required to provide notice of any 'Preliminary Decision' to the Scottish Ministers;

b) Scottish Ministers may determine that a Public Local Inquiry (PLI) is held; and

c) East Lothian Council may require to hold a hearing.

3.2.9 In terms of the FRM, following one or more of these processes, the proposed Scheme must ultimately be either 'confirmed' or 'rejected' by either Council or the Scottish Ministers. A 'confirmed' scheme may be with or without 'modifications'. If the Scheme is 'confirmed' then the process requires that further steps are undertaken which include but are not limited to: (i) notice of the final decision; (ii) an Appeals Process; and (iii) the granting of Deemed Planning Permission.

3.2.10 There are many different approvals that are required for a major infrastructure project like this Scheme. More detail on this is provided in Section 3.6; however, this point highlights that the Scheme's Deemed Planning Permission (DPP) is not intended to be used to provide approval of the Musselburgh Active Travel (MAT). When the Scheme 'notified' the Scheme Documents will clearly detail exactly which parts of the design / Scheme are seeking approval under the FRM and thus its DPP. The approach to how the MAT will seek its planning approval has not yet been confirmed by that project.

3.3 Design Philosophy

3.3.1 The Scheme's standard of protection will be to protect against a flood event with a 0.5% Annual Exceedance Probability (AEP) originating from either the River Esk catchment, or the Pinkie Burn catchment, or the Firth of Forth. The standard of protection does not include for flood events of this scale from more than one of these origins occurring simultaneously, as this is a different, and much more improbable, statistical probability. A 0.5% AEP Flood Event is also known as a '1 in 200 Year Flood Event'.

3.3.2 The Scheme's allowance for climate change will allow for protection against:

a) A 28% increase in peak fluvial flow in the River Esk;

b) A 25% increase in peak rainfall on the Pinkie Burn catchment; and

c) A 0.86m rise in sea level on the Firth of Forth.

3.3.3 The flood maps associated with the design flood events that will be protected against by the proposed Scheme, via the standard of protection detailed in Section 3.3.1 are provided in Appendix A (available in the Members' Library at the following link: Agendas, reports and minutes | East Lothian Council. The following maps are provided:

a) The flood map of the design event from the River Esk (Appendix A1) – this is a 0.5% AEP Flood Event from the river with an allowance for levels in the sea and includes for a 28% increase in river peak flow as a climate change allowance;

b) The flood map of the design event from the Pinkie Burn (Appendix A2) – this is a 0.5% AEP Flood Event from the burn with an allowance for levels in the sea and includes for a 25% increase in peak rainfall as a climate change allowance;

c) The flood map of the design event from the Firth of Forth (Appendix A3) – this is a 0.5% AEP Flood Event from the sea with an allowance for flow in the river and includes for a 0.86m rise in sea level as a climate change allowance;

d) A blended flood map (Appendix A4) that overlays these three individual flood maps / different flooding scenarios to create one overall area of flood inundation which will be protected against by the proposed Scheme.

e) A map of the Scheme's Limit of Flooding (Appendix A5) that has the property identification points illustrated to allow the properties that will be protected by the proposed Scheme be identified;

f) A colour graded collage map (Appendix A6) that allow for differentiation of each individual design flood event within the blended overall area of flood inundation and identification of which areas are at risk of more than one separate flood events. The colour grading also provides a depth index to allow for an understanding of the scale / depth of flooding by area associated with each flood event; and

g) A map of Musselburgh with the blended flood map and critical infrastructure identified (Appendix A7). This map is useful to allow for an understanding of impact on the critical / essential public infrastructure of the town as opposed to the individual / private property impact which can be determined from the map provided through Section 3.3.3(e).

3.3.4 The standard of protection defined in paragraph 3.3.1 plus the climate change allowance defined in paragraph 3.3.2 will reduce the risk of flooding to approximately 3,200 properties in Musselburgh. At this point in time the 'Land Referencing' activity remains ongoing. This is the project work package through which all-individual properties within the areas of interest are identified such that the requirements of the Scheme 'notification' as detailed in Section 3.2 may be achieved. As such the exact number of properties that will be protected is not yet finalised, however it is considered that any numbers stated in this report and/or in any production during the Scheme to date may be considered to be in the order of and simultaneously a probable small underestimate. It is confirmed that these properties are comprised of the following non exhaustive list:

a) In the order of 2,600 residential properties;

b) In the order of 350 businesses including the whole of the Eskmills Business Park and the High Street;

c) Pinkie Primary School, Loretto Junior School, Loretto Senior School, a number of nurseries and immediate proximity to both the Burgh Primary School and Loretto RC Primary School;

d) A number of residential care homes including the Morar Care Home, St. Ann's Care Home, Lothian Villas Children's Home, and the Eskgreen Care Home building;

e) The Bus Depot, Police Station, and Council Depot at Goosegreen;

f) Musselburgh Racecourse; the Old Golf Course; and Musselburgh Golf Course;

g) Fisherrow Harbour;

h) The Scottish Water (SW) regional wastewater pumping stations (WwPS) at 'Eastfield', 'Esk', and immediate proximity to 'Levenhall' WwPS which is understood to be primarily a below ground facility. This is as well as the entirety of the SW wastewater piped network which would sit under the area of flood water inundation;

i) The critical SGN regional Gas Governor at Stoneybank;

j) Various Scottish Power network distribution assets; and

k) The A199 which connects Edinburgh to East Lothian including ability to use the Rennie Bridge. Furthermore, all road and footbridges in Musselburgh would be affected and incapable of being used. Whether or not they would sustain damage during this event and whether or not they would be capable of being used after the event cannot be stated; however, it is highlighted that the proposed Scheme will replace four of these bridges to ensure that their replacements cannot become blocked by water flow and / or timber debris for flood events protected by the proposed Scheme such that this risk is minimised post-Scheme delivery.

3.3.5 The Scheme has invested significant time and resource into the development of the Scheme's Hydrology and Hydraulic Model. One reason for this was the publication of the UKCP18 (United Kingdom Climate Projections, 2018) which identified a step-change in the projected severity of the potential impacts of climate change on future flood risk. It also allowed the project team, under instruction from Council, to undertaken consultation with the Scheme's stakeholders and the people of Musselburgh on which standard of protection / resultant Scheme design was most appropriate for the town of Musselburgh. Reports that updated on these matters were previously brought to Council in August and October 2022.

3.3.6 The Scheme's design facilitates a 'Managed Adaptive Approach' to flood risk throughout its design life. Where practicable, physical defences along the River Esk, Pinkie Burn, and Firth of Forth will be designed with 'future flexibility' such that they could be raised if necessary. The height by which they could be raised will be determined through further analysis during the detailed design phase of the project. Physical defences on the Firth of Forth will incorporate 'trigger points' to identify when further action should be taken in response to coastal change induced by sea level rise. The approach to advancing natural flood management (NFM) in the River Esk Catchment which was approved by a meeting of Council in October 2023 is also part of this 'Managed Adaptive Approach'. The ongoing project work being advanced in partnership with Dynamic Coast, as reported on to Council through a separate report in January 2024, is considered to be contained within the logic of this section of this report;

3.3.7 The Scheme is designed to allow it to deliver multiple benefits associated with the Musselburgh Active Toun (MAT) project. The footbridges that are being replaced by the Scheme to reduce flood risk have simultaneously been designed to be wide enough to accommodate shared-use routes for pedestrians and wheeled users. The position and form of the Scheme's physical defences facilitates space for the MAT project's shared-use routes which overlap with the footprint of the Scheme.

3.3.8 The Scheme is designed to deliver multiple benefits associated with Musselburgh River Restoration. This will create a more natural river corridor through the town, and specifically it will deliver 'Positive Effects for Biodiversity' in terms of removing in-stream structures, removing redundant riverside structures, increasing riparian planting, and improving fish passage etc.

3.4 The Outline Design

3.4.1 The Scheme will comprise several components which, in combination with each other, will reduce flood risk to Musselburgh. This will be achieved by use of the following flood risk reduction techniques:

a) Reduction in peak flow through attenuation within the catchment;

b) Reduction in the risk of bridge blockage from debris;

c) Improvements in the conveyance capacity of the River Esk;

d) Physical defences to contain floodwater; and

e) Surface water management to address the risk of secondary flooding.

An Overview Schematic Drawing is provided in Appendix B (available in the Members' Library at: Agendas, reports and minutes | East Lothian Council) that captures the essence of these interventions on a plan.

3.4.2 The Scheme components detailed in Section 3.4.1 come together to form the Scheme. In accordance with the FRM and its regulations, and specifically Regulation 11 of The Flood Risk Management (Flood Protection Schemes, Potentially Vulnerable Areas and Local Plan Districts) (Scotland) Regulations 2010 (named 'the 2010 Regulations') this proposed Scheme is defined / detailed through appropriate 'Scheme Documents'. For the purposes and benefit of understanding the proposed Scheme that the report is intending to advance to the Statutory Approvals process these documents have been produced in draft and are appended to this report for your consideration. The specific Scheme Documents provided are:

a) The draft Schedule of Operations – provided in Appendix C (available in the Members' Library at: Agendas, reports and minutes | East Lothian Council); and

b) The proposed Scheme Drawings – provided in Appendix D (available in the Members' Library at: Agendas, reports and minutes | East Lothian Council).

3.4.3 During the design process it was determined that this proposed Scheme would require an EIA to be undertaken. More detail on the processes associated with this determination and its Policy Implications are provided in Section 5. The EIA is a very large and specialist document and is not provided in full with this report to Council. The project team have instead provided a Non-Technical Summary of the EIA with is provided in Appendix E (available in the Members' Library at: Agendas, reports and minutes | East Lothian Council). In due course and in accordance with the FRM and specifically Regulation 7 of the 2010 Regulations the EIA will be made available for public viewing in full once the 'notification' of the proposed Scheme is undertaken and as per the processes detailed in Section 3.2.

3.4.4 This report does not summarise the EIA or highlight any part of it as it is considered essential for Members to read in full the entire Non-Technical Summary of the EIA.

3.4.5 Attenuation

a) Rosebery Reservoir and Edgelaw Reservoir will be utilised and be adapted to provide attenuation of floodwater within the catchment. Doing so will reduce the extent and height of physical defences required in Musselburgh.

3.4.6 Debris Management

a) A coarse debris trap will be constructed on the River Esk upstream of the A1 bridge, near Whitecraig. This will intercept large woody debris, and in doing so will reduce the risk of bridge blockage at Roman Bridge and Rennie Bridge in Musselburgh. Reducing the risk of bridge blockage at these two structures will reduce the extent and height of physical defences required in Musselburgh.

3.4.7 Conveyance Improvement

a) The Ivanhoe Footbridge, Shorthope Street Footbridge, Electric Bridge, and Goosegreen Footbridge will be replaced with four new single-span bridges, whose decks will be above the design flood level, and which will have no in-stream piers. Doing so will reduce the risk of bridge blockage from debris at these locations and reduce the constriction of flow beneath the structures during a flood event. The replacement of these four bridges will reduce the extent and height of physical defences required in Musselburgh.

3.4.8 Containment

a) Notwithstanding the Scheme components described in Sections 3.4.5 to 3.4.7, physical defences will still be necessary to contain the design flood event. Physical defences will be constructed on the west bank of the River Esk from Olive Bank Bridge to the mouth of the river, and on the east bank from the field known as 'the Valley' to the Ash Lagoons Seawall. Physical defences will be constructed around the Pinkie Burn within the playing fields at Pinkie St. Peters Primary School. Physical defences will be constructed in the Firth of Forth from the mouth of the

River Esk to Fisherrow Harbour, and from the harbour to the Brunstane Burn. Physical defences will be constructed around the Inveresk Estate alongside the river and tying back into the higher ground.

3.4.9 Repair of Existing Assets

a) Repair works will be carried out to Fisherrow Harbour walls and the Ash Lagoon Seawall to extend the life of these existing assets to make them part of the scheme.

3.4.10 Surface Water Management

a) Surface water pumping stations will be constructed in the lowest-lying areas around Musselburgh. These below-ground structures will intercept surface water ponding during a flood event, both directly and through associated drainage networks, and will pump this water into the nearest watercourse. They will be designed such that any residual ponding will be no deeper than would occur without the Scheme being in place.

3.5 Consultation

3.5.1 The Scheme has been advanced through an extensive consultation process with regulatory organisations, key stakeholders, community groups, businesses and the people of Musselburgh. An extensive number of discrete consultation events and meetings have taken place since October 2018. These have included working groups, town hall meetings, presentations, exhibitions, drop-in sessions, and site visits, culminating in a public exhibition which presented the first vision of the Outline Design in June 2023, and which was attended by almost 897 people. In addition to these events, the project team has also visited numerous individual residents at their homes, where the Scheme might directly impact their property.

3.5.2 The purpose of the Scheme's consultation has been to seek people's views about Musselburgh's flood risk and the proposed Scheme to reduce that risk. The project team has then used their professional judgement to determine where it is appropriate and achievable to incorporate those views within the design, while recognising that it will not always be practicable to do so.

3.5.1 Following the consultation process and informed by the project team's recommendations, Council has the responsibility and authority to act on behalf of those consulted. In doing so it must decide the next steps to achieve Council's obligation of reducing Musselburgh's flood risk as part of the Forth Estuary Local Flood Risk Management Plan.

3.6 Consenting

3.6.1 In accordance with the FRM, when the Scheme is confirmed then planning consent will be deemed to be provided by the Scottish Ministers. Alongside the FRM approval, the consultation with Statutory Organisations has determined that the following additional consents and licences will also need to be obtained in due course. The following list is illustrative and not considered to be exhaustive:

a) Conservation area consent;

b) Listed building consent;

c) Scheduled monument consent;

d) Marine licencing; and

e) Appropriate licencing under the Water Environment (Controlled Activities) (Scotland) Regulations and known as a 'CAR Licence'.

3.6.2 The process and timing for obtaining these consents and licences will be determined by the Project Board under its delegated authority from Council but will not commence before notification of the Scheme under the FRM.

4 POLICY IMPLICATIONS

4.1 The FRM places a statutory responsibility on the Local Authority to exercise their flood risk related functions with a view to reducing overall flood risk. A key responsibility for East Lothian Council is the implementation of the flood risk management actions in the Forth Estuary Local Flood Risk Management Plan.

4.2 The Scheme will contribute towards The East Lothian Plan – 2017-27 focusing on health and wellbeing, safety, transport connectivity, sustainability and protecting our environment.

4.3 The Scheme will support the Council's Climate Change Strategy; however, it is highlighted that this project is an 'adaptation' project due to implications of climate change on Musselburgh.

5 INTEGRATED IMPACT ASSESSMENT

5.1 A Preliminary Environmental Appraisal Report (PEA) was undertaken during Stage 3 of the project (the Options Appraisal Process), and this was included in the Preferred Scheme Report presented to Cabinet in January 2020.

5.2 During Stage 4 of the project (which is named 'Outline Design') a screening exercise was led by the Council's Planning Service and, in consultation with the Statutory Organisations, they determined that an Environmental Impact Assessment (EIA) of the Scheme was necessary. Following this, a scoping exercise was conducted by the same parties to determine what aspects of the environment should be assessed.

5.3 The EIA considers the effect of the Scheme's design on the following aspects of the natural and built environment:

a) Population and human health;

b) Biodiversity;

c) Noise and vibration;

d) Townscape and visual impact;

e) Water environment;

f) Soils, geology, and contamination;

g) Aire quality and climate change;

h) Cultural heritage; and

i) Traffic and transportation.

5.4 A draft Non-Technical Summary of the EIA is appended to this report for information (available in the Members' Library at: Agendas, reports and minutes | East Lothian Council). In accordance with the FRM, as part of the Statutory Approvals processes, and specifically within the processes of 'notification' as detailed in Section 3.2, the EIA report will be published alongside the Scheme Documents which will include: maps and plans - through the Scheme Drawings; and a description of the operations - through the Schedule of Operations.

6 RESOURCE IMPLICATIONS

6.1 Financial - Background

6.1.1 An estimated cost of £42.1 million was reported to Cabinet in January 2020 for the 'Preferred Scheme'. This cost was defined in Quarter 2 of 2019 (Q2-2019). The estimate was based on 'Preferred Scheme' concept which was the outcome of the Options Appraisal Process (OAP) that had been undertaken during Stage 3 of the project.

6.1.2 The scope of the Preferred Scheme included the following major conceptual components:

a) Modification of Edgelaw Reservoir and Rosebery Reservoir;

b) Provision of a large-debris trap above the A1 road bridge in Dalkeith Country Park;

c) Like-for-like replacement of three existing bridges, namely: Shorthope Street Footbridge, Goosegreen Footbridge; and the Electric (road) Bridge;

d) 6.4km of flood defence structures; and

e) Eight surface water pumping stations and an associated drainage network.

6.1.3 In January 2020 the Scheme was only one project – i.e. the flood protection scheme. Council then instructed the project team to seek to achieve multiple benefits as it advanced the design.

6.1.4 In October 2022 a report was presented to Council that updated on the Scheme and the multiple benefits that had been identified and considered by the project team. Within that report three separate estimates were presented to Council which together constituted a £96 million investment in Musselburgh.

6.1.5 In October 2022 a revised estimated cost of £43.5 million was reported for the Scheme and which had the same scope as detailed in Section 6.1.2. This cost estimate was defined in Q2-2022 and accounted for an increase in programme duration due to delays associated with the COVID-19 pandemic. At that time a complete update of the Scheme's cost estimate not undertaken as the Outline Design had not been completed.

6.1.6 In October 2022, an estimated cost of £52.4 million was reported for the preferred option to repair the multiple benefit project to repair the Ash Lagoons Seawall. This cost estimate was defined in Q2-2022.

6.1.7 In October 2022, an estimated cost of £122,000 was reported for the component parts of the Musselburgh Active Toun (MAT) project that had been identified as being best placed to be delivered by the Scheme due to the footprint of those parts of the MAT occupying the same ground as the intended Scheme design. Since then the MAT project has updated the Active Travel 'Places for Everyone' Fund Infrastructural Panel and obtained approval to advance the MAT design in Musselburgh, and which includes the parts of the MAT that are proposed to be delivered within the Scheme. The £122k was only ever the component part of the MAT estimates that covered the parts within the Scheme and had full funding confirmation at that time. It was understood that construction estimates would always need to be added onto the design funding at a later time, however those construction estimates were not available for that update to Council.

6.2 <u>Financial – Update on Cost Estimates</u>

6.2.1 Following completion of the Outline Design of the Scheme and its EIA, a more detailed assessment of the estimated construction cost has been carried out.

6.2.2 The scope of the Outline Design includes the following major conceptual components:

a) Modification of Edgelaw Reservoir and Rosebery Reservoir;

b) Provision of a large-debris trap by Whitecraig in Dalkeith Country Park;

c) Replacement of: Ivanhoe Footbridge, Shorthope Street Footbridge, and Goosegreen Footbridge with new footbridges which are simultaneously designed to deliver the flood risk reduction objectives of the Scheme and the Active Travel objectives of the MAT project;

d) Replacement of the Electric (road) Bridge with a new footbridge which is simultaneously designed to deliver the flood risk reduction objectives of the Scheme and the Active Travel objectives of the MAT project;

e) 1.7km of flood defence structure formed by flood embankments and hybrid structures;

f) 4.7km of flood defence structure formed of either replaced or new flood walls. This includes 600m of flood defence structures to protect Inveresk Estate which was not included in the Preferred Scheme;

g) 2.7km of repair works to the Ash Lagoons Seawall and consisting of additional rock revetment to the seaward side and a replacement of the existing concrete wall along the top;

h) Seven surface water pumping stations and an associated drainage network;

i) Repairs to Fisherrow Harbour walls;

j) Repairs to both the Eskmills Weir and the Goosegreen Weir;

k) Culverting and flood control on the Musselburgh Mill Lade;

l) Delivery of river restoration objectives along the River Esk corridor;

m) Enhanced landscaping works at key locations including the Fisherrow Harbour area, along the coast from Links View to the mouth of the River Esk, and around the Roman Bridge; and

n) Environmental mitigation measures associated with National Planning Framework 4 (NPF4), which include Positive Effects for Biodiversity.

6.2.3 The updated estimate for the Scheme is £53.9 million which is based on Q3-2023 cost estimates. This is a Net Present Value estimate.

6.2.4 The updated estimate for work to the Ash Lagoons Seawall is £52.1 million which is based on Q3-2023 cost estimates.

6.2.5 The updated estimates for the component parts of the Musselburgh Active Toun (MAT) project, that have been identified as being best placed to be delivered by the Scheme, is £26.5 million. This is a significant increase in the estimated cost compared with that reported in October 2022 and as detailed in Section 6.1.7. This cost estimate is now considered equivalent in its level of detail to the other costs estimates provided in this report.

6.2.6 The updated combined total proposed investment in Musselburgh from these three projects is £132.5 million.

6.3 Financial - Funding

6.3.1 The Scottish Government will contribute 80% of the cost of the Scheme. In accordance with the Scottish Government's criteria the Scheme's cost will be confirmed when the Construction Works Contract is signed. Within the PRINCE2 Project Management System being applied by this project this is at the end of project Stage 7 (Construction Procurement). An updated Schematic Overview Programme is provided in Appendix F (available in the Members' Library at: Agendas, reports and minutes | East Lothian Council).

6.3.2 As the Scheme is already authorised under the Scottish Government's flood protection scheme programme the Council are ongoing in receiving the 80% contribution on an annual basis. The project team and thereby the Council update the Scottish Government every autumn on the updated estimate for the Scheme and its Spend Profile.

6.3.3 The Scheme now contains elements of three separate projects, namely: (i) the flood protection scheme; (ii) the Ash Lagoons Seawall repair; and (iii) parts of the Musselburgh Active Toun project. The funding required to deliver this combined project is now expected to derive from the following five separate funding sources:

a) The Scottish Government's Flood Protection Scheme programme;

b) East Lothian Council's Capital Budget;

c) Deriving from the Musselburgh Agreement associated with the Ash Lagoons Seawall;

d) The Places for Everyone Fund currently being managed by Sustrans; and

e) The National Strategic Fund currently being managed by Sustrans.

6.3.4 The financial provision for the Scheme will be allocated from past, current and future year Flooding and Coastal Protection budgets.

6.3.5 Provision for the Council's contribution towards the Scheme will be allocated in future capital budget estimates for Coastal Protection / Flooding.

6.3.6 In January 2020 when the Scheme was estimated at £42.1 million it was expected that Council would require to fund 20% which was in the order of £8.4 million.

6.3.7 In January 2024 the Scheme is estimated at £53.9M and it is expected that Council will continue to have costs in the order of £8 million to fund its component part of the overall investment. It is highlighted that the estimated cost to Council has not increased, and that this is due to be financial benefit of bringing multiple projects together and thus achieving financial efficiencies. Further detail on this concept is provided in Section 6.4.2.

6.3.8 It is highlighted that there remains a confidential negotiation ongoing in relation to the Ash Lagoons Seawall, under the Musselburgh Agreement, and that this process must be concluded before the outcome can be fully mapped into the financial model associated with these projects as updated on in this report.

6.3.9 It is highlighted that the MAT project remains ongoing in its design, and that its works will be subject to separate approvals processes. Until these are concluded the outcomes cannot be fully mapped into the financial model associated with these projects as updated on in this report.

6.3.10 It is highlighted that in accordance with the Scheme's PRINCE2 Project Management System that at any point in the delivery of the project the Council is only liable for the costs authorised within the stage that is open.

6.3.11 The Scheme now requires to commence its Project State 5 to advance the Scheme Approvals Processes detailed in Section 3.2 of this report. This process will be managed by the Scheme's Project Board on behalf of Council, and further to authority to commence this stage being provided by Council this will require a Project Stage Plan for Stage 5 to be reviewed and approved by the Project Board.

6.4 Financial - General

6.4.1 The Scheme forms part of Cycle 1 of the Scottish Government Flood Protection Programme, and thus the Scheme achieves a contribution of 80% of eligible costs for the Scheme's scope of works as per the funding eligibility criteria associated with this flood protection scheme programme. The local authority are required to provide the remaining 20% of funding.

6.4.2 Further to the logic of Section 6.4.1 it is highlighted that due to this project bringing together three projects to achieve multiple benefits there are now additional funding organisations and greater complexity to the financial management required. It is however essential that full compliance with the funding eligibility requirements of each funding stream is achieved. The flood protection scheme programme remains the primary project; however, its funding cannot be used outwith of its eligibility criteria.

6.4.3 A national review of the flood protection scheme programme was undertaken during 2022 and 2023. One specific outcome of this review is that Council must be able to provide evidence that the Scheme has been notified no later than 31 March 2024 to remain eligible for funding under Cycle 1 of the programme. The Scottish Government has confirmed that there will be no exception to this requirement.

6.4.4 It is highlighted that the scope of the Scheme in January 2020 is not comparable with the scope of the Scheme in January 2024. The scope of this project has expanded substantially for several reasons and in particular: due to the major consultation that took place with key stakeholders and the people of Musselburgh over the period; due to the implications of NPF4 and therefore the projects obligations to deliver new biodiversity requirements (amongst others); and the inclusion of flood protection defences for the Inveresk Estate. It is not considered that the scope of the project will increase again.

6.4.5 All cost estimates associated with the Scheme and the other infrastructural projects detailed in this report are developed as Net Present Value cost estimates. This is in accordance with the appropriate processes and in particular with the details specified in the HM Treasury Green Book. It is highlighted that as these projects are not yet approved. Further neither a robust delivery programme nor a tender price for construction are yet available. The estimated cost of the projects can be expected to continue to increase in line with inflation until a final delivery programme and cost estimate is confirmed.

6.4.6 The construction estimates have been produced by Jacobs as part of the development of the Outline Design. The Economic Appraisal that was undertaken developed both the updated construction works estimates and the future operational estimates associated with the Outline Design. Costs were estimated using the EA Long-Term Costing Tool and cross-checked against actual costs incurred from a number of equivalent recent projects. Where appropriate, cost estimates have been uplifted for inflation using EA Guidance on "Allowing for inflation on FCERM projects". Key information associated with the Economic Assessment will be published as part of the Scheme Documents when the Scheme is notified as detailed in Section 6.2.

6.4.7 Once construction of the proposed Scheme is completed Council will have future obligations to operate and maintain (O&M) the new assets that have been delivered through this project. This will include negotiating with SW on the use, operation and ongoing maintenance of the reservoirs and full responsibility for the operation and maintenance of the debris trap in the catchment as per the previous Council decision. It will also include both the new flood defence structures in the town but also the new landscape, and the assets of the other multiple benefit projects. As with the finances of this project the future operational and maintenance obligations is also complex due to the bringing together of three projects, and as the MAT design and approval and delivery are not yet confirmed it is not currently possible to fully detail the scale and / or split of future responsibilities. The following key points are highlighted:

a) The Ash Lagoons Seawall already exists and already has a O&M obligation. The proposed Scheme is not considered to have a greater future burden. If the asset is not repaired as proposed by the Scheme, then this do-nothing option is considered to have a greater O&M burden that the proposed Scheme;

b) Many other existing assets in the town already have an existing O&M burden. Fisherrow Harbour, the river weirs, and the historical training walls on the River Esk are highlighted. If these assets are not repaired as proposed by the Scheme, then this do-nothing option is considered to have a greater O&M burden that the proposed Scheme;

c) The four new footbridges will have a design life of 100 years and are not expected to have any significant maintenance obligations during their first 25 years of life. During this period their O&M burden is considered to be lesser.

d) The new flood defence structures in the proposed Scheme will have a design life of 100 years and are not expected to have any significant maintenance obligations during their first 25 years of life. The flood gates and any other operational assets including the Scheme Pumping Stations will however have a continual future O&M requirement. An update on this will be provided when the Scheme is notified, as detailed in Section 6.4.6.

e) The enhanced landscape across the town will have an O&B burden, however it is highlighted that most of these areas are already Council

managed landscapes / amenity areas that are heavily managed. The Scheme's design has sought to ensure that the designs are sustainable and also deliver maximum biodiversity and river restoration benefits. As such much of these landscapes are designed to be managed less intrusively that at present. It is not expected that overall the proposed Scheme will increase the landscape burden on the Council.

6.4.8 Within these construction estimates the use of Optimism Bias continues to be applied. In January 2020 this was generally at a rate of 60% which was in line with the approach for a concept stage of a flood protection scheme. This value is recommended to be reduced to 30% when a detailed design is achieved; however, a rate of 45% has generally been applied against the construction estimates presented in this report.

6.4.9 Financial inflation is a constant; however, the rate of inflation is subject to change over time. The last few years have seen very high rates of inflation. This has impacted across all inflation indices and has been particularly severe on construction inflation. An analysis of inflation related to the project costs stated in this report has been undertaken and it is highlighted that the £42.1 million cost estimates from Q2-2019 is equivalent to a value of £54.8 million in Q3-2023. The updated cost estimate for the £42.1 million, as detailed in Section 6.2.3, is £53.9 million which should be noted as less than the £54.8 million equivalent, notwithstanding the increase in the scope of works as detailed in Section 6.2.2.

6.5 Personnel

6.5.1 If, following publication of the Scheme, objections to the proposals are received, then Council must consider the nature of the objections and should work with objectors to try and resolve the concerns raised. Depending upon the number of objections received, this could have implications for the number of Council personnel and its consultants required to engage with the objectors, and the duration over which this activity would take place. The personnel requirement will not be known until at least 30 days after notification of the Scheme.

6.6 Other

6.6.1 None

7 BACKGROUND PAPERS

7.1 Report to Cabinet in May 2016 – approval of the Local Flood Risk Management Plan (Forth Estuary) which included a proposed flood protection scheme for Musselburgh.

7.2 Report to Cabinet in January 2020 – approval of the 'Preferred Scheme' concept to be advanced to an Outline Design.

7.3 Report to Full Council in August 2022 – approval of inclusion of the Ash Lagoons Seawall within the Scheme, and update to hydraulic model C

7.4 Report to Full Council in October 2022 – approval of the project's assessment of Musselburgh's flood risk, and timeline for advancing the outline design.

7.5 Motion to Full Council in August 2023 – Note of Progress and Request for Information.

7.6 Report to Full Council in October 2023 – approval to advance Natural Flood Management (NFM) in the River Esk catchment independently of the Scheme and as part of the future Local Flood Risk Management Plan (LFRMP).

7.7 Appendices A-F, available in the Members' Library, January 2024 Bulletin, Ref: 08/24 - Agendas, reports and minutes | East Lothian Council

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