

Report to Falkirk Council

FLOOD RISK MANAGEMENT (SCOTLAND) ACT 2009

Report by Sue Bell, a Reporter appointed by Falkirk Council

- Case reference: FPS-240-1
- Name of Scheme: Grangemouth Flood Protection Scheme
- Promoting authority: Falkirk Council
- Outstanding Objectors: See list at Appendix A
- Date of preliminary decision to confirm the Scheme: 23 January 2025
- Date of hearing session: 28 January 2026
- Dates of site inspections: 22 January 2026 (unaccompanied); 29 January 2026 (accompanied)

Date of report: 30 April 2025

RECOMMENDATION

I recommend that the Grangemouth Flood Protection scheme be confirmed without modification. This recommendation is based on the proviso that there is sufficient flexibility within scheme design to allow alteration of the current design of the FDW along North Shore Road to allow use of part fixed/ part demountable defences. If this design change cannot be accommodated within the flexibility allowed for by the scheme or by separate agreement, then I recommend that the scheme be confirmed with a modification to address this matter.

I further recommend that Scottish Ministers be supplied with a copy of this report as it identifies various matters which should be considered when developing conditions for any deemed planning permission that is granted.

INTRODUCTION

1. This report sets out my conclusions and recommendations to Falkirk Council, following a local authority hearing to consider outstanding relevant objections to the proposed Grangemouth Flood Protection Scheme (GFPS) ('the scheme').

Background

2. The scheme is being promoted under Part 4 of the Flood Risk Management (Scotland) Act 2009 ('the Act') and The Flood Risk Management (Flood Protection Schemes, Potentially Vulnerable Areas and Local Plan Districts) (Scotland) Regulations 2010 (as amended) ('the Flood Risk Management Regulations').

3. Part 1 of the Act sets out general duties on local authorities and other responsible bodies to reduce overall flood risk. The Act also requires the Scottish Environment Protection Agency (SEPA) to publish Flood Risk Management Strategies, which are prepared in collaboration with local authorities, Scottish Water and other organisations with a responsibility or interest in managing flooding. These strategies set out sustainable combinations of actions to address flooding in areas assessed at greatest risk and where the benefits of intervention can have the greatest impact. They are supplemented by Local Flood Risk Management Plans, which are published by local authorities and set out additional detail about how the actions in the Flood Risk Management Strategy will be delivered. The [Flood Risk Management Strategy Forth Estuary](#) was published by SEPA in 2015. It identified Falkirk and Grangemouth as being a Potentially Vulnerable Area for flooding from river, coastal and surface water. It proposed a flood protection scheme for the Grangemouth area and identified this as the highest priority scheme in Scotland given the potentially huge costs if an extreme flood event were to occur. The supporting [Local Flood Risk Management Plan Forth Estuary Local Plan District](#) was published in 2016 by The City of Edinburgh Council on behalf of a partnership including Falkirk Council and confirmed the need for a flood protection scheme.

4. Falkirk Council ('the council') is the local authority responsible for developing proposals for the GFPS. These are being developed under Part 4 of the Act, which provides local authorities with broad powers to allow them to progress a full range of flood risk management measures.

5. The council's approach to developing the scheme, including public consultation and engagement, are set out in documents available through the [scheme website](#).

6. The council undertook four engagement exercises during evolution of the scheme. The first events took place on 27 February 2018 and 19 April 2018 and explained flood risk in the scheme area as a basis for why the scheme was being developed and set out different options. The second events took place on 28 and 30 May 2019, following completion of the options appraisal process. The third engagement exercise involved seven events in June 2021. Two of these provided a general update on scheme design and five focussed on specific communities. The fourth engagement event comprised two online sessions held on 29 February 2024 and 11 March 2024 and five in person events held between 4 March 2024 and 8 March 2024. These explained the background to the scheme, the final outline design and the next steps in progressing the scheme.

7. The council's Executive Committee agreed publication of the scheme on [16 January 2024](#). Published documents included plans, a description of the scheme, details of scheme operations and an Environmental Impact Assessment Report (EIAR). Statutory Notices were posted to those likely to be affected by the scheme, as defined in the Act and the Flood Risk Management Regulations. Notices were published in the Falkirk Herald (9 May 2024) and the Edinburgh Gazette (10 May 2024).

8. Consultation on the published scheme closed on 16 June 2024. The council subsequently made a [preliminary decision](#) to confirm the scheme without modification at the Executive Committee meeting on 23 January 2025. As there were outstanding objections to the scheme from relevant objectors, the council notified Scottish Ministers of its decision, in accordance with Paragraph 5 of Schedule 2 to the Act ('Schedule 2'). On 27 March 2025, Scottish Ministers notified the council that they would not consider the proposed scheme. In line with the requirements of Paragraph 8 of Schedule 2, the council implemented measures to hold a hearing to consider the outstanding valid objections. The council appointed me as an independent reporter ("the Reporter"), to conduct the hearing and

thereafter prepare a report on with my recommendations for consideration by the council.
This document comprises that report.

The scheme

9. As noted above, the need for a scheme has been identified through the [Flood Risk Management Strategy Forth Estuary](#) and supporting [Local Flood Risk Management Plan Forth Estuary Local Plan District](#).

10. The purpose of the proposed scheme is to reduce the risk of flooding to residential, non-residential, commercial and agricultural land in the town of Grangemouth and surrounding communities of Wholeflats, Glensburgh, Langlees, Carron, Carronshore and Camelon (Stirling Road) from the River Carron, River Avon, Grange Burn, Westquarter Burn, Polmont Burn, Chapel Burn, Millhall Burn and Firth of Forth. It is designed to provide protection to 2,760 residential properties, 1,200 non-residential properties and 6,025 people from flood events up to the 1 in 200-year level from both fluvial and coastal flood risk. This includes protection for a petrochemical complex, a major port and associated nationally important infrastructure (i.e. pipelines importing crude oil and gas from the North Sea and exporting refined products to industrial installations in northeast England). The total length of flood defences is approximately 28 km.

11. A series of detailed [scheme objectives](#) were developed, under six broad headings (general, social, economic, environmental, hydraulic and technical). These drew on the objectives set out in the [Flood Risk Management Strategy Forth Estuary Local Flood Risk Management Plan](#). The scheme objectives were supplemented by a series of '[General Principles for Flood Defence Alignment](#).'

12. Details of the proposed scheme and supporting documents are available through the [scheme website](#). These include [scheme plans](#), and details of [scheme operations](#).

13. In summary, the scheme proposes flood defences in six flood cells, located on the River Avon from Inveravon to the confluence with the Firth of Forth, River Carron from the A9 crossing at Larbert to the confluence with the Firth of Forth, Westquarter Burn from Grandsable cemetery to the M9, Chapel Burn from Carronshore Road to the confluence with the River Carron, Millhall Burn from Millhall Gardens to the confluence with the River Avon, flood relief channel from Rannoch Park to the confluence with the River Avon, Grange Burn between Zetland Park and confluence with the Firth of Forth, the Polmont Burn from Weedingshall to the M9 and the Firth of Forth between the River Carron and River Avon.

14. The scheme involves various operations, which can be summarised as:

- Flood defence walls and embankments.
- Flood gates and demountable flood barriers.
- Modification to lock gates within the Port of Grangemouth.
- Drainage works including new and enhanced drainage and pumping stations.
- Replacement bridges and raised/ modified bridges and culverts.
- Erosion protection measures.
- Utility and service diversions.
- Hard and soft landscaping.

15. The scheme also required an [Environmental Impact Assessment](#) and a [Habitats Regulations Appraisal](#) and Appropriate Assessment.

Environmental Impact Assessment

16. An Environmental Impact Assessment Report (EIAR) has been prepared to accompany the scheme in accordance with the requirements of the Flood Risk Management Regulations and the Marine Works (Environmental Impact Assessment (Scotland) Regulations 2017 (as amended)) (for those parts of the scheme falling under the requirements of the Marine (Scotland) Act 2010 by virtue of being licensable marine activities). The report was prepared by Jacobs on behalf of the council. It was published and advertised with the scheme documents. Representations about the EIAR could be submitted between 9 May 2024 to 16 June 2024.

17. The EIAR comprises 17 Chapters and accompanying appendices. Environmental topics addressed are: [population and human health](#); [biodiversity](#); [noise and vibration](#); [landscape and visual impact assessment](#); [water environment](#); [soils, geology and land contamination](#); [air quality and climate](#); [cultural heritage](#); [traffic and transport](#); and [cumulative effects](#). The EIAR also includes details of [stakeholder engagement](#) and a [schedule of environmental commitments](#).

18. I note there were no objections from statutory bodies to the content of the EIAR. Some of the relevant objectors to the scheme have raised concerns about the effects of proposals on ecological receptors, which I consider further below. Subject to those comments, I am content that the environmental consequences of the scheme have been assessed and publicised in line with statutory requirements.

Habitats Regulations Appraisal and Appropriate Assessment

19. A [Habitats Regulations Appraisal \(HRA\) report](#) including an appropriate assessment (AA) has been prepared on behalf of the council by Jacobs, in line with the requirements of The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended) ('the Habitats Regulations'). Whilst the Habitats Regulations do not require publication of HRA/AA reports or consultation with anyone other than NatureScot, the council invited comments on the HRA report between 25 August 2025 and 5 October 2025. It subsequently published a [summary of responses](#).

20. The AA finds that it is not possible to conclude that the proposals would not have an adverse effect on the integrity of the Firth of Forth Special Protection Area (SPA) and Ramsar site. In line with the Habitats Regulations, the council has considered alternative options but has not identified any that would avoid adverse effects on site integrity. The council considers the proposals to be of overriding public interest. It is, therefore, seeking a derogation from the Habitats Regulations and has identified compensatory measures, in line with regulation 59 of those regulations. NatureScot has confirmed by email dated 24 November 2025 that it is content with the conclusions drawn by the council as part of its appropriate assessment of the scheme.

21. Two of the relevant objectors (OBJ-021, OBJ-022) have made representations relating to the HRA and AA. Subject to my comments below on those matters, I am satisfied that the council has sufficient information before it, to enable it to undertake the necessary appropriate assessment of the proposals, prior to giving any consent to the scheme.

Hearing process

22. Paragraph 8 of Schedule 2 sets out the procedures to be followed where a local authority hearing is to be held. These are not overly prescriptive but specify that the local authority must invite to the hearing each objector who has made a valid objection (unless

withdrawn) and give notice of the hearing in at least one newspaper circulating in the local authority's area.

23. Initially, there were 22 valid objections to the scheme but two were subsequently withdrawn. A summary of the objections received were included in an [Objection Management Report](#) submitted to the council to inform its preliminary decision as to whether to confirm the Scheme without modifications.

24. One of the valid objectors sought permission from the council to have their objection reinstated. The council agreed to this request, meaning there were 21 valid objections when I was appointed as Reporter. Objections have been identified by the council by way of an objection number from OBJ-001 to OBJ-022 inclusive. I have retained this referencing system in this report, although objectors who attended the hearing have also been identified by name.

25. Each of the outstanding 21 relevant objectors were contacted and invited to 'opt-in' to the hearing process. The Scottish Government has published advice for the conduct of hearings under the Act in Appendix G – Code of practice for hearings of its publication [Flood Risk Management \(Scotland\) Act 2009: Local Authority Functions Under Part 4 Guidance: First Edition](#). I indicated to objectors that I intended to apply this his Code of practice and they were provided with an opportunity to respond to this. No party objected to application of the Code, which was used to guide the approach to the hearing.

26. On 23 December 2025, an invitation to the hearing was issued to each of the 21 outstanding relevant objectors, this date being not less than 28 days before the hearing, as required by paragraph 8 (3)(a) of Schedule 2. A Notice of the hearing was published on the scheme website and in the Falkirk Herald on 24 December 2025, this date being at least 21 days before the proposed hearing.

27. Initially, ten of the relevant objectors expressed an interest in participating in the hearing. [Hearing statements](#) were received from only four of these and three of the relevant objectors took part in the oral hearing process. The hearing was held 'in-person' at Falkirk Stadium on 28 January 2026. A list of those who attended for each party are set out in Appendix B. The hearing was open to the public and was also [recorded](#) for interested parties to view later.

28. I circulated an agenda in advance of the hearing. Some objectors expressed a wish to rely on their previous written submissions to the council, and the agenda was designed to enable a discussion of those items as well as issues raised by those attending the hearing.

29. Discussions at the hearing were led by me, and drew on the Scheme documents, hearing statements and original letters of objection.

30. I made an unaccompanied site inspection on 22nd January 2026 to various locations referenced in objections. I also made an inspection within the boundary of Grangemouth Port on 29 January 2026. As access to land here is restricted, I was accompanied by representatives of Forth Ports and members of the council team that have developed the proposals. As the site inspection allowed views of areas referenced in the representation from objector OBJ-021 (RSPB Scotland), a representative from that organisation also attended.

31. One relevant objector (OBJ-004), who did not attend the hearing, subsequently submitted a written comment to me relating to the discussions held at the hearing. As this

related to a point of fact concerning discussions between the objector and the council, I allowed the council an opportunity to respond to this.

Reporting

32. My report considers the matters raised in all 21 of the outstanding objections. These objections are listed, together with the council's individual responses as [background documents](#) on the hearing page of the Scheme website and are summarised in the [Objection Summary Report](#) presented to councillors at the meeting of 25 January 2025. My report draws on information contained in those original objections and the council's individual responses to them, hearing statements, responses to these and discussions held at the hearing. I have also referred to the scheme documents published by the council.

Key Issues raised in objections

33. I consider that the broad issues raised in the valid objections relate to:

- Scheme design, including the evidence base and justification for the scheme, the overall approach taken to scheme design and concerns about scheme design at specified locations.
- Construction effects.
- Loss of trees and other vegetation.
- Effects on wildlife and protected sites.
- Legal and financial matters.

34. These matters formed the structure for discussions at the hearing and my assessment of them is set out below. For each issue, I briefly summarise key points made in representations from objectors, followed by a summary of the council's response, made either in written replies to each objector or based on discussions at the hearing. This is followed by my analysis and conclusion on each matter.

SCHEME DESIGN

Justification for Scheme including evidence base

35. Objectors (OBJ-001, OBJ-003, OBJ-004, OBJ-005, OBJ-008, OBJ-011, OBJ-013, OBJ-017) have questioned the evidence base that has informed the need for the scheme. This includes the justification for including protection for areas which the objectors state have not flooded previously or for a long period of time, or they consider are not at risk of flooding or would only be at risk of flooding once over a 200-year period.

36. The council has summarised its position about the need for a flood protection scheme on the [Scheme website](#) and in its [hearing statement](#). [Section 1.3 of Chapter 1 Introduction](#) of the EIAR sets out the need for the scheme, identifying the requirements on local authorities arising from the Act, actions highlighted in the [Forth Estuary Local Plan District Flood Risk Management Strategy](#) and supporting [Flood Risk Management Plan](#) and describing the scale of flood risk in the area. The council has also set out how the proposed flood prevention scheme aligns with other policies in its hearing statement.

37. I understand that the publication of the Act in 2009 marked a change in approach to flooding in Scotland from one of reacting to flood events to a plan led approach to prevent future flooding. Flooding can occur from three main sources: from rivers and other surface waters spilling over (fluvial flooding); from the sea caused by very high tides, storm surges

and waves overtopping (tidal flooding); and from surface water where heavy rain over a short time is greater than the capacity of the drainage system or ground to absorb the water (pluvial flooding).

38. [The Forth Estuary Flood Risk Management Strategy](#) has identified that Grangemouth and surrounding areas are at risk of flooding, mainly from the sea, but also from rivers and burns. It identified that a flood protection scheme for the Grangemouth area was necessary and ranked this as the top priority of national projects. The assessment of the vulnerability of areas to flood risk identified within the Strategy has been carried out by the relevant competent agencies (including SEPA), charged with a statutory responsibility to consider flooding.

39. I accept the position set out in the council's [hearing statement](#) that there would be significant economic and environmental consequences, if flooding were to occur, particularly given the importance of the Grangemouth Industrial Cluster and Grangemouth Port to Scotland's economy. I note that the GFPS is identified within National Planning Policy Framework 4 (NPF4) as a National Project.

40. [Chapter 1 Introduction](#) to the EIAR summarises the history of known flood events around Grangemouth since the 1920s. Whilst I recognise that some objectors either do not perceive that there is a flood risk, or consider that any risk is acceptable, there are recent examples of flooding events within the scheme area and the frequency of these appears to be increasing. In any case, an absence of historic flooding may not be a true predictor of future risk of flooding owing to changing climate conditions.

41. The design of the Scheme has focused on planning for what is described as a '1 in 200 year' return period flood event. Whilst I accept that this is standard terminology for describing flood risk, it appears to have been interpreted by some objectors as meaning that properties would only be at risk of experiencing a flood event once every 200 years. That is not the case. The term refers to the statistical probability that a particular location will flood in any given year and is related to the magnitude of a flood. Put another way, the scheme is being designed to protect those areas that have a 0.5% chance of flooding in any year. As it is based on a probability, this event could occur in any year, or even several times in the same year. Selection of designing for a 1 in 200 year event or 0.5% probability is consistent with the assessments of flood risks made in [The Forth Estuary Flood Risk Management Strategy](#). Whilst designing for such a flood risk is not a statutory requirement, I understand that it could be termed an 'industry standard' adopted by many local authorities in designing their flood protection schemes.

42. The council's hearing statement explains that the design height of the flood defences is made up of two elements: the design flood level and the freeboard allowance. The design flood level is calculated using models utilising data relating to river, rain and wind, river flow capacities, and impacts of structures on or near watercourses. The freeboard is a safety margin added to account for flood estimations and modelling, physical factors that are difficult to predict and post-construction settlement of the defence structure. At the hearing, the council explained that a reduced freeboard was added in some areas, particularly Beaumont Avenue, to avoid the need to introduce defences. A slightly different approach was taken in coastal areas, where the aim was to add sufficient freeboard to reduce any potential overtopping of defences to 'tolerable' levels, rather than eliminate the risk completely. The scheme also includes an allowance for climate change to 2030 to allow for potential increases in rainfall and sea level between finalisation of the flood modelling and the assumed date when the scheme might start to be implemented.

43. Objector OBJ-017 challenged the evidence base supporting the proposals for the River Carron and Chapel Burn in Carronshore, around Water's End/ The Meadows. The objection noted that flood risk maps for 2030 presented at a public engagement event did not show that this area was at risk of flooding, although the scheme included for flood defence walls. The council has responded that the flood risk map referenced did not make any allowance for 'freeboard'. In addition, the flood model had relied on LiDAR data to define ground levels. The accuracy of this information can be affected by dense or tall vegetation. To accommodate this, the council undertook a more detailed topographic survey. Comparison of these levels against predicted flood risk levels for 2030 for the 1 in 200 year flood event and allowing for a freeboard allowance of 0.6 metres, identified that the depth of flood water would be predicted to exceed ground levels in the gardens by in the order of 0.3 – 0.4 metres and exceed floor levels in properties in Water's End by in the order of 0.1 metres. I note that these estimates use freeboard allowances in line with guidance from SEPA and make no allowance for climate change. I further note that the flood maps showing the [future medium likelihood of flooding before scheme constructed](#) in 2080, based on a high emissions climate change scenario, clearly illustrate flood risk around Water's End/ The Meadows.

44. OBJ-017 has also questioned the sources of data for the flood model, including rainfall data and evidence of trends in river water levels. The objector has conducted his own analysis of maximum river height over three decades (1989-1999, 1999-2009, and 2009-2019), gauged daily flow in terms of number of days when flow was $\geq 20 \text{ ms}^{-1}$ (for time periods 1989-1998, 1999-2008, 2009-2018, and 2019-2023) and catchment daily rainfall days when rainfall was $\geq 30\text{mm}$ (for 1978-1987, 1988-1997, 1998-2007, and 2008-2017). The objector concludes that these three parameters all show an insignificant, slight downward trend. The council has not challenged these figures but has confirmed that the flood model uses the best available data, follows recommended modelling guidance, and has been reviewed by SEPA. In addition, the approach and data used has followed that set out in The Flood Estimation Handbook, which is the nationally recognised approach.

45. I appreciate that flood modelling is a complex process. It requires various inputs and is therefore influenced by the quality, age and resolution of the available baseline data including information about flow rates and topography. These parameters, in turn are influenced by other factors such as the rate of run-off of rainfall from surrounding land. Whilst some of these factors can be measured for inclusion in flood models, other elements rely on predictions of future rainfall patterns, duration and intensity, which in turn are influenced by predictions about the rate of climate change, which introduces further uncertainty into the modelling process. I understand that there is an industry agreed standard approach including base data inputs for dealing with these uncertainties and that this approach has been used by the council. The council has gone further, by refining and customising some data inputs, such as topography levels, to ensure that the approach has been as tailored to the specific circumstances as possible. I note that the approach has been reviewed by SEPA on more than one occasion and been deemed acceptable.

46. Whilst the outputs from the modelling, in terms of predicted flood maps, are readily available for public scrutiny, the supporting information and complexity of the modelling process are not available. This can lead to a lack of confidence and understanding of how these predictions have been achieved, particularly in areas for which there is not a recent history of flood events.

47. I have considered the analysis conducted by the objector but do not find that these provide an accepted approach to predicting future flood risk or appear to account for tidal flooding.

48. Based on the above, I am satisfied that the requirement for the council to develop a Flood Protection Scheme is based on sound evidence and is consistent with the need and policy basis set out in [The Forth Estuary Flood Risk Management Strategy](#), prepared by SEPA, in line with its requirements under the Act. The council has used a nationally recognised standard approach to predict the future risk of a 1 in 200 year or 0.5% probability flood risk. The council has refined data inputs, using locally sourced information to improve the accuracy of predictions. Some discretion has been used, for example, in terms of reducing the level of freeboard in some areas to minimise the height or extent of flood defences required. I conclude that there is justification for the scheme.

Generic approach to scheme design and consideration of alternatives

49. Objectors OBJ-001, OBJ-002, and OBJ-007 have questioned the design approach, which they consider focuses on the use of walls and hard defences resulting in the loss of trees and green features. It is suggested that this approach has been driven by financial considerations and that alternatives should be adopted which would result in minimal disruption to existing structures or removal of natural resources that soak up water. I have considered this latter point as part of my consideration of objections relating to the loss of trees and vegetation.

50. The council's approach to scheme design including options considered are set out in [Chapter 4](#) of the EIAR. An [Option Appraisal](#) report and [summary](#) were also prepared. An initial long list of flood risk management options was refined to produce a shorter list of viable options, which were investigated further. The analysis of options included the economic, environmental, social and technical issues associated with each option. Alternatives considered included dredging watercourses, natural flood management, storage at Carron Valley Reservoir, flood storage on the River Carron and Grange Burn, creation of a new flood relief channel and creation of a tidal barrier across the Forth Estuary. These options were discounted for various practical reasons, including significant likely environmental and social effects and effects on existing infrastructure (e.g. gas pipelines). Reasons why each measure was ruled out as stand-alone measures are summarised in [Table 4-4-1](#) of Chapter 4 of the EIAR and these factors were reported in [public engagement events](#).

51. Initial possible options were identified by SEPA as part of the [Forth Estuary Local Plan District Flood Risk Management Strategy](#) published in 2015. This did not identify natural flood management measures as suitable for the GFPS. I can see that the scheme design has evolved over time and has been informed by public engagement events and practical and policy considerations.

52. I am aware that there are examples from elsewhere where natural flood measures, such as realignment of channels and creation of flood storage areas have been successful in reducing flood risk. However, quantifying the benefits in terms of reduced flood risk can be uncertain. Furthermore, such measures cannot be universally applied. Finding sufficient areas of land to accommodate these measures, particularly in urban areas, can be challenging. The fact that the scheme requires to address flooding from different sources (sea, river and rainfall) and different watercourses also adds complexity. I note that the proposed scheme includes elements that draw on natural flood measures. For example, the location of hard defences at Carronshore allows for a degree of over-topping into the floodplain. I am therefore satisfied that the choice of preferred option has followed a systematic process and has considered the potential to use alternatives to hard defences.

Aspects influencing scheme design

53. Objections question the influence of cost in deciding on a preferred option and the compatibility of the proposals with other policies of Falkirk Council, such as those relating to environmental sustainability targets (OBJ-001, OBJ-017).

54. In terms of costs, Section 4.2.3 of [Chapter 4](#) of the EIAR sets out the criteria that were used to assess each potential flood risk management intervention. These are technical, social, environmental and economic. The economic criterion is described as “the benefit / cost ratio of the option based on an estimate of the damages avoided (i.e. the cost of estimated flood damages avoided over the expected 100 year lifespan of the Scheme) versus the construction and maintenance cost of the option for the period.” An [Economic Assessment Report](#) has also been prepared, which follows the approaches and guidance in the Scottish Government’s ‘Flood Protection Appraisals: Guidance for SEPA and Responsible Authorities’, the HM Treasury’s Green Book and Middlesex University’s Multi Coloured Handbook 2023.

55. The council has set out, in its [hearing statement](#) (paragraphs 2.17 and 2.18) how the proposals align with strategic regional and local strategies and has provided further information about this in its [response to OBJ-001](#). [Chapter 2 of the EIAR](#) considers the legislative and regulatory framework for the proposed scheme. Section 2.4 of that chapter assesses the proposed scheme against key planning policies including NPF4 and the Falkirk Local Development Plan 2 (FLDP2) (which together, form the Development Plan) and Scotland’s National Marine Plan.

56. The council has explained how the scheme is aligned to Falkirk Council’s Plan 2022-2027 through demonstrating commitment to the priorities of supporting a thriving economy and green transition; and supporting stronger and healthier communities. The scheme would help to build resilient communities through mitigating the effects of climate change. There are community benefits in the form of a STEM education programme for primary and secondary schools and employment, where possible, of local persons when carrying out ground investigation works.

57. At the hearing, I explored further the factors that had influenced scheme design, including cost. Based on the information provided, I can see that cost is only one of the elements that has been considered, with other factors such as carbon ‘costs’ and environmental effects also influential in guiding the areas protected. From the Technical Notes, I can see that in some instances the ‘cheapest’ option in financial terms is not always the preferred option. I was provided with examples of where cost was influential in identifying properties that would not be protected (e.g. residential properties on Stirling Road), as the costs of protecting these would be disproportionate to the value of the property. There are also areas where the environmental consequences of proposals would have been unacceptable.

58. The current projected costs of the scheme are significant – currently estimated by the council in its hearing statement to be in the order of £556.2 million (mean of cost range). Whilst some objectors have suggested this money could be better spent on other things, as I have already noted, there is a need and requirement for the council to prepare a flood protection scheme. The proposed scheme is predicted to provide benefits for 6,025 people and is estimated to provide benefits of £2,390.2 million. This would result in a benefit cost ratio of 4.3.

59. I have considered the concerns raised by OBJ-017 that the cost per property is not justified. I accept that the costs provided by the council are for the whole scheme. The costs

for different parts of the scheme are likely to vary, depending on the nature of works required and construction period. Therefore, in the absence of a detailed area-by-area cost breakdown it is not possible to draw any conclusions about the cost/benefit ratio for individual properties. Based on the information before me, I am content that there has been a cost/benefit analysis for the scheme as proposed, that this has been determined using recognised standard methods and that the scheme would deliver overall benefits.

60. I conclude that environmental and sustainability issues have been considered as part of the option appraisal process and scheme design.

Level of detail available

61. Several objectors (e.g. OBJ-016) have requested more details about how the scheme proposals would affect their property, including details of the location of flood walls, construction methods, timescales, access requirements and ongoing maintenance.

62. The council has highlighted that details of the scheme are published in the [Scheme Plans](#), which show the location and nature of defences in each area. Further information is also available in the EIAR and accompanying Figures, which include information about proposed finishes in different locations. In its view the level of information provided meets the statutory requirements and in some instances is more detailed than is typically provided at this stage. The design is sufficient to give confidence that the scheme can be built in the locations identified. The overall timescale for the scheme, as it would affect the objector's property is set out in its [response](#) to OBJ-016.

63. The required contents of scheme documents are set out in Section 60 (2) of the Act and Regulation 11 of the Flood Risk Management Regulations and on page 10 and within Note E to '[Flood Risk Management \(Scotland\) Act 2009 Local Authority Functions Under Part 4 Guidance](#)' ('the Guidance'). Section 60 of the Act requires a proposed flood protection scheme to include "a description, by reference to maps, plans and specifications, of (a) the extent and scale of the scheme operations; (b) the land which the Authority considers may be affected by those operations; and (c) any land on which the Authority would require to enter (whether temporarily or otherwise) for the purposes of carrying out the operations." The maps and plans must be at an appropriate scale to enable interested persons to identify whether their land will be affected by the scheme operations and it must include an estimate of the cost of the scheme operations proposed to be carried out. A scheme must also include a statement of how the operations will contribute to the implementation of the current Local Flood Risk Management Plan.

64. It is understandable that those who will be directly affected by the scheme are seeking certainty about the implications for their own property. Whilst there needs to be some degree of specificity in terms of the nature and location of flood defences in relation to private land holdings, I accept that the design will continue to be refined at each stage of the consenting process. This is recognised in the Guidance, which notes "It is imperative that flexibility is built into the description of the operations and land affected, so as to allow for changes as the Scheme is progressed". Nevertheless, the published Scheme Plans provide a comprehensive overview of all the land for which there are proposals. These include 'overview' plans to enable individuals to orientate themselves to the correct broad area and more detailed plans, at an appropriate scale and with a suitable base mapping to enable a member of the public to understand how the scheme relates to their own property boundaries. Detailed plans, at a scale of 1:500 show the precise location for different elements of the works. Proposed access routes, features to be retained or created, and sample designs, finishes and cross-sections are also included. A document detailing the [scheme operations](#) has also been published and 'fly through' animations showing the

proposed works at some locations have also been produced. In addition, the council has provided information about anticipated duration of works, as they affect the objector. Whilst the commencement date may require modification, depending on the rate of progress with the statutory processes necessary to consent the scheme, it nevertheless provides an indication of the duration of any works. Having reviewed the information that is publicly available, I am content that it is more than sufficient to enable those affected by the scheme to clearly understand what works are proposed in the vicinity of their property and the extent of land required on either a temporary or permanent basis.

Specific design approach

65. Objections have been raised about the proposed scheme design at: Carronshore (Wardlaw Place/ Gillfillan Place/ Dock Street and Water's End/ The Meadows); Stirling Road; Zetland Park, Inchyra Road and the Docks at Grangemouth.

Carronshore – Wardlaw Place/ Gilfillan Place/ Dock Street

66. The objections refer to the alignment of the proposed flood defence wall (FDW), which is proposed to be set back from the bank of the River Caron. OBJ-001 suggests that the homes on Wardlaw Place and Gillfillan Place appear to be drawing the worst scenario and that the proposed FDW should be replaced with an embankment along the riverbank. OBJ-004 raises concerns about access to land by the river through the FDW. The objector also suggests that there is an existing earth bund which provides flood protection.

67. At the hearing, the council confirmed that the two main elements influencing scheme design in this area were an absence of development that required defending and to place the flood defences outwith the floodplain. It noted that the alignment broadly follows property boundaries, although it may be the case that some of the land currently grazed might be in the ownership of the neighbouring properties. The council has stated that constructing defences around the river edge would remove functional flood plain, contrary to best practice. It would also require large numbers of vehicle movements to import material for the embankment and sheet piling would be required to prevent seepage of water. It notes that the existing bund is not a formal flood defence structure and even if it were, it is unlikely to be of sufficient height to offer protection during the large, low probability events that the proposed scheme is designed to protect against. At the hearing, it also identified that installing a flood defence wall around the river's edge would have increased the length of defences by a factor of 4.

68. In terms of access to the land, the council states this would be maintained. It notes that the alignment of the FDW was altered following discussions with the objector, to provide protection to additional structures. Currently, a single point of access is proposed, as is currently present, but additional access points could be discussed.

69. The proposed scheme is shown on drawing number [B2386100-JEC-S5-C01-XXX-DR-C-0018](#). The proposed FDW would extend along the rear of properties on Gilfillan Place and Wardlaw Place and then extend northwards to the east of Dock Street, thereby crossing the 'neck' of a large meander of the River Carron.

70. The proposed FDW would be located beyond the existing boundaries separating garden space from grazed land and is shown to be lower than existing boundary fences. It would not involve permanent loss of private garden space (although I acknowledge that the plan shows a need for some temporary access to properties along Gilfillan Place during construction).

71. During my site inspection I saw that this land, which is bordered on three sides by the river, is used for equine grazing with some stables and animal shelters and a riding arena but is otherwise undeveloped. It appears to form part of the flood plain for the river, although I saw that the bank top appeared to be reinforced by a low bund. I accept that creating an embankment along the top of the existing riverbank would act to separate the river from its flood plain and reduce storage capacity during flood events. I also accept the council's position that constructing an embankment here would involve major groundworks including importation of materials and would have greater effects on river function and wildlife. It would increase the length of defences to safeguard undeveloped land, contrary to the overall design approach that has been taken.

72. From the council's [written response](#) to OBJ-004, I understand that the alignment of the FDW was altered to provide protection to the main stable buildings. The objection notes that this would create a boundary between the stables and riding arena which would inconvenience users. Whilst I accept that the proposals would alter arrangements, the realignment would result in the protection of built structures. Access to the arena would be maintained. The objector has also identified additional, alternative options in this area including relocating the proposed FDW further south or reinforcement of the existing bunds. As identified above, I am content that the proposed alignment has been selected to maximise retention of the existing flood plain in this area and that the replacement or reinforcement of the embankment along the riverbank would have greater effects on wildlife than the current proposals.

73. The scheme plan shows that a flood gate would be installed to provide access through the FDW. I have been provided with conflicting information as to whether this would be the preferred option of the landowner. At the hearing, Falkirk Council stated that the landowner had expressed a preference for a gate. However, after having watched the hearing, the landowner provided me with a copy email from the council's consultants, which set out reasons why a gate (rather than a ramp) provided the most viable solution. As this response was received after the hearing, I allowed the council an opportunity to comment. It has not disputed the landowner's response but has emphasised that the point it wished to make was that access to the land would be maintained. I understand from the [written response](#) to the landowner that Falkirk Council would consider requests for additional access points through the flood defences, whilst wishing to keep these to a minimum given the risks associated with gates not being closed during a flood event. I am content that the scheme makes provision for the landowner to retain access to his land and that the council is prepared to discuss the format of that further with the landowner.

Carronshore – Water's End/ The Meadows

74. The proposed scheme is shown on drawings [B2386100-JEC-S5-C01-XXX-DR-C-0016 and 0017](#). OBJ-017 has challenged the need for flood defences to protect the Water's End/ The Meadows area questioning the evidence base for predicted future floods and noting that there are no historic records for floods. I have already addressed these points above and accepted the rationale for flood defences in this area. In addition, I note that the council indicated at the hearing that no allowance for climate change had been made in estimating flood risk in this area and that whilst these areas may not currently have experienced flooding, the risks of doing so would increase in the future owing to climate change.

75. During my site inspection I saw signs of erosion of the banks of the River Carron in the vicinity of the Chapel Burn. In answer to my questions, the council has explained that this is a further reason for setting defences back from the immediate river's edge.

76. In conclusion, I am satisfied that the inclusion of defences in around Water's End/The Meadows has been justified.

Stirling Road

77. The proposed scheme is shown on drawing [B2386100-JEC-S5-C01-DR-C-0003](#) and 0005. A FDW is proposed along the eastern side of Stirling Road. In addition, a second FDW would extend from roughly opposite the bus garage in a north-easterly direction towards the riverbank before turning approximately east and south-east to run approximately parallel to the riverbank behind the commercial premises. It would then head south-west towards Stirling Road to link back in with the FDW there. The proposed alignment would result in the commercial premises being surrounded by the FDW, separating it from the residential properties to the north-west. Access to the commercial premises from Stirling Road would be via a flood gate through the FDW along Stirling Road. Access to the residential properties would be via a second gate through the FDW separating the residential and commercial premises. Unlike now, the residential properties would not have a direct access to Stirling Road.

78. OBJ-015 objects to the proposed arrangement because it would require them to access the commercial and residential properties via flood gates; the proposed FDW would cross the centre of the yard; and the lack of protection for all the properties.

79. The council has indicated that the flood defences have been located primarily to protect Stirling Road and properties to the south of the road and that the 'main' flood defence runs along the rear of the footpath on the eastern side of Stirling Road. At the hearing, it explained that the two residential properties to the east of the road were located close to the riverbank. In one case, the corner of the building is estimated to be 2 metres away from the riverbank, which in turn is 3 – 4 metres high. The nature of the riverbank and the proximity to the property means that installing flood defences would be challenging, requiring work within the channel and would have significant environmental and cost implications. The council has assessed the costs of protection would be significantly greater than the value of the property they would protect.

80. Modelling, by the council, has shown that the implementation of the proposed flood defences upstream would result in enhanced water levels and hence elevated flood risk to the commercial properties under the 1 in 200 year flood event. To ensure that these properties are not disadvantaged from their current situation by the scheme, an additional FDW would be located to the rear of these commercial properties to offset the increased risk. This FDW would be lower than that along Stirling Road. It would replace the existing stone wall along the garden boundary.

81. The council further notes that the flood gates through the FDW, providing access to the commercial and residential premises would be designed to reflect the existing access opening width. It has indicated that under normal conditions these gates would remain open and would only be closed where SEPA issues a flood warning. Responsibility for closing the gates would remain with Falkirk Council, who would provide as much notice as possible of the closure.

82. I find that the alignment of the proposed FDW, which essentially creates a protected 'box' around the commercial premises to the east of Stirling Road, results in an incongruous arrangement. However, I accept that this is necessary to offset the increase in flood risk to the commercial properties that would result from implementation of the scheme upstream. I understand that relocating (or providing additional) defences between the residential

properties and the river would represent technical and environmental challenges and would not be cost effective. The height of the proposed FDW to the rear of the commercial properties would be lower than the design height along Stirling Road. Relying on this lower FDW alone and removing the FDW in front of the commercial premises would not provide the required level of protection for Stirling Road. I am therefore satisfied that the proposed alignment and arrangement of the FDW is based on sound reasons.

Zetland Park

83. Objections relating to the effects of the scheme proposals on Zetland Park relate principally to the risk of flooding from Grange Burn and hence the need for the scheme; concerns about the loss of trees, including the effects of this on flood risk; lack of consideration of alternatives; and the effects of the proposals on the benefits arising from the Zetland Park regeneration project (OBJ-005, OBJ-011). The council indicates that concerns raised at consultation events have been considered and that the scheme has been developed in consultation with those responsible for the regeneration of the park.

84. I have already considered matters relating to the need for the scheme and have accepted that a history of flooding is not necessarily an accurate predictor of future flood risk. I note that the defences for Grange Burn are primarily designed to protect against tidal flooding caused by very high tides and storm surges, although there is also an element of fluvial flood risk. SEPA Flood Maps indicate that the area is at risk of flooding.

85. In terms of alternatives, different options were considered and presented at public engagement events held between 2018 and 2024. I note that [responses](#) to the first consultation events in 2018 expressed a preference for what was described as ‘Option C’ – which proposed creating a flood storage area on the Westquarter Burn, a tidal barrier at the mouth of the Grange Burn and a flow control structure at the confluence of the Grange Burn/ Flood Relief Channel. This option was favoured because it minimised the extent of flood defences and loss of trees along the Grange Burn. It was discounted by the time of the consultation events in [2019](#) as being not feasible owing to high operational risk, technical concerns relating to when the tidal barrier would close and practicalities of coordinating gate closures with predicted/ modelled weather forecasts. Further details of the iteration of the preferred scheme design are set out in [Chapter 4](#) of the EIAR.

86. At the hearing, the council explained the overall strategy for managing flood risk on the Grange Burn, highlighting that the existing flood relief channel would be upgraded and a flow control structure introduced to divert and reduce flows in the Grange Burn. This acts to reduce the areas where flood defences are required. It provided a further explanation of the iteration of the design to reduce the number of trees affected on the eastern side of the Grange Burn and of the constraints to design such as the proximity of trees to the existing flood wall along Abbot’s Road. My conclusions about the effects of the scheme on tree loss are considered later in this report.

87. [Chapter 9 of the EIAR](#) considers the landscape and visual effects of the scheme. I note that the proposals include for replanting of mature trees on a 1:1 basis in Zetland Park. Nevertheless, moderate adverse effects on landscape receptors Zetland Park designation and Zetland Park are anticipated in summer year 15 with secondary mitigation. Major adverse effects on visual receptors, recreational users of Zetland Park are anticipated in winter year 1, with secondary mitigation. This would reduce to moderate adverse effects by summer year 15 after construction and with additional mitigation.

88. The predicted landscape and visual effects of the scheme on Zetland Park are significant. Whilst these effects have been moderated as far as possible, they remain

disbenefits of the scheme, which require to be considered in relation to the benefits of the scheme.

89. Overall, I am satisfied that the views expressed at the initial consultation event were not dismissed lightly. The council has considered alternative approaches to managing the quantified flood risk and that the preferred scheme design has been developed following a clear decision-making process. The proposed scheme, whilst having some significant effects on landscape and visual receptors, nevertheless represents the option which minimises these negative significant effects and these effects would decrease over time. On balance, I accept that the benefits of the scheme outweigh these effects.

Inchyra Road

90. OBJ-019 has identified a potential conflict between the proposed location of the FDW and an existing pipeline supplying nitrogen gas. The council has indicated that although the owner of the pipeline is not a statutory undertaker, the pipeline is a significant asset and would be treated in the same way as other significant assets such as gas, water and sewer pipelines, which the scheme is also having to address.

91. It is not unexpected that a major infrastructure scheme in an urban area, will interact with and need to accommodate other, existing, essential infrastructure. The Act confers powers on the council to be able to divert pipes and utilities at its own cost. The council has expressed its intention to work with the objector to ensure a diversion. I accept that it is at detailed design stage that the need for any diversion and the route of such a diversion would be confirmed. I am therefore satisfied that the potential conflict of the pipeline with the indicative line of the FDS is not a sufficient reason to not confirm the scheme.

The Docks at Grangemouth

92. Two objectors (OBJ-020 and OBJ-022) have questioned the proposed alignment of flood defences in the vicinity of the Docks at Grangemouth. Representatives of both objectors were present at the hearing. I consider the points raised in each objection below.

Objection from OBJ-020 (Jarvie Group Limited) in relation to land on the southern shore of the River Carron

93. Objector OBJ-020 has indicated that the proposals would result in the permanent loss of a significant part of its yard space required for its business. This could effectively divide the available space into two parts. There would also be disruption to the access road to the business yard during construction. The objector has suggested that alternative solutions should be investigated, including moving the FDW closer to the riverbank.

94. The council has acknowledged the importance of the access road and loss of yard space to the business. It has indicated that it has and will continue to discuss suitable solutions with the objector. Alternative alignment options for this area were considered in the Technical Note for the [Dalgrain Road Area](#). This highlights that the riverbank has a wooden wharf, in poor condition, and the whole bank is not considered sufficiently stable to support the FDW. The council notes that it is willing to continue discussions but given that the scheme may not be implemented in this area for 10 – 15 years, there is a possibility that the nature or location of the business may change. At this stage it does not wish to engage in work that may be abortive.

95. During my unaccompanied site inspection, I saw that the land in question lies between Dalgrain Road to the south and the River Carron estuary to the north. Access is gained from Dalgrain Road via North Bridge Street. The proposals would involve the

construction of a flood defence wall roughly parallel to but set back from the bank of the River Carron (see drawings [B2386100-JEC-S5-C02-XXX-DR-C-0002](#) and -0003). The objector estimates this would result in the loss of a strip of land approximately 5 metres wide over a distance of approximately 450 metres. As the yard is of irregular width, being narrowest approximately in the middle, the loss of this land would further reduce the width of the yard reducing ease of movement through the yard and decreasing its storage capacity. A larger area of land would be required during the construction phase, which, given the nature of the business which involves large machinery and storage of units, could result in restricted access to the western part of the yard.

96. I have considered the objector's suggestion that there are alternative solutions such as re-aligning the FDW closer to the riverbank. Based on the Technical Paper and information provided at the hearing I am satisfied that the council has considered this option but has found it to be technically unviable and more costly. I note that re-aligning the FDW closer to the riverbank would also likely result in greater environmental impacts because of the works required to create a stable structure and in bringing disruption closer to the Firth of Forth SPA and Ramsar site.

97. The council's preferred design solution would have consequences for the operation of the business. At the hearing, the objector confirmed that it may require replacement land in the long term to enable the business to operate. I understand that discussions around this are ongoing with the council. Given the likely timescales for implementation of the scheme, it is difficult to predict with any certainty the future scale and nature of the objector's business. Nevertheless, I am satisfied that there is time for a resolution to be reached. The Act makes provision for compensation to be paid when a person has sustained damage, which can include where the person's interest in land has depreciated. This provides further impetus for the council to develop a workable solution with the objector and also provides a 'backstop' to safeguard the objector's interests. I am satisfied that the proposed alignment represents a justifiable solution.

Modifications within Grangemouth Port

98. OBJ-022 (Forth Ports Limited) considers that the proposed scheme is inconsistent with legislative requirements and national policy and would directly impede the management, operation, development and expansion of Grangemouth Port ('the Port') and delivery of the Forth Green Freeport (FGF).

99. By way of background, the [initial submission](#) from OBJ-022 sets out the policy context for the Port. It states that the Port of Grangemouth is Scotland's largest port handling 9 million tonnes of cargo each year. It identifies the Port's role in contributing to Industrial Green Transition Zones (IGTZ) identified in NPF4. These areas are designed to support the generation of economic opportunities whilst minimising carbon emissions. Certain developments in these areas (including port facilities for the transport and handling of hydrogen and carbon dioxide) are considered national developments. The Port lies within the FGF where the objective is to promote regeneration and high-quality job generation through measures such as promoting decarbonisation and a just transition to a Net Zero economy. Parts of the site have also been designated as the Grangemouth Tax Site. Special economic incentives apply in such areas to encourage investment, create jobs and to feed economic benefits back to the surrounding areas through mechanisms such as non-domestic rates retention.

100. The proposed alignment of the FDW omits areas of land that OBJ-022 has identified as important for implementing and achieving these policy objectives. This includes an area to the east of the Port, identified for development of an Energy Park to meet objectives as

part of the FGF and Grangemouth Tax Site (the 'Energy Park land') and land on the western edge of the Port, which also forms part of the Grangemouth Tax Site. The objector highlights that undeveloped land within the Port is limited and argues that exclusion of these areas would sterilise development and undermine delivery of the FGF, delivery of sustainability policies, and meeting objectives of the IGTZ. It considers that the compatibility of the scheme with the FGF was not adequately considered by the council when taking its preliminary decision to confirm the scheme, even though the council was a part of the team that bid for the Freeport status. Whilst the benefits of the FGF are time limited they can be extended. In addition, the objector notes that during the examination of the FLDP2, the reporter recommended that the Spatial Strategy map should be amended to include these areas within the flood protection area. It also notes that the council has acknowledged that the scheme can be an enabler to support future development on land.

101. Forth Ports seeks various modifications to the scheme, specifically: (i) realignment of the flood defence wall east of the lock gate to ensure the Energy Park land benefits from flood protection and use of a demountable flood defence wall to ensure continued access to the 'Grange Burn land'; (ii) realignment of the flood defence wall to the western edge of the port to safeguard land designated as part of the Grangemouth Tax Site; (iii) realignment of the flood defence wall to the north of North Shore Road to ensure that wide-loads are not impeded; and (iv) agreement about the detailed design, choice of contractor and construction methodology of the lock gate. Forth Ports has also raised concerns about how construction of the flood protection works would interact with Port operations, which are considered later.

102. In response, the council has stated that account must be taken of the legislative requirements of the Act. The purpose of the scheme is to reduce flood risk to existing buildings and infrastructure through delivery of sustainable actions identified in the Local Flood Risk Management Strategy and Local Flood Risk Management Plan. It considers that acting as an enabler for future development is a secondary purpose and that support for this approach is set out in SEPA's [Position Statement on Development Protected by Formal Flood Protection Schemes](#). The council identifies that NPF4 includes policies applicable to flood protection as well as policies related to development, and that these are inextricably linked. It highlights the provisions of Policy 22 Flood risk and water management of NPF4. The council maintains that the scheme does not alter the designation of the land, it does not preclude any development in the FGF and that there is no guarantee that the scheme would be implemented prior to the expiry of the tax benefits associated with the FGF. The scheme seeks to protect what is there now and not what might be there in the future.

103. The council states that it has to balance competing interests ranging from ecological impacts and constraints to residential amenity and business needs. This approach is recognised in [Scottish Government guidance for flood schemes](#) and the council considers that the scheme delivers the best balance between competing local, regional and national needs as well as between economic, social, residential and environmental impacts.

(i) Energy Park Land and Grange Burn Land

104. The Energy Park land is shown in Appendix 2 of Forth Ports response to the consultation about the scheme, which is included as Appendix 1 to its [Hearing Statement](#). It comprises land totalling approximately 70,000 square metres lying to the west of Grange Burn – which the objector refers to as the 'Energy Park land' and land to the east of Grange Burn – referred to as the 'Grange Burn land'.

105. During my site inspection, I saw that most of the land is currently undeveloped. The proposed alignment of the FDW runs along the eastern edge of the South Shore Road, diverting eastwards around the boundary of a developed area but mainly excludes the Energy Park land. The objector wishes to see the FDW realigned to along the shoreline, to ensure that the Energy Park land lies within the protected area. It states that if this land is not included for protection within the scheme, it would not be possible to develop it, which would have implications for decarbonisation at Grangemouth. In further support of its position, the objector has identified economic benefits anticipated to arise from the Energy Park and Grangemouth Tax Site and possible options for identifying additional funding sources for the flood defence works that might be available as a result of creating certainty about including the land within the area of flood defences.

106. The only access to the Grange Burn land is via the Energy Park land and a bridge across Grange Burn. This was in a poor state of repair at the time of my site inspection. The objector has indicated it intends to replace the bridge and to undertake improvements to bring the land into the operational area of the Port.

107. The Grange Burn land is at lower risk of flooding than the Energy Park land. Consequently, the objector is not seeking a realignment of the flood defence wall to safeguard this area but is seeking to retain access to this land through the realigned FDW and the use of demountable defences.

108. The objector is clear in stating a preference for the realignment of the FDW. However, it recognises that the council may be concerned about committing to protect land that does not currently benefit from planning permission. It has suggested that an alternative approach would be to revise the scheme to include the shoreline route as an option, with appropriate conditionality, alongside the current proposed alignment.

109. In response, the council has identified Scottish Water as an example of a statutory undertaker, which has adapted proposals to coexist with the scheme in areas outwith the protected area but close to the Firth of Forth SPA and Ramsar site boundary. It indicates that the first notification it received of the proposed Energy Park was in the written objection from OBJ-022, it has no information about what is envisaged as comprising the Energy Park and it is unaware of any planning applications having been submitted. It further notes there is no evidence that the Energy Park would benefit from permitted development rights, given its proximity to the Firth of Forth SPA and Ramsar site. The council has also indicated that realigning the FDW closer to the shoreline would result in higher defences (given the difference in land levels).

110. I acknowledge the Green Free Port status of the area and the limited land available for development to support this within the Port area. The objector has set out broad aspirations for development and the potential scope of financial benefits that may accrue from development of the Energy Park. The nature of these proposals is consistent with policy objectives of decarbonising energy and a just transition. The objector's stated scale of potential financial benefits is substantial. However, I note that these are broad concept proposals and there is no certainty about what would be developed, or timescales for this and hence that these benefits would be delivered, even if the flood defences were to be realigned.

111. In its written submissions, the objector has identified the urgency and policy support for rapid action on measures designed to deliver benefits of the IGTZ and the FGF. This push for quick action does not appear well-aligned with the likely timescales for implementation of the scheme in this area, which may be at least a decade away. I accept the objector's view that benefits can be secured up to and including the last day of the Free

Port and that extensions may be possible. Even so, making development of the Energy Park land conditional on construction of the FDW (even if realigned to the position requested by OBJ-022) could act to inhibit or delay realisation of the potential highlighted by the objector.

112. I understand that the Energy Park land is not allocated for business use within the FLDP2 but does lie within the urban area. Thus, I can see no reasons why proposals cannot be brought forward, which include their own provision (if needed) to address any flood risk. I have no evidence that identification of the Energy Park or FGF have been conditional on the alignment of the FDW. To that extent I cannot see how failure to include these areas within the boundary of the area protected by the FDW would introduce any uncertainty or disincentive to their development. Equally, there is no clear evidence that including the land within the protected area would stimulate proposals that would not come forward anyway.

113. The need for and location of the flood defence scheme is led through the [Forth Estuary Local Plan District Flood Risk Management Strategy](#) and supporting [Flood Risk Management Plan](#) and technical constraints. I note that the reporter in the FLDP2 examination recommended an alteration to “the Grangemouth Flood Protection Scheme Watercourses and Coastline depiction to include the peninsula formed by site 163 and adjacent plots within its landward extent”. This was in recognition that this area was non-tidal ground and not water. However, the reporter also acknowledged that the Spatial Strategy map was “not intended to show the precise alignment of all proposed flood protection measures, which are yet to be finalised”.

114. I have considered the suggestion that two alternative routes be consented, with a decision taken about which one to build being based on whether development has occurred. This does not seem to me to be a workable solution and would add uncertainty in terms of the quantum of development necessary in order to trigger realignment from the current proposed location to a shoreline location. Moreover, I am aware of the proximity of both the current proposed and suggested realigned FDW alignments to the Firth of Forth SPA and Ramsar site, and that the requirements of the Habitats Regulations are engaged. Whilst I consider the implications of this in more detail below, I do not consider that advancing two alternative options, which have different likely significant effects on the SPA and Ramsar site would enable the relevant competent authorities to reach a conclusion of sufficient certainty for the purposes of the appropriate assessment.

115. The objector has stated that there is no need for additional flood protection works for the Grange Burn land and that it intends to upgrade the bridge to access this land. The proposals as published provide for vehicle access through the FDW and retention of access to the objector’s land. Thus, I conclude that construction of the scheme, as proposed, would not prohibit or prevent development in these areas. There is nothing to stop proposals coming forward for the Energy Park land and Grange Burn land, which can include for integral, development-specific flood defences, if necessary.

(ii) Land to the western edge of the Port

116. There is an area of land on the western edge of the Port (approximately 8,000 square metres), which has been designated as part of the Grangemouth Tax Site. This land is bordered to the north by the River Carron but lies outwith the area protected by the FDW. The objector considers that if the scheme does not protect this land, then it will sterilise its development potential. It notes that designation as a Tax Site creates an incentive for international investment and would enable development consistent with ambitions to decarbonise industry. It considers that exclusion of this land would be contrary to the NPF4

Delivery Programme and that the beneficial effects of the scheme will have been under reported. To safeguard this land, OBJ-022 is seeking a realignment of the FDW along the shoreline of the river. Alternatively, it suggests that the scheme should be revised to secure both the current proposed route and the alternative route along the shoreline. This would allow the construction of the shoreline route, except in circumstances where no development proposals for this land have come forward and there is a funding shortfall for the shoreline route. In that case, then the objector proposes that the current proposed alignment should be built.

117. The council has reiterated that the primary purpose of the scheme is to reduce flood risk to existing buildings and infrastructure. It is unaware of what type of development is proposed for the land and whether the level of protection of the scheme would be sufficient to enable this to proceed without additional defences or whether timescales for development would require proposals to have their own flood defences. It has also noted that relocation of the defences could result in greater disturbance of the birds within the Firth of Forth SPA and Ramsar site. The council refutes the suggestion that the current alignment would lead to sterilisation of the land. It notes that access would be maintained via a proposed vehicular ramp over the flood defences.

118. I do not consider that the position with this land is different to that of the Energy Park land. It appears that identification of this land as part of the Grangemouth Tax Site occurred after and was not conditional upon, the proposed alignment of the FDW. I can see no barriers to proposals being brought forward for this land as a result of the alignment of the FDW. Its location means that even were the flood protection realigned to include this land, additional flood measures may still be required. Effects of development on the Firth of Forth SPA and Ramsar site would need to be considered. Furthermore, given the projected timescales for construction of the scheme, reliance on realignment of the flood walls could act as a brake on development of proposals. The council has indicated that should proposals with flood defences be approved, there would be scope to accommodate these alongside the scheme. As noted above, I do not find that approving two possible alignments for the FDW would be a workable solution, as this would generate additional uncertainty about which route would be constructed and how much development would be necessary to trigger realignment along a shoreline route.

(iii) Flood defence wall to the north of North Shore Road

119. The scheme includes for a FDW along the northern edge of the North Shore Road. The objector is concerned that the proposed position of this wall would impede passage of wide-load abnormal indivisible loads (AILs). This includes items that are brought into the Port for onward passage by sea as well as movement of loads around the Port and onto the public road network. At the hearing, the objector confirmed that the limiting factor was the width of the lock, which is 30 metres. It has suggested that swept path analysis should be carried out for any locations where the proposed wall would encroach on the available width of the road. If proposals would result in interference with passage of wide-load AILs then alternative defence options should be investigated.

120. The objector has highlighted that the council must not interfere with its statutory undertaking without its consent and that it must not unreasonably hold that consent. It has stated that should the proposals interfere with its ability to transport wide-load AILs then the council must demonstrate that this interference with the objector's statutory undertakings is unavoidable by demonstrating that alternative options have been explored but are not capable of implementation. OBJ-022 has suggested that the scheme remain flexible in terms of the location of the flood wall by being able to locate the FDW up to or potentially beyond the shoreline and this should be incorporated into any deemed planning permission.

121. The council has set out in a [technical note](#), its reasons for the location of the FDW. It provided more information during the hearing. With the proposed alignment, there is a minimal requirement to provide any rock revetment in the river channel to support the wall. Moving the wall even as little as 1 metre towards the coast would necessitate the introduction of substantial rock revetments, which would have environmental consequences and increase the engineering challenges.

122. The council has also explained that it has offered to make the lower part of the flood wall permanent, but at a height no greater than an existing concrete wall on the north side of North Shore Road opposite Nustar, which acts as a current pinch point. The upper part of the flood defence would be demountable. The council reports that the objector has rejected this option as it considers this would be a major constraint when it may only have limited time to prepare for vehicle movements. The council disputes this and suggests that time would be required anyway to remove lighting columns. It has also indicated that the height of the load deck of Self-Propelled Modular Transporters would be above the height of the proposed flood defence wall and suggests that the objector has an alternative access route available to South Shore Road.

123. During my site inspection I saw that there is a variable distance between the north side of North Shore Road and the shoreline itself and that there is an existing low wall along part of the road and a relatively narrow bridge towards the western end. I accept that the stability of the riverbank combined with the proximity of the Firth of Forth SPA and Ramsar site mean that realigning the wall closer to the shoreline would be both technically more complex and increase effects upon the Firth of Forth SPA and Ramsar site.

124. Forth Ports is best placed to know and understand the time constraints it may have to work to on occasions when moving AILs but given the technical challenges that this may pose and need to deploy specialist equipment, I consider it unlikely that it has no advance warning of the need. Whilst I can understand that the need to demount flood defences on occasions would be irksome, I am not persuaded that the time required to do so would introduce significant delays. Use of demountable barriers would mean that the proposals would not result in any reduction in the scale of loads that can be transported from that which can be accommodated currently.

125. At the hearing, it was confirmed that the scheme before me is for a fixed FDW. Forth Ports confirmed that a demountable wall may be a way in reaching a solution but that discussions to date had not agreed where and over what length such a demountable wall may be possible.

126. As already noted, the Guidance advises that flexibility is built into the description of the operations to allow for changes as the scheme progresses. There seemed some uncertainty at the hearing as to whether such flexibility would allow for substitution of a solid defence by a demountable defence. However, as I set out further below, changes to the scheme via mutual agreement are possible. In addition, in implementing the scheme, the council is not able to interfere with the statutory functions of Forth Ports without its consent, and that consent must not unreasonably be withheld. I am therefore satisfied that there is sufficient impetus for Forth Ports and the council to work together to agree a change to the scheme for the substitution of demountable barriers for a fixed FDW along the narrower parts of the North Road. I am not persuaded that the alternative of moving the wall towards the shoreline would provide a viable option. It would also have environmental implications.

127. In the absence of detailed information about the length and location of wall that would require to be demountable, it would be difficult for me to make a firm and clear

recommendation for a modification of the design of the FDW. If such changes do not fall within the limits of flexibility allowed by the legislation, then the council should consider whether it requires to make a modification to the scheme prior to confirming it, or whether this matter would be addressed by agreement with Forth Ports following confirmation.

(iv) Lock gate

128. The scheme requires a replacement lock gate on the only vessel entrance to the Port. The objector requires that this does not result in any changes to the vessels that can enter the Port. The gate must also be resilient to ensure that it remains operational, preventing a situation where either the lock becomes unusable or the gate has to remain open, creating a breach in the flood defences.

129. OBJ-022 has worked with the council to identify the middle gate as the best location for the flood gate to minimise risks of direct damage. Further collaborative work is required to agree final design details from options that have been identified. The objector also wishes to be involved in discussions about the manufacture and specification of the gate, including commissioning testing, to ensure its resilience and addressing questions relating to support and shear pins. It is concerned that the work description included in the [Scheme Operations](#) document is insufficiently detailed. It suggests that these matters need to be agreed prior to any consent or secured by a satisfactory condition and control document.

130. The council does not dispute the need to work with the objector to agree the detailed design and other matters. It has identified that it sought to enter in to an 'Interface Agreement' with Forth Ports to secure the necessary arrangements but that this has not been signed. The council states that the objector indicated it could not enter into an agreement until the design was progressed further and they would require the alignment of defences to be altered as per their suggestions.

131. Given the significance of the lock gate to the operation of the Port as a whole, it is vitally important that Forth Ports, as statutory undertaker, are satisfied that the proposed design and resilience of the replacement gate are sufficient to enable it to meet its statutory obligations. Agreeing a process to achieve this seems sensible and would clearly set out expectations and obligations from both parties. Whilst it is for Forth Ports to determine whether the proposed 'Interface Agreement' meets its needs, it would seem logical for it to be involved at an early stage of scheme design, when there is greater flexibility over guiding key decisions than to wait until the scheme for the gate is developed in greater detail, when it may be difficult to make any changes that Forth Ports consider are necessary.

132. I also note that the alignment of the scheme in the various locations already discussed (e.g. in relation to the Energy Park land) is unrelated to and not influenced by the design of the lock gate. Therefore, I can see no reason why differences of opinion on those matters should act as a block to reaching an agreement about design of the lock gate.

133. In conclusion, I understand the desire of the objector to ensure that the flood defence works are aligned to follow the shoreline around the whole of the Port and hence safeguard all land within it, whether or not it has been developed. Such an approach would also create a neat and tidy line on a map. However, that is not the basis on which the scheme has been developed. The scheme design has been based on clear objectives, which focus on safeguarding existing dwellings (and business) from flood risk rather than safeguarding additional, undeveloped areas that may be developed in future. As set out above, there is no certainty about the nature of or timescale for any developments that may come forward in the areas that the objector wishes to see safeguarded. That is, there is no certainty that the aspirations or benefits would be realised. In any case, there is nothing to stop proposals

for these areas being brought forward, which include their own provisions for flood defence, if needed. There would also be technical and environmental consequences and challenges arising from the proposed realignment of the FDW to the shoreline. There is a clear need for Forth Ports to be involved in the detailed design of the lock gate, but I am satisfied that there are mechanisms to achieve this. Use of demountable defences along parts of the North Shore Road would avoid any risk of interference with Port functions. This could either be secured via a modification to the scheme or by agreement directly with Forth Ports.

CONSTRUCTION EFFECTS

134. Several objectors have raised concerns about disruption during construction of the works. Most of these relate to the proposed works adjacent to the Chapel Burn (OBJ-003, OBJ-009, OBJ-010, OBJ-014, OBJ-016), although there are objections from objectors OBJ-020 and OBJ-022 relating to disruption to business activities.

Chapel Burn

135. Concerns raised in relation to the Chapel Burn area refer to a lack of detail about construction methods, the duration of construction works, how disturbance from noise and vibration will be managed and effects of this on those who work from home, risks to property from piling, and what damage would result to private land and gardens and who would be responsible for repairing this. Some objectors have highlighted that they have invested in landscaping works within their garden.

136. The council has indicated that construction of the scheme is likely to take place in phases and it may take around 8 – 10 years to complete the whole scheme. The duration of construction works will vary in each area, depending on the complexity and nature of structures to be constructed, ease of access to construction sites and construction methods. In turn, construction methods will be influenced by the nature of the ground into which the pilings will be placed and the location of any structures and buildings. The council anticipates that construction works along the Chapel Burn could take 12 months to complete, although it is unlikely that works would be outside any individual property continuously for this period. At this stage it is not possible to be definitive about the sequencing of works.

137. There are various mitigation measures to limit disturbance as far as possible, including from noise, during construction. These range from the choice of equipment and construction methods, restricting activities within specified noise limits, completing the works as quickly as possible and limiting working hours. In its responses to objectors, and its hearing statement, the council has indicated that working in residential areas would be limited to weekdays from 8am to 6pm with no working at weekends or on bank holidays. In non-residential areas working outwith these hours may be required to reduce effects on the operation of these facilities. Such requirements can form part of the contractual arrangements with the construction companies and be implemented through planning conditions.

138. Most of the proposed defences would require some piling. The potential for damage would vary depending on distance between the property and piling operations, ground conditions and method chosen. There are few areas where piling is required close to properties. The risk of damage would be assessed on an area-by-area basis, and the scheme would seek to eliminate the risk of damage through careful choice of construction techniques, such as the use of silent or vibrationless piling. There would be monitoring systems in place to measure vibration during construction to ensure that this remains within

defined limits. There would also be pre-, and post- construction checks to identify any damage, which would be repaired and replaced by the council.

139. Activities along the Chapel Burn would include installation of piles sequentially along its length prior to casting a concrete wall. The works would impinge on the rear gardens, but a temporary fence/hoarding would be erected to separate usable garden space from the construction works. The council would relocate any outbuildings or furniture from the construction area either into the usable garden or into storage. It has stated that all areas would be restored to match the conditions pre-scheme construction, at the council's expense, and to the standard agreed with the landowner, including replanting of any trees or vegetation.

140. The concerns of residents located adjacent to the Chapel Burn are understandable, given the proximity of the works to these residences and the fact that part of their rear private amenity spaces would be unavailable to them during construction. The plans provided show the limit of land required, but there are some uncertainties relating to the timing and timescales for work (notwithstanding the council's estimate that works would last for a period of 12 months) and also in terms of the exact nature of works (e.g. nature and timing of piling works).

141. There is no doubt that the proposed works would result in disturbance to some residents during construction and limit, on a temporary basis, access to part of people's gardens. However, the council is committed to minimising effects, as far as possible and I am not aware of any alternative proposals or options for delivering the required level of flood defence in this area that would avoid any disruption. As noted above, I accept that there is a need to provide the flood defence scheme and that the location, nature and height of flood defences have been based on a systematic and objective review of appropriate criteria. The council has legal obligations to design and implement a flood defence scheme and hence a 'do nothing' option is not available to it. Even though residents adjacent to the Chapel Burn do not recall previous incidents of flooding, that is no predictor of future flood events, particularly given climate change. A flooding event would also cause significant disruption and damage to properties and, in the absence of flood defences, could occur as a repeated event.

142. Whilst the published plans provide an indication of the required working areas, I accept that the final details will be determined later in the project. The council should develop these to minimise the level of intrusion or inconvenience as far as possible. As noted above, the Act provides for a system of compensation where a person sustains damage, which includes where a person has been disturbed in the person's enjoyment of land. I am satisfied that the council could introduce a system to assess and replace any damage to garden space or buildings arising from construction and that this could be secured by condition.

143. Measures to reduce disturbance from construction routinely form conditions to planning permissions. I note that the council intends to limit hours of working in residential areas. Reducing working hours each day can lead to an extension of a construction period. Nevertheless, I recommend that the council should give further consideration to the working hours allowed, particularly adjacent to the Chapel Burn. 'Reasonable' working hours for construction works have traditionally been based on an assumption that the majority of people were in paid employment outside the home. That situation has changed. I note that some objectors work from home and that this may be an argument for reducing permitted hours for construction works, although this should not be at the expense of increasing the overall construction period.

144. In conclusion, whilst I do not want to diminish the concerns of objectors about the level of intrusion or disturbance that would arise during the construction period, I do not consider these factors are sufficient to justify not implementing the scheme. Any flooding event would also generate significant intrusion and disturbance to residents.

Land on the southern shore of the River Carron (OBJ-020)

145. Objector OBJ-020 has concerns about disruption to the business during construction. The working area identified for the scheme would act to effectively sub-divide the working space of the business yard and limit or prevent access to the western portion of the yard during construction.

146. The council has indicated that it is not currently able to estimate how long construction in this area would take, as this would be dependent on whether it had unhindered access to the site, or whether it needed to work in tandem with yard operations. It considers that solutions are available, including the potential to provide alternative storage space during the construction period.

147. I consider that it is inevitable that a scheme of this magnitude and importance will result in some disruption during construction, particularly to properties close to watercourses. However, it is incumbent on the council to exercise its powers in a responsible manner. I recognise that construction works in this area are unlikely to commence for some time and that circumstances may change between now and then. I also accept that there are different options available and that it would be appropriate to involve the contractors that are appointed to build the scheme in discussions with the users of the yard, to identify alternative construction options to minimise the disruption. I am also reassured that discussions have already commenced between the council and the objector about the possibilities of identifying alternative land that could be used on a temporary basis during the construction period to mitigate the effects of reduced space and access.

Grangemouth Port

148. The objection from OBJ-022 highlights the importance of Grangemouth to Scotland and its economy and the complexities of co-ordinating activities there and the need to maintain security. It states that anyone operating within the Port is required to follow the rules, regulations and bye-laws of the Port and it may be necessary for agreements to be made to manage interactions between construction works and operation of the Port. Timing of any road closures or access to the Port from the sea would also require careful management and agreement with Forth Ports. Reference has been made to the Construction Traffic Management Plan and Transport Statements identified in the [Traffic and Transportation](#) chapter of the EIAR as useful measures but the objector indicates that these do not include a mechanism for involvement of and approval by Forth Ports for land in its control.

149. The council acknowledges that construction works would require partial road/ land closures and closures of the inlet channel to allow installation of the lock gate. It states that it is committed to engaging with Forth Ports once there is more certainty around the programming of construction works to ensure that the scheme is constructed in a manner that causes least disruption. It envisages the establishment of a 'working group' involving Forth Ports, the council and its appointed designers and contractors, which would meet to agree construction methods and closures. This could be secured as part of the Interface Agreement with Forth Ports.

150. I acknowledge the significant role that Grangemouth Port plays in Scotland's economy, particularly in terms of being the main entry point for Scotland's fuel supplies and as a container port. The Port covers a large area, supporting a range of different activities, which require careful co-ordination. The construction of the flood defence works would add to this. Given the statutory functions of Forth Ports, it is necessary that there is close co-ordination and collaboration between the council and Forth Ports to ensure that minimum disruption to the normal operation of the Port occurs during the construction of the scheme. This is particularly important during installation of key infrastructure such as the replacement lock gate. Installing the lock gate will require closure of the only sea access to the Port. Thus, any prolonged closure or delay in re-opening would have serious consequences for Scotland as a whole.

151. I am also aware that Forth Ports has legal responsibilities as a statutory undertaker and in terms of the Port and Marine Facilities Safety Code. Construction works will need to be planned to ensure that the Port is aware of what is happening within its land so that these responsibilities can be fulfilled.

152. The council has recommended establishment of a working group, which could be helpful, providing it has a clearly defined remit. Such a group could deal with all matters relating to the Port, including implementation of measures included in the Construction Traffic Management Plan and Transport Statements to inform any legal agreement that is considered necessary. Other issues that might be considered are clarification of ongoing responsibilities for management and maintenance of the flood defence scheme. I am aware that legal agreements and planning conditions are routinely used to require and establish working groups on various matters.

153. Falkirk Council, in preparing documents to submit to Scottish Ministers should consider whether it needs to consider conditions relating to the formation of a working group(s). Irrespective of any conditions, these important matters related to the interaction between construction activities and the safe and efficient operation of the Port, in line with Forth Ports statutory responsibilities are likely to require confirmation via some form of legal agreement. I am aware that the provisions of Section 58 of the Act provide an impetus for both parties to collaborate to reach agreement. I am reassured by discussions at the hearing that there is a willingness from all parties to move these matters forward.

LOSS OF TREES AND OTHER VEGETATION

154. Concerns about loss of trees and other vegetation within Zetland Park or private gardens are mentioned in several objections (OBJ-002, OBJ-003, OBJ-007, OBJ-010, OBJ-011, OBJ-012, OBJ-013, OBJ-017). These refer to the visual effects of the loss of trees, effects on privacy and effects on water absorption.

155. At the hearing, the council confirmed that trees are only being removed where there is no alternative. For example, along the Chapel Burn alternative alignments to safeguard trees would have placed the FDW much closer to dwellings. The preferred alignment in Zetland Park was chosen to minimise the number of mature trees to be removed. Nevertheless, the proposals would result in the loss of some trees, including trees that are self-sown. The proposals aim for an overall approach of planting 3 trees for every tree lost. Replacement trees in Zetland and Rannoch Parks would be large specimen trees (3 – 5 metres in height) and hence less likely to be replaced on a 3 for 1 basis. Replacement trees and vegetation in private gardens would be agreed on a case-by-case basis with the individual landowner. In residential areas where security is a concern 'thorny' type shrubs and bushes can be planted.

156. The council has further confirmed that the privacy and security of private gardens along the Chapel Burn would be maintained during construction by 2 metre high security fences to protect the construction works, in addition to fences separating the garden spaces from the construction works, effectively creating two 'barriers' to unauthorised access. Re-planting and replacement garden fences would take place after construction is complete.

157. The council has acknowledged that trees do have a role to play in water absorption, and they can also help to slow flows and reduce erosion. However, it notes that the scale of flood risk within the area could not be addressed through trees alone and that they have no role to play in reducing risks from tidal flooding and storm surges.

158. I see that the loss of trees and vegetation has been assessed within the EIAR. [Chapter 9](#) considers the landscape and visual impacts of tree loss. This highlights how the scheme has been designed to accommodate treelines considered important visual elements, such as at Rannoch Park and Zetland Park. The work has also been informed by specialist tree surveys. Details of the replacement tree planting strategy highlighted to me at the hearing is included as mitigation and in defining residual effects. Notwithstanding this mitigation, there are anticipated to be residual moderate adverse effects on landscape and visual receptors by year 15 of scheme operation at various locations, including Zetland Park, owing to various factors including changes to vegetation and trees.

159. [Chapter 7](#) of the EIAR assesses the effects on trees during construction and operation in terms of biodiversity. A significant adverse residual impact has been identified for broadleaved and mixed woodland whilst tree growth is re-established. Overall, there would be a permanent loss of 1.73 ha of broadleaved and mixed woodland habitat. Rate of re-establishment would be accelerated by the planting of a mixture of tree age classes.

160. Overall, I am satisfied that the evolution of the scheme design has taken account of trees and sought to safeguard these. Further minor adjustments may be possible on a case-by-case basis. Whilst I accept that in some areas the trees are 'self-sown' that does not necessarily detract from their importance both visually and to biodiversity. Mitigation for tree loss has been provided for, including replacement of trees on a 3:1 ratio and planting mature trees to help reduce time periods for re-establishment of tree cover. Whilst the loss of trees, including mature trees is regrettable, I do not consider that the scale of loss is sufficient to outweigh the benefits of the scheme. Nor, based on the nature of flooding addressed by the scheme and proposed re-planting, do I consider that the scale of loss is sufficient to make an appreciable difference to predicted flood levels. I am also satisfied that provision has been made to replace vegetation and trees in private gardens that would be disturbed during construction.

EFFECTS ON WILDLIFE AND PROTECTED SITES

Habitats and species

161. Some objectors have raised concerns about the effects of the proposals on wildlife in general, and habitats along the Chapel Burn. One objection disagrees with the predicted significance of effects of the scheme on hedgehog populations (OBJ-001, OBJ-003, OBJ-006, OBJ-014, OBJ-017).

162. The council has confirmed that effects on wildlife have been considered. It notes that mitigation and enhancement measures will be carried out to reduce impacts on wildlife and that planning policy and legislation in Scotland requires infrastructure projects to deliver an overall positive effect on biodiversity. Two residual significant effects were identified. These relate to effects on the qualifying interest bird species of the Firth of Forth SPA and Ramsar

site, which is considered further within the HRA and AA. The other relates to effects on broadleaved woodland during construction and operation of the scheme, during the period whilst the trees planted in mitigation establish, but once this has been achieved there would be no residual impacts on this feature.

163. The prediction of effects on hedgehogs has been conducted by a team of professional ecologists and involved specialist surveys, which are not standard for a development of this nature. Assessments are based on a 'worst case scenario' if construction occurs in all flood cells simultaneously, maximising the amount of temporary habitat loss. Significant residual effects were not identified for hedgehogs. Enhancement measures for hedgehogs have nevertheless been included in the scheme.

164. I see that [Chapter 7](#) of the EIAR considers the effects of the proposed scheme on biodiversity and considers terrestrial, marine and freshwater species, habitats and ecosystems. The approach to the ecological impact assessment follows best practice guidance published by Government, the Government agency responsible for natural heritage in Scotland (NatureScot) and the professional body for ecologists (CIEEM). The assessment of effects is based on a suite of ecological surveys, which included surveys for protected species, including bat species and other species identified of concern such as hedgehogs. A stepwise process has been applied to identify effects without and with mitigation. NatureScot, as statutory nature conservation body, has not raised any concerns about the ecological impact assessment.

165. I have already considered objections relating to tree loss and concluded that effects on trees have been quantified, that tree loss has been minimised as far as practical and that appropriate mitigation is provided for through the scheme.

166. Whilst I have considered the comments that effects on hedgehogs have been underestimated, I am satisfied that the ecological impact assessment has adopted an appropriate approach to characterising and quantifying the effects on this species. Notwithstanding the difference in views between the objector and the EIAR on this matter, I am not persuaded that any adverse effects on hedgehogs would be sufficient reason not to progress the scheme.

167. The mitigation includes for preparation of a Landscape and Ecological Habitat Management Plan as part of the detailed design. This will specify the methods for mitigating habitats lost or damaged during the construction phase, together with measures for monitoring habitats after construction.

168. I have considered the concerns of some objectors about possible displacement of vermin from vegetation into properties. Vermin, particularly rats, are prevalent in many urban areas. I am satisfied that there are preventative measures that can be put in place to reduce this risk and that there are mechanisms for reacting to concerns in particular areas. This is a measure that the council should consider to secure by condition.

169. Overall, I am content that effects on habitats and species have been appropriately considered and could be addressed through the specified mitigation. Such matters are commonly addressed through conditions, to ensure their implementation.

Designated sites and Habitats Regulations Appraisal

170. Two objections (OBJ-021 and OBJ-022) relate to the HRA including AA of the scheme. Representatives of both objectors attended the hearing and participated in the accompanied site inspection.

171. The scheme, as proposed, has been identified to have likely significant effects upon the Firth of Forth SPA and Ramsar site in respect of 11 of the qualifying species. Consequently, under the terms of the Habitats Regulations, the scheme cannot be confirmed by the council (either with or without modification) unless and until the council, as competent authority, has carried out an appropriate assessment of the implications for the site in view of that site's conservation objectives. The appropriate assessment has concluded that it is not possible to rule out adverse effects on the integrity of the Firth of Forth SPA and Ramsar site. In such circumstances, the competent authority can only authorise the scheme if it considers there are imperative reasons of overriding public interest (IROPI) and having consulted Scottish Ministers. In such cases, compensatory measures are required to ensure the overall coherence of the UK Network of sites is protected.

172. The council considers that evaluation of the HRA is not a primary matter for the hearing as it is subject to a separate process under the Habitats Regulations. I accept that responsibility for undertaking an appropriate assessment lies with the relevant Competent Authority/ies. In this case, the council is a competent authority in respect of the decision as to whether to confirm the scheme (either with or without modifications). Scottish Ministers also fulfil a role as Competent Authority in terms of deciding whether to grant deemed planning permission for the scheme. There may be other Competent Authorities, who will be required to conduct their own appropriate assessments for aspects of the scheme (e.g. in terms of consenting works in the marine environment). Indeed, Forth Ports may also have a role as a competent authority for example in relation to consenting works to the lock gates.

173. I have considered the comments by Forth Ports in its [response](#) to the council's hearing statement that the HRA should have been available as part of the package of information to inform the making of the preliminary decision. That is a matter for the council.

174. As a reporter to Falkirk Council, I do not have a role as a competent authority. Nevertheless, I do not consider that the appropriate assessment process can be divorced from a consideration of the scheme design. Such an assessment may require modifications to the design of the scheme or the way it is proposed to be carried out or identify that alternative solutions need to be investigated. As these factors could influence the nature and alignment of the scheme, they have some bearing on my consideration of objections. Likewise, those objections that suggest modifications to the scheme, particularly its alignment, could influence the conclusions of the AA. I have therefore considered the objections relating to the appropriate assessment, including the proposed compensatory measures but have not carried out my own appropriate assessment of the proposals or a forensic analysis of the adequacy of the council's appropriate assessment.

Objection from OBJ-021

175. The objection from OBJ-021 (RSPB Scotland) notes that part of the scheme boundary lies adjacent to the south-east of RSPB Scotland's Skinflats nature reserve, which is being managed to safeguard wintering wildfowl and waders. Three main areas of objection were set out in its [hearing statement](#):

- Insufficient information to demonstrate that alternative solutions have been fully considered;
- lack of proper consideration of available mitigation measures to reduce negative impacts on the designated sites; and

- the proposed ecological compensation measures are inappropriate compensation for the effects of the proposed scheme on site integrity and in any event they are inadequate.

(i) Insufficient information

176. In its [hearing statement](#), RSPB Scotland confirmed that this element remained part of its objection but indicated that it would focus on the second and third reasons for objection at the hearing.

177. I note that the [initial objection](#) from RSPB Scotland questioned whether sufficient consideration had been given to Natural Flood Management alternatives. I have already considered the evolution of the preferred scheme design and concluded that this assessed various options, including natural flood management methods and alternative alignments of defences. These alternative solutions have been considered within the HRA report. For the reasons already set out, I am satisfied that alternative solutions have been considered.

(ii) Lack of proper consideration of available mitigation measures

178. The objector maintains that timing works to avoid the autumn and winter period (October – March) would significantly reduce the likelihood of construction disturbance. It considers this would be possible, even given the complexity of the scheme and notes that such a commitment is included within proposals for the Musselburgh Flood Protection Scheme.

179. The council has identified the factors which limit its ability to commit to restricting construction to the summer months. Work would need to be timed to coincide with planned shutdowns of the petrochemical plant and would require partial shutdown of some activities in the Port. The timing of these shutdowns is not within the complete control of the council. Were it to prescribe shutdown periods, this could generate significant additional costs.

180. The council has highlighted the additional mitigation measures that would be applied, including a commitment that any works undertaken adjacent to the Firth of Forth SPA and Ramsar site would be undertaken independently of each other, with at least one winter in between.

181. Limiting construction activities to the summer, when reduced numbers of the qualifying bird species are present, would reduce the risks of disturbance and hence potential adverse effects on the integrity of the Firth of Forth SPA and Ramsar site. However, I accept that the safety constraints associated with construction adjacent to significant industries adds additional complexity to programming of construction activities and that it may not be possible to restrict all construction works to the summer months. Whilst I consider that the construction timetable should be designed, as far as possible, to take place during the summer, it seems precautionary and necessary to consider what additional mitigation or compensation would be required should it not be possible to do so.

(iii) The appropriateness and adequacy of proposed compensation measures

182. Two compensation sites have been identified (Kinneil Lagoons and Bothkennar Pools). The objector has identified three concerns:

- The proposed compensation measures are within the impacted Firth of Forth SPA.
- The proposed compensation measures are not additional to ongoing conservation and management obligations.

- The proposed measures will not function as compensation for the adverse effects on the SPA and its species.

183. RSPB Scotland considers that the boundaries of SPAs are tightly drawn, meaning that all land within the boundary is ecologically justified. Provision of compensatory measures within an SPA should be avoided to ensure that the overall network is protected and that there is not an erosion of protected areas. In support, the objector has referenced NatureScot's ["European Site Casework Guidance: How to consider plans and projects affecting Special Areas of Conservation \(SACs\) and Special Protection Areas \(SPAs\)"](#), which summarises the EU Commission's guidance on compensatory measures and what these are likely to include. The objector argues that these measures do not include enhancement of the existing SPA or land within the SPA as possible compensation.

184. The objector's experience is that both proposed compensation sites already suffer from disturbance, so may not be suitable. It also considers that conservation or restoration measures for the qualifying species should be carried out anyway as part of the management of the SPA, to achieve its conservation objectives. Both proposed compensation sites are owned by Falkirk Council, which has an existing duty to maintain and enhance these. The objector notes it has worked with the council as part of the Inner Forth Landscape Initiative to prepare a [Management Plan for Kinneil Lagoons](#), although the majority of this work has not been delivered. It has also worked with the council to improve Bothkennar Pools.

185. RSPB Scotland also considers that the compensation proposals represent a reduction in the number of possible roost sites. Currently there are three possible roost areas: Grangemouth, Kinneil Lagoons and Bothkennar Pools. Enhancing Kinneil Lagoons and Bothkennar Pools to compensate for disturbance at Grangemouth would result in a reduction in the number of overall roost options from three to two. The number of roost site options is important if birds need to move between them because of disturbance. The HRA does not provide evidence to show what is currently limiting usage of the proposed compensatory sites and hence that habitat improvement works would be successful in increasing capacity. Even if the functional size of the two remaining roost sites was successfully increased, then use of these sites may be limited by disturbance. The objector's [hearing statement](#) includes some evidence of the degree of disturbance currently experienced at these two sites. At the hearing, concern was also raised that some of the proposed compensation measures would replace one type of functioning habitat (feeding habitat) with another type of functioning habitat (roosting areas).

186. The objector also has concerns about the council's resources to undertake ongoing management of these sites. It has identified some alternative compensatory sites.

187. The council stresses that the compensation measures have been discussed with NatureScot. They include provision of alternative roost sites and management of vegetation. The sites have been chosen close to but beyond the influence of disturbance from construction to minimise energy expenditure for birds displaced during construction. These compensatory measures have been identified to address uncertainty about temporary disturbance of high tide roost sites during construction and maintenance activities but would remain as permanent features. Providing two sites means that if birds are disturbed at one, they would have access to a second site. Disturbance at the compensation sites would be limited by existing vegetation and site topography. In terms of functioning habitat, based on information collected for the scheme, the location of the compensatory islands is not in an area where high numbers of birds have been recorded feeding.

188. The council also maintains that there is no legislative basis or precedent that states that compensation measures cannot be located within a protected site. Whilst it would not be appropriate to treat a measure that would be implemented anyway as compensation, consideration must be given to how likely it is that measure would be implemented if the development did not come forwards. The council argues that previous management plans for the proposed compensation areas have not been delivered and there is no certainty they would be delivered in the absence of the scheme, as there is no funding in place nor a mechanism to secure their delivery. Furthermore, the compensation measures would be designed to be complementary to but separate from any site management plans that might be implemented by Falkirk council prior to the compensatory works commencing. NatureScot has been involved in discussions about compensatory measures since 2015/2016. NatureScot's Ornithology Advisor has agreed with providing compensation areas close to the areas of potential displacement and has indicated that displaced birds tend to move to locations on the same side of the estuary, rather than move across it. The selected areas are nearby and are not currently functional supporting habitats.

189. In my assessment, compensation measures must be effective and certain – certain in terms of addressing adverse effects on site integrity that have been identified and certain in terms of delivery. Having reviewed the [NatureScot guidance](#), I can see no barrier to compensatory measures being located within the same site, provided these offset the negative effects of a project on the species concerned and they do not include measures that are required anyway. The objector makes pertinent points about the reduction in the number of high tide roost areas and the evidence base supporting the supposition that increasing functional roosting habitat at the proposed compensation sites would provide the required additional space for displaced birds. I have listened to the evidence provided by both parties about whether the proposals would substitute one form of supporting habitat (roosting) for another (feeding) and the reactions of birds to different sources of noise and disturbance. I acknowledge that the numbers of birds anticipated to be affected by construction works is indeterminate but requires to be assessed by reference to the precautionary principal. There appears little argument that the two compensation sites are already used by qualifying interest species of the SPA, albeit that both sites may experience levels of disturbance. The proposed management measures, including creation of islands, would provide new habitat, suitable for use as a high tide roost and I am reassured that the location of these would be in areas less liable to disturbance and would not reduce feeding habitat. I am also conscious that the compensation is to address issues of disturbance, which may not even be realised, given that birds are known to habituate to some forms of noise. NatureScot, the statutory nature conservation body, has seen and [commented](#) on the appropriate assessment, confirming that it is satisfied with the updated HRA and agrees with its conclusions, including the sufficiency of the compensation proposals. This advice carries significant weight in terms of endorsing the proposed approach.

190. I have considered the alternative compensatory sites proposed by the objector. Whether or not these are (or could be managed to provide) suitable habitat for the qualifying species for which compensation is required, these sites do not appear to be in the ownership or control of Falkirk Council. Hence, based on the information before me, there is no certainty that measures could be delivered at those locations. By contrast, the proposed compensation sites are within the direct control of Falkirk Council, and therefore, I am satisfied that they could implement these measures.

191. In conclusion, I am content that the council has undertaken an appropriate assessment and identified compensatory measures sufficient to satisfy NatureScot.

192. The objection from OBJ-022 considers that the HRA has failed to consider alternative alignment of the flood defence wall to the shoreline to provide protection for the Energy Park land at the Port and so has not considered whether doing so would materially increase or alter the potential for adverse effects on site integrity arising from the scheme. It considers that as the council has not considered the effects of this as part of the HRA, its comments about the effects on the Firth of Forth SPA are speculative. In considering the imperative reasons of overriding public importance, the appropriate assessment has omitted the value of the FGF and hence the consequences of omitting the Energy Park land from the protected area.

193. Forth Ports also maintains that given the precautionary nature of the appropriate assessment, the fact that no SPA species were recorded from the land that would be protected by the realignment of the FDW around the Energy Park land, the scheme already includes areas where the FDW would be adjacent to the SPA giving rise to disturbance, and that mitigation and compensation has already been identified for the scheme, then it is unlikely that inclusion of the Energy Park land would result in any change to the conclusions of the appropriate assessment.

194. The council notes that statements made by Forth Ports about the implications for the HRA if the FDW were realigned are speculation and not based on detailed assessments. The realigned FDW would be closer to the SPA by up to 200 metres in some locations, extending the area to be disturbed further into the SPA and hence increasing the number of birds potentially affected and potentially increasing the scale of compensation required.

195. I am not persuaded by the objector's arguments. The requirement to consider alternatives as set out in Regulation 49 of the Habitats Regulations is in the context of identifying alternative solutions that would avoid (or reduce) the identified adverse effects on site integrity whilst achieving the objectives of the proposal. The council has a role as a competent authority in respect of the proposed scheme. However, Forth Ports also has a role as a competent authority. I am unaware whether it has conducted its own appropriate assessment to support identification of the Energy Park and Grange Burn land for development. If it has, it has not provided me with a copy of this. Nor has it provided any evidence to support its view that realignment would achieve an improvement compared to the proposed situation or justify that effects would not be materially different.

196. The council has provided some evidence of consideration of alternatives, including different options for flood defences along the shoreline. These are summarised in Table 6.3 of the [Habitats Regulations Appraisal](#). At the hearing the council confirmed that realigning the FDW closer to the shoreline would result in additional permanent habitat loss and an increase in the numbers of birds experiencing disturbance. I agree that such an approach could potentially require additional compensation measures, which undermines the purpose of Regulation 49. Whilst I accept that the depth of the assessment of these alternative alignments may not be as detailed as that for the preferred alignment, I am mindful that the requirement is for an 'appropriate assessment', which I interpret as an assessment, fit for the purpose of determining whether or not there would be an adverse effect on site integrity. I consider that the information provided is sufficient to support the council's conclusions.

197. I have already considered the objector's views about the importance of the Energy Park land and the Grange Burn land to the FGF and concluded that development of these areas is not dependent on, nor guaranteed by any realignment of the FDW.

198. In conclusion, it is for the competent authorities to undertake the appropriate assessment and, following a negative assessment, determine whether the tests of imperative reasons of overriding public interest (IROPI) have been met and adequate compensation provided for. NatureScot, as statutory nature conservation body required to be consulted on all appropriate assessments, has not raised any concerns with the sufficiency of the appropriate assessment. I am not persuaded that there are obligations on the council, in respect of the Habitats Regulations, to have conducted an appropriate assessment of inclusion of the Energy Park and Grange Burn land, or indeed the land to the west of the port, as part of its considerations of alternative solutions in considering whether the proposals required a derogation as IROPI. In my role as reporter, based on the information before me, I am satisfied that there are no consequences arising from the appropriate assessment that would lead me to recommend a modification to the scheme.

LEGAL AND FINANCIAL MATTERS

Effects of proposals on property and land values and ongoing responsibility for management

199. Several objectors have raised concerns about the effects of the proposals on property and land values (OBJ-001, OBJ-003, OBJ-004, OBJ-008, OBJ-009, OBJ-012, OBJ-016, OBJ-020) and who is responsible for ongoing management and maintenance of the flood defences, including costs of this (OBJ-001, OBJ-003, OBJ-004, OBJ-012, OBJ-014, OBJ-020). Some objectors have also stated that they would not permit access to their land to enable construction of the works or would only permit access if they receive certain assurances.

200. The council has indicated that it does not consider that compensation is a relevant matter for determining whether to confirm the Scheme. It has, however, highlighted that sections 82 and 83 of the Act provide for a local authority to compensate for any damage in consequence of scheme operations carried out by or on behalf of the local authority, and the subsequent maintenance of any such operations by or on behalf of the local authority. The council would be responsible for ongoing maintenance of the FDW; maintenance of land would remain the responsibility of the landowner.

201. In terms of access, the council has identified that there are three options for it to secure the necessary access rights. Where landowners do not enter into a voluntary agreement with the council, there are options for the council to rely on powers of entry provided for by sections 79 – 81 of the Act or for the council to compulsorily acquire the land.

202. The Act enables the local authority to compensate people for damage to their property. As previously discussed, the council has identified a process to collect information about conditions pre-construction and committed to restoration of those conditions post-construction. I am therefore satisfied that there would be an evidence-base for discussions about compensation. There is no ambiguity about responsibility for ongoing maintenance: management of the flood defence wall would remain with the council, whilst management of the land, including vegetation, would remain with the relevant landowner/ occupier, as now.

203. Whilst it is hoped that the council can reach voluntary agreements with all landowners, refusal of access by an individual landowner would not prevent implementation of the scheme. Section 79 of the Act grants powers to local authorities and any persons authorised by them to enter any land on which scheme operations are to be carried out, for the purposes of implementing flood protection works. However, in exercising those powers, the council needs to take account of human rights and the provisions of Article 1, Protocol 1

of the Human Rights Act. I note that the scheme is not currently proposing any compulsory acquisition of land (by means of a Compulsory Purchase Order). Should that position change then a separate statutory process would be initiated, which would allow for objections to be made.

Role of Forth Ports as statutory undertaker

204. There are limits to the council's powers identified above. Section 57 of the Act requires that a local authority must not exercise its powers set out in Section 56 (in relation to carrying out of any operations to which a flood protection scheme relates) in a way that damages any works or property belonging to a statutory undertaker or interferes with the carrying on of its statutory undertaking unless the undertaker consents. This is relevant to the objection from OBJ-022, Forth Ports, which is a statutory undertaker. Section 58(2) notes that consent is not required if it is withheld unreasonably and Section 58(3) provides for Scottish Ministers to determine whether consent has been withheld unreasonably.

205. Forth Ports has stressed the need for it to be involved in the scheme design as it relates to its' statutory undertakings. It has also highlighted a need to be involved in the development of proposed conditions for the scheme, particularly in relation to any construction management or traffic management plans.

206. The council has acknowledged the legal limits on its powers in relation to statutory undertakers. It also notes a need for it to actively design the scheme to avoid or minimise interference with Forth Ports' functions and referred to the proposed 'Interface Agreement' that was drafted.

207. I have already concluded that a collaborative approach is required in relation to Forth Ports land. This is required in relation to various matters of design (e.g. the lock gate), management of construction, and responsibilities for ongoing maintenance. I agree that a legal mechanism is an appropriate way to secure the required level of collaborative working and reassurance for both the council and Forth Ports.

Conditions

208. At the hearing, Forth Ports suggested that it was unusual for a council to have not already circulated draft conditions with the published proposed scheme, which would have allowed consultation on these. I was directed to a previous inquiry for a proposed scheme ('Whitesands'), which included a session on conditions. It indicated that it wished to be actively involved in the development of any proposed planning conditions to ensure there is sufficient flexibility to address Forth Ports' concerns about scheme design.

209. The council noted that the 'Whitesands' scheme was considered by Scottish Ministers for confirmation and deemed planning permission, whereas the council would be responsible for confirming the proposed scheme. It indicated that if there were matters that I felt should be addressed by condition, I could recommend this in my report. However, the council would not consider it appropriate to have conditions that required the approval of third parties for their discharge. It further noted that Forth Ports has explicit protection of its statutory functions under S58 of the Act. The council is currently working with planning colleagues to develop conditions and intends to issue these for comment.

210. Section 60 (2) of the Act sets out the elements of a flood protection scheme. Further information is contained in Schedule 2 to the Act. There is nothing in the Act, including Schedule 2, which identifies that the scheme Documents or information issued for consultation should include a list of draft conditions.

211. It appears to me there are two separate but inter-linked processes, one relating to consideration of the scheme in respect of flooding and one relating to deemed planning permission. Scottish Ministers were consulted on but chose not to consider the proposed scheme. They have therefore discharged their flood functions under paragraph 7 of Schedule 2 to the Act. Instead, the decision-making process as to whether to confirm the scheme is the responsibility of the local authority and the hearing held to inform this report was conducted in accordance with the requirements of Paragraph 8 of Schedule 2 of the Act.

212. In these circumstances, prior to the local authority reaching a decision whether to confirm the scheme (with or without modifications), no planning functions of Scottish Ministers are engaged. I am appointed to report to the council in respect of the scheme. Consequently, I do not consider that I have a remit to examine or make findings on planning functions. This differs to the 'Whitesands' scheme, where I understand that the public local inquiry was held by Scottish Ministers, who had determined to decide whether the scheme should be confirmed, and thus engaged their planning functions.

213. Should the local authority decide to confirm the GFPS without modifications, Paragraph 14 of Part IV of The Flood Risk Management Regulations requires that the local authority must request that Scottish Ministers direct that planning permission for any development described in the scheme is deemed to be granted. This is provided for through Part 2B of section 57 of the Town and County Planning (Scotland) Act 1997 (TCPA), which was inserted through section 65 of the Act.

214. Part 2B of section 57 of the TCPA notes "Scottish Ministers must direct that planning permission for that development shall be deemed to be granted, subject to such conditions (if any) as may be specified in the direction." Section 14 (2) of Part IV of the Regulations sets out the information a local authority should supply to Scottish Ministers when requesting deemed planning permission for a scheme confirmed by a local authority. This does not specify that a list of draft conditions should be supplied. However, paragraph 1.14 of the Guidance notes that Scottish Ministers may attach conditions to the deemed planning consent, which should be anticipated by local authorities. It further advises that local authority planning specialists are likely to be well placed to provide advice on the type of conditions that should already have been included. Thus, it appears to me that it is at this stage that local authorities may propose conditions for Ministers' consideration but that there is no legal requirement for the local authority to consult on draft conditions.

215. Following the hearing, I understand that a list of draft conditions has been prepared and circulated for comment. As noted, I consider that conditions are a matter for the council and ultimately Scottish Ministers. However, as part of my consideration of outstanding relevant objections, I have identified several matters, which I consider could be managed satisfactorily through conditions. I recommend that the matters I have identified in this report are given due consideration and that a copy of this report is provided to Scottish Ministers to assist in compiling a final list of conditions.

216. For the avoidance of doubt, I see the conditions as a separate element to any legal agreement that may be required between the council and Forth Ports.

217. In conclusion, I do not consider that there was a requirement for the local authority to publish a list of draft conditions as part of its consultation on the scheme or that this would act as a barrier to the council from confirming the scheme (with or without modifications), if it so decides.

Economic value

218. In its hearing statement, objector OBJ-022 has questioned the basis for estimating the economic benefits of the scheme (£2.4 billion), pointing to the economic value of the FGF (£7.9 billion) and the effects of sterilising “a significant portion of” this land, which it considers undermines the cost benefit analysis and case for the scheme.

219. For the reasons set out above, I have concluded that the proposals would not result in sterilisation of land. I also note that the FGF covers areas other than those at Grangemouth. In any case, there is no evidence before me of the extent (if any) to which the Energy Park land and land at the western edge of the Port would contribute to the stated economic value of the FGF as a whole. As the council has identified, the purpose of the scheme is to reduce flood risk to people, property and infrastructure and is based on protecting existing, rather than speculative assets. I do not accept that there is a compelling economic argument for realigning the flood protection scheme to include the Energy Park land and land at the west of the Port. If the objector considers that this land is critical to the delivery of particular, as yet unspecified, developments, there is nothing to stop it from bringing forward proposals, including for any necessary flood protection works.

Other matters

220. I have considered comments made by some objectors (including but not limited to OBJ-022) concerning the level of consultation or engagement that has been carried out by the council. I have reviewed the timelines of consultation with different parties that have been provided (e.g. Appendix 1 to the [council's response to Forth Ports Statement](#)). I am content that these demonstrate that the council has met statutory requirements for consultation on the proposed scheme.

CONCLUSIONS AND RECOMMENDATION

221. The effect of paragraph 9 of Schedule 2 to the Act is that, unless Scottish Ministers have decided to determine the scheme (under paragraph 7), the local authority must make a final decision whether to confirm the proposed scheme without modifications, confirm the scheme with modifications or reject the proposed scheme. This decision is to be made after the hearing and should consider (amongst other things) any representations made at the hearing. My role, as reporter, is to consider those matters raised in valid objections, including at the hearing and assess whether any of these matters would lead me to recommend that the council modify or reject the scheme. It is not my role to consider wider matters, or matters not raised in objections, which might inform the council's decision on whether to confirm, modify or reject the proposed scheme.

222. Appendix H of the Guidance provides advice on modifications to the scheme, both before and after confirmation. It clarifies that there is no provision in the Act or the Regulations for changes to a scheme post-approval.

223. Given that the ‘fine detail’ of the scheme requires to be finalised in various locations, the council needs to satisfy itself, as far as it is able, that these refinements would not lead to a change in the scheme. Appendix H of the Guidance notes that given the level of complexity of major flood protection schemes in an urban environment and interaction with existing public utilities, the built environment and many stakeholders, it is almost certain that a change will be required. Accordingly, it advises that the way in which changes are to be managed need to be considered, identified and documented by the local authority. Different options are highlighted, including advancing a change by agreement.

224. In light of the above, I have given careful consideration as to whether any of the matters raised in representations would lead me to recommend confirmation of the scheme with modifications. This has included consideration of the potential consequences of any proposed changes to the location or alignment of the flood protection measures that have been presented to me during this examination. I am conscious that the scheme operates 'as a whole' to meet scheme objectives to reduce flood risk and that changes to alignment in one location could have significant 'knock-on' effects and implications for the effectiveness of the whole scheme. These in turn, could require further modifications to the scheme, such as a need to alter the height or nature of proposed flood protection measures at other locations. This is particularly the case, given that the scheme is addressing flood risk associated with three rivers in addition to coastal flooding. For these reasons, I have started from a position that where the scheme cannot be recommended as a whole, it should be recommended for refusal as a whole to allow for a re-evaluation of the whole scheme, unless any modifications are of a minor nature and unlikely to affect the functioning of the proposed scheme.

225. Having considered the matters raised by all relevant objectors, I am satisfied that the proposed scheme is a proportionate response to meeting policy objectives and the specified scheme objectives. It has been designed to address a level of flood risk commonly chosen as the acceptable probability of flood risk levels, using 'industry standard' approaches. In broad terms it represents the least intrusive reasonable alternative in relation to impact on private property rights. It has been developed following consideration of a wide range of options, including natural flood management measures. Alternatives and their respective impacts on different environmental receptors have been considered.

226. I am conscious that in choosing the preferred options at each stage, decisions may have been of a discretionary nature. Responsibility for and justification of those decisions lies with the council. Nevertheless, I am content that these decisions do not appear to have failed to consider any reasonable alternatives.

227. For the reasons set out above, I conclude that a policy decision to adopt the proposed alignment of the scheme without modifications, is a justifiable and reasonable option for the council. However, I have identified that design of the FDW along parts of the North Shore Road within Grangemouth Docks may require alteration from a fixed structure to a part fixed/ part demountable structure to enable passage of wide-load AILs. As discussed above, there is a lack of clarity as to whether such a change would fall within the limits of flexibility permissible by approving the scheme without modifications. If it does not, then the council should consider either making the scheme with a modification to the design of the FDW (but retaining the proposed alignment) or negotiating a change by agreement post confirmation of the scheme.

228. I recommend that the Grangemouth Flood Protection scheme be confirmed without modification. This recommendation is based on the proviso that there is sufficient flexibility within scheme design to allow alteration of the current design of the FDW along North Shore Road to allow use of part fixed/ part demountable defences. If this design change cannot be accommodated within the flexibility allowed for by the scheme or by separate agreement, then I recommend that the scheme be confirmed with a modification to address this matter.

Sue Bell
Reporter

APPENDIX A: OUTSTANDING OBJECTORS

At the time of the hearing there were 21 outstanding relevant objections. For data protection reasons, the council has identified each objector with a reference number (OBJ-001 – OBJ-022). One objection, from OBJ-018 was withdrawn prior to the hearing process. Only those objectors who ‘opted-in’ to the hearing process and submitted hearing statements for the hearing are identified by name.

Objector reference number	‘Opted-in’	Hearing statement submitted	Name (where ‘opted-in’ and participated in the hearing)
OBJ-001	✓		
OBJ-002			
OBJ-003			
OBJ-004	✓		
OBJ-005			
OBJ-006	✓		
OBJ-007			
OBJ-008			
OBJ-009			
OBJ-010			
OBJ-011	✓		
OBJ-012			
OBJ-013			
OBJ-014			
OBJ-015			
OBJ-016	✓	✓	
OBJ-017	✓		
OBJ-018	Withdrawn		
OBJ-019	✓		
OBJ-020	✓	✓	Jarvie Plant Limited
OBJ-021	✓	✓	RSPB Scotland
OBJ-022	✓	✓	Forth Ports Limited

APPENDIX B: ATTENDEES AT HEARING HELD AT FALKIRK STADIUM 28 JANUARY 2026

Organisation	Attendees
Falkirk Council	Alistair Dawson, Manager, Infrastructures Team, Falkirk Council Sharon Agnew Alan McGowan, Design Consents Manager, Jacobs Rosanna Mooney, Assistant Director of Ecology, Jacobs Mark McMurray, Partner CMS Kathryn Nolin CMS
Forth Ports Limited	Robbie Owen, Partner Pinsent Masons Roisin Giles, Associate, Pinsent Masons Emma McAslan, Head of Legal, Forth Ports Derek Knox, Regional Director for Scotland, Forth Ports Ian Kerr, Infrastructure Manager Scottish Operations, Forth Ports Barry Heeps, Head of Engineering Scotland, Forth Ports
Jarvie Plant	Brian Gault, Director Jarvie Plant
RSPB Scotland	Toby Wilson, Conservation Officer Esme Clelland, Area Manager