Draft Strategic Flood Risk Assessment

Introduction

Aberdeen City Council is required to produce a Strategic Flood Risk Assessment (SFRA) as a supporting document to the Evidence Report for the Aberdeen Local Development Plan 2028 (ALDP2028). The SFRA is intended to provide a broad, map-based overview of the scope and nature of sources of flood risk within a Local Development Plan Area. It will support the ALDP2028 in responding to the spatial implications of 'Policy 22 – Flood risk and water management' as outlined in the National Planning Framework 4 (NPF4) by promoting avoidance of flooding as a first principle. It will also seek to build resilience to flood risk and reducing the vulnerability of existing and future development to flooding.

The structure of this document is influenced by SEPA's Guidance for planning authorities on Strategic Flood Risk Assessment, published in October 2023. The SFRA will be developed over two stages as follows:

- Stage 1 – Information gathering on flood risk affecting the development plan or catchment area. This stage will also highlight any gaps in the data that we hold, and how we intend to address them. A map-based assessment will also be prepared.

- Stage 2 – Gap Analysis. This section identifies areas where sufficient data or information may be lacking. It can identify where there are residual uncertainties over flood defences and their current standard. It may also identify instances where the flood mechanism is distant or complex, or instances where site-level flood risk assessments have not successfully identified the problem or otherwise reduced uncertainty.

This document addresses Stages 1 and 2 of the SFRA process.

It should be noted that as the modelling of flood mapping and availability of data is ever-changing, the SFRA is consequently limited to being representative at the time of its production.

The Council's ArcGIS portal, which is accessible by all internal Council services, has a dedicated flooding portal which includes all of SEPA's publicly accessible mapping. A full list of which layers are included can be found in the 'SEPA Flood Hazard Maps' section of this report. The Council has also mapped the location of flood defence schemes, and the location of prior flood studies within the City boundary. These maps are intended for internal use only.

Aberdeen Context

Aberdeen is a predominantly urban Local Authority comprising of a city situated on the north-east coast of Scotland. It has an estimated population of 227,750 across an area

of approximately 70 square miles. Beyond that, it is surrounded by Aberdeenshire Council's administrative area.

It is intersected by two major rivers (the Dee and the Don) which discharge to the North Sea on the eastern coastline. Aberdeen is susceptible to coastal flooding, surface water, and fluvial (river/watercourse) flooding.

According to the National Flood Risk Assessment (NFRA) 2018, approximately 15,000 homes are identified as being at medium risk (0.5% or 1 in 200 year event) of flooding in Aberdeen. In addition to this, a further 2000 businesses, leisure facilities or other service sites experience the same level of risk.

A selection of watercourses within Aberdeen includes (but are not limited to):

Table 1 – List of watercourses within Aberdeen City area

Watercourse	Catchment Area	Modelled Length
Auchinyell Burn	Aberdeen City	2.2km
Bucks Burn	Bucksburn	2.7km
Cults Burn	Cults	2.6km
Culter Burn	Peterculter	7.2km
Den Burn & North Burn of Rubislaw	Aberdeen City	7.9km
Devils Den	Aberdeen City	1.6km
Far Burn	Dyce	4.2km
Farrochie Burn	Stonehaven	1.6km
Ferryhill	Aberdeen City	0.7km
Gilcomston Burn	Aberdeen City	5.1km
Glashie Burn	Bridge of Don	3.7km
Green Burn	Bankhead	2.7km
Hol Burn	Aberdeen City	1.7km
Newton Dee Burn	Aberdeen City	3.2km
Powis Burn	Aberdeen City	4.0km
Scatter Burn	Aberdeen City	1.8km
Silver Burn	Bridge of Don	3.8km
West Burn of Rubislaw	Aberdeen City	9.9km

Stage 1 – Information Gathering

This section of the report details the data sources that will be used to inform the SFRA. It will also detail any data sources not used with justification for their exclusion from the SFRA process.

SEPA Flood Hazard Maps

There a 6 main potential sources of flood risk: rivers (fluvial), the sea (coastal), surface water (pluvial), groundwater, drainage and sewers and infrastructure failure (e.g reservoir or canal breaches).

SEPA have produced flood hazard maps detailing perceived flood risk from fluvial (rivers or watercourses), coastal, and surface water flooding events. These are categorised into areas at low (1 in 1000 year event or 0.1% chance), medium (1 in 200 year event or 0.5% chance) and high (1 in 10 year event or 10% chance) likelihoods of flooding. The flood maps have recently been updated for the north-east of Scotland although this does not yet include the coastal maps.

For the purposes of planning, we are chiefly concerned with areas affected by a 0.5% annual probability of flooding (1 in 200 years).

There is over 600km of watercourses (both open and culverted) in Aberdeen City.

The main areas at high flood risk from fluvial flooding in Aberdeen are along the large watercourses, including the River Dee, River Don, Culter burn and the Denburn and the coast and harbour-side area.

Flooding due to rising groundwater is also likely to occur after periods of intense and prolonged rainfall, when the water table rises up from underlying rocks or flowing from springs. Groundwater is generally a contributing factor to flooding rather than the primary source.

Flood Risk Management Maps, which are available online, show the areas identified as being at risk of groundwater flooding., which are available online, show the areas identified as being at risk of groundwater flooding.

The following SEPA mapping layers are included within the Council's ArcGIS Portal and can be seen publicly via SEPA's Flood Maps portal accessible here:

Screenshots of the Council's portal displaying the below layers can be seen in the appendices at the end of this report.

SEPA Mapping Layer
River Flooding High Likelihood
River Flooding Medium Likelihood
River Flooding Low Likelihood
Surface Water and Small Watercourses Flooding High Likelihood
Surface Water and Small Watercourses Flooding Medium Likelihood
Surface Water and Small Watercourses Flooding Low Likelihood
Coastal Flooding High Likelihood
Coastal Flooding Medium Likelihood
Coastal Flooding Low Likelihood
Future Flood Maps River Medium Likelihood

Future Surface Water and Small Watercourses Medium Likelihood
Future Flood Maps Coastal Medium Likelihood

Climate Change Allowances

SEPA's Future Flood Maps are a screening tool to identify areas of flood risk where new development should avoid or where site specific flood risk assessment may be required

SEPA's published guidance 'Climate change allowances for flood risk assessment in land use planning – Version 5' identifies the required climate change allowances that are to be factored in for each of the river basin regions in Scotland.

The Climate Change Allowances indicate how peak rainfall, river flows and sea levels are projected to rise due to climate change, over and above our current understanding of the causes of flooding. Although climate change allowances are provided for the year 2100, this does not affirm that the effects of climate change will not occur prior to this year. Rather, it indicates that increases are starting to be seen now and this will continue into the future.

Aberdeen's Local Development Plan area falls entirely within the North-East Scotland river basin region. The climate change allowances for the North-East Scotland Region is outlined in the table below:

Table 2 – Climate Change Allowance values for each type of allowance

Type of Allowance	Description of Allowance	Value of Allowance
Sea level rise	Cumulative rise from the year 2017 to the year 2100 in metres	0.87m
Peak rainfall intensity	Total change to the year 2100	37%
Peak river flow	Total change to the year 2100	34%

Natural Flood Management Maps

The Natural Flood Management (NFM) maps (found here) identify areas where there are opportunities for alteration or restoration of natural features to help manage flood risk. The maps are of a strategic nature and are primarily to support Flood Risk Management planning decisions at the catchment level. They provide a high-level assessment of those areas within catchments and along coastlines where the implementation of the specified NFM techniques could be most effective and merit further investigation. Five natural flood management maps have been produced: run- off reduction; floodplain storage; sediment management; estuarine surge attenuation; wave energy dissipation.

Whilst we are likely to be supportive of Natural Flood Management proposals in principle, as with any new scheme or development there is the potential it could increase flood risk elsewhere, for example by altering flow paths and/or floodplain storage and conveyance. Any proposals for NFM measures should be supported by an appropriate flood risk assessment.

Flood Defences and Schemes

There are two recorded flood defences within Aberdeen that were included in the former Scottish Flood Defence Asset Database (SFDAD). Selected detail of those flood defences is included in the table below.

Name of Scheme	Fraser Road Flood Prevention Scheme 2002
Scheme Reference ID	40SCH
Watercourse	Gilcomston Burn
Flood Defence Scheme Description	The scheme is designed to mitigate the flooding in the area of Fraser Road from Gilcomston Burn. The operations are divided between two areas, Maberly Street and Westburn Park. At Westburn Park operations include a storage area, channel improvement, bunding and a flood wall. At Maberly street the operations include a box culvert and a flood wall. Information about this scheme was last updated prior to SEPA taking on hosting of the database in 2016. For more up to date information please contact the Local Authority, who are the local flood risk management authority responsible for flood defences in the area.
Type of Flooding Mitigated	Fluvial
Flood Protection Act	Flood Prevention (Scotland) Act 1961
Year of Construction	2002

Name of Scheme	Glashieburn Flood Prevention Scheme 2007
Scheme Reference ID	102SCH
Watercourse	Glashieburn
Flood Defence Scheme Description	The purpose of the scheme is to prevent and mitigate the flooding of Lochside Drive, Aberdeen from the Glashieburn. Works include the construction of a small flood attenuation basin along with associated culverts and screens. In the past 24 years there has been at least 5 reported instances of major flooding at this location. The flooding is attributed to the overloading of a culverted section of the watercourse. Information about this scheme was last updated prior to SEPA taking on hosting of the database in 2016. For more up to date information please contact the Local Authority, who are the local flood risk management authority responsible for flood defences in the area.

Type of Flooding Mitigated	Fluvial
Flood Protection Act	Flood Prevention (Scotland) Act 1961
Year of Construction	2010

The Aberdeen City area also includes the following flood defences and schemes:

Flood Study	**Summary Description**
Coastal Promenade Sea Defences (1898, 1923 and 2006)	The scheme is designed to mitigate the flooding in the area of Aberdeen Beachfront from the North Sea between Footdee and River Dee. It has been elongated and modified. This was developed before an act of Parliament for flood risk was established. In 2006 the beach in front of the sea wall defence was adapted with timber and rock Groynes to reduce sand erosion and exposing the structure to coastal damage.
Fraser Road Flood Prevention Scheme (2002)	The scheme is designed to mitigate the flooding in the area of Fraser Road from Gilcomston Burn. The operations are divided between two areas, Maberly Street and Westburn Park. At Westburn Park operations include a storage area, channel improvement, bunding and a flood wall. At Maberly street the operations include a box culvert and a flood wall. Scheme under Flood Prevention (Scotland) Act 1961
Aberdeen Beach Defences (2006)	To protect the revetments and the area around beach from continued erosion and failure, a beach recharge took place. To ensure the stability of the new beach and to protect the area from further erosion, rock t-head extensions were constructed.
Glashieburn Flood Prevention Scheme 2007 (2010)	The purpose of the scheme is to prevent and mitigate the flooding of Lochside Drive, Aberdeen from the Glashieburn. Works include the construction of a small flood attenuation basin along with associated culverts and screens. Scheme under Flood Prevention (Scotland) Act 1961
Jacks Brae Overflow/spillway structure (2010)	ACC installed an overspill orifice in 2010 on top of the culverted Denburn just downstream of the trash screen at Jack's Brae to act as an emergency overflow.

West Cults Farm (Private Scheme) (2013)	Earth bunds were constructed to prevent river flooding
Stronsay Park Detention Basin (Control Structure) (2015)	The Stronsay Park scheme was designed to store water during storms to protect properties downstream, as well as improve the environment. Stronsay basin holds more than 30,000m3 of water during flood events. The Park acts as an online basin to store water from Denburn by installing a control structure just upstream of Kings Gate.
Leggart Terrace Culvert diversion (2016)	A bypass culvert to increase flood storage capacity between Leggart Terrace and Leggart Avenue via Leggart Place.
David Lloyd (Private Scheme) (2016)	Earth bunds were constructed to prevent river flooding.
Cornhill Road (Westburn Park) Attenuation Storage (2016)	A cellular storage tank has been installed in Westburn Park to alleviate flooding at the Westburn Resource centre.
Victoria Park Attenuation Storage (2016)	A cellular storage tank has been installed in Victoria Park to alleviate flooding at the Westburn Resource centre.
Bridge of Dee Flood Gates (2017)	A manually opening and closing flood gate installed in an existing road underpass at Riverside Drive. The flood gate closes off the underpass to full height to preven the passage of flood water from the River Dee when closed during flood risk events.
Maidencraig Flood Management Wetland Scheme (2019)	A detention pond formed over a flood plain and the Den Burn with a culverted earth bund. The bund carries a 'safe route to school' path and has been designed to hold water back in storm events. This aims to slow the flow & reduce flood risk downstream. Works also include de-culverting tributary between the Lang Stracht and the Den Burn. It was rerouted down the hillside, improvement of cycleways, core paths and lighting, installation of viewing and dipping platforms, sand martin walls etc.

The location of Aberdeen's flood defences are in the process of being plotted within ArcGIS for internal use, and these are expected to be ready by the end of August 2025. The Council is unable to provide modelled flood extents for these defences. In some instances, this is due to the age of the records associated with the schemes, and in others, the Council holds calculation tables rather than mapped shapefiles.

Information on Past Flooding Events

Aberdeen City Council has mapped the location of 88 flooding incidents between the years of 2000 and 2012 on its ArcGIS portal. Any flooding incidents reported to ACC after 2012 are recorded, but are not mapped at present. The data held by ACC is also supplemented by the biennial flood reports that continued until November 2009, and the subsequent Flood Risk Management Strategy for Aberdeen City and Aberdeenshire that replaced this. The latest of these is the Local Flood Risk Management Plan 2022-2028, (published December 2022), which was published in partnership with the following authorities and bodies:

- Aberdeenshire Council
- Aberdeen City Council
- The Moray Council
- Cairngorms National Park Authority
- Scottish Water
- SEPA

The most notable of the flooding events affecting Aberdeen include:

- Historic flood events on the River Dee have been reported in 1789, 1790, 1829, 1873, 1876, 1881, 1882, 1892, 1894, 1909, 1920, 1922, 1926, 1927, 1928, 1929, 1938 and 1946. The Den Burn is reported to have flooded in 1869, 1872, and 1874.

- The Bridge of Don area experienced flooding in 2000 and 2001, when problems with the drainage system resulted in ponding. This was exacerbated by gullies surcharging due to the high water level in the Glashieburn and properties in Lochside Drive, Jesmond Drive and Brook Crescent were affected. Regular surcharging of the combined sewer in Jesmond Drive has been reported as has flooding at Ellon Road due to debris accumulation blocking the watercourse.

- In October 2001 there was a surface water flood, which exceeded the capacity of the drainage systems and subsequently affected properties at Berryden Road in Ashgrove, Culter House Road in Milltimber, Hazledene Road in Hazlehead, and Broomhill Avenue. The high water table during this flood also led to groundwater flooding at Craigiebuckler Church in Springfield Road.

- September 2009 – Weeks of solid rain in the North-East resulted in heavy flooding in parts of Aberdeen, many properties affected had previously been flooded, highlighting their vulnerability.

- 25 August 2012 (see Committee Report EPI 12 240, 6 November 2012) - On this date, Aberdeen experienced a localised, intense rainfall event of relatively short duration. It is believed that up to 30mm fell within one hour, meaning the

downpour was at least a 1 in 100 year event. This gave rise to a number of flooding incidents across the city, affecting both commercial and residential properties, as well as disrupting travel. The full Committee Report details all of the recorded flooding incidents for this day.

- November 2012 – The coastal village of Footdee was engulfed in sea foam after intense storms swept Aberdeen. The foam caused a good deal of damage and nuisance, and required a large expenditure on clean-up operations.

- Large parts of Aberdeen were affected by surface water flooding in July 2015. Many manhole covers became dislodged, roads were submerged and Aberdeen airport's terminal building was flooded. Many roads were affected by flooding, including Market Street, Guild Street and Holburn Street. Cars on Polmuir Road started to float due to the depth of the water. A nursery had to be evacuated due to flooding in its basement.

- December 2015 - January 2016 – Storm Frank caused extensive flood damage to housing and other properties throughout North-East Scotland. Areas especially affected on the River Don include Kemnay, Inverurie, Kintore and into Aberdeen including Riverside Drive and the Grandholm area. On the River Dee, Ballater was particularly affected.

- Large parts of Aberdeen were affected by surface water flooding in August 2020. (Merchant Quarter, Golf Rd, Holburn Street, Jesmond Drive, Polmuir Rd, Kings Street, Langstracht, Virginia Street, South College Street, George Street etc)

- Large parts of Aberdeen were affected by surface water flooding in November 2022. (Merchant Quarter, Golf Rd, Holburn Street, Jesmond Drive, Polmuir Rd, Kings Street, Langstracht, Virginia Street, South College Street, George Street etc)

- November 2022 – River Dee Flooding affected Bridge of Dee area, Inchgarth Rd, Maryculter bridge closure etc)

- Storm Babet (Oct 2023) - Culter Burn Flooding affected Millside and The Paddock

Dynamic Coast

A mapping tool which includes national-scale maps that help to identify areas of land that may be susceptible to coastal erosion. It includes the projected extent of erosion based on high emissions scenarios by the year 2050 and 2100 along the coastline which factors in historic rates of erosion and projections for future sea level rise.

The presence of coastal defences and groynes along a sizeable section of Aberdeen's beach means that the anticipated impacts are likely to be greatest to the north of the mouth of the River Don. In particular, land to the east of the Royal Aberdeen Golf Course, Murcar Links Golf Course and land to the south-east and east of Blackdog are expected to be the most severely impacted by coastal erosion. There are also modest areas of potential impact to the east of Balnagask Golf Course. The mapping can be viewed using this link.

Reservoir Inundation

The Reservoir (Scotland) Act 2011 updated the regulatory regime for the management, alteration and construction of controlled reservoirs in Scotland. Controlled Reservoirs are those which are capable of retaining 10,000m^3 or more of water above the natural levels of any part of the surrounding land.

SEPA maintains a register of all such controlled reservoirs which includes details of the National Grid map reference, the cubic capacity of the reservoir and the risk designation.

The risk designation is associated with the perceived impact an uncontrolled release of water below the reservoir would have including impacts upon homes, businesses, communities, cultural heritage, and the environment. Although such instances are anticipated to be unlikely, the scale of the potential impact is graded at either low, medium, or high.

Below is a list of the reservoirs that are in Aberdeen, although a significantly larger portion of the Invercannie and Loch of Skene Reservoir areas fall within Aberdeenshire.

Table 3 – List of reservoirs within or partially within Aberdeen City area

Name of Reservoir	Local Authority Area	Risk Designation
Parkhill House Reservoir	Aberdeen	Low
Mill Pond Reservoir	Aberdeen	High
Loch of Skene	Aberdeen/Aberdeenshire	High
Invercannie Reservoir 2 (East)	Aberdeen/Aberdeenshire	High
Invercannie Reservoir 1 (West)	Aberdeen/Aberdeenshire	High
Murtle Den Reservoir	Aberdeen	High
Inchgarth Reservoir	Aberdeen	High
Mannofield 1	Aberdeen	High
Mannofield 2	Aberdeen	High
Slopefield Reservoir	Aberdeen	High

Flood Risk Management Planning

Flood Risk Management Plans seek to reduce the risk of flooding and assist with the preparation and protection of individuals and communities within Potentially Vulnerable Areas (PVAs) and throughout the Local Plan District (LPD). These documents are instrumental in implementing the requirements of the Flood Risk Management (Scotland) Act 2009 and help ensure that each authority fulfils its flood management duties under this act.

The LPD that covers Aberdeen is the North-East Local Plan District. Aberdeenshire Council is the lead authority in the preparation of the Local Flood Risk Management Plan (LFRMP), supported by other local authorities including Aberdeen City Council and The Moray Council within the partnership. Other contributing Responsible Authorities include Cairngorms National Park Authority, Forestry Scotland, Scottish Water, and SEPA.

PVAs are those where the highest flood risk currently exists or is likely to occur in future. Awareness of the PVAs enables local authorities such as Aberdeen City Council to recognise the risk of flooding to the public, communities, infrastructure, businesses and the environment. This in turn informs future decisions and strategies on how to protect those assets and prioritise where work could be of most benefit.

The designation of PVAs is derived from the National Flood Risk Assessment (NFRA) 2018. A review of the NFRA was undertaken in 2024 which determined that the content of the 2018 assessment remained relevant. The FRMP is in its second cycle which covers a six-year period from 2022-2028.

There are four PVAs within Aberdeen, all of which are included within the North-East Local Plan District. These include:

- 02/06/15 (Aberdeen City – North)
- 02/06/18 (Aberdeen City – South)
- 02/06/19 (Peterculter)
- 02/06/25 (Cove and Nigg Bay)

Table 4 - Table showing the number of people at risk of flooding identified through the NFRA.

PVA	**Area**	**Number of people/homes/businesses at risk**	**Number of people/homes/businesses at risk by the 2080s due to climate change**
Aberdeen City - North	Bridge of Don	7,600 people 4,200 homes/businesses	11,000 people 6,200 homes/businesses
	Dyce	670 people 610 homes/businesses	1,100 people 870 homes/businesses
	Kingswells (North)	100 people 50 homes/businesses	130 people 70 homes/businesses

Aberdeen City - South	Aberdeen Central	23,000 people 14,000 homes/businesses	28,000 people 16,000 homes/businesses
Peterculter	Peterculter	790 people 430 homes/businesses	910 people 510 homes/businesses
Cove and Nigg Bay	Cove Bay	260 people 150 homes/businesses	340 people 190 homes/businesses
	Nigg Bay	90 people 90 homes/businesses	120 people 110 homes/businesses

Council Flood Studies

Flood studies are technical investigations that observe the behaviour of flooding within a given area in order to help identify a suite, (where applicable), of potential mitigation options. Aberdeen City Council has a series of flood studies that have been conducted or are programmed to be undertaken in future. A list of these is included below:

Flood Study	**Description**
River Dee Flood Study (2004)	The joint River Dee study with Aberdeenshire Council in 2004 was to determine the individual, and combined, flood mechanisms of the River Dee and Crynoch Burn by producing a computational hydraulic model of the river system.
Integrated Catchment Model (2015)	An integrated catchment study covering the Aberdeen catchment was carried out to support the surface water management planning process in Aberdeen, Westhill, and Stonehaven. The Study is a joint project with Scottish Water and Aberdeenshire Council. The study has improved knowledge and understanding of surface water flood risk and interactions between the above ground and below ground drainage network e.g. with the sewer network, watercourses and the sea.
Inchgarth Road Flood Study (2017)	The study assesses the options to mitigate fluvial flood risk at Inchgarth Road (Option 1: Bund improvement and culvert extension, Option 2: Reinforced concrete sheet piled flood wall, Option 3: Property level protection). It was recommended PLP as the most viable option along with upgrading the trash screen of Cults Burn.
Merchant Quarter Flood Study – ICS Optioneering Study (2017)	The joint Merchant Quarter (MQ) study with Scottish Water (SW) identified options to reduce the risk of surface water and sewer flooding in the MQ area. Due to the scale and cost of opportunities, these options were recommended to be developed in further detail in

	phases. SW have developed detailed design of an option to reduce sewer flooding; however this did not address the residual surface water flooding. SW & ACC work together to seek opportunities to manage surface water.
Footdee Coastal Flood Study (2018)	The study looked at the risk of wave overtopping within the area. The study identified a preferred option, however it will be considered further as part of a wider coastal protection study.
Preliminary study to undertake a strategic overview of the coastal protection between Footdee and Blackdog (2019)	Aberdeen City Council commissioned a preliminary study to undertake a strategic overview of the coastal protection being undertaken by the Council along the frontage of Aberdeen between Footdee and Blackdog. The aim was to improve understanding of how the shoreline may develop in the future and identify any management needs. A detailed flood study may be required. In line with recommendations of the study, a shoreline management plan should be developed.
Jesmond Drive Optioneering Flood Study (2021)	The joint Jesmond Drive Flood Study with Scottish Water identifies potential options to reduce surface water and sewer flooding through the integrated catchment study optioneering project. The study did not identify any cost-beneficial options. The study recommended that further investigation into the catchment scale strategy is carried out, with the inclusion of the option developed through the study in the strategy. SW and ACC will use the study to inform future strategic planning.
Culter Burn Flood Alleviation Scheme – Hydraulic & Feasibility Study (2019)	A flood alleviation scheme feasibility study was conducted to identify a list of flood alleviation options to reduce the risk of flooding to residential properties at both The Paddock and Millside. None of the options where considered cost beneficial. It was recommended that further survey is undertaken, and suitable rainfall level & flow monitoring equipment is installed to verify the findings and to increase the confidence of the model so it can be better utilised to inform future options.
Culter Burn Addendum (2024)	The report acts as an addendum to the previous 2019 Hydraulic Modelling & Feasibility Study report in order to assess if by separating Millside and the Paddock options, a viable solution could be found for either area.

	No funding has been secured. At Millside no isolated options were shown to provide viable solutions to solve flooding. For the Paddock a combination of a flood wall to the northwest and a flap valve on the discharge sewer outlet did show flood reduction could be achieved.
Den Burn Flood Study (2021, 2022 & 2024)	Den Burn Valley flood study has been completed along with a geomorphology appraisal study to reduce flood risk. The study did not identify any significant flooding reduction benefits but identifies environmental and socioeconomic impacts & benefits. SEPA & ACC are working together for the Denburn restoration; however, the project is now postponed. There are 3 reports: Hydraulic report was completed in August 2022, Geomorphology report in October 2021 & Concept Design in August 2024.

Two further studies are ongoing. These include:

- Coastal Climate Adaptation Plans (CCAP) (ongoing)

Coastal Change Adaptation Plans are intended to set out how places will adapt to climate challenges which are anticipated in the coming years. They may include information on land required for future action, or land use change.

Aberdeen City Council commissioned a CCAP in 2025 covering the entire frontage of coastline between Blackdog and Cove.

- Sustainable Growth Agreement (SGA) (ongoing)

ACC is working in partnership under a Sustainable Growth Agreement (SGA) between Scottish Water and SEPA to trial a new approach to managing storm water in Aberdeen. The SGA is a City Scale Trial Project. This work is still ongoing.

As outlined within the introduction of this report, the location of these flood studies are plotted within the Council's ArcGIS mapping software for internal viewing only. They are not to be used to predict flood risk for any individual building or property.

Surface Water Management Plans

Under the Local Plan, Aberdeen City Council will be continuing to develop the Surface Water Management Plans (SWMPs) in consultation with SEPA and Scottish Water.

The following locations may progress to the next stage of current flood studies:

- Merchant Quarter
- Jesmond Drive

Other SWMPs identified within the North-East Local Flood Risk Management Plan (accessed here), and are listed below:

- Aberdeen Central
- Bridge of Don
- Cove Bay
- Dyce
- Jesmond Drive
- Kingswells (North)
- Merchant Quarter
- Nigg Bay

Coastal Change Adaptation Plan

Coastal Change Adaptation Plans are intended to set out how places will adapt to climate challenges which are anticipated in the coming years. They may include information on land required for future action, or land use change.

There is a reference to a Shoreline Management Plan (Coastal Adaptive Plan) as part of Action ID 41209 of the LFRMP, which specified an indicative delivery timescale of 2022-2034. This refers to a preliminary study to undertake "a strategic overview of the coastal protection being undertaken by the Council along the frontage of Aberdeen between Footdee and Blackdog."

An additional reference is made to Shoreline Management Plan (Coastal Adaptation Plan) as part of Action ID 41309 with an indicative delivery timescale of between 2022-2036.

Shoreline Management Plans have since been replaced by the Coastal Climate Adaptation Plans (CCAP) . Aberdeen City Council commissioned a CCAP in 2025 covering the entire frontage of coastline between Blackdog and Cove.

Section 16 Assessment of risk from the sewer network maps

SEPA's 'Guidance for planning authorities on Strategic Flood Assessment' states that these maps "largely mirror the SEPA pluvial flood hazard maps (particularly for bigger return periods), so this mapped data should only be used by local authorities for an internal sense check to identify areas of misalignment, which could be worthy of further investigation."

Stage 2 - Gap Analysis

SEPA Flood Hazard Maps

Evidence Gap

There are limitations in terms of the accuracy where flood defences, hydraulic structures, culverts or bridges are present due to these not being accounted for. The maps are best suited to high-level strategic use, but less well-suited to informing decisions for specific sites.

Future Flood Maps may also underestimate the future river and coastal flood risk in the area due to the smaller allowances for climate change and sea level rise than that which applies to the North-East Local Plan District in SEPA's Climate Change Allowances for Flood Risk Assessment in Land Use Planning (Version 5).

Action

Site-specific FRAs may be required and this would be decided in accordance with Aberdeen Planning Guidance 2023: Flooding, Drainage and Water Quality. Detail of when FRAs are required are outlined within Pages 12-13 of that guidance which can be accessed here.

Climate Change Allowances

Evidence Gap

Climate Change Allowances identified in the Future Flood Maps are not as up-to-date as the allowances identified within the Climate Change Allowances Guidance. The maps will often utilise smaller allowances than specified within the Guidance.

Action

The Council will utilise the allowances specified within the guidance when considering sites that are identified toward the outer edges of "flood extents where climate change increases in flooding could cause inundation in areas not currently shown to be at risk."

Natural Flood Management Maps

Evidence Gap

The maps are not detailed enough to be suitable for site specific assessments, and are therefore of limited use.

Action

Natural Flood Risk Management opportunities will instead by identified through the Strategic Environmental Assessment, and the use of a combination of other tools such as flood studies, local knowledge, river basin management plans and targeted flood risk assessments.

Flood Defences and Schemes

Evidence Gap

The SFDAD database was scheduled for closure in April 2025 and its ongoing accessibility is uncertain. Aberdeen City Council has submitted a request for the data held on its assets prior to any future shutdown of SFDAD.

Action

Aberdeen City Council will manage the data on its flood defences in the absence of the SFDAD database. Flood defence locations have now been plotted. Where possible, flood extents for these will be plotted for future flood defences in addition to the location of the structure itself.

Dynamic Coast

Evidence Gap

There is currently no Coastal Change Adaptation Plan in place.

Action

The data available in Dynamic Coast is suitable for regional scale assessments and can help inform the future production of a Coastal Climate Adaptation Plan. A Coastal Climate Adaptation Plan has been commissioned by Aberdeen City Council in 2025.

Reservoir Inundation

Evidence Gap

SEPA's Guidance for Planning Authorities on Strategic Flood Risk Assessment specifies that the purpose of the inundation maps is "only to inform the assignment of risk designations and they were not designed for other purposes, such as land use planning." It is "not currently possible assess the probability of an uncontrolled release of water in a manner consistent with the requirements of NPF4 for development to be free of flood risk up to the 0.5% probability (including allowance of climate change). Furthermore, the probability of failure of a reservoir structure managed under the 2011 Act is considered to be so low that it is beyond the scope of risk considered within NPF4."

Action

The Council will consider reservoir inundation data on a case-by-case basis, where deemed appropriate, taking account of local circumstances.

Potentially Vulnerable Areas

Evidence Gap

There may be actions identified for specific PVAs that are not actioned or completed within the projected timescales necessary for being accounted for in the production of the Local Development Plan. This may be due to ACC not being the lead on the project, a lack of secured funding to progress the works, or other similar constraint to progress.

Action

Site specific Flood Risk Assessments will be required in the circumstances described in the action for SEPA Flood Hazard Maps.

Council Flood Studies

Evidence Gap

A number of Flood Studies involve collaborative work between agencies such as Scottish Water, SEPA, and ACC (among others). Delays in progressing some Council Flood Studies can occur where ACC is not acting as lead on the project, a lack of secured funding to progress works, or other similar constraints. Some of these studies may not be completed during the timescales of the production of the Local Development Plan as a result of such constraints.

Action

Site specific Flood Risk Assessments will be required in the circumstances described in the action for SEPA Flood Hazard Maps. Flood Study areas have been plotted within the Council's ArcGIS mapping portal for internal viewing only. Any future studies will be added to the portal accordingly.

Surface Water Management Plans

Evidence Gap

There is potential for specific actions prescribed within an SWMP to fail to be implemented, or fail to be published, within the timescales of the preparation of the Local Development Plan.

Action

Site specific Flood Risk Assessments will be required in the circumstances described in the action for SEPA Flood Hazard Maps.

Coastal Change Adaptation Plan

Evidence Gap

There is currently no Coastal Change Adaptation Plan in place.

Action

A Coastal Climate Adaptation Plan was commissioned by Aberdeen City Council in 2025 covering the entire frontage of the coastline between Blackdog to Cove.

SFRA Maps

Section 16 Assessment of risk from the sewer network maps

Evidence Gap

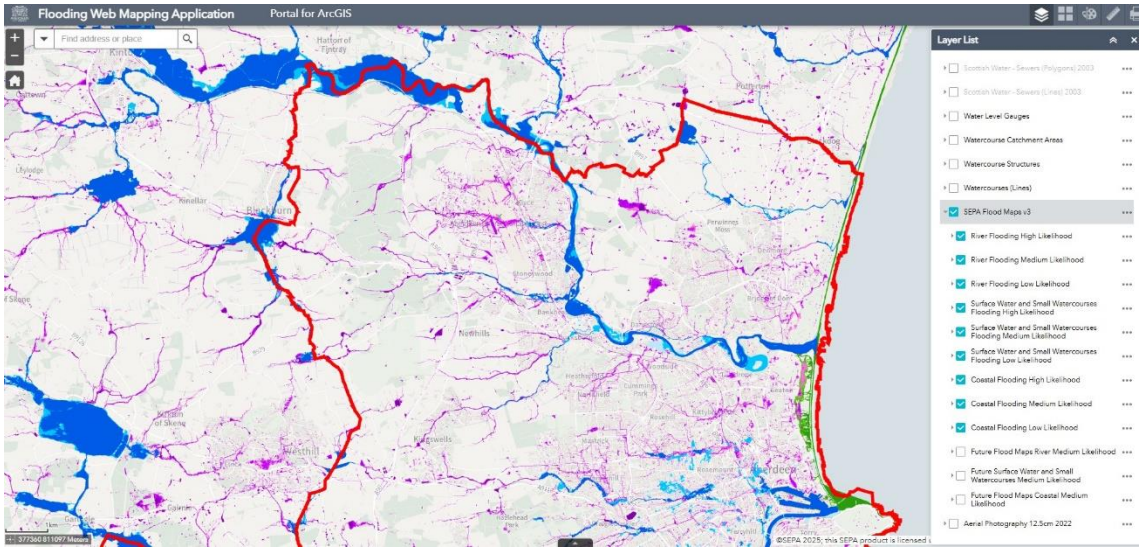
SEPA's 'Guidance for planning authorities on Strategic Flood Assessment' states that these maps "largely mirror the SEPA pluvial flood hazard maps (particularly for bigger return periods), so this mapped data should only be used by local authorities for an internal sense check to identify areas of misalignment, which could be worthy of further investigation."

Action

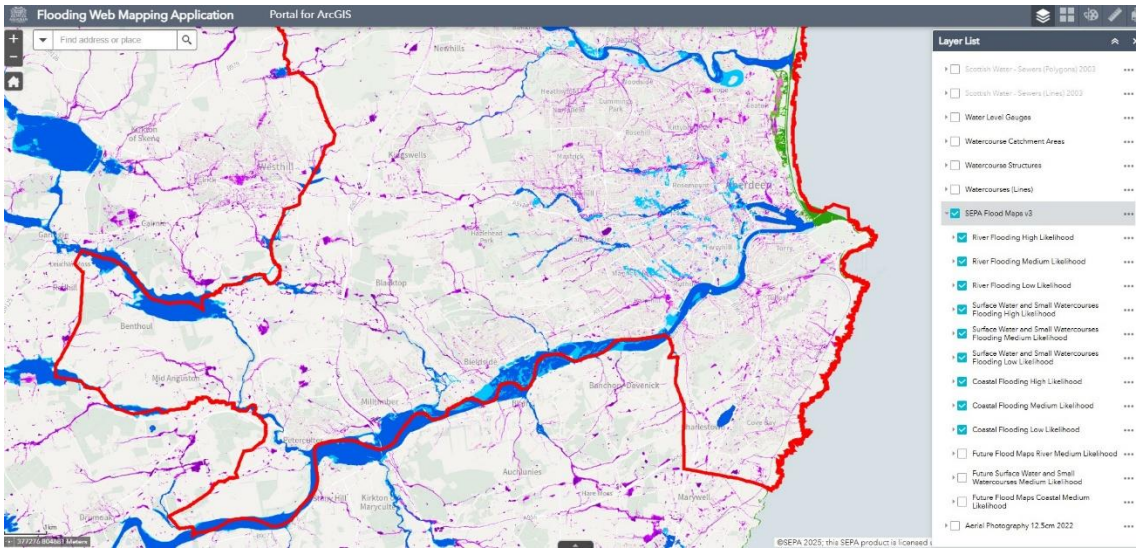
ACC would utilise SEPA's pluvial flood hazard maps as specified above. However, no such data will be published within this SFRA because existing data sharing agreements preclude ACC making this data publicly visible.

Appendices

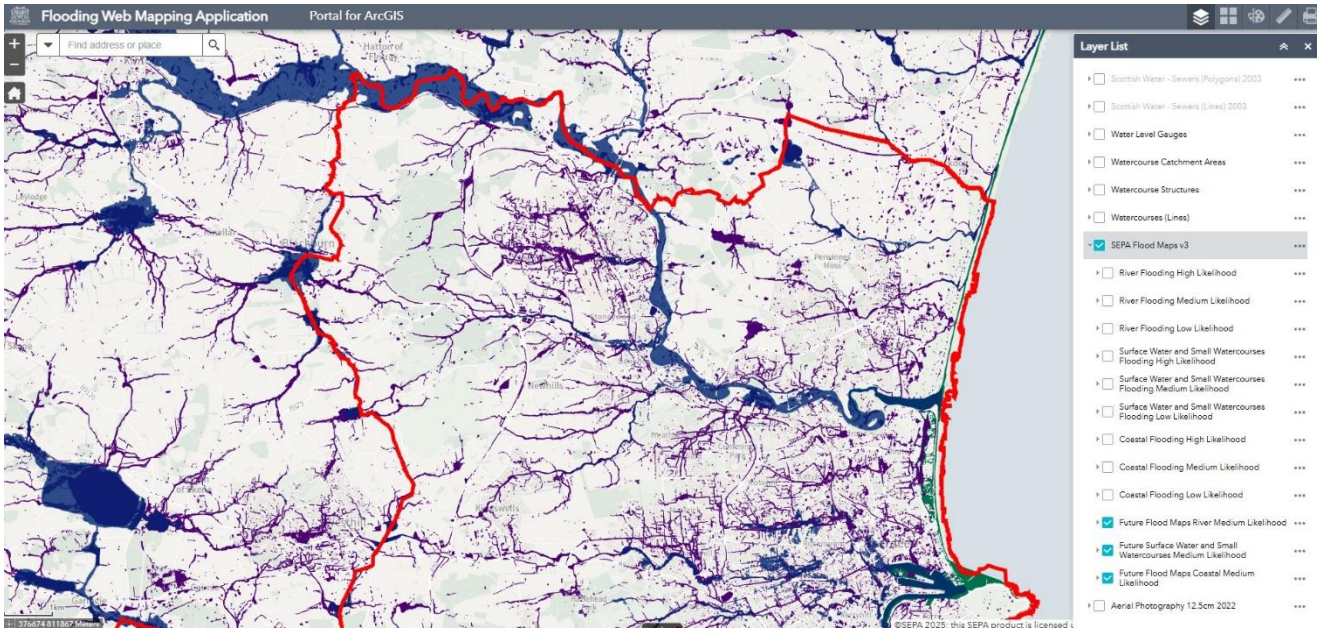
Map 1 – Northern/Central Aberdeen – SEPA High/Medium/Low Risk of Surface/River/Coastal Flooding



Map 2 – Southern Aberdeen/Central Aberdeen – SEPA High/Medium/Low Risk of Surface/River/Coastal Flooding



Map 3 – Northern Aberdeen/Central Aberdeen (Future Flood Maps - River/Surface Water and Small Watercourses/Coastal Flooding – Medium Likelihood)



Map 4 – Southern Aberdeen/Central Aberdeen (Future Flood Maps - River/Surface Water and Small Watercourses/Coastal Flooding – Medium Likelihood)