SEPA
Scottish Environment Protection Agency
Buidheann Dìon Àrainneachd na h-Alba

Flood Risk Management Plan

Solway Local Plan District

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Foreword

As we watch the news on TV or scan video clips on social media, we see much more regular violent weather. Bushfires of unprecedented size, ferocity and frequency happening in fire prone parts of the world and now happening where they were uncommon such as Siberia. Cyclones, tornadoes, heatwaves, droughts and, of course, as most affects Scotland - floods.

Anyone who has been in a flood area knows the intimidating terror it can bring. The foreboding that comes as people confront the potential damage or destruction of homes, businesses and other properties as well as injuries and, in the worst cases, loss of life.

This is all being made worse by the Climate Emergency. The recent COP26 meeting in Glasgow brought the world together to agree actions to do two things:

1. Reduce the emission of the greenhouse gases driving climate change, and
2. Help us adapt to the level of climate change that, despite our best efforts, is occurring.

The publication of this flood risk management plan is one of SEPA's key actions to help Scotland with this second aim.

As a society, we need to take action to manage the risk of flooding and its impacts on our lives, recognising that the risk can't ever be removed entirely. This plan takes our knowledge and understanding of flooding and the impacts of climate change and turns it into a set of actions that are planned, prioritised and co-ordinated to tackle flooding in the communities where it affects us the most.

Across Scotland, we now estimate that there are around 284,000 homes and businesses at risk of flooding. Our latest analysis shows that this could increase by around a further 110,000 homes and businesses if little or no action is taken to tackle climate change. Let's look at just one area of Scotland for an example of the local impact. Within the Solway Local Plan District it is estimated there are around 10,000 homes and businesses at risk from flooding, and this may increase to 13,000 homes and businesses by the 2080s due to climate change. All up, in this part of Scotland, there is a risk of river, surface water and coastal flooding and the expected annual cost of flooding is around £15 million.

So given the assessment undertaken, this plan:

- describes the ambition for managing flooding and the priorities for action that we believe are most important and helps inform the development of local plans. A local flood risk management plan co-ordinated by Dumfries and Galloway Council, provides additional detail on the responsibility for delivery, funding and coordination of actions across the Local Plan District. Taken together, these documents describe the commitment of responsible authorities to address flooding.
- is published by SEPA and has been approved by Scottish Ministers. SEPA is just one organisation in the collective effort to manage flooding and this plan has been produced with the support and collaboration of Dumfries and Galloway Council, 4 more local authorities, Scottish Water and others with an interest in flood management. SEPA has taken account of the views received through a public consultation carried out during the development of the plan.
- Is based on the fact that how we plan for and manage our flood risk has far reaching consequences for Scotland's communities. The plans set the national direction of future flood risk management, helping to target investment and coordinate actions across public bodies. They explain what causes flooding in high-risk areas as well as the impacts when flooding does occur. This information is used as a basis for better decision-making across flood risk management organisations.

A lot of people, inside and outside SEPA, have contributed to the development of this plan. It underpins important decisions that will be made to protect people and property in Scotland from flooding and I hope that you find it valuable and useful.

Terry A'Hearn

Chief Executive

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Section 1: Flood risk management in Scotland

1.1 What is a flood risk management plan?

Flood risk management plans are Scotland's route map for reducing the effects of flooding on our communities. This is key to Scotland's health, well-being and economic success. They are also important in our response to the climate emergency as flooding is increasing due to climate change.

Flood risk management plans have been designed to ensure effort to reduce flood risk in Scotland is coordinated. Many organisations are responsible for flood risk management and the plans focus the work of these organisations to where the risk of flooding and benefits of action are greatest. The roles and responsibilities of some of the key organisations involved are set out later in this plan.

There is a plan for each of the 14 flood risk management districts in Scotland, which are called Local Plan Districts. These plans set out the long term ambition for flood risk management. They set objectives for tackling flooding in high risk areas and identify the actions needed to work towards those objectives. These are agreed by the responsible authorities and are based on the best available evidence on the causes and consequences of flooding. The actions are described and prioritised in 6 year planning cycles.

These plans complement the separate local flood risk management plans published in 2022. The local flood risk management plans explain in more detail how the actions set out in this plan for 2022 to 2028 will be delivered. They are published by the local authority who is nominated as the lead local authority for the Local Plan District.

The plans replace the first flood risk management plans which were published in 2015. At the time they were called flood risk management strategies. The updated flood risk management plans continue to build on the risk-based, plan-led approach established in the 2015 strategies.

The flood risk management plans are published by SEPA as Scotland's strategic flood risk management authority and are approved by Scottish Ministers. They have been prepared in

collaboration with all 32 local authorities, Scottish Water and other organisations with a responsibility or interest in managing flooding. They have also been shaped in consultation with the public.

The flood risk management plans are required under the Flood Risk Management (Scotland) Act 2009 and will be updated every 6 years.

1.2 Managing flooding in Scotland

Flooding needs to be managed sustainably so that flood risk is reduced without moving the problem elsewhere. It must be done in a way that contributes to the health and wellbeing of communities, supports the protection and regeneration of the environment, improves resilience to climate change and enables a sustainable economy. Actions are needed on all sources of flooding – including from rivers, the sea, surface water and groundwater – to meet the needs of present and future generations while also protecting and enhancing the environment.

Using a 6 year planning cycle enables new data, improved techniques and developing knowledge and understanding to be incorporated regularly into the national approach. Using all the latest information to regularly review our assessment of flood risk forms the foundation of a risk-based, plan-led approach to managing flooding sustainably. We have outlined below the key stages of the flood risk management process.

1.2.1 Progress in cycle 1: 2015-2021

The 2015 flood risk management strategies outlined the long term objectives to tackle flooding in the areas at highest risk.

In 2015 the objectives were split into two categories which were defined as:

- **Reduce overall flood risk**: to reduce the risk of flooding from all sources (river, sea and surface water) as far as reasonable, taking account of economic, environmental and social priorities.
- **Avoid an increase in flood risk**: to avoid increasing flood risk through land use planning and maintenance of existing flood management infrastructure.

The objectives for each area were agreed by the responsible authorities. Then actions were developed to deliver these objectives. Actions to deliver the reduce objectives included developing flood studies and flood protection schemes and providing public flood warnings and alerts. Actions for the avoid objective included maintenance of flood defences and storage areas and producing strong planning policies which prevent development from taking place in flood risk areas.

As the first planning cycle ends, it is important to review the progress made in achieving these objectives. A summary is provided below. A full assessment will be published in 2022 by the lead local authorities and will provide progress on each of the actions.

The summary is based on data from the mid-cycle reports published by lead local authorities in 2019. The status of each action at that time was assessed, and reported as red, amber or green:

- Red: The action is running late or over budget and is unlikely to meet its aims.
- Amber: The action is running late or over budget but is still likely to meet its aims.
- Green: The action is complete or is on track to meet its aims.

Actions with a green or amber status can be expected to succeed in working towards their objectives.

In this summary, the action progress described in the 2019 mid-cycle reports is used to assess progress in delivering the avoid and reduce objectives.

a) Progress towards meeting the avoid objectives

90% of the actions set out in the strategies to avoid an increase in flood risk were green at the time of the mid-cycle report. 10% of the actions were amber. By 2021, 100% of the actions are expected to be complete.

b) Progress towards meeting the reduce objectives

84% of the actions described in the strategies to reduce flood risk were green at the time of the mid-cycle report, 12% of the actions were amber and 4% were red. With 96% of the actions completed or underway by 2021, the actions developed to meet the reduce objectives will mostly be achieved.

This summary confirms that significant progress has been achieved towards meeting the objectives set out in the 2015 strategies.

Progress made towards delivering the objectives was fully considered when developing the objectives and actions in these updated flood risk management plans.

1.2.2 Improving the understanding of flooding

Since publication of the 2015 flood risk management strategies, SEPA has continued to develop the flood hazard and risk maps. The hazard maps show information on the extent of flooding, and also on depth and velocity where that information is available. The flood risk maps provide detail on the impacts of flooding on people, the economy, cultural heritage and the environment.

Many actions included in the 2015 strategies, such as detailed flood studies improved understanding of flooding. This is an ongoing area of development and new information resulting from actions in these plans will be incorporated into future reviews of the understanding of flooding, to better inform decisions on flood risk management in the future.

In 2012 SEPA also developed an assessment of the potential for natural flood management. The assessment produced the first national source of information on where natural flood management actions would be most effective within Scotland.

The flood hazard and risk maps and the assessment of the potential for natural flood management can be viewed on the SEPA website at https://www.sepa.org.uk/environment/water/flooding/flood-maps/

1.2.3 National flood risk assessment

SEPA's flood hazard maps form the basis for the national flood risk assessment (NFRA). The NFRA provides the underpinning evidence for the risk-based approach in the flood risk management plans. SEPA published the second NFRA in 2018 which is available to view at https://www.sepa.org.uk/data-visualisation/nfra2018/.

To make best use of the data available and new techniques and information, there were several areas of improvement in the 2018 NFRA, building on the first NFRA published in 2011. The most significant change was in the representation of buildings. The 2011 NFRA represented buildings as single points. In 2018 the whole footprint of the building was used meaning buildings can be identified at flood risk even when only partially within the flood extent. Updated information on building locations, property type and the economic classification of buildings was also used to improve the assessment. These method updates resulted in a 3% increase in the number of homes and a 45% increase in the number of businesses being identified at flood risk in 2018.

Another development for the 2018 NFRA was to take account of how frequently flooding occurs. Different likelihoods of flooding were used to assess the effects on individual receptors. This allowed for the frequency of impacts to be considered as well as the severity of larger floods.

The 2018 NFRA also assessed social vulnerability to flooding and the resulting flood disadvantage. This is important as it becomes clear that climate change will impact vulnerable communities disproportionately and therefore this has been included in the evidence used to plan actions to manage flood risk in Scotland.

Finally, updated methods outlined in The Flood Hazard Research Centre's Multi-Coloured Manual and Multi-Coloured Handbook 2016 were also incorporated. They are the best available techniques for assessing the impacts of flooding and are used to produce information on the annual cost of flooding.

1.2.4 Climate change

The latest science on the effects of climate change predicts that parts of Scotland will experience wetter winters and more extreme weather events. Although summers might generally be drier there will be a greater risk of very intense rainfall. Sea levels are also expected to rise, and all these effects will lead to an increase in the frequency and severity of damaging floods.

In November 2020 SEPA published future flood maps showing the impacts of climate change on flooding in Scotland for the first time. The maps are based on the 2080s high emissions scenario and their development allowed significant advances in how climate change was assessed in the 2018 NFRA. This enabled climate change to be more fully built into the development of the flood risk management plans. The future flood maps are available to view at https://map.sepa.org.uk/floodmaps

Currently 284,000 homes, business and services are at risk of flooding from rivers, surface water and the sea. With the effects of climate change, an additional 110,000 homes, businesses and services are expected to become at risk across all sources of flooding in Scotland. Compared with the current level of flood risk, this represents a 90% increase in the number of properties at risk of coastal flooding, 40% increase in the number for river flooding and 25% for surface water flooding.

1.2.5 Potentially vulnerable areas (PVAs)

The 2018 NFRA was used to review the areas where flood risk is considered to be nationally significant. These are the areas with the greatest current or future flood risk. They are based on catchment areas, as it is only within the context of the wider contributing catchment that flooding can be best understood and managed. These nationally significant areas are referred to as Potentially Vulnerable Areas (PVAs) and are where the plans must deliver objectives and actions to manage flood risk.

A detailed manual review process was applied to the identification of PVAs to allow local knowledge from responsible authorities, communities, and any other supporting information to be considered.

SEPA engaged the public through a 3 month consultation on the PVAs, providing the opportunity for others to contribute to the assessment and to provide any additional information. As a result, amendments were made before the final 235 PVAs were agreed.

Around 90% of Scotland's flood risk is contained within PVAs. That means that not every location experiencing flood risk is included within a PVA, as PVAs are used to prioritise where the risk is highest, and benefits of flood risk management will be greatest. This plan includes national actions that apply across whole Local Plan Districts, including areas that are not within a PVA. The identification of the PVAs is reviewed every 6 years.

1.2.6 Identifying objectives and selecting actions

The objectives provide the long term vision for delivering flood risk management in Scotland, and the actions give the practical steps required to achieve those objectives.

A community perspective was used to identify where flood risk management actions should target their benefits. Those areas are described as target areas.

A whole catchment approach was then used to understand the flood risk and the steps needed towards managing the risk. Objectives and actions have been set for each target area within each PVA. National actions have also been identified, which apply across all Local Plan Districts including to areas that are not within PVAs.

Objectives were set by SEPA in collaboration with other flood risk management authorities and partners and follow a set of national principles designed to deliver sustainable flood management. The national principles are:

- Take a long term, risk-based approach to decisions, considering the impacts of climate change and how we will be able to adapt.
- Deliver coordinated management of flood risk by engaging with communities and working in partnership with others.
- Consider whole catchments and coastlines, working with natural processes and the environment to deliver multiple benefits.

These national principles sit alongside the more specific target area objectives.

The target area objectives fall into the following four categories in the 2021 plans:

- Avoid increasing flood risk
- Improve understanding of the flood risk
- Prepare for current flood risk and future flooding
- Reduce the risk of flooding

Actions are required to achieve the objectives set for each community. To identify the most sustainable actions, SEPA created a long list of all potential structural and non-structural actions. A decision framework was used to identify the most appropriate set of actions taking account of how well flood risk is currently understood in the area, what the scale of the risk is and whether the options meet the national principles set out above. Indicative costs for different types of action can be found in Annex 1.

The potential for natural flood management and blue-green infrastructure measures was explored in developing the most sustainable actions. However, these actions are not specifically noted as the need to consider such options is built into all actions for detailed flood studies, and all actions to appraise potential options for managing risk.

The overall long-term aim is to reduce the impact of flooding across Scotland as far as is reasonable, taking full account of environmental, economic, and social priorities and needs.

1.2.7 Catchment opportunities and constraints

Our natural landscape plays an important role in managing flood risk and consideration of the whole catchment is essential to sustainable flood risk management. This has informed our approach, which is to identify the wider contributing catchments and coastlines for all the areas where actions are targeted. The catchment perspective has also underpinned the selection of all the objectives and actions.

Taking this approach can reveal opportunities for natural flood management, as well as constraints to the options for managing flood risk. The latest available data on land cover, land use, geology, topography, hydrology, coastal processes, development planning and natural flood management was used to identify opportunities and constraints in the wider

contributing catchments of every target area. This information was used to support the decision framework for identifying actions. It will also inform the more detailed analysis of the opportunities in the catchment required for implementation of the actions. This is a core requirement of some of the actions identified, particularly where a detailed flood study or options appraisal is planned.

For coastal areas, a significant development in the information available on opportunities and constraints is the national coastal change assessment. This analysis includes past coastal erosion rates and makes projections for the future. On this basis we can take longer-term decisions for coastal management. More information is available at www.dynamiccoast.com

1.3 How the flood risk management plans were developed

1.3.1 Partnership working

Many organisations and individuals are involved in flood risk management in Scotland. The causes and effects of flooding are complex, and issues cross the boundaries of neighbouring authorities as well as the responsibilities of different organisations. To be successful, flood risk management needs coordination, as set out in the flood risk management plans. Collaboration by those responsible for flood management is essential along with a commitment to work in partnership with the other organisations and stakeholders who can contribute to the sustainable management of flooding. Partnership working is at the heart of these plans and will be central to delivery of the objectives and actions they set out.

Strong relationships were developed through the first cycle of developing and delivering flood risk management strategies and local flood risk management plans. Building on that, the local partnerships established have worked throughout Scotland to develop this second set of flood risk management plans. SEPA has provided technical analysis and ensured a consistent national approach is taken, providing the evidence to make informed decisions. Local authorities, Scottish Water, other responsible authorities, and members of the local advisory groups have made significant contributions.

They have provided local knowledge, expertise and their experience from the actions delivered in the first cycle, to inform development of the new plans. The roles and responsibilities of some of the organisations with formal flood risk management responsibilities are set out below. There are a wide range of other stakeholders involved in flood risk management. Some work directly with responsible authorities through the local partnerships and advisory groups. Others, by virtue of their interests and activities, deliver direct action which can benefit flood risk management. Through the lifetime of this plan, we will seek to strengthen existing partnerships and establish new ones to achieve the best outcomes for flood risk management.

1.3.2 Roles and responsibilities for flood risk management

Individuals have a personal responsibility to protect themselves and their property from flooding. However, public bodies have responsibilities too and are working together to reduce the impacts of flooding in Scotland. Some of the key roles are outlined below and more information is available from the SEPA website, or the organisations listed.

a) Your responsibilities

It is your responsibility to manage your own flood risk and protect yourself, your family, property or business. There are steps you can take now to be flood prepared and reduce the damage and disruption flooding can have on your life.

- View our flood maps to check if your area is affected by flooding https://map.sepa.org.uk/floodmaps
- Sign up to Floodline to receive messages when flooding is forecast in your area https://www.floodlinescotland.org.uk/
- Know who to contact if flooding happens https://www.sepa.org.uk/media/28952/who_to_contact_2014.pdf

Other useful tools and advice on how to be prepared are available on the Floodline website.

b) SEPA

SEPA is Scotland's national flood forecasting, flood warning and strategic flood risk management authority. SEPA work in partnership with the Met Office to forecast flooding and operate Floodline to warn the public and emergency responders when flooding is likely. SEPA produce Scotland's flood risk management plans, working closely with other organisations responsible for managing flood risk to ensure that a nationally consistent approach to flood risk management is adopted. SEPA also provide flood risk advice on land use planning when requested and raise awareness of flooding at a national level through education initiatives, community engagement and campaigns.

c) Local authorities and lead local authorities

Local authorities are responsible for working together to produce Scotland's local flood risk management plans and work in partnership with SEPA, Scottish Water and other responsible authorities to develop these.

It is the responsibility of local authorities to implement action to manage flooding and maintain flood defences. Local authorities also inspect, clear and repair watercourses to reduce flood risk and routinely maintain road gullies on public roads and highways.

During severe flooding, local authorities will work with the emergency services and co-ordinate shelter for people evacuated from their homes.

d) Scottish Water

Scottish Water is a responsible authority for flood risk management and is working closely with SEPA, local authorities and others to coordinate plans to manage flood risk. Scottish Water has the public drainage duty and is responsible for draining wastewater from properties and businesses, and rainwater run-off from roofs and paved areas within the boundary of properties. Pipework and guttering within the boundary, are the responsibility of the property owner.

Scottish Water helps to protect homes from flooding caused by sewers either overflowing or becoming blocked. This is done in a way that is fair and consistent to customers across the country, with sewer flooding investment prioritised to provide the biggest benefit for

customers and the environment first. Currently investment to reduce the risk of sewer flooding is prioritised towards properties that have experienced internal sewer flooding and are at the highest risk of repeat occurrence of sewer flooding during frequent rainfall events.

e) National parks

The National Park Authorities, Loch Lomond & Trossachs National Park and Cairngorms National Park, work with SEPA and other responsible authorities to develop the flood risk management plans and local flood risk management plans. They also fulfil a key role in land use planning, carrying out and permitting activities that can help manage and reduce flood risk.

f) Other organisations

The **Scottish Government** oversees the implementation of the Flood Risk Management (Scotland) Act 2009, which requires the production of flood risk management plans and local flood risk management plans. Scottish Ministers are responsible for setting the policy framework for how organisations collectively manage flooding in Scotland. Scottish Ministers have also approved this flood risk management plan.

Scottish Forestry and **Forestry and Land Scotland** took over the roles of Forestry Commission Scotland in 2018 when the Forestry and Land Management (Scotland) Act 2018 came into force. While these executive agencies of Scottish Government are not formally designated as a responsible authority under the Flood Risk Management (Scotland) Act 2009, they support Scottish Government in delivering its flood risk related duties. This includes engaging in the development of the flood risk management plans through national and local advisory groups, Local Plan District partnerships, and collaborative projects. This reflects the widely held view that forestry can play a significant role in managing flooding.

The **Met Office** provides a wide range of forecasts and weather warnings. SEPA and the Met Office work together through the Scottish Flood Forecasting Service, combining SEPA's hydrological expertise with the Met Office's meteorological data to predict the likelihood and timing of river, coastal and surface water flooding.

The **emergency services** provide emergency relief when flooding occurs and can coordinate evacuations. You should call the emergency services on 999 if you are concerned about your safety or the safety of others and act immediately on any advice provided.

The **Scottish Flood Forum** aims to reduce the impacts of flooding by providing immediate support and by establishing a network of community resilience groups in flood risk areas, to equip communities to cope with flooding.

1.3.4 Consultation, engagement and advice

Further to the strong partnership approach to flood risk management planning in Scotland, it is essential to work with the people and communities that experience and live with the threat of flooding. This ensures that our assessment of the risk is accurate. How flooding is managed should support the communities at risk, and effort needs to be targeted to where most can be achieved. Two public consultations have been held during the development of the flood risk management plans. The first by SEPA was on the national flood risk assessment and the identification of PVAs (2018); the second, held jointly with local authorities, was on the understanding of flooding in these priority areas and on the objectives and actions to manage flooding (2021).

The second, most recent consultation ran from December 2020 to October 2021 in 2 parts. From December 2020, information on the Local Plan Districts, the PVAs and the communities identified as target areas was made available. Further information on the objectives and actions planned for each target area was added in July 2021. The consultation was advertised widely by both SEPA and the local authorities. 678 responses were received, and these helped shape the content of this plan. More information on the consultation and the responses SEPA has received is provided in **Annex 2**.

As this was a joint consultation, the responses were shared with local authorities who further considered all the submissions for the purpose of shaping the local flood risk management plans published in 2022. A summary of the consultation was submitted to Scottish Ministers along with this plan, and a more detailed report on what contributors said and what SEPA did in response will be available on SEPA's website from March 2022.

In addition to the consultation, advice has been sought from relevant organisations at key stages. The plans have benefited from local advisory groups who have provided important community and area-based knowledge. This informed understanding of the causes and consequences of flooding and the appropriate actions for future management. Local advisory groups have been especially helpful in considering flood risk management in the context of wider plans and initiatives. The groups include representatives from a range of sectors, including government agencies like Transport Scotland, National Park Authorities, local authorities, non-government organisations, utility companies and land and asset managers.

Community based groups are key to planning for, responding to, and recovering from flooding. Communities have engaged through the consultation on these plans and will be consulted on more detailed information on the implementation of many of the specific actions. The local information provided on their experience of flooding has shaped the identification of PVAs and informed decision making on the objectives and actions.

In producing the flood risk management plans, SEPA has also taken advice from a National Flood Management Advisory Group. Over 50 member organisations have been invited at key stages to provide comment and input, reflecting the national importance and impact of flooding on our communities, economy, environment and cultural heritage.

Some of the work carried out by SEPA has been complex and technical in nature for which we have sought professional advice. Through membership of the Scottish Advisory and Implementation Forum for Flooding (SAIFF), SEPA has received assistance from local authorities, Scottish Water, Scottish Forestry, the National Park Authorities and other key interested organisations. SEPA has also developed some of its methods by working with other organisations with similar responsibilities within the UK and Europe, more specifically with the Environment Agency and English local authorities in the cross border areas.

1.3.5 Strategic Environmental Assessment and Habitats Regulation Appraisal

SEPA undertook a strategic environmental assessment to assess the significant environmental effects of the flood risk management plans. This assessment was published in an environmental report, and SEPA consulted with the public on the findings.

A statement will be published detailing how SEPA have taken account of the environmental assessment and the consultation responses, and how any significant environmental effects from the flood risk management plans will be monitored. SEPA also undertook a Habitats Regulations Appraisal to ensure that the flood risk management plans will not adversely affect the integrity of Special Areas of Conservation, Special Protection Areas and Ramsar Sites. SEPA consulted NatureScot on the appraisal method and took their views into account. Mitigation measures have been applied where required.

1.4 Links with other plans and policies

1.4.1 River basin management planning

River basin management aims to protect and improve the condition of Scotland's rivers, lochs, estuaries, coastal waters and groundwater. Taking action to reduce flood risk in Scotland provides opportunities to deliver joint objectives for restoration and flood risk management. Coordination between river basin management and flood risk management can reduce flood risk, while also improving water quality and biodiversity. SEPA is leading the delivery of both the river basin management plan and the flood risk management plans so has worked to ensure that there is integration and coordination between them. This coordination, particularly in regard to consultation and engagement, is important for stakeholders who have an interest in the objectives of both plans.

1.4.2 Land use and spatial planning

Land use planning decisions are one of the most powerful tools available to manage flood risk, and the alignment of flood risk management and land use planning policy is pivotal to achieving sustainable flood risk management. Decisions relating to flood risk management can have significant implications for the location of development and, likewise, decisions relating to the location of development can impact on flood risk. Flood risk management plans must take account of local development plans relating to the district, and the need for development plans to take account of flood risk management plans is included in the Town

and Country Planning (Development Planning) (Scotland) Regulations 2008 (as amended 2011). SEPA is a key agency in the land use planning process with a duty to cooperate with planning authorities in the preparation of development plans and a statutory role to provide flood advice for appropriate development management applications. The advice we give seeks to promote flood avoidance. In addition, land use planning objectives and actions have been agreed with responsible authorities, which will ensure flood risk is adequately considered in local planning decisions.

1.4.3 Emergency planning and response

Many organisations across Scotland, including local authorities, the emergency services and SEPA provide an emergency response to flooding. Emergency plans are prepared and maintained under the Civil Contingencies Act 2004 by Category 1 and 2 Responders and are coordinated through regional and local resilience partnerships, often supported by voluntary organisations. They set out the steps to be taken to maximise safety and minimise impacts during flooding, ensuring the effective management of response to emergencies. Emergency plans may also be prepared by individuals, businesses, organisations or communities. Scottish Water is a Category 2 responder under the Civil Contingencies Act 2004 and will support regional and local resilience partnerships as required.

1.4.4 Scottish Water investment plans

There is a close relationship between flood risk management plans and Scottish Water's 25 year strategic plan. Sewer flooding is not considered in detail in the flood risk management plans as it remains a high priority for Scottish Water and its customers. Scottish Water's close involvement in flood risk management planning aims to ensure that there is strong coordination between the management of sewer flooding and wider surface water flood risk, and the actions to be taken forward by local authorities and others.

1.5 Next steps and monitoring progress

Flood risk management planning has progressed significantly in recent years. Scotland now has the most advanced, nationally consistent and locally informed understanding of the causes and consequences of flooding that it has ever had. Key partnerships have been developed and the plan-led approach has been strongly established through the first set of strategies and local flood risk management plans. SEPA and the other responsible authorities are committed to continuing to work together, improving the understanding and response to flooding and managing flood risk for the good of Scotland through this and subsequent planning cycles. Lead local authorities will publish the local flood risk management plans in 2022 with greater detail on the scope of the actions identified in this plan and how they will be funded, coordinated and delivered between 2022 and 2028.

Progress will be monitored throughout the years covered by this plan through ongoing joint working arrangements under the Local Plan District partnerships. Lead local authorities will provide an interim report on the progress of delivering all actions in the local flood risk management plans not earlier than 2 years and not later than 3 years from its publication. A final report will also be prepared at the end of the second planning cycle. A third set of flood risk management plans and local flood risk management plans will be published in 2027/2028.

1.5.1 Funding review for future flood risk management actions

SEPA has carried out a national prioritisation exercise based on the best available understanding of flood risk and the capacity of lead organisations to deliver actions. Funding for flood risk management actions typically come either directly from the lead organisations or as happened in 2016, through an allocation of capital grant from the Scottish Government. However, funding can be procured from other sources.

The distribution of Scottish Government grant funding for actions in the plan for the period 2022-2028 is currently being considered by a flood risk management working group[1]. This group will put forward options and recommendations to Scottish Ministers and COSLA, through the Settlement and Distribution Group, for consideration. A decision will not be made in time for the publication of this plan. As such it should be noted that it may not be possible for all actions identified in the flood risk management plans to be grant funded. Inclusion of an action in this plan does not formally commit a Council to implement it, if reasons arise which make any actions undeliverable, including inability to secure adequate funding.

A decision on grant funding is expected in time for the publication of the local flood risk management plans. As a result, there may be changes to the detail of actions, or the ability to deliver actions in the identified timescales, compared with this plan. This plan remains the best understanding of the objectives and actions required over the long term to manage flood risk in the identified high risk areas of Scotland. The delivery of the plan, particularly the ambitions on how quickly actions can be delivered, may have to be adapted to reflect wider developments in public funding, the ability of responsible authorities to access funding from other sources, pandemic recovery, and other national priorities.

1.5.2 Licensing acknowledgements

Full data licensing acknowledgements can be found in **Annex 3** of this plan.

[1] Membership of the group includes representatives from Scottish Government, the Convention of Scottish Local Authorities (COSLA), local authorities, Society of Chief Officers of Transportation in Scotland (SCOTS) flood risk management group and SEPA.

1.6 Supporting information

1.6.1 Sources of flooding described in this plan

This flood risk management plan targets the risk of flooding from rivers, the coast, surface water and groundwater. The risk of flooding from rivers is usually due to heavy or prolonged rainfall causing a river to rise above the top of the bank. Water spreads out and floods nearby areas. Coastal flooding is where the risk is from the sea. Sea levels can be higher than usual due to normal tidal cycles or stormy weather systems. Over the longer term, sea levels and coastal flood risk will increase due to climate change. Surface water flooding happens when rainwater does not drain away through the normal drainage systems or soak into the ground. Instead, it collects or flows over the ground. There can be interactions between these sources of flooding.

Groundwater is usually a contributing factor to flooding rather than the primary source. It is caused by water rising up from underlying rocks or flowing from springs. Actions to directly target groundwater are quite limited in this plan. However, susceptibility to the contributing effects of groundwater on flooding was considered everywhere in the national flood risk assessment which underpins this plan. Maps of areas where groundwater can contribute to flood risk are available to view on our website: https://map.sepa.org.uk/floodmap/map.htm

1.6.2 The following aspects of flooding have not been incorporated into this plan:

Reservoir breaches have been assessed under separate legislation (Reservoirs (Scotland) Act 2011) and so flood risk from reservoir breach is not considered in this plan. There are fundamental differences in probability of flooding and associated management actions for reservoirs. Further information and maps can be found on SEPA's website: www.sepa.org.uk/regulations/water/reservoirs/

The Flood Risk Management (Scotland) Act 2009 does not require SEPA or responsible authorities to assess or manage coastal erosion. However, SEPA has included consideration of coastal erosion in the flood risk management plans by identifying areas that are likely to be susceptible to erosion and where erosion can exacerbate flood risk.

As part of considering where actions might deliver multiple benefits, SEPA have looked to see where the focus of coastal flood risk management studies coincides with areas at risk of coastal erosion as identified by the Dynamic Coast project. Subsequent detailed flood studies and scheme design will need to consider coastal erosion in these areas. This includes ensuring that actions to manage flood risk do not contribute to increased coastal erosion and where appropriate, help to manage risks from coastal erosion now and in the future.

The information on coastal flooding used to set objectives and identify actions is based in most areas on SEPA modelling using simplified coastal processes and flooding mechanisms. As a result, coastal flood risk may be underestimated in some areas and overestimated in others. Where more detailed local models were available from flood studies or from flood warning schemes, these have been incorporated into the development of the flood risk management plans, as have other sources of local information such as records of past flooding. SEPA is currently working on updates to the national coastal flood mapping to better represent the effects of waves. Actions in the plans reflect the best information currently available.

1.6.3 Commonly used terms

Below are explanatory notes for commonly used terms in this plan. A glossary of terms is also available at the end of this document.

Reference to flood risk. To develop this plan, flood risk has been assessed over a range of likelihoods. For consistency in reporting information, unless otherwise stated, all references to properties or other receptors being ‘at risk of flooding’ refer to a medium likelihood flood (up to a 0.5% chance of flooding in any given year). By exception, references will be made to high or low risk flooding, which should be taken to mean a 10% chance/likelihood or 0.1% chance/likelihood of flooding in any given year respectively.

Chance / likelihood of flooding		
Likelihood	**Return Period**	**Annual chance**
High	1 in 10 year	10%
Medium	1 in 200 year	0.5%
Low	1 in 1000 year	0.1%

An **annual cost of flooding** is given as an assessment of the economic impact of flooding within an area. Depending on its size or severity each flood will cause a different amount of damage to a given area. Annual average damages are the theoretical average economic damages caused by flooding when considered over many years. It does not mean that value of damage will occur every year: in many years there will be no damages and in some years the damages will be minor. In most places, there will be a very small number of years when much bigger floods occur, and that is when the highest damage costs will occur. To assess the annual cost, this is averaged over many years. In some areas, smaller floods which happen frequently contribute more to the annual cost than much larger events which are rarer. Within the plans, the annual cost of flooding has been calculated based on the methods set out in the Flood Hazard Research Centre's Multi-Coloured Handbook (2016).

History of flooding. Where the plans refer to a history of past flooding, flood events up to 2019/20 have been taken into account.

Section 2: Solway Local Plan District (LPD 14)

Flood risk management plan 2022-2028

The Solway Local Plan District covers an area of around 7,000km² and has a population of approximately 160,000. It covers a large area of the southwest of Scotland, extending from Drummore and Portpatrick in the west, to beyond Langholm and Newcastleton in the east. The coastline has a length of around 625km from Downan Point to Gretna, with many bays including Wigtown Bay and Luce Bay. It includes the urban areas of Dumfries, Stranraer and Annan.

The area is largely rural with the main land cover of woodland and agricultural land. There are many lochs and reservoirs in the area including Loch Ken, Clatteringshaws Loch, Loch Grannoch, Loch Dee and Castle Loch. The main rivers are the Nith, Esk, Annan, Cree and Dee (Galloway).

There is river, surface water and coastal flood risk in the Local Plan District. There have been several large floods, including in January 2018 when Storm Georgina caused considerable damage through river flooding. More recently, in February 2019, Storm Erik caused significant damage throughout the area.

Currently it is estimated there are around 16,000 people and 10,000 homes and businesses at risk from flooding. This may increase to 20,000 people and 13,000 homes and businesses by the 2080s due to climate change. The expected annual cost of flooding is around £15 million. Note, however that flooding from wave overtopping is not fully represented in the assessment of flood risk and the impact of coastal flooding may be underestimated.

SEPA lead development of the flood risk management plans for Scotland and delivery of flood warning services. Local flood risk management planning in this Local Plan District is led by Dumfries and Galloway Council (the lead local authority). Other responsible authorities include Scottish Water and 4 more local authorities. They are supported by Scottish Government agencies including Forestry and Land Scotland, Scottish Forestry and Transport Scotland.

Within this Local Plan District, actions are regularly carried out by SEPA and responsible authorities to help prepare communities for potential flooding and reduce the impact of any flooding that does occur.

A Cross Border Advisory Group is in place in the Solway Local Plan District to advise the Environment Agency, SEPA and local authorities on flooding issues that straddle the border. The group considers how the relevant authorities should coordinate their work in order to ensure that they understand how the impact of flood risk on one side of the border is affected by actions or inactions on the other side of the border.

2.2 Actions across the Local Plan District

SEPA and responsible authorities carry out actions in all areas of the Local Plan District which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. The following actions are due to take place over the next 6 years, and most of these are carried out on an ongoing basis.

	Awareness raising
Action	SEPA, the responsible authorities and other organisations such as the Scottish Flood Forum work together through national and local initiatives to help communities understand the risk of flooding and what actions individuals can take. Improved awareness of flood risk and actions that prepare individuals, homes and businesses for flooding can reduce the overall impact of flooding. Local authorities undertake additional awareness raising activities when developing any specific project proposals and will engage with community resilience groups and local communities. Scottish Flood Forum support flood risk communities by raising community awareness, promoting self-help, developing community groups and establish a recovery support programme after a flood.

	Data to support climate resilience
Action	As Scotland's hydrometric authority, SEPA operates a network of stations to measure river level, flow, rainfall, sea level, loch and groundwater level. The data goes into a long term data archive and is critical to underpin all flood risk management activities including flood warning, flood mapping, design of flood protection and sustainable development as well as supporting a range of regulatory and recreational uses. SEPA will continue to maintain and develop its hydrometric network, contribute to UK and international data archives, and improve and update the datasets used for flood frequency analysis. SEPA will support research and development of data, methods and guidance to improve the evidence on which decisions can be made, and to enable the impact of climate change to be included in all flood risk management activities.

	Emergency plans
Action	Many organisations, including local authorities, the emergency services and SEPA provide an emergency response to flooding. Emergency plans are prepared and maintained under the Civil Contingencies Act 2004 by Category 1 and 2 Responders and are coordinated through regional and local resilience partnerships, often supported by voluntary organisations. They set out the steps to be taken to maximise safety and minimise impacts during flooding. Emergency plans may also be prepared by individuals, businesses, organisations or communities. Scottish Water is a Category 2 responder under the Civil Contingencies Act 2004 and will support regional and local resilience partnerships as required.

	Flood forecasting
Action	The Scottish Flood Forecasting Service is a partnership between SEPA and the Met Office. The service continues to produce a daily, national flood guidance statement, issued to emergency responders, local authorities, and other organisations with flood risk management duties. As the flood warning authority for Scotland SEPA continues to provide its flood warning service issuing flood alerts and warnings when required, giving people a better chance of reducing the impact of flooding on their home or business.

	Flood warning development framework
Action	SEPA will publish a new flood warning development framework by March 2022, which will detail its ambitions and strategic actions to maintain and improve our flood warning service across Scotland. SEPA will continue to develop the Scottish Flood Forecast, a 3 day forecast of flood risk across Scotland and bring together all live information such as flood warnings, river levels and rainfall data into a central hub easily accessible for the public. Working in close partnership with the Met Office through the Scottish Flood Forecasting Service, SEPA will develop its capability in surface water flooding forecasting, focusing initially on the transport sector to support climate-ready infrastructure. SEPA will also undertake a prioritised improvement programme of existing river and coastal flood warning schemes to provide more accurate forecast with improved lead time.

	Future flood risk management planning
Action	The years covered by the lifetime of this plan are crucial. Radical progress is needed in how we reduce our impact on the climate and respond to the effects of climate change. How we plan to manage flooding to our communities is on the front line of the challenges of this decade. The 2027 flood risk management plans will be more ambitious than ever before.

	We will plan for a better future by publishing our flooding services strategy in 2022 with a clear and measurable delivery plan. We will put greener, fairer communities at the heart of our ambitions. SEPA has set its own target to be a regenerative organisation by 2030 and the next set of plans will further this ambition. During this plan cycle, SEPA will work to develop new partnerships with a wider range of stakeholders, including businesses and commercial sectors. We will investigate alternative sources of finance to tackle flooding and drive forward practical options for adaptation.

	Guidance development
Action	The Scottish Government and SEPA will develop and update guidance to inform flood risk management projects. This guidance will be produced in 2022 and will look at how best to adapt to the long-term impacts of climate change and the most appropriate methods of assessing the benefits of flood risk management actions. Technical guidance to support flood risk management partners will be reviewed and updated by SEPA where required. Scottish Forestry, in collaboration with its UK counterparts, will produce guidance on designing and managing forests to reduce flood risk. Guidance will be developed to help local authorities understand the requirements for mapping relevant bodies of water and sustainable urban drainage systems in their areas.

	Hazard mapping updates
Action	An understanding of flooding is essential to develop a plan led risk-based approach to flood risk management. SEPA will continue to update their national hazard mapping, which shows the likelihood of flooding in Scotland from different flooding sources: https://www.sepa.org.uk/environment/water/flooding/flood-maps/. SEPA will continue to develop the hazard mapping viewer to make it easier for the public, partners and stakeholders to access data on the likelihood of flooding.

	Land use planning
Action	Local authorities, SEPA and Scottish Water all have a responsibility under the Flood Risk Management (Scotland) Act 2009 to support sustainable flood risk management through the land use planning process. National planning policies set out the Scottish Ministers' priorities for the development and use of land. Under this approach, new development in areas with medium to high likelihood of flooding should generally be avoided. Current national planning policies aim to restrict development within the floodplain and limit exposure of new receptors to flood risk, promote flood reduction via natural and structural flood management measures and restoration of natural features, and avoid increased surface water flooding through sustainable drainage and the minimisation of impermeable surfaces. Locally determined planning policies may place further requirements within their area of operation to restrict inappropriate development and prevent unacceptable risk.

	Maintenance
Action	Local authorities have a duty to assess bodies of water and to carry out clearance and repair works where such works would substantially reduce flood risk. Local authorities are also responsible for the drainage of roads.

	In addition, local authorities may also be responsible for maintenance of any existing flood protection schemes or works. Scottish Water will continue to undertake risk-based inspection, maintenance and repair on the public sewer network. Asset owners and riparian landowners are responsible for the maintenance and management of their own assets including those which help to reduce flood risk.

	Natural flood management mapping
Action	SEPA will continue to support activities that improve our understanding of how to effectively target and deliver natural flood management. As part of this, SEPA will review and update the opportunities mapping for natural flood management. This will include linking blue-green infrastructure with the surrounding natural catchment and coastline. Natural flood management seeks to store or slow down flood waters through measures such as the planting of woodlands, wetland creation, river restoration, or the creation of intertidal habitats. In addition to flooding benefits, natural flood management measures can also provide many additional benefits to biodiversity, water quality, recreation, and carbon storage.

	National flood risk assessment
Action	Understanding the future impacts of climate change remains a central theme of SEPA's flood risk management activity. SEPA will use the latest UK information on climate change to support an improved understanding of the changes in flood risk across the 21st century. SEPA will use the most suitable data to develop the national flood risk assessment (NFRA) 2024. This assessment will be used to identify future potentially vulnerable areas.

	National surface water mapping
Action	The national flood risk assessment 2018 identified that surface water flooding has the potential to impact more properties in Scotland than any other source of flooding. Over the next 6 year cycle SEPA will look to vastly improve its national understanding of surface flood risk by undertaking a wholescale update of the national surface water maps to reflect developments in data and understanding, including the impact of climate change.

	Reservoirs
Action	SEPA will continue to develop its assessment of flood risk from dam failure and use these assessments to direct a proportionate regulatory approach to ensure reservoir safety. Over the next management cycle we will implement further developments of our flood warning capabilities in the unlikely event of reservoir failure.

	Scottish Flood Defence Asset Database
Action	The Scottish Flood Defence Asset Database provides information on existing flood protection schemes. National data on flood protection infrastructure is needed to understand flood risk and to develop adaptation planning for Scotland. SEPA will continue to host SFDAD and look for opportunities to support the development of our understanding of how and when Scotland's flood defence assets should be adapted to continue to maintain protection from flooding in the future.

	Self help
Action	Everyone is responsible for protecting themselves and their property from flooding. People can take steps to reduce damage and disruption to their homes and businesses should flooding happen. This includes preparing a flood plan and flood kit, installing property flood resilience measures, signing up to Floodline, engaging with their local flood group, and ensuring that properties and businesses

	are insured against flood damage. The following places offer help with taking steps to protect yourself: https://www.floodre.co.uk/ https://www.biba.org.uk/current-issues/flood-insurance/ https://floodlinescotland.org.uk/ https://scottishfloodforum.org/ Responsible authorities and SEPA will continue to develop the understanding of flood risk to communities and promote measures to help individuals and businesses to reduce their risk.

More specific local actions to manage flood risk in target areas are detailed in the potentially vulnerable areas (PVAs) sections below.

2.3 Potentially vulnerable areas

Potentially vulnerable areas (PVAs) were designated in 2018 based on the potential current or future risk from all sources of flooding. This designation was informed by the national flood risk assessment (available to view at: https://www.sepa.org.uk/data-visualisation/nfra2018/). As part of continued analysis of flood risk, the national flood risk assessment and potentially vulnerable areas (PVAs) will be reviewed every 6 years to take on board any new information. There are 24 potentially vulnerable areas (PVAs) in this Local Plan District. Following sections provide more information on these areas.

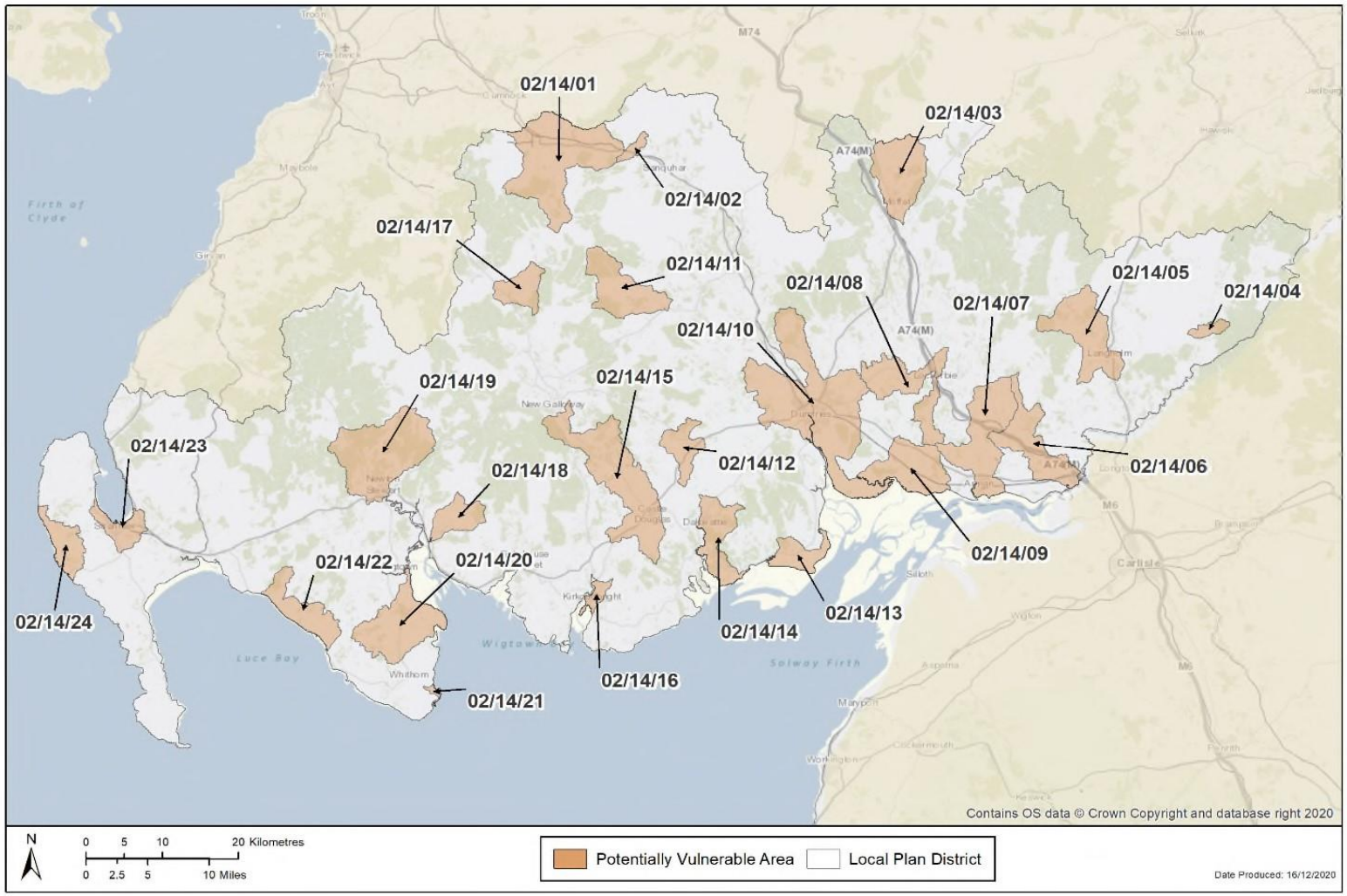


Figure 1. Potentially vulnerable areas in the Solway Local Plan District

LPD 14 Solway – List of PVAs

Click the blue text to select your area of interest

02/14/01 (New Cumnock)

This area is designated as a potentially vulnerable area due to flood risk to New Cumnock. The main sources of flooding are from the Afton Water, the River Nith, and surface water. Recent river flooding has occurred in the area.

There is 1 target area in this potentially vulnerable area, which has been the focus of further assessment, this is identified below. Further information on the objectives and actions to manage flood risk within this area is provided below.

List of target areas

New Cummock (target area 138)

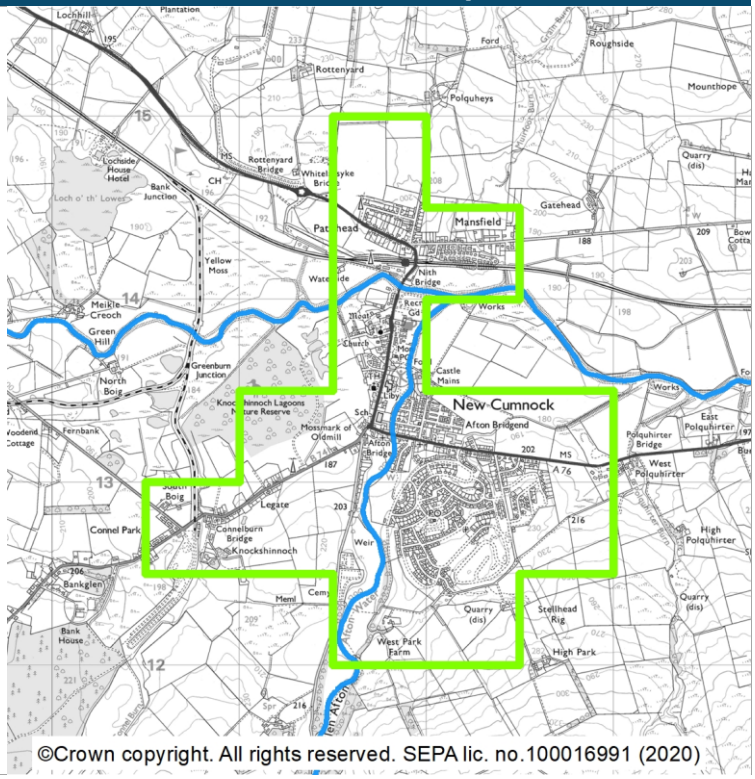
Flood risk management plan datasheet

New Cummock (target area 138)

Summary

New Cumnock is a town located adjacent to the River Nith and Afton Water. It is in the East Ayrshire Council area. The main source of flooding in New Cumnock is river flooding, however there is also a risk of surface water flooding. There are approximately 550 people and 300 homes and businesses currently at risk from flooding. This is likely to increase to 610 people and 330 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment is improved for river flooding by the flood warning scheme and the studies and design supporting the present development of the New Cumnock Flood Protection Scheme. There is a long record of flooding in this target area.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies.

The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective Description
1381	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of New Cumnock Flood Protection Scheme
1382	Avoid flood risk	Avoid inappropriate development that increases flood risk in New Cumnock
1383	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in New Cumnock
1384	Reduce flood risk	Reduce the risk of flooding in New Cumnock

What actions are proposed for this area?

As outlined in Section 1 of this plan, at the date of publication the actions below represent the best understanding of what is needed to work towards the objectives for the area. They have been developed with the other responsible authorities and take account of progress achieved to date, the understanding of flood risk and the objectives set for the area. The local flood risk management plan published in 2022 provides more information on the actions, their timing and how they will be funded and coordinated.

Actions proposed to start between 2022 and 2028

	Flood scheme or works implementation (Ref: 13801)
Action	The flood scheme/works is to be built following agreement of the design, costs and timescales.
Description	East Ayrshire Council to complete the New Cumnock Flood Protection Scheme. This should include consideration of the impacts of climate change on scheme performance. An adaptation plan may need to be developed to address changes of flood risk due to climate change. As built drawings should be completed 1-2 years after construction is complete and made available for inclusion in the flood defence asset database.

	Flood defence maintenance (Ref: 13802)
Action	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
Description	East Ayrshire Council is to inspect and maintain the New Cumnock Flood Protection Scheme.

	Strategic mapping improvements (Ref: 13803)
Action	SEPA will continue to update flood maps based on new information.
Description	SEPA will await the conclusion of river restoration works and associated modelling in the upper Nith catchment before progressing with this action. This will include a review of local authorities studies including the New Cumnock Flood Protection Scheme.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

02/14/02 (Kirkconnel)

This area is designated as a potentially vulnerable area due to flood risk to Kirkconnel. The main sources of flooding are from the River Nith and surface water. There are a number of recorded floods, with recent flooding being caused by flooding from the River Nith.

There is 1 target area in this potentially vulnerable area, which has been the focus of further assessment, this is identified below. Further information on the objectives and actions to manage flood risk within this area is provided below.

List of target areas

Kirkconnel	(target area 133)

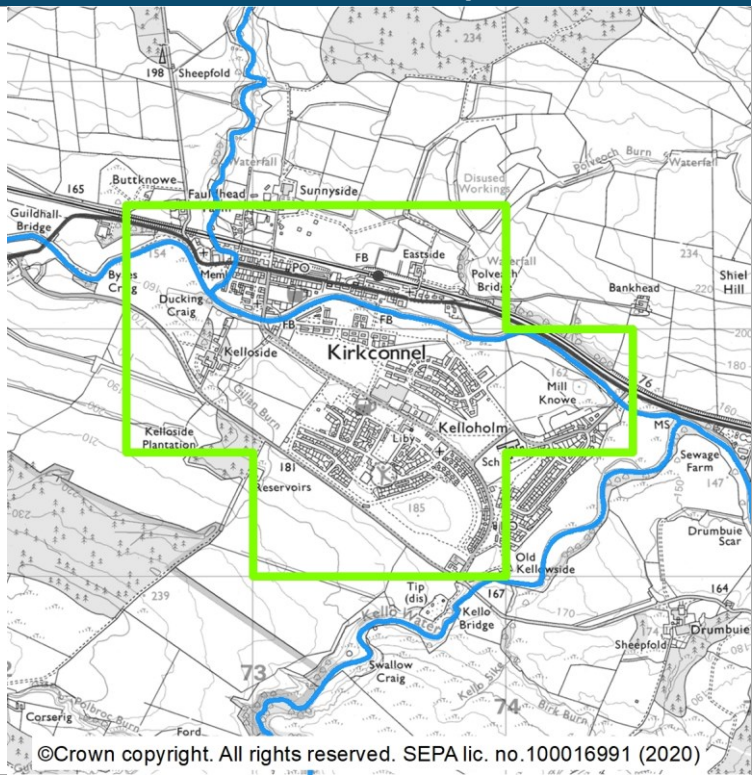
Flood risk management plan datasheet

Kirkconnel (target area 133)

Summary

Kirkconnel is in Dumfries and Galloway local authority area and is located on the banks of the River Nith. The main source of flooding in Kirkconnel is river flooding, however there is also risk from surface water flooding. There are approximately 190 people and 110 homes and businesses currently at risk from flooding. This is likely to increase to 230 people and 140 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment is improved for river flooding by the Kirkconnel Flood Study (2016) and flood warning scheme. Understanding is also improved for surface water flooding by a sewer flood risk assessment. There is a long record of flooding in this target area.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies.

The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective Description
1331	Avoid flood risk	Avoid inappropriate development that increases flood risk in Kirkconnel
1332	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of the Polbower, Kirkconnel Flood Protection Scheme
1333	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Kirkconnel
1334	Reduce flood risk	Reduce the risk of flooding in Kirkconnel

What actions are proposed for this area?

As outlined in Section 1 of this plan, at the date of publication the actions below represent the best understanding of what is needed to work towards the objectives for the area. They have been developed with the other responsible authorities and take account of progress achieved to date, the understanding of flood risk and the objectives set for the area. The local flood risk management plan published in 2022 provides more information on the actions, their timing and how they will be funded and coordinated.

Actions proposed to start between 2022 and 2028

	Flood scheme or works design (Ref: 13301)
Action	The selected preferred approach for managing flood risk is to be designed on the basis of the flood study, including consideration of the long-term impacts of climate change. These can include small scale works or works to improve catchment management. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Description	Dumfries and Galloway to develop detailed design of the Kirkconnel Flood Protection Scheme based on the preferred option from the flood study. An adaptation plan may need to be developed to address changes of flood risk due to climate change. The responsible authority proposes this action as the best viable option for managing flood risk in this community. The delivery of this action is subject to capital funding being made available.

	Flood scheme or works implementation (Ref: 13302)
Action	The flood scheme/works is to be built following agreement of the design, costs and timescales.
Description	The responsible authority proposes this action as the best viable option for managing flood risk in this community. The delivery of this action is subject to capital funding being made available. Dumfries and Galloway Council should progress the formal process of promoting a flood protection scheme for Kirkconnel. Procurement of a contractor for the construction phase should begin once formal approval to progress with a scheme has been given and detailed design is complete. Upon completion of the scheme Dumfries and Galloway Council should submit all as built and scheme information to SEPA for registration on the Scottish Flood Defence Asset Database.

	Community engagement (Ref: 13303)
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Description	Community engagement should continue through the development of the Kirkconnel Flood Protection Scheme.

	Flood defence maintenance (Ref: 13304)
Action	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
Description	Dumfries and Galloway Council is to continue to inspect and maintain the Polbower, Kirkconnel Flood Protection Scheme.

	Flood warning maintenance (Ref: 13305)
Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Description	SEPA should maintain the Upper Nith flood warning scheme.

	Strategic mapping improvements (Ref: 13306)
Action	SEPA will continue to update flood maps based on new information.
Description	SEPA will await the conclusion of river restoration works and associated modelling in the upper Nith catchment before progressing with this action. This will include a review of local authorities studies including the New Cumnock Flood Protection Scheme.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

02/14/03 (Moffat)

This area is designated as a potentially vulnerable area due to flood risk to Moffat. The main sources of flooding are from river and surface water. Recent floods have been caused by both river and surface water flooding.

There is 1 target area in this potentially vulnerable area, which has been the focus of further assessment, this is identified below. Further information on the objectives and actions to manage flood risk within this area is provided below.

List of target areas

Moffat	(target area 136)

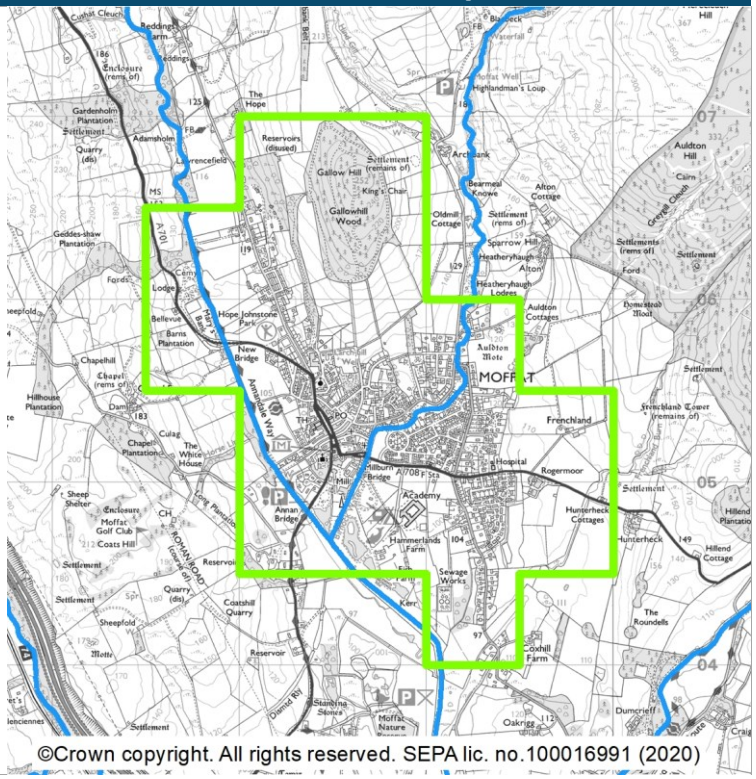
Flood risk management plan datasheet

Moffat (target area 136)

Summary

Moffat is located on the banks of the River Annan and is within the Dumfries and Galloway local authority area. The main source of flooding in Moffat is river flooding, however there is also risk from surface water flooding. There are approximately 178 homes and businesses at risk from flooding. This is likely to increase to 228 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment is improved for river flooding by the Moffat Flood Study (2018) and improved for surface water flooding by a sewer flood risk assessment. There is a long record of flooding in this target area.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies.

The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective Description
1361	Avoid flood risk	Avoid inappropriate development that increases flood risk in Moffat
1362	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of Moffat Well Road Flood Protection Scheme
1363	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Moffat
1364	Reduce flood risk	Reduce the risk of flooding in Moffat

What actions are proposed for this area?

As outlined in Section 1 of this plan, at the date of publication the actions below represent the best understanding of what is needed to work towards the objectives for the area. They have been developed with the other responsible authorities and take account of progress achieved to date, the understanding of flood risk and the objectives set for the area. The local flood risk management plan published in 2022 provides more information on the actions, their timing and how they will be funded and coordinated.

Actions proposed to start between 2022 and 2028

	Flood scheme or works design (Ref: 13601)
Action	The selected preferred approach for managing flood risk is to be designed on the basis of the flood study, including consideration of the long-term impacts of climate change. These can include small scale works or works to improve catchment management. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Description	The selected preferred approach for managing flood risk is to be designed following the completion of the quick wins report, including consideration of the long-term impacts of climate change. These will include small scale works or works to improve catchment management. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.

	Flood scheme or works implementation (Ref: 13602)
Action	The flood scheme/works is to be built following agreement of the design, costs and timescales.
Description	Dumfries and Galloway Council to complete the implementation of any 'quick win' actions following on from the options appraisal process. The responsible authority proposes this action as the best viable option for managing flood risk in this community. The delivery of this action is subject to capital funding being made available.

	Flood defence maintenance (Ref: 13603)
Action	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
Description	Dumfries and Galloway Council is to continue to inspect and maintain any flood protection structures (Well Road).

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

02/14/04 (Newcastleton)

This area is designated as a potentially vulnerable area due to flood risk in Newcastleton. The main source of flooding is from the Liddel Water, with some risk from surface water. There are reports of flooding in the area. Recent floods have been caused by both river and surface water flooding.

There is 1 target area in this potentially vulnerable area, which has been the focus of further assessment, this is identified below. Further information on the objectives and actions to manage flood risk within this area is provided below.

List of target areas

Newcastleton	(target area 139)

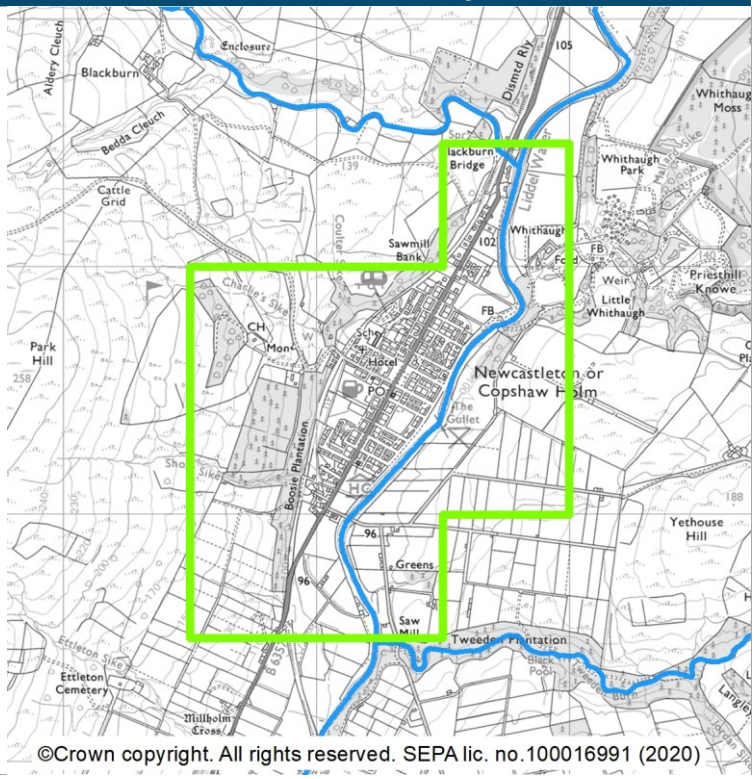
Flood risk management plan datasheet

Newcastleton (target area 139)

Summary

Newcastleton is a village in the Scottish Borders on the banks of the Liddel Water. The main sources of flooding in Newcastleton are river flooding and surface water flooding. The local authority has carried out a flood study in this area. The study showed that there are approximately 410 people and 260 homes and businesses currently at risk from flooding, which is a significant proportion of the community. This is likely to increase to 510 people and 320 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national assessment for river flooding is improved by a flood study for Newcastleton which considers river flood risk from the Liddel Water, Charlie Sike and the Short Sike. Understanding of surface water flooding is improved by a surface water management plan carried out by the local authority and a sewer flood risk assessment carried out by Scottish Water. There are records of frequent and significant flooding in this area. Newcastleton was flooded during Storm Dennis in February 2020 when the Liddel Water overtopped its banks, flooding a large number of homes and businesses and leading to an emergency response including evacuations. In February 2021 more than 20 homes and businesses were flooded and 2 residents were rescued following heavy rain. Roads were also flooded.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies.

The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

to deliver multiple outcomes.

Objective ref	Objective type	Objective Description
1391	Avoid flood risk	Avoid inappropriate development that increases flood risk in Newcastleton
1392	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Newcastleton
1393	Reduce flood risk	Reduce the risk of surface water flooding and river flooding from the Liddel Water and the Lakes in Newcastleton

What actions are proposed for this area?

As outlined in Section 1 of this plan, at the date of publication the actions below represent the best understanding of what is needed to work towards the objectives for the area. They have been developed with the other responsible authorities and take account of progress achieved to date, the understanding of flood risk and the objectives set for the area. The local flood risk management plan published in 2022 provides more information on the actions, their timing and how they will be funded and coordinated.

Actions proposed to start between 2022 and 2028

	Flood scheme or works design (Ref: 13901)
Action	The selected preferred approach for managing flood risk is to be designed following the completion of the flood study, including consideration of the long-term impacts of climate change. These can include small scale works or works to improve catchment management. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Description	A flood protection scheme has been proposed for Newcastleton. Based on the outcomes of the flood study and surface water management plan, the preferred option consists of direct defences, new channels and floodplain widening. The scheme delivers protection to approximately 180 homes and businesses. The scheme should be taken forward into outline design and detailed design. There should be consideration of the current and long term flood risk and how the area will adapt to changes in flood risk through development of an adaptation plan. In accordance with the flood risk management plan, as part of the scheme or works, the responsible authority should aim to ensure the action will not have an adverse effect on the integrity of the Langholm - Newcastleton Hills Special Protection Area.

	Flood scheme or works implementation (Ref: 13902)
Action	The flood scheme/works is to be built following agreement of the design, costs and timescales.
Description	The responsible authority proposes this action as the best option for managing flood risk in this community. The delivery of this action is subject to funding being made available. Scottish Borders Council should progress the formal process of promoting a flood protection scheme for Newcastleton. Procurement of a contractor for the construction phase should begin once formal approval to progress with a scheme has been given and detailed design is complete. Upon completion of the scheme Scottish Borders Council should submit all as built and scheme information to SEPA for registration on the Scottish Flood Defence Asset Database.

	Community engagement (Ref: 13903)
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Description	Community engagement should continue through the development of a flood protection scheme for Newcastleton.

	Community resilience group (Ref: 13904)
Action	The group of community volunteers work to prepare and put in practice their Community Resilience Plan and be supported by the local authority.
Description	The ongoing activities of the Newcastleton Community Resilience Group and Newcastleton Community Council should continue to be supported by Scottish Borders Council.

	Flood warning maintenance (Ref: 13905)
Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Description	SEPA should maintain the Liddel flood warning scheme. The scheme should be investigated for improvement and/or recalibration.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

02/14/05 (Langholm)

This area is designated as a potentially vulnerable area due to flood risk to Langholm. The main source of flooding is from the River Esk, with some risk from surface water. Recent flooding occurred from the River Esk.

There is 1 target area in this potentially vulnerable area, which has been the focus of further assessment, this is identified below. Further information on the objectives and actions to manage flood risk within this area is provided below.

List of target areas

Langholm	(target area 135)

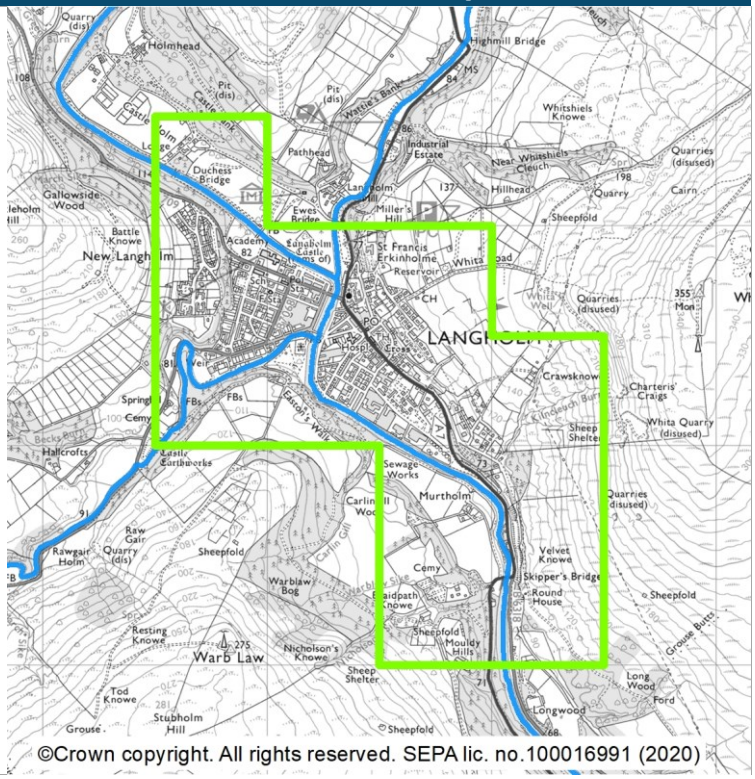
Flood risk management plan datasheet

Langholm (target area 135)

Summary

Langholm is a village in Dumfries and Galloway local authority area. The main source of flooding Langholm is from river flooding, however there is also a risk of surface water flooding. There are approximately 450 people and 260 homes and businesses currently at risk from flooding. This is likely to increase to 720 people and 410 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment is improved for river flooding by assessments carried out for the Langholm Flood Protection Scheme and improved for surface water flooding by a sewer flood risk assessment. Understanding is also improved for river flooding by the flood warning scheme. There is a long record of flooding in this target area.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies.

The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective Description
1351	Avoid flood risk	Avoid inappropriate development that increases flood risk in Langholm
1352	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Langholm
1353	Reduce flood risk	Reduce the risk of flooding in Langholm

What actions are proposed for this area?

As outlined in Section 1 of this plan, at the date of publication the actions below represent the best understanding of what is needed to work towards the objectives for the area. They have been developed with the other responsible authorities and take account of progress achieved to date, the understanding of flood risk and the objectives set for the area. The local flood risk management plan published in 2022 provides more information on the actions, their timing and how they will be funded and coordinated.

Actions proposed to start between 2022 and 2028

	Flood scheme or works design (Ref: 13501)
Action	The selected preferred approach for managing flood risk is to be designed on the basis of the flood study, including consideration of the long-term impacts of climate change. These can include small scale works or works to improve catchment management. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Description	Dumfries and Galloway Council to develop detailed design of the Langholm Flood Protection Scheme. This should include consideration of the impacts of climate change on scheme performance. An adaptation plan may need to be developed to address changes of flood risk due to climate change.

	Flood scheme or works implementation (Ref: 13502)
Action	The flood scheme/works is to be built following agreement of the design, costs and timescales.
Description	Dumfries and Galloway Council should progress the formal process of promoting a flood protection scheme for Langholm. Procurement of a contractor for the construction phase should begin once formal approval to progress with a scheme has been given and detailed design is complete. Upon completion of the scheme Dumfries and Galloway Council should submit all as built and scheme information to SEPA for registration on the Scottish Flood Defence Asset Database.

	Community engagement (Ref: 13503)
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Description	Community engagement should continue through the development of the Langholm Flood Protection Scheme.

	Flood warning maintenance (Ref: 13504)
Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Description	SEPA should maintain the River Esk flood warning scheme.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

02/14/06 (Gretna and Kirtle Water catchment)

This area is designated as a potentially vulnerable area due to flood risk to Eaglesfield and Gretna. There is flooding from river, coastal and surface water. Recent flooding was caused by surface water flooding.

There are 2 target areas in this potentially vulnerable area, which have been the focus of further assessment, these are listed below. Further information on the objectives and actions to manage flood risk within this area is provided below.

List of target areas

Eaglesfield	(target area 33)
Gretna	(target area 132)

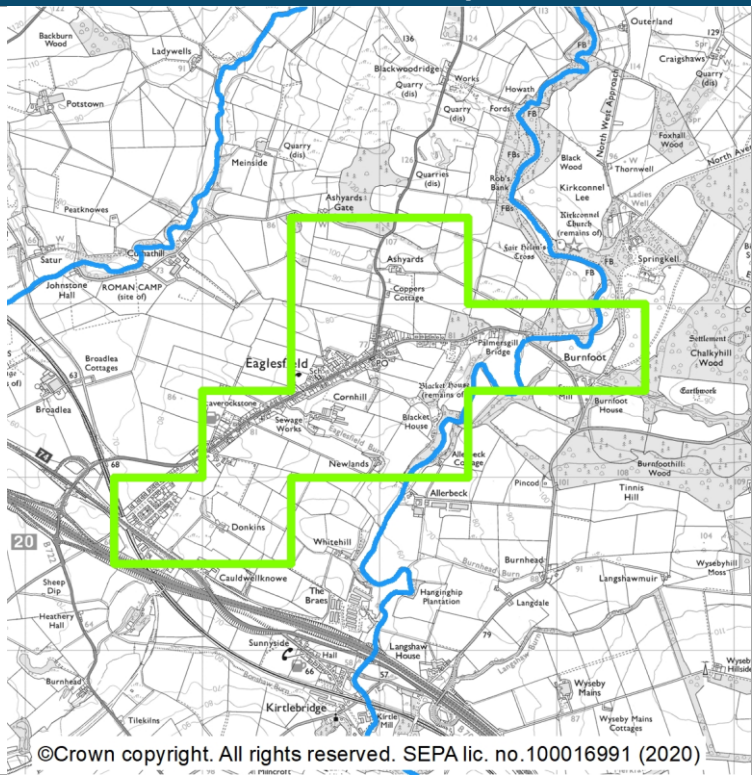
Flood risk management plan datasheet

Eaglesfield (target area 33)

Summary

The small village of Eaglesfield is located 10km north of the Solway Firth, within the Dumfries and Galloway local authority area. The main source of flooding in Eaglesfield is surface water flooding, however there is also a risk of river flooding. There are approximately 20 people and 20 homes and businesses at risk from flooding. This is estimated to remain the same by the 2080s irrespective of climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources and this information has highlighted the risk of flooding in this target area. Eaglesfield has therefore been identified as a new target area for the 2021 flood risk management plans. There are periodic records of flooding in this target area.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies.

The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective Description
331	Avoid flood risk	Avoid inappropriate development that increases flood risk in Eaglesfield
332	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Eaglesfield
333	Reduce flood risk	Reduce the risk of flooding in Eaglesfield

What actions are proposed for this area?

As outlined in Section 1 of this plan, at the date of publication the actions below represent the best understanding of what is needed to work towards the objectives for the area. They have been developed with the other responsible authorities and take account of progress achieved to date, the understanding of flood risk and the objectives set for the area. The local flood risk management plan published in 2022 provides more information on the actions, their timing and how they will be funded and coordinated.

Actions proposed to start between 2022 and 2028

	Surface Water Management Plan (Ref: 3301)
Action	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system are to be identified. These priority areas will provide a baseline for the identification of next steps in managing water ponding or over-whelmed drainage systems. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Description	Dumfries and Galloway Council to develop and implement a surface water management plan working with Scottish Water as appropriate. The feasibility of a range of flood risk management options should be considered.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

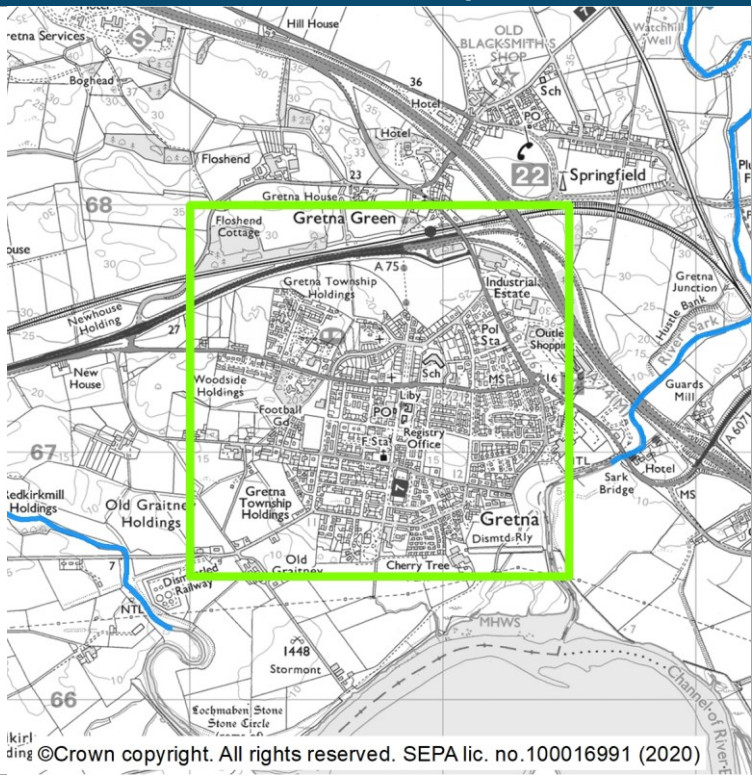
Flood risk management plan datasheet

Gretna (target area 132)

Summary

The small village of Gretna is located near the River Esk and Kirtle Water. The area is located within the Dumfries and Galloway local authority area. The main source of flooding in Gretna is surface water flooding, however this is not reflected in the SEPA strategic mapping. There are approximately 30 people and 20 homes and businesses at risk from flooding. This is likely to remain the same by the 2080s irrespective to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment is improved for coastal flooding by the shoreline management plan (draft consultation 2021) and by the flood warning scheme. Understanding is also improved for surface water flooding by a sewer flood risk assessment. There is a long record of flooding in this target area.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies.

The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective Description
1321	Avoid flood risk	Avoid inappropriate development that increases flood risk in Gretna
1322	Improve data and understanding	Improve data and understanding of flooding in Gretna
1323	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Gretna

What actions are proposed for this area?

As outlined in Section 1 of this plan, at the date of publication the actions below represent the best understanding of what is needed to work towards the objectives for the area. They have been developed with the other responsible authorities and take account of progress achieved to date, the understanding of flood risk and the objectives set for the area. The local flood risk management plan published in 2022 provides more information on the actions, their timing and how they will be funded and coordinated.

Actions proposed to start between 2022 and 2028

	Data collection (Ref: 13201)
Action	Equipment that measures rainfall, river levels, erosion, ground levels or wave height may be installed and maintained to improve our understanding of flood risk. This can be done over short term or to measure longer term impacts.
Description	This may include data collection and monitoring to improve the confidence in flood sources, mechanisms and risk. A review may be required to assess the need for rain and/or river gauges. Post flood event surveys may be required to collect data on flooding mechanisms, risk and damage caused.

	Shoreline management plan (coastal adaptive plan) (Ref: 13202)
Action	The existing assessment of coastal flood and erosion risk is to be reviewed and updated as required. The plan should include assessment of climate change and develop adaptive approaches to allow for the impacts of climate change to be monitored, understood and managed.
Description	Dumfries and Galloway Council to complete the review of the 2005 Solway Shoreline Management Plan. This management plan will also identify the need for more detailed assessments of any existing coastal defences and interactions with other flood sources.

	Flood warning maintenance (Ref: 13203)
Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Description	SEPA should maintain the Solway coastal flood warning scheme.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

02/14/07 (Ecclefechan – Annan)

This area is designated as a potentially vulnerable area due to flood risk in Annan and Ecclefechan. There is flooding from river, coastal and surface water. Recent flooding occurred in the area and was caused by surface water flooding.

There are 2 target areas in this potentially vulnerable area, which have been the focus of further assessment, these are listed below. Further information on the objectives and actions to manage flood risk within this area is provided below.

List of target areas

Ecclefechan	(target area 31)
Annan	(target area 129)

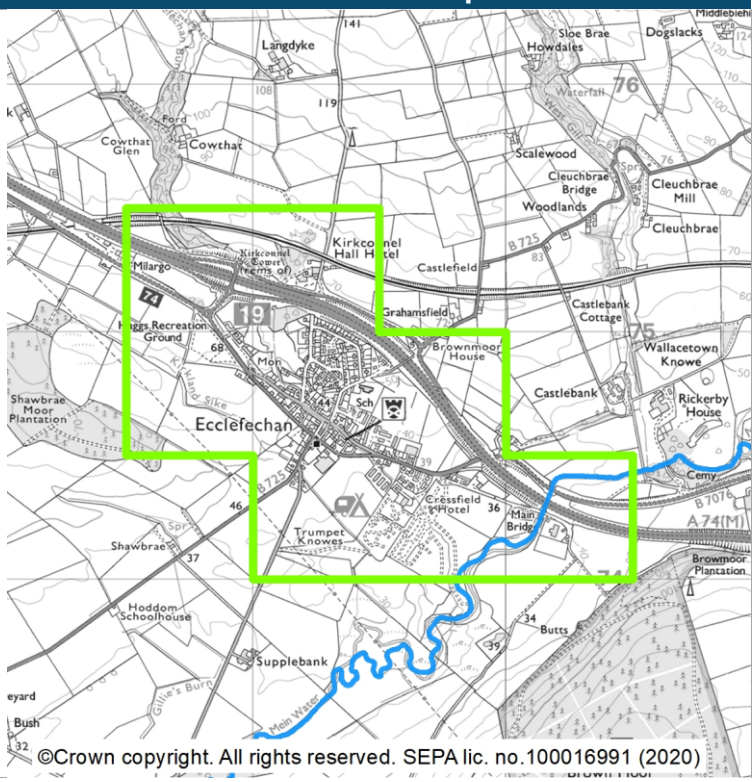
Flood risk management plan datasheet

Ecclefechan (target area 31)

Summary

The settlement of Ecclefechan lies in the valley of the Mein Water. The area is located within the Dumfries and Galloway local authority area. The only source of flooding in Ecclefechan is from river flooding. There are approximately 200 people and 140 homes and businesses at risk from flooding. This is estimated to increase to 230 people and 160 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources, and this information has highlighted the risk of flooding in this target area. There are periodic records of flooding in this target area.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies.

The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective Description
311	Avoid flood risk	Avoid inappropriate development that increases flood risk in Ecclefechan
312	Improve data and understanding	Improve data and understanding of river flooding in Ecclefechan
313	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Ecclefechan

What actions are proposed for this area?

As outlined in Section 1 of this plan, at the date of publication the actions below represent the best understanding of what is needed to work towards the objectives for the area. They have been developed with the other responsible authorities and take account of progress achieved to date, the understanding of flood risk and the objectives set for the area. The local flood risk management plan published in 2022 provides more information on the actions, their timing and how they will be funded and coordinated.

Actions proposed to start between 2022 and 2028

	Data collection (Ref: 3101)
Action	Equipment that measures rainfall, river levels, erosion, ground levels or wave height may be installed and maintained to improve our understanding of flood risk. This can be done over short term or to measure longer term impacts.
Description	This may include data collection and monitoring to improve the confidence in flood sources, mechanisms and risk. A review may be required to assess the need for rain and/or river gauges. Post flood event surveys may be required to collect data on flooding mechanisms, risk and damage caused.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

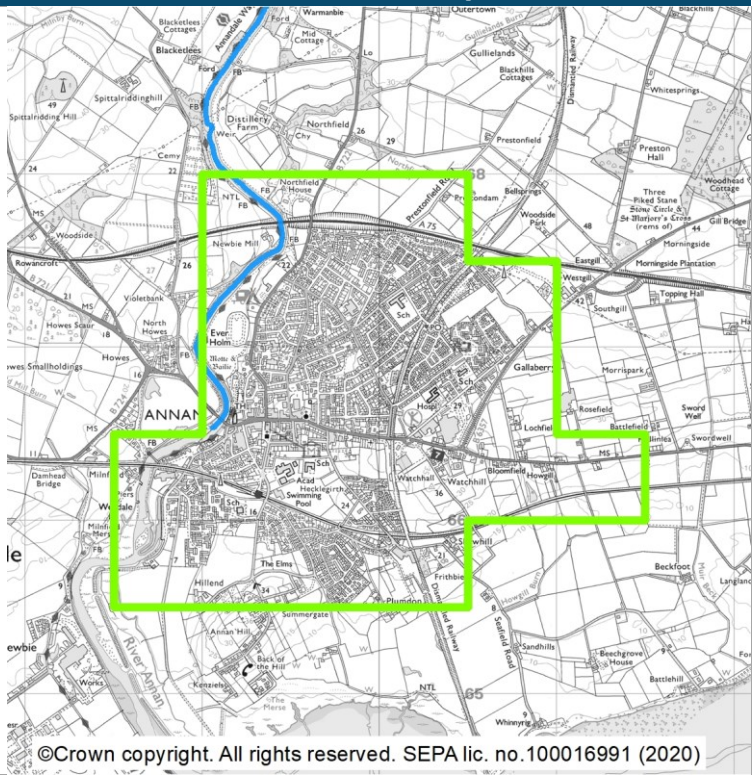
Flood risk management plan datasheet

Annan (target area 129)

Summary

Annan is a town located on the eastern bank of the River Annan, and along the coast of the Inner Solway Firth. The area is located within the Dumfries and Galloway local authority area. The main sources of flooding in Annan are surface water and coastal flooding, however there is also a risk of river flooding. There are approximately 860 people and 530 properties currently at risk from flooding. This is likely to increase to 1,100 people and 670 properties by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment is improved for coastal flooding by the shoreline management plan (draft consultation 2021) and by the flood warning scheme. Understanding is also improved for surface water flooding by a sewer flood risk assessment. There is a long record of flooding in this target area.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies.

The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective Description
1291	Avoid flood risk	Avoid inappropriate development that increases flood risk in Annan
1292	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Annan
1293	Reduce flood risk	Reduce the risk of flooding in Annan

What actions are proposed for this area?

As outlined in Section 1 of this plan, at the date of publication the actions below represent the best understanding of what is needed to work towards the objectives for the area. They have been developed with the other responsible authorities and take account of progress achieved to date, the understanding of flood risk and the objectives set for the area. The local flood risk management plan published in 2022 provides more information on the actions, their timing and how they will be funded and coordinated.

Actions proposed to start between 2022 and 2028

	Shoreline management plan (coastal adaptive plan) (Ref: 12901)
Action	The existing assessment of coastal flood and erosion risk is to be reviewed and updated as required. The plan should include assessment of climate change and develop adaptive approaches to allow for the impacts of climate change to be monitored, understood and managed.
Description	Dumfries and Galloway Council to complete the review of the 2005 Solway Shoreline Management Plan. This management plan will also identify the need for more detailed assessments of any existing coastal defences and interactions with other flood sources.

	Sewer flood risk assessment (Ref: 12902)
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Description	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Annan sewer catchment in this target area. This will help to improve knowledge and understanding of potential surface water flood risk. Funding for this action is secured through Scottish Water's strategic planning commitments.

	Surface water management plan (Ref: 12903)
Action	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system are to be identified. These priority areas will provide a baseline for the identification of next steps in managing water ponding or over-whelmed drainage systems. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Description	Dumfries and Galloway Council to develop a surface water management plan, working with Scottish Water as appropriate to gain an understanding of the hotspots of flooding and potential interaction with coastal and river flooding. The results of the sewer flood risk assessment should be considered. Opportunities to disconnect surface water from the sewerage system should be identified. The impacts of climate change on flood risk should be assessed. The plan should be reviewed and updated regularly.

	Flood warning maintenance (Ref: 12904)
Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Description	SEPA should maintain the Solway coastal flood warning scheme.

	Strategic mapping improvements (Ref: 12905)
Action	SEPA will continue to update flood maps based on new information.
Description	SEPA will be undertaking a review of coastal flood modelling in this target area to identify where it may be appropriate to include the impact of waves on coastal flooding. We will progress with improved flood modelling and mapping in the highest priority areas taking account of availability of data to support the modelling work.

Actions proposed after June 2028

The following actions are proposed to take place after June 2028. These will be reviewed in 2026, considering added information at that time, to ensure they are still the most appropriate actions for the community.

	Flood study (options appraisal) (Ref: 12906)
Action	In areas where flood risk is confirmed, a range of possible options to manage flood risk are to be identified, including natural flood management actions where suitable, and a preferred approach is to be chosen. This should include adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Description	Dumfries and Galloway Council to identify a range of possible flood risk management options, following the outcomes of the surface water management plan where areas with higher risk of flooding have been identified.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

02/14/08 (Lochmaben – Lockerbie)

This area is designated as a potentially vulnerable area due to flood risk to Greenhill, Lochmaben and Lockerbie. The main source of flooding is from surface water, however there is also risk from the River Annan. Recent river and surface water flooding has occurred in the area.

There are 3 target areas in this potentially vulnerable area, which have been the focus of further assessment, these are listed below. Further information on the objectives and actions to manage flood risk within this area is provided below.

List of target areas

Lockerbie	(target area 150)
Lochmaben	(target area 163)
Heck and Greenhill	(target area 16310)

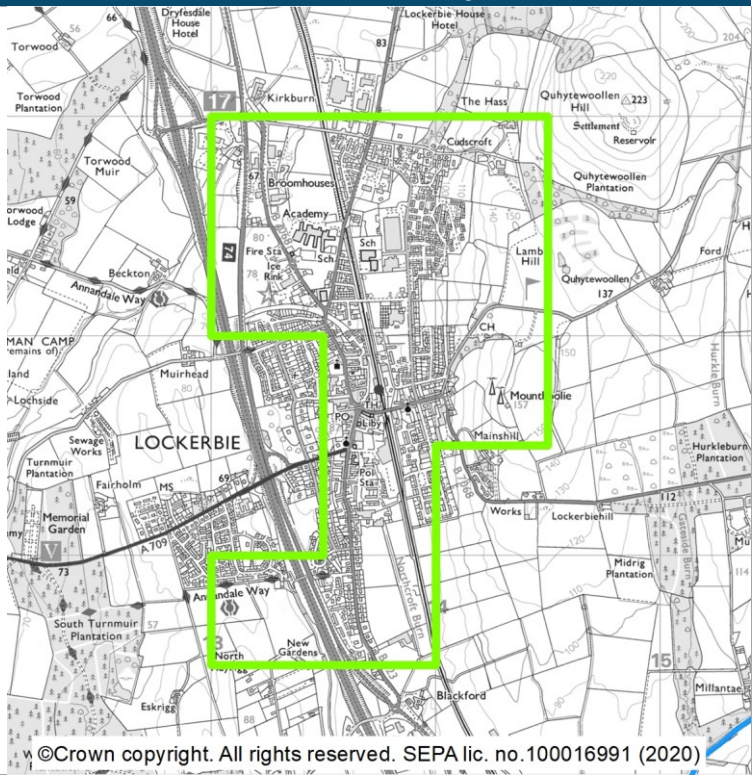
Flood risk management plan datasheet

Lockerbie (target area 150)

Summary

Lockerbie is a town located in south west Scotland within the Dumfries and Galloway local authority area. The main source of flooding in Lockerbie is surface water flooding, however there is also a risk from river flooding. There are approximately 180 people and 120 homes and businesses at risk of flooding. This is estimated to increase to 250 people and 160 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment is improved for surface water flooding by a sewer flood risk assessment. There is a long record of flooding in this target area.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies.

The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective Description
1501	Avoid flood risk	Avoid inappropriate development that increases flood risk in Lockerbie
1502	Improve data and understanding	Improve data and understanding of flooding in Lockerbie
1503	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Lockerbie

What actions are proposed for this area?

As outlined in Section 1 of this plan, at the date of publication the actions below represent the best understanding of what is needed to work towards the objectives for the area. They have been developed with the other responsible authorities and take account of progress achieved to date, the understanding of flood risk and the objectives set for the area. The local flood risk management plan published in 2022 provides more information on the actions, their timing and how they will be funded and coordinated.

Actions proposed to start between 2022 and 2028

	Data collection (Ref: 15001)
Action	Equipment that measures rainfall, river levels, erosion, ground levels or wave height may be installed and maintained to improve our understanding of flood risk. This can be done over short term or to measure longer term impacts.
Description	This may include data collection and monitoring to improve the confidence in flood sources, mechanisms and risk. A review may be required to assess the need for rain and/or river gauges. Post flood event surveys may be required to collect data on flooding mechanisms, risk and damage caused.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

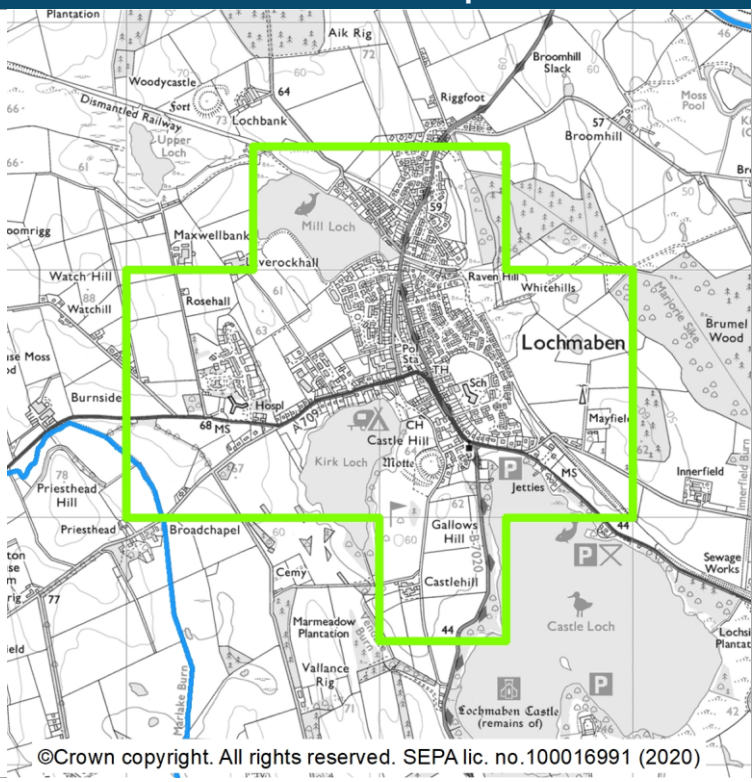
Flood risk management plan datasheet

Lochmaben (target area 163)

Summary

Lochmaben is within the Dumfries and Galloway local authority area. The main source of flooding in Lochmaben is river flooding; however there is also a risk of surface water flooding. There are approximately 110 people and 60 homes and businesses currently at risk from flooding. This is estimated to increase to 150 people and 90 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment is improved for surface water flooding by a sewer flood risk assessment. This information has highlighted the risk of flooding in this target area. Lochmaben has therefore been identified as a new target area for the 2021 flood risk management plans. There is a long record of flooding in this target area.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies.

The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective Description
1631	Avoid flood risk	Avoid inappropriate development that increases flood risk in Lochmaben
1632	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Lochmaben
1633	Improve data and understanding	Improve data and understanding of flooding in Lochmaben

What actions are proposed for this area?

As outlined in Section 1 of this plan, at the date of publication the actions below represent the best understanding of what is needed to work towards the objectives for the area. They have been developed with the other responsible authorities and take account of progress achieved to date, the understanding of flood risk and the objectives set for the area. The local flood risk management plan published in 2022 provides more information on the actions, their timing and how they will be funded and coordinated.

Actions proposed to start between 2022 and 2028

	Data collection (Ref: 16301)
Action	Equipment that measures rainfall, river levels, erosion, ground levels or wave height may be installed and maintained to improve our understanding of flood risk. This can be done over short term or to measure longer term impacts.
Description	This may include data collection and monitoring to improve the confidence in flood sources, mechanisms and risk. A review may be required to assess the need for rain and/or river gauges. Post flood event surveys may be required to collect data on flooding mechanisms, risk and damage caused.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

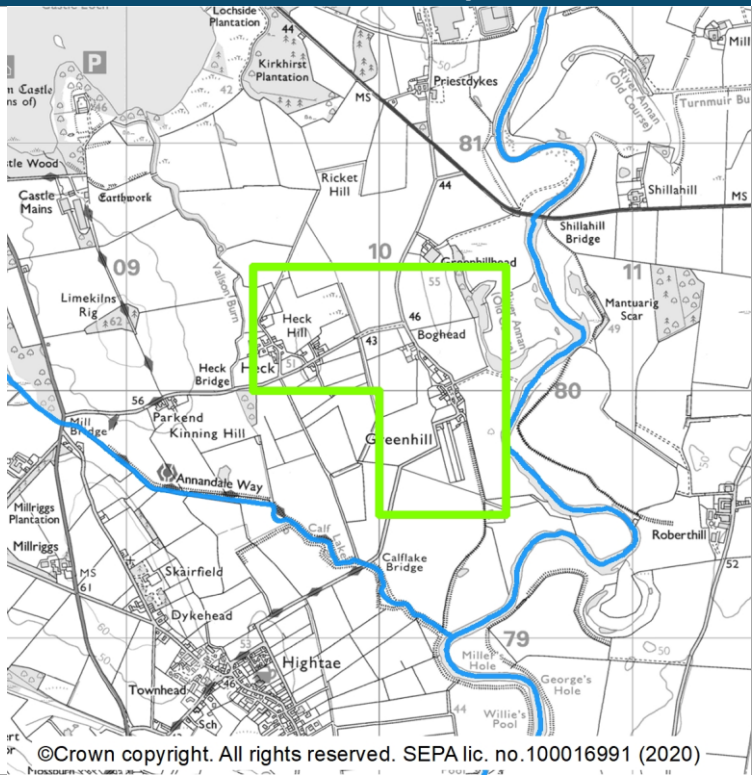
Flood risk management plan datasheet

Heck and Greenhill (target area 16310)

Summary

The small villages of Heck and Greenhill are located near the River Annan. The area is located within the Dumfries and Galloway local authority area. The main source of flooding in Heck and Greenhill is river flooding. There are approximately 40 people and 30 homes and businesses currently at risk of flooding which is a significant proportion of the community. This is estimated to increase to 50 people and 40 properties by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources, and this information has highlighted the risk of flooding in this target area. There is a long record of flooding in this target area.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies.

The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective Description
163101	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
163102	Improve data and understanding	Improve data and understanding of flooding in Heck and Greenhill
163103	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in this target area

What actions are proposed for this area?

As outlined in Section 1 of this plan, at the date of publication the actions below represent the best understanding of what is needed to work towards the objectives for the area. They have been developed with the other responsible authorities and take account of progress achieved to date, the understanding of flood risk and the objectives set for the area. The local flood risk management plan published in 2022 provides more information on the actions, their timing and how they will be funded and coordinated.

Actions proposed to start between 2022 and 2028

	Data collection (Ref: 1631001)
Action	Equipment that measures rainfall, river levels, erosion, ground levels or wave height may be installed and maintained to improve our understanding of flood risk. This can be done over short term or to measure longer term impacts.
Description	This may include data collection and monitoring to improve the confidence in flood sources, mechanisms and risk. A review may be required to assess the need for rain and/or river gauges. Post flood event surveys may be required to collect data on flooding mechanisms, risk and damage caused.

	Flood warning scoping (Ref: 1631002)
Action	The potential to provide a new flood warning scheme is to be considered by SEPA. Flood warnings are only effective where it is possible to send a warning message with sufficient time to allow communities to take appropriate actions before flooding occurs.
Description	Scoping for a river flood warning scheme will be carried out in Heck and Greenhill.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

02/14/09 (Powfoot)

This area is designated as a potentially vulnerable area due to flood risk in Powfoot and Cummertrees. There is flooding from coastal, river and surface water. There are reports of flooding within the area, with recent flooding being caused by both river and surface water flooding

There is 1 target area in this potentially vulnerable area, which has been the focus of further assessment, this is identified below. Further information on the objectives and actions to manage flood risk within this area is provided below.

List of target areas

Powfoot and Cummertrees (target area 118)

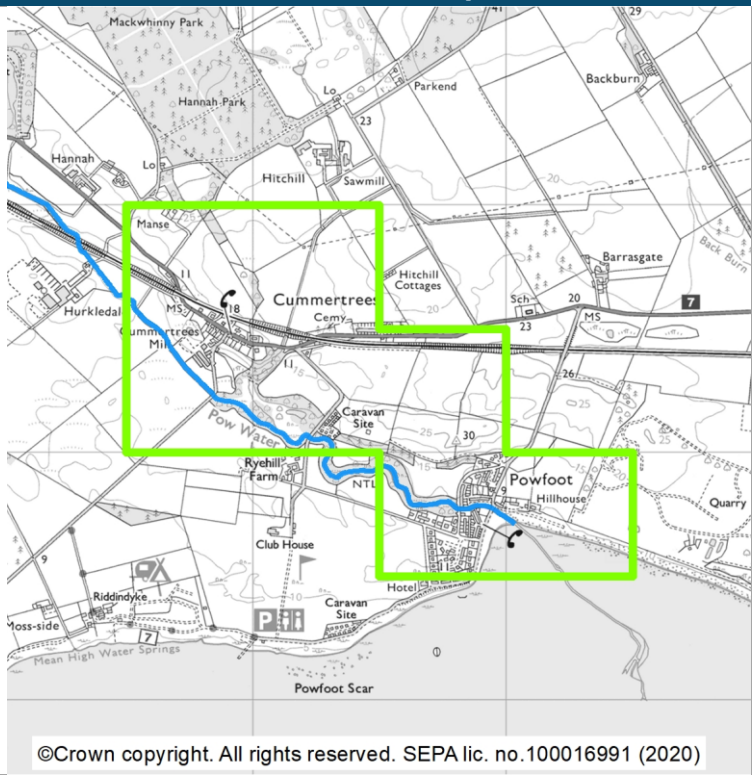
Flood risk management plan datasheet

Powfoot and Cummertrees (target area 118)

Summary

Powfoot and Cummertrees has been newly identified for inclusion in the 2021 flood risk management plans. Powfoot and Cummertrees are coastal villages located along the northern shore of the Firth of Solway. They are in the Dumfries and Galloway local authority area. The main source of flooding in Powfoot and Cummertrees is coastal flooding as the tidal impact reaches up the river. There is also a risk of river flooding. There are approximately 100 people and 50 homes and businesses currently at risk from flooding. This is likely to increase to 170 people and 90 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment is improved for coastal flooding by the shoreline management plan (draft consultation 2021) and by the flood warning scheme. Together, this information has highlighted the risk of flooding, including that risk associated with climate change in this target area. Powfoot and Cummertrees has therefore been identified as a new target area for the 2021 flood risk management plans. There are limited records of flooding in this target area.

The Dynamic Coast project has shown that parts of the shoreline in or adjacent to this target area are subject to erosion at present or are considered likely to erode in the future. Consideration should be given to how erosion might impact flood risk. Any actions taken should aim to support building natural resilience to flooding and not lead to an increase in erosion.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies.

The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective Description
1181	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
1182	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in this target area
1183	Reduce flood risk	Reduce the risk of flooding in this target area

What actions are proposed for this area?

As outlined in Section 1 of this plan, at the date of publication the actions below represent the best understanding of what is needed to work towards the objectives for the area. They have been developed with the other responsible authorities and take account of progress achieved to date, the understanding of flood risk and the objectives set for the area. The local flood risk management plan published in 2022 provides more information on the actions, their timing and how they will be funded and coordinated.

Actions proposed to start between 2022 and 2028

	Shoreline management plan (coastal adaptive plan) (Ref: 11801)
Action	The existing assessment of coastal flood and erosion risk is to be reviewed and updated as required. The plan should include assessment of climate change and develop adaptive approaches to allow for the impacts of climate change to be monitored, understood and managed.
Description	Dumfries and Galloway Council to complete the review of the 2005 Solway Shoreline Management Plan. This management plan will also identify the need for more detailed assessments of any existing coastal defences and interactions with other flood sources.

	Flood warning maintenance (Ref: 11802)
Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Description	SEPA should maintain the Solway coastal flood warning scheme.

	Strategic mapping improvements (Ref: 11803)
Action	SEPA will continue to update flood maps based on new information.
Description	SEPA will be undertaking a review of coastal flood modelling in this target area to identify where it may be appropriate to include the impact of waves on coastal flooding. We will progress with improved flood modelling and mapping in the highest priority areas taking account of availability of data to support the modelling work.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

02/14/10 (Dumfries and lower Nith catchment)

This area is designated as a potentially vulnerable area due to flood risk to Cargenbridge, Dumfries, Kirkton and Locharbriggs. There is flooding from river, coastal and surface water. Recent floods occurred in January 2018 and February 2019, caused by coastal, surface water and river flooding.

There are 4 target areas in this potentially vulnerable area, which have been the focus of further assessment, these are listed below. Further information on the objectives and actions to manage flood risk within this area is provided below.

List of target areas

Kirkton	(target area 34)
Cargenbridge	(target area 37)
Locharbriggs	(target area 38)
Dumfries	(target area 39)

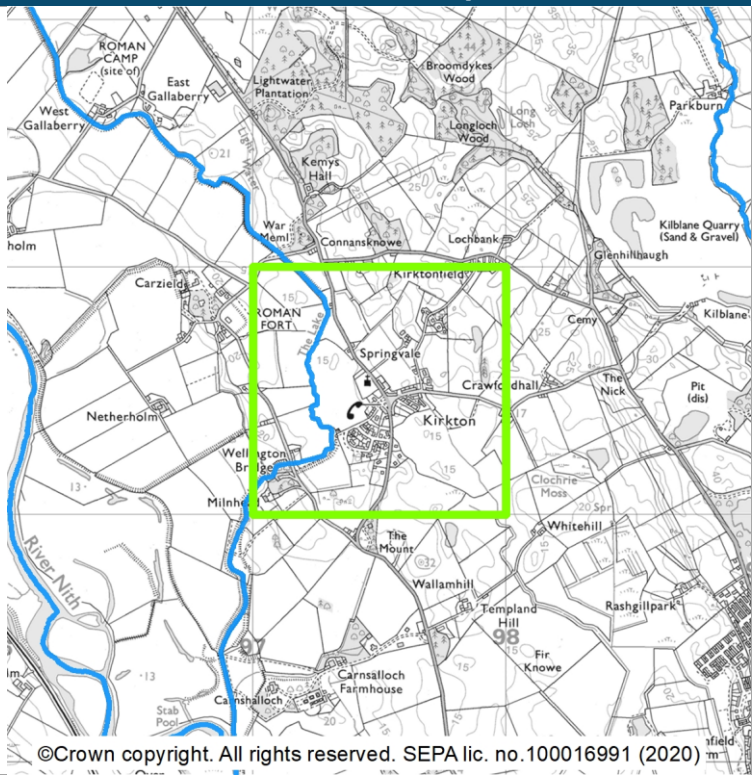
Flood risk management plan datasheet

Kirkton (target area 34)

Summary

Kirkton is a small village located just north of Dumfries. The area is located within the Dumfries and Galloway local authority area. The main source of flooding in Kirkton is river flooding. There are around 60 people and 40 homes and businesses at risk of flooding. This is likely to increase to 140 people and 70 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources, and this information has highlighted the risk of flooding in this target area. Kirkton has therefore been identified as a new target area for the 2021 flood risk management plans. There is a long record of flooding in this target area.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies.

The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective Description
341	Avoid flood risk	Avoid inappropriate development that increases flood risk in Kirkton
342	Improve data and understanding	Improve data and understanding of river flooding in Kirkton
343	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Kirkton

What actions are proposed for this area?

As outlined in Section 1 of this plan, at the date of publication the actions below represent the best understanding of what is needed to work towards the objectives for the area. They have been developed with the other responsible authorities and take account of progress achieved to date, the understanding of flood risk and the objectives set for the area. The local flood risk management plan published in 2022 provides more information on the actions, their timing and how they will be funded and coordinated.

Actions proposed to start between 2022 and 2028

	Data collection (Ref: 3401)
Action	Equipment that measures rainfall, river levels, erosion, ground levels or wave height may be installed and maintained to improve our understanding of flood risk. This can be done over short term or to measure longer term impacts.
Description	This may include data collection and monitoring to improve the confidence in flood sources, mechanisms and risk. A review may be required to assess the need for rain and/or river gauges. Post flood event surveys may be required to collect data on flooding mechanisms, risk and damage caused.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

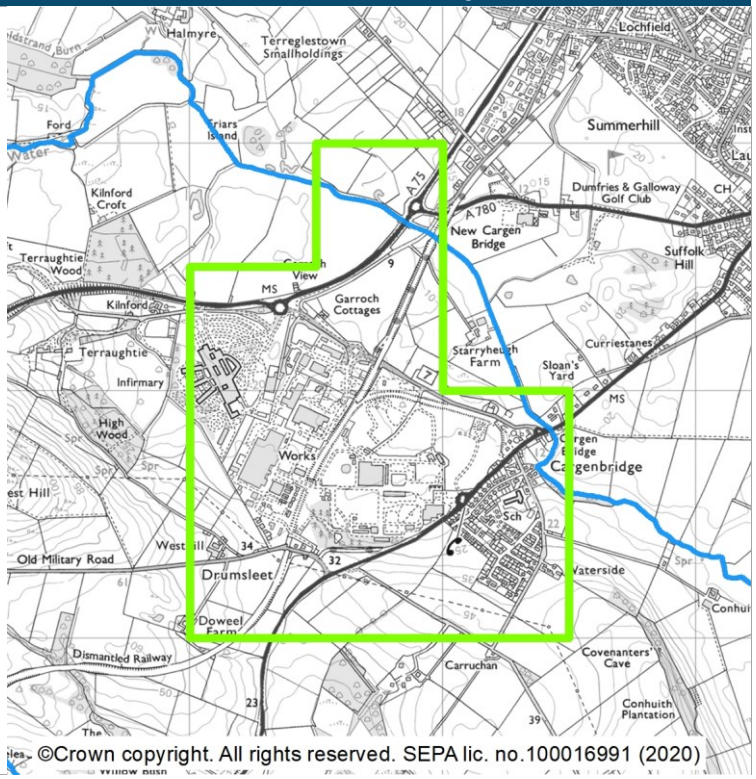
Flood risk management plan datasheet

Cargenbridge (target area 37)

Summary

Cargenbirdge has been newly identified for inclusion in the 2021 flood risk management plans. The small village of Cargenbridge is located on the bank of the Cargen Pow, southwest of the town of Dumfries. The area is located within the Dumfries and Galloway local authority area. Within Cargenbridge there is risk from river flooding. There are approximately 20 people and 20 homes and businesses currently at risk of flooding. This is not likely to increase significantly by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources, and this information has highlighted the risk of flooding, including that risk associated with climate change in this target area. Cargenbridge has therefore been identified as a new target area for the 2021 flood risk management plans. There are periodic records of flooding in this target area.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies.

The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective Description
371	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
372	Improve data and understanding	Improve data and understanding of flooding in Cargenbridge
373	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in this target area

What actions are proposed for this area?

As outlined in Section 1 of this plan, at the date of publication the actions below represent the best understanding of what is needed to work towards the objectives for the area. They have been developed with the other responsible authorities and take account of progress achieved to date, the understanding of flood risk and the objectives set for the area. The local flood risk management plan published in 2022 provides more information on the actions, their timing and how they will be funded and coordinated.

Actions proposed to start between 2022 and 2028

	Data collection (Ref: 3701)
Action	Equipment that measures rainfall, river levels, erosion, ground levels or wave height may be installed and maintained to improve our understanding of flood risk. This can be done over short term or to measure longer term impacts.
Description	This may include data collection and monitoring to improve the confidence in flood sources, mechanisms and risk. A review may be required to assess the need for rain and/or river gauges. Post flood event surveys may be required to collect data on flooding mechanisms, risk and damage caused.

	Sewer flood risk assessment (Ref: 3702)
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Description	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Troqueer sewer catchment in this target area. This will help to improve knowledge and understanding of potential surface water flood risk. Funding for this action is secured through Scottish Water's strategic planning commitments.

	Flood warning scoping (Ref: 3703)
Action	The potential to provide a new flood warning scheme is to be considered by SEPA. Flood warnings are only effective where it is possible to send a warning message with sufficient time to allow communities to take appropriate actions before flooding occurs.
Description	Scoping for a river flood warning scheme will be carried out in Cargenbridge.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

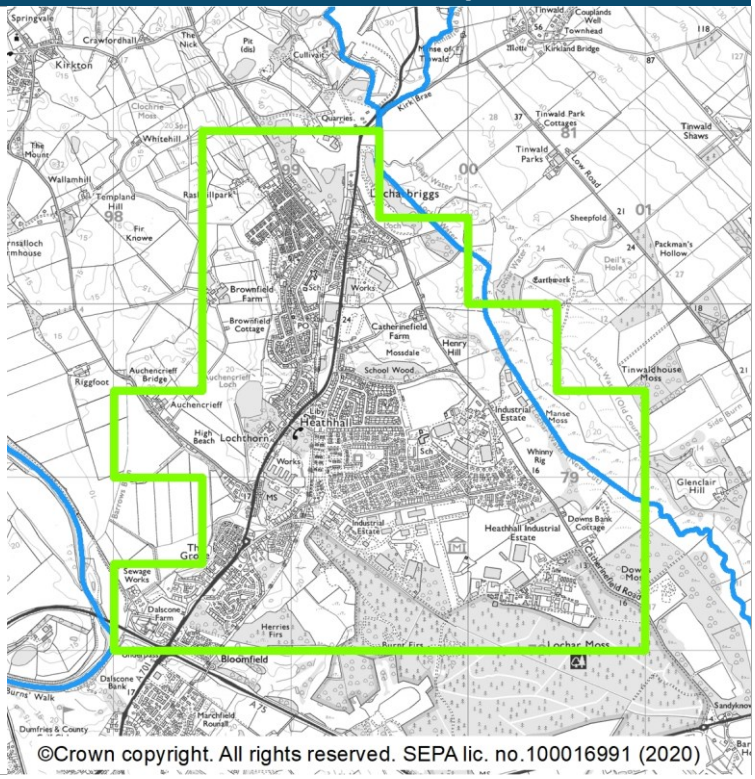
Flood risk management plan datasheet

Locharbriggs (target area 38)

Summary

The village of Locharbriggs is located near the Lochar Water, within the Dumfries and Galloway local authority area. The main source of flooding in Locharbriggs is surface water flooding, however there is also a risk of river flooding. There are approximately 240 people at risk from flooding and approximately 160 homes and businesses. This is estimated to increase to 380 people and 240 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources, and this information has highlighted the risk of flooding, including that risk associated with climate change in this target area. Locharbriggs has therefore been identified as a new target area for the 2021 flood risk management plans. There are periodic records of flooding in this target area.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies.

The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective Description
381	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
382	Improve data and understanding	Improve data and understanding of flooding in Locharbriggs
383	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in this target area

What actions are proposed for this area?

As outlined in Section 1 of this plan, at the date of publication the actions below represent the best understanding of what is needed to work towards the objectives for the area. They have been developed with the other responsible authorities and take account of progress achieved to date, the understanding of flood risk and the objectives set for the area. The local flood risk management plan published in 2022 provides more information on the actions, their timing and how they will be funded and coordinated.

Actions proposed to start between 2022 and 2028

	Data collection (Ref: 3801)
Action	Equipment that measures rainfall, river levels, erosion, ground levels or wave height may be installed and maintained to improve our understanding of flood risk. This can be done over short term or to measure longer term impacts.
Description	This may include data collection and monitoring to improve the confidence in flood sources, mechanisms and risk. A review may be required to assess the need for rain and/or river gauges. Post flood event surveys may be required to collect data on flooding mechanisms, risk and damage caused.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

Coordination with the river basin management plan

This area has been identified as having potential for restoration in Scotland's river basin management plan. Actions should be coordinated to deliver any potential joint objectives for restoration and flood risk management. This should be considered in the earliest stages of any projects.

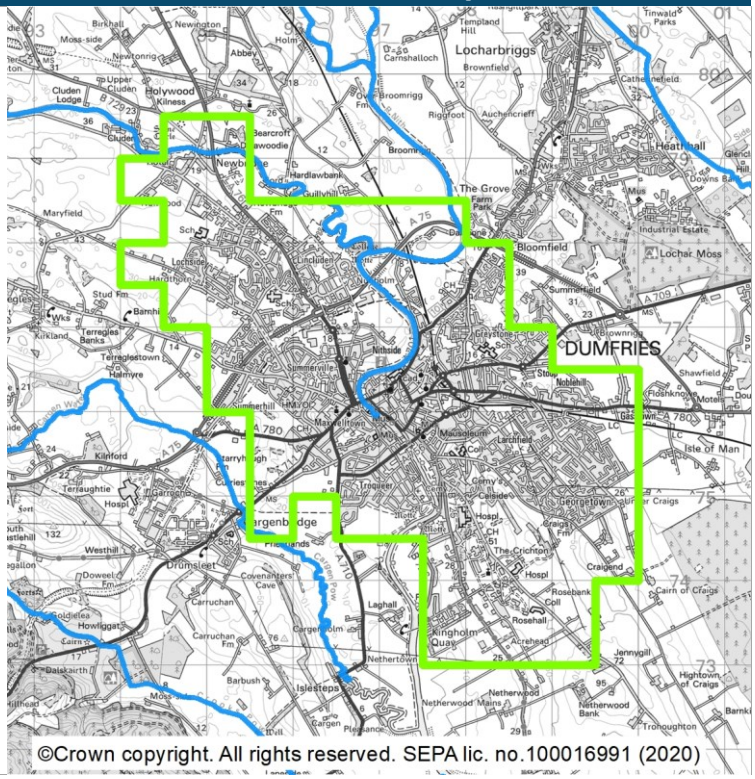
Flood risk management plan datasheet

Dumfries (target area 39)

Summary

Dumfries is located near the mouth of the River Nith which flows into Solway Firth. The area is located within the Dumfries and Galloway local authority area. The main source of flooding is river flooding, However there is also risk of coastal and surface water flooding. There are approximately 3,800 people and 2,300 homes and businesses at risk from flooding. This is likely to increase to 5,000 people and 2,900 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment is improved for river flooding by the flood studies caried out for the proposed Whitesands flood protection scheme and improved for coastal flooding by the shoreline management plan (draft consultation 2021). Understanding is also improved for river flooding by the flood warning scheme. There is a long record of flooding in this target area as well as frequent records of flooding.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies.

The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective Description
391	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
392	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in this target area
393	Reduce flood risk	Reduce the risk of flooding in this target area

What actions are proposed for this area?

As outlined in Section 1 of this plan, at the date of publication the actions below represent the best understanding of what is needed to work towards the objectives for the area. They have been developed with the other responsible authorities and take account of progress achieved to date, the understanding of flood risk and the objectives set for the area. The local flood risk management plan published in 2022 provides more information on the actions, their timing and how they will be funded and coordinated.

Actions proposed to start between 2022 and 2028

	Flood scheme or works design (Ref: 3901)
Action	The selected preferred approach for managing flood risk is to be designed on the basis of the flood study, including consideration of the long-term impacts of climate change. These can include small scale works or works to improve catchment management. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Description	Dumfries and Galloway Council to develop detailed design of the Whitesands Flood Protection Scheme. This should include consideration of the impacts of climate change on scheme performance. An adaptation plan may need to be developed to address changes of flood risk due to climate change.

	Flood scheme or works implementation (Ref: 3902)
Action	The flood scheme/works is to be built following agreement of the design, costs and timescales.
Description	Dumfries and Galloway Council should progress the formal process of promoting a flood protection scheme for Dumfries. Procurement of a contractor for the construction phase should begin once formal approval to progress with a scheme has been given and detailed design is complete. Upon completion of the scheme Dumfries and Galloway Council should submit all as built and scheme information to SEPA for registration on the Scottish Flood Defence Asset Database.

	Community engagement (Ref: 3903)
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Description	Community engagement should continue through the development of the Whitesands flood protection scheme for Dumfries.

	Shoreline management plan (coastal adaptive plan) (Ref: 3904)
Action	The existing assessment of coastal flood and erosion risk is to be reviewed and updated as required. The plan should include assessment of climate change and develop adaptive approaches to allow for the impacts of climate change to be monitored, understood and managed.
Description	Dumfries and Galloway Council to complete the review of the 2005 Solway Shoreline Management Plan. This management plan will also identify the need for more detailed assessments of any existing coastal defences and interactions with other flood sources.

	Sewer flood risk assessment (Ref: 3905)
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Description	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Troqueer sewer catchment in this target area. This will help to improve knowledge and understanding of potential surface water flood risk. Funding for this action is secured through Scottish Water's strategic planning commitments.

	Surface water management plan (Ref: 3906)
Action	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system are to be identified. These priority areas will provide a baseline for the identification of next steps in managing water ponding or over-whelmed drainage systems. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Description	Dumfries and Galloway Council to develop and implement a surface water management plan, working with Scottish Water as appropriate, to gain an understanding of the hotspots of flooding and potential interaction with coastal and river flooding. The impacts of climate change on flood risk should be assessed. The results of the sewer flood risk assessment should be considered. Opportunities to disconnect surface water from the sewerage system should be identified. The plan should be reviewed and updated regularly.

	Flood warning maintenance (Ref: 3907)
Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Description	SEPA should maintain the River Nith flood warning scheme. The scheme should be investigated for improvement and/or recalibration.

	Strategic mapping improvements (Ref: 3908)
Action	SEPA will continue to update flood maps based on new information.
Description	SEPA will be undertaking a review of coastal flood modelling in this target area to identify where it may be appropriate to include the impact of waves on coastal flooding. We will progress with improved flood modelling and mapping in the highest priority areas taking account of availability of data to support the modelling work.

Actions proposed after June 2028

The following actions are proposed to take place after June 2028. These will be reviewed in 2026, considering added information at that time, to ensure they are still the most appropriate actions for the community.

	Flood study (options appraisal) (Ref: 3909)
Action	In areas where flood risk is confirmed, a range of possible options to manage flood risk are to be identified, including natural flood management actions where suitable, and a preferred approach is to be chosen. This should include adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Description	Dumfries and Galloway Council to identify a range of possible flood risk management options, following the outcomes of the surface water management plan where areas with higher risk of flooding have been identified.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

Coordination with the river basin management plan

This area has been identified as having potential for restoration in Scotland's river basin management plan. Actions should be coordinated to deliver any potential joint objectives for restoration and flood risk management. This should be considered in the earliest stages of any projects.

02/14/11 (Moniaive)

This area is designated as a potentially vulnerable area due to flood risk to Moniaive. The main source of flooding is from river, with some risk from surface water. Frequent historic flooding has been reported, with recent floods being caused by both river and surface water flooding.

There is 1 target area in this potentially vulnerable area, which has been the focus of further assessment, this is identified below. Further information on the objectives and actions to manage flood risk within this area is provided below.

List of target areas

Moniaive	(target area 137)

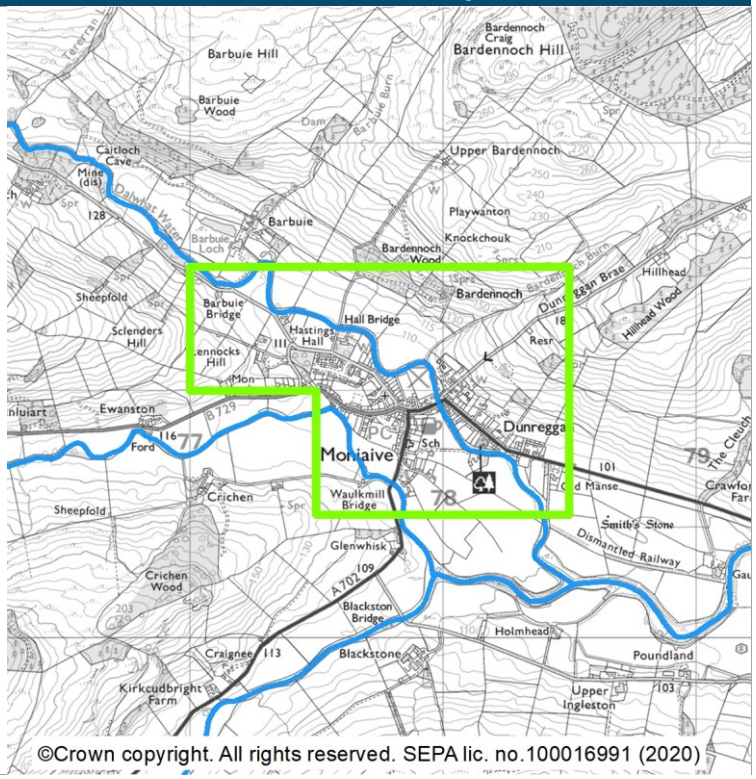
Flood risk management plan datasheet

Moniaive (target area 137)

Summary

Moniaive is a village in the Dumfries and Galloway local authority area on the banks of Dalwhat Water and Craigdarroch Water. The main source of flooding in Moniaive is river flooding, however there is also risk from surface water flooding. There are approximately 60 people and 40 homes and businesses currently at risk from flooding. This is likely to increase to 70 people and 50 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment is improved for river and surface water flooding by the Moniaive Flood Study (2016). There are periodic records of flooding in this target area.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies.

The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective Description
1371	Avoid flood risk	Avoid inappropriate development that increases flood risk in Moniaive
1372	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of the Moniaive flood protection scheme 1963
1373	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Moniaive
1374	Reduce flood risk	Reduce the risk of river flooding in Moniaive

What actions are proposed for this area?

As outlined in Section 1 of this plan, at the date of publication the actions below represent the best understanding of what is needed to work towards the objectives for the area. They have been developed with the other responsible authorities and take account of progress achieved to date, the understanding of flood risk and the objectives set for the area. The local flood risk management plan published in 2022 provides more information on the actions, their timing and how they will be funded and coordinated.

Actions proposed to start between 2022 and 2028

	Flood defence maintenance (Ref: 13701)
Action	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
Description	Moniaive Flood Protection Scheme (1963) consists of Realignment and widening of bed of the Dalwhat Water, Construction of a steel sheet pile wall and masonry wall along Dalwhat Water, and installation of pipes. Dumfries and Galloway Council will continue to maintain the scheme and monitor the performance under any significant events.

Actions proposed after June 2028

The following actions are proposed to take place after June 2028. These will be reviewed in 2026, considering added information at that time, to ensure they are still the most appropriate actions for the community.

	Flood scheme or works design (Ref: 13702)
Action	The selected preferred approach for managing flood risk is to be designed on the basis of the flood study, including consideration of the long-term impacts of climate change. These can include small scale works or works to improve catchment management. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Description	Dumfries and Galloway to develop detailed design of the improvements to the Moniaive Flood Protection Scheme based on the preferred option from the flood study. Further study is required to consider the latest climate change projections. This information will underpin the development of an adaptation plan for the long term protection of the community. The responsible authority proposes this action as the best viable option for managing flood risk in this community. The delivery of this action is subject to capital funding being made available

	Flood scheme or works implementation (Ref: 13703)
Action	The flood scheme/works is to be built following agreement of the design, costs and timescales.
Description	The responsible authority proposes this action as the best option for managing flood risk in this community. The delivery of this action is subject to funding being made available. Dumfries and Galloway Council should progress the formal process of promoting a flood protection scheme for Moniaive. Procurement of a contractor for the construction phase should begin once formal approval to progress with a scheme has been given and detailed design is complete. Upon completion of the scheme Dumfries and Galloway Council should submit all as built and scheme information to SEPA for registration on the Scottish Flood Defence Asset Database.

	Community engagement (Ref: 13704)
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Description	Community engagement should continue through the development of the Moniaive Flood Protection Scheme.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

02/14/12 (Springholm)

This area is designated as a potentially vulnerable area due to the future flood risk as a result of climate change. The assessment has shown a potential increase in flood risk to homes and businesses in Springholm. The main source of flooding is from small burns within the catchment.

There is 1 target area in this potentially vulnerable area, which has been the focus of further assessment, this is identified below. Further information on the objectives and actions to manage flood risk within this area is provided below.

List of target areas

Springholm	(target area 69)

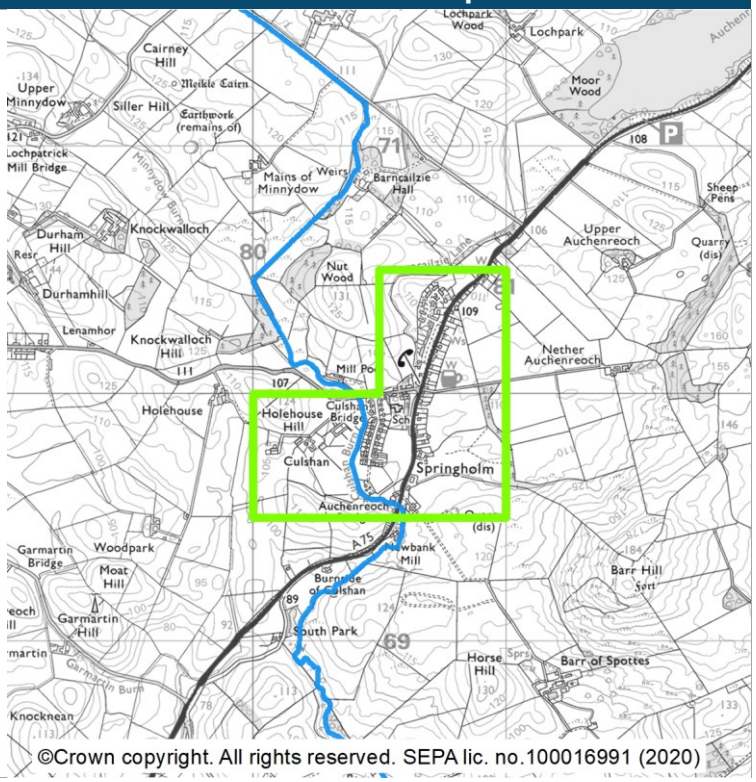
Flood risk management plan datasheet

Springholm (target area 69)

Summary

The area contains the village of Springholm and is within the Dumfries and Galloway local authority area. The main source of flooding in Springholm is river flooding, however there is also risks from surface water flooding. There are approximately 70 people and 40 homes and businesses currently at risk from flooding. This is likely to increase to 100 people and 50 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources, and this information has highlighted the risk of flooding in this target area. Springholm has therefore been identified as a new target area for the 2021 flood risk management plans. There are periodic records of flooding in this target area.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies.

The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective Description
691	Avoid flood risk	Avoid inappropriate development that increases flood risk in Springholm
692	Improve data and understanding	Improve data and understanding of climate change related to flooding in Springholm
693	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Springholm

What actions are proposed for this area?

As outlined in Section 1 of this plan, at the date of publication the actions below represent the best understanding of what is needed to work towards the objectives for the area. They have been developed with the other responsible authorities and take account of progress achieved to date, the understanding of flood risk and the objectives set for the area. The local flood risk management plan published in 2022 provides more information on the actions, their timing and how they will be funded and coordinated.

Actions proposed to start between 2022 and 2028

	Data collection (Ref: 6901)
Action	Equipment that measures rainfall, river levels, erosion, ground levels or wave height may be installed and maintained to improve our understanding of flood risk. This can be done over short term or to measure longer term impacts.
Description	This may include data collection and monitoring to improve the confidence in flood sources, mechanisms and risk. A review may be required to assess the need for rain and/or river gauges. Post flood event surveys may be required to collect data on flooding mechanisms, risk and damage caused.

	Flood defence maintenance (Ref: 6902)
Action	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
Description	Dumfries and Galloway Council will continue to inspect and maintain any flood protection structures.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

02/14/13 (Southerness and Carsethorn)

This area is designated as a potentially vulnerable area due to flood risk to Southerness and Carsethorn. The main source of flooding is from coastal, with surface water flooding also affecting Southerness. There is a history of flooding in the area with recent floods caused by surface water and coastal flooding.

There are 2 target areas in this potentially vulnerable area, which have been the focus of further assessment, these are listed below. Further information on the objectives and actions to manage flood risk within this area is provided below.

List of target areas

Southerness	(target area 125)
Carsethorn	(target area 128)

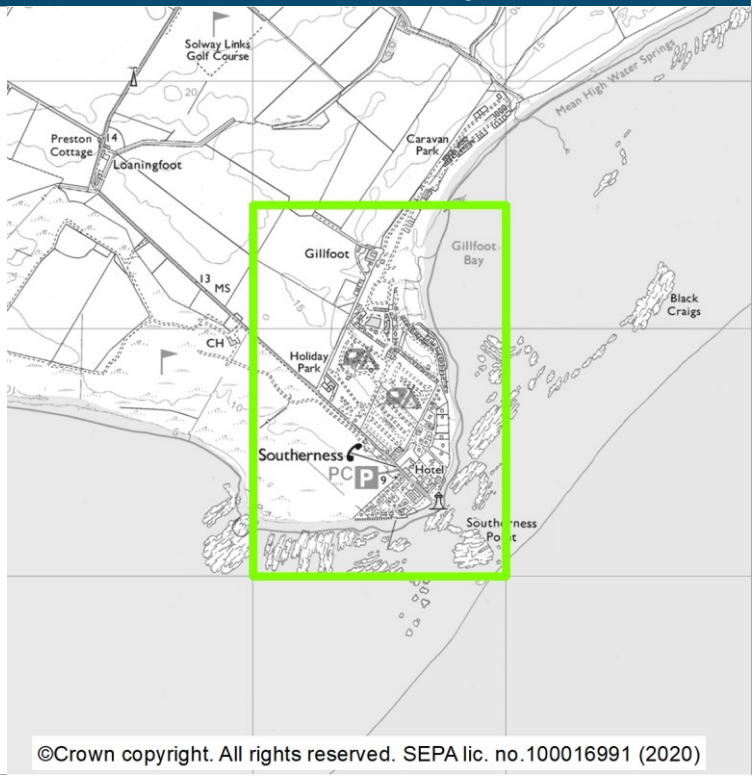
Flood risk management plan datasheet

Southerness (target area 125)

Summary

The village of Southerness is located along the north shore of the Solway Firth. The area is located within the Dumfries and Galloway local authority area. The main source of flooding to Southerness is coastal flooding, however there is also a risk from surface water. There are approximately 90 people and 50 homes and businesses currently at risk of flooding. This is likely to increase to 140 people and 70 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment is improved for coastal flooding by the shoreline management plan (draft consultation 2021) and by the flood warning scheme. There is a long record of flooding in this target area.

The Dynamic Coast project has shown that parts of the shoreline in or adjacent to this target area are subject to erosion at present or are considered likely to erode in the future. Consideration should be given to how erosion might impact flood risk. Any actions taken should aim to support building natural resilience to flooding and not lead to an increase in erosion.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies.

The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

to deliver multiple outcomes.

Objective ref	Objective type	Objective Description
1251	Avoid flood risk	Avoid inappropriate development that increases flood risk in Southerness
1252	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Southerness
1253	Reduce flood risk	Reduce the risk of flooding in Southerness

What actions are proposed for this area?

As outlined in Section 1 of this plan, at the date of publication the actions below represent the best understanding of what is needed to work towards the objectives for the area. They have been developed with the other responsible authorities and take account of progress achieved to date, the understanding of flood risk and the objectives set for the area. The local flood risk management plan published in 2022 provides more information on the actions, their timing and how they will be funded and coordinated.

Actions proposed to start between 2022 and 2028

	Shoreline management plan (coastal adaptive plan) (Ref: 12501)
Action	The existing assessment of coastal flood and erosion risk is to be reviewed and updated as required. The plan should include assessment of climate change and develop adaptive approaches to allow for the impacts of climate change to be monitored, understood and managed.
Description	Dumfries and Galloway Council to complete the review of the 2005 Solway Shoreline Management Plan. This management plan will also identify the need for more detailed assessments of any existing coastal defences and interactions with other flood sources.

	Flood defence maintenance (Ref: 12502)
Action	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
Description	Dumfries and Galloway Council will continue to inspect and maintain any flood protection structures.

	Flood warning maintenance (Ref: 12503)
Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Description	SEPA should maintain the Solway coastal flood warning scheme.

	Strategic mapping improvements (Ref: 12504)
Action	SEPA will continue to update flood maps based on new information.
Description	SEPA will be undertaking a review of coastal flood modelling in this target area to identify where it may be appropriate to include the impact of waves on coastal flooding. We will progress with improved flood modelling and mapping in the highest priority areas taking account of availability of data to support the modelling work.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

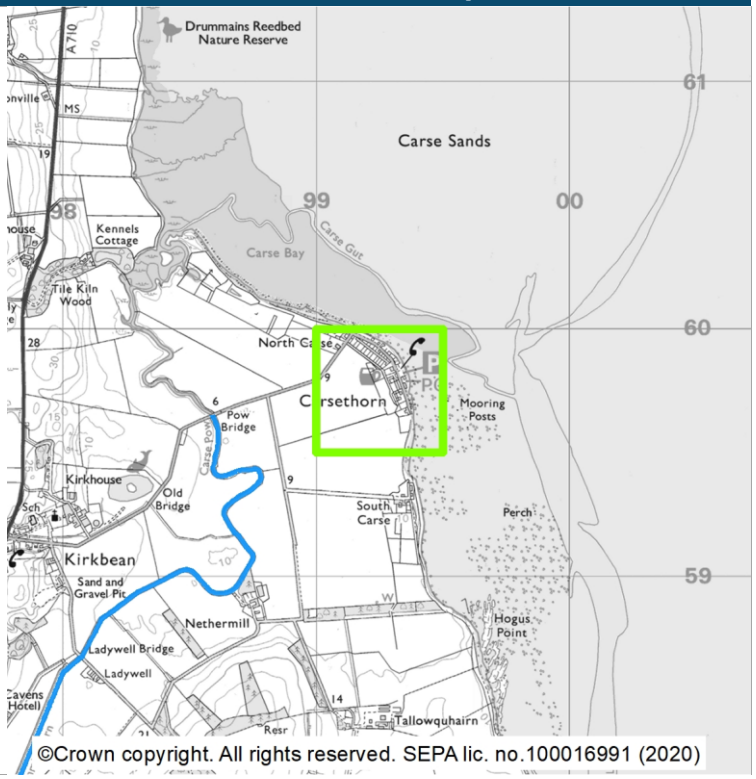
Flood risk management plan datasheet

Carsethorn (target area 128)

Summary

Carsethorn is a small coastal village located along the shore of the Solway Firth. The area is located within the Dumfries and Galloway local authority area. The main source of flooding in Carsethorn is coastal flooding. There are approximately 30 people and 20 homes and businesses currently at risk of flooding, which is a significant proportion of the community. This is likely to increase to 80 people and 50 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment is improved for coastal flooding by the shoreline management plan (draft consultation 2021) and by the flood warning scheme. There is a long record of flooding in this target area.

The Dynamic Coast project has shown that parts of the shoreline in or adjacent to this target area are subject to erosion at present or are considered likely to erode in the future. Consideration should be given to how erosion might impact flood risk. Any actions taken should aim to support building natural resilience to flooding and not lead to an increase in erosion.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies.

The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

to deliver multiple outcomes.

Objective ref	Objective type	Objective Description
1281	Avoid flood risk	Avoid inappropriate development that increases flood risk in Carsethorn
1282	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Carsethorn
1283	Reduce flood risk	Reduce the risk of flooding in Carsethorn

What actions are proposed for this area?

As outlined in Section 1 of this plan, at the date of publication the actions below represent the best understanding of what is needed to work towards the objectives for the area. They have been developed with the other responsible authorities and take account of progress achieved to date, the understanding of flood risk and the objectives set for the area. The local flood risk management plan published in 2022 provides more information on the actions, their timing and how they will be funded and coordinated.

Actions proposed to start between 2022 and 2028

	Shoreline management plan (coastal adaptive plan) (Ref: 12801)
Action	The existing assessment of coastal flood and erosion risk is to be reviewed and updated as required. The plan should include assessment of climate change and develop adaptive approaches to allow for the impacts of climate change to be monitored, understood and managed.
Description	Dumfries and Galloway Council to complete the review of the 2005 Solway Shoreline Management Plan. This management plan will also identify the need for more detailed assessments of any existing coastal defences and interactions with other flood sources.

	Flood warning maintenance (Ref: 12802)
Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Description	SEPA should maintain the Solway coastal flood warning scheme.

	Strategic mapping improvements (Ref: 12803)
Action	SEPA will continue to update flood maps based on new information.
Description	SEPA will be undertaking a review of coastal flood modelling in this target area to identify where it may be appropriate to include the impact of waves on coastal flooding. We will progress with improved flood modelling and mapping in the highest priority areas taking account of availability of data to support the modelling work.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

02/14/14 (Dalbeattie)

This area is designated as a potentially vulnerable area due to flood risk to Dalbeattie. There is flooding from river, coastal and surface water. There are numerous records of flooding in Dalbeattie with recent coastal flooding reported in the area.

There is 1 target area in this potentially vulnerable area, which has been the focus of further assessment, this is identified below. Further information on the objectives and actions to manage flood risk within this area is provided below.

List of target areas

Dalbeattie	(target area 131)

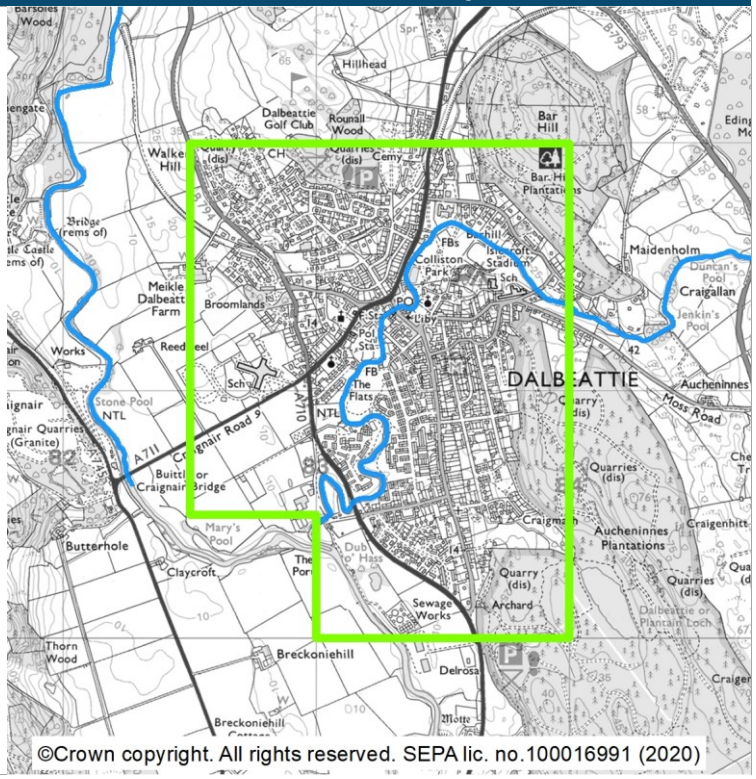
Flood risk management plan datasheet

Dalbeattie (target area 131)

Summary

Dalbeattie is located inland from the Solway Firth and is within the Dumfries and Galloway local authority area. The main sources of flooding in Dalbeattie are coastal and river flooding, however there is also a risk of surface water flooding. There are approximately 790 people and 510 homes and businesses currently at risk from flooding. This is likely to increase to 1,100 people and 660 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment is improved for river, coastal and surface water flooding by the Dalbeattie Flood Study (2016) and improved for surface water flooding by a sewer flood risk assessment. There is a long record of flooding in this target area.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies.

The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective Description
1311	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
1312	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of the Dalbeattie Flood Protection Scheme 1981
1313	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in this target area
1314	Reduce flood risk	Reduce the risk of flooding in this target area

What actions are proposed for this area?

As outlined in Section 1 of this plan, at the date of publication the actions below represent the best understanding of what is needed to work towards the objectives for the area. They have been developed with the other responsible authorities and take account of progress achieved to date, the understanding of flood risk and the objectives set for the area. The local flood risk management plan published in 2022 provides more information on the actions, their timing and how they will be funded and coordinated.

Actions proposed to start between 2022 and 2028

	Flood warning scoping (Ref: 13101)
Action	The potential to provide a new flood warning scheme is to be considered by SEPA. Flood warnings are only effective where it is possible to send a warning message with sufficient time to allow communities to take appropriate actions before flooding occurs.
Description	Scoping for a river and coastal flood warning scheme will be carried out in Dalbeattie.

	Strategic mapping improvements (Ref: 13102)
Action	SEPA will continue to update flood maps based on new information.
Description	SEPA will be undertaking a review of coastal flood modelling in this target area to identify where it may be appropriate to include the impact of waves on coastal flooding. We will progress with improved flood modelling and mapping in the highest priority areas taking account of availability of data to support the modelling work.

	Flood defence maintenance (Ref: 13103)
Action	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
Description	Dumfries and Galloway Council is to continue to inspect and maintain the Dalbeattie Flood Protection Scheme 1981.

Actions proposed after June 2028

The following actions are proposed to take place after June 2028. These will be reviewed in 2026, considering added information at that time, to ensure they are still the most appropriate actions for the community.

	Flood scheme or works design (Ref: 13104)
Action	The selected preferred approach for managing flood risk is to be designed on the basis of the flood study, including consideration of the long-term impacts of climate change. These can include small scale works or works to improve catchment management. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed. The performance and condition of the existing flood defences is to be evaluated, including consideration of the likely impacts of climate change. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.

Description	Dumfries and Galloway to develop detailed design of the Dalbeattie Flood Protection Scheme based on the preferred option from the flood study. The preferred option consists of raised defences and property flood resilience. Further study is required to consider the latest climate change projections, including a review of the Dalbeattie Flood Protection Scheme 1981 to assess performance and the predicted standard of protection for a number of climate change scenarios. This information will underpin the development of an adaptation plan for the long term protection of the community.

	Flood scheme or works implementation (Ref: 13105)
Action	The flood scheme/works is to be built following agreement of the design, costs and timescales.
Description	The responsible authority proposes this action as the best viable option for managing flood risk in this community. The delivery of this action is subject to capital funding being made available. Dumfries and Galloway Council should progress the formal process of promoting a flood protection scheme for Dalbeattie. Procurement of a contractor for the construction phase should begin once formal approval to progress with a scheme has been given and detailed design is complete. Upon completion of the scheme Dumfries and Galloway Council should submit all as built and scheme information to SEPA for registration on the Scottish Flood Defence Asset Database.

	Community engagement (Ref: 13106)
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Description	Community engagement should continue through the development of the Dalbeattie Flood Protection Scheme.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

02/14/15 (River Dee Catchment)

This area is designated as a potentially vulnerable area due to flood risk to Bridge of Dee and Castle Douglas. The main source of flooding is from the River Dee, with some risk from surface water. Recent floods have occurred in the area due to river and surface water flooding.

There are 2 target areas in this potentially vulnerable area, which have been the focus of further assessment, these are listed below. Further information on the objectives and actions to manage flood risk within this area is provided below.

List of target areas

Bridge of Dee	(target area 35)
Castle Douglas	(target area 36)

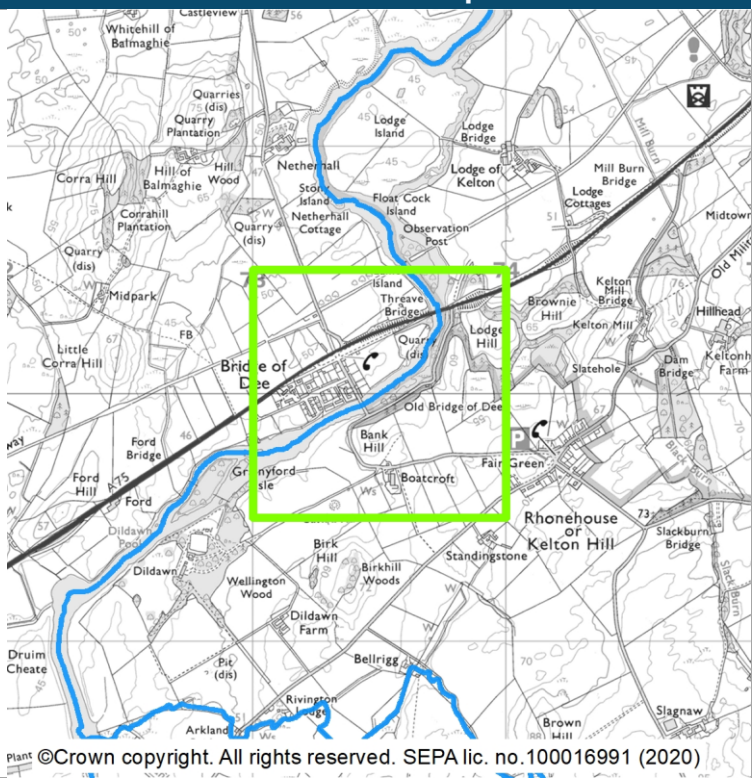
Flood risk management plan datasheet

Bridge of Dee (target area 35)

Summary

Bridge of Dee has been newly identified for inclusion in the 2021 flood risk management plans. The Bridge of Dee is located on the River Dee, near the town of Castle Douglas. The area is located within the Dumfries and Galloway local authority area. Within Bridge of Dee there is risk from river and surface water flooding. There are approximately 60 people and 30 homes and businesses at risk from flooding. This is estimated to increase to 80 people and 40 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment is improved for river flooding by the Galloway Glens Natural Flood Management Scoping Study (2016). Together, this information has highlighted the risk of flooding (principally associated with climate change) in this target area. Bridge of Dee has therefore been identified as a new target area for the 2021 flood risk management plans. There are limited records of flooding in this target area.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies.

The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective Description
351	Avoid flood risk	Avoid inappropriate development that increases flood risk in Bridge of Dee
352	Improve data and understanding	Improve data and understanding of climate change related to flooding in Bridge of Dee
353	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Bridge of Dee

What actions are proposed for this area?

As outlined in Section 1 of this plan, at the date of publication the actions below represent the best understanding of what is needed to work towards the objectives for the area. They have been developed with the other responsible authorities and take account of progress achieved to date, the understanding of flood risk and the objectives set for the area. The local flood risk management plan published in 2022 provides more information on the actions, their timing and how they will be funded and coordinated.

Actions proposed to start between 2022 and 2028

	Data collection (Ref: 3501)
Action	Equipment that measures rainfall, river levels, erosion, ground levels or wave height may be installed and maintained to improve our understanding of flood risk. This can be done over short term or to measure longer term impacts.
Description	This may include data collection and monitoring to improve the confidence in flood sources, mechanisms and risk. A review may be required to assess the need for rain and/or river gauges. Post flood event surveys may be required to collect data on flooding mechanisms, risk and damage caused.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

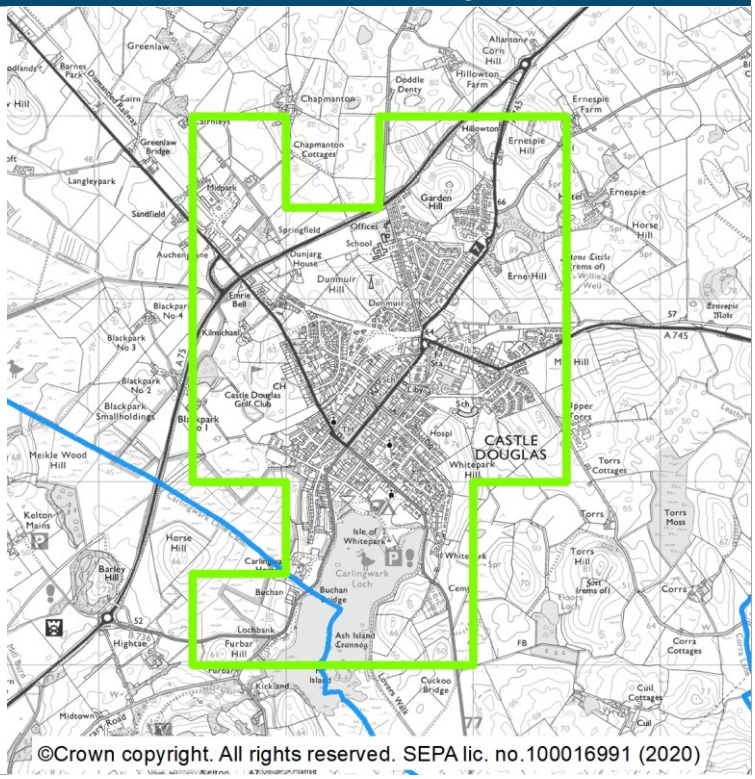
Flood risk management plan datasheet

Castle Douglas (target area 36)

Summary

The area contains the town of Castle Douglas and the villages of Kilmichael and Hillowton. The area is located within the Dumfries and Galloway local authority area. The main source of flooding in Castle Douglas is river flooding, however there is also a risk from surface water flooding. There are approximately 640 people and 390 homes and businesses at risk from flooding. This is estimated to increase to 850 people and 520 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment is improved for river flooding by the Galloway Glens Natural Flood Management Scoping Study (2016) and the Castle Douglas flood risk assessment (published 2013 and reviewed 2015) and improved for surface water flooding by a sewer flood risk assessment. There is a long record of flooding in this target area.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies.

The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective Description
361	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
362	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in this target area

What actions are proposed for this area?

As outlined in Section 1 of this plan, at the date of publication the actions below represent the best understanding of what is needed to work towards the objectives for the area. They have been developed with the other responsible authorities and take account of progress achieved to date, the understanding of flood risk and the objectives set for the area. The local flood risk management plan published in 2022 provides more information on the actions, their timing and how they will be funded and coordinated.

Actions proposed to start between 2022 and 2028

	Flood risk management review (Ref: 3601)
Action	During each 6 year planning cycle, we update our understanding of flooding to include all new data and information that has become available. This includes information on any flooding that has happened and the latest predictions on the impacts of climate change. The updated understanding is used to set any appropriate objectives and actions for areas at risk of flooding.
Description	No local actions specific to this target area have been identified yet. There are national actions planned that will cover this area, including an update to SEPA's surface water flood maps and an update to the national flood risk assessment. These, along with other actions that are carried out across the whole local plan district covering this area, will help to manage flood risk in the long term. The need for actions for this area will be reviewed again in 2026.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

02/14/16 (Kirkcudbright)

This area is designated as a potentially vulnerable area due to flood risk in Kirkcudbright. There is flooding from coastal, river and surface water. There are records of flooding in the area including recent coastal flooding.

There is 1 target area in this potentially vulnerable area, which has been the focus of further assessment, this is identified below. Further information on the objectives and actions to manage flood risk within this area is provided below.

List of target areas

Kirkcudbright (target area 134)

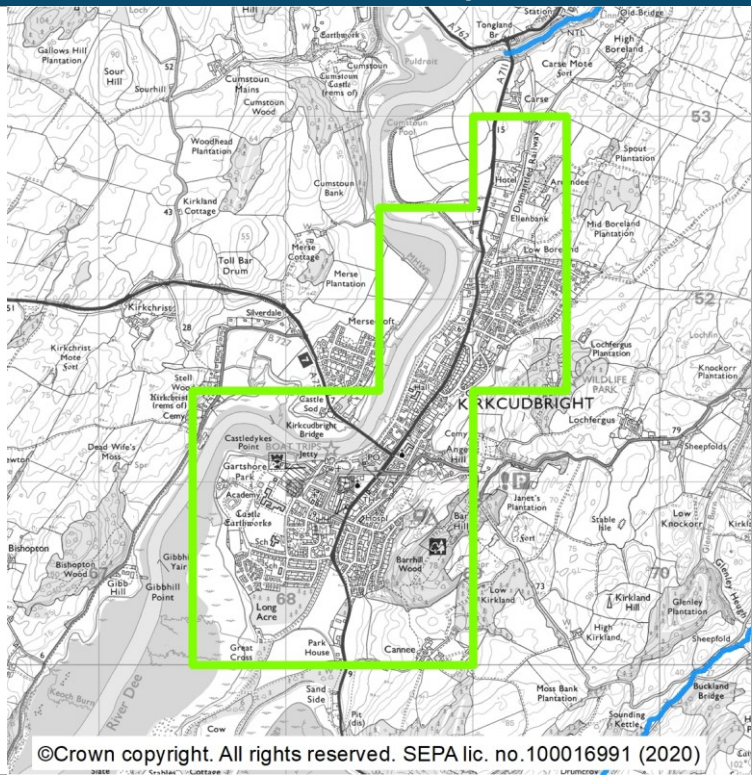
Flood risk management plan datasheet

Kirkcudbright (target area 134)

Summary

Kirkcudbright is a town at the mouth of the River Dee, where it discharges into Kirkcudbright Bay. The area is located within the Dumfries and Galloway local authority area. The main source of flooding in Kirkcudbright is coastal flooding, however there are also risks from river and surface water flooding. There are approximately 610 people and 380 homes and businesses currently at risk from flooding. This is likely to increase to 780 people and 500 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment is improved for coastal flooding by the shoreline management plan (draft consultation 2021) and flood warning scheme. Understanding is also improved for river flooding by the Galloway Glens Natural Flood Management Scoping Study (2016) and for surface water flooding by a sewer flood risk assessment. There is a long record of flooding in this target area.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies.

The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective Description
1341	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
1342	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in this target area
1343	Reduce flood risk	Reduce the risk of flooding in this target area

What actions are proposed for this area?

As outlined in Section 1 of this plan, at the date of publication the actions below represent the best understanding of what is needed to work towards the objectives for the area. They have been developed with the other responsible authorities and take account of progress achieved to date, the understanding of flood risk and the objectives set for the area. The local flood risk management plan published in 2022 provides more information on the actions, their timing and how they will be funded and coordinated.

Actions proposed to start between 2022 and 2028

	Shoreline management plan (coastal adaptive plan) (Ref: 13401)
Action	The existing assessment of coastal flood and erosion risk is to be reviewed and updated as required. The plan should include assessment of climate change and develop adaptive approaches to allow for the impacts of climate change to be monitored, understood and managed.
Description	Dumfries and Galloway Council to complete the review of the 2005 Solway Shoreline Management Plan. This management plan will also identify the need for more detailed assessments of any existing coastal defences and interactions with other flood sources.

	Flood warning maintenance (Ref: 13402)
Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Description	SEPA should maintain the Solway coastal flood warning scheme.

	Strategic mapping improvements (Ref: 13403)
Action	SEPA will continue to update flood maps based on new information.
Description	SEPA will be undertaking a review of coastal flood modelling in this target area to identify where it may be appropriate to include the impact of waves on coastal flooding. We will progress with improved flood modelling and mapping in the highest priority areas taking account of availability of data to support the modelling work.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

02/14/17 (Carsphairn)

This area is designated as a potentially vulnerable area due to flood risk in Carsphairn. The main source of flooding is from the Water of Deugh. There are records of flooding in the area including recent river flooding.

There is 1 target area in this potentially vulnerable area, which has been the focus of further assessment, this is identified below. Further information on the objectives and actions to manage flood risk within this area is provided below.

List of target areas

Carsphairn	(target area 127)

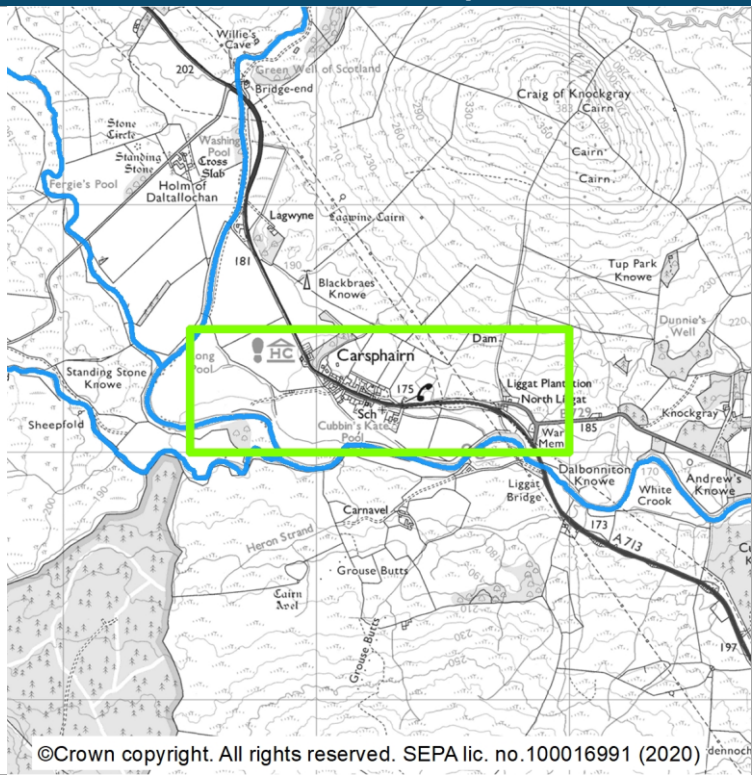
Flood risk management plan datasheet

Carsphairn (target area 127)

Summary

Carsphairn is a village in the south west of Scotland on the banks of Water of Deugh. The area is located within the Dumfries and Galloway local authority area. The main source of flooding in Carsphairn is river flooding. There are approximately 31 homes and businesses currently at risk from flooding. This is likely to increase to 32 properties by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment is improved for river flooding by the Carsphairn Flood Study (2015). There is a long record of flooding in this target area including notable flooding in December 2015 when multiple properties flooded from the Water of Deugh.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies.

The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective Description
1271	Avoid flood risk	Avoid inappropriate development that increases flood risk in Carsphairn
1272	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Carsphairn
1273	Reduce flood risk	Reduce the risk of river flooding in Carsphairn

What actions are proposed for this area?

As outlined in Section 1 of this plan, at the date of publication the actions below represent the best understanding of what is needed to work towards the objectives for the area. They have been developed with the other responsible authorities and take account of progress achieved to date, the understanding of flood risk and the objectives set for the area. The local flood risk management plan published in 2022 provides more information on the actions, their timing and how they will be funded and coordinated.

Actions proposed to start between 2022 and 2028

	Flood scheme or works design (Ref: 12701)
Action	The selected preferred approach for managing flood risk is to be designed on the basis of the flood study, including consideration of the long-term impacts of climate change. These can include small scale works or works to improve catchment management. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Description	Dumfries and Galloway Council to develop detailed design of the Carsphairn Flood Protection Scheme based on the preferred option from the flood study. The preferred option consists of flood walls and earth embankments. Recommendations are for further topographic survey to increase confidence in the model. An adaptation plan may need to be developed to address changes of flood risk due to climate change.

	Flood scheme or works implementation (Ref: 12702)
Action	The flood scheme/works is to be built following agreement of the design, costs and timescales.
Description	The responsible authority proposes this action as the best viable option for managing flood risk in this community. The delivery of this action is subject to capital funding being made available. Dumfries and Galloway Council should progress the formal process of promoting a flood protection scheme for Carsphairn. Procurement of a contractor for the construction phase should begin once formal approval to progress with a scheme has been given and detailed design is complete. Upon completion of the scheme Dumfries and Galloway Council should submit all as built and scheme information to SEPA for registration on the Scottish Flood Defence Asset Database.

	Community engagement (Ref: 12703)
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Description	Community engagement should continue through the development of the Carsphairn Flood Protection Scheme.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

02/14/18 (Creetown)

This area is designated as a potentially vulnerable area due to flood risk to Creetown. The main sources of flooding are from river and coastal flooding. There are reports of flooding in the area, with recent floods caused by coastal and river flooding.

There is 1 target area in this potentially vulnerable area, which has been the focus of further assessment, this is identified below. Further information on the objectives and actions to manage flood risk within this area is provided below.

List of target areas

Creetown (target area 130)

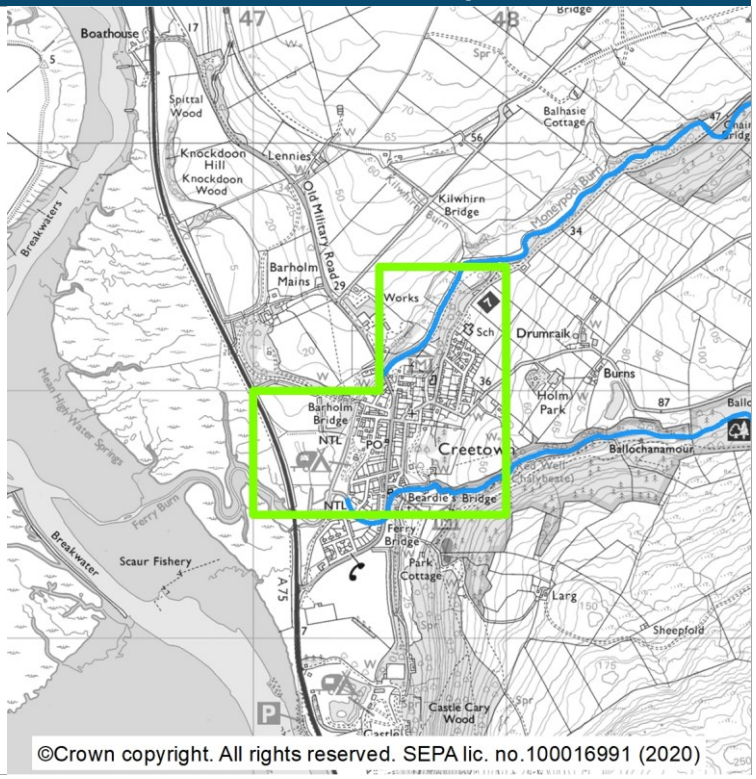
Flood risk management plan datasheet

Creetown (target area 130)

Summary

Creetown is a small coastal town which is located between the Moneypool Burn and Balloch Burn on the River Cree estuary at Wigtown Bay. The area is located within the Dumfries and Galloway local authority area. The main source of flooding in Creetown is coastal flooding, however there are also risks of river and surface water flooding. There are approximately 180 people and 130 homes and businesses currently at risk from flooding. This is likely to increase to 220 people and 150 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment is improved for coastal flooding by the shoreline management plan (draft consultation 2021) and by the flood warning scheme. There is a long record of flooding in this target area.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies.

The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective Description
1301	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
1302	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in this target area
1303	Reduce flood risk	Reduce the risk of flooding in this target area

What actions are proposed for this area?

As outlined in Section 1 of this plan, at the date of publication the actions below represent the best understanding of what is needed to work towards the objectives for the area. They have been developed with the other responsible authorities and take account of progress achieved to date, the understanding of flood risk and the objectives set for the area. The local flood risk management plan published in 2022 provides more information on the actions, their timing and how they will be funded and coordinated.

Actions proposed to start between 2022 and 2028

	Shoreline management plan (coastal adaptive plan) (Ref: 13001)
Action	The existing assessment of coastal flood and erosion risk is to be reviewed and updated as required. The plan should include assessment of climate change and develop adaptive approaches to allow for the impacts of climate change to be monitored, understood and managed.
Description	Dumfries and Galloway Council to complete the review of the 2005 Solway Shoreline Management Plan. This management plan will also identify the need for more detailed assessments of any existing coastal defences and interactions with other flood sources.

	Flood warning maintenance (Ref: 13002)
Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Description	SEPA should maintain the Solway coastal flood warning scheme.

	Strategic mapping improvements (Ref: 13003)
Action	SEPA will continue to update flood maps based on new information.
Description	SEPA will be undertaking a review of coastal flood modelling in this target area to identify where it may be appropriate to include the impact of waves on coastal flooding. We will progress with improved flood modelling and mapping in the highest priority areas taking account of availability of data to support the modelling work.

Actions proposed after June 2028

The following actions are proposed to take place after June 2028. These will be reviewed in 2026, considering added information at that time, to ensure they are still the most appropriate actions for the community.

	Flood study (Ref: 13004)
Action	An understanding of flood risk and associated issues in the area is to be developed, which may include surveys and modelling and should consider the impacts of climate change on flood risk.
Description	Following completion of the Shoreline Management Plan in early 2022, Dumfries and Galloway Council to carry out a flood study to address risk from interaction of the Moneypool and Balloch Burns with the tidal River Cree. Where flood risk is confirmed, scoping of the next steps should be completed, subject to available resources and funding.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

02/14/19 (Newton Stewart)

This area is designated as a potentially vulnerable area due to flood risk to Newton Stewart. The main sources of flooding are from the River Cree and the Penkiln Burn. Recent floods have been caused by river flooding.

There is 1 target area in this potentially vulnerable area, which has been the focus of further assessment, this is identified below. Further information on the objectives and actions to manage flood risk within this area is provided below.

List of target areas

Newton Stewart (target area 140)

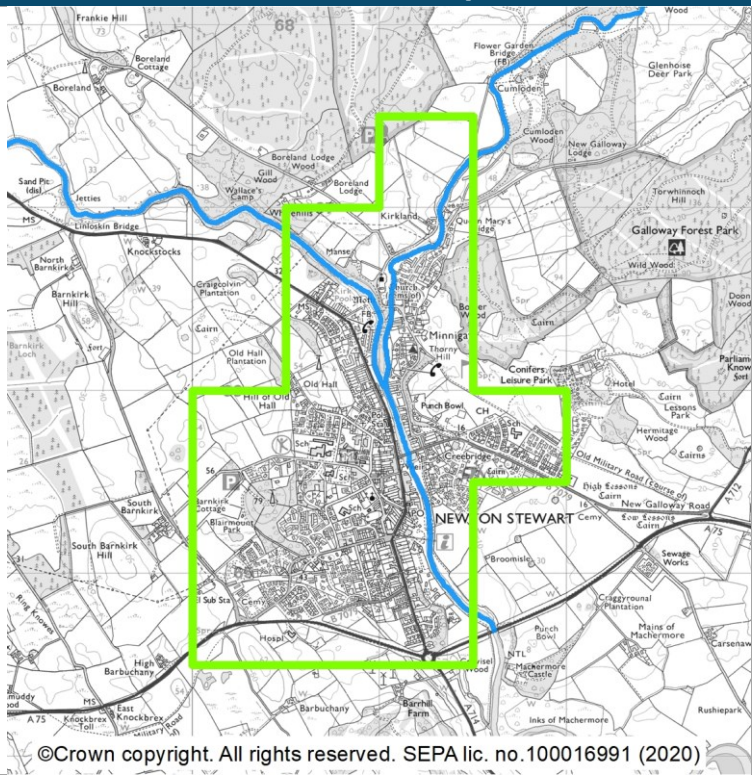
Flood risk management plan datasheet

Newton Stewart (target area 140)

Summary

Newton Stewart is a town located on the banks of the River Cree. The area is located within the Dumfries and Galloway local authority area. The main source of flooding in Newton Stewart is river flooding, however there is also a risk from surface water flooding. There are approximately 510 people and 350 homes and businesses currently at risk from flooding. This is likely to increase to 650 people and 430 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment is improved for river flooding by assessments carried out for the Newton Stewart Flood Protection Scheme and flood warning scheme, improved for coastal flooding by the shoreline management plan (draft consultation 2021) and improved for surface water flooding by a sewer flood risk assessment. There are periodic records of flooding in this target area, most notably flooding in December 2015.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies.

The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective Description
1401	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
1402	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in this target area
1403	Reduce flood risk	Reduce the risk of flooding in this target area

What actions are proposed for this area?

As outlined in Section 1 of this plan, at the date of publication the actions below represent the best understanding of what is needed to work towards the objectives for the area. They have been developed with the other responsible authorities and take account of progress achieved to date, the understanding of flood risk and the objectives set for the area. The local flood risk management plan published in 2022 provides more information on the actions, their timing and how they will be funded and coordinated.

Actions proposed to start between 2022 and 2028

	Flood scheme or works design (Ref: 14001)
Action	The selected preferred approach for managing flood risk is to be designed on the basis of the flood study, including consideration of the long-term impacts of climate change. These can include small scale works or works to improve catchment management. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Description	Dumfries and Galloway Council to develop detailed design of the Newton Stewart Flood Protection Scheme. This should include consideration of the impacts of climate change on scheme performance. An adaptation plan may need to be developed to address changes of flood risk due to climate change.

	Flood scheme or works implementation (Ref: 14002)
Action	The flood scheme/works is to be built following agreement of the design, costs and timescales.
Description	The responsible authority proposes this action as the best option for managing flood risk in this community. The delivery of this action is subject to funding being made available. Dumfries and Galloway Council should progress the formal process of promoting a flood protection scheme for Newton Stewart. Procurement of a contractor for the construction phase should begin once formal approval to progress with a scheme has been given and detailed design is complete. Upon completion of the scheme Dumfries and Galloway Council should submit all as built and scheme information to SEPA for registration on the Scottish Flood Defence Asset Database.

	Community engagement (Ref: 14003)
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Description	Community engagement should continue through the development of the Newton Stewart Flood Protection Scheme.

	Flood warning maintenance (Ref: 14004)
Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Description	SEPA should maintain the River Cree flood warning scheme.

Actions proposed after June 2028

The following actions are proposed to take place after June 2028. These will be reviewed in 2026, considering added information at that time, to ensure they are still the most appropriate actions for the community.

	Flood warning maintenance (Ref: 14005)
Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Description	SEPA should investigate improvements to the River Cree flood warning scheme.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

02/14/20 (Garlieston)

This area is designated as a potentially vulnerable area due to flood risk to Sorbie and Garlieston. There is flooding from river, coastal and surface water. There is a history of flooding in the area, with recent flooding occurring in 2018 due to Storm Eleanor.

There are 2 target areas in this potentially vulnerable area, which have been the focus of further assessment, these are listed below. Further information on the objectives and actions to manage flood risk within this area is provided below.

List of target areas

Sorbie	(target area 70)
Garlieston	(target area 126)

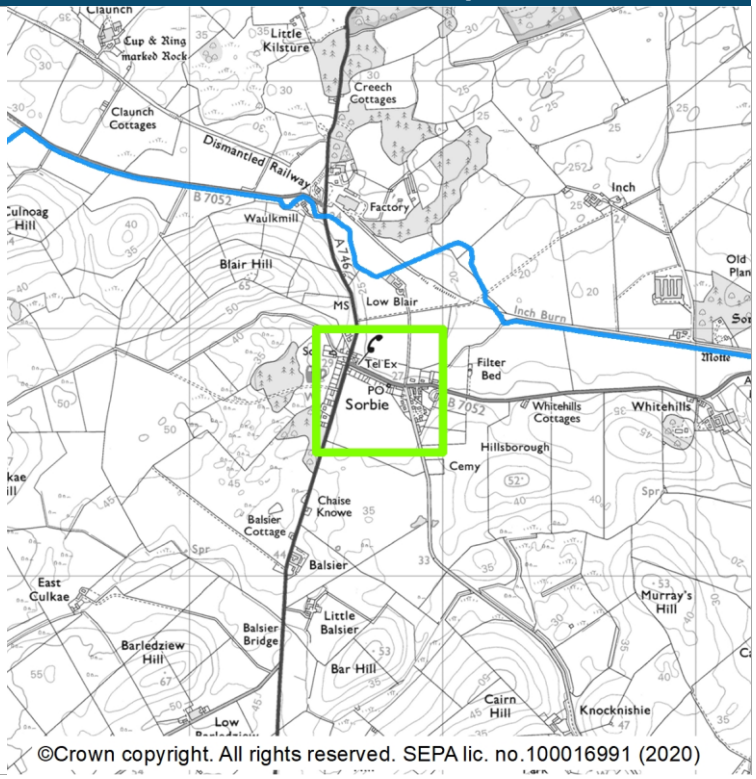
Flood risk management plan datasheet

Sorbie (target area 70)

Summary

The small village of Sorbie is located within the Dumfries and Galloway local authority area. The main source of flooding in Sorbie is river flooding, however there is also a risk of surface water flooding. There are approximately 40 people at risk from flooding and 20 homes and businesses. This is estimated to increase to 50 people and 30 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources, and this information has highlighted the risk of flooding in this target area. Sorbie has therefore been identified as a new target area for the 2021 flood risk management plans. There are periodic records of flooding in this target area.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies.

The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective Description
701	Avoid flood risk	Avoid inappropriate development that increases flood risk in Sorbie
702	Improve data and understanding	Improve data and understanding of flooding in Sorbie
703	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Sorbie

What actions are proposed for this area?

As outlined in Section 1 of this plan, at the date of publication the actions below represent the best understanding of what is needed to work towards the objectives for the area. They have been developed with the other responsible authorities and take account of progress achieved to date, the understanding of flood risk and the objectives set for the area. The local flood risk management plan published in 2022 provides more information on the actions, their timing and how they will be funded and coordinated.

Actions proposed to start between 2022 and 2028

	Data collection (Ref: 7001)
Action	Equipment that measures rainfall, river levels, erosion, ground levels or wave height may be installed and maintained to improve our understanding of flood risk. This can be done over short term or to measure longer term impacts.
Description	This may include data collection and monitoring to improve the confidence in flood sources, mechanisms and risk. A review may be required to assess the need for rain and/or river gauges. Post flood event surveys may be required to collect data on flooding mechanisms, risk and damage caused.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

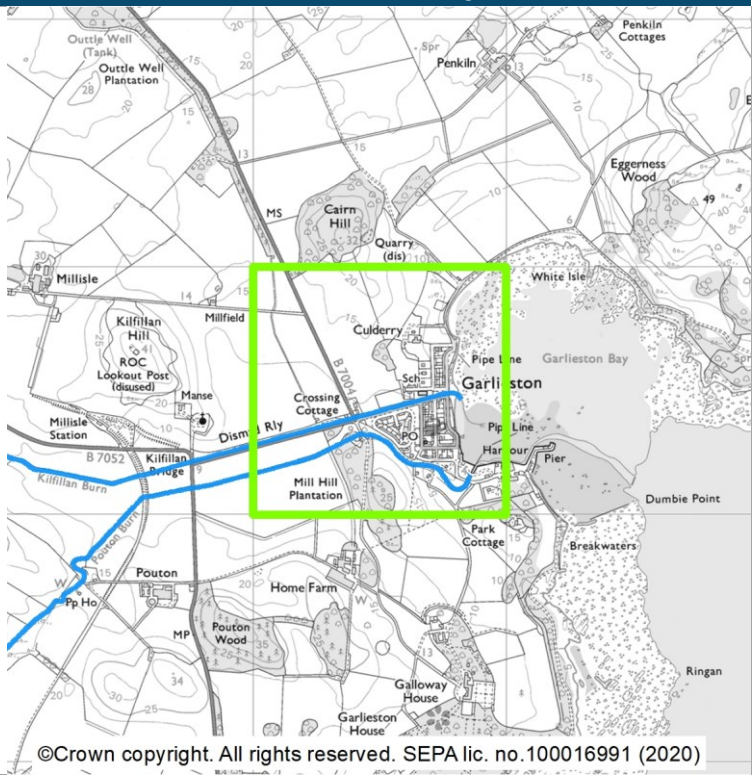
Flood risk management plan datasheet

Garlieston (target area 126)

Summary

Garlieston is a small coastal village located in Garlieston Bay 7km north east of Whithorn. The area is located within the Dumfries and Galloway local authority area. The main source of flooding in Garlieston is coastal flooding, however there is also a risk of river flooding. There are approximately 180 people and 100 homes and businesses currently at risk from flooding, which is a significant proportion of the community. This is likely to increase to 230 people and 140 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment is improved for coastal flooding by the shoreline management plan (draft consultation 2021) and by the flood warning scheme. There are limited records of flooding in this target area.

The Dynamic Coast project has shown that parts of the shoreline in or adjacent to this target area are subject to erosion at present or are considered likely to erode in the future. Consideration should be given to how erosion might impact flood risk. Any actions taken should aim to support building natural resilience to flooding and not lead to an increase in erosion.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies.

The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

to deliver multiple outcomes.

Objective ref	Objective type	Objective Description
1261	Avoid flood risk	Avoid inappropriate development that increases flood risk in Garlieston
1262	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Garlieston
1263	Reduce flood risk	Reduce the risk of flooding in Garlieston

What actions are proposed for this area?

As outlined in Section 1 of this plan, at the date of publication the actions below represent the best understanding of what is needed to work towards the objectives for the area. They have been developed with the other responsible authorities and take account of progress achieved to date, the understanding of flood risk and the objectives set for the area. The local flood risk management plan published in 2022 provides more information on the actions, their timing and how they will be funded and coordinated.

Actions proposed to start between 2022 and 2028

	Shoreline management plan (coastal adaptive plan) (Ref: 12601)
Action	The existing assessment of coastal flood and erosion risk is to be reviewed and updated as required. The plan should include assessment of climate change and develop adaptive approaches to allow for the impacts of climate change to be monitored, understood and managed.
Description	Dumfries and Galloway Council to complete the review of the 2005 Solway Shoreline Management Plan. This management plan will also identify the need for more detailed assessments of any existing coastal defences and interactions with other flood sources.

	Flood warning maintenance (Ref: 12602)
Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Description	SEPA should maintain the Solway coastal flood warning scheme.

	Strategic mapping improvements (Ref: 12603)
Action	SEPA will continue to update flood maps based on new information.
Description	SEPA will be undertaking a review of coastal flood modelling in this target area to identify where it may be appropriate to include the impact of waves on coastal flooding. We will progress with improved flood modelling and mapping in the highest priority areas taking account of availability of data to support the modelling work.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

02/14/21 (Isle of Whithorn)

This area is designated as a potentially vulnerable area due to flood risk in Isle of Whithorn. The main sources of flooding are river and coastal. Recent floods occurred in January 2018 and February 2019, which were caused by coastal flooding.

There is 1 target area in this potentially vulnerable area, which has been the focus of further assessment, this is identified below. Further information on the objectives and actions to manage flood risk within this area is provided below.

List of target areas

Isle of Whithorn (target area 144)

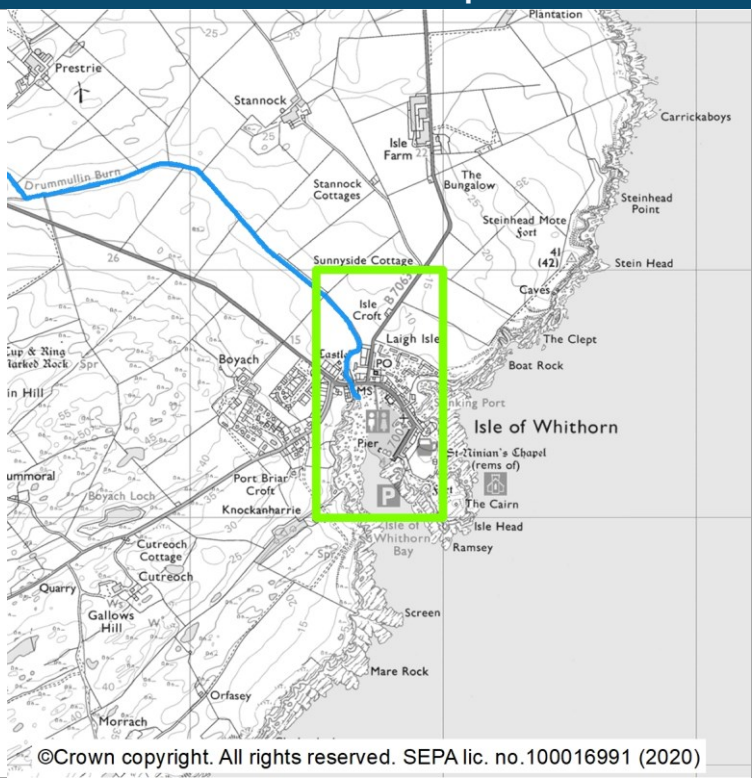
Flood risk management plan datasheet

Isle of Whithorn (target area 144)

Summary

The Isle of Whithorn is located on the coast north east of Burrow Head, within the Dumfries and Galloway local authority area. The main source of flooding in Isle of Whithorn is from coastal flooding, however there is also a risk from river flooding. There are approximately 110 people and 70 homes and businesses currently at risk from flooding, which is a significant proportion of the community. This is likely to increase to 130 people and 75 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment is improved for coastal flooding by the shoreline management plan (draft consultation 2021) and flood warning scheme. There are periodic records of flooding in this target area.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies.

The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective Description
1441	Avoid flood risk	Avoid inappropriate development that increases flood risk in Isle of Whithorn
1442	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Isle of Whithorn
1443	Reduce flood risk	Reduce the risk of coastal flooding in Isle of Whithorn

What actions are proposed for this area?

As outlined in Section 1 of this plan, at the date of publication the actions below represent the best understanding of what is needed to work towards the objectives for the area. They have been developed with the other responsible authorities and take account of progress achieved to date, the understanding of flood risk and the objectives set for the area. The local flood risk management plan published in 2022 provides more information on the actions, their timing and how they will be funded and coordinated.

Actions proposed to start between 2022 and 2028

	Shoreline management plan (coastal adaptive plan) (Ref: 14401)
Action	The existing assessment of coastal flood and erosion risk is to be reviewed and updated as required. The plan should include assessment of climate change and develop adaptive approaches to allow for the impacts of climate change to be monitored, understood and managed.
Description	Dumfries and Galloway Council to complete the review of the 2005 Solway Shoreline Management Plan. This management plan will also identify the need for more detailed assessments of any existing coastal defences and interactions with other flood sources.

	Flood warning maintenance (Ref: 14402)
Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Description	SEPA should maintain the Solway coastal flood warning scheme.

	Strategic mapping improvements (Ref: 14403)
Action	SEPA will continue to update flood maps based on new information.
Description	SEPA will be undertaking a review of coastal flood modelling in this target area to identify where it may be appropriate to include the impact of waves on coastal flooding. We will progress with improved flood modelling and mapping in the highest priority areas taking account of availability of data to support the modelling work.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

02/14/22 (Port William)

This area is designated as a potentially vulnerable area due to flood risk to Port William. The main source of flooding is from coastal flooding, however there is also a risk of surface water and river flooding. There is a history of flooding in the area, with recent flooding caused by coastal and surface water flooding.

There is 1 target area in this potentially vulnerable area, which has been the focus of further assessment, this is identified below. Further information on the objectives and actions to manage flood risk within this area is provided below.

List of target areas

Port William (target area 143)

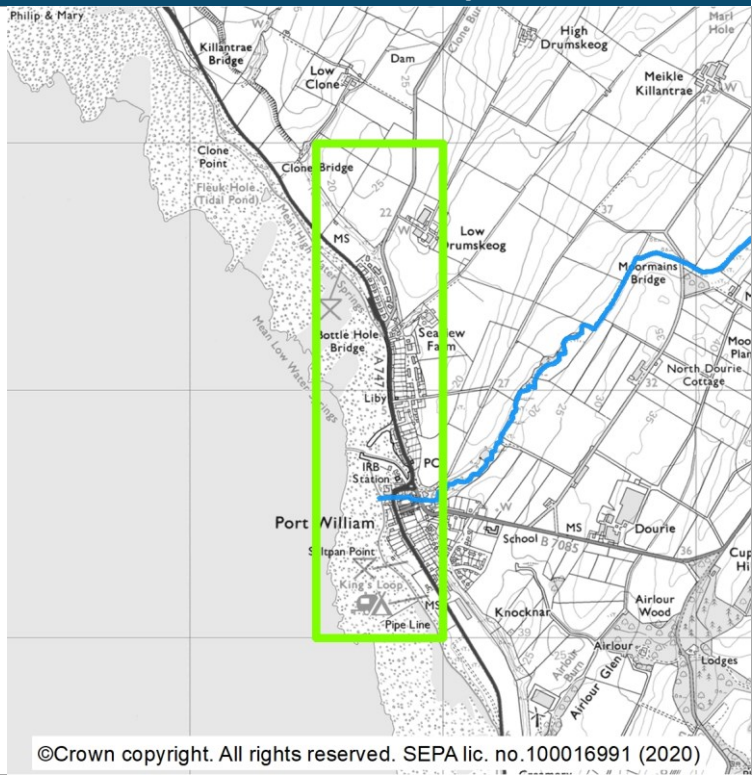
Flood risk management plan datasheet

Port William (target area 143)

Summary

Port William is a small coastal village located on the eastern shore of Luce Bay. The area is located within the Dumfries and Galloway local authority area. The main sources of flooding in Port William are from coastal and river flooding. There are approximately 40 people and 40 homes and businesses currently at risk from flooding. This is likely to remain the same by the 2080s irrespective of climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment is improved for coastal flooding by the shoreline management plan (draft consultation 2021) and flood warning scheme. This information has highlighted the risk of flooding in this target area. Port William has therefore been identified as a new target area for the 2021 flood risk management plans. There is a long record of flooding in this target area.

The Dynamic Coast project has shown that parts of the shoreline in or adjacent to this target area are subject to erosion at present or are considered likely to erode in the future. Consideration should be given to how erosion might impact flood risk. Any actions taken should aim to support building natural resilience to flooding and not lead to an increase in erosion.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies.

The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective Description
1431	Avoid flood risk	Avoid inappropriate development that increases flood risk in Port William
1432	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Port William
1433	Reduce flood risk	Reduce the risk of flooding in Port William

What actions are proposed for this area?

As outlined in Section 1 of this plan, at the date of publication the actions below represent the best understanding of what is needed to work towards the objectives for the area. They have been developed with the other responsible authorities and take account of progress achieved to date, the understanding of flood risk and the objectives set for the area. The local flood risk management plan published in 2022 provides more information on the actions, their timing and how they will be funded and coordinated.

Actions proposed to start between 2022 and 2028

	Shoreline management plan (coastal adaptive plan) (Ref: 14301)
Action	The existing assessment of coastal flood and erosion risk is to be reviewed and updated as required. The plan should include assessment of climate change and develop adaptive approaches to allow for the impacts of climate change to be monitored, understood and managed.
Description	Dumfries and Galloway Council to complete the review of the 2005 Solway Shoreline Management Plan. This management plan will also identify the need for more detailed assessments of any existing coastal defences and interactions with other flood sources.

	Flood warning maintenance (Ref: 14302)
Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Description	SEPA should maintain the Solway coastal flood warning scheme.

	Strategic mapping improvements (Ref: 14303)
Action	SEPA will continue to update flood maps based on new information.
Description	SEPA will be undertaking a review of coastal flood modelling in this target area to identify where it may be appropriate to include the impact of waves on coastal flooding. We will progress with improved flood modelling and mapping in the highest priority areas taking account of availability of data to support the modelling work.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

02/14/23 (Stranraer)

This area is designated as a potentially vulnerable area due to flood risk to Stranraer. There is flooding from river, coastal and surface water. Recent flooding has occurred due to surface water flooding.

There is 1 target area in this potentially vulnerable area, which has been the focus of further assessment, this is identified below. Further information on the objectives and actions to manage flood risk within this area is provided below.

List of target areas

Stranraer (target area 142)

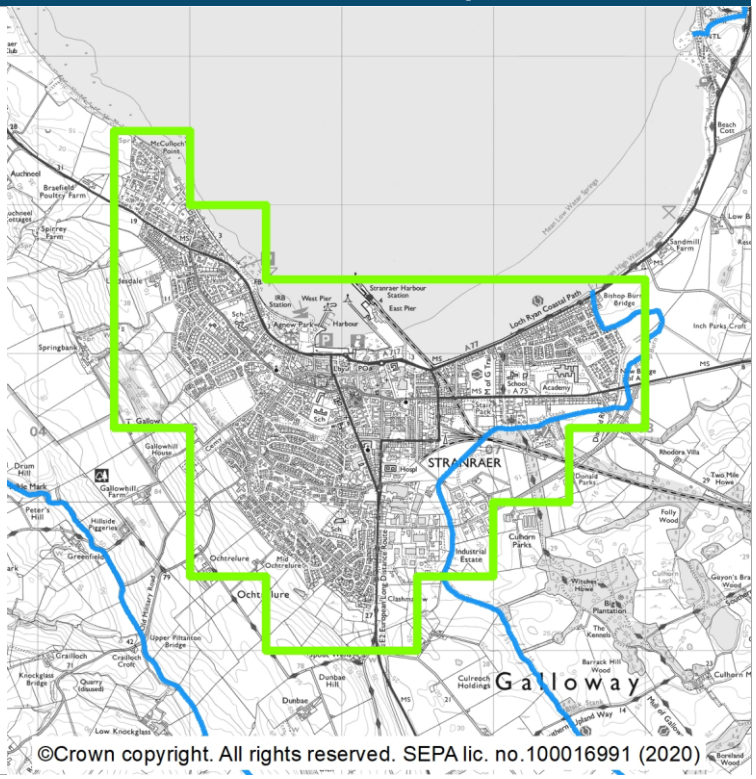
Flood risk management plan datasheet

Stranraer (target area 142)

Summary

Stranraer is a coastal town located on the shores of Loch Ryan. The area is located within the Dumfries and Galloway local authority area. The main source of flooding in Stranraer is coastal flooding, however there are also risks from river and surface water flooding. There are approximately 1,000 people and 630 homes and businesses currently at risk from flooding. This is likely to increase to 1,300 people and 820 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment is improved for coastal flooding by the shoreline management plan (draft consultation 2021) and flood warning scheme, and for river flooding by assessments carried out for the Stranraer Flood Protection Scheme. Understanding is also improved for surface water flooding by a sewer flood risk assessment. There are periodic records of flooding in this target area.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies.

The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective Description
1421	Avoid flood risk	Avoid inappropriate development that increases flood risk in Stranraer
1422	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of the Stranraer flood protection works
1423	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Stranraer area
1424	Reduce flood risk	Reduce the risk of flooding in Stranraer

What actions are proposed for this area?

As outlined in Section 1 of this plan, at the date of publication the actions below represent the best understanding of what is needed to work towards the objectives for the area. They have been developed with the other responsible authorities and take account of progress achieved to date, the understanding of flood risk and the objectives set for the area. The local flood risk management plan published in 2022 provides more information on the actions, their timing and how they will be funded and coordinated.

Actions proposed to start between 2022 and 2028

	Shoreline management plan (coastal adaptive plan) (Ref: 14201)
Action	The existing assessment of coastal flood and erosion risk is to be reviewed and updated as required. The plan should include assessment of climate change and develop adaptive approaches to allow for the impacts of climate change to be monitored, understood and managed.
Description	Dumfries and Galloway Council to complete the review of the 2005 Solway Shoreline Management Plan. This management plan will also identify the need for more detailed assessments of any existing coastal defences and interactions with other flood sources.

	Flood defence maintenance (Ref: 14202)
Action	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
Description	Dumfries and Galloway Council to inspect and maintain the Stranraer Flood Protection Scheme which reduces flood risk from the Sheuchan Burn, Town Burn and the Black Stank.

	Flood warning maintenance (Ref: 14203)
Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Description	SEPA should maintain the Solway coastal flood warning scheme.

	Strategic mapping improvements (Ref: 14204)
Action	SEPA will continue to update flood maps based on new information.
Description	SEPA will be undertaking a review of coastal flood modelling in this target area to identify where it may be appropriate to include the impact of waves on coastal flooding. We will progress with improved flood modelling and mapping in the highest priority areas taking account of availability of data to support the modelling work.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

02/14/24 (Portpatrick)

This area is designated as a potentially vulnerable area due to flood risk to Portpatrick. There is flooding from river, coastal and surface water. A flood protection scheme was built in 2004 and has reduced the risk of river flooding. Recent coastal flooding has occurred in the area.

There is 1 target area in this potentially vulnerable area, which has been the focus of further assessment, this is identified below. Further information on the objectives and actions to manage flood risk within this area is provided below.

List of target areas

Portpatrick (target area 141)

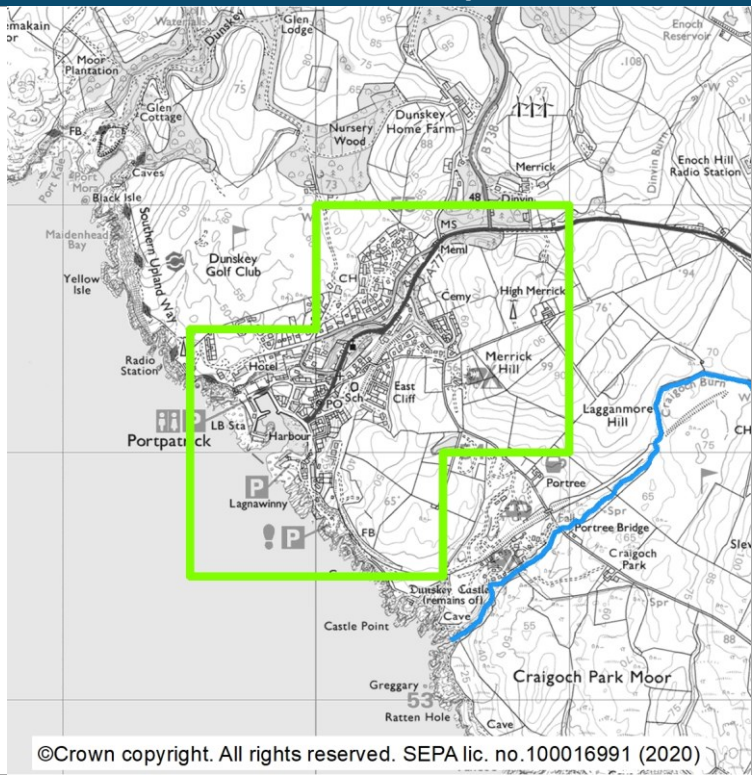
Flood risk management plan datasheet

Portpatrick (target area 141)

Summary

Portpatrick is a coastal village located on the western shore of the Rhins of Galloway peninsula. The area is located within the Dumfries and Galloway local authority area. The main source of flooding in the Portpatrick is from coastal flooding, however there is also a risk from river flooding. There are approximately 40 people and 40 homes and businesses currently at risk from flooding. This is likely to remain the same irrespective of climate change by the 2080s.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment is improved for coastal flooding by the shoreline management plan (draft consultation 2021) and by the flood warning scheme. There are periodic records of flooding in this target area.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies.

The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective Description
1411	Avoid flood risk	Avoid inappropriate development that increases flood risk in Portpatrick
1412	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of the Portpatrick flood protection scheme 2003
1413	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Portpatrick
1414	Reduce flood risk	Reduce the risk of flooding in Portpatrick

What actions are proposed for this area?

As outlined in Section 1 of this plan, at the date of publication the actions below represent the best understanding of what is needed to work towards the objectives for the area. They have been developed with the other responsible authorities and take account of progress achieved to date, the understanding of flood risk and the objectives set for the area. The local flood risk management plan published in 2022 provides more information on the actions, their timing and how they will be funded and coordinated.

Actions proposed to start between 2022 and 2028

	Shoreline management plan (coastal adaptive plan) (Ref: 14101)
Action	The existing assessment of coastal flood and erosion risk is to be reviewed and updated as required. The plan should include assessment of climate change and develop adaptive approaches to allow for the impacts of climate change to be monitored, understood and managed.
Description	Dumfries and Galloway Council to complete the review of the 2005 Solway Shoreline Management Plan. This management plan will also identify the need for more detailed assessments of any existing coastal defences and interactions with other flood sources.

	Flood defence maintenance (Ref: 14102)
Action	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
Description	Dumfries and Galloway Council will continue to inspect and maintain the Portpatrick Flood Protection Scheme 2003.

	Flood warning maintenance (Ref: 14103)
Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Description	SEPA should maintain the Solway coastal flood warning scheme.

	Strategic mapping improvements (Ref: 14104)
Action	SEPA will continue to update flood maps based on new information.
Description	SEPA will be undertaking a review of coastal flood modelling in this target area to identify where it may be appropriate to include the impact of waves on coastal flooding. We will progress with improved flood modelling and mapping in the highest priority areas taking account of availability of data to support the modelling work.

Actions proposed after June 2028

The following actions are proposed to take place after June 2028. These will be reviewed in 2026, considering added information at that time, to ensure they are still the most appropriate actions for the community.

	Flood study (existing flood defences) (Ref: 14105)
Action	The performance and condition of the existing flood defences are to be evaluated, including consideration of the likely impacts of climate change. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Description	Dumfries and Galloway Council to assess the performance of the Portpatrick Flood Protection Scheme. The Scheme was constructed in 2003. Since then new modelling techniques and data have emerged. The impacts of climate change on flood risk should also be considered. The need for an adaptation plan should be evaluated.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

Annex 1: Costs of actions

Action	Indicative capital cost (£)	Notes
Adaptation plan	30,000	Costs can vary greatly depending on the scale and complexity of flooding
Data collection	20,000	
Flood scheme or works design	300,000	Costs can vary greatly depending on the scale and complexity of flooding, along with the ground conditions
Flood study	50,000	Costs can vary greatly depending on the scale and complexity of flooding
Flood study (existing flood defences)	80,000	
Flood study (options appraisal)	40,000	
Shoreline Management Plan (Coastal Adaptive Plan)	100,000	
Surface water management plan	30,000	
Flood scheme or works implementation	N/A	Schemes are very individual and it is not possible to provide an indicative cost.
The costs involved in the following actions are predominately from staff resource:		
Community engagement	N/A	Resources required are very specific for the individual action. It is currently not possible to estimate a resource cost.
Community flood alert	N/A	
Community resilience group	N/A	
Emergency plan	N/A	
Flood defence maintenance	N/A	Cost of maintenance is specific to the defence and is impacted by among other things age and type of the defences. It is not possible to provide indicative costs.
Flood risk management review	N/A	Resources required are very specific for the individual action. It is currently not possible to estimate a resource cost.
Flood warning maintenance	N/A	
Flood warning scoping	N/A	
Land Use Planning	N/A	
Maintain flood protection scheme	N/A	
New flood warning area	N/A	
Property flood resilience scheme	N/A	
Sewer flood risk assessment	N/A	
Site protection plan	N/A	
Strategic mapping improvements	N/A	

Annex 2: Flood risk management plans consultation summary

Asking for and listening to input from stakeholders and the public is a key part of flood risk management in Scotland. SEPA and the local authorities undertook a joint consultation, which ran in 2 phases between December 2020 and October 2021. Phase 1, opened in December 2020 and included a summary of flooding in each Local Plan District, a description of the potentially vulnerable areas and the identified local target areas. Phase 2 opened for responses on 30th July 2021 and closed on 31st October 2021. Phase 2 identified the objectives for each target area and the actions needed to achieve these objectives. It also included prioritisation of the actions by 6 year cycle. Local authorities provided more detail in the draft local flood risk management plans, which included an expanded description of the actions, and who would lead and coordinate delivery.

The consultation was open to everyone with an interest in flood risk management.

The communications campaign to publicise the consultation aimed to encourage anyone with an interest in flooding to have their say on how flood risk is managed across Scotland.

Communication activities included:

- A public notice in the Edinburgh Gazette and The Herald
- A national press release
- Social media posts on Facebook, Twitter, LinkedIn, Instagram
- A national targeted, paid social media campaign on Facebook, Twitter, and Instagram.

An animation and graphics were created to promote the consultation. These were shared with all responsible authorities in advance of the consultation and were regularly publicised via social media. The consultation was picked up by many local media outlets including local newspapers.

SEPA staff also supported several national events aimed at raising awareness of the consultation.

Demonstration of the consultation platform was provided to ensure that stakeholders were able to navigate the Citizen Space platform and answer the consultation questions.

Local authority flooding teams were provided with briefing packs with access to draft article templates and social media messages which they could use to promote the consultation within their own organisation and local area. Many local authorities used their network of community councils to promote the consultation.

In total SEPA received 677 responses. These included 654 online responses via the consultation platform Citizen Space and 23 e-mail responses received via SEPA's consultation mailbox. Compared to the first consultation on the flood risk management strategies in 2014, there has been a welcome three-fold increase in the number of responses. The majority of the responses (520) were from members of the public. This reflects increased public awareness of flooding and flood risk management, and the increasing risk due to climate change.

SEPA is grateful to individuals and organisations for considering the proposals and providing feedback. Responses varied from detailed comments on the actions proposed in individual target areas, to general comments on flooding and flood risk management. The sections below provide a brief outline of the responses received and changes made as a result.

Many of the aspects raised relate to the underlying requirements of the Flood Risk Management (Scotland) 2009 Act, to activities which are the responsibility of other organisations, or to the content of the local flood risk management plans. Working within safe data sharing practices, SEPA will ensure the feedback received is passed to other responsible authorities to consider and act on.

This summary is a factual statement of the responses provided. All responses received have been read and considered, resulting in a number of changes to the plans. Further detail on the analysis of responses will be published by SEPA in Spring 2022.

Identifying communities and infrastructure at risk

In the consultation SEPA asked whether all the main communities and infrastructure at significant risk of flooding were identified. 45% of respondents agreed that the main communities and infrastructure were identified and 29% stated they were not sure. 21% of respondents felt that some communities were missing from the plans.

Some respondents who had recently flooded were concerned that their communities were not identified as target areas. Some respondents suggested additional areas for SEPA to consider where flooding has occurred in the past. Concerns were also expressed about the method used to identify the main communities at risk.

Proposed objectives

34% of respondents supported the proposals for objectives to manage flood risk in target areas and 30% were not sure. 25% did not agree and 10% did not answer this question.

The main concerns of those who did not agree with the proposed objectives were that timescales were long-term and would not result in immediate action, objectives did not cover wider issues such as sewerage flooding, objectives were not detailed enough, and that objectives did not limit new development. There were concerns that there was no evidence being provided to show that the objectives were being met by the authorities, and that objectives were not leading to actions on the ground.

Proposed actions to manage flood risk

43% of respondents were not sure whether the actions would work towards achieving the objectives. 25% of respondents did not agree with the proposed actions to manage flood risk. 20% agreed with the proposed actions and 12% did not answer this question.

Those who did not agree expressed concerns that flood studies were not resulting in actions on the ground, that actions were not detailed enough, some stressed the need for other actions such as drain clearance being done now and some emphasised the need for a catchment-based approach and natural flood management.

Others asked for more watercourse clearing and river management and more transparency from the local authority in publicising the maintenance plan for flood defences. Concerns were also expressed that new development is not being controlled and is contributing to increased surface water flooding and that there were no actions to address sewerage flooding. Concerns were also raised about funding for actions.

NatureScot provided feedback on specific target areas and the impacts on biodiversity and designated sites.

Timescales for implementing actions

In terms of the proposed timescales, 36% of respondents did not agree and 32% were not sure of the identified timescales. 17% agreed and 15% did not respond to this question.

Those who disagreed were concerned that actions were taking too long and that more urgent action is needed in light of climate change. Respondents also commented that timescales were too vague and should be more detailed.

What can individuals, communities and organisations do to help manage flood risk?

SEPA also asked whether individuals, communities or organisations were able to help with flood risk management in Scotland. There was a range of responses to this question, with 39% of respondents agreeing that there is something they could do to help manage flood risk and 26% of respondents not sure that there are things they could do.

Those who were not sure asked for more guidance from the authorities. However, many felt that there was something that communities or individuals can do. Suggestions included less paving of gardens to help attenuate rainwater, authorities developing information to help the public make more informed decisions, community organised clearance of watercourses where it is safe to do so, reporting blockages and flooding to the authorities, planting trees and greening of cities.

Acting on consultation feedback

Several changes were made to the final flood risk management plans as a result of the input received during the consultation. A summary of those changes is provided in the table below, and full details will be provided in the consultation digest to be published by SEPA in Spring 2022.

Summary of changes made to the plans following the consultation
1. Further actions were added to manage flood risk in several target areas.
2. Additional Local Plan District actions were added.
3. Some actions were removed from the flood risk management plans at the request of local authorities responsible for their delivery due to completion in the time between consultation and publication.
4. Further information was included on how climate change was assessed in the preparation of the plans.
5. Further information was included on how potentially vulnerable areas were identified, and when they will be reviewed again.
6. Information was included on the progress made in implementing actions and working towards objectives in the 2015 strategies.
7. A target area boundary was amended based on new information provided.
8. A description of the importance of community actions, recognising the work that communities do to manage flooding was included, along with further information on where support is available to help people reduce their own flood risk.
9. A description of the catchment-based approach SEPA has taken, and the role it plays in delivering flood risk management actions was provided.
10. The link between flood risk management plans and land use planning was clarified.
11. Habitats Regulations Appraisal statements were added to each relevant action.
12. Some other changes were made to the way information is presented to try to make it clearer e.g., on the timing of actions being carried out.
13. Further information was provided on the uncertainty associated with funding of flood risk management actions.

Annex 3: Acknowledgements

SEPA acknowledges the cooperation and input provided in preparing these plans, including the following:

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Local authorities SEPA acknowledges the provision of flood models and other supporting data and information from local authorities in Scotland and their collaboration in the production of flood risk management information.

Scottish Water SEPA acknowledges the inclusion of surface water flooding data generated by Scottish Water in preparation of flood risk information.

The Flood Hazard Research Centre Multi-coloured Manual and Multi-coloured Handbook 2016.

All contributors to the **2018 NFRA**, more information on which can be found at https://www.sepa.org.uk/data-visualisation/nfra2018/