



Flood Risk Management (Scotland) Act 2009

Local Flood Risk Management Plan - Orkney Local Plan District

Interim Report



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Contents

Terms and conditions	2
Ownership	2
Warranties and Indemnities	2
Copyright and acknowledgements	2
Data Protection	2
No Partnership or Agency	2
No Interference	2
Jurisdiction	2
Foreword	4
Chapter 1 – Background.....	4
Chapter 2 - Review of the Plan.....	5
2.1. Key progress in reducing the impacts of flooding since publication	5
2.2. How current is the Plan?	5
2.3. Significant challenges	5
2.4. Prioritisation of actions for next plan cycle	7
2.5. Arrangements planned to deliver the remaining actions	7
2.6. Next steps	8
Conclusions	8
Chapter 3 - Assessment of Progress.....	9
3.1. Progress with LPD-wide Actions to Manage Flood Risk Across the Orkney LPD	11
3.2. Progress with PVA-Specific Actions.....	23
3.3. Other actions.....	54
List of Acronyms and Abbreviations.....	55
Annex 1: FRM Responsibilities and Legal Requirement for this Interim Report ...	56
Flood risk management in Scotland.....	56
Flood Risk Management Strategy for Orkney	56
Local Flood Risk Management Plan for Orkney.....	56
Legal requirement	56
Publication	57
Annex 2: Licensing acknowledgments.....	58

Foreword

This Interim Report to the Local Flood Risk Management Plan shows the progress made in delivering the actions to avoid and reduce the risk of flooding and prepare and protect ourselves and our communities across the local plan district.

“The impacts of flooding experienced by individuals, communities and businesses can be devastating and long lasting. It is vital that we continue to reduce the risk of any such future events and improve our ability to manage and recover from any events which do occur.”

Orkney Local Flood Risk Management Plan, June 2016)

The publication of the Interim Report shows that the coordinated and collaborative efforts of public bodies can be brought together to deliver sustainable outcomes.

The Interim Report is published by Orkney Islands Council on behalf of a partnership comprising Orkney Islands Council, Scottish Water and SEPA.

Individuals are the first line of defence against flooding and have responsibilities to protect themselves from flooding. Through self-help and property level protection, awareness raising and signing up to Floodline, individuals, businesses and communities can and have made key contributions to the delivery of the actions in the Plan, which are detailed in this Interim Report.

Since the publication of the Plan in June 2016, public sector finances in Scotland have continued to be under considerable pressure. This places an even greater responsibility on SEPA, local authorities and Scottish Water and other responsible authorities to deliver their flood risk management responsibilities and, in particular the actions in the Plan, to manage flooding in a sustainable way.

SEPA, local authorities and Scottish Water and other responsible authorities will continue to work collaboratively to implement the actions in the Plan to its conclusion in June 2022.

Chapter 1 – Background

The Interim Report is a legal requirement of the Flood Risk Management (Scotland) Act 2009(Section 37) and is required to be published between July 2018 and June 2019. The Interim Report includes the conclusions of a review of the Orkney Local Flood Risk Management Plan (the ‘Plan’), published in June 2016 and includes information on the progress that has been made towards implementing the actions identified in the Plan.

Further details on flood risk management responsibilities in Scotland and the legal requirement for the publication of this Interim Report can be found in Annex 1.

A copy of the Orkney Local Flood Risk Management Plan can be found at the following link:

http://www.orkney.gov.uk/Files/Planning/Flooding/Orkney_LFRMP_Accessible.pdf

Chapter 2 - Review of the Plan

This section sets out the conclusions of the review of the plan and a summary of progress of actions detailed in Orkney Local Flood Risk Management Plan. It draws upon the assessment of progress of actions presented in the subsequent sections.

2.1. Key progress in reducing the impacts of flooding since publication

- Kirkwall Harbour Flood Protection Scheme was opened. This scheme cost £2.1m and provides protection to over 430 residential and 320 non-residential properties in central and low-lying areas of Kirkwall from coastal flooding risk.
- A new coastal flood warning system has been developed and launched by SEPA with assistance from Orkney Islands Council. The new system is now operational.
- The model of all of the foul, combined and surface water sewers serving Kirkwall has been updated by Scottish Water under Section 16 of the 2009 Act. This improved model provides a means of assessment of the existing system and a platform upon which improvements and the impact of development can be modelled. It will also inform the Kirkwall Surface Water Management Plan which is to be produced by Orkney Islands Council in 2019.
- A flood protection study for St Margaret's Hope is progressing. A flood protection study for Whitehall is scheduled to commence in January 2019.
- Cleaning, clearance and survey work has been carried out to key surface water sewers in Kirkwall.
- Community help/support and awareness has been provided to individuals in flood risk areas.

2.2. How current is the Plan?

The Plan was published in June 2016 supplementing the Flood Risk Management Strategy published by SEPA in December 2015. The Plan details how the actions identified in the Strategy were to be implemented over the period 2016 to 2022. The Strategy and Plan are based on the National Flood Risk Assessment and the designated Potentially Vulnerable Areas at that time.

Since the identification of the actions in the Plan, there have and continue to be advancements in our knowledge and development of assessment techniques. These include the publication by SEPA of a new National Flood Risk Assessment and revised designation of Potentially Vulnerable Areas in December 2018. These advancements may inform the delivery of the actions in this Plan and will be used in the development of future Strategies and Plans.

It is therefore considered that the Plan on which this is the Interim Report is current, albeit the planned delivery and actual delivery of actions has changed for some actions as detailed in the 'Assessment of the progress of actions'.

2.3. Significant challenges

Based on a review of the assessment of the progress of actions detailed in this Interim Report, the following key challenges and issues have been identified that have or may have an impact on the delivery of actions to manage flood risk. Arrangements planned to deliver the remaining actions are described below. Where

these challenges have had an impact on the delivery of specific actions or actions across an LPD, this is detailed in the 'Assessment of the progress of actions'.

With limited staff resources, the overall delivery of actions in the Plan has been impacted by resource issues. Pressure on available resources came from a variety of sources including non-FRM duties, FRM duties not related to the delivery of the Plan, e.g. flood risk assessment in relation to development planning, and diversion from planned actions by notable storm events and their impacts.

2.3.1. Significant weather events

The Orkney LPD was adversely affected by significant rainfall events in June and August 2017 when roads flooded and a number of properties were affected by external flooding. In both the June and December 2017 events a property in Kirkwall was affected by internal flooding.

There were occurrences of coastal flooding in December 2017 (Storm Caroline) then in June (Storm Hector) and 7/8th December 2018. The worst of these was Storm Caroline which resulted road closures, damage to roads walls, barriers, buildings and walls. Storm Hector and the storm over the 7th/8th December 2018 led to road closures and clearance operations.

These events had knock on impacts on the delivery of actions in the Plan. For example, Orkney resources were deployed to dealing with the events at that time as well as the follow up activities. This caused consequential delays in the planned delivery of actions as staff resource that would have been delivering planned actions was instead delivering emergent actions.

Arrangements planned to deliver the remaining actions affected by significant weather events are described below and detailed in the 'Assessment of the progress of actions' section of this Interim Report.

2.3.2. Funding

The 'actions in the Plan to meet agreed goals and objectives in the first six-year cycle considered what would be achievable assuming a similar level of funding for flood risk management activities from The Scottish Government. However, given the timing of spending reviews and annualised financial settlements for local government, the actual ability to deliver all the actions set in the Strategies in December 2015 and detailed in this Plan will be dependent on the availability of the necessary funding in each year of the six year Plan', (Orkney Local Flood Risk Management Plan, June 2016).

The level of funding from Scottish Government for flood risk activities for the first years of the six year Plan has been at the levels anticipated. As per the principals of financial settlements for local government, the funding is not 'ring fenced'.

2.3.3. Allocation of Resources

The delivery of flood risk management actions must be seen in the context of challenging local government finances and increased expectation and demand for public services. This applies to all of the responsible authorities and SEPA.

The impact on the level of funding from Scottish Government in general settlements for local government and in respect of funding for other responsible authorities and

SEPA may also have had an effect on the availability and allocation of resources. There is a challenge for priority of flood risk with and against many other worthy demands on public spending.

The availability of skilled staff to deliver flood risk actions has been a limiting factor in some areas. This has caused consequential delays in the planned delivery of actions.

Arrangements planned to deliver the remaining actions affected by allocation of resource issues are described below and detailed in the 'Assessment of the progress of actions' section of this Interim Report.

2.4. Prioritisation of actions for next plan cycle

Many actions contained in the plan are to undertake studies that will assess the need for further actions to be implemented in future plans. For example, a flood protection study may recommend that a community flood action group is set up to increase resilience to flooding, or that flood defences are constructed. This introduces a deadline date by when such actions need to be detailed and submitted by responsible authorities for consideration as actions in the next plans from 2022-28. The deadline date for submission of these actions to SEPA has been set as December 2019. The actions submitted will then be assessed and prioritised against the flood risk objectives, and consulted upon ahead of the publication of the next cycle of Flood Risk Management Strategies in December 2021 and Local Flood Risk Management Plans in June 2022. Any actions that miss this deadline may therefore be delayed for consideration in the next cycle from 2028-34.

2.5. Arrangements planned to deliver the remaining actions

The actions in the Plan will continue to be delivered over the remainder of the 2016 to 2022 period. This will be as per the published Plan, subject to revisions in delivery dates as detailed in the 'Assessment of the progress of actions' section of this Interim Report.

Where specific measures are required to address a delay and ensure an action is completed then this is described against the relevant action. In addition, where there is a risk that remaining actions will not be delivered by the end of the Plan, planned contingencies have been considered, which are described against the relevant action.

The requirements for updating the coastal and surface water maps has changed significantly since the Local Flood Risk Management Plan was published in June 2016.

In the case of coastal mapping, SEPA is now updating coastal flood maps across the whole of northeast Scotland, including Orkney, rather than in a few specific sections of coast as originally anticipated. It is planned that the improvements for Orkney will be completed in 2019.

For surface water flooding, the underlying design rainfall data used to produce the flood maps has changed as a result of more data being collected and a better understanding of rainfall across Scotland. As such it is no longer considered appropriate to deliver updated flood maps for the relatively small areas identified in the Orkney Local flood Risk Management Plan. Instead SEPA will deliver a national

update of this product. Due to the increase in scope it is expected that the national updates to the surface water maps will be completed early in the next cycle.

With the exception of improvements to surface water mapping, all of the actions in the Plan will be delivered by 2022.

2.6. Next steps

A Final Report on the plan will be published in between July 2021 and June 2022. This will include an updated assessment of the progress made towards implementing the current actions, a summary of the current measures which were not implemented, with reasons for their non-implementation; and a description of any other measures implemented since the plan was finalised which the lead authority considers have contributed to the achievement of the flood risk objectives.

Conclusions

Since the publication of the Orkney Local Flood Risk Management Plan in June 2016 steady progress has been made overall with notable highlights being the completion of the Kirkwall Harbour Flood Protection Scheme and the new Coastal Flood Warning System.

Away from these high points, steady progress has been made with work to improve the mapping and modelling of Orkney. This work includes modelling by Scottish Water under Section 16 of the Kirkwall sewer system. This modelling work is understood to be complete and the assessment of the results is due by early February 2019.

SEPA is also working on strategic mapping and modelling and expect to complete improvements in the coastal mapping of Orkney, as part of a wider project covering the coast from Arbroath to Scrabster, by the end of 2019. SEPA is also working on the development of a national joint probability data set and an update to the UK design extreme sea level data set. All of these projects are due to be completed by the end of 2019 and the results will assist in the assessment of coastal flood risk and the design of coastal flood protection.

SEPA actions to improve the surface water mapping of parts of Orkney will not now be undertaken as planned. Instead, surface water mapping will be updated for all of Scotland to take into account the latest climate data available. As a result of this change, updates to the Orkney surface water mapping should not now be expected until after 2021 (early in Cycle 2) although the feasibility of developing and interim approach to reflect improved understanding of flood risk is to be investigated.

The planned Flood Studies are behind schedule with the St Margaret's Hope study close to issue and the others now needing to be completed in a reduced time frame. Progress has been slower on OIC actions than planned due initially to the loss of a key staff member and, later on, due to pressure on the limited staff resources available. Progress on the Kirkwall Surface Water Management Plan has been affected in a similar way but, with projects which have been competing for staff resources now complete progress should be improved over the remaining 3 years of the cycle.

Chapter 3 - Assessment of Progress

This section sets out an assessment of the progress towards implementing the actions set out in the LFRMP.

There are actions that apply across the whole of the Orkney LPD and actions that are specific to each of the 8 Potentially Vulnerable Areas (as defined under Section 13 of the Act) in the Orkney LPD, which are shown below in Figure 1.

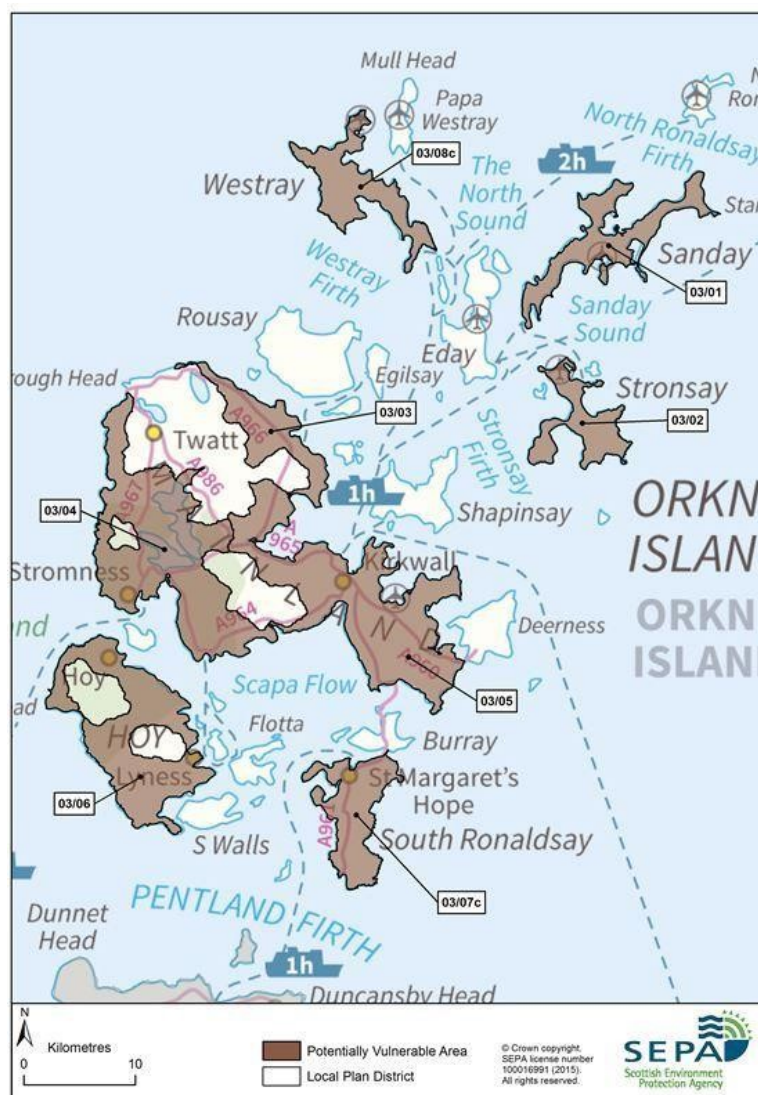


Figure 1: The Orkney Local Plan District with Potentially Vulnerable Areas identified. Reproduced from The Orkney Local Plan District Flood Risk Management Strategy, SEPA (December 2015).

The actions that apply to individual PVA across the Orkney LPD are shown overleaf in Figure 2. The summary of the assessment of progress is shown using the traffic light system, where each item is marked as Red, Amber or Green (RAG) and where:

- **Green (G)** – Action is on programme and within budget;
- **Amber (A)** – Action is behind programme and/or over budget, but the key dates are still anticipated to be met.
- **Red (R)** – Action is behind programme and/or over budget with key dates unlikely to be met and/or the outputs are unlikely to achieve what was anticipated by the Local FRM Plan.

PVA	Flood protections	Natural flood management	New flood warning	Flood protection	Surface water	Strategic mapping and	Strategic mapping and	Maintain flood warning	Flood forecasting	Property level	Community flood action	Self help	Awareness raising	Maintenance	Site protection	Emergency plans/respon	Planning policies
03/01 Sanday			G			G			G			G	G	G		G	G
03/02 Stronsay			G	A					G			G	G	G		G	G
03/03 Rendall and Evie			G				R		G			G	G	G		G	G
03/04 Stromness			G			G	R		G			G	G	G		G	G
03/05 Kirkwall	G		G	G	A	G	G		G			G	G	G		G	G
03/06 Hoy			G	G					G			G	G	G		G	G
03/07c South Ronaldsay			G	A					G			G	G	G		G	G
03/07c South Ronaldsay (Churchill Barriers)				G													
03/08c Westray			G	G					G			G	G	G		G	G

3.1. Progress with LPD-wide Actions to Manage Flood Risk Across the Orkney LPD

This section sets out an assessment of the progress towards implementing actions that apply across the whole of the Orkney LPD over all years of the six-year Plan, which is presented in Figure 3 overleaf.

Action	Status	Description	Delivery Lead	Interim progress	Planned actions to complete
New Flood Warning (3000020010)	G	SEPA will develop a coastal flood warning scheme for Orkney. Flood warning areas will be developed as part of this process.	SEPA	SEPA has completed development of a flood forecasting model for Orkney and has worked with Orkney Islands Council to develop procedures for the new flood warning service in Orkney.	SEPA will continue to operate the flood warning service
Flood Forecasting (3000020009)	G	<p>The Scottish Flood Forecasting Service is a joint initiative between SEPA and the Met Office that produces daily, national flood guidance statements which are issued to Category 1 and 2 Responders.</p> <p>The flood guidance statements provide an assessment of the risk of flooding for a five day period allowing responders time to put preparations in place to reduce the impact of flooding. The service also provides information which allows SEPA to issue flood warnings, giving</p>	SEPA	SEPA has continued to operate the Scottish Flood Forecasting Service (SFFS) Partnership with the Met Office with daily, national Flood Guidance Statements issued to	SEPA will continue and improve the Scottish Flood Forecasting Service (SFFS) with the Met Office, with daily Flood Guidance Statements and regional Flood Alerts issued as required to enable communities and responders to

		<p>people a better chance of reducing the impact of flooding on their home or business.</p>		<p>Category 1 and 2 agencies (such as emergency responders, local authorities and other organisations with flooding management duties) and regional Flood Alerts issued to the public. Each daily statement gives an assessment of the risk of flooding for the next five days to enable these organisations to put preparations in place to reduce the impact of flooding. SEPA's Flood Alert service is freely available to everyone and enables communities to be aware and</p>	<p>reduce the impacts of flooding. SEPA is currently exploring options to develop a public version of the daily Flood Guidance Statement to provide better and earlier information to the public.</p>
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				prepared to reduce the impacts of flooding.	
Self Help (3000020011)	G	<p>Everyone is responsible for protecting themselves and their property from flooding. Property and business owners can take simple steps to reduce damage and disruption to their homes and businesses should a flood happen.</p> <p>This includes preparing a flood plan and flood kit, installing property level protection, signing up to Floodline and Resilient Communities initiatives, and ensuring that properties and businesses are insured against flood damage.</p>	Individuals	Householders and developers advised as they contact OIC on development or flood related matters. The launch of the new SEPA flood warning system in Sept 2018 was used by OIC to raise awareness of protection measures – alongside the Scottish Flood Forum.	Continue to take opportunities to advise householders and individuals of measures to protect themselves, their homes and businesses from flooding and to minimize damage and disruption when flooding does happen.
Awareness Raising (3000020013)	G	From 2016 SEPA will engage with the community through local participation in national initiatives, including partnership working with Neighbourhood Watch Scotland. In addition, SEPA will engage with local authorities and community resilience groups where possible.	Responsible authorities	SEPA has delivered a range of awareness raising activities through campaigning,	SEPA will continue to raise awareness of flood risk through campaigning, developing education and engagement tools,

		<p>Where a new flood protection scheme is to be created, SEPA will support the local authority's communications and engagement activities with media activity, local public awareness events and education engagement with schools. SEPA will also deliver joint communications with local authorities for Floodline customers in any newly protected flood warning area.</p> <p>Scottish Water will support SEPA and responsible authorities with their awareness raising activities as required and provide targeted flooding communications for Scottish Water specific activities. Scottish Water will raise awareness by producing and supplying targeted information to the public on large capital projects and detailed local studies.</p> <p>More general information and flooding guidance will be available on the website at: https://www.scottishwater.co.uk/you-and-your-home/your-home/flooding-information</p> <p>Orkney Islands Council (OIC) aim to deliver clear and effective communication to the local community during the implementation of flood protection works, hosting public engagement events to encourage local input and feedback wherever possible. OIC will also include effective communication on flood risk within existing and new initiatives involving Education Scotland and resilience teams.</p>		<p>education activities and partnership delivery. We have run national and local digital and direct engagement campaigns to raise awareness of flood risk and SEPA's flood warning service, Floodline. We publish and publicise an electronic newsletter (Flooding Gateway) four times a year which is distributed to a wide audience. We are working with Education Scotland and Scottish Government Resilience team to embed flooding awareness</p>	<p>creating new partnerships and improving the flood warning and forecasting service. Many of our awareness raising activities currently underway will continue. Our focus will be on promoting flood warning and forecasting service, innovation, education and engagement with partners, customers and the public.</p> <p>OIC to continue work with SEPA, Scottish Water and the Scottish Flood Forum to engage with communities on known and any emerging issues concerns. OIC activities include site visits and advice to concerned individuals along with meetings to</p>
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				<p>within the Curriculum for Excellence, and resilience partners in Safer Communities programmes. We have also developed an online tool that helps everyone share information on current flooding issues (Report-a-Flood). We have worked in partnership with local authorities, emergency services and community organisations (e.g. Neighbourhood Watch Scotland, Citizens Advice Scotland and others) to share our resources and help to promote preparedness</p>	<p>advise community groups on progress on recognised issues.</p> <p>Scottish Water are continuing to support SEPA and Local Authorities in their awareness raising activities. General awareness raising is carried out through the Scottish Water website and national advertising campaigns to increase public awareness of the implications of their actions on sewer flooding . For site specific capital projects and local studies, targeted public engagement is being carried out at a local level.</p>
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				<p>and understanding of how we manage flood risk in Scotland. We have actively supported the Scottish Flood Forum and worked closely with UK agencies to develop joint flooding information. The main focus for SEPA's Awareness Raising in Orkney has been in association with the development and Launch. Householders and developers advised of responsibilities and information sources as they contact OIC on flood related</p>	
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				<p>matters. The launch of the new SEPA flood warning system in Sept 2018 was used by OIC to raise awareness of protection measures – alongside SEPA and the Scottish Flood Forum.</p> <p>Scottish Water will support SEPA and responsible authorities with their awareness raising activities as required and provide targeted communications for Scottish Water sewer flooding programme activities.</p> <p>Scottish Water will raise awareness by producing and supplying targeted</p>	
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				information to the public on large capital projects and detailed local studies.	
Maintenance (3000020007)	G	<p>Orkney Islands Council (OIC) must from time to time (or as directed by Scottish Ministers) assess relevant bodies of water including watercourses within its area, for the purpose of ascertaining whether the condition of any such body of water gives rise to a risk of flooding of land within its area. Where such a risk is identified and where OIC considers that clearance and repair works will substantially reduce that risk, such operations will be added to a schedule of clearance and repair works which will be available for public inspection. OIC also undertake inspection and repair operations on the OIC owned surface water drainage networks.</p> <p>Scottish Water undertakes risk based inspection, maintenance and repair on the public sewer network.</p> <p>Asset owners and riparian landowners are responsible for the maintenance and management of their own assets including those which help to reduce flood risk.</p>	OIC Asset/Land Managers	Existing arrangements for watercourse inspection and clearance in place.	Review process to ensure that assessment and recording is entirely in accordance with Section 18.

Emergency Plans/Response (3000020014)	G	<p>Providing an emergency response to flooding is the responsibility of many organisations, including local authorities, the emergency services and SEPA. Effective management of an emergency response relies on emergency plans that are prepared under the Civil Contingencies Act 2004 by Category 1 and 2 Responders. The emergency response by these organisations is co-ordinated through regional and local resilience partnerships. This response may be supported by the work of voluntary organisations.</p> <p>Orkney Islands Council monitors the flood risk daily by comparing forecast tide and surge levels with land levels. This enables advanced warning of coastal flood events to be provided.</p>	Category 1 and 2 responders (OLECG)	Orkney Local Emergency Coordinating Group (OLECG) arrangements and readiness maintained.	
Planning Policy (30000100001)	G	<p>Scottish Planning Policy and accompanying Planning Advice Notes set out Scottish Ministers' priorities for the operation of the planning system and for the development and use of land. In terms of flood risk management, the policy supports a catchment-scale approach to sustainable flood risk management and aims to build the resilience of our cities and towns, encourage sustainable land management in our rural areas, and to address the long-term vulnerability of parts of our coasts and islands. Under this approach, the Flood Risk Framework of SPP should be adhered to. For further information on the application of national planning policies please visit: https://www.gov.scot/Resource/0045/00453827.pdf and specifically sections 254 through to 268.</p>	OIC – Planning Authority	<p>Preparation of advice to developers from OIC underway. Intention is that this will be a local addendum to the National Roads Development Guide.</p> <p>SEPA exercises its planning functions with a view to reducing</p>	Complete and issue advice document to developers

		<p>SEPA has a statutory role in relation to the provision of flood risk advice to planning authorities. This role is expressed in Section 72 of the FRM Act, 2009. SEPA also has a duty to co-operate with planning authorities in the preparation of development plans. When consulted in relation to planning applications for development or site allocations in development plans, and where the planning authority considers there may be a risk of flooding, SEPA will provide advice. The advice provided by SEPA will be with respect to the risk of flooding and on the basis of the relevant information it holds which is suitable for planning purposes. It will also be in line with the principles and duties set out in the FRM Act. Further information about how SEPA engages in the planning system, including guidance on flood risk and planning is available on SEPA website https://www.sepa.org.uk/environment/land/planning/</p> <p>Scottish Water is a statutory consultee within the planning legislation and is required to comment on all outline or full planning applications which are referred by a local authority.</p>		<p>overall flood risk. We effectively contribute to the delivery of sustainable flood risk management and we support the delivery of FRM Strategies and local FRM Plans. In line with the management actions that accord with national planning policies we will object to development at medium to high risk of flooding when it is contrary to the risk framework set out in Scottish Planning Policy. We will also continue to engage at the offset of the</p>	
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				development plan process and encourage planning authorities to undertake a Strategic Flood Risk Assessment to inform their spatial strategy.	
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Figure 3: Progress with LPD-wide Actions for Orkney.

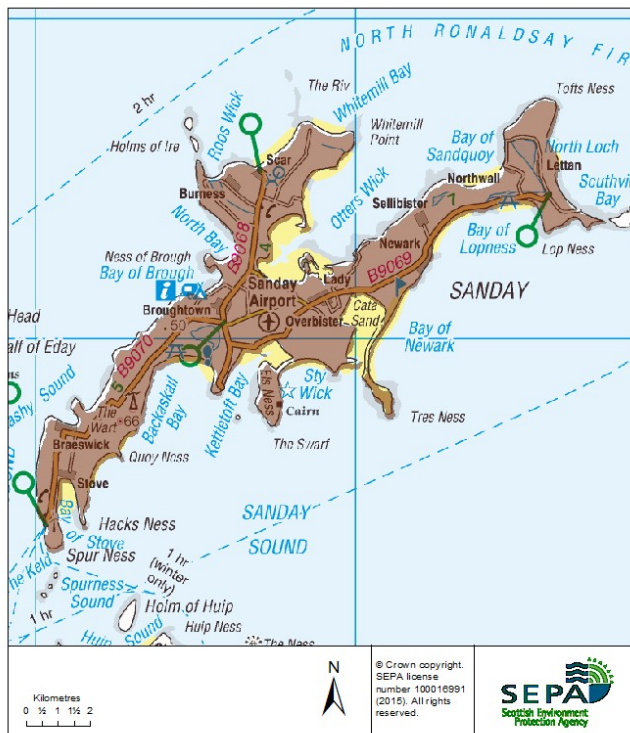
3.2. Progress with PVA-Specific Actions

This section sets out an assessment of the progress towards implementing actions that are specific to each of the 8 PVAs as shown in Figure 2. Assessments of the progress of actions within each PVA are presented.

There are no specific actions identified for 'property level protection scheme' and 'site protection plans' actions. Consideration of property level protection schemes will be included in the 'flood protection study', 'surface water plan/study' and/or 'emergency plans/response' actions. Site protection plans will be identified through these same 'study' actions and 'planning policies' action.

3.2.1. Sanday (Potentially Vulnerable Area 03/01)

Local Plan District	Local authority	Main catchment
Orkney.	Orkney Islands Council.	Sanday.



Summary of Progress for Sanday

There are approximately 60 residential properties and 20 non-residential properties at risk of flooding. The Annual Average Damages are approximately £740,000. Further information can be found in LFRMP under PVA 03/01.

The new flood warning system has been implemented and was launched in September 2018, with 3 forecast sites in Sanday at Kettletoft, Cata Sands and Quivals.

Sanday has been exposed to a number of recent events including Storm Caroline in 2017 but although road clearance operations have been needed no significant damage has been recorded in recent years.

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Reproduced from the Orkney Flood Risk Management Strategy, SEPA (December 2015).

Overview of actions to manage flooding in Sanday

PVA	Flood protections	Natural flood management	New flood warning	Flood protection study	Natural flood management	Surface water plan/study	Strategic mapping and	Maintain flood protection	Maintain flood warning	Flood forecasting	Property level protection	Community flood action	Self help	Awareness raising	Maintenance	Site protection plans	Emergency plans/response	Planning policies
03/01			G				G			G			G	G	G		G	G

Summary of progress of actions to manage flood risk in Sanday (PVA 03/01)

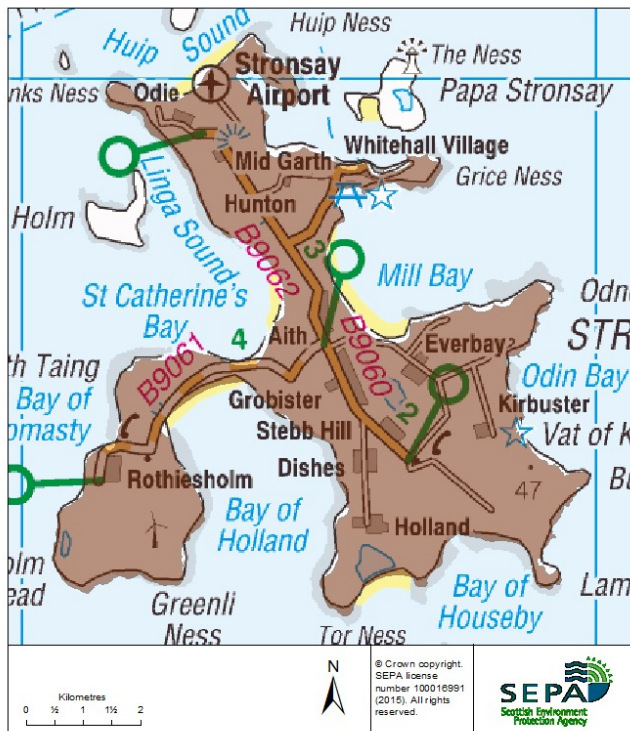
Action	Status	Description	Delivery Lead	End date	Interim progress	Planned actions to complete
New Flood Warning (3000020010)	G	The area under consideration covers the coastline of the Orkney Islands. A flood warning system will be developed and implemented. The geographical extent of specific flood warning areas will be developed as part of this process.	SEPA	2018	SEPA has completed development of a flood forecasting model for Orkney and has worked with Orkney Islands Council to develop procedures for the new flood warning service in Orkney. A new flood warning area has been introduced for Sanday.	SEPA will continue to operate the flood warning service

Strategic Mapping and Modelling (3001010016)	G	SEPA will be seeking to develop the flood hazard mapping on Sanday to improve understanding of the coastal flood risk. The extent and timing of the completed improvements will be dependent on detailed scoping and data availability.	SEPA	2019	<p>Following the establishment of a coastal flood hazard map development framework and characterisation of the coastline, several projects are currently underway at this location:</p> <ul style="list-style-type: none"> • Development of a national coastal joint probability dataset; • Update to the UK design extreme sea level dataset; • Coastal modelling and mapping project for north-east Scotland. <p>These projects will collectively enable the revision of flood mapping for the coastline from Scrabster to Arbroath including the Orkney Islands.</p>	It is planned to complete this action in 2019.
Flood Forecasting (3000020009)	G	See progress with LPD-wide actions	SEPA	On-going	See progress with LPD-wide actions	See progress with LPD-wide actions
Self Help (3000020011)	G	See progress with LPD-wide actions	Members of the public	On-going	See progress with LPD-wide actions	See progress with LPD-wide actions
Maintenance (3000020007)	G	See progress with LPD-wide actions	OIC Asset/Land Managers	On-going	See progress with LPD-wide actions	See progress with LPD-wide actions
Emergency Plans/Response (3000020014)	G	See progress with LPD-wide actions	Category 1 and 2	On-going	See progress with LPD-wide actions	See progress with LPD-wide actions

			responders (OLECG)			
Planning Policy (30000100001)	G	See progress with LPD-wide actions	Planning Authority	On-going	See progress with LPD-wide actions	See progress with LPD-wide actions
Awareness Raising (3000020013)	G	See progress with LPD-wide actions	Responsible Authorities	On-going	See progress with LPD-wide actions	See progress with LPD-wide actions

3.2.2. Stronsay (Potentially Vulnerable Area 03/02)

Local Plan District	Local authority	Main catchment
Orkney.	Orkney Islands Council.	Stronsay coastal.



Summary of Progress for Stronsay

There are approximately 40 residential properties and 10 non-residential properties at risk of flooding. The Annual Average Damages are approximately £250,000. Further information can be found in LFRMP under PVA 03/02.

The new flood warning system was completed by SEPA and launched in September 2018. At a launch event in Stronsay in October, OIC joined SEPA in promoting Floodline and raising awareness more generally. OIC used the event to gather information and make contact with affected residents and businesses prior to preparation of the flood study which is now scheduled for the first quarter of 2019.

Stronsay has been exposed to a number of significant recent weather events. Most notable of these was Storm Caroline in December 2017 when coastal flooding occurred in Whitehall when a large tidal surge and gales led to sections of the seawall in the village being destroyed and damage to a community building at the pier.

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Overview of actions to manage flooding in Stronsay

PVA	Flood protections	Natural flood management	New flood warning	Flood protection study	Natural flood management	Surface water plan/study	Strategic mapping and	Maintain flood protection	Maintain flood warning	Flood forecasting	Property level protection	Community flood action	Self help	Awareness raising	Maintenance	Site protection plans	Emergency plans/response	Planning policies
03/02			G	A						G			G	G	G		G	G

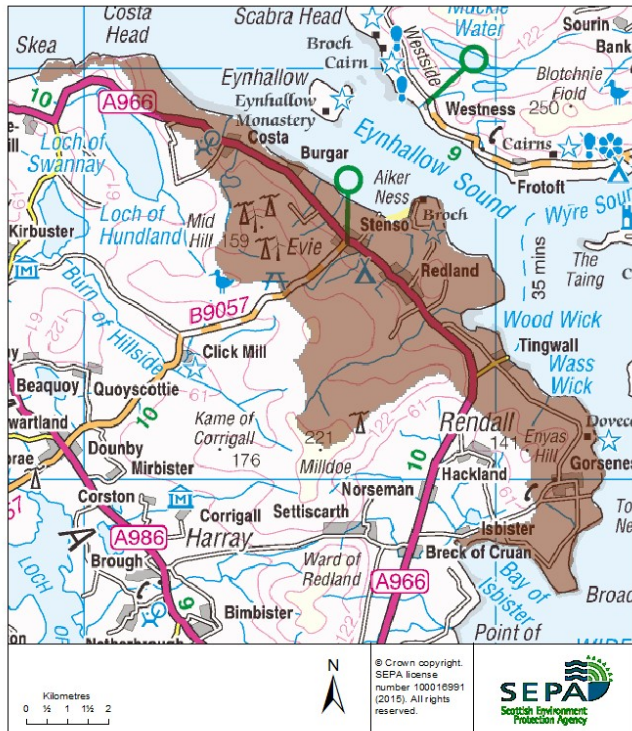
Summary of progress of actions to manage flood risk in Stronsay (PVA 03/02)

Action	Status	Description	Delivery Lead	End date	Interim progress	Planned actions to complete
New flood warning (3000020010)	G	The area under consideration covers the coastline of the Orkney Islands. A flood warning system will be developed and implemented. The geographical extent of specific flood warning areas will be developed as part of this process.	SEPA	2018	SEPA has completed development of a flood forecasting model for Orkney and has worked with Orkney Islands Council to develop procedures for the new flood warning service in Orkney. A new flood warning area has been introduced for Stronsay.	SEPA will continue to operate the flood warning service
Flood Protection Study (3002010005)	A	A flood protection study is required to consider flood protection works for Whitehall. The study should primarily focus on coastal management actions,	OIC	2018	Study delayed. Now scheduled for the first quarter of 2019.	Undertake study in 2019

		direct defences and property level protection, but other actions may also be considered in order to develop the most sustainable range of options. The investigation will assess the impact from wave overtopping to confirm the existing risk and define the height and extent of flood protection works required.				
Flood Forecasting (3000020009)	G	See progress with LPD-wide actions.	SEPA	On-going	See progress with LPD-wide actions	See progress with LPD-wide actions.
Self Help (3000020011)	G	See progress with LPD-wide actions	Members of the public	On-going	See progress with LPD-wide actions	See progress with LPD-wide actions.
Maintenance (3000020007)	G	See progress with LPD-wide actions	OIC Asset/Land Managers	On-going	See progress with LPD-wide actions	See progress with LPD-wide actions.
Emergency Plans/Response (3000020014)	G	See progress with LPD-wide actions	Category 1 and 2 responders (OLECG)	On-going	See progress with LPD-wide actions	See progress with LPD-wide actions.
Planning Policy (30000100001)	G	See progress with LPD-wide actions	Planning Authority	On-going	See progress with LPD-wide actions	See progress with LPD-wide actions.
Awareness Raising (3000020013)	G	See progress with LPD-wide actions	Responsible Authorities	On-going	See progress with LPD-wide actions	See progress with LPD-wide actions.

3.2.3. Rendall and Evie (Potentially Vulnerable Area 03/03)

Local Plan District	Local authority	Main catchment
Orkney.	Orkney Islands Council.	Orkney Coastal.



Summary of Progress for Rendall and Evie

There are less than 10 residential properties at risk of flooding. The Annual Average Damages are approximately £14,000. Further information can be found in LFRMP under PVA 03/03.

The new coastal flooding modelling and new flood warning system for Orkney have been completed and are now operational.

SEPA's planned improvements to surface water hazard mapping for this PVA will not be delivered within Cycle 1 due to significant changes in the requirements nationally. Improved surface water hazard mapping will now be delivered in Cycle 2.

There have been incidents of surface water flooding to roads and externally to residential properties in recent years. The most notable of these events was in August 2016.

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Overview of actions to manage flooding in Rendall and Evie

PVA	Flood protections	Natural flood management	New flood warning	Flood protection study	Natural flood management	Surface water plan/study	Strategic mapping and	Maintain flood protection	Maintain flood warning	Flood forecasting	Property level protection	Community flood action	Self help	Awareness raising	Maintenance	Site protection plans	Emergency plans/response	Planning policies
03/03			G				R			G			G	G	G		G	G

Summary of progress of actions to manage flood risk in Rendall & Evie (PVA 03/03)

Action	Status	Description	Delivery Lead	End date	Interim progress	Planned actions to complete
New Flood Warning (3000020010)	G	The area under consideration covers the coastline of the Orkney Islands. A flood warning system will be developed and implemented. The geographical extent of specific flood warning areas will be developed as part of this process.	SEPA	2018	SEPA has completed development of a flood forecasting model for Orkney and has worked with Orkney Islands Council to develop procedures for the new flood warning service in Orkney.	SEPA will continue to operate the flood warning service
Strategic Mapping and Modelling (3001010016)	R	SEPA will be seeking to incorporate additional surface water hazard mapping information into the flood maps to improve understanding of flood risk. Approximately 200km ² of improved data is	SEPA	2019	SEPA's current surface water hazard maps use design rainfall estimates based on FEH99 methodology, this has now been superseded by FEH13 methodology. The FEH13 dataset contains	This action will not be taken forwards as described. SEPA will develop new surface water flood hazard maps over the remainder of Cycle 1. It is anticipated that updated flood

		currently available within this Local Plan District . SEPA will be seeking to develop the flood hazard mapping in this PVA to improve understanding of the coastal flood risk. The extent and timing of the completed improvements will be dependent on detailed scoping and data availability.			the latest science and understanding of rainfall across Scotland and represents a significant change in rainfall amounts compared to FEH99 dataset. Ass such it is no longer considered appropriate to deliver this action as originally intended.	mapping from this revised action will be available early in Cycle 2. Alongside this SEPA will investigate the feasibility of developing an interim approach to assess the change in Surface water hazard (and risk) associated with FEH13, such that we could consider it in the development of the 2021 FRM Strategies.
Flood Forecasting (3000020009)	G	See progress with LPD-wide actions.	SEPA	On-going	See progress with LPD-wide actions.	See progress with LPD-wide actions.
Self Help (3000020011)	G	See progress with LPD-wide actions.	Members of the public	On-going	See progress with LPD-wide actions.	See progress with LPD-wide actions.
Maintenance 3000020007)	G	See progress with LPD-wide actions.	OIC Asset/Land Managers	On-going	See progress with LPD-wide actions.	See progress with LPD-wide actions.
Emergency Plans/Response (3000020014)	G	See progress with LPD-wide actions.	Category 1 and 2 responders (OLECG)	On-going	See progress with LPD-wide actions.	See progress with LPD-wide actions.
Planning Policy (30000100001)	G	See progress with LPD-wide actions.	Planning Authority	On-going	See progress with LPD-wide actions.	See progress with LPD-wide actions.
Awareness Raising (3000020013)	G	See progress with LPD-wide actions.	Responsible Authorities	On-going	See progress with LPD-wide actions.	See progress with LPD-wide actions.

3.2.4. Stromness, Stenness and Sandwick (Potentially Vulnerable Area 03/04)

Local Plan District	Local authority	Main catchment
Orkney	Orkney Islands Council	Loch of Stenness, Orkney Coastal



Summary of Progress for Stromness, Stenness and Sandwick

There are approximately 90 residential properties and 40 non-residential properties at risk of flooding. The Annual Average Damages are approximately £220,000. Further information can be found in LFRMP under PVA 03/04.

The new SEPA coastal flooding modelling and new flood warning system for Orkney have been completed and are now operational with a forecast point in Stromness.

SEPA's planned improvements to surface water hazard mapping for this PVA will not be delivered within Cycle 1 due to significant changes in the requirements nationally. Improved surface water hazard mapping will now be delivered in Cycle 2.

Scottish Water will commence work on the Section 16 drainage model for Stromness in early 2019. This is on track to be delivered by the end of 2019.

There have been no reports of significant coastal flooding within this PVA in recent years. The most notable flooding recorded recently is surface water flooding to roads and externally to residential properties in Stenness in August 2016.

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Overview of actions to manage flooding in Stromness, Stenness and Sandwick

PVA	Flood protections	Natural flood management	New flood warning	Flood protection study	Natural flood management	Surface water plan/study	Strategic mapping and	Strategic Mapping and	Maintain flood warning	Flood forecasting	Property level protection	Community flood action	Self help	Awareness raising	Maintenance	Site protection plans	Emergency plans/response	Planning policies
03/04			G				R	G		G			G	G	G		G	G

Summary of progress of actions to manage flood risk in Stromness, Stenness and Sandwick (PVA 03/04)

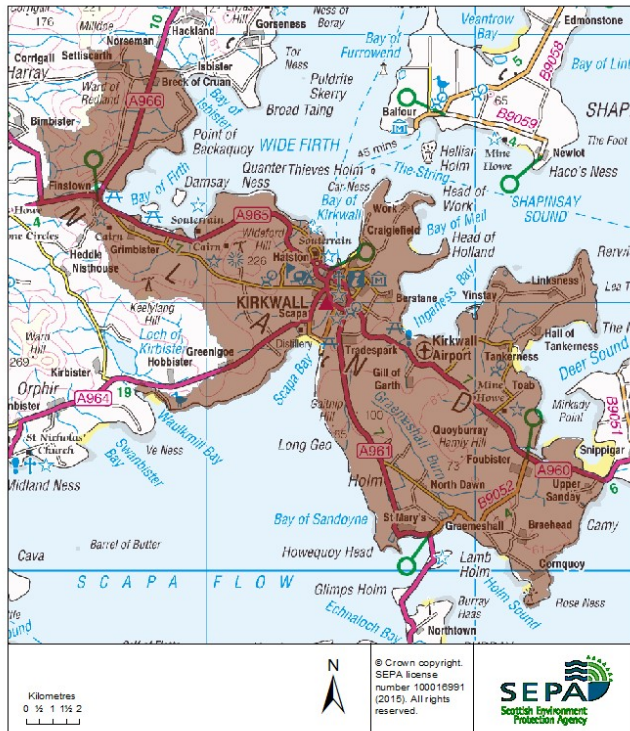
Action	Status	Description	Delivery Lead	End date	Interim progress	Planned actions to complete
New Flood Warning (3000020010)	G	The area under consideration covers the coastline of the Orkney Islands. A flood warning system will be developed and implemented. The geographical extent of specific flood warning areas will be developed as part of this process.	SEPA	2018	SEPA has completed development of a flood forecasting model for Orkney and has worked with Orkney Islands Council to develop procedures for the new flood warning service in Orkney. A new flood warning area has been introduced for Stromness.	SEPA will continue to operate the flood warning service.
Strategic Mapping and Modelling (3001010016)	R	SEPA will be seeking to incorporate additional surface water hazard	SEPA	2019	SEPA's current Surface water hazard maps use design rainfall estimates based on FEH99	This action will not be taken forwards as described. SEPA will develop new Surface

		<p>mapping information into the flood maps to improve understanding of flood risk. Approximately 200km² of improved data is currently available within this Local Plan District.</p> <p>SEPA will be seeking to develop the flood hazard mapping in the Orkney Mainland area to improve understanding of the coastal flood risk. The extent and timing of the completed improvements will be dependent on detailed scoping and data availability.</p>			<p>methodology, this has now been superseded by FEH13 methodology. The FEH13 dataset contains the latest science and understanding of rainfall across Scotland and represents a significant change in rainfall amounts compared to FEH99 dataset. s such it is no longer considered appropriate to deliver this action as originally intended.</p>	<p>water flood hazard maps over the remainder of Cycle 1. It is anticipated that updated flood mapping from this revised action will be available early in Cycle 2.</p> <p>Alongside this SEPA will investigate the feasibility of developing an interim approach to assess the change in Surface water hazard (and risk) associated with FEH13, such that we could consider it in the development of the 2021 FRM Strategies.</p>
Strategic Mapping and Modelling (3001010016)	G	<p>Scottish Water will undertake further investigation and modelling in the Stromness sewer catchment to improve knowledge and understanding of flood risk in this area as required under Section 16 of the Flood Risk Management (Scotland) Act 2009.</p>	Scottish Water	2019	Not Started	On track to deliver within agreed LFRMP timescales
Flood Forecasting (3000020009)	G	See progress with LPD-wide actions.	SEPA	On-going	See progress with LPD-wide actions.	See progress with LPD-wide actions.
Self Help (3000020011)	G	See progress with LPD-wide actions.	Members of the public	On-going	See progress with LPD-wide actions.	See progress with LPD-wide actions.

Maintenance (3000020007)	G	See progress with LPD-wide actions.	OIC Asset/Land Managers	On-going	See progress with LPD-wide actions.	See progress with LPD-wide actions.
Emergency Plans/Response (3000020014)	G	See progress with LPD-wide actions.	Category 1 and 2 responders (OLECG)	On-going	See progress with LPD-wide actions.	See progress with LPD-wide actions.
Planning Policy (30000100001)	G	See progress with LPD-wide actions.	Planning Authority	On-going	See progress with LPD-wide actions.	See progress with LPD-wide actions.
Awareness Raising (3000020013)	G	See progress with LPD-wide actions.	Responsible Authorities	On-going	See progress with LPD-wide actions.	See progress with LPD-wide actions.

3.2.5. Kirkwall, Firth and East Mainland (Potentially Vulnerable Area 03/05)

Local Plan District	Local authority	Main catchment
Orkney.	Orkney Islands Council.	Orkney Coastal.



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Summary of Progress for Kirkwall, Firth and East Mainland

There are approximately 490 residential properties and 460 non-residential properties identified as at risk of flooding in the LFRMP. The Annual Average Damages are approximately £2,500.00. Further information can be found in LFRMP under PVA 03/05.

The Kirkwall Harbour Flood Protection Scheme was completed during 2018 and provides protection to over 430 residential and 320 non-residential properties in Kirkwall.

The flood protection study for St Marys has not yet started but remains scheduled for completion during 2019.

The Kirkwall Surface Water Management Plan is scheduled to be carried out during the first quarter of 2019 informed by the Section 16 modelling work carried out by Scottish Water.

SEPA's new flood warning for Orkney is complete and operational and provides forecasts for 2 locations in Kirkwall.

The most significant coastal flooding since the publication of the LFRMP was during Storm Caroline in December 2017 when roads in St Mary's and at Scapa Bay were closed due to coastal flooding. Surface water flooding occurred in low-lying parts of Kirkwall during June and September 2016.

Overview of actions to manage flooding in Kirkwall, Firth and East Mainland

PVA	Flood protections	Natural flood management	New flood warning	Flood protection study	Natural flood management	Surface water plan/study	Strategic mapping and	Strategic mapping and	Maintain flood warning	Flood forecasting	Property level protection	Community flood action	Self help	Awareness raising	Maintenance	Site protection plans	Emergency plans/response	Planning policies
03/05	G		G	G		A	G	G		G			G	G	G		G	G

Summary of progress of actions to manage flood risk in Kirkwall, Firth and East Mainland (PVA 03/05)

Action	Status	Description	Delivery Lead	End date	Interim progress	Planned actions to complete
Flood Protection Scheme (3005010006)	G	A flood protection scheme is under development for the perimeter of the harbour in Kirkwall. The scheme will complement existing defences to reduce the flood risk in Kirkwall. The scheme includes the construction of direct defences including walls, gates and associated street works and is being designed to a 1 in 200 year standard of protection including an allowance for climate change and wave action.	OIC	2018	Kirkwall Harbour Flood Protection Scheme, is complete and provides protection to over 430 residential and 320 non-residential properties in central and low-lying areas of Kirkwall from coastal flooding risk to a 1 in 200 year standard including climate change.	Completed and operational

Flood Protection Study (3005020005)	G	A flood protection study is required to consider flood protection works for St Mary's. The study should primarily focus on coastal management actions, direct defences and property level protection, but other actions may also be considered in order to develop the most sustainable range of options. As localised defences may only be required the investigation should define the height and extent of the works.	OIC	2019	Not yet started	Study to be completed during 2019
Surface Water Plan/Study (3005060018)	A	Kirkwall will be covered by a surface water management plan (SWMP) or plans that set objectives for the management of surface water flood risk and identify the most sustainable actions to achieve the objectives. Scottish Water will provide local knowledge and understanding of the sewer network. This includes Scottish Water data (as applicable) and, where available, outputs of drainage assessments, to assist with the surface water management planning process.	OIC	2019	Cleaning and CCTV surveys of the surface water system in recognised problem areas has been carried out.	Study to be carried out during the first half of 2019

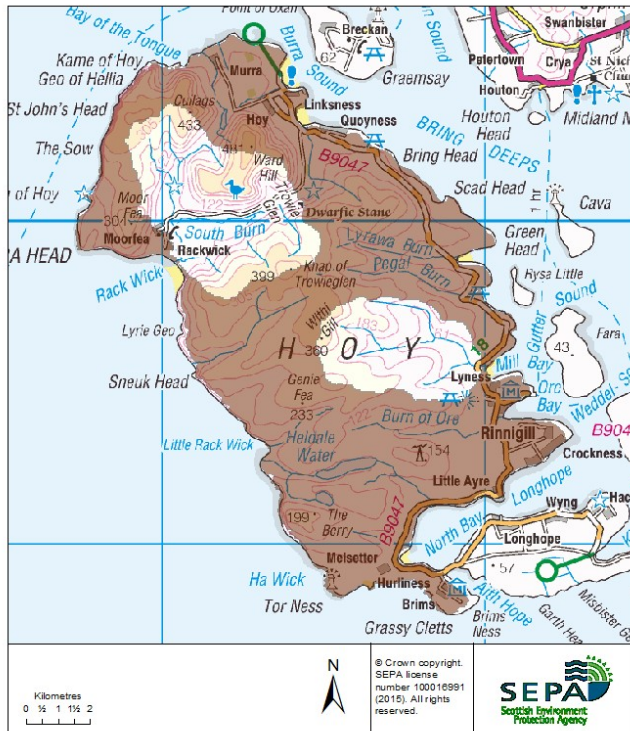
		<p>Actions identified within the plan will be implemented following publication of the SWMP for Kirkwall. However, where opportunity arises, actions identified to meet the objectives as part of the study will be implemented as and when required, including prior to publication of the SWMP.</p>				
New Flood Warning (3000020010)	G	<p>The area under consideration covers the coastline of the Orkney Islands. A flood warning system will be developed and implemented. The geographical extent of specific flood warning areas will be developed as part of this process.</p>	SEPA	2018	<p>SEPA has completed development of a flood forecasting model for Orkney and has worked with Orkney Islands Council to develop procedures for the new flood warning service in Orkney. A new flood warning area has been introduced for Kirkwall.</p>	SEPA will continue to operate the flood warning service
Strategic Mapping and Modelling (30020010)	G	<p>SEPA will be seeking to develop the flood hazard mapping in the Orkney Mainland area to improve understanding of the coastal flood risk. The extent and timing of the completed improvements will be dependent on detailed scoping and data availability. Where this work</p>	SEPA	2019	<p>Following the establishment of a coastal flood hazard map development framework and characterisation of the coastline, several projects are currently underway at this location:</p> <ul style="list-style-type: none"> • Development of a national coastal joint probability dataset; 	It is planned to complete this action in 2019.

		coincides with local authority studies, SEPA will work collaboratively to ensure consistent modelling approaches are applied.			<ul style="list-style-type: none"> • Update to the UK design extreme sea level dataset; • Coastal modelling and mapping project for north-east Scotland. <p>These projects will collectively enable the revision of flood mapping for the coastline from Scrabster to Arbroath including the Orkney Islands.</p>	
Strategic Mapping and Modelling (30020010)	G	Scottish Water will undertake further investigation and modelling in the Kirkwall sewer catchment to improve knowledge and understanding of flood risk in this area as required under Section 16 of the Flood Risk Management (Scotland) Act 2009.	Scottish Water	2019	Section 16 modelling completed at end of Nov 2018 and assessments to be completed Jan/Feb 2019 scheduled.	Assessments scheduled to be completed in January or February 2019.
Flood Forecasting (3000020009)	G	See progress with LPD-wide actions.	SEPA	On-going	See progress with LPD-wide actions.	See progress with LPD-wide actions.
Self Help (3000020011)	G	See progress with LPD-wide actions.	Members of the public	On-going	See progress with LPD-wide actions.	See progress with LPD-wide actions.
Maintenance (3000020007)	G	See progress with LPD-wide actions.	OIC Asset/Land Managers	On-going	See progress with LPD-wide actions.	See progress with LPD-wide actions.

Emergency Plans/Response (3000020014)	G	See progress with LPD-wide actions.	Category 1 and 2 responders (OLECG)	On-going	See progress with LPD-wide actions.	See progress with LPD-wide actions.
Planning Policy (30000100001)	G	See progress with LPD-wide actions.	Planning Authority	On-going	See progress with LPD-wide actions.	See progress with LPD-wide actions.
Awareness Raising (3000020013)	G	See progress with LPD-wide actions.	Responsible Authorities	On-going	See progress with LPD-wide actions.	See progress with LPD-wide actions.

3.2.6. Hoy (Potentially Vulnerable Area 03/06)

Local Plan District	Local authority	Main catchment
Orkney	Orkney Islands Council	Hoy Coastal



Summary of Progress for Hoy

There are fewer than 10 residential and non-residential properties at risk of flooding. The Annual Average Damages are estimated to be £28,000 with the majority attributed to coastal flooding.

Further information can be found in LFRMP under PVA 03/06.

The new SEPA flood warning system for Orkney, with forecast sites on the B9047 at the Ayre between North and South Walls and at Myre Bay on South Walls is complete and operational.

The flood study for the B9047 at the Ayre is due to be carried out in year 5 (2020/2021) of the LFRMP.

Since the publication of the LFRMP in 2016 damage due to coastal flooding has been recorded at both The Ayre and at Myre Bay (Storm Caroline – December 2017).

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Overview of actions to manage flooding in Hoy

PVA	Flood protections	Natural flood management	New flood warning	Flood protection study	Natural flood management	Surface water plan/study	Strategic mapping and	Maintain flood protection	Maintain flood warning	Flood forecasting	Property level protection	Community flood action	Self help	Awareness raising	Maintenance	Site protection plans	Emergency plans/response	Planning policies
03/06			G	G						G			G	G	G		G	G

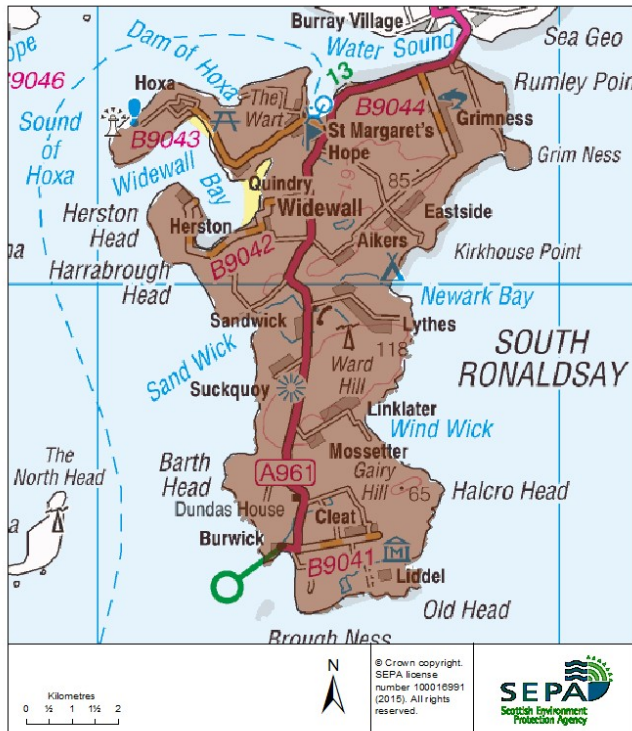
Summary of progress of actions to manage flood risk in Hoy (PVA 03/06)

Action	Status	Description	Delivery Lead	End date	Interim progress	Planned actions to complete
Flood Protection Study (3006010005)	G	A flood protection study for the causeway is required to investigate the most suitable action for long term maintenance of the road. The study should primarily focus on coastal management actions to strengthen the existing road or actions to raise the height of the existing road, but other actions may also be considered in order to develop the most sustainable range of actions.	OIC	2021	Not started	Carry out study as scheduled
New Flood Warning (3000020010)	G	The area under consideration covers the coastline of the Orkney	SEPA	2018	SEPA has completed development of a flood forecasting model for	SEPA will continue to operate the flood warning service

		Islands. A flood warning system will be developed and implemented. The geographical extent of specific flood warning areas will be developed as part of this process.			Orkney and has worked with Orkney Islands Council to develop procedures for the new flood warning service in Orkney.	
Flood Forecasting (3000020009)	G	See progress with LPD-wide actions.	SEPA	On-going	See progress with LPD-wide actions.	See progress with LPD-wide actions.
Self Help (3000020011)	G	See progress with LPD-wide actions.	Members of the public	On-going	See progress with LPD-wide actions.	See progress with LPD-wide actions.
Maintenance (300020007)	G	See progress with LPD-wide actions.	OIC Asset/Land Managers	On-going	See progress with LPD-wide actions.	See progress with LPD-wide actions.
Emergency Plans/Response (3000020014)	G	See progress with LPD-wide actions.	Category 1 and 2 responders (OLECG)	On-going	See progress with LPD-wide actions.	See progress with LPD-wide actions.
Planning Policy (30000100001)	G	See progress with LPD-wide actions.	Planning Authority	On-going	See progress with LPD-wide actions.	See progress with LPD-wide actions.
Awareness Raising (3000020013)	G	See progress with LPD-wide actions.	Responsible Authorities	On-going	See progress with LPD-wide actions.	See progress with LPD-wide actions.

3.2.7. South Ronaldsay (Potentially Vulnerable Area 03/07c)

Local Plan District	Local authority	Main catchment
Orkney.	Orkney Islands Council.	Orkney Coastal.



Summary of Progress for South Ronaldsay

There are approximately 50 residential and fewer than 10 non-residential properties at risk of flooding. The Annual Average Damages are estimated to be £85,000 with nearly all caused by coastal flooding. Further information can be found in LFRMP under PVA 03/07c.

The Flood Protection Study for St Margaret's Hope has been produced and is currently in draft form. This is to be reviewed in the light of the new national coastal joint probability data set and revised UK extreme sea level data when these become available. It is expected that the review will be carried out and the study completed within the first quarter of 2019.

The development of the new SEPA flood forecasting model for Orkney has been completed and the system is operational. The public launch of the new system in St Margaret's Hope in September 2018 was used by SEPA, OIC and the Scottish Flood Forum to raise awareness of flood risk, responsibilities and mitigation measures.

Since the publication of the LFRMP in 2016 the flood-stops and quantities of sand bags have been deployed in St Margaret's Hope when overtopping has been forecast in the village. The most notable flooding in this period occurred in December 2017 (Storm Caroline) when an unexpectedly large tidal surge led to flooding of streets and externally to properties.

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Overview of actions to manage flooding in South Ronaldsay

PVA	Flood protections	Natural flood management	New flood warning	Flood protection study	Flood protection study	Surface water plan/study	Strategic mapping and	Maintain flood protection	Maintain flood warning	Flood forecasting	Property level protection	Community flood action	Self help	Awareness raising	Maintenance	Site protection plans	Emergency plans/response	Planning policies
03/07c			G	A	G					G			G	G	G		G	G

Summary of progress of actions to manage flood risk in South Ronaldsay (PVA 03/07c)

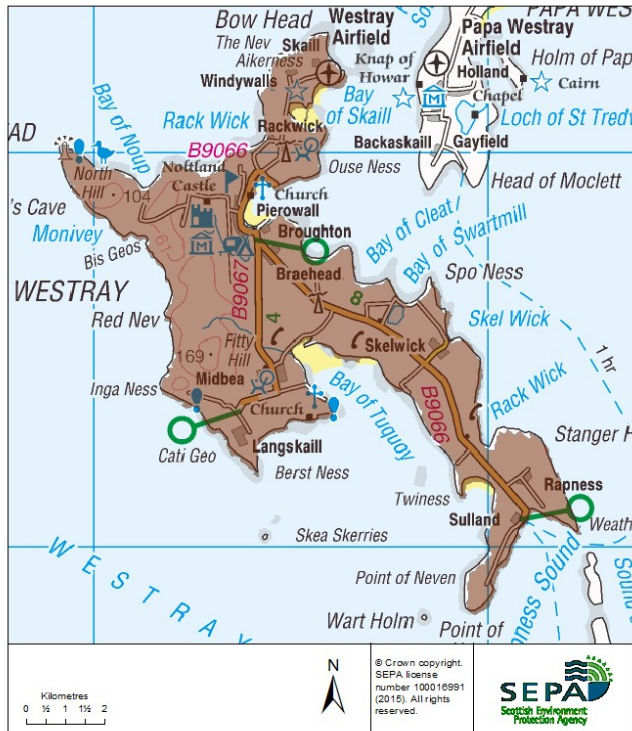
Action	Status	Description	Delivery Lead	End date	Interim progress	Planned actions to complete
New Flood Warning (3000020010)	G	The area under consideration covers the coastline of the Orkney Islands. A flood warning system will be developed and implemented. The geographical extent of specific flood warning areas will be developed as part of this process.	SEPA	2018	SEPA has completed development of a flood forecasting model for Orkney and has worked with Orkney Islands Council to develop procedures for the new flood warning service in Orkney.	SEPA will continue to operate the flood warning service

Flood Protection Study (3007010005)	A	A flood protection study is required to consider flood protection works for St Margaret's Hope. The study should primarily focus on coastal management actions, direct defences and property level protection, but other actions may also be considered in order to develop the most sustainable range of options. The investigation will assess the impact from wave overtopping to confirm the existing risk and define the height and extent of flood protection works required.	OIC	2017	Draft study prepared. To be issued to SEPA for comment.	Complete document incorporating comment and, if possible, new coastal joint probability data and extreme sea level data. Carry out consultation prior to recommending solutions.
Flood Protection Study (3007010005)	G	A flood protection study is progressing to reduce flooding to Churchill Barrier number 2 from high likelihood floods. The study is primarily focusing on coastal management actions and natural flood management through wave attenuation to minimise the impact of waves, but other actions may also be considered in order to develop the most sustainable range of options.	OIC	2022	The 2015 technical study into wave overtopping and the tidal energy potential at Churchill Barrier 2 identified technical solutions and potential for tidal energy generation. The possible tidal energy option remains open but discussions with possible developers have ended.	Data from the 2015 study in wave overtopping to form the basis of a Flood Study for the Churchill Barriers.
Flood Forecasting (3000020009)	G	See progress with LPD-wide actions.	SEPA	On-going	See progress with LPD-wide actions.	See progress with LPD-wide actions.

Self Help (3000020011)	G	See progress with LPD-wide actions.	Members of the public	On-going	See progress with LPD-wide actions.	See progress with LPD-wide actions.
Maintenance (3000020007)	G	See progress with LPD-wide actions.	OIC Asset/Land Managers	On-going	See progress with LPD-wide actions.	See progress with LPD-wide actions.
Emergency Plans/Response (3000020014)	G	See progress with LPD-wide actions.	Category 1 and 2 responders (OLECG)	On-going	See progress with LPD-wide actions.	See progress with LPD-wide actions.
Planning Policy (30000100001)	G	See progress with LPD-wide actions.	Planning Authority	On-going	See progress with LPD-wide actions.	See progress with LPD-wide actions.
Awareness Raising (3000020013)	G	See progress with LPD-wide actions.	Responsible Authorities	On-going	See progress with LPD-wide actions.	See progress with LPD-wide actions.

3.2.8. Westray (Potentially Vulnerable Area 03/08c)

Local Plan District	Local authority	Main catchment
Orkney.	Orkney Islands Council.	Orkney Coastal.



Summary of Progress for Westray

There are approximately 40 residential and 20 non-residential properties at risk of flooding. The Annual Average Damages are estimated to be £90,000 with the majority caused by coastal flooding.

Further information can be found in LFRMP under PVA 03/08c.

Development of the new SEPA flood warning system for Orkney is complete and the system is operational. The launch of the new system in Pierowall on 18 October 2018 was also used by SEPA to raise awareness of flood risk, responsibilities and mitigation measures.

In the time since the publication of the Orkney LFRMP in 2016 there have been no significant flooding incidents reported – although there has been minor coastal flooding to roads at Pierowall and Tuquoy.

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Overview of actions to manage flooding in Westray

PVA	Flood protections	Natural flood management	New flood warning	Flood protection study	Natural flood management	Surface water plan/study	Strategic mapping and	Maintain flood protection	Maintain flood warning	Flood forecasting	Property level protection	Community flood action	Self help	Awareness raising	Maintenance	Site protection plans	Emergency plans/response	Planning policies
03/08c			G	G						G			G	G	G		G	G

Summary of progress of actions to manage flood risk in Westray (PVA 03/08c)

Action	Status	Description	Delivery Lead	End date	Interim progress	Planned actions to complete
New Flood Warning (3000020010)	G	The area under consideration covers the coastline of the Orkney Islands. A flood warning system will be developed and implemented. The geographical extent of specific flood warning areas will be developed as part of this process.	SEPA	2018	SEPA has completed development of a flood forecasting model for Orkney and has worked with Orkney Islands Council to develop procedures for the new flood warning service in Orkney. A new flood warning area has been introduced for Westray.	SEPA will continue to operate the flood warning service
Flood Protection Study (3008010010)	G	A flood protection study is required to consider flood protection works for Pierowall. The study should	OIC	2020	Not started.	Scheduled to be completed within the 2019/2020 delivery period.

		primarily focus on coastal management actions, direct defences and property level protection, but other actions may also be considered in order to develop the most sustainable range of options. The investigation will assess the impact from wave overtopping to confirm the existing risk and define the height and extent of flood protection works.				
Flood Forecasting (3000020009)	G	See progress with LPD-wide actions.	SEPA	On-going	See progress with LPD-wide actions.	See progress with LPD-wide actions.
Self Help (3000020011)	G	See progress with LPD-wide actions.	Members of the public	On-going	See progress with LPD-wide actions.	See progress with LPD-wide actions.
Maintenance (300020007)	G	See progress with LPD-wide actions.	OIC Asset/Land Managers	On-going	See progress with LPD-wide actions.	See progress with LPD-wide actions.
Emergency Plans/Response (3000020014)	G	See progress with LPD-wide actions.	Category 1 and 2 responders (OLECG)	On-going	See progress with LPD-wide actions.	See progress with LPD-wide actions.
Planning Policy (300001000001)	G	See progress with LPD-wide actions.	Planning Authority	On-going	See progress with LPD-wide actions.	See progress with LPD-wide actions.
Awareness Raising (3000020013)	G	See progress with LPD-wide actions.	Responsible Authorities	On-going	See progress with LPD-wide actions.	See progress with LPD-wide actions.

3.3. Other actions

This section sets out details of additional significant actions undertaken in the LPD by local authorities to contribute to the implementation of the current actions in the plan and the achievement of the objectives in the plan.

- Report on recurrent surface water flooding to a domestic property and the A966 in Evie – aim of reducing the overall flood risk (Section 56 of the Act and Objective ID 3000002 of the Orkney LFRMP).
- OIC works to implement a solution to recurrent surface water flooding to a property to the south East of Kirkwall (Section 56 of the Act and Objective ID 3000002 of the Orkney LFRMP)
- Routine, and reactive during storm events, screen and watercourse clearance activities.

List of Acronyms and Abbreviations

Acronym / Abbreviation	Full Description
FRM.	Flood Risk Management.
ICS.	Integrated Catchment Study.
LFRMP.	Local Flood Risk Management Plan.
LPD.	Local Plan District.
NFM.	Natural Flood Management.
PVA.	Potentially Vulnerable Area.
Q&S.	Quality & Standards (Scottish Water).
SEPA.	Scottish Environment Protection Agency.
SR10/15.	Spending Review periods for 2010-2015 and 2016-2021 for Scottish Water capital maintenance expenditure.
SWMP.	Surface Water Management Planning.
TEAMB.	Tay Estuary and Montrose Basin.

Annex 1: FRM Responsibilities and Legal Requirement for this Interim Report

Flood risk management in Scotland

The Scottish Ministers, SEPA and responsible authorities must exercise their flood risk related functions with a view to reducing overall flood risk (reference Section 1(1) of the Flood Risk Management (Scotland) Act 2009).

Through the preparation of a national flood risk assessment and setting of objectives to reduce the level of flood risk by SEPA, which is published in Flood Risk Management Strategy, and the publication of Local Flood Risk Management Plan's by 'lead' local authorities, which detail how and when the actions agreed to meet these objectives are to be done, SEPA and all responsible authorities must act to manage flood risk in a sustainable way.

Flood Risk Management Strategy for Orkney

<http://apps.sepa.org.uk/FRMStrategies/orkney.html>

Local Flood Risk Management Plan for Orkney

http://www.orkney.gov.uk/Files/Planning/Flooding/Orkney_LFRMP_Accessible.pdf

Legal requirement

This document sets out the conclusions of the review of the Local Flood Risk Management Plan (LFRMP) for the Orkney Local Plan District (LPD) as required by Section 37 of the Flood Risk Management (Scotland) Act 2009 (the "Act").

37 Local flood risk management plans: interim report

- (1) Not earlier than 2 years and not later than 3 years after a local flood risk management plan is finalised, the lead authority must:
- (a) review the plan, and
 - (b) publish a report on the conclusions of the review including information on the progress that has been made towards implementing the measures identified in the implementation part of the plan.
- (2) The lead authority must make copies of the report available for public inspection.

The Orkney LFRMP, which includes the 'implementation part of the plan', was published in June 2016. The Interim Report is therefore to be published between July 2018 and June 2019. The Interim Report will provide a summary of the LFRMP actions ('measures') and the proposed delivery timescales.

The information on progress will include:

- an assessment of the progress towards implementing each of the actions;
- reasons for any actions where delivery is not as planned; and
- a description of arrangements planned to deliver the remaining actions and to address delayed actions.

The Interim Report is published by the 'lead authority' as defined by Section 34(9) of the Act in partnership with SEPA and the 'responsible authorities', as defined by Section 5 of the Act, will

be in the LPD. The approval of the Interim Report will be in accordance with the agreed governance arrangements in the LPD. The responsible authorities for the Orkney LPD are:

- Orkney Islands Council (Lead Authority)
- Scottish Water.

The lead authority must also publish a Final Report on the LFRMP under Section 38 of the Act between July 2021 and June 2022 (not earlier than 5 years and not later than 6 years from the publication of the plan). The Final Report will provide an assessment of current actions and a summary of current actions not implemented, with reasons for their non-implementation. The Final Report will also include a description of any other measures implemented, which the lead authority considers have contributed to the achievement of the objectives summarised in the LFRMP.

Publication

The published Interim Report for the Orkney LFRMP will be made available for public inspection, as per Section 37(2) of the Act, via the website of Orkney Islands Council:

<http://www.orkney.gov.uk>; search for “Interim Report LFRMP”.

Links to the published Interim Report for the Orkney LFRMP will also be provided from Scottish Government, SEPA and other responsible authority websites.

A hard (paper) copy of the published Interim Report for the Orkney LFRMP is also available for public inspection on weekdays between 9am and 5pm at the following location(s):

Orkney Islands Council, Council Offices, School Place, Kirkwall. KW15 1NY

Copies of the published Interim Report for the Orkney LFRMP may also be available at offices of other responsible authorities. It is advised that the responsible authority be contacted to make such arrangements.

Annex 2: Licensing acknowledgments

The information described in this Annex relates to the Figures and Maps that have been generated by SEPA and have been reproduced in this Local Flood Risk Management Plan from the Orkney Flood Risk Management Strategy. The Orkney Local Plan District Partners gratefully acknowledge the cooperation and input that various parties have provided, including inter alia, the following organisations:

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Local Authorities.

Lead authorities acknowledge 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.

Local authorities acknowledge the inclusion of surface water flooding data generated by Scottish Water in preparation of flood risk information.