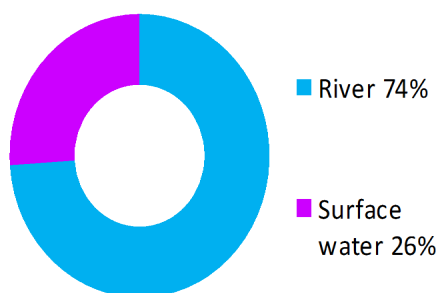


Contin and Garve (Potentially Vulnerable Area 01/15)

| Local Plan District | Local authority | Main catchment |
|---------------------|----------------------|------------------|
| Highland and Argyll | The Highland Council | Cromarty coastal |

Summary of flooding impacts



At risk of flooding

- 30 residential properties
- <10 non-residential properties
- £59,000 Annual Average Damages

(damages by flood source shown left)

Summary of flooding impacts

Summary of objectives to manage flooding

Objectives have been set by SEPA and agreed with flood risk management authorities. These are the aims for managing local flood risk. The objectives have been grouped in three main ways: by reducing risk, avoiding increasing risk or accepting risk by maintaining current levels of management.

Many organisations, such as Scottish Water and energy companies, actively maintain and manage their own assets including their risk from flooding. Where known, these actions are described here. Scottish Natural Heritage and Historic Environment Scotland work with site owners to manage flooding where appropriate at designated environmental and/or cultural heritage sites. These actions are not detailed further in the Flood Risk Management Strategies.

Objectives

Summary of actions to manage flooding

The actions below have been selected to manage flood risk.

| | | | | | |
|---|---------------------------------------|--------------------------|--------------------------------------|---|--------------------------|
| Flood protection scheme/works | <i>Natural flood management works</i> | <i>New flood warning</i> | <i>Community flood action groups</i> | <i>Property level protection scheme</i> | Site protection plans |
| Flood protection study | <i>Natural flood management study</i> | Maintain flood warning | Awareness raising | <i>Surface water plan/study</i> | Emergency plans/response |
| <i>Maintain flood protection scheme</i> | Strategic mapping and modelling | Flood forecasting | Self help | Maintenance | Planning policies |

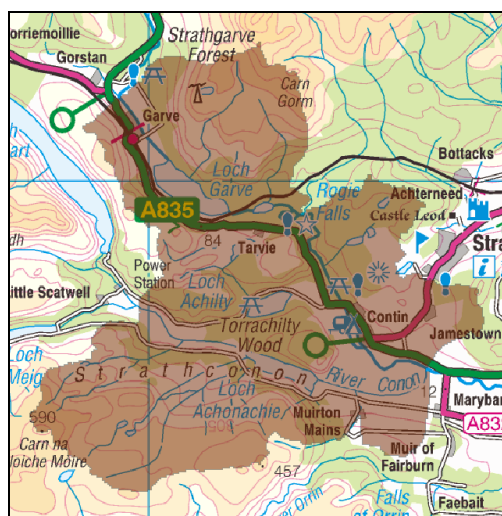
Actions

Contin and Garve (Potentially Vulnerable Area 01/15)

| Local Plan District | Local authority | Main catchment |
|---------------------|----------------------|----------------|
| Highland and Argyll | The Highland Council | River Conon |

Background

This Potentially Vulnerable Area is located to the north west of Inverness. It includes Contin, Garve and the surrounding, mainly rural area (shown below). It is approximately 85km².



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The A834 and A835 pass through the area.

There are approximately 30 residential properties and fewer than 10 non-residential properties at risk of flooding.

The Annual Average Damages are approximately £59,000 with the majority caused by river flooding.

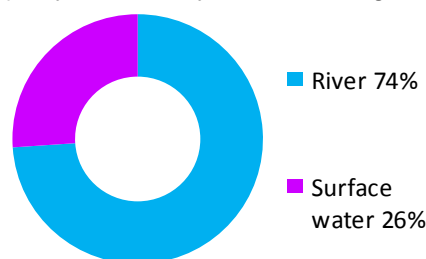


Figure 1: Annual Average Damages by flood source

Summary of flooding impacts

River flood risk is from the Black Water in Contin which affects some residential and non-residential properties in the south of the village. Some properties in Garve and Strath Garve are also at risk from the Black Water.

The risk of flooding to people and property, as well as to community facilities, utilities, the transport network, designated sites and agricultural land is summarised in Table 1.

Strathgarve Primary School has a low likelihood of being flooded by the Black Water. Roads affected by flooding include the A835, which is the major route linking Ullapool with Inverness, and the A834 which links the communities of Strathpeffer with Contin. Several locations along the railway line from Dingwall to the Kyle of Lochalsh are also at risk.

Seven designated cultural heritage sites and small areas of environmental importance are at risk. These include Glen Affric to Strathconon Special Protection Area, Conon Islands Special Area of Conservations and the Lower River Conon Site of Special Scientific Interest.

The damages associated with floods of different likelihood are shown in Figure 2. For this Potentially Vulnerable Area the highest damages are to residential properties followed by damages to roads.

The location of the impacts of flooding is shown in Figure 3.

| | 1 in 10 High likelihood | 1 in 200 Medium likelihood | 1 in 1000 Low likelihood |
|---|--|---|---|
| Residential properties (total 390) | <10 | 30 | 30 |
| Non-residential properties (total 80) | <10 | <10 | <10 |
| People | 20 | 60 | 70 |
| Community facilities | 0 | 0 | <10 Educational buildings |
| Utilities assets | <10 | <10 | <10 |
| Transport links (excluding minor roads) | Roads at 30 locations Rail at <10 locations | Roads at 40 locations Rail at 10 locations | Roads at 40 locations Rail at 10 locations |
| Environmental designated areas (km ²) | 0.1 | 0.1 | 0.1 |
| Designated cultural heritage sites | 6 | 7 | 7 |
| Agricultural land (km ²) | 2 | 4 | 4 |

Table 1: Summary of flooding impacts¹

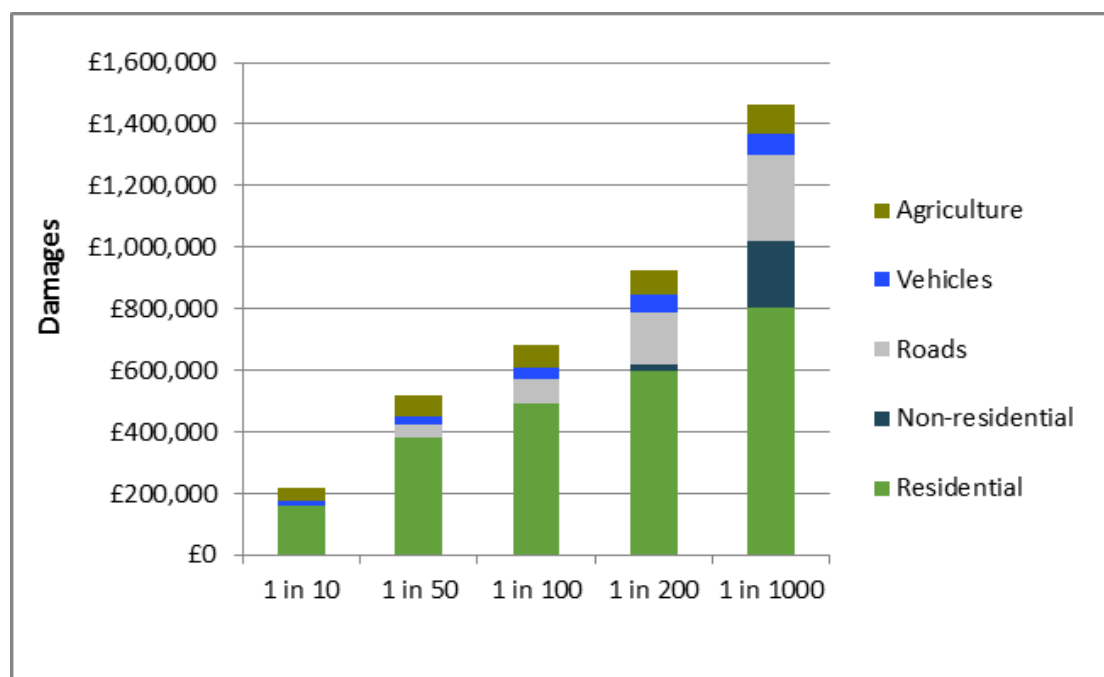


Figure 2: Damages by flood likelihood

¹ Some receptors are counted more than once if flooded from multiple sources

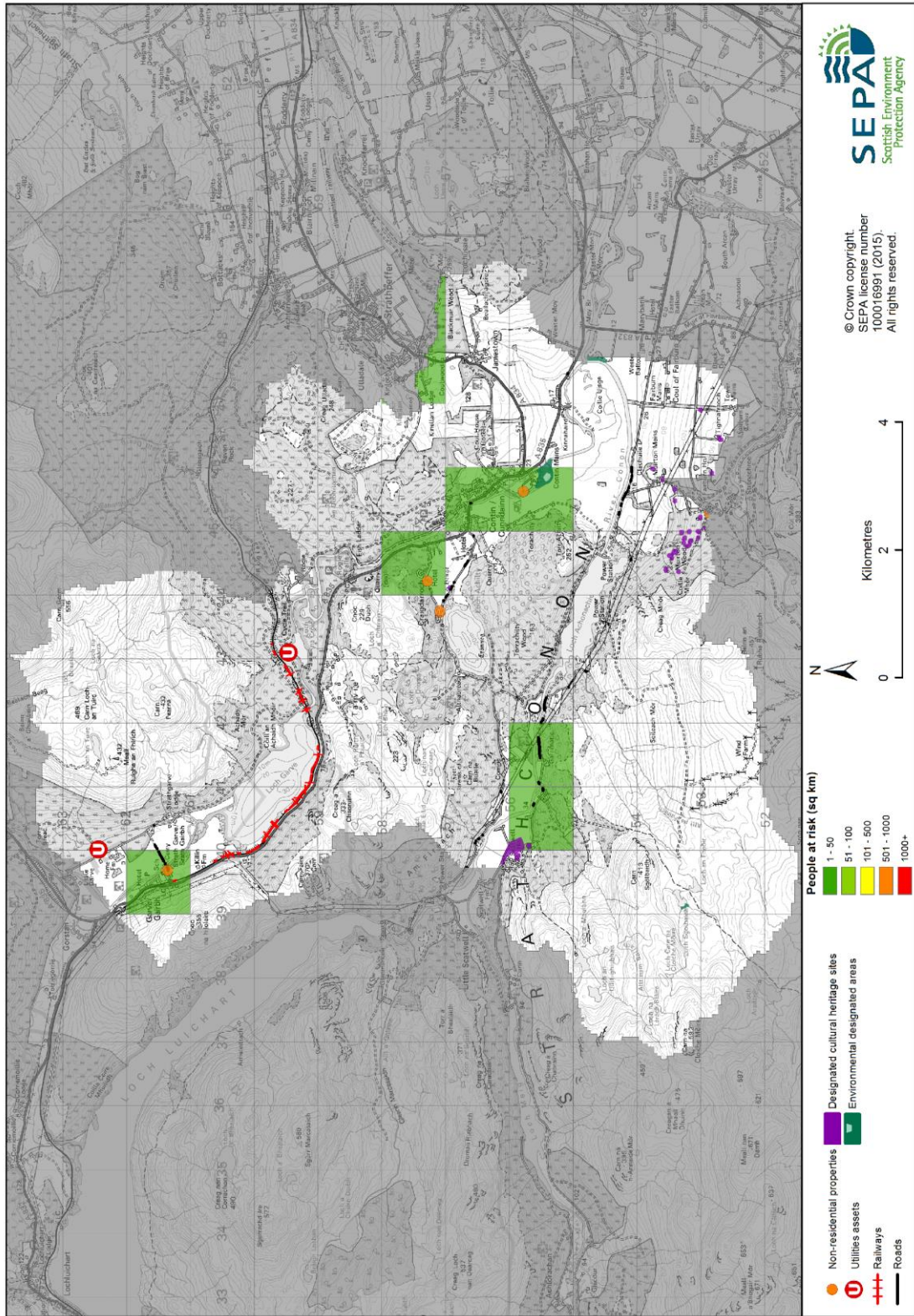


Figure 3: Impacts of flooding

History of flooding

The most recent recorded flood was in 2002. The embankments at Cromie and Scatwell, which protect the valley floor, are recorded to have been breached on numerous occasions including 1849, 1892, 1922, 1928, 1950, 1962, 1966, 1974, 1981 and 1983.

Heavy rain and snowmelt affecting Loch Garve and the Black Water caused flooding in 1888 and 1892. Damage was caused to roads, properties, and fields, as well as washing away the railway line at Loch Garve over a considerable distance. The school was flooded by the Black Water in 1966, 1983 and 1989 which suggests that the likelihood of flooding identified in the flood maps is underestimated.

Objectives to manage flooding in Potentially Vulnerable Area 01/15

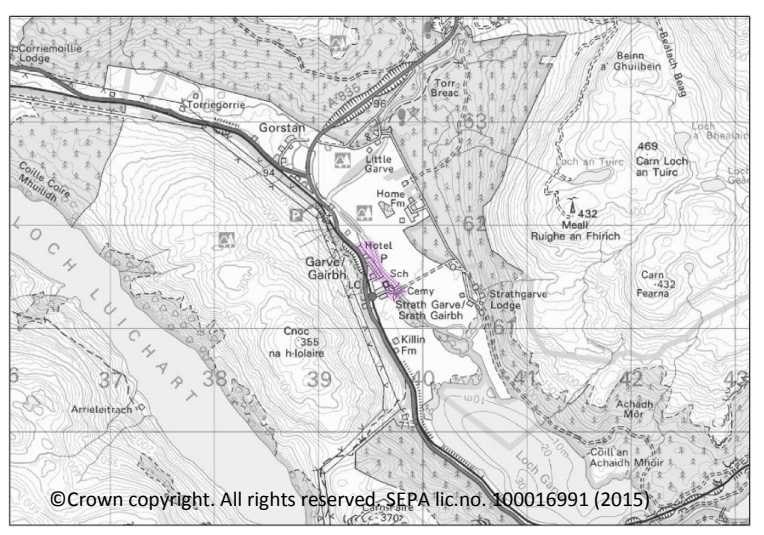
Objectives provide a common goal and shared ambition for managing floods. These objectives have been set by SEPA and agreed with flood risk management authorities following consultation. They were identified through an assessment of the underlying evidence of the causes and impacts of flooding. Target areas have been set to focus actions; they do not necessarily correspond to areas at risk in SEPA’s flood map. The objectives below have been set for Contin and Garve Potentially Vulnerable Area.

Reduce flood risk in Garve from the Black Water

Indicators:

Target area:

- 20 people
- £24,000 Annual Average Damages from residential properties
- 1 educational building



Objective ID: 101501

| Target area | Objective | ID | Indicators within PVA |
|--|---|--------|---|
| Contin and Garve | Reduce the physical or disruption risk related to the transport network for roads | 1302 | <ul style="list-style-type: none"> • 7 locations with a total length of 290m |
| Applies across Highland and Argyll Local Plan District | Avoid an overall increase in flood risk | 100001 | <ul style="list-style-type: none"> • 30 residential properties • £59,000 Annual Average Damages |
| Applies across Highland and Argyll Local Plan District | Reduce overall flood risk | 100002 | <ul style="list-style-type: none"> • 30 residential properties • £59,000 Annual Average Damages |
| Applies across Highland and Argyll Local Plan District | Organisations such as Scottish Water, energy companies and Historic Environment Scotland actively maintain and manage their own assets, including the risk of flooding. These actions are not detailed further in the Flood Risk Management Strategies. | | |

Actions to manage flooding in Potentially Vulnerable Area 01/15

Actions describe where and how flood risk will be managed. These actions have been set by SEPA and agreed with flood risk management authorities following consultation. Selection of actions to deliver the agreed objectives was based on a detailed assessment and comparison of economic, social and environmental criteria. The actions shaded and then described below have been selected as the most appropriate for Contin and Garve Potentially Vulnerable Area.

| Selected actions | | | | | |
|---|---------------------------------------|--------------------------|--------------------------------------|---|--------------------------|
| Flood protection scheme/works | <i>Natural flood management works</i> | <i>New flood warning</i> | <i>Community flood action groups</i> | <i>Property level protection scheme</i> | Site protection plans |
| Flood protection study | <i>Natural flood management study</i> | Maintain flood warning | Awareness raising | <i>Surface water plan/study</i> | Emergency plans/response |
| <i>Maintain flood protection scheme</i> | Strategic mapping and modelling | Flood forecasting | Self help | Maintenance | Planning policies |

| | | | |
|------------------------|---|----------------------|------------------|
| Action (ID): | FLOOD PROTECTION SCHEME/WORKS (1302021) | | |
| Objective (ID): | Reduce the physical or disruption risk related to the transport network for roads (1302) | | |
| Delivery lead: | Transport Scotland | | |
| Status: | Under development | Indicative delivery: | 2016-2021 |
| Description: | Transport Scotland will carry out civil engineering work which will reduce flood risk to identified sections of the A835. | | |

| | | | |
|------------------------|--|-------------------------|------------------|
| Action (ID): | FLOOD PROTECTION STUDY (1015010005) | | |
| Objective (ID): | Reduce flood risk in Garve from the Black Water (101501) | | |
| Delivery lead: | The Highland Council | | |
| Priority: | National: | Within local authority: | |
| | 138 of 168 | 17 of 23 | |
| Status: | Not started | Indicative delivery: | 2022-2027 |
| Description: | A study is required to further investigate the feasibility of a flood protection scheme for Garve, focusing on direct defences, modification of conveyance, and consideration of property level protection for residual risk. Other actions may also be considered to develop the most sustainable range of options. The study should look to confirm the extent and size of defences required and the business case for flood protection works. | | |

| Potential impacts | |
|-----------------------|--|
| Economic: | The study could benefit 11 residential and one non-residential properties at risk of flooding in this location, with potential damages avoided of up to £780,000. |
| Social: | Approximately 24 people may directly benefit from flood protection works. A reduction in flood risk would have a positive benefit to the health and wellbeing of the community and socially vulnerable people. Local roads may also benefit from reduced flood risk. The school is at low risk of flooding but may benefit from any flood protection works. There are potential visual and access impacts for the community, reducing their connection to the watercourse. Negative impacts through disturbance to the local community during the construction phase should be considered. |
| Environmental: | Flood protection studies should consider the positive and negative impacts of proposed actions on the ecological quality of the environment. Opportunities to mitigate any environmental impacts may include design and timing of works. There is potential for impacts on habitats and changes to channel morphology. There are no environmentally designated sites nearby which could be impacted by flood protection works. |

| | | | |
|------------------------|---|----------------------|------------------|
| Action (ID): | STRATEGIC MAPPING AND MODELLING (1000020016) | | |
| Objective (ID): | Reduce overall flood risk (100002) | | |
| Delivery lead: | SEPA | | |
| Status: | Not started | Indicative delivery: | 2016-2021 |
| Description: | SEPA will be seeking to incorporate additional surface water hazard mapping information into the flood maps to improve understanding of flood risk. Approximately 2,100km ² of improved data is currently available within this Local Plan District. | | |

| | | | |
|------------------------|--|----------------------|------------------|
| Action (ID): | STRATEGIC MAPPING AND MODELLING (1000020019) | | |
| Objective (ID): | Reduce overall flood risk (100002) | | |
| Delivery lead: | Scottish Water | | |
| Status: | Not started | Indicative delivery: | 2016-2021 |
| Description: | Scottish Water will carry out an assessment of flood risk within the highest risk sewer catchments to improve knowledge and understanding of surface water flood risk. | | |

| | | | |
|------------------------|--|----------------------|----------------|
| Action (ID): | MAINTAIN FLOOD WARNING (1000020030) | | |
| Objective (ID): | Reduce overall flood risk (100002) | | |
| Delivery lead: | SEPA | | |
| Status: | Existing | Indicative delivery: | Ongoing |
| Description: | Continue to maintain: the 'Contin' and 'Garve' flood warning areas, which warn of flooding to properties and roads, the 'Moy Bridge' flood warning area, which warns of potential flooding to the A832; and the 'Scatwell' flood warning area, which warns of flooding to low lying agricultural land. All four are part of the Conon Valley flood warning scheme. | | |

| | | | |
|------------------------|--|----------------------|----------------|
| Action (ID): | FLOOD FORECASTING (1000020009) | | |
| Objective (ID): | Reduce overall flood risk (100002) | | |
| Delivery lead: | SEPA | | |
| Status: | Existing | Indicative delivery: | Ongoing |
| Description: | 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. The service also provides information which allows SEPA to issue flood warnings, giving people a better chance of reducing the impact of flooding on their home or business. For more information please visit SEPA's website. The Potentially Vulnerable Area is within the 'Easter Ross and Great Glen' flood alert area. | | |

| | | | |
|------------------------|---|----------------------|----------------|
| Action (ID): | SELF HELP (1000020011) | | |
| Objective (ID): | Reduce overall flood risk (100002) | | |
| Delivery lead: | — | | |
| Status: | Existing | Indicative delivery: | Ongoing |
| Description: | 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 flooding happen. 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. | | |

| | | | |
|------------------------|--|----------------------|----------------|
| Action (ID): | AWARENESS RAISING (1000020013) | | |
| Objective (ID): | Reduce overall flood risk (100002) | | |
| Delivery lead: | Responsible authorities | | |
| Status: | Existing | Indicative delivery: | Ongoing |
| Description: | <p>SEPA and the responsible authorities have a duty to raise public awareness of flood risk. Improved awareness of flood risk and actions that prepare individuals, homes and businesses for flooding can reduce the overall impact.</p> <p>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. Local authorities will be undertaking additional awareness raising activities. Further details will be set out in the Local FRM Plan.</p> | | |

| | | | |
|------------------------|--|----------------------|----------------|
| Action (ID): | MAINTENANCE (1000020007) | | |
| Objective (ID): | Reduce overall flood risk (100002) | | |
| Delivery lead: | The Highland Council, asset / land managers | | |
| Status: | Existing | Indicative delivery: | Ongoing |
| Description: | <p>Local authorities have a duty to assess watercourses and carry out clearance and repair works where such works would substantially reduce flood risk. They produce schedules of clearance and repair works and make these available for public inspection. Scottish Water undertake inspection 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.</p> | | |

| | | | |
|------------------------|---|----------------------|------------------|
| Action (ID): | SITE PROTECTION PLANS (1015010015) | | |
| Objective (ID): | Reduce flood risk in Garve from the Black Water (101501) | | |
| Delivery lead: | The Highland Council | | |
| Status: | Not started | Indicative delivery: | 2016-2021 |
| Description: | <p>Site protection plans are developed to identify whether normal operation of a facility can be maintained during a flood. This may be due to existing protection or resilience of the facility or the network. A site protection plan for the school should be developed.</p> | | |

| | | | |
|------------------------|---|----------------------|----------------|
| Action (ID): | EMERGENCY PLANS/RESPONSE (1000020014) | | |
| Objective (ID): | Reduce overall flood risk (100002) | | |
| Delivery lead: | Category 1 and 2 Responders | | |
| Status: | Existing | Indicative delivery: | Ongoing |
| Description: | <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> | | |

| | | | |
|------------------------|---|----------------------|----------------|
| Action (ID): | PLANNING POLICIES (1000010001) | | |
| Objective (ID): | Avoid an overall increase in flood risk (100001) Reduce overall flood risk (100002) | | |
| Delivery lead: | Planning authority | | |
| Status: | Existing | Indicative delivery: | Ongoing |
| Description: | <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, new development in areas with medium to high likelihood of flooding should be avoided. For further information on the application of national planning policies see Annex 2.</p> | | |